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Understanding the uptake of virtual care for first and return outpatient appointments in child and adolescent mental health services: a mixed-methods study

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ABSTRACT

Objective To describe patterns of virtual and in-person outpatient mental health service use and factors that may influence the choice of modality in a child and adolescent service.

Design A pragmatic mixed-methods approach using routinely collected administrative data between 1 April 2020 and 31 March 2022 and semi-structured interviews with clients, caregivers, clinicians and staff. Interview data were coded according to the Consolidated Framework for Implementation Research (CFIR) and examined for patterns of similarity or divergence across data sources, respondents or other relevant characteristics.

Setting Child and adolescent outpatient mental health service, Nova Scotia, Canada.

Participants IWK Health clinicians and staff who had participated in virtual mental healthcare following its implementation in March 2020 and clients (aged 12–18 years) and caregivers of clients (aged 3–18 years) who had received treatment from an IWK outpatient clinic between 1 April 2020 and 31 March 2022 (n=1300). Participants (n=48) in semi-structured interviews included nine clients aged 13–18 years (mean 15.7 years), 10 caregivers of clients aged 5–17 years (mean 12.7 years), eight Community Mental Health and Addictions booking and registration or administrative staff and 21 clinicians.

Results During peak pandemic activity, upwards of 90% of visits (first or return) were conducted virtually. Between waves, return appointments were more likely to be virtual than first appointments. Interview participants (n=48) reported facilitators and barriers to virtual care within the CFIR domains of 'outer setting' (eg, external policies, client needs and resources), 'inner setting' (eg, communications within the service), 'individual characteristics' (eg, personal attributes, knowledge and beliefs about virtual care) and 'intervention characteristics' (eg, relative advantage of virtual or in-person care).

Conclusions Shared decision-making regarding treatment modality (virtual vs in-person) requires consideration of client, caregiver, clinician, appointment, health system and public health factors across episodes of care to ensure accessible, safe and high-quality mental healthcare.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ The study includes the perspectives of youth and caregivers in identifying facilitators and barriers to accessing virtual mental healthcare.
⇒ Uptake of virtual care is differentiated by both levels of pandemic activity and by visit type (first or return appointments).
⇒ Administrative data include prepandemic service use, allowing for comparisons prior to and during pandemic activity.
⇒ Interview participants do not include clients or caregivers who were unable to access mental health services (either virtually or in person).

BACKGROUND

Prior to the COVID-19 pandemic, virtual mental healthcare (also known as telepsychiatry, tele-mental health or remote mental healthcare) had been promoted as a means of improving access to mental health services, largely by addressing geographical disparities in access.[1 2] However, its uptake was limited in practice.[3–6] The technology was deemed not user-friendly and providers were hesitant in its adoption, citing concerns that the quality of virtual care was inferior to care offered in person, despite evidence to the contrary.[7 8] The onset of the pandemic and ensuing public health restrictions on in-person care provided the impetus for the wide-scale adoption of virtual mental healthcare to enable access to services. Emerging evidence has identified the need to better understand client and caregiver considerations regarding treatment

modality in order to address barriers to care and ensure equitable access to services.[9–13]

Objective

Our study objective was to understand factors that may affect the use of virtual or in-person care to support the timely matching of service modality to client, family or caregiver and clinician needs. Within our overarching programme of research investigating the evolving delivery of virtual mental healthcare in a tertiary child and adolescent mental health service, we present our initial findings comparing the uptake of virtual care by first and return outpatient visits and discuss factors that may influence the selection of modality of care, categorised using the Consolidated Framework for Implementation Research (CFIR).

METHODS

Study design

We employed a pragmatic, mixed-methods approach that iteratively incorporated routinely collected administrative health data (Meditech scheduling and registrations) and key informant interviews with clients, caregivers, clinicians and staff to identify barriers and facilitators to the readiness for and uptake of virtual care in a tertiary child and adolescent mental health service. This approach took advantage of existing quality improvement processes, promoted data richness and allowed for methodological triangulation.

Setting

The IWK Mental Health and Addictions (MHA) Programme provides family-centred mental health and addiction care for children and adolescents up to their 19th birthday in Nova Scotia, Canada. Services include inpatient care, psychiatry-led specialty clinics, intensive day treatment services and outpatient services offered in Community Mental Health and Addictions (CMHA) clinics, schools and other community locations. Approximately 430 interdisciplinary health professionals and 16 child and adolescent psychiatrists provide care to nearly 6000 clients and conduct over 50 000 outpatient appointments and 330 inpatient admissions annually (fiscal year (FY) 2021).

Prior to the COVID-19 pandemic, existing telehealth services were rarely used by IWK MHA and were largely for clients in geographically distant locations. All IWK MHA services, except for inpatient services, pivoted to a virtual care model at the onset of the public health restrictions introduced in Nova Scotia in March 2020. As the public health restrictions varied with subsequent waves of the pandemic, virtual care continued to be an important treatment modality within the CMHA clinics, while within the more intensive day and overnight services, a return to in-person services, with adjustments to meet public health requirements, was required.

In 2012, the IWK MHA Programme adopted the Choice and Partnership Approach (CAPA) as a model of care delivery and guiding philosophy for the Programme. CAPA is a model of service delivery that has a foundation in shared decision-making where clients' and families' expertise in their lives is valued alongside collaboration with professionals to define what is important to them and to consider options to support their mental health.[14 15] Within CMHA services, the first client or caregiver contact with the clinician is the 'Choice' appointment, where a joint case formulation and agreed-upon goals for treatment are developed. When formal treatment is deemed to be required, it is facilitated by means of 'Partnership' sessions that focus on interventions that support working towards specific treatment goals.

Data sources

Administrative health data sources included Meditech registration and scheduling databases held at IWK Health. Client demographics and appointment information, including numbers, types and modality (virtual or in-person), were abstracted for FYs 2018–2021 to compare trends in service use prior to and during the pandemic. Key informant interviews with IWK MHA clinicians, CMHA booking and registration and administrative staff and CMHA clients and caregivers were employed to identify diverse perspectives regarding barriers and facilitators to virtual care. IWK MHA clinicians and staff were invited by a programme-wide email to take part in the interviews if they had participated in the organisation or delivery of virtual mental healthcare following its implementation in March 2020. Clients between the ages of 12–18 and caregivers of clients between the ages of 3–18 were invited by email to participate in interviews if they had agreed to be contacted for research and had received treatment from an IWK CMHA outpatient clinic between 1 April 2020 and 31 March 2022 (n=1300). Clinician and staff interviews were conducted between June and August 2021, and client and caregiver interviews were conducted in December 2021 and January 2022.

Analyses

Descriptive analyses of administrative data included calculations of counts and proportions, as appropriate. Service use was mapped to pandemic activity ('waves') based on case counts and public health restrictions in Nova Scotia.[16] Initial observations of service use patterns contributed to the development of guiding questions for the key informant interviews to foster a better understanding of the observed results and inform further analyses of relevant administrative data. The CFIR was used to ensure comprehensiveness and consistency in the identification and use of key constructs related to the implementation of virtual care and to allow comparisons across studies, settings and initiatives employing the framework.[17] The CFIR provided a particularly useful framework as it allowed for the explicit consideration of the outer context (eg, COVID-19 public health policies) in the implementation

of virtual care and is useful in rapid-cycle evaluation.[18] Interview transcripts were coded according to the five domains of the CFIR, namely, 'intervention characteristics', 'inner setting', 'outer setting', 'individual characteristics' and the 'implementation process'.[17] We also coded any implementation outcomes at the client or caregiver, clinician or staff, and service levels (online supplemental file 1).[19] We sought to identify patterns of similarity or divergence by data source, respondent type and other relevant characteristics. Here we present results relevant to our understanding of the use of modality by outpatient visit type (Choice vs Partnership) in relation to pandemic activity.

Research ethics and participant consent

The study was approved by the IWK Health Research Ethics Board (Title: Our Virtual Reality: Rapidly Responding to Changing Mental Health Needs among Children and Adolescents, Project #1026770). Interview participants provided informed consent prior to their participation. Consent was not required for the secondary analyses of pseudoanonymised administrative health datasets.

Patient and public involvement

Due to the rapid implementation of virtual care following the onset of the COVID-19 pandemic, our study did not include the direct engagement of clients (patients), families or the public. However, its undertaking was motivated by the need to better understand the barriers to and facilitators of virtual mental healthcare. It is anticipated that the results of this study will inform implementation and continuing evaluation efforts, ultimately supporting improved access to and outcomes of outpatient mental health services for clients and their families.

FINDINGS

Administrative data

The administrative data included 6718 unique clients, with a total of 51 321 attending CMHA appointments between 1 April 2018 and 31 March 2022. At their first (Choice) CMHA visit, clients ranged in age from 2 to 18 years (mean 12.4 years), and 48.7% were male.

Key informant interview participants

Participants (n=48) in semi-structured interviews included nine clients aged 13–18 years (mean 15.7 years), 10 caregivers of clients aged 5–17 years (mean 12.7 years), eight CMHA booking and registration or administrative staff and 21 clinicians (psychologists, social workers, psychiatrists and other health professionals working in IWK CMHA, Specific Care Clinics and Intensive Services).

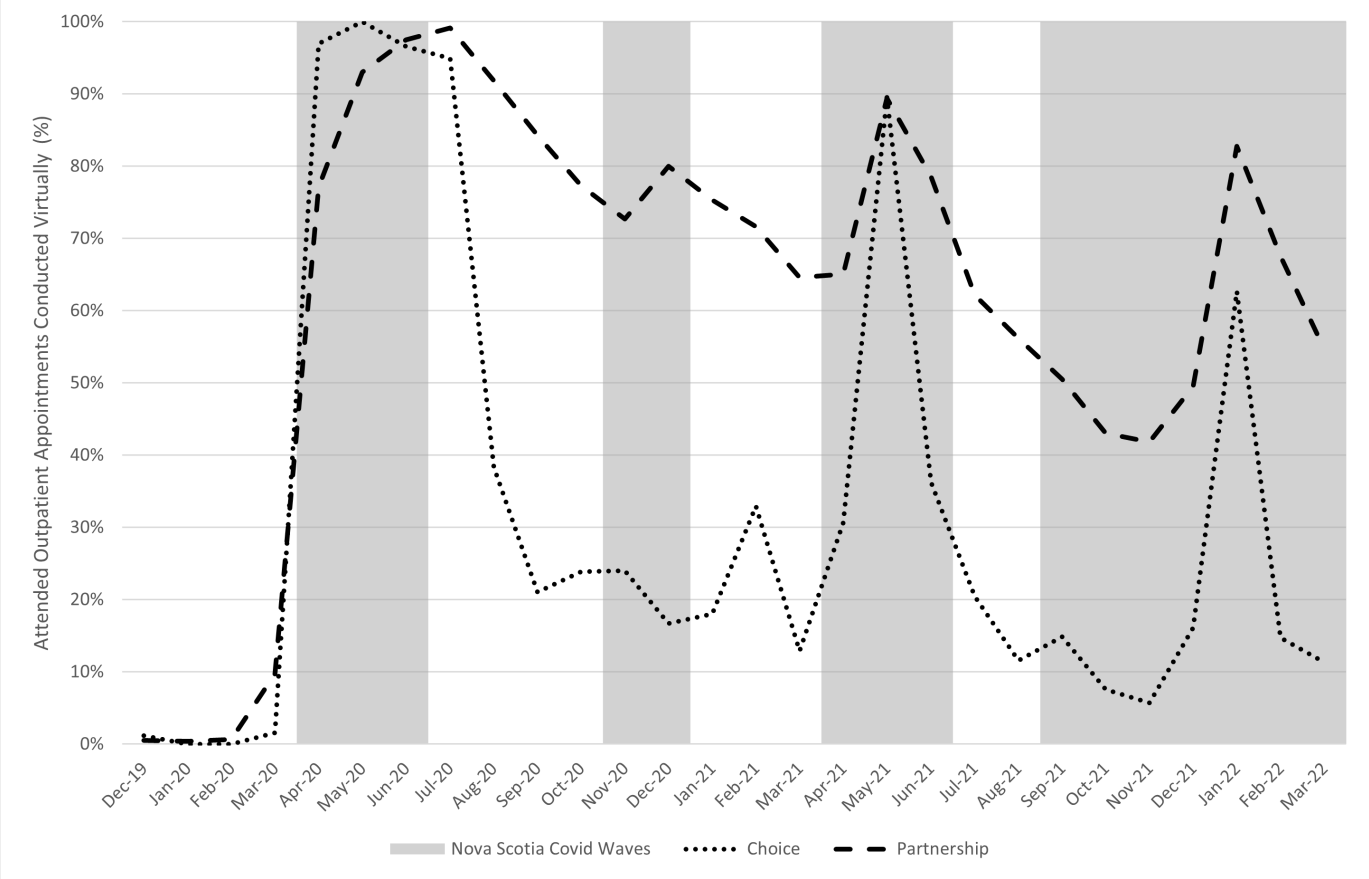

Figure 1 Proportions of virtual Choice and Partnership attended outpatient appointments by Nova Scotia COVID-19 waves.

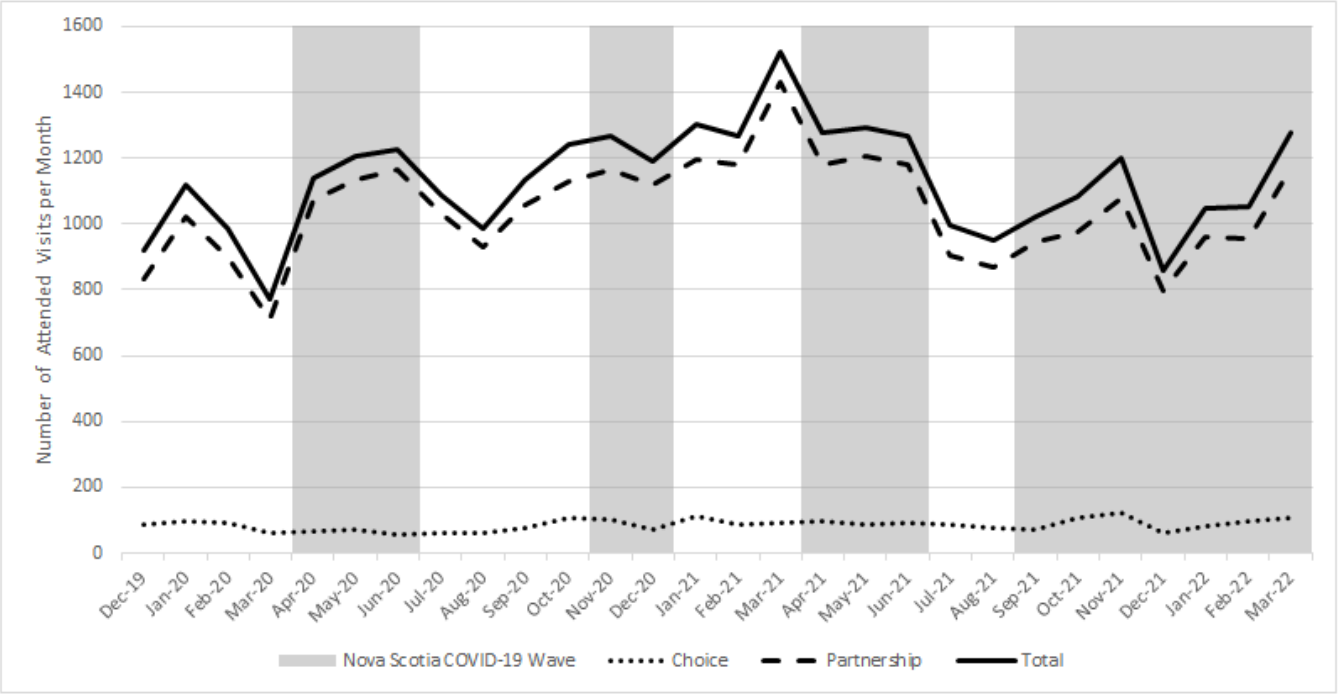

Figure 2 Attended Choice and Partnership visits by Nova Scotia COVID-19 waves.

Proportions of virtual and in-person appointments over the pandemic

The administrative data analysis demonstrated that proportions of virtual versus in-person CMHA (outpatient)-attended appointments varied by both pandemic activity and by Choice or Partnership appointments (figure 1). During peak pandemic activity that included high case counts and strict public health restrictions during waves 1 (March–June 2020) and 3 (March–June 2021) in Nova Scotia,[16] proportions of all appointments conducted virtually neared 100% and 90%, respectively. Between pandemic waves, higher proportions of Partnership appointments were conducted virtually compared with Choice appointments. While the return to in-person appointments increased over the course of the observation period, by the fourth wave of the pandemic in November 2022, the proportions of Partnership appointments conducted virtually ranged from 42% to 83% of attended visits compared with 6%–63% for attended Choice appointments.

For reference, the absolute numbers of Choice and Partnership appointments attended are presented in figure 2. In contrast to the patterns observed by modality, the overall number of attended appointments remained relatively stable over the observation period.

Facilitators and barriers to virtual mental healthcare

Outer setting (external policies, client needs and resources)

The levels of COVID-19 activity (ie, case counts) and public health restrictions directly influenced decisions regarding the implementation and use of virtual mental healthcare. '… *I think that [the province's] rules and recommendations probably played a big role in virtual care.*' '*So very much driven by an increase in cases and to stop the amount of people in large groups in the office*' P3 (Social Worker). Periods of lower COVID-19 activity between pandemic waves allowed for more choice in service modality and accommodation of client needs and preferences. '… *during those times when we're not in lockdown, we give families the choice*' P5 (Psychologist).

Client and caregiver needs and resources highlighted both facilitators of and barriers to virtual care. Participants identified the need for access to resources such as a private or safe space, a reliable internet connection and technology to facilitate virtual care. '*I think that if somehow like there was a way to make a safe space for people away from home* (for a virtual appointment), *that would be beneficial to a lot of people probably*' P44 (Client). Client reluctance or low motivation to engage in the treatment, low English fluency and distractibility due to young age or clinical presentation (eg, attention-deficit/hyperactivity disorder) were reported to be barriers to virtual care. '*Where it does fall a little more flat is with the younger kids and trying to teach them direct skills, because obviously the screen isn't all that interesting and they have a hard time connecting with us, we can't use toys and play-based methods as well*' P21 (Psychologist).

Inner setting (communications within the service)

During episodes of higher COVID-19 activity, the relative priority of offering access to services outweighed concerns about guidance for providing virtual care. '*And what we can provide is better than nothing, right—not being there at all for these families, these patients*' P2 (Youth Care Worker). As

restrictions eased, organisational policies and messaging regarding the use of clinical judgement for guiding decisions regarding virtual care were reported to be available. However, clinician participants identified a need for more structured guidance in terms of what constituted '*needing to be seen in person*' P12 (Psychologist).

Individual characteristics (personal attributes, knowledge and beliefs about virtual care)

Participants' consideration of the personal risk of COVID-19 infection impacted decisions to provide or use virtual care. '*I think that, especially with COVID, a lot of people are already pretty anxious to leave the house*' P48 (Client). '*Personally, during the pandemic, I would prefer to work from home, just because I don't want to put myself in any risks that seem unnecessary*' P3 (Social Worker).

Clinician preferences for modality also varied by their technical savviness, disinclination for wearing masks during sessions and ability to build rapport with clients. '*Knowing how to use a computer well…because virtual care is more fun and works better when you're screen sharing; you have websites or documents or videos, making it more interactive*' P13 (Social Worker). Clients and caregivers reported that technologically savvy and understanding clinicians were helpful in explaining how to navigate the virtual care platform and in fostering a feeling of connection. '*It was nice that if something happened my psychologist would always have like two other options to fix the problem, like because my volume didn't work she's like, "that's fine, we'll use our phone." Like it was never something that was stressful. … So that's really helpful*' P34 (Client). '*It's the same things that make them good at their job in-person; you know, compassion, understanding, the education and training*' P30 (Caregiver).

Importantly, clinicians' attitudes towards virtual care and stages of change evolved over the course of the pandemic. '*I think for me the main thing with the shift to virtual, I just keep reflecting on like my own personal shift from, "there is no way;" I can remember being in meetings at the start of the pandemic saying there is absolutely no way that doing these appointments virtually will work, like that is just not a thing. To now, I'm in a place of, there is no way we can stop having virtual care as an option, right?*' P20 (Occupational Therapist).

Intervention characteristics (relative advantage of virtual or in-person care)

All participants reported the relative advantages of both virtual and in-person care based on client and caregiver needs and appointment type (eg, Choice or Partnership, brief medication checks). Caregivers spoke to the convenience of virtual appointments that did not require leaving work, accessing public transport, finding and paying for parking or finding childcare. '*I think it opens it up to so many more people who can't travel, who don't have transportation, who have the anxiety to leave, they can still have that help*' P38 (Caregiver). Similarly, clinicians noted the relative convenience and utility of virtual care, particularly for brief follow-up or less sensitive appointments and for appointments with caregivers specifically. '*Them having to come physically … That's a full day of school missed. That's a parent taking time off work. For what? So I see them for 20 minutes and say, "how's it going?" "It's great." Refill their med*'. P15 (Psychiatrist). '*I find working with parents, it works really well, doing it over Zoom. Often because … it is not quite as sensitive as some of the one-on-one individual therapy I would do with teenagers*' P5 (Psychologist).

In-person care was generally preferred for intensive treatment; however, virtual care was noted to be particularly advantageous for care coordination between providers and equally useful when compared with in-person care for structured or didactic work. '*If it's more content based, more didactic, more directive, more about giving people information…that seems to go just as well in either format. But then there's some other work that I would do that is more like related to either attachment related issues or trauma or emotion-based work that I find is more variable*' P19 (Psychologist).

While the administrative data showed a lower uptake of virtual care for Choice appointments compared with Partnership appointments, virtual care may offer a means of 'breaking the ice' in the introduction to the service for some clients. '*I remember doing a Choice appointment … he shared that he was so anxious about meeting new people … that there was no way he would have made it to the office to meet in-person …* (virtual care) *became a way for someone to get help*' P20 (Occupational Therapist).

Implementation outcomes

While individual preferences for virtual or in-person care varied, virtual care was deemed to be useful, particularly in a hybrid model of service delivery in which it is offered in addition to in-person care. '*I think that, like virtual care for mental health should still always be an option*' P44 (Client).

DISCUSSION

The public health restrictions necessitated by the COVID-19 pandemic required the rapid implementation of virtual mental healthcare. We aimed to describe patterns of virtual child and adolescent mental health outpatient service use in a publicly funded tertiary health centre and to identify factors that may influence the choice of modality. The present study contributes to the understanding of virtual mental health service use patterns[6 20] by differentiating between first and return visits. Proportions of virtual versus in-person outpatient appointments varied by pandemic activity and first and return appointment type. During periods of public health restrictions or high COVID-19 case counts, particularly during the first and third waves of the pandemic in Nova Scotia, both Choice (first) and Partnership (return) outpatient appointments were conducted nearly entirely by means of virtual care. Between pandemic waves, while the proportions of in-person appointments increased for both Choice and Partnership appointments over time, Partnership appointments were more likely to continue to be conducted virtually.

Participants in the key informant interviews aided our understanding of these observed patterns in the service use data. Considerations identified by clients, caregivers, clinicians and staff regarding barriers and facilitators to virtual care included those in the CFIR domain: 'outer setting' (including COVID-19 activity and public health restrictions, client needs and client or family resources), 'inner setting' (such as policies to exercise 'clinical judgement' regarding modality), 'individual characteristics' (including knowledge and beliefs about virtual care, 'tech savviness' and individual stage of change) and 'intervention characteristics' (in particular, the relative advantage of virtual or in-person care). Choice of modality was more likely to be influenced by both clinician and client or caregiver needs or preferences during lower COVID-19 activity, but in-person care required greater clinical justification during pandemic peaks.

As in previous studies, our findings support a hybrid model of virtual and in-person care[6 21] and identify additional considerations regarding visit types and client needs. The higher proportion of in-person Choice appointments compared with Partnership appointments is in keeping with a previously published survey of child and adolescent mental health clinicians, who reported a preference for initial in-person meetings to establish rapport and develop a therapeutic relationship before transferring to virtual care.[22–24] However, our results demonstrate a role for virtual care in first contact with clinicians. Participants in the present study noted the relative advantage of virtual care for initial appointments to establish rapport with clients who would otherwise not attend in-person appointments due to reluctance to come to the clinic related to the clinical presenting concern (eg, social anxiety) or logistical barriers (such as caregivers having to take a day off of work, access transport or find childcare).

While moving appointments from clinic to home environments by means of virtual care may remove many barriers to access to mental healthcare and support continued engagement with services, it does not ensure accessible care for all and, in some instances, may introduce new barriers to care. In addition to a reliable internet connection and workable technology with which to access a virtual platform, clients and caregivers require a private or safe space in which to conduct their appointments.[25] Additional barriers to virtual care identified by our participants included client reluctance or low motivation to engage in care, low English fluency and poor engagement due to young age or clinical presentation (eg, attention-deficit/hyperactivity disorder). The relatively higher sustained uptake of virtual care for return Partnership appointments over the course of the pandemic may reflect, in part, clinicians', clients' and caregivers' increasing comfort with the technology and evolving individual stages of change in its implementation.[26] Indeed, participants who were initially reluctant to use virtual care for mental healthcare identified an ongoing hybrid model of virtual and in-person care as important for supporting access to care for some clients and families. Additionally, access to collaborative activities such as case conferences, meetings and conferences or training activities may be supported by virtual technologies.[27]

The CAPA model adopted by the IWK CMHA service is a client- and family-centred model of mental healthcare rooted in principles of shared decision-making and matching care to client and caregiver needs.[14 15] Matching service modality to those needs adds a layer of consideration to decision-making regarding treatment options.[9] Virtual care offers important flexibility in options for treatment; for example, caregivers may not need to take a day off work to attend an appointment. However, in some cases, coming into the clinic is an active part of treatment. Transparent discussions with clinicians regarding these trade-offs may aid clients and caregivers in understanding that, in the absence of barriers to in-person care, while virtual care may be more convenient, does it help them to do the work they need to do to achieve their goals of treatment? For clinicians, is there flexibility for accommodating some virtual appointments along with in-person work?

The need for clarity regarding 'clinical judgement' in the choice of modality was identified as a gap in policy and practice. Clear, transparent guidance for shared decision-making will need to balance considerations of appointment complexity and risk, therapeutic alliance and engagement in care, convenience of access and barriers and facilitators of access. Considerations regarding modality may also vary by appointment types (eg, first or return appointments) or by the purpose of the appointment (eg, medication check), highlighting the need for ongoing decisions regarding modality across episodes of care. Understanding and incorporating these considerations from the perspectives of clients, caregivers and clinicians is necessary for informing best practices in shared decision-making.[28]

While promoted as a means of improving geographical access to mental health services, virtual care was not widely adopted in publicly funded services prior to the COVID-19 pandemic.[1 2] The rapid shift to virtual care following the onset of the pandemic offered an opportunity to identify patterns of its use and to understand facilitators of and barriers to its uptake.[29] The implementation of e-health interventions is complex, with multiple barriers and facilitators reported consistently across health care settings.[5] Our mixed-methods approach, guided by the CFIR framework, aided our comprehensive understanding of the implementation of virtual care in a child and adolescent mental health service, identifying potentially shifting client and clinician needs within a complex health system setting during the uncertainty introduced by the pandemic. Furthermore, the integration of clinical and service data and client, caregiver and clinician perspectives supports a robust learning health system, which will be important for

ensuring responsive, client-focused services when needed.

Clinical implications

A hybrid model of virtual and in-person mental healthcare provides an important strategy for engaging youth and families, including those who would or could not otherwise attend appointments in person. Shared decisions regarding modality need to balance clients' and caregivers' abilities to access services while meeting changing needs across episodes of care. Opportunities for future research include the development and evaluation of hybrid models of care and the co-creation of guidance to support ongoing transparent, shared decisions that ensure accessible, safe and high-quality mental healthcare.

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Contributors LAC designed the study, drafted data collection tools, monitored data collection, analysed qualitative data, reviewed data analyses, drafted and revised the paper and is the guarantor. SC designed the study, drafted data collection tools, monitored data collection, reviewed data analyses and reviewed and revised the paper. JC designed the study, drafted data collection tools, monitored data collection, reviewed data analyses and reviewed and revised the paper. DE designed the study, drafted data collection tools, monitored data collection, reviewed data analyses and reviewed and revised the paper. NC designed the study, drafted data collection tools, reviewed data analyses and reviewed and revised the paper. AB reviewed data analyses and reviewed and revised the paper. JB analysed qualitative data, reviewed data analyses and reviewed and revised the paper. MD conducted interviews, maintained and analysed qualitative data, reviewed data analyses and reviewed and revised the paper. JCC maintained and analysed quantitative data, reviewed data analyses and reviewed and revised the paper.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants and was approved by the IWK Health Research Ethics Board (Title: Our Virtual Reality: Rapidly Responding to Changing Mental Health Needs among Children and Adolescents, Project #1026770). Participants gave informed consent to participate in the study before taking part.

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