



Patient Perspectives of Telemedicine in Outpatient Nephrology Clinics During COVID-19: A Qualitative Study

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Abdelhady Osman¹, Seung Heyck Lee², Mateen Noori¹,
Melissa Al-Jaishi³, Kerri Gallo³, Lori Harwood³,
and Louise Moist^{1,3,4} 

Abstract

Background: The COVID-19 pandemic notably disrupted care for patients with chronic kidney disease (CKD) care, necessitating a rapid shift to telemedicine. Despite the growing use of telemedicine, the impact of this transition on patients' experiences, particularly in Canada and considering sociocultural factors, remains underexplored. This study aims to investigate patients with CKD perspectives on telemedicine versus in-person care and to offer recommendations for enhancing telemedicine services.

Objective: The objective was to understand patients with CKD views on telemedicine clinics during the pandemic compared to traditional in-person clinics.

Design: This was a qualitative descriptive study employing semi-structured interviews.

Setting: This study was conducted in general nephrology and multidisciplinary kidney care clinics in London, Canada.

Population: The study population was English-speaking patients with CKD with at least one in-person nephrology visit before March 15, 2020, and one telemedicine appointment after March 30, 2020.

Methods: Interviews were conducted using a structured guide, with transcripts analyzed line-by-line by 3 independent reviewers through directed content analysis. Themes were identified and agreed upon through group consensus.

Results: Interviews with 12 participants revealed 5 key themes: (1) convenience; (2) building connection and trust; (3) necessity of in-person care; (4) role of family or caregivers; and (5) preferences for clinic types. Most participants (11/12) valued the convenience of telemedicine, noting similar levels of care compared to in-person visits. However, they found it easier to establish personal connections in face-to-face appointments. Most (8/12) preferred in-person visits if their condition worsened. Overall, a combination of in-person and telemedicine was favored, with a preference for video over telephone.

Limitations: The study's focus on one academic nephrology center in Ontario and predominantly white participants limits broader applicability. Additionally, recall bias may affect the findings due to the interview-based design.

Conclusions: Telemedicine will remain integral to CKD care, with a hybrid model combining in-person and telemedicine preferred. Integrating patient feedback into future telemedicine practices is essential to enhance flexibility, access, and patient satisfaction.

Abrégé

Contexte: La pandémie de COVID-19 a profondément perturbé la prise en charge de l'insuffisance rénale chronique (IRC), ce qui a forcé un passage rapide vers la télémedecine. Malgré son utilisation croissante, on a peu exploré les répercussions de cette transition sur l'expérience des patients, en tenant compte des facteurs socioculturels, particulièrement au Canada. Cette étude a pour objectif d'explorer les perspectives des patients atteints d'IRC sur la télémedecine par rapport aux consultations en personne et de proposer des recommandations pour améliorer les services de télémedecine.

Objectif: Connaître le point de vue des patients atteints d'IRC sur les consultations en télémedecine pendant la pandémie par rapport aux consultations en personne.

Conception: Étude qualitative et descriptive menée par le biais d'entrevues individuels semi-structurés.

Cadre: Néphrologie générale et cliniques multidisciplinaires de soins rénaux à London (Canada).

Population: Les patients anglophones atteints d'IRC ayant eu au moins une consultation en néphrologie en personne avant le 15 mars 2020 et une consultation en télémedecine après le 30 mars 2020.



Méthodologie: Les entretiens ont été menés à l'aide d'un guide structuré, puis les transcriptions ont été analysées ligne par ligne par trois évaluateurs indépendants selon une analyse dirigée du contenu. Les thèmes ont été identifiés et adoptés par consensus de groupe.

Résultats: Les entretiens avec douze participants ont révélé cinq thèmes clés: 1) la commodité; 2) l'établissement de liens et de la confiance; 3) la nécessité de soins en personne; 4) le rôle de la famille ou des aidants; et 5) les préférences à l'égard des types de consultation. La plupart des participants (11/12) ont apprécié le confort de la télémedecine, rapportant des niveaux de soins similaires à ceux des visites en personne. Ils ont cependant trouvé plus facile d'établir une relation personnelle lors des rendez-vous en personne. Une majorité de participants (8/12) a mentionné préférer les visites en personne si leur état s'aggravait. Dans l'ensemble, les participants préféraient une combinaison de consultations en personne et en télémedecine, avec une préférence pour les consultations par vidéo plutôt que par téléphone.

Limites: L'extrapolation des résultats de l'étude est limitée par le fait que celle-ci a été menée dans un seul centre universitaire de néphrologie en Ontario et auprès de personnes majoritairement de race blanche. Un biais de rappel pourrait également affecter les résultats en raison de la conception fondée sur des interviews.

Conclusion: La télémedecine continuera de faire partie intégrante des soins de l'IRC, avec une préférence pour un modèle hybride combinant les consultations en personne et la télémedecine. Il est essentiel de tenir compte de la rétroaction des patients dans les pratiques futures de télémedecine afin d'en améliorer la flexibilité et l'accès et d'augmenter la satisfaction des patients.

Keywords

nephrology, CKD, virtual care, COVID-19, telemedicine

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Introduction

The impact of COVID-19 on delivering chronic kidney care has been substantial, mandating the initial adoption of telemedicine for managing chronic kidney disease (CKD) and prompting strategy ensure quality and consistency of care. Telemedicine is the adoption of information and communication technology, including telephone and video, to provide more accessible medical care.¹ In Ontario, Canada, telemedicine rapidly increased from 1.6% before the pandemic to 70.6% in the second quarter of 2020, where over 90% of these visits were conducted by telephone.² The rapid introduction of telemedicine proved to be an effective mode of patient interaction, with a 91% satisfaction rate from the general Canadian population.³

Chronic kidney disease is a chronic disease and requires continuity of care, with close monitoring of clinical and laboratory measures, as well as multidisciplinary support for advanced CKD. Telemedicine has been a promising tool for increasing access to care kidney care-related specialties. Quality improvement studies in nephrology have emphasized the benefit of telemedicine for review appointments in outpatient settings and remote monitoring of dialysis and post-transplant patients.⁴⁻⁷ Lower burden and cost of traveling, while receiving similar quality of care, contributed to high patient satisfaction with telemedicine.⁸⁻¹¹ These advantages of increased care access are significantly more pronounced at rural regions, helping patients overcome geographic barriers and receive more timely referrals to specialized care. However, lack of high-speed internet, digital literacy, and physical examinations highlight the need for refining telemedicine platforms.⁷

A quantitative survey from our group on the perspectives of telemedicine from CKD patients and nephrologists showed high satisfaction and comfort with telemedicine for kidney care.¹² However, there is still a need to understand the patient experience within specific parameters of their care and how they want to trade off the benefits with potential for any negative risks. There remains an opportunity to review patient preferences and attitudes toward clinics in the post-pandemic era where we can now offer patients a choice of options for outpatient management.

This study aims to understand the patient experience with telemedicine in patients with CKD attached to an academic referral center in Southwestern Ontario. The objectives of this study are to (1) identify and describe key themes affecting patient satisfaction and preferences with telemedicine compared to in-person visits and (2) identify areas of improvement to support patient experience with telemedicine, including telephone and video-based platforms.

¹Schulich School of Medicine & Dentistry, Western University, London, ON, Canada

²Faculty of Medicine, University of Ottawa, ON, Canada

³Division of Nephrology, London Health Sciences Centre, ON, Canada

⁴Division of Nephrology, Department of Medicine, Schulich School of Medicine & Dentistry, Western University, London, ON, Canada

Corresponding Author:

Louise Moist, Division of Nephrology, Department of Medicine, Schulich School of Medicine and Dentistry London Health Sciences Centre, 800 Commissioners Road East, Room A2-338, London, ON N6A 5W9, Canada.

Email: louise.Moist@lhsc.on.ca

Methods

We conducted a qualitative descriptive study with directed content analysis using semi-structured interviews in patients with CKD to explore their experiences and perspectives of telemedicine, specifically referring to telephone visits that all our patients received. Participants were recruited from an academic center with telemedicine services in London, Canada from both the general nephrology clinic and multidisciplinary kidney clinics who treat patients with advanced CKD. All nephrology clinic encounters were conducted by telephone. The multidisciplinary care kidney clinic supports patients with a higher risk of needing dialysis and engages the support of a case manager, dietitian, social worker, and pharmacist. The London regional CKD program encompasses the Southwestern Ontario area, including participants from urban and rural locations. The inclusion criteria were participants with fluency in English and previous experience with in-person general nephrology or multidisciplinary kidney clinic before March 15, 2020 and at least one telemedicine visit with a nephrologist after March 30, 2020. Through purposeful sampling, eligible participants were invited by a nephrology team member to participate in the study. Participants who verbally agreed were contacted by the study coordinator (K.G.) to provide further details on the study and obtain informed consent. All participants provided written informed consent. This study was approved by the Western University Research Ethics Board (approval no. 119688).

The research team in partnership with a patient partner and qualitative methodology expert created an interview guide with main questions and potential probing questions using survey scores and themes previously identified from on a previous survey study on patient and nephrologist perspectives on telemedicine visits during the pandemic (Supplemental Appendix A).¹² Questions based on the previous themes served to ensure consistency with past findings while new questions were added based on emerging literature on telemedicine. Participants were interviewed by a single interviewer who had no role in patient care (S.H.L.). Interviews were conducted between January 2022 and December 2022 using telephone or Cisco Webex video conferencing platform and lasted between 45 and 60 minutes. All interviews were recorded and transcribed verbatim using Trint.¹³ Participants were on average interviewed 2.5 months after their last telemedicine visit. Preliminary findings and field notes were discussed twice among the research team, where we determined that data saturation reached at 12 interviews when no new themes emerged.¹⁴ Demographic data were collected through patient charts during recruitment and demographic questions at the end of interviews.

After interview completion, formal content analysis was undertaken by 3 independent reviewers (A.O., M.N., and M.A.J.) following a directed content analysis approach.¹⁵ The 3 reviewers had predetermined codes corresponding to the themes identified in our previous study.¹² Each reviewer

independently reviewed each transcript line-by-line. Text corresponding to the previously identified themes was coded according to predetermined codes. In addition, each reviewer independently added new codes which could be grouped under previously identified themes or reflected themes identified in this study. A new theme was identified when the newly added codes could not be grouped under any of the old themes identified in our previous study.¹²

The 3 reviewers had a total 3 group meetings during content analysis in which they shared and reviewed their findings. A color-coded spreadsheet was created with all codes used in the content analysis process and it was updated every meeting. Once all transcripts were reviewed by the 3 independent reviewers (A.O., M.N., and M.A.J.), feedback was then sought through 3 peer debriefs from the rest of the authors (K.G., L.H., and L.M.), who have experience providing health care services, for verification of identified themes and minimization of biases.¹⁶ Meeting notes were recorded through audit trails. Through team consensus, the most common themes and representative quotes were chosen. This study met all aspects of COREQ to ensure qualitative rigor (Supplemental Appendix B).

Results

Twelve patients were interviewed on their experiences with telemedicine for CKD care during the pandemic. Demographic characteristics of the study population are shown in Table 1. Five major themes emerged from our thematic analysis, listed in Table 2: (1) convenience; (2) developing connection and trust; (3) need for in-person care; (4) role of family or caregiver; and (5) preferences for ongoing care.

Convenience

Participants most appreciated the convenience of telemedicine to access care during the pandemic. Eleven out of 12 participants identified saving travel time as a major advantage of telemedicine. Participants also cited saving the costs of gas and parking. The cost-saving benefit of telemedicine was particularly emphasized in participants living in distant rural communities outside London, Ontario.

I don't mind the phone visits because it saves me a trip and I got the rest of the day ahead of me when I'm at home. (Participant 11)

It's an hour drive for us, so either way. But saves gas if you don't have to go, if you can do it on the phone. I don't mind doing that. (Participant 8)

Saving travel time was also appreciated by participants who could not drive due to immobility or illness. This was noted by a participant who had suffered a myocardial infarction and had to stop driving temporarily.

Table 1. Demographic Characteristics (N = 12).

Characteristic	No. of participants (n = 12)
Age (years) ^a	66 (±13)
Sex	
Male	6 (50)
Female	6 (50)
Ethnicity	
White	12 (100)
Level of education	
School	3 (25)
Post-secondary	9 (75)
Employment status	
Full-time	1 (11)
Part-time	1 (11)
Unemployed	1 (11)
Not in labor force (retired, stay-at-home, on disability pension)	9 (75)
Geographic location	
London, Ontario	2 (17)
<100 km from London	7 (58)
>100 km from London	3 (25)
Clinic	
General nephrology	3 (25)
Multidisciplinary care	9 (75)
Estimate eGFR (ml/min/1.73 m ²) ^a	
<15	4 (25)
15-29	6 (50)
30-60	0 (0)
60-89	2 (17)

Note. Data expressed as number (%) or mean (±standard deviation).
eGFR = estimated glomerular filtration rate.

^aAt interview time.

Good weather is not too bad, but with all the other problems that I've been having for a while, I didn't drive for a year or so. So I have to make arrangements to get somebody to take me over, so. So the phone call makes things a lot easier. (Participant 5)

However, half of the participants (6/12) indicated easier access to interprofessional care at the multidisciplinary kidney clinic during in-person visits compared to telemedicine, citing the better availability and familiarity of interprofessional staff on-site as opposed to waiting hesitantly to not miss the phone call and being unsure with which provider they can talk with over the phone.

Other support systems were there for me that I could meet in-person. [the doctor] had social worker come in. They had diabetic people come in, they had dietitian people come in . . . And they were there to say, okay, this is what we can do for you. Over the telephone conversation I had with [the doctor]. I really only talked to their nurse through telephone. (Participant 5)

Maybe 30 minutes later, the next person would call and then check with me . . . It would be lovely if it was just one phone call and each person came straight back to back. (Participant 4)

Developing Connection and Trust

Most participants (10/12) expressed a preference for in-person visits for developing a better connection with the nephrologist, noting the ability to build rapport and develop more personal connections with their nephrologist during in-person visits. In particular, participants noted the significance of using non-verbal cues and facial expressions to help convey their concerns and observing their nephrologists' non-verbal cues to better understand the more nuanced implications of their condition.

Well, then you get your facial expressions more or less. You can see whether I've got worry on my face, I'm hoping [the doctor] can read it. My kind of thing. And they're going to be more personal than just a phone call. (Participant 11)

I think, again, it comes to the facial interaction and . . . you could say, those kidney numbers are bad or you can look at somebody's face and you can see that [they're] starting to get concerned about these numbers. (Participant 4)

In addition, half of the participants (6/12) indicated that they would prefer their first meeting with the nephrologist to be conducted in-person in order to build the necessary trust and rapport that can facilitate future phone follow-ups.

I would like to meet [the doctor] first time in person. I just think you build up a trust factor that needs to be there, if you're going to continue to trust them. And I just think that's when you build it. Because when I saw them, I immediately said, you know what, I know that this is going to be good. (Participant 3)

However, most participants (8/12) did not perceive major differences in the level of care (ie, overall perception of care and before vs after telemedicine implementation) received with telemedicine. Most participants mentioned having at least one in-person visit with their nephrologist prior to the pandemic and that the established trust helped them be more comfortable with telemedicine visits. They generally felt that they received the same level of attention and care from their nephrologist over telemedicine as they did in-person.

Those are no different than face to face. I trust the doctor and they got all the information. So that's what I go by. (Participant 9)

I factor in the fact that I feel that [the doctor] still gives me the attention that I need, even though I'm not right there in person, I still think that their level of caring for me stays the same. (Participant 3)

Table 2. Themes on Patient Experience and Perceptions of Telemedicine During the Pandemic.

Theme	Description
(1) Convenience	<ul style="list-style-type: none"> • Time and gas/parking expenses saved traveling • More convenient for those from rural cities or with mobility/health issues • Easier access to multidisciplinary care in-person
(2) Developing connection and trust	<ul style="list-style-type: none"> • Better to build rapport with nephrologists in-person • Important to see non-verbal cues and facial expressions • First encounter with nephrologist should in-person to establish trust
(3) Need for in-person care	<ul style="list-style-type: none"> • When not responding to treatment or condition is deteriorating • When physical exams are needed • When sensitive discussions surrounding decision-making or dialysis are needed
(4) Role of family or caregiver	<ul style="list-style-type: none"> • Ability to support patients during telephone visits largely maintained • Some felt the involvement was more limited over telephone
(5) Future preferences for ongoing care	<ul style="list-style-type: none"> • Mix of in-person and telephone visits preferred • In-person if meeting the nephrologist for the first time and/or concerned about change in condition • Video is preferred, but more steps required and need support to set up

Need for In-person Care

Most participants (8/12) indicated that they would request to see their nephrologist in-person if there was a change in their condition. Participants particularly noted that they would expect to see the nephrologist in-person if they felt that they are not responding to treatment or that their condition is noticeably deteriorating. Moreover, participants indicated that they preferred to be seen in-person to receive physical exams if they are experiencing physical signs of CKD such as peripheral edema.

I think if you've got really more serious issues, then perhaps you really do want to go and see the doctor. I think that would be the criteria. You get more worried when things are looking bad, you're not getting the results you were expecting from the treatments you're getting. And so forth. (Participant 2)

When my legs were all full of water, [the doctor] was able to check my legs. You couldn't do that over the phone. (Participant 8)

In addition, most participants (8/12) indicated that they would prefer to receive significant news and to make critical treatment decisions in-person rather than over telemedicine.

In-person when [the doctor] makes decision that my kidney has reached the point where I need intervention. I'd like that to be in person. [...] when I think a human being is a receiver of bad news, in family for example, I think we go to them and talk to them. And I feel the same way about my doctor. (Participant 3)

Several participants noted the specific example of making a decision on starting dialysis and selecting their preferred type of dialysis, which they believed should be made in-person.

I probably wouldn't be able to visualize [dialysis] as much as I should, just being over the telephone. You wanna know face to face, where are they putting in? How is it going to be there? What's the reason for it and all that . . . (Participant 5)

Most participants (9/12) felt comfortable measuring their own weight and blood pressure at home prior to telemedicine visits. However, those who were not comfortable noted a lack of confidence in the reliability of their home measurements compared to in clinic.

Role of Family or Caregiver

The majority of participants (7/12) indicated that they have regularly involved family members or caregivers in their care process. Participants noted that family or caregiver involvement provides moral support and helps them recall details of their discussions with their nephrologist during in-person and telemedicine visits alike. While participants noted their family members or caregivers were still able to be involved in telemedicine visits, 2 patients believed that telemedicine visits limited family member or caregiver involvement.

I'm personally pretty much not allowed to see a doctor without my wife present. On the other hand, neither is she without my presence, so we do like to keep pace with what's happening with each other. And there's a lot more happening as we get older, of course. So whether I'm on the phone with the doctor, who's on speakerphone anyway, so it really doesn't matter. My wife would be there with me if we were in person. (Participant 2)

I think it would be helpful. In an ideal world, it would be great to have [my husband] at all the appointments, phone and in person just to get for the second set of ears and remembering all the details. Sometimes there's a lot of details to be remembered.

And then just for the moral support and reminding me about things. (Participant 4)

It makes me feel good, the fact that my family's involved on a regular basis. It's easier for them in person to be involved than it is over the phone. (Participant 5)

Future Preferences for Ongoing Care

Going forward beyond COVID-19, most participants preferred having a combination of in-person and telemedicine visits. Specifically, participants indicated that they prefer to be in-person for their first meeting with the nephrologist and if they are concerned about a change in their condition and require a physical exam. The majority of participants (7/12) preferred using video for telemedicine care while the rest preferred phone (4/12) or had no preference (1/12).

I think in-person definitely is the way to start. But then afterwards, after the person had got the information they needed, it's just a question of keeping it in balance. And that way [over video] you still are keeping that person in the loop and giving them the information they need. (Participant 1)

Half of the participants (6/12) felt unfamiliar with using video platforms or felt they require a family member to help set up. Though they acknowledged the benefits of gaining more visual interaction with the nephrologist and maintaining the advantage of convenience, they indicated that that technology literacy would be a potential barrier toward using video function for telemedicine.

That's my problem [with video]. I'm not up on computers or . . . I have an old flip phone. I'm not into the new technology stuff. (Participant 4)

I've only done one zoom call and that. So the knowledge isn't there for me . . . If we had to do it over the computer, I'm good with that. But I'd have to have the knowledge beforehand how to get that going. (Participant 5)

Discussion

The accelerated transition to alternative models of care delivery during the COVID-19 pandemic was a significant change for both health care providers and patients. Evaluating the sustainability of this change in routine practice is important to avoid unintended consequences to patient safety and quality of care. The transition to a telemedicine platform was the first and remained the most common platform in many clinics during the pandemic. Our team's previous survey showed initial high satisfaction with telemedicine among patients and nephrologists in Canada. The current study builds on this by providing context into the specific use cases and potential drawbacks of telemedicine. We identified 5 themes in the experiences of patients with telemedicine: convenience,

developing connection and trust, need for in-person care, role of family or caregiver, and future preferences for ongoing care.

Our study shows that the benefit of saving time and resources is a particular highlight of telemedicine as several participants appreciated the ability to save an entire day of traveling and gas. As our study center serves a large catchment area across Southwestern Ontario, most participants lived in rural communities outside London, Ontario. This aligns with our study center's report that found telemedicine appointments saved an average of 9.5 minutes compared to in-person appointments.¹⁷ Patients who must travel over 350 km round-trip can save on average 4 hours and \$150 a day.⁹ Previous studies have also shown telemedicine immensely facilitates access to care in rural and remote areas in Canada, Australia, and Jordan.^{11,18,19} Despite this advantage, some participants noted that they were better able to access multidisciplinary care during in-person visits, which included access to allied health professionals including dietitians, social workers, and diabetes educators. Though this conflicts with past studies on multidisciplinary care showing improved workflow and care access through telemedicine, few have assessed patient satisfaction in the same context.²⁰⁻²² It is possible that preference for in-person multidisciplinary care is influenced by varying clinic flow and/or lack of visual interactions with multiple providers in the same appointment day. Future quality improvement studies should measure patient satisfaction with telemedicine clinic flow for multidisciplinary care.

When transitioning from in-person to telephone visits during the pandemic, most patients believed that continuity of care was achieved and felt they received the same level of care and attention from their nephrologist over telemedicine they did in person. Our findings are consistent with our study center's transition to telemedicine report where 91% of respondents were very satisfied or satisfied by their virtual care experience.¹⁷ Previous studies on telemedicine during the pandemic have also shown high patient satisfaction in both adult and pediatric CKD patients.²³⁻²⁶ In particular, a scoping review by Young et al²⁶ likely found that there were no differences in patient satisfaction between video-based and in-person care, as well as no differences in reported clinical markers such as mortality, need for hospitalization, change in renal function, and need for dialysis. Though patient satisfaction was maintained a other studies have shown that reduced access to dialysis and death before reaching end-stage kidney disease may reflect poorer outcomes during the pandemic, which was more pronounced in ethnic minority and low socioeconomic populations.^{8,27} As a result, careful interpretation is required when linking patient satisfaction with care outcomes in our study.

Despite the overall satisfaction with their telemedicine experience, most participants expressed preference for in-person care over telemedicine for the ability to develop a more personal connection with their nephrologist. They

attributed to the ability to perceive visual expressions and non-verbal cues when interacting with the nephrologist which was not possible over the telephone. This aligns with previous studies identifying facial gestures, eye contact, and body posture as barriers to patient-physician communication in telemedicine for conveying empathy or strengthening social relationships.^{28,29} Social and emotional aspects of communication during in-person visits are particularly important when meeting the nephrologist for the first time in order to establish initial rapport.²⁹ In our study, prior established trust was important to enable participants to feel confident about medication changes over the phone, whereas more intimate communication was important when making more critical health care decisions such as transition to dialysis. Past studies have demonstrated the appropriateness of telemedicine for stable conditions and providing more consistent care, although our participants expressed the need for in-person if they felt a change in their condition and particularly when a physical examination is required.¹⁰ Going forward, most participants expressed preference for a combination of in-person and telemedicine visits, with over half of the participants choosing video over telephone as their preferred telemedicine platform. Balancing patient preferences and their clinical condition is crucial to building a flexible protocol for care delivery.

Participants did not view telemedicine as a barrier to family or caregiver involvement, which aligns with a previous study that telemedicine helped caregivers listen to conversations with physicians and reduce concerns about traveling and COVID-19 exposure.³⁰ On the other hand, some participants indicated the transition to telemedicine limited the ability of their family members or caregiver to be present when telephone calls occur less predictably compared to in-person visits. A previous study in Ontario and British Columbia found that telemedicine at times added to caregiver burden due to additional responsibilities setting up telemedicine platforms and feeling more unprepared to provide collateral information.³¹ While this was not directly addressed in our study, caregiver perspectives should be considered in future studies as the transition to telemedicine care becomes more established.

Participants indicated a preference for the option of combined in-person and virtual visits. Though video platforms were preferred over telephone if possible in order to provide more visual interactions with the nephrologist, unfamiliarity with technology was a major barrier to using video. This is particularly relevant in the CKD patient population which tends to be older, and was reflected in our study sample with a mean age of 66 years. Most participants were open to using video if they were given clear instructions on their operation or had capable family members help set up. Though our findings reflect that older age and inexperience with technology

are significant factors to telemedicine uptake, we did not directly observe other socioeconomic factors, such as sex and education, that may still influence patient preferences. For example, females are more likely to engage in telemedicine visits because they often take on the role of health care liaison for their family and are more health care seeking. Higher education status may also be associated with video use in telemedicine.³²⁻³⁴

The adoption and evolution of telemedicine in CKD in future require engagement with patients, families, and caregivers to assess their comfort and readiness to use video-based platforms instead of telephone. The impact of socioeconomic disparities on access to use these platforms should also be taken into consideration by providers.³⁴ Thus, it is paramount to engage diverse stakeholders that are representative of the patient population. If need be, providers in conjunction with institutions should make arrangements to assist patients with the set up and use of video-based platforms. In addition, considering the importance of multidisciplinary care in CKD, full engagement with allied health professionals is needed prior to the adoption or maintenance of telemedicine. This is to ensure continuity in providing additional supports and services to patients especially from rural areas. Finally, providers should be prepared to accommodate in-person care when requested by patients. Table 3 outlines several considerations for CKD patients based on our findings when deciding between an in-person and a telemedicine visit, with particular emphasis on assessing physical manifestations such as peripheral edema which are important to CKD progression.

Our study has several limitations. Recall bias cannot be excluded because the interviews required patients to recall previous experiences that occurred shortly after the start of the pandemic. In addition, our sample was restricted to patients from Southwestern Ontario and cannot be generalized to the broader Canadian population especially in urban areas. We were unable to purposively sample for diverse participants because our patient population is significantly skewed toward white and older age. Moreover, a criterion to be interviewed was fluency in English and having access to telephone or video, thus also limiting generalizations to patients from other ethnic groups or underrepresented backgrounds with language barriers, as well as younger CKD patients. Future studies focusing on underrepresented patients in telemedicine should consider using interpreters or linguistically concordant interviewers. Furthermore, the majority of participants attended the multidisciplinary kidney clinic involving multiple professionals for care provision, which may not be generalizable to other clinic settings and types. Finally, our study only represents the perspectives of patients. Future studies should capture data from family members or caregivers who might be extensively involved in the patient care process.

Table 3. Considerations for Nephrologists When Deciding In-person Versus Telephone Visit.

Type of visit	Considerations
In-person	<ul style="list-style-type: none"> Physical exams required Major changes or deterioration to CKD Major decision-making required such as transitioning to dialysis First meet-and-greet visit with patient Develop patient-physician relationship and trust Patient's personal preferences for a doctor visit, including comfort with technology
Telemedicine	<ul style="list-style-type: none"> Patient lives far from clinic site Patient is in stable condition Following up with patients on medication changes or blood work provided that prior trust has been established

Conclusion

The use of telemedicine including telephone and video-based platforms in CKD care will continue in future. A hybrid care model including both in-person and telemedicine care is preferred, requiring flexibility from care providers and health system. The shared experiences of patients must be integrated into future telemedicine models to improve flexibility, access, and patient satisfaction with care delivery.

Ethics Approval

The study was approved by The University of Western Ontario Research Ethics Board (approval no. 119688).

Consent for Publication

Not applicable because there is no patient identifying information in this manuscript.

Availability of Data and Materials

The data sets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declaration of Conflicting Interests

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ORCID iD

Louise Moist  <https://orcid.org/0000-0003-3875-9197>

Supplemental Material

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