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## Introduction

The global demographic of an ageing population has created a strong need to support the health needs of older people. As it is estimated by WHO (2025), by 2050, most of the elderly population will be in the low- and middle-income countries, accounting to 80%. This, therefore, means that the need to come up and implement effective resource-saving health-care strategies among the elderly is gaining momentum. In the United Kingdom, the elderly population who receive state care is on the rise, thus creating immense pressure on the health-care facility to ensure that the elderly citizens get decent care (Newstatesman, 2023).

**Methods:** Scoping review, three articles reviewed, thematic analysis. Digital health technologies such as telehealth, mobile health apps, wearables, and remote monitoring systems are already a lean pathway of addressing these needs through health surveillance, self-management, and care access, which is why they upgrade the independence of older adults to offer autonomy in their care. According to the Gov.uk 2022, the UK government formally identifies the role of digital technologies as one of the key approaches to meeting the healthcare needs of ageing population in the context of chronic diseases management.

**Results:** These articles were reviewed; there are several important challenges hindering the adaptation of digital health solutions to the UK healthcare context. The major ones are IT illiteracy-related issues, privacy concerns, and smooth communication with already existing healthcare systems. In most cases, older people (more than the age of 75) face various challenges during the process of adopting innovative technologies. Besides, security and confidentiality of personal health information are critical issues which act as a significant obstacle to the universal use. Therefore; the discrepancies present in the integration of digital health platforms when used in clinical practice and electronic health records remain.

**Conclusion:** The current research analyses the impact of digital health technologies on older adult care and autonomy, focusing on the advantages, difficulties, and approaches to reducing them adopted by the UK healthcare industry.

## 1.2 Aim and Objectives

The research aims to:

- To understand the importance of digital health systems in the care and autonomy of older adults.
- To review the issues faced by the UK-based healthcare sector during the implementation of digital health systems in the care and autonomy of older adults using scoping review.
- To evaluate strategic approaches used by the UK-based healthcare sector to resolve the issues.
- To recommend future trends of digital health systems in the care and autonomy of older adults.

### **1.3 Research question**

How does the digital health systems impact the care and autonomy of older adults?

## **2. Background**

There has been a growing interest in the role of digital health systems in clinical practice. This is due to the possibility of resolving healthcare service challenges that are relevant in the care of older adults.

The ageing population in the United Kingdom is characterised by a demographic shift. It puts an even greater burden on the health-care system, which now urgently needs to incorporate digital technologies, such as electronic health records, telemedicine, and health-monitoring devices (Lim, W. et al. (2017). The UK government has been keen on adopting digital health through diverse programmes and policy tools, including the NHS Long Term plan. The aim is to integrate technology in the process of health-care delivery to improve patient outcomes and relieve system pressure (Gavin et al., 2024).

Other policy mechanisms and frameworks have been developed to steer the implementation of digital health solutions. As an example, the Digital Health and Social Care Plan (UK Government, 2020) provide a vision of the desired transformation in healthcare regarding its accessibility through digital means (Al, 2022). However, the translation of digital health systems into the care of elderly patients has faced significant challenges, such as failure in digital literacy, unequal access, and concerns regarding the privacy of data. These obstacles reduce the spread of these technologies. For this reason, the ability of the technologies to enhance the self-sufficiency and the quality of the services offered to older adults.

### **3.Methods of Data Collection and Data Analysis**

Scoping review is a form of knowledge used to systematically map the already available literature or information (Tricco *et al.*, 2016). This study will use a qualitative research design, which aims to investigate the available literature about the impact of digital health systems on the care and autonomy of older adults. The research intends to offer a general review of the subject area, the gaps in the knowledge and to present opinions on the threats and opportunities related to the incorporation of digital health technologies in aged care.

#### **3.1 Research Philosophy and Strategy**

The research methodology is interpretivism, which is like the constructivist perspective that reality is social and subjective. Such a view helps interpret the experiences and opinions of people involved into the work of digital health systems, such as healthcare providers, and older adults, in a more nuanced and subtle manner. It is especially appropriate to examine the intricate relationships in digital health during care of elderly individuals, where personal attitudes, experiences, and perceptions form a particularly important part of discovering the benefits and barriers to adopting these technologies.

The study utilises inductive approach where the results of the research are based on the systematic review of the available literature instead of being based on formulated hypotheses. The percept is to produce new knowledge about the adoption and implementation of digital health technology and in the healthcare context of the United Kingdom, in particular. Focusing on qualitative data, it will be possible to create a more thorough understanding of lived experiences of elderly people and medical workers, who use these technologies by the end of the study.

#### **3.2 Research Design**

##### **3.2.1 Method and Secondary Data Collection**

The research design used in this study is a single-method research design and therefore the research focuses on using qualitative data only, and this concentration is on the experiences and insights that were generated by existing literature. Given the exploratory nature of the research, a qualitative data will provide a detailed insight into the main problems, complications, and benefits related to digital health interventions. The methodology is

consistent with the general purpose of explaining a complicated social phenomenon related to the technology adoption and its implication on older adults.

The main source of the required information was secondary data sources, namely, peer-reviewed articles, reports, and academic literature released over the past ten years. The choice of the sources was also informed by their relevance to the research questions, the UK healthcare scenario, and the focus on both primary and secondary data. The use of secondary data was appropriate and allowed the examination of the existing scholarship by synthesising it without any direct connexion with the participants. In addition to that, this method allowed uniting a broad range of views and discoveries into the analysis.

### **3.2.2 Data Collection Process**

The searching of the electronic bibliographic databases such as PubMed, Scopus, or Google Scholar enabled access of the secondary data relevant to the current study due to the comprehensive search. The parameters applied to the acquisition included a key word synthesis of digital health systems, aged care, older adults, autonomy, health monitoring, and UK healthcare sector to be able to access literature that reviewed implementation and effectiveness of digital health technologies in geriatric care set ups. All the studies were required to be published in the last ten years, clearly consider the subjects of digital health interventions in relation to aged care systems, and focus on their impacts on autonomy, self-management, and holistic care outcomes to be included, and the studies had to be peer-reviewed to guarantee methodological rigour and validity. Five critical studies were added to the synthesis after undergoing intensive screening.

### **3.3 Data Analysis**

The thematic analysis technique, which is a qualitative approach, was used to analyse the data collected with this study to identify, analyse, and report patterns or themes in the data. The process of analysis occurred in several steps in the first stage the researcher oriented himself or herself with the data by reading the chosen studies carefully to be able to contextualize them in their respective contexts as well as understand their discoveries. After that, the initial coding was conducted through marking the important pieces of data connected to the research question directly, including such aspects as digital illiteracy, privacy concerns, and autonomy. These sets of code were then further grouped into larger thematic areas such as the adoption of digital health technologies, barriers to adoption, effect on autonomy, and overcome barriers and in this manner a wider conceptualisation has been achieved. Each of the themes was then put

through a strict review. Also, it helps to refine exercise to accomplish internal consistency and external validity. The themes were synthesised into a logical story that answered the general research question and shed light on the key issues, advantages, and strategic measures that were relevant to the digital health systems in the aged care sector in the United Kingdom.

### **3.4 Time Horizon**

The research uses a cross-sectional time model, therefore focusing on a particular time point of the literature available. Such methodology is in line with the aims of a scoping review, which aims at summarising and synthesising the available state of knowledge and not tracing the changes over time.

### **3.5 Ethical Considerations**

In this research secondary data is used; the main ethical issues are related to research integrity. The chosen articles were peer-reviewed and, therefore, their compliance to ethical norms in data analysis and collection. Also, the researchers included in this review used informed consent and ethical guidelines in the process of gathering the data of the participants.

## **4.Results**

Three relevant studies were included in this scoping review, and thematic analysis was conducted to outline the meaningful patterns and trends regarding how digital health systems affect the care and autonomy of older adults. The series of main findings produced under the thematic analysis is summarised below. The studies were identified based on the relevancy to the research question, as well as the exploration of both primary and secondary data to the issues, opportunities, and introduction of digital health technologies in the context of aged healthcare.

The table below summarises the main findings and relevant themes that were acquired based on each of the chosen studies. These themes provide information about the dominant position of digital health adoption, factors hindering its implementation, the effect on autonomy and tactics used to overcome the obstacles in the healthcare sector in the UK.

**Table 1: Key Findings from the Selected Studies**

### **IIRS – Selected Studies Extracted Data Sheet**

Name of student: NTOMBIZODWA NDLOVU

Topic/review question: The impact of digital health systems in the care of older adults

|   | Article citation        | Aim of study                                                                              | Method, sample size, and characteristics                                                                                                      | Summary of main findings                                                                                                                |
|---|-------------------------|-------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Zuo, Z. et al. (2021)   | To identify other views into many ways of human life with recent advances in health care. | Researchers used Google Scholar, Web of Science, Elsevier Scopus, and PubMed to access academic studies published in English up to June 2020. | Ethical issues such as privacy and autonomy are highlighted because older adults can have their dignity compromised by digital systems. |
| 2 | Farre, A. et al. (2023) | Exploring the use of digital technology to                                                | 6 bibliographic databases were looked at in the                                                                                               | The digital health systems should be                                                                                                    |

|          |                                          |                                                                                                                                                                                      |                                                                                                                                                                                                      |                                                                                               |
|----------|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
|          |                                          | deliver healthcare services with explicit consideration of health inequalities in UK settings:                                                                                       | National Health Service (NHS) websites of each UK nation (England, Scotland, Wales, Northern Ireland). Restrictions were applied on publication date (2013–2021) and publication language (English). | personalised to keep the older adults active and capable of using the technology effectively. |
| <b>3</b> | Alex Garner <sup>1</sup> , et al. (2024) | The study aimed to assess whether introducing a digital technology, such as Health Call, in care homes could reduce unplanned secondary care contacts and the related costs for care | The study involved 118 care homes across the Northeast of UK from 2018 to 2021. Routinely collected NHS secondary care data from County Durham and Darlington NHS Foundation Trust uses the          | The review that the cost reduction of £57 per resident in 2018, increasing to £113 in 2021.   |

|  |  |                 |                                |  |
|--|--|-----------------|--------------------------------|--|
|  |  | home residents. | data from the Health Call app. |  |
|--|--|-----------------|--------------------------------|--|

#### 4. Themes

**4.1: Privacy, data protection, and trust:** Zuo et al. (2021), focus on unidentifiable personal information in extensive health care then concluded that anonymization is possible in theory, but more practical work is needed to balance privacy with usability. That privacy concern also connects with digital health implementation more broadly in the other two papers

**Digital inclusion and health inequalities:** Farre et al. make health inequalities the central lens, arguing that UK digital health evidence is underdeveloped and that interventions may either reduce or worsen inequalities depending on how they are implemented. This links with Garner et al, (2024), where the technology must work in a real care-home setting for residents to benefit.

**Implementation and usability barriers:** Across the papers, a recurring issue is that digital health tools fail automatically just because they exist. Farre et al. note that barriers remain and that the evidence base has often been driven by system needs rather than service-user needs, while Zuo et al. (2021), stress the need to preserve usability alongside privacy.

**Potential benefit for care quality and cost reduction:** Garner et al. (2024), show the strongest service-delivery theme, suggesting that digital technologies used in care homes could reduce unplanned secondary care use and associated costs. Farre et al. (2023) also frame digital technology as potentially helpful, but only when barriers and inequality risks are addressed

#### 4.2 Barriers to Implementation

Another theme that comes out clearly in the literature is the barriers to the adoption of digital health technologies. Such obstacles include both technical and socio-cultural factors, digital illiteracy, and ethical concerns.

According to Hepburn, Williams, and McCann (2025), digital health systems have ethical implications on older adults. They also said that these systems can diminish the dignity of the elderly because of limiting their autonomy. Many older people expressed their concerns about the loss of privacy, the loss of personal contact in medical appointments, and the possibility that such systems would bring their dependence on external help.

Although these effects are consistent with these findings, Alex Garner<sup>1</sup>, et al. (2024) have found out that even when digital health systems were adopted in a broader way during the pandemic, many older adults still felt that the use of the digital health system was making them feel disconnected with the healthcare providers. A lack of face-to-face communication and the inability to cope with technology disseminated a sense of powerlessness and anger.

Moreover, Farre, A. et al. (2023) reported that the lack of infrastructures inequalities, including low connection rates, poor internet coverage, and limited distribution of digital devices in specific areas, rural areas create other significant barriers to successful implementation.

#### **4.3 Impact on Autonomy**

The autonomy influence was an imperative theme that appeared in several studies. Digital health systems have been considered as a way of empowering older people to oversee their health conditions and to participate in decision-making process involving their health care.

Loo et al. (2025) discussed about the erosion of the autonomy of older adults by digital systems which are convenient in nature. They emphasized that the technology usually needed the support of the care givers, which might reduce the self-sufficiency of the older adults. More so, the risk of breaching privacy in the personal health information can make older adults less inclined to use digital health tools.

Another issue of digital health technologies discussed by Felber et al. (2023) is the possibility of promoting autonomy by providing more convenient care alternative options. Wearable devices and other remote health monitoring devices enable older adults to monitor their health by themselves, and this may result into improved health

conditions and control of their health. This can however only be made possible in case the systems have been made friendly and inclusive.

#### **4.4 Strategies to Overcome Barriers**

The issue of ways to break the barriers appeared in several studies. Though it is obvious that there are barriers to adopting digital health technologies, there are numerous healthcare providers and policymakers that strive to solve these changes with the help of strategic solutions.

Loo et al. (2025) pointed out the significance of digital health system personalization. They claimed that to address the older adults effectively, digital health systems should be modified to address the needs, preferences, and limitations of the older adults. Such an adaptation may include giving out easier interfaces, training, and making the systems easy to use and understand.

Frishammar et al. (2023), mentioned that the fact that digital health tools can only be successfully integrated into the existing healthcare systems. The combination of digital health technologies and electronic health records (EHR) with other clinical workflows would facilitate the provision of healthcare and simplify the implementation of the technologies by healthcare providers in their practice.

The healthcare systems also can allocate money to the training of both older adults and healthcare providers. This would fill the digital literacy gap and make all users feel at ease and assured to use the digital health systems.

### **5. Discussion**

Themes found in the results of the scoping review outline not only the potential benefits of the implementation of digital health systems into the treatment and independence of the elderly but also potential significant challenges. Although incorporation of digital tools in the healthcare sector is a perspective-taking approach to the control of the mushrooming pressure on the aged care authority, the obstacles highlighted by the chosen studies highlight the complexity of the change.

The theme of Digital Health Technologies should be listed among the most critical areas of adoption. The use of digital health technology has been accelerated due to the COVID-19 pandemic, but Borges et al., (2023) and Felber et al., (2023) argue that

older people who are older than 75 still face barriers to the use of digital tools. The inability to use digital health systems by many older adults is limited by a widespread lack of familiarity with technology. As stressed by Hepburn, Williams and McCann (2025), such technologies need to be supported by the unique needs of older adults, which implies that the digital health tools should be personalised to ensure the ease of adoption by simply making them more convenient and simpler to use distribution.

Implementation Barriers also make the adoption even harder. Hepburn, Williams and McCann (2025) also focus on ethical issues, namely, privacy problems and loss of dignity that can be the result of making older adults dependent on digital health systems. These issues are common in society as people worry about their confidence in online technologies and the protection of personal health information. Even the lack of infrastructure, as well as being digital illiterate, are also quite a hindrance as additional barriers particularly in those individuals that live in rural settings or who have limited access to technology. To overcome these barriers, it is crucial as Borges et al., (2023) and Frishammar et al., (2023) indicate that it is necessary to guarantee the strong digital infrastructure and offer various target training to older adults.

The consequence on freedom of choice came into the limelight. The digital health tools have the potential to increase autonomy through allowing older adults to self-monitor their health and self-treat chronic illness. However, Loo et al., (2025) also hint at the fact that the use of digital systems can foster the increased level of dependence on caregivers, which is likely to occur when the technologies become tricky to use. It means that digital health systems have a potential to strengthen the autonomy, but they should be developed in a way that ensures that independence of older adults would be used as a strength instead of cognitive load.

The plans that were found in the research give a list of viable ways in breaking the obstacles. Improved integration with the current healthcare systems, personalisation and better digital literacy programmes by patients and providers are considered crucial in making the digital health systems in aged care successful. All these strategies, as Felber et al., (2023) and Frishammar et al., (2023) argue, will give health systems in a better position to utilize digital tools to a better extent, and older adults will be able to receive more care and enjoy a more high degree of autonomy.

## **6.1 Recommendations**

### **6.1.1 Improve Digital Literacy**

It is also advisable that the older adults should receive organized training programs to improve digital literacy (Quialheiro et al., 2023). Such efforts are supposed to revolve around teaching the basics of technology, and therefore make older adults feel comfortable and confident when using digital health tools. The effective implementation of these programs will empower the older adults to be able to use these technologies.

### **6.1.2 Address Privacy and Ethical Concerns**

The need to improve privacy measures towards the protection of health information of the elderly is clear. Healthcare facilities should ensure that their online health platforms comply with stringent data protection laws and are focused on openness related to data usage and controls (Di et al., 2023). Open communication on privacy protection will breed trust and, hence, increase the likelihood of older adults to use digital health solutions (Kasoju et al., 2023).

### **6.1.3 Personalize Digital Health Systems**

The digital health products are to be designed in a way to respond to the discrete needs of the older population with consideration of the variables of cognitive ability and physical limits (Jimenez et al., 2023). Such technologies will not only be practical but also affordable and-friendly with the help of customization. Systems serving personal needs will also help in increasing interest and alleviating health.

## **Conclusion**

The digitisation of health systems in the treatment of the elderly has significant possibilities and difficulties. This scoping review highlights the opportunities of digital tools to support and improve health monitoring, patient autonomy, and simplify the delivery of healthcare to older adults. Digital health technology has been found to improve the clinical outcomes of older adults, in addition to the management of chronic conditions and self-care promotion. Use of telehealth platforms, mobile applications, and wearable devices have significant positive sides, including better access to services in healthcare, better monitoring opportunities, and reduced dependency on face-to-face meetings.

However, the effective adoption of these technologies depends on overcoming the barriers associated with digital illiteracy and ethical issues surrounding privacy, as well as the smooth adoption of these tools by the pre-existing clinical processes. These barriers are also critical factors that must be resolved to see digital health systems reach their full potential in enhancing care and autonomy of older adults.

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