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LIST OF ABBREVIATION

SN	Abbreviation	Full form
1.	BMJ	British Medical Journal
2.	CASP	Critical Appraisal Skills Programme
3.	DOAJ	Directory of Open Access Journals
4.	eHealth	Electronic Health
5.	ESRC	Economic and Social Research Council
6.	GP	General Practitioner
7.	JMIR	Journal of Medical Internet Research
8.	NHS	National Health Service
9.	NIHR	National Institute for Health and Care Research
10.	PMC	PubMed Central
11.	PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
12.	SN	Serial Number
13.	UK	United Kingdom
14.	UWTSD	University of Wales Trinity Saint David

1. Introduction

The health and social care sector in the UK has been undergoing a major digital transformation, including online appointment booking and electronic prescriptions, virtual consultations, patient portals, remote monitoring, and the NHS App. These features are becoming increasingly prevalent. These technologies can enhance patient convenience, efficiency and options (Department for Science, Innovation and Technology, 2025). However, relying on digital services can also lead to inequalities for those who lack suitable devices, access, confidence, or skills to use them (Department for Science, Innovation and Technology, 2025). NHS England therefore underlines inclusive digitisation and ongoing provision of non-digital alternative routes to ensure that those who cannot access digital services are not denied access (NHS England, 2023).

Digital exclusion is an intricate phenomenon that relates to access to devices and connectivity, digital skills, confidence, motivation, and the affordability and effectiveness of using digital services. Access, skills, and motivation were important dimensions identified by Ge et al. (2025) that may impact older people's participation and wellbeing. NHS England classifies older adults, especially those aged 75 years or older, and socially disadvantaged people, with disabilities, language barriers, and those with poor broadband or mobile coverage, as being at increased risk (Ge et al., 2025; NHS England, 2023).

Older people are relevant as they are more likely to need health and social care and may have long-term conditions, be disabled and need community and social care. Given the growing digitisation of services, older people with poor access to technology or digital skills might face further barriers to accessing services (NHS England, 2023).

Digital technology has a varied, mixed impact on the health care access of older people. Digital technologies can enhance communication, deliver health information and minimise travel. However, Kunonga et al. (2021) found both advantages and disadvantages in their umbrella review of digital technologies and older people's access to health and social care. Digitalisation is thus not necessarily equitable for all older people (Kunonga et al., 2021).

Digital literacy is also crucial. Oh et al. (2021) demonstrated that eHealth literacy involves information and data literacy, communication, safety, and problem-solving. In contrast, Jiang et al. (2024) found disparities in eHealth literacy among older adults, such as those aged 80 years and above or those living alone. This means that for meaningful access to digital healthcare, people must also be able to access the Internet or own a device (Oh et al., 2021; Jiang et al., 2024).

2. Prevalence

The digital divide is still a significant issue in the UK today, even though there has been a lot of digitalisation. NHS England believes around 7% of households in the UK do not have access to the internet in their homes, and around 10% of adults in the UK do not have foundation-level digital skills. Digital exclusion is especially prevalent among those aged 75 years and over, and their ability to use digital health services is not necessarily due to their availability; availability does not equate to access (NHS England, 2023).

These issues disproportionately affect older people; for example, approximately 2.7 million older adults (aged 65+) have low or no internet use (Age UK, 2023), and adults aged 75+ are the least likely to use online services (Ofcom, 2023).

Digital exclusion cannot be attributed to age. Kung and Steptoe (2023) compared 6,840 older adults (50 years old and older) and found that being online was linked to Age, Education, Income, Deprivation, Loneliness, and Relationship status. This shows that social and socioeconomic conditions are also important contributors to digital participation (Kung & Steptoe, 2023).

Digital literacy can further contribute to inequalities. Oh et al. (2021) found diversity in digital literacy, and Jiang et al. (2024) discovered differences in eHealth literacy. Therefore, older adults do not automatically have access to reliable health information on a smartphone or the internet, and are unable to complete forms or model health systems online (Oh et al., 2021; Jiang et al., 2024).

In the study conducted by Greenhalgh et al. (2022) in 11 UK general practices, primary care rapidly moved to remote provision, although there was a variation between practices. It was found that the ability to access digital services needs to be taken into account, and that digital services alone do not ensure equitable access to services (Greenhalgh et al., 2022).

Other barriers may arise from frailty, ethnicity and language. Shorthouse et al. (2024) reported that older adults in England and Wales were at greater risk of being digitally excluded when using video consultations. However, this risk could be mitigated with the support of social networks. Moreover, Ahmed et al. (2024) identified digital skills and language barriers among older South Asian, Black African and Caribbean adults and reported that no one was aware of their presence. Face-to-face appointments and alternative healthcare options were also highlighted as important by the participants (Shorthouse et al., 2024; Ahmed et al., 2024).

Digital exclusion is also relevant to social care. Watson et al. (2024) conducted a review of 44 empirical studies of individuals with dementia and unpaid carers, identifying barriers to using technology, such as lack of technology literacy, cost of equipment, limited internet access, and reliance on carers. The findings indicate that there may be potential for using digital and non-digital strategies together to enable equitable access to health and social care (Watson et al., 2024).

3. Rationale for the Study

Digitalisation, especially in health and social care in the UK, is ongoing, and evidence shows that older people continue to experience digital inequalities, so a systematic review is warranted. Some barriers are digital skills, confidence, affordability, disability, language, frailty, connectivity and social support (NHS England, 2023; Ge et al., 2025).

There have been previous reviews which have addressed specific aspects. Ge et al. (2025) looked at older people and digital inclusion, Kunonga et al. (2021) looked at digital technologies and older people and access to health and social care, Watson et al. (2024) looked at the digital experience of people with dementia and their unpaid carers, and Wale et al. (2025) looked at interventions to address digital exclusion in social care. However, these reviews do not focus specifically on the relationship between digital exclusion and access to health and social care services for the adult population aged 65+ years in the UK (Ge et al., 2025; Kunonga et al., 2021; Watson et al., 2024; Wale et al., 2025).

A UK-specific review is necessary, as it is in a unique NHS, organisational, and policy environment. Senior citizens may have various routes through primary care, community health, adult social care, domiciliary care and care assessments. So, evidence from other countries may not be directly applicable in the context of the UK (NHS England, 2023).

4. Aim, Objective and Research Question

Aim

To systematically examine the evidence on the effects of digital exclusion on older people's access to health and social care services in the United Kingdom.

Objectives

1. To identify the main reasons why older people in the UK are excluded from digital opportunities.
2. To find out the impact of digital exclusion on older people's access to health and social care services.
3. To investigate the link between digital exclusion and health inequalities for older people.
4. To investigate possible ways to improve the level of digital inclusion and access to health and social services.

Research Question

How does digital exclusion affect older people's access to health care and social care services in the United Kingdom?

5. Research Methodology

- **Research Design:**

This research will adopt a secondary research design and a systematic literature review will be carried out.

The review will use PRISMA 2020 as the reporting framework for the review. PRISMA 2020 offers guidance for the transparent reporting of systematic reviews, including the use of a systematic review checklist and flow diagram.

- **Search Strategy**

The search strategy will be based on the following:

Digital exclusion

- Digital exclusion OR digital divide OR digital inclusion

Older adults

- older adult OR older people OR elderly OR ageing OR older patient OR senior citizen

Health and social care

- healthcare OR health care OR health service OR primary care OR general practice OR general practitioner OR GP OR remote consultation OR telehealth OR telemedicine OR social care OR adult social care OR community care OR home care OR domiciliary care OR care assessment

UK

- The term "United Kingdom" or UK or England or Scotland or Wales

- **Study Selection**

The results of the search will be transferred to reference-management software and similar records will be excluded. Titles and abstracts will first be reviewed against the predetermined eligibility criteria. The relevant studies will then be fully text assessed.

The study-selection process will be described in a PRISMA 2020 flow diagram, including:

- ✓ Records identified;
- ✓ Duplicate records removed;
- ✓ Records screened;
- ✓ Records excluded;
- ✓ Full-text articles assessed;
- ✓ All types of articles, excluding full text, but for which justifications have been provided;

The studies in the final review will be studies.

- **Databases to be used:**

- ✓ PubMed
- ✓ Google Scholar
- ✓ PMC
- ✓ DOAJ

- ✓ UWTSD Library

- **Inclusion and exclusion criteria**

- i. **Inclusion Criteria**

Studies will be included if they:

- ✓ Are written in peer-reviewed journals;
- ✓ Are written in English;
- ✓ Were published from 2021 to 2026, as a result of the fast digital transformation, to collect up-to-date evidence;
- ✓ Emphasise adults 60 years of age or older;
- ✓ Look at digital exclusion, digital access or digital inequalities;
- ✓ To explore access to health or social care services in the UK.

- ii. **Exclusion Criteria**

Studies will not be included in the study if:

- ✓ Are carried out outside the UK;
- ✓ Work solely with young people;
- ✓ Include conference abstracts, editorials, opinion articles, dissertations, or non-peer reviewed publications;
- ✓ Are duplicate publications.

- **Number of articles that will be selected – 10**

- **Data Extraction**

Data will be extracted from a standardised data-extraction table developed for this review.

The following information will be recorded:

- ✓ Author and publication year;
- ✓ Nation/geographical location of the United Kingdom of Great Britain and Northern Ireland (UK);
- ✓ Study design;
- ✓ Study setting;
- ✓ Participant characteristics;
- ✓ Participant age;
- ✓ Sample size;

A health or social care service that has been inspected;

- ✓ Measurement or description of digital exclusion;
- ✓ Dimension(s) of digital inclusion; and
- ✓ Restrictions on access to digital materials;
- ✓ Type of support provided;
- ✓ Indicators of access;

- ✓ Reported inequalities;
- ✓ Key findings;
- ✓ Methodological limitations;
- ✓ Recommendations and implications.

❖ **Critical Appraisal**

Each included study will be evaluated for methodological quality using a pre-specified, design-appropriate critical appraisal tool.

The planned approach is to:

SN	Study Design	Critical appraisal approach
1.	Qualitative studies	CASP Qualitative Studies Checklist
2.	Cohort studies	CASP Cohort Study Checklist
3.	Case-control studies	CASP Case Control Study Checklist
4.	Randomised controlled trials	CASP Randomised Controlled Trial Checklist

❖ **Data analysis and synthesis**

The review will be structured and implement a narrative synthesis with [thematic analysis](#).

Stage 1: Preliminary framework: In this first stage, the data will be read in depth, which will allow for determining a structure to capture digital exclusion. For example, dimension of operations are access, ability, engagement, support and accessibility.

Stage 2: Coding: The following information from each study will be coded into consistent ideas related to: Barriers, Access, Experiences, Inequalities, Support, Interventions.

Stage 3: Develop descriptive themes

Related codes will compile the descriptive themes. Anticipated themes include:

1. Access to devices, internet and connectivity;
2. Affordability and socio-economic disadvantage;
3. Skills and digital literacy/digital health literacy; and
4. Self-assurance, enthusiasm and faith;
5. Physical, cognitive and sensory access;
6. Language and cultural barriers;
7. Family, carer and community support;
8. Access to primary care, remote consultations;
9. Access to adult social care and community services;
10. Digital facilitation and professional help;
11. Alternatives to digital – hybrids;
12. Wider inequalities.

Final themes will be data-driven and will be changed if more or different patterns are found in the evidence.

Stage 4: Compare across contexts of service

Comparisons will be made between the themes of healthcare and social care, and differences and similarities will be drawn.

Stage 5: Examination of inequalities

The synthesis will attempt to determine if there are differences in the findings based on: Age, Socioeconomic circumstances, Disability, Ethnicity, Language, Living arrangements, Social isolation.

Stage 6: Potential Solutions Synthesised

Evidence around digital facilitation, digital champions, community support, support from families or carers, accessible design, training, provision of technology or connectivity, hybrid services and other non-digital pathways to care will be brought together in their own category.

Stage 7: Interpretation

The methodological quality is assessed during stage 7 of interpretation.

The final synthesis will differentiate between Evidence of barriers, Evidence of associations, Reported experiences, Some evidence of interventions or support and Implications: implied by literature.

The review will not presume that digital exclusion leads to a decrease in access unless there is evidence and study design that supports such a conclusion.

❖ Ethical Considerations

Prior to the start of the study ethical approval will be taken from the University of Wales Trinity Saint David (UWTSD) in compliance with University of Wales Trinity Saint David requirements. This study is a systematic review based on literature that is publicly available and published; hence the primary data to be collected from human participants will not be involved in the study. This means that informed consent, confidentiality and anonymity cannot be used. The review will be conducted based on the PRISMA 2020 guidelines to provide transparency and systematic review selection process. All sources will be referenced correctly and there will be no plagiarism or academic dishonesty. Studies included will be appraised using Critical Appraisal Skills Programme (CASP) checklist.

6. Implications

This review's findings have relevance to health and social care practice, policy and service design. Healthcare providers may provide digital support sessions for older people to log their GP appointments online, to help them order repeat prescriptions, access NHS services, and remote consultations. Additionally, services could enable access to telephone or in-person options for individuals with lower digital literacy or low internet access, low confidence or

accessibility requirements (Ge et al., 2025; Oh et al., 2021). In the social care context, digital support might facilitate access to care assessment, communication with social workers, appointment scheduling and online access to information on available social care support (Greenhalgh et al., 2022; Winder et al., 2024).

The results also demonstrate the need to understand the importance of socioeconomic disadvantage, disability, language difficulties, frailty and social isolation when developing services, as these can further exacerbate digital exclusion and contribute to health inequalities (Kung and Steptoe, 2023; Ahmed et al., 2024). So, should make digital services available in tandem with telephone, face-to-face and other non-digital services. To avoid inequalities being exacerbated or created due to digitalisation among older adults, it is crucial that hybrid models are upheld (NHS England, 2023; Watson et al, 2024).

7. Recommendations

Health and social care providers should have inclusive approaches to digitalisation with non-digital options (such as face to face services and telephone services) in addition to digital provision to ensure older people who are digitally excluded are supported (NHS England, 2023; Watson et al, 2024). Digital services need to be more accessible and easier to use for older adults with limited digital skills and confidence, and for those with limited health literacy, targeted digital support should be offered (Winder et al., 2024; Sussex et al., 2024; Ge et al., 2025). Older people who are digitally excluded should also be supported by families, carers and community organisations, who have the potential to build the confidence of older people and connect them to services (Ahmed et al., 2024; Shorthose et al., 2024). Ensuring the availability of appropriate devices, stable internet and other required tools and resources (NHS England, 2023; Ge et al., 2025) are necessary to overcome barriers to affordability and connectivity. It is important to support hybrid models (which involve a mix of digital, face-to-face and phone services) to offer flexibility and ensure that digitalisation does not widen inequalities (NHS England, 2023; Watson et al, 2024). Lastly, more research is required to shed light on interventions for digital inclusion, especially in social care, and to build up evidence for future practice (Wale et al., 2025).

8. Conclusion

Digital exclusion is an important issue for older adults as health and social care services become increasingly digital. The availability of devices or internet to access services, digital literacy and confidence, as well as affordability and accessibility requirements and support needed for accessing services can all present barriers to accessing services for some older people. This systematic review will combine evidence from the UK to look at the link between digital exclusion and access to health and social care for adults aged 65 years and older. It will draw attention to factors that could affect access, such as barriers and inequalities, and to support, and will also take account of the role of non-digital and hybrid service provision. The

results could help to support more inclusive, accessible and equitable health and social care services for the diverse needs of older people.

9. Gant Chart

Activities	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16
Finalise ethics & protocol																
Write chapter 1																
Database searching																
Screen titles/abstract																
Write chapter 2																
Full text screening																
Write chapter 3																
Data extraction																
Quality appraisal																
Data analysis																
Write chapter 4																
Revise & finalise report																
Write chapter 5																
Write chapter 6																

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