Virtual Care Access and Health Equity during the COVID-19 Pandemic, a qualitative study of patients with chronic diseases from Canada

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Abstract

Objectives: The COVID-19 pandemic has led to the widespread uptake of virtual care in Canada; however, virtual care may also create new barriers to health care. The purpose of this paper was to explore patient perceptions and concerns around virtual care access.

Methods: Between February and April 2020, we conducted semi-structured interviews with participants from four chronic disease clinics (stroke, epilepsy, amyotrophic lateral sclerosis, obstetrics medicine) in a mid-sized academic hospital in Southern Ontario, Canada. Consecutive sampling was done by including the patients receiving virtual care in those months. Caregivers were invited to participate in the event that patients were unable to participate in the interview. Thematic analysis was employed to identify overarching themes, and codes were reviewed and refined using a consensus process.

Results: We interviewed 31 participants (27 patients, four caregivers) that had taken part in virtual care. Our findings suggested that the COVID-19 pandemic served to isolate participants and had negatively impacted their access to health care. However, virtual care did provide a safe avenue for patients to receive care and served as a reassuring option during the pandemic. Low technological literacy and access were identified as barriers to virtual care. Greater awareness and patient engagement is needed in future research to improve access.

Conclusion: Certain populations can be disproportionately affected by differential access to virtual care. Future studies should examine how social determinants intersect to impact virtual health care access in different patient populations.

Submission date: 5 January 2021; Acceptance date: 3 January 2022

Introduction

The COVID-19 pandemic has brought about unprecedented changes in how healthcare has been delivered in Canada.[1–5] To maintain continuity of care while preventing exposure to COVID-19, virtual care has been rolled out across Canada.[1,6–9] Virtual care can be defined as any form of remote interaction occurring between patients and/or members of their circle of care via any form of communication or information technology for the purpose of maximizing quality and effectiveness of patient care.[10] Examples of virtual care include telephone, video conferencing, text messaging, and emailing. In other studies conducted in specialist medical settings prior to the pandemic in Kingston,

Ontario, patients have found virtual care to be cost-effective, time-effective, and accessible.[9,11,12] This is a particularly salient benefit for patients with mobility issues, exhaustion, or are living in rural areas.[12,13] However, little attention has been paid to the ways virtual

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care may create new barriers to health care in unprecedented ways.[13] Patient voices are fundamental in informing the specific factors and populations that affect and are affected by virtual care in nuanced ways.[15,16]

Since 2019, Kingston Health Sciences Centre (KHSC) and Providence Care Hospital (PCH), the regional hospitals in Southeastern Ontario have adopted virtual care for routine ambulatory specialist care and have pioneered a specialist virtual care model delivered through Ontario Telemedicine Network.[9,11,17,18] The specialist virtual care model included provision of care for the Stroke prevention clinic, Epilepsy, Multidisciplinary Amyotrophic Lateral Sclerosis Clinic and Medical Obstetrics Clinic.[9,11,17,18] Both the KHSC and PCH are academic teaching hospitals affiliated with Queen's University.

Drawing on our local experiences and ongoing patient partnerships, this paper details a qualitative research project and aims to understand the perceptions and concerns around virtual care access during the COVID-19 pandemic. Some of the factors impacting access to virtual health care includes socio-economic and cultural contexts, intermediate factors shaped by social context, digital determinants of health, health system as a social determinant of health, resourcing & quality of care, digital health equity.[19] This paper seeks to capture patient perceptions of virtual care as a means to exploring the nuances of health access around virtual care during the COVID-19 pandemic in Canada. This paper seeks to contribute to ongoing discussions to make virtual care more universal, portable, and accessible to all Canadians.[20]

Methods

Study design

Study objective: The objective of the study was to understand patient experiences of health care during the COVID-19 pandemic and the facilitators and barriers to virtual visits during the pandemic.

The study employed a qualitative, constructivist research design to capture patients' lived experiences with virtual care via semi-structured interviews. The study was approved by the Queen's University and Affiliated Teaching Hospitals Health Sciences Research Ethics Board.

Setting & participants

Patients receiving virtual care from four chronic disease clinics (stroke, epilepsy, amyotrophic lateral sclerosis or obstetrics medicine) in 2 mid-sized academic hospitals in Southern Ontario, Canada were invited to participate in the research study. These four clinics were early adopters of virtual care since 2019 and rapidly transitioned to a 100% virtual clinic model after the pandemic imposed restrictions to in-person care in February 2020. Caregivers were invited to participate in the study when the patients were unable to participate.

We employed a consecutive sampling strategy for all patients receiving virtual care in the four clinics between February and April of 2020. The subjects enrolled for the study did not have prior experience using video conferencing at the KHSC. However, all participants were familiar with telephone calls as they taken place prior to the pandemic.

Data collection

Drawing on our ongoing collaboration with the KHSC Patient and Family Advisory Council (PFAC),[21] we worked with local patients and caregivers to design, develop, and refine the interview guide. This project followed the Guidance for Reporting Involvement of Patients and Public short-form checklist (GRIPP2-SF). The Consolidated Criteria for Reporting Qualitative Studies (COREQ) checklist was used to ensure comprehensive reporting of the entire research process.[22,23] A semi-structured interview guide was created to collect descriptions about the 1) costs and time associated with in-person visits, 2) facilitators and barriers to in-person and virtual visits and 3) experiences of using virtual care during the COVID-19 pandemic. The interview guide was developed through an iterative consultation process with three representatives from the KHSC PFAC to ensure patient perspectives and concerns were captured within the guide, as well as being informed by the review of literature.

The study was conducted between March and April 2020. The patients were contacted by phone by a research team member (SCN), who was a research associate, and a PhD student research assistant to participate in the study. Verbal consent was obtained over the phone and documented in the study log. The interviews lasted between 20 to 60 min. Adherence to public health guidelines and institutional policies for research during COVID-19 was maintained. The decision to have research staff carry out the telephone interviews was deliberate as the other study team members (RA, GS, BR, LN, SS) were the patients' health care providers and may have influenced the participants' responses, whereas the research staff had no association with the participants which mitigated bias. An audio recorder was used to capture the interviews, and field notes were taken during the interviews. Interviews were conducted until data saturation was reached—no new data was collected.

Data analysis

Thematic analysing using open coding in NVivo 10 was completed by a study team member (SCN) and a PhD

Table 1. Sociodemographic information of all participations.

Variable (n = 31)	Number (%)
Patient Population	
Stroke	22 (68.7%)
Epilepsy	3 (9.7%)
Amyotrophic Lateral Sclerosis	4 (12.9%)
Obstetrics Medicine	2 (6.5%)
Sex	
Male	19 (61.3%)
Female	12 (38.7%)
Age	
20-29	1 (3.2%)
30-39	2 (6.5%)
40-49	3 (9.7%)
59-59	5 (16.1%)
60-69	7 (22.5%)
70-79	13 (41.9%)
80-89	0 (0.0%)
90-91	1 (3.2%)
Ability to drive	
Requires a driver	18 (58.1%)
Can drive	13 (41.9%)
Location of residence	
Urban (City of Kingston)	11 (35.5%)
Urban (Outside of city of Kingston)	7 (22.5%)
Rural	13 (41.9%)
Occupation	
Working	13 (41.9%)
Semi-retired	1 (3.2%)
Retired	16 (51.6%)
Unknown	1 (3.2%)

Table 2. Details pertaining to virtual care modality and frequency of use.

Variable	Number (%)
Number of Virtual Care Sessions	
1	24 (77.4%)
2-3	6 (19.4%)
4 +	1 (3.2%)
Technology Access	
Borrowed	8 (25.8%)
Owned	23 (74.2%)
Type of Equipment	
Computer	9 (29.0%)
Home Phone or Cellphone	11 (35.5%)
Tablet	9 (29.0%)
Hospital Equipment	2 (6.5%)

student research assistant via an iterative consensus process. Following every fifth transcript, the codes were reviewed and refined using a consensus process to ensure shared meaning and intercoder reliability. Coding was done in six subsequent rounds. Subthemes identified in the first stage of coding were grouped into overarching themes in the second stage of coding. The full research team then met to discuss and refine the codes, subthemes, and themes through consensus. The COREQ checklist was used to ensure that our methods were transparent and replicable.[22] This process addressed reflexivity by ensuring that team members' assumptions and misconceptions were explicitly addressed.

Results

Eighty participants were invited to participate in the study. Thirty-six participants (33 stroke patients, three obstetrics patients, zero epilepsy and ALS patients) declined to participate in the study. Thirteen participants were interested but could not be contacted on the scheduled interview date after multiple attempts. Thirty-one participants (12-female and 19-male) were recruited during the 2-month study period. The median age of the participants was 67 (range: 22–92 years). Four

participants were caregivers. The demographic details are presented in Table 1. The modality of virtual care used and frequency of virtual care was also varied (Table 2). The findings are divided into three major themes: impact of COVID-19 on health care access, benefits of virtual care during COVID-19, and the challenges of virtual care during COVID-19.

Impact of the COVID-19 pandemic on health care access

Just over one half of all participants stated that the COVID-19 pandemic had deterred them from seeking or attending in-person health care. Negative impacts on health care access could be attributed to health system-related factors and patient-related factors.

Due to rapid health system changes during the COVID-19 pandemic, participants identified that they experienced the cancellation of follow-up appointments or delayed presentation to the hospital. Some participants and caregivers expressed they did not know whether they could receive help if needed because of cancelled appointments.

> I've had to cancel, I've had two clinic appointments which I cancelled. Now, I was talking to [doctor] over the telephone when I cancelled. He gave me a telephone interview. So his interview went very well but I'm staying away from the hospital because I just don't want to kind of expose myself during this time. I'm kind of one of the vulnerable people. That's why I wish they had more of these e- or telephone interviews. I don't mind them. (P14, Stroke, M)

> I'm not able to go out anywhere or do anything because of the infec-, and have to be careful around people and you can't go outside. It's affected me a lot. I don't like it. (P33, ALS, F)

> He hasn't been in the hospital since he fell last March. My doctor came, I guess about two months ago, he's not coming now because of the COVID-19, he came in to see him but no, we are very isolated. (P36, Caregiver, ALS)

Many participants observed that the COVID-19 pandemic also impacted their access to allied health professionals by being less accessible than prior to the pandemic.

> Well, right now it's difficult because of the COVID-19 because my physiotherapist and my occupational therapist can't come right now because of it. (P21, Stroke, M)

> No, I have not. If there are things, lots of appointments, eye appointments, those sort of things that have to be put on

hold but that's fine. So things will get dealt with when we are able to do that. (P18, Stroke, F)

However, some participants played an active role in ensuring their health and safety and declined in-person care. Some participants relied on the help of family, friends, and members of their community. Other participants also felt unsafe receiving in-person care during the pandemic due to anxiety around of risk of exposure and have preferred virtual care over in-person care.

> [The patient] had another fall recently and I had to finally get a neighbour 'cause I wasn't gonna call 911 this time because I was more concerned with having them come in my house than my neighbour, and help me get him off the floor. I feel very isolated and you're asking and it's just the way it is. I think I have a wonderful neighbour and they help me and that was fine. They left immediately, they didn't hang around. I don't have Community Care or anybody coming in. (P36, Caretaker, ALS)

> I haven't had any contact with the hospital. If I had to, I had home care through the agency but I asked that they not come because I was nervous. (P26, Stroke, F)

Benefits of virtual care during the COVID-19 pandemic

Although participants acknowledged the disruption of their health care due to COVID-19, most participants perceived virtual care being a useful alternative to receiving in-person care. Participants specifically noted that virtual care allowed them to receive care safely by preventing unnecessary exposure to the virus.

> Well, it's convenient for both us and the doctor. In this period we're not exposing ourselves to — I'm not exposing him and he's not exposing me. I'm not walking through his environment down in the hospital, which isn't really a good environment. But [virtual care] kind of solves that problem. (P14, Stroke, M)

> Hospitals are full of sick people anyway and you don't want to make their situation worse, or your own, so virtual care definitely allow you to have that interaction safely at home, away from people. (P12, Stroke, M)

Virtual care was seen as valuable for follow-up appointments or receiving prescriptions because they were not required to be physically present. Nearly half of all respondents noted the reduction or elimination of travel and associated costs to the hospital (e.g. parking, gas) as benefits of

virtual care. In particular, respondents residing in rural areas expressed that virtual care reduced the burden associated with the travel, cost, and stress of travelling to in-person appointments.

> Well, first of all it's very positive for me 'cause I have mobility problems and it saves a whole bunch of arrangement to get me down the hospital and get me in to see the doctor. (P14, Stroke, M)

> It wasn't terribly important that he get there, although he really likes her, he was happy not to have to travel the distance, yes. (P10, Epilepsy, Caregiver)

> Well, it's just kind of a nuisance for parking and I don't know, congestion and whatnot. So that's why we started the virtual care. (P13, Epilepsy, Caregiver)

> Like I said, the virtual care work great because I don't have to go out if I don't have to and that makes life a lot easier on our end knowing that that's one less thing we have to leave the house for, if we don't have to. (P31, Obstetrics Medicine, F)

Nearly half of all participants in this study were employed and continued to work remotely from home. Seven of those participants noted that virtual care allowed them to receive care safely in the comfort of their own homes without needing to take time off work. Thus, participants noted that virtual care was a reassuring option if they needed to reach their physician for a question or a follow-up appointment.

> So yeah, I think it would definitely benefit for people who just wanted, maybe they were experiencing anxiety or they thought they had COVID-19, they weren't sure if they should go to the hospital or whether they should stay home of if their kid had a fever. (P24, Stroke, F)

Challenges of using virtual care during the COVID-19 pandemic

Despite the rapid and widespread implementation of virtual care across Canada, patients faced challenges in accessing and navigating the system.

> But I was really not happy with the [provincial telehealth phone] service, at least when it involves my daughter. That's all I can say, yeah. I have to call three different numbers to get the consultation for my daughter. (P30, Obstetrics Medicine, F)

Technological challenges were cited as a concern for older adults or those with little technological literacy.

> I suppose an eVisit is fine as long as in the frail, elderly that there's someone there to be the lead from the family perspective and the patient perspective. I think they could get lost in computer screen. Vision might be an issue, hearing might be an issue and just the anxiety of looking at a screen rather than being face-to-face with a physician. (P32, ALS, F)

> Well, we didn't like ours because we could hardly hear the doctor at all. I think she cut it short because of that. So I don't know what happened, whether it had something to do with me downloading the app, but I think she could hear me but I couldn't hear her very well at all. So [patient] didn't get a chance to ask the questions he wanted to ask. 'Cause I was trying to hear the doctor tell me about his prescriptions, etc. So he hated it, he was very mad. (P10, Caregiver, Epilepsy)

All eight participants who did not own the necessary digital technology for accessing virtual care were aged 70 and above. These participants joined by landline, borrowed a device from a younger family member, or joined from the hospital. Two participants joined a virtual multi-disciplinary clinic at the hospital as other options were not available. Those participants were put into an enclosed room with video conferencing capabilities and spoke with a team of health care professionals joining remotely.

A few participants expressed concern that a virtual visit would not be sufficient as an in-person visit as it would not include a physical exam.

> Well, my challenges, like, for my meeting with [doctor] next week, like, he's been working with me on trying to get my limbs to respond better, my arm and leg and he's not going to be able to physically see what's going on or be able to suggest any changes or any new exercises or anything like that because he's just not going to have that ability. (P21, Stroke, M)

> I guess there's a little bit because you really, I think it probably was 90% okay and 10% we wished that the doctor could've maybe really seen him up close and touched him. (P36, ALS, M)

As well, a few participants noted that they valued in-person and physical interactions with their health care provider despite the positive experiences of virtual care.

Sometimes over the phone it can be — you don't feel that connection when you can see your doctor and they can see you. (P24, Stroke, F)

Of course, when you meet someone in person it's warmer, friendlier, better. (P19, Stroke, F)

Discussion

The COVID-19 pandemic has placed severe restrictions on health care delivery in Canada.[24–26] In our study, participants found health care to be inaccessible due to physical distancing measures. Participants cancelled in-patient clinics and in-home services to prevent exposure to the virus. In contrast, virtual care was most desirable as a modality of care that eliminated travel to the hospital and exposure to disease. As a result, some participants noted that virtual care was a reassuring option whereby patients could safely receive health care. However, participants also acknowledged that technological challenges and the lack of physical examination could serve as barriers to virtual care. Greater awareness around virtual care is needed to facilitate the uptake and acceptability of this alternative health care delivery model.

Benefits of virtual care during the COVID-19 pandemic

The lessons learnt from the SARS pandemic has proved helpful in providing continuing medical care for the COVID-19 pandemic.[1,27,28] Preliminary studies show that virtual consultations play a significant role in reducing infection risk by keeping vulnerable persons from attending hospitals and clinics.[29,30] Virtual care has also been utilized in multiple clinical settings as a triage tool during the COVID-19 pandemic.[29,30] This aligns and confirms with many of the perceptions explored in this study surrounding virtual care as a way to prevent patients from being exposed to infection. From a patient-oriented perspective, virtual care nearly eliminates travel-related costs and the need to make alternative arrangements related to in-person follow-up sessions.[31,32] In this study, almost one half of respondents lived rurally outside of Kingston and often embarked on long journeys to the hospital. Virtual care essentially eliminated transportation costs associated with visits, such as parking fees and gas mileage fees. Participants in our study expressed that virtual care served as an accessible modality of care and a reassuring option given the uncertain climate created by the pandemic. Resultantly, in this way, virtual care can increase health care access by providing the conditions for patient safety and eliminating out of pocket costs for patients.

Addressing health care access and inequity during the COVID-19 pandemic

Even before COVID-19, health care access has been critiqued to be largely unequal.[33,34] The COVID-19 pandemic, along with the changes, innovations, and challenges that have emerged in the Canadian health care system, continues to reiterate the need for equitable and accessible health care access.[35,36] Questions around affordability, access, and the sustainability of how current health care systems can continue to operate are beginning to dominate discussions around COVID-19.[35,37,38] Specific populations are disproportionately affected by COVID-19 due to an unequal spread of health care and social support services, as well as the likelihood to take up front-line jobs in retail or hospitality.[39–41] In Canada, minorities, older adults, individuals living in poverty, low-income settings and those with disabilities are disproportionately affected by differential access to health care.[42–44] This study finds that virtual care can serve as a useful alternative to care during the COVID-19 pandemic. Not simply as a measure to prevent exposure to unwanted illness, virtual care can serve to increase access by eliminating or drastically reducing health care costs. In our study, this was found to be particularly useful for rural residents and those who were employed. Many of the rural residents who participated in our study were also retired and increasingly immobile. These intersections suggest that virtual visits could alleviate physical and economic burden, particularly it is customary for patients to attend in-person visits frequently. Virtual care can also present positive implications for income as patients do not need to take time off work and spend transportation costs to attend the hospital.

Challenges and barriers to virtual care access during the COVID-19 pandemic

While virtual care shows promise to meet some health care needs during the COVID-19 pandemic, there are different sets of determinants that impact virtual care access.[41] Virtual care, mainly when utilized during the COVID-19 pandemic, can either address or exacerbate intersecting determinants of health that contribute to differential access to care.[12,45] In our study, rural residents had an overall favourable perception of virtual care as they could safely be at home without spending additional money on transportation costs. However, some of the rural residents identified limited technology access, ownership and digital literacy, as barriers to accessing virtual care. Some rural residents who did not own digital technology drove long distances to the hospital to access technology to do a multi-disciplinary virtual care session. The cancellation of home care and community healthcare services during the

pandemic has also isolated those participants from receiving healthcare.

In senior stroke patients, limited technological and digital literacy and poor access to the Internet have served as barriers to virtual care.[11] While smartphone ownership has increased, only 18% of Canadians 75 years and older own a smartphone, according to a 2016 Statistics Canada report.[46] Broadband internet access is only available in 40% of rural areas.[47] Places with free internet access like public libraries, retail malls, or restaurants have been closed to the public resulting in further lack of internet access during COVID-19. In these instances, virtual care may serve as barriers to health care access.[42,48,49]

Strengths & limitations of this study

Some of the strengths of the study include the recruitment of a large sample size (n = 36), representation of patients from multiple chronic disease conditions. The participants' experiences in this study may differ from those of patients with other chronic conditions or living in larger metropolitan areas, thus limiting the generalizability of our study findings. Nevertheless, given the growing senior population and a significant number of rural residents living in Canada our findings may apply to other areas with similar contexts. The sociodemographic profiles of participants were not gathered, limiting the discussion from exploring structural and social inequities. Further research is needed in this regard.

We also did not consider comparisons between new referrals and existing patients which could have provided insights on how the patient-clinician relationship could take place differently through virtual care. This study was also conducted early on in the pandemic and reflects early perspectives on virtual care at the time. Most of the participants in the study had only conducted one virtual care session at the time. As such, this results of this study cannot be extrapolated to understanding patient perceptions of virtual care in the long-term.

Knowledge gaps and future directions

Additional research on the sociodemographic profile of virtual care users can provide more insight into virtual care access determinants. Social factors such as gender, race, ethnicity, income, and education may be particularly valuable as these factors are not presently collected by researchers or clinicians. Stakeholders at all levels need to consider factors that impact virtual care access. It is important to consider collecting data on populations accessing virtual care and an intersectional approach towards biological, social, and geographical factors may shed light on how various determinants impact virtual care access in different patient populations.[34,48,50,51]

Recommendations to improving access to virtual care include better understanding and addressing the personal, cultural, social, economic, and structural factors that impact access to care (Box 1).

Box 1.   Recommendations for addressing these barriers.

1. Development of educational resources for improving patient and caregiver literacy around virtual care (Resources/Toolkit - Virtual Health Research Group (virtualcareresearch.com)
2. Collect data on populations accessing virtual care to understand the unique determinants that impact virtual care access[12,19]
3. Implement policies that address issues with electronic access in order to improve continuity of care[15,52,53]
4. Telephone calls should continue to be included under virtual care delivery[54]
5. Models for simplified remuneration of telephone calls for providers should be continued[7,8,55]
6. Strategies to leverage current public infrastructure (libraries, community centers, etc) to support individuals with limited access to technology or internet to participate in virtual care should be considered.[56,57]
7. 'Technology hubs' can facilitate better approaches to integrated care delivered both virtually and in-person

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Conclusion

Our study adds new knowledge in the area of virtual care and how it impacts and interacts with health care access during the COVID-19 pandemic and possibly beyond. These aspects need to be considered by researchers, clinicians, and policy makers alike to ensure accessible care is forwarded in research, practice, and in policy.

Given that virtual care will remain an integral modality of health care for the foreseeable future, policymakers have the opportunity to institute reforms that make both traditional and virtual forms of care accessible for all. Health care reform should consider the different determinants uniquely intersect to facilitate or impede health care access during and beyond COVID-19. While virtual care shows promise to meet healthcare gaps while ensuring physical distance measures, greater attention must be paid to how virtual care may exacerbate health care access. Sustained engagement with patients will be integral to providing key insights moving forward.

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