

# *Barriers and Facilitators to Access Digital Health Information for Chronic Disease Management Among Older Adults in Canada*

**VISIONS FOR CHANGE: POLICY CHALLENGE**

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## EXECUTIVE SUMMARY

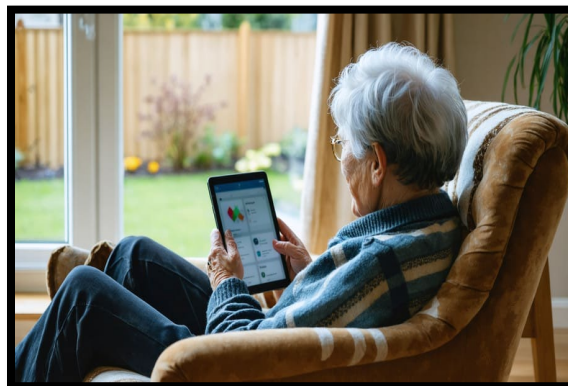
In Canada, a growing number of older adults suffer from two or more chronic health conditions, such as cardiovascular disease, diabetes, chronic obstructive pulmonary disease, and cancer. Patients with chronic health conditions are at higher risk of severe disease outcomes. While COVID-19 has severely impacted health systems and exacerbated health conditions, particularly among older adults, the pandemic has also accelerated the adoption of digital health services, including telehealth and eHealth. However, limited research has focused on exploring existing digitally available health information and understanding barriers to digital health information for chronic disease management in Canada.

This policy report aims to identify key barriers and facilitators to accessing digital health information for chronic disease management and provide recommendations for improving accessibility among older adults in Canada. To accomplish the aim, a scoping review of existing research literature was conducted. Published literature highlighted that lack of access to digital technology, questions about the reliability of technology and lack of motivation to use it, limited multilingual digital health information, and lack of digital health literacy were potential key barriers to digital health information. The literature also showed that enhancing knowledge, augmenting understanding of diagnosis, and supplementing communication received from healthcare providers were enablers of digital health information for chronic disease management among older adults in Canada.

Based on the findings, we provide four policy recommendations: 1) promote **digital literacy programs** in partnership with community-based organizations prioritizing rural areas, 2) incorporate **multilingual digital health content**, 3) arrange **capacity-building training** to increase digital health literacy for older adults, and 4) conduct more **evidence-based research** to improve the accessibility of digital health information. Addressing barriers to increase accessibility of digital health information will ensure improved digital literacy and act as early preparedness for emergency health situations like COVID-19.

## POLICY QUESTION

*What are strategies to support the government in improving access to digitally available health information for older adults for chronic disease management?*



## RELEVANT TERMINOLOGY

### *Older adults*

Defined as individual aged 65 years and above.<sup>1</sup>

### *Chronic Diseases*

According to the World Health Organization, chronic disease refers to a long-term condition that is primarily caused by physiological, environmental, genetic, and behavioral factors.<sup>2</sup> Some examples of chronic disease include cardiovascular disease cancer, chronic respiratory disease and diabetes.<sup>2</sup> Mental health condition such as depression, anxiety and stress are also chronic diseases.

### *Digital Health Information*

Digital Health Information is referred to as the use of digital technology to support digital healthcare services and improve health outcomes. This includes tools such as electronic health records (eHealth), telehealth and mobile health (mHealth).<sup>3</sup>

## BACKGROUND

### Chronic Disease and Older Adults

There is a trend toward increasing life expectancy in Canada.<sup>4</sup> However, older people are vulnerable to chronic diseases. Around 3 out of 5 older adults in Canada aged 65 and above have at least one of ten common chronic diseases.<sup>5</sup> The five chronic diseases that are most prevalent among older adults are hypertension (83.4%), osteoarthritis (54%), cardiovascular diseases (42%), osteoporosis (37%), and chronic obstructive pulmonary disease (27.3%).<sup>6</sup> Those who have chronic health conditions have poor health status and decreased quality of life. Cancer has also been more common among seniors, and approximately 9 out of 10 cases of cancer are diagnosed among people aged 50 and over.<sup>7</sup> Other health conditions, such as mental health issues, are also common among older adults, and 1 out of 5 older adults in Canada are suffering from mental health issues.<sup>8</sup> Patients with multiple chronic conditions or comorbidity are at higher risk of severe disease outcomes and require routine health care support.<sup>9</sup>

### Digital Health Information for Chronic Disease Management

Digital health information- accessing tests and medication history over electronic health records or getting health information from trusted links to enhance knowledge of the disease pattern and progress- is crucial in chronic disease management among older adults.<sup>10</sup> Online access to personal health information allows patients and their healthcare providers to have more open and transparent discussions about their health and monitor their health progress regularly.<sup>11</sup> In June 2024, Bill C-72, the “**Connected Care for Canadians Act**,” was introduced to enable Canadians to secure access to their health data, empower them in decision-making, and improve the quality of care.<sup>12</sup> Several initiatives have also been taken at the provincial level to increase digital health resources for chronic disease patients and caregivers to increase their knowledge to prevent disease progression.<sup>11,13-23</sup> For example, British Columbia introduced a chronic disease self management program to ensure seniors can lead a healthy life while managing their chronic condition.<sup>16</sup> Newfoundland and Labrador adopted an expanded chronic care model to improve health outcome and increase satisfaction of individuals living with chronic diseases.<sup>20</sup> The Saskatchewan Health Authority, like health services in most provinces, provides health information on chronic disease to enhance health literacy.<sup>14</sup>



### Digital Health and COVID-19

COVID-19 has had a severe impact on health systems and contributed to worsening the health situation, especially for older adults. The pandemic also resulted in damaging lifestyle changes, such as sleep disturbance, unhealthy food intake, and alcohol use.<sup>24</sup> However, one of the adaptive lessons that COVID-19 has taught us is integrating digital health, especially for older adults. Several studies show that older adults experienced fewer barriers to access health service or visiting a doctor due to digital health such as virtual visits.<sup>25-27</sup>

The pandemic has accelerated integration of digital health, which has become a feasible support for older adults considering transportation challenges and increased hospital workload. However, older adults often face a stigmatizing assumption that they cannot use digital health such as smartphones, Telehealth and mobile apps.<sup>28</sup> Even many health care providers assume that digital health is incompatible with older adults, which excludes them from participating in different clinical trials for digital health.<sup>28</sup> This indicates a need for more awareness-raising programs to encourage digital literacy programs for older adults.

### Initiatives for Digitally Available Health Information



Canada has implemented several initiatives to make health information accessible for older adults to manage chronic diseases. For example, **Canadian Institute for Health Information** has suggested electronic health records as a method to provide older adults access to their health information.<sup>29</sup> The **National Research Council of Canada** launched the Aging in Place Challenge Program, which aims to use technology to establish an age-friendly community to improve home-based care and improve the quality of life of older adults in Canada.<sup>30</sup> **SaskTel** invested funding for its Rural Fibre Initiative to improve internet access, which may be helpful for seeking digital health services.<sup>31</sup> Additionally, each province's health

authorities provide health information for chronic disease management.<sup>14,16-23,32</sup> However, having multiple scattered resources may overwhelm the patient in terms of obtaining information and gaining knowledge for chronic disease management.

Accessibility of digital health resources has been one of the barriers, specifically for older adults.<sup>33,34</sup> There is also limited research on understanding the gap between digital health information and chronic disease management for older adults in Canada. Therefore, it is crucial to understand the barriers to using digital health and identify potential strategies to increase the accessibility of digitally accessible health information for chronic disease management.

## RESEARCH APPROACH

For this report, a scoping review of the academic literature on digital health information for chronic disease management among older adults in Canada was conducted following the six steps of Arksey and O'Malley with one additional step for quality assessment<sup>35</sup> (Appendix 1). Searches were conducted through CINAHL, Medline, and Google Scholar. Grey literature was also reviewed to explore the existing situation of digital health information for chronic disease management (Appendix 2). Additionally, government websites were reviewed to explore initiatives that have been taken to increase patients' and caregivers' knowledge of chronic disease. Online consultations with relevant government stakeholders were conducted to gather their feedback and recommendations, aiming to understand the gaps and priorities for increasing accessibility to digitally available health information for chronic disease management among older adults and their caregivers.

## KEY FINDINGS

The literature reviews highlighted barriers and facilitators to accessing digitally available health information to manage chronic disease among older adults in Canada.

### Barriers

#### *Lack of accessibility*

Lack of accessibility is one of the most common barriers of digital health information for chronic disease management.<sup>36</sup> Due to the lack of access to the Internet and health resources, patients and caregivers are unable to receive proper health information, which hinders the management of chronic disease. Often, older adults face difficulty in navigating digital health platforms due to a lack of necessary skills.<sup>33</sup> One qualitative study highlighted the frustration of participants and how they felt overwhelmed to identify credible information.<sup>34</sup> Additionally, the design of technology is not always user-friendly, which results in poor use especially among those who have visual and auditory impairments.<sup>37,38</sup> Limited access to reliable internet services is also an issue, especially for those who live in rural areas.<sup>39</sup>

#### *Cautiousness about the use of digital health*

Most older Canadians hesitate to use digital health information due to concerns about lack of reliability and the scope of misinformation.<sup>33,34,40</sup> There is a large amount of available digital health content that overwhelms older adults and discourages them from using digital health tools to increase knowledge on chronic disease management. Confidentiality is another barrier, as participants in one study shared their concern regarding vulnerability to hacking of personal health information while using digital health tools such as eHealth.<sup>34</sup> Ensuring security and providing health information in trustworthy resources would be helpful in addressing information unreliability issues.<sup>34</sup> Many older adults also depend on the guidance of healthcare providers, which contributes to deterring the use of digital health resources. A study in Canada shows that healthcare providers are skeptical about older adults using digital health information for chronic disease management.<sup>40</sup> Lack of motivation to use technology and warnings, especially from healthcare providers, often discourages older adults from using digital health tools.<sup>40</sup> Providing more training for



healthcare providers to advocate for the use of digital health and fostering a supporting environment may contribute to addressing this issue.<sup>40</sup>

### ***Language barriers***

Older adults who are non-native speakers of Canada's official languages face difficulty using digital health information due to language barriers.<sup>33,38,39,41</sup> Most of the digital health contents are primarily available in either English or French, which deters non-native speakers from using the tools. Communication barriers related to language also hinder older adults who participate in different digital health programs, such as tele-homecare for management of chronic disease.<sup>41</sup> Culturally sensitive and language specific material can ensure equal accessibility of older adults to different digital health information.<sup>33,41</sup>

### ***Lack of digital health literacy and technological skills***

Many older adults are not comfortable using digital health resources due to lack of knowledge about digital technology and limited necessary skills.<sup>33,42</sup> Lack of technological skills often hinders older adults when using digital health supports, such as accessing online health information, exploring personal health information and using telehealth services.<sup>33</sup> Often older adults are also unaware of the importance of digital health resources and the positive implications for their health outcomes.<sup>42</sup> Arranging digital literacy programs and promoting awareness may contribute to use of digital health information more widely by the aging community.<sup>42</sup>

## **Facilitators:**

### ***Enhance knowledge and health literacy***

Enhancing knowledge and health literacy is important for effectively using digital health information for chronic disease management among older adults in Canada.<sup>37,39,42-45</sup> Improved digital health literacy empowers older adults to understand digital health information, fostering self-management for chronic disease.<sup>43</sup> A study shows that health literacy decreases with age, which directly impacts the use of digital health information by older adults.<sup>43</sup> Initiatives such as capacity-building workshops and user-friendly digital platforms can help bridge the knowledge gap and improve health literacy for managing chronic disease.<sup>43</sup>

### ***Augment understanding of the diagnosis***

One of the key facilitators of using digital health information is augmenting understanding of diagnoses.<sup>40,46</sup> Knowing one's own health progress and diagnosis empowers older adults to monitor and manage their chronic health condition and plan their health service care ahead of time.<sup>40</sup> Digital health tools such as the Internet and peer support groups often help older adults explore their diagnosis more and enhance their knowledge to take preventive measures to ensure positive health outcomes.<sup>40</sup> Though there is potential for misinformation related to disease diagnosis and progression, clear and trusted digital content can ensure the active engagement of older adults to make decisions for their chronic disease management.<sup>40</sup>

### ***Supplement communication and information received from healthcare providers***

Supplementing health information received from healthcare providers is necessary for chronic disease management among older adults in Canada.<sup>34,40</sup> Internet health information helps to enhance knowledge and both older adults and health care providers identified digital health resources that are beneficial for chronic disease management.<sup>40</sup> In rural areas, where in-person consultations for health information are not accessible, digital health may increase knowledge about disease management to improve quality of life.<sup>40</sup> Evidence shows that different peer support groups also offer helpful information and provide emotional support that helps the older adults to know how to manage their chronic disease and navigate health care systems without difficulty.<sup>34</sup> This approach also supports self-awareness and decision making for chronic disease management, ultimately resulting in improved health outcomes.<sup>34,40</sup>

## POLICY RECOMMENDATIONS

There is an opportunity to improve access to digital health technology for chronic disease management by increasing digital health literacy. Based on the findings above, the policy recommendation is divided into four thematic areas: (1) expand digital literacy programs and social media campaigns, (2) enhance accessibility using multilingual content, (3) implement capacity-building training, (4) further research to understand digital literacy gaps.



***Recommendation 1: Expand digital literacy programs and social media campaigns partnering with trustworthy community-based older adult serving organizations, focusing on rural communities***

Expanding digital literacy programs in partnership with community-based organizations is necessary to improve the accessibility of digital health information. Rural communities often face challenges such as poor internet connection, limited access to health care services, and lack of digital literacy training opportunities for chronic disease management.<sup>47,48</sup> Collaboration with existing senior care centres to initiate a digital literacy program would help to promote and raise awareness of digital health information for chronic disease management.<sup>49</sup> For example, in Saskatchewan the Saskatoon Council on Aging (SCoA) provides digital literacy training to older adults to encourage social connection and improve quality of life.<sup>50</sup> Collaboration with this kind of initiative to mobilize resources in rural health care setting will improve digital literacy. Social media campaigns can also contribute to reducing stigma related to digital technology and motivate older adults to use digital health information, providing the benefit and impact of using it.<sup>51</sup> Collaboration with existing trustworthy community organizations not only enhances digital literacy but also empowers older adults to engage with different digital health programs without hesitating due to concerns about the possibility of misinformation.<sup>49</sup>



***Recommendation 2: Enhance accessibility using multilingual diverse content for digital health information***

According to Statistics Canada, 4.6 million people in Canada speaks a language other than English or French.<sup>52</sup> So, ensuring multilingual content on digital health is important to enhance accessibility among

diverse older adult communities.<sup>53</sup> Culturally relevant content can address the challenges of healthcare needs and provide support in identifying the preference for digital healthcare services in different communities.<sup>41</sup> Establishing user-friendly platforms that offer multilingual formats can increase the accessibility of digital health information.<sup>41</sup> Different videos and podcasts are important ways to promote health service management for chronic disease digitally. Incorporating subtitles in multiple languages may improve accessibility to diverse communities, including those with visual or hearing impairments. Different trustworthy community-based organizations can come forward to support the dissemination of these resources to reach the older adult community, ensuring the promotion of digital health literacy to improve physical and mental health well-being.<sup>33</sup> Multilingual health resources enable older adults to manage their health conditions, and overcome language barriers. Customizing existing initiatives to provide culturally tailored health information can be an effective way to enhance accessibility to multilingual digital health resources. For example, the InterCultural Online Health Network (iCON) in British Columbia serves as a valuable model that could be adapted in other provinces to deliver health information in multiple languages.<sup>54,55</sup> By localizing content to reflect the linguistic and cultural needs of diverse communities, such initiatives can help bridge healthcare gaps, improve health literacy, and ensure more equitable access to digital health information across Canada.



***Recommendation 3: Implement capacity-building training and support targeting to establish peer support***

Digital health literacy training for older adults and their family members is important to ensure access to digital health information<sup>37,39,42</sup> Providing training about digital health information to a selected group, such as older adults with knowledge of chronic disease, or healthcare providers, to enable them to serve as peer-coaches or trainers may be an effective way to improve digital health literacy in a wider community.<sup>56</sup> Older adults feel comfortable and trust getting information from peers, as they feel connected and can learn without any hesitation.<sup>57</sup> Such training programs could include digital literacy, communication skills or chronic service management. Through fostering these peer supporting networks, older adults can more easily access digital health information for chronic disease management. Providing ongoing support to the peers may also create a sustainable model, especially for rural areas. Provincial governments can play a crucial role in promoting digital literacy trainings at community levels in

collaboration with existing not-for-profit organisations. The capacity of such collaborations to promote improved digital health literacy for chronic service management needs to be investigated further.



***Recommendation 4: Conduct more evidence-based, community-driven research to understand gaps and barriers to improve accessibility of digital health information***

Conducting evidence-based community-driven research is important to bridge gaps and increase accessibility to digital health information.<sup>58</sup> It is important to involve older adults, caregivers and healthcare providers to get their perspectives when designing feasible digital health information.<sup>58</sup> Engaging the community helps to identify barriers, such as lack of affordable digital health technology and lack of necessary skills for chronic disease management. Understanding those insights contributes to the creation of user-friendly digital literacy programs and ensuring multilingual resources. This research is necessary for gathering information for policymakers to make digital health information more effective for older adults across Canada.<sup>59</sup> To facilitate this research, more funding needs to be allocated by the federal, provincial, and territorial governments to establish community-driven governments strategies for older adults to ensure digital health information for chronic disease management among older adults.

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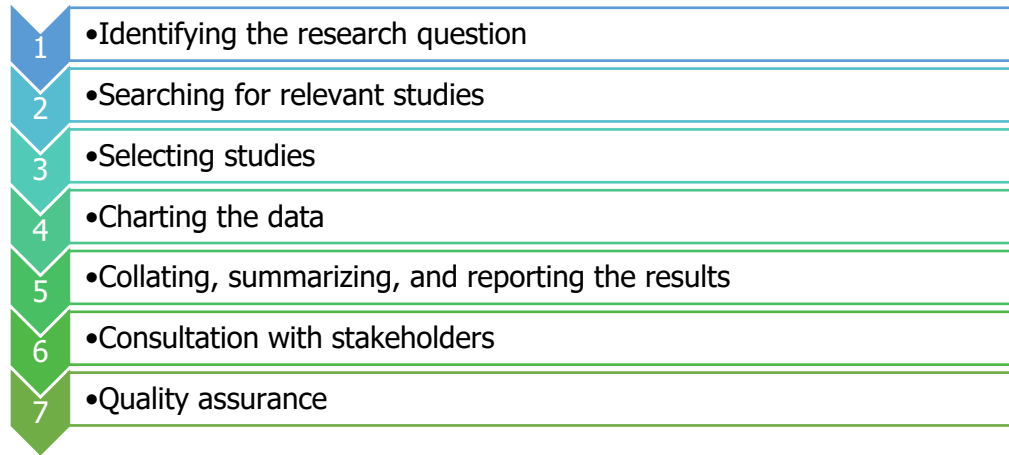
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## Appendix 1



**Figure 1: Arksey and O'Malley's methodological framework with the additional step of quality assurance**

## Appendix 2

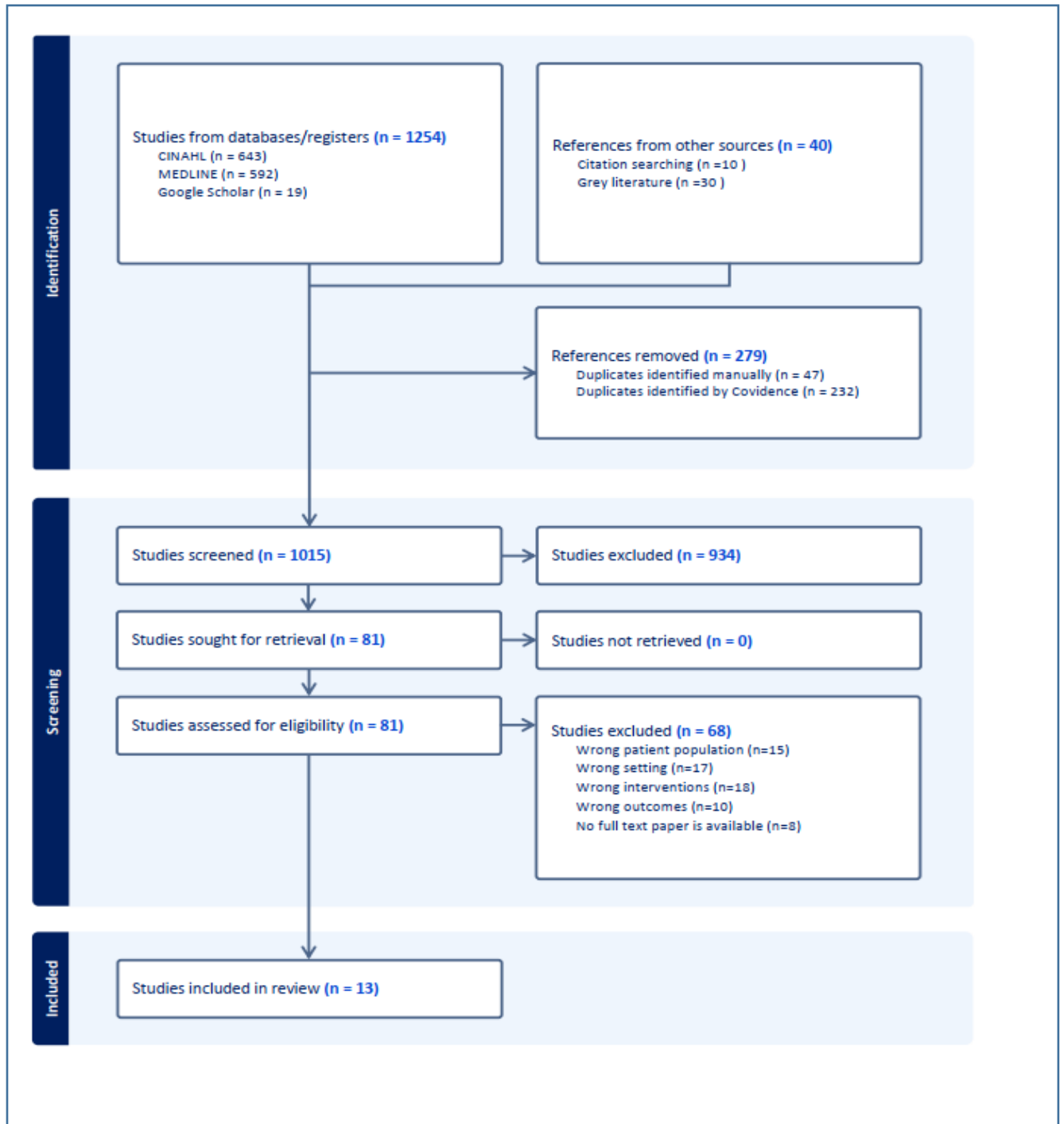


Figure 2: PRISMA flow chart