

Enabling Patients as Partners on Virtual Teams: A Scoping Review

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Abstract

Developing partnerships among patients and healthcare providers improves quality of virtual care. Successful patient engagement is influenced by digital literacy. Although adults (35–64) with chronic health challenges may be motivated to use virtual services, they may not have the required skills or orientation to effectively participate on their virtual team. This scoping review aimed to identify resources available to enable adults with chronic health challenges to participate as partners on their virtual teams. Peer-reviewed and grey literature data from 2011 to 2022 were searched. A total of 432 peer-reviewed and 357 grey literature sources were retrieved and screened, and 14 and 84 sources, respectively, met the inclusion criteria. Relevant information from the sources was extracted and analyzed in duplicate and synthesized qualitatively. Key findings include (1) virtual workflow processes/frameworks, (2) ‘websites manner’ guidelines which emphasize “the how” as opposed to “the what” of facilitating team interactions, and (3) virtual patient support personnel. Overall, analyses suggest there are persisting gaps to be addressed in synchronous virtual care resources for adults with chronic health challenges.

Keywords

virtual team, patient participation, interprofessional collaboration, partnership

Introduction

In Canada, virtual healthcare visits increased from 4% to 60% at the onset of the COVID-19 pandemic.¹ Although virtual care has existed for decades, the pandemic resulted in a dramatic and rapid shift in service delivery. Given the increasing demand for both timely, cost-effective, and quality care, patient satisfaction with virtual care, and government investment in virtual infrastructure, virtual care has become a standardized form of service delivery.¹

A widely adopted definition of virtual care is “any interaction between patients and/or members of their circle of care, occurring remotely, using any forms of communication or information technologies, with the aim of facilitating or maximizing the quality and effectiveness of patient care”.^{2(p609)} Virtual care can be characterized as asynchronous, synchronous, or hybrid; healthcare teams may adopt any of these approaches.² Many terms are used interchangeably across the literature, such as digital health, telehealth, and telemedicine, obfuscating the unique aspects of each. These terms will likely continue to evolve as the virtual care landscape advances.

Healthcare providers (HCPs) within interprofessional care teams have reported that the transition to virtual care has

shifted the nature of interprofessional collaboration as it resulted in HCP role changes, restructuring of team dynamics, the development of new professional responsibilities, and decreased wait times for patients to access team members.^{3,4} Virtual care seems to have strengthened interprofessional team collaboration and patient partnerships.^{3,4}

The patient role has evolved to one requiring greater preparation for virtual visits.⁵ Developing mutually beneficial partnerships among patients and their healthcare team is critical to facilitate optimal engagement and improve quality of care.⁶⁻⁸ Variable patient engagement patterns in virtual care are largely based on digital literacy, which has meant some individuals are disadvantaged from optimal participation.⁵

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Digital literacy refers to an individual's ability to find, understand, appraise health information and utilize technology to address a health concern.⁹ Health literacy is defined as the ability to obtain, read, understand, and use healthcare information to make appropriate/informed health decisions.¹⁰ Even though digital literacy and health literacy are related to digital health literacy, the relationship is bidirectional and complex.¹¹ Older populations typically have a lower degree of digital literacy than younger populations. Pre-pandemic, it was reported that younger populations were most open to virtual care, adults were willing to use it whereas older adults were least interested.¹² Therefore, adult patients (35-64) with chronic health challenges are the focus of this research as this demographic is motivated to use virtual services to manage their health, but may not have had the opportunity to do so until the start of the COVID-19 pandemic.

Adults (35-64) with chronic health challenges must rely on the healthcare system twice as frequently as those without chronic conditions.¹³ Chronic health is defined as conditions that persist for one year or more, require ongoing medical attention, and limit activities of daily living.¹⁴ Common chronic conditions experienced by adults include hypertension, osteoarthritis, mood or anxiety disorders, osteoporosis, diabetes, asthma, chronic obstructive pulmonary disease, ischemic heart disease, cancer, and dementia.¹⁵ Chronic health conditions are managed optimally when interprofessional teams work collaboratively and include the patient in shared decision-making.¹⁶ Although adults with chronic health challenges are adopting virtual care to manage their health, there is concern that they are not prepared to participate effectively on their virtual care team.¹⁷

The literature about virtual care primarily focuses on system and team delivery, emphasizing HCPs' capacity to drive team-based care.^{2,18,19} Therefore, an enhanced understanding of the resources available to promote equitable engagement of patients on virtual teams is required to improve quality of care. The *Stanford Virtual Health Patient Engagement Model* is a recent attempt to consider the interaction among clinical teams, system and technology support and customized patient care.⁵ Yet, more work is needed to understand what is required for adult patients with chronic health challenges to optimize participation as a partner of their care team. Therefore, this scoping review aimed to address the following research question: *What resources are available that enable adults with chronic health challenges to participate as partners on their virtual team?*

Methodology

Scoping reviews are particularly relevant within fields of research that have emerging levels of evidence, such as new evidence on virtual care using evolving technologies and health system changes.²⁰ A scoping review that maps

available knowledge regarding resources to enable patients as partners of their interprofessional care team are timely. This scoping review followed the Joanna Briggs Institute methodology as it is an evidence-based and comprehensive guide.²¹ Reporting follows the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) Extension for Scoping Reviews (ScR).²² PRISMA-ScR is a checklist/guideline to ensure the research being conducted is evidence-based.²²

Eligibility Criteria

Synchronous virtual visits attempt to closely mirror in-person interactions and foster authentic partnerships between patients and their interprofessional care team more than asynchronous or hybrid approaches. Thus, the search was constructed to ensure that the term 'virtual care' referred to HCP(s)-patient interactions (see Appendix A for search terms used). This study defines virtual care as *synchronous* interactions that occurred via phone, video, and/or live chat.

To be included, the peer-reviewed and grey literature sources needed to be published between 2011 and 2022. There has been noticeable progress towards virtual care during this timeframe with the significant advancement to virtual health platforms occurring most recently. The sources needed to be published in English given the feasibility, cost, and time restrictions related to translation demands and relevance to a North American context. Lastly, sources were only considered if there was unrestricted access to the full text.

Search

The search strategy aimed to locate both peer-reviewed and grey literature via independent searches. Crafting the search was an iterative process and additional keywords/search terms were incorporated into the final search algorithms. As the reviewers gained increasing familiarity with the existing literature, modifications were made to refine the search, eligibility criteria and definitions. Additional modifications were made once the reviewers consulted with two university research librarians, a telemedicine adoption specialist and completed a pilot search.

A piloted search of the *Medical Literature Analysis and Retrieval System Online* (MEDLINE) database (Appendix A) was conducted. The text words in the titles/abstracts of relevant articles and the index terms that described the articles were used to develop comprehensive search strategies for each database. This scoping review was conducted from November 2021 to June 2022. Specifically, the peer-reviewed literature search was conducted on November 21, 2021. A hand-search of relevant peer-reviewed journal repositories was conducted in January 2022. The peer-reviewed data considered was not limited to any geographical region. The grey literature search was conducted on June 10, 2022, and was restricted to North America due to feasibility. The

peer-reviewed search strategy was modified for the grey literature Google Engine search and was developed in consultation with a university research librarian (Appendix B). Overall, the peer-reviewed search retrieved 432 sources and the grey literature search retrieved 357 sources before in-depth screening was performed in correspondence with the inclusion criteria.

Information Sources

Peer-reviewed data were collected from MEDLINE, *Cumulated Index to Nursing and Allied Health Literature* (CINAHL), *Public/Publisher MEDLINE* (PubMed) and *Psychological Information Database* (PsychInfo). Subsequently, a hand search of the *Patient Experience Journal* and the *Journal of Patient Experience* was also conducted. Grey literature was derived from performing a Google search and a hand-search of the top 10 Canadian hospital websites and Canadian Government Ministry of Health websites. The top 10 Canadian hospitals included: Toronto General, Sunnybrook Health Sciences Centre, Mount Sinai, North York General, Jewish General (Montreal), Centre Hospitalier de l'Université de Montréal, Vancouver General, Montreal General - McGill University Health Centre, St. Michael's, and Rockyview General.²³ This ranking was developed by Statistia Inc. based on recommendations from medical professionals, patient surveys, and medical performance indicators.²³ All other Canadian hospitals were excluded from the present scoping review for the purpose of adhering to this ranking, although they may implement virtual care. The Google sources were selected by scanning the results of the first 5-pages of each search (Appendix B).

Selection of Sources of Evidence

All empirical studies and grey literature documents that met inclusion criteria were included in this screening. Sources identified in the peer-reviewed literature search were screened using Covidence Software and duplicates were automatically removed. The grey literature was not compatible with Covidence; therefore, all data were screened manually. The Google search was completed by 1 reviewer (ST) for consistency as Google algorithms differ by the account holder. Likewise, the hand-searches of the Canadian hospitals and Ministry of Health websites were completed by 1 reviewer (VC). A pilot test was conducted by the reviewers prior to embarking on the source selection process for both the peer-reviewed and grey literature data. For the peer-reviewed data, a random sample of 20 titles/abstracts was selected and screened by two reviewers (VC and ST). The reviewers met to discuss and resolve discrepancies as needed.

Following the pilot screen, all peer-reviewed titles/abstracts were screened by two reviewers (VC and ST). Next, relevant sources were retrieved for full-text review, which was conducted in duplicate. Reasons for exclusion included lack of HCP(s)-patient interaction (46), lack of

synchronous virtual care (21), and incorrect patient population or year (14). Evidently, the primary reason for exclusion related to lack of HCP(s)-patient interaction as many studies focused on HCP-HCP interactions. Any disagreements between the reviewers were resolved through discussion and did not require a third reviewer for consensus. See Figure 1.

Data Charting Process

Two separate data extraction charts were jointly developed using Google Sheets by two reviewers (VC and ST) to determine which variables to extract for the peer-reviewed and grey literature data respectively. The peer-reviewed data extraction chart included the following headings: author, year of publication and specific details about the participants, concept, context, study methods, and pertinent findings. The reviewers (VC and ST) became familiar with the source results and trialed the extraction chart for two sources to ensure all relevant results were extracted. As for the grey literature data, the reviewers engaged in a similar process and piloted this data set. However, the headings utilized in the grey literature data extraction chart differed and included: date, organization name and website URL/search engine, search strategy(s) including how items were selected, number of items retrieved/search results and number of items screened and piloted in this data set. Only a portion of the peer-reviewed and grey literature data are included in the references due to the number of sources in the review.

Results

MEDLINE, CINAHL, PubMed, and PsychInfo database searches retrieved 432 peer-reviewed articles. After duplicates were removed and the reviewers applied the inclusion criteria to the titles/abstracts, 95 articles remained. Subsequently, these 95 articles underwent full-text screening and were discussed by two reviewers (VC and ST) until a consensus was achieved. These discussions predominantly revolved around the definition of virtual care to ensure the studies included in this scoping review interpreted virtual care as synchronous HCP(s)-patient interactions. A total of 14 articles met the scoping review criteria and were published in English between 2011-2022. The 14 studies consisted of the following research designs/methods: one quantitative (randomized control trial),²⁴ one pilot project,²⁵ two mixed methods,^{26,27} three literature reviews,²⁸⁻³⁰ three editorial/opinion papers,³¹⁻³³ and four qualitative designs.³⁴⁻³⁷ Half of the studies were descriptive and did not include participants but described virtual care resources and practices. The other half of the studies were empirical and included participants. Moreover, half of the studies were published pre-pandemic (2011-2016) and half were published during the pandemic (2020-2022). These studies took place in the United States (9), United Kingdom (2), Netherlands (2) and Sweden (1). See Table 1.

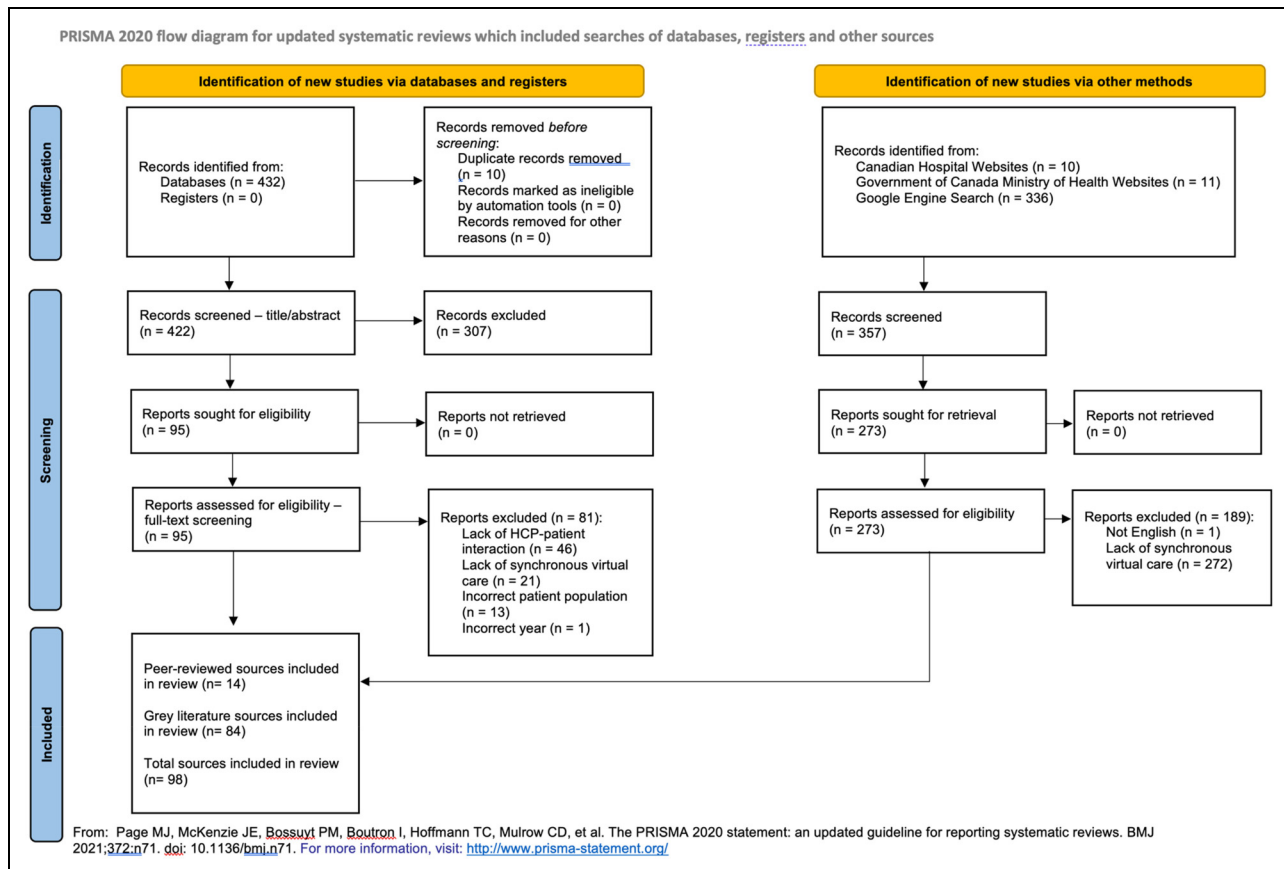


Figure 1. PRISMA flow diagram.

The hand-search of the top 10 Canadian hospitals and Ministry of Health websites returned 21 sources and the Google search returned 336 sources for 357 grey literature data. After the screening was completed by each reviewer (VC and ST), 20 websites from the hand-search and 64 sources from the Google search met the inclusion criteria. The Centre Hospitalier de l'Université de Montréal website was excluded as it was published in French and all excluded sources from Google related to a lack of synchronous virtual care. In total, 84 grey literature sources were included in this study, ranging from Canadian government/hospital websites to private practice websites within North America. Other grey literature sources included links that consisted of surveys, virtual care checklists, virtual technology training resources (i.e., “how to” videos), virtual etiquette or ‘websites manner’ guidelines, and best practice standards. The majority of the grey literature sources were published during the pandemic (2019–2022).

Key Themes

The peer-reviewed and grey literature sources share the following 3 themes: (1) Virtual Workflow Processes/Frameworks, (2) Website Manner Guidelines and (3) Virtual Patient Support Personnel. The reviewers utilized Braun and Clark’s 6-phase framework for conducting a

thematic analysis: (1) Become familiar with the data, (2) Generate initial codes, (3) Search for themes, (4) Review themes, (5) Define themes, (6) Write-up.³⁸ In brief, as the two reviewers (VC and ST) became familiar with the data they maintained individual logs of meaningful topics and patterns (codes) that were discovered throughout the screening process. Following data selection, the reviewers met to compare their generated codes and collaborated to construct descriptive themes. The themes were defined and refined throughout the data selection process. The 3 themes are interdependent despite not being explicit in each data source.

Theme 1: Virtual Workflow Processes/Frameworks

Proposed workflow processes/frameworks that promote an effective ‘websites manner’ were prevalent in both the peer-reviewed and grey literature. These workflow processes/frameworks aimed to mirror in-person healthcare visits (i.e., virtual waiting rooms) while addressing the need for increased preparation ahead of virtual appointments.

Theme 2: ‘Websites Manner’ Guidelines

‘Websites manner’ or virtual etiquette was the primary theme of this review. Literature included context-specific guidelines

Table 1. Description of the Included Peer-Reviewed Studies.

Author, Year	Country of Origin	Study Design	Purpose	Population	Intervention	Key Findings
Barenfeld et al, 2020 ³⁶	Sweden	Qualitative (Grounded Theory)	To explore the experiences of a person-centered e-health intervention, in patients diagnosed with chronic obstructive pulmonary disease or chronic heart failure.	12 individuals aged 57-81: 5 female, 7 male.	Digital platform and telephone support system for 6 months. The intervention relied on person-centered ethics operationalized through three core person-centered care (PCC) components: patient narratives, partnership, and shared documentation.	<ul style="list-style-type: none"> - Core category/analogy: "being welcomed through the side door when lacking the front door keys." - Reflects how a PCC intervention delivered remotely provides access to mutual and informal meetings to support patient self-management goals. - Family and friends were not invited as care partners in the e-health context (as per patient's request).
Bernstein et al, 2020 ²⁵	United States	Pilot Project	The Tele-ACTS INR pilot project was intended to improve patient access, reduce re-admission costs related to anticoagulation adverse events, improve the quality metrics of anticoagulation and to improve health outcomes.	8 individuals; 52-81.	To assess whether this Telehealth INR model improved quality metrics of patients on chronic warfarin via improvement of individual (iTTR)—and center-based TTR (cTTR).	<ul style="list-style-type: none"> - Telehealth (Tele-ACTS) Workflow. - Pre/Post telehealth components. - Suggests possible integration of technologies to expand an anticoagulation-care at Patient Service Centers and other healthcare facilities
DeBlais & Milliefoglie, 2015 ³¹	United States	Editorial/Opinion	To discuss Southern Maine's first telehealth demonstration project. HomeHealth Visiting Nurses (HHVN) has learned lessons as an early telehealth adopter and continues to leverage the technology across all services.	"Older patients"	N/A	<ul style="list-style-type: none"> - Home installation - Educational modules for patients and HCPs - Portals for the exchange of information - Interprofessional collaboration – improve care coordination
Doorenbos et al, 2011 ³⁴	United States	Qualitative (Participatory Formative Evaluation)	To develop a telehealth network to deliver post-diagnosis cancer care clinical services and education to American Indian and Alaska Native patients, their families, and their HCPs. Furthermore, to identify the challenges and opportunities.	"513 patient encounters"	Telepsychiatry - Education/conference series provided to HCPs regarding cancer.	<ul style="list-style-type: none"> - Importance of community involvement in all stages of telehealth system design and implementation. - Information technology and designing a new system. - Emphasizes the need to customize software, work-flow procedures, and processes to address the needs of the practice setting, to train end-users, and to provide useful and

(continued)

Table 1. (continued)

Author, Year	Country of Origin	Study Design	Purpose	Population	Intervention	Key Findings
Long et al, 2012 ²⁴	United Kingdom	Prospective, observational study (RCT)	To examine the changes in the depth and detail of diabetes related knowledge and confidence for persons with type 2 diabetes.	156 participants; median age 67	Dedicated tele-carer education and support, tailored to the individual circumstances of the patient. Perceptions of confidence, levels of empowerment, learning for self-care and most helpful aspects of the intervention.	user-friendly telehealth interventions that address the needs and expectations of their target audience. - High levels of perceived empowerment. - Changes in the depth and detail of diabetes related knowledge and confidence were observed and enhanced competence in translating knowledge into practice. - The intervention, built within a developed working partnership between tele-carer and patient. - Health literacy, enhancing knowledge, developing personal skills, and enabling self-control; and socio-psychological behavioural change. - Tailored to individuals within their socio-economic environments, enabling increased motivation and supportive problem-solving.
Modic et al, 2022 ²⁸	United States	Literature Review	This article offers a review of the research that exists on forming a relationship in a virtual visit and the outcomes of a quality improvement project which resulted in the refinement of a "Communication Tip Sheet" for virtual visits.	N/A	N/A	- R.E.D.E. to Communicate model that can be used when providing care virtually. - Webside Manner.
Morrison et al, 2020 ²⁹	United States	Rapid Literature Review	This review aims to investigate: (1) the feasibility of exercise telehealth interventions for individuals diagnosed with cancer; and (2) the impact of exercise telehealth interventions for people affected by cancer on	Studies that investigated adults (aged ≥ 18 years) with a diagnosis of any cancer, irrespective of treatment type, cancer stage or primary/	N/A	- Across the included studies the interventions were broadly classified into four main areas of telehealth: - (1) web-based (2) mobile applications (3) SMS messaging (4) telephone interventions.

(continued)

Table 1. (continued)

Author, Year	Country of Origin	Study Design	Purpose	Population	Intervention	Key Findings
Murphy, 2020 ³²	United States	Editorial/Opinion	physical and psychosocial outcomes. This paper provides an overview of transitioning the team rounds program from in-person to virtual during the COVID-19 pandemic at the University of Chicago Medicine.	secondary nature of disease were included. N/A	N/A	<ul style="list-style-type: none"> - Telecommunications is a critical tool in the delivery of cancer care to enable timely ongoing support. - Patient Experience and Engagement Program (PEEP). - Create a patient centric conversation. - Adapted rounding templates to rethink follow-up processes. - High patient satisfaction rates. - University of Chicago continued virtual care call connections program and embedded patient experience team support across all services.
Ohl et al, 2013 ²⁶	United States	Mixed Methods	To determine the feasibility of telehealth collaborative care (TCC) and identify factors influencing implementation in rural settings.	32 veterans with HIV; age 40-79.	TCC integrated HIV specialty care delivered by clinical video telehealth, with primary care delivered by generalist providers, in seven Community Based Outpatient Clinics (CBOCs) serving rural areas. Principles guiding TCC design were: 1) clear delineation of specialty and primary care clinic roles in co-managed care; 2) creation of processes to improve care coordination between specialty and primary care teams; and 3) use of a patient registry for population management across sites	<ul style="list-style-type: none"> - Overcoming privacy concerns during care in local primary care clinics. - Trade-offs between access, continuity, and care coordination; - The role of specialist involvement in collaborative care
Salisbury	United Kingdom	Mixed Methods	To develop a conceptual model for effective use of telehealth in the	N/A	N/A	<ul style="list-style-type: none"> - The TEIhealth in CHronic Disease (TECH) model:

(continued)

Table 1. (continued)

Author, Year	Country of Origin	Study Design	Purpose	Population	Intervention	Key Findings
et al., 2015 ²⁷			management of chronic health conditions, and to use this to develop and evaluate an intervention for people with cardiovascular disease risk and depression.			<ul style="list-style-type: none"> - (1) engagement of patients and health professionals - (2) effective chronic disease management - optimization of treatment, care coordination etc. - (3) partnership between providers and patient, social and health system context. - Outcomes = health, access to care, patient experience and cost-effective care. - Predisposing, enabling, and reinforcing factors to the use of telehealth by patients- ie access, support, understanding etc
Sullivan et al., 2020 ³³	United States	Editorial/Opinion	To show the thought process and discussion of the Mellen Center for Multiple Sclerosis Behavioral Medicine to ensure that patients continued to receive exceptional care and patient experience. This paper also discusses the importance of innovating the training and supervision for telepsychology and virtual options.	N/A	N/A	<ul style="list-style-type: none"> - Prior to visit element – establishing virtual visits via MyChart messages from HCP to patients. - New informed consent language to accommodate for virtual service delivery adoption. - HCPs working in mental health as virtual crisis caregivers.
Tewksbury et al., 2021 ³⁰	United States	Literature Review	This review summarizes the applied recommendations on telehealth in interprofessional patient care and highlights future opportunities for research.	N/A	N/A	<ul style="list-style-type: none"> - Clinician telehealth visit checklist. - Infrastructure support. - Telehealth etiquette.
VanGurp et al., 2016 ³⁷	Netherlands	Qualitative (long-term observations)	This study aims to describe (1) whether and how teleconsultation supports the integration of primary care, specialist palliative care, and patient perspectives and services and (2) how patients and (in) formal caregivers experience	18 patients; 24-85 years old, 12 clinicians, 17 primary care physicians.	N/A	<ul style="list-style-type: none"> - Interprofessional contact was restricted to backstage work after teleconsultation (most cases). - Both the patient and the professionals were simultaneously connected through teleconsultation (one case). - Two themes characterized

(continued)

Table 1. (continued)

Author, Year	Country of Origin	Study Design	Purpose	Population	Intervention	Key Findings
VanGurp et al. 2015 ³⁵	Netherlands	Qualitative (long-term observations)	collaboration within teleconsultation.	18 patients; 24-85 years old, 12 clinicians, 17 primary care physicians.	N/A	<p>integrated palliative care at home because of teleconsultation:</p> <ul style="list-style-type: none"> - (1) professionals defining responsibility - (2) building interprofessional rapport <ul style="list-style-type: none"> - Transcending the institutional walls of home and hospital; transparency of teleconsultation technology; and technologized, intimate patient-professional relationships. - Condensed encounters between home-based palliative care patients and distant professionals - Unique insight into the patients' daily lives for palliative care specialists - Long-term interaction that results in trustful relationships and experiences of intimacy and relief. - Use of tablets opposed to desktop devices supported patient's better/easier accessibility.

and general recommendations whereas others proposed the need for HCPs to adhere to standardized virtual care policies developed by each regulated health profession.

Theme 3: Virtual Patient Support Personnel

This theme aligns with the proposed workflow processes/frameworks as they often incorporated a pre-visit and post-visit component. These pre/post-visit interactions were often facilitated by virtual support personnel as opposed to the HCPs themselves. Not only do the sources in this review corroborate the need for direct patient support to prepare for synchronous virtual care appointments, but they also provided indirect patient support by sharing resources to promote continuity of care and digital literacy development.

Discussion

The goals of this scoping review were to explore the resources that enable adult patients with chronic health challenges to participate as partners on their virtual team and to reveal gaps for future research. Although the sources included in this review referenced chronic health challenges experienced by adults, it was noted that the findings are generalizable to any population. Only 14 peer-reviewed studies were included in this scoping review compared to 84 grey literature sources. Overall, the key recommendations and resources included adhering to virtual workflow processes/frameworks, implementing ‘webside manner’ guidelines, and providing virtual patient support personnel.

The number of sources retrieved suggests that there is a high demand for resources and communication about this topic that still needs to be captured in scientific databases. Arguably, grey literature is a more accessible form of knowledge translation for patients, especially those who lack digital literacy. Family members play an integral role within a patient’s care team.³⁹ However, the specific role of family members was not addressed within this review. For example, participants in Barenfeld and colleagues’ study declined to have their family members involved in their virtual care.³⁶ Family involvement often varies based upon the level and type of support required by the individual with the chronic illness.⁴⁰ Family members of adults with severe chronic illness provide more formal health/caregiver support.⁴⁰

The seven studies published pre-pandemic emphasized the importance of access to technology, HCP/patient readiness to use technology, and their willingness to adopt virtual care. Post-pandemic studies focused on virtual care

adoption strategies and standards; for example, standardizing how HCPs deliver virtual care and assisting patients in navigating virtual platforms. Doorenbos and colleagues were among the first to discuss the need to design workflow processes, educate technology users, and provide user-friendly virtual care interventions that address the needs of patients.³⁴ The need for virtual care workflow processes/frameworks was evident across the grey literature. However, only Bernstein and colleagues proposed a “preparatory phase” prior to engaging in the virtual interaction to enable patients to participate as partners in their care team (Figure 2).²⁵ This preparatory phase was facilitated by a virtual care coordinator to raise awareness about virtual care service delivery which was also discussed by Long and colleagues.²⁴ In addition to providing education to patients on how to use virtual care platforms, virtual etiquette and ‘webside manner’ was elaborated upon in two studies.^{28,30} ‘Webside manner’ is the virtual equivalent to bedside manner which is recognized as the ways that HCPs interact with patients.⁹ Translating key elements of the conventional in-person visit to the virtual experience is a foundational step towards building the virtual care infrastructure.⁵

Workflow processes emerged as an important concept for enabling patient engagement in virtual care. The use of virtual patient support personnel to assist patients with preparing for virtual sessions was evident, especially within community outreach programs.⁴¹ There are many resources that promote digital literacy acquisition via virtual training for patients and HCPs. Many of the grey literature sources outlined virtual etiquette for patients and ‘webside manner’ for HCPs. As the virtual care literature continues to grow, a more expansive review of the peer-reviewed and grey literature could address the importance of synchronous virtual care resources, their effects on team-based care in chronic disease management, and health outcomes.

It is essential to prepare patients prior to their virtual visit to promote effective patient engagement and enable time for HCP(s)-patient rapport building. This relates to the *Stanford Virtual Health Patient Engagement Model* as the breakdown of this model included a workflow (*Stanford Virtual Health Clinical Process*) that mirrored in-person visits (i.e., virtual waiting room) while ensuring continuity of care was maintained.⁵

Limitations and Recommendations

The terms related to ‘virtual care’ are not consistent in the literature. Thus, this search strategy may have identified sources that ascribe different meanings to this term. However, to ensure the search was comprehensive, a consistent definition of synchronous virtual care was developed. This study also defined “adult” as age 35–64 since the literature for adults age 65+ addressed unique later-life issues. Due to variable definitions of “adult” and a focus on chronic diseases, some sources included patients beyond 64 years. We do note, however, that we were unable to



Figure 2. Telehealth visit workflow.^{25,42}

differentiate patient populations by health literacy or other sociodemographic factors. Although the scoping review includes sources from 2011 to 2022, the peer-reviewed database search only included studies published until November 2021. To compensate for this, the reviewers completed a hand-search and grey literature search that included sources published in 2022. The peer-reviewed data was not limited to any geographical location, but the grey literature was limited to North America due to feasibility. Likewise, all sources were restricted to English but if research was translated to English for publication it was included. Future research should include non-English literature to gain an understanding of the resources available to patients across geographical boundaries.

Conclusion

This scoping review aimed to address what resources enable adults with chronic health challenges to participate as partners on their virtual team. The results suggest that resources are beginning to proliferate within peer-reviewed and grey literature. This scoping review's findings align with the

Stanford Virtual Health Patient Engagement Model which posits that clinical team support, system/technology support and patient care support are the three main pillars of promoting patient engagement.⁵ Alongside the overarching argument that “patient engagement is the key driver of high-quality healthcare outcomes”.^{5(p3)}

Given increasing calls to make health services accessible, and the value technologies have in doing so, many interprofessional health teams supporting adults with chronic conditions are likely to amplify their use of virtual platforms.¹ As such, supporting patients to engage as partners on their care teams and navigate new and evolving virtual technologies is a pressing priority. It is hoped that this scoping review will influence interprofessional healthcare teams who are supporting patients virtually to develop or modify existing virtual care approaches to be more accessible and patient-centred. Ultimately, from this study, there was evidence for using a virtual care coordinator to prepare patients for synchronous virtual sessions that foster ‘websites manner’. Future research should explore interprofessional HCPs’ experiences engaging patients within virtual care teams to identify what additional resources are needed to improve quality of care.

Appendix A

Peer-Reviewed Literature: MEDLINE Search Strategy

Ovid MEDLINE: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE® Daily and Ovid MEDLINE® <1946-Present

Search Number	Search Terms/Strategy	Number of Articles
1	family/ or adult children/ or family relations/	92470
2	Caregivers/	43023
3	exp Sexual Partners/ or partner*.mp.	200079
4	exp Spouses/	10976
5	exp Siblings/	12304
6	1 or 2 or 3 or 4 or 5	339744
7	Chronic Disease/	271931
8	Chronic condition*.mp.	21655
9	Chronic challenge*.mp.	74
10	Chronic health.mp.	11310
11	Chronic Diagnosis.mp.	26
12	Hypertension/	244709
13	exp Osteoarthritis/	69399
14	exp Anxiety Disorders/	84313
15	exp Mood Disorders/	128993
16	exp Diabetes Mellitus, Type 2/ or exp Diabetes Mellitus, Type 1/ or exp Diabetes Mellitus/	460090
17	exp Asthma/	134531
18	COPD.mp. or exp Pulmonary Disease, Chronic Obstructive/	79591
19	Ischemic Heart Disease.mp. or exp Myocardial Ischemia/	459941
20	Cancer.mp.	1932722
21	exp Dementia/	182600
22	7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21	3895733
23	6 and 22	50818
24	exp Telemedicine/ or Virtual health*.mp.	38324

(continued)

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Search Number	Search Terms/Strategy	Number of Articles
25	Virtual care.mp.	549
26	Virtual visits.mp.	398
27	Telehealth*.mp.	8884
28	connected heath*.mp.	1
29	connected care.mp.	63
30	telerehab*.mp.	1505
31	Remote Consultation/	5380
32	Remote primary care.mp.	40
33	virtual health*.mp.	726
34	digital health*.mp.	4014
35	digitally enable*.mp.	86
36	24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35	45808
37	23 and 36	444
38	interprofessional*.mp.	60067
39	exp Patient Care Team/ or team*.mp.	237128
40	Partnership*.mp.	42949
41	Collaboration.mp. or exp Cooperative Behavior/	121330
42	Engage*.mp.	86942
43	Interdisciplinary.mp.	58448
44	Multidisciplinary.mp.	98843
45	Transdisciplinary.mp.	2242
46	38 or 39 or 40 or 41 or 42 or 43 or 44 or 45	667058
47	37 and 46	178
48	exp Adult/	7639282
49	adult client*.mp.	395
50	adult patient*.mp.	103635
51	48 or 49 or 50	7666258
52	47 and 51	80
53	limit 53 to (english language and yr="2011 - 2021")	74
54	resource*.mp.	447886
55	support*.mp.	10682934
56	54 or 55	10916539
57	53 and 56	61
58	mhealth*.mp.	6632
59	mobile health*.mp.	9886
60	e-visit*.mp.	70
61	e-mental*.mp.	426
62	e-rehabilitation.mp.	17
63	58 or 59 or 60 or 61 or 62	14062
64	36 or 63	55179
65	23 and 36 and 46 and 52 and 53 and 57 and 64	61

Appendix B

Grey Literature - Google Engine Search Strategy

“Adult patients/clients and virtual care”

- 64 sources screened
- 21 included

“Adult patients/clients with Chronic Health Challenges and virtual care”

- 80 sources screened
- 5 included

“Engaging adult patients/clients in virtual care”

- 64 sources screened
- 15 included

“Adult patients/clients as partners of their virtual care team”

- 56 sources screened
- 14 included

“Virtual Care Resources for Adults with Chronic Health Challenges”

- 68 sources screened
- 10 included


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