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Qualitative examination of collaboration in team-based primary care during the COVID-19 pandemic

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ABSTRACT

Objective The objective of this study was to describe Ontario primary care teams' experiences with collaboration during the COVID-19 pandemic. Descriptive qualitative methods using focus groups conducted virtually for data collection.

Setting Primary care teams located in Ontario, Canada.

Participants Our study conducted 11 focus groups with 10 primary care teams, with a total of 48 participants reflecting a diverse range of interprofessional healthcare providers and administrators working in primary care.

Results Three themes were identified using thematic analysis: (1) prepandemic team functioning facilitated adaptation, (2) new processes of team interactions and collaboration, and (3) team as a foundation of support.

Conclusions Results revealed the importance of collaboration for provider well-being, and the challenges of providing collaborative team-based primary care in the pandemic context. Caution against converting primary care collaboration to predominantly virtual modalities postpandemic is recommended. Further research on team functioning during the COVID-19 pandemic in other healthcare organisations will offer additional insight regarding how primary care teams can work collaboratively in a postpandemic environment.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ We conducted focus groups with primary care teams during the second wave of the COVID-19 pandemic despite the numerous challenges imposed by physical distancing measures for qualitative research.
⇒ This study provides early insights into the experiences of collaboration in primary care within the pandemic context, highlighting the importance of prepandemic team functioning, team interaction during COVID-19 and the isolation experienced by healthcare providers during the pandemic.
⇒ Our sample represents one team-based model of primary care in Ontario, Canada so may not be indicative of experiences across all primary care settings.

INTRODUCTION

Interprofessional primary care teams rapidly shifted from providing in-person to virtual care as part of required public health guidelines in the context of the COVID-19 pandemic.[1–4] It is not clear, however, how shifting from working in-person to working virtually impacted collaboration in these interprofessional primary care teams. Worldwide, primary care is a cornerstone of most health systems,[2] and the first point of contact for patients in the medical system which is typically provided by family physicians or nurse practitioners.[5] Team-based primary care brings typically brings a broader population view of healthcare as it provides a wider scope of health and mental health services.[6 7] Such interprofessional primary care teams bring together providers from a range of diverse disciplinary perspectives into a collaborative team setting.[3 5–7] Family physicians, nurse practitioners, nurses, social workers, pharmacists, dietitians, psychologists and physiotherapists are the most common types of providers in primary care teams, yet other types of providers may be included as well depending on the immediate community and population health needs, and the related clinical conditions of these populations.[5–8] Although nurse practitioners and nurses both work within primary care teams, their scopes of practice are different. Nurse practitioners have a wider scope of practice than nurses including the ability to: order and interpret diagnostic tests; conduct advanced health assessments; refer patients to other professionals as needed; and diagnose, treat and perform advanced interventions.[9] It is important to note that the composition of the types and amounts of providers vary from team to team.[3–6]

Collaboration in primary care teams occurs when two or more health professionals work together to provide comprehensive patient care.[5] Primary care teams offer patients the benefits of a broad range of comprehensive

services—including mental healthcare—offered by the interprofessional providers who are members of the team.[10–13] There are numerous benefits associated with interprofessional collaboration for patients and providers in primary care.[14 15] Through collaboration, individual primary care providers' capacity improves, particularly as it relates to complex patient care needs for chronic health conditions and mental health disorders.[3 16 17] As a result, collaboration enhances patient experiences and outcomes in primary care teams.[17–19] In addition, working in primary teams may even increase providers' job satisfaction and personal well-being.[20] Thus, team-based models of primary care are recognised as among the most effective for accomplishing the 'quadruple aim' of primary care, which aims to improve patient experiences, advance population health, reduce costs and improve provider experiences.[21 22]

Although the experiences of collaboration may differ within and across primary care organisations,[23] members of collaborative primary care teams typically share an understanding of how their actions align with organisational goals.[24 25] Systemic, organisational and individual provider factors facilitates collaboration in team-based primary care.[14 26] This includes previous provider experiences with collaboration, exposure to interprofessional approaches to education during training, role clarity, healthcare culture compatibility and managing change.[8 11 16 26] In addition, the quality of team collaboration is enhanced when providers are colocated, share the same physical environment and have opportunities for impromptu interactions such as 'hallway conversations'.[8 11 27] With the onset of the COVID-19 pandemic; however, the need to implement physical distancing significantly reduced or removed primary care teams' opportunities for these types of in-person interactions.[1–4]

UPTAKE OF VIRTUAL CARE DURING THE COVID-19 PANDEMIC

The delivery of primary care changed dramatically during the COVID-19 pandemic.[2–4] The pandemic measures resulted in the rapid shift from in-person care delivery to the use of virtual care technologies.[2–4] Virtual care refers to 'any interaction between patients and members of their circle of care that occurs remotely, using any form of communication or information technology, to facilitate or maximise the quality and effectiveness of patient care'.[28] Synchronous virtual care (eg, telephone and video appointments) and asynchronous virtual care (eg, email) replaced in-person patient care and team collaboration activities early in the first wave of the COVID-19 pandemic.[1–4 28] During the first wave of the pandemic in Ontario, Canada, there was an 80% decrease of in-person office visits in primary care settings and a 56-fold increase in synchronous virtual care appointments in primary care.[2] Although virtual care has been used in some healthcare settings for decades, particularly in Northern or remote regions, virtual care has comprised a small proportion of all care.[2]

Prior to the pandemic, virtual care was used minimally in primary care.[2] The pandemic lockdown was a significant driver for the implementation of virtual patient care. One of the ways that the shift to using virtual care modalities changed team-based primary care was that many primary care providers who previously worked in close proximity to one another in shared-space were no longer working on-site at their primary care organisation.[2–4] Instead, many primary care providers were working virtually from home, which in some cases increased the workload for members of primary care teams.[2 3] Research conducted early in the pandemic suggested that this shift to working from home and using virtual care meant that there were fewer hallway conversations among members of the primary care team, and feelings of isolation in the early wave of the pandemic.[3] It is unclear, however, the impact that the shift to virtual care and need for physical distancing had on the collaborative experiences of team-based primary care as the pandemic progressed. Despite the changes to how the primary care teams were organised, patient care continued.[2 3]

RATIONALE

The prepandemic research on effective collaboration in primary care teams emphasised the importance of sharing in-person physical space.[8 27] In addition, research conducted early in the COVID-19 pandemic suggested that primary care teams might have struggled with collaboration because of challenges related to the rapid shift from working on-site and in-person, to working at home and/or virtually.[3 4] Much of the research on virtual team collaboration was conducted prior to the COVID-19 pandemic and has primarily focused on teams that either voluntarily moved virtually, did not have prior history of working in-person or continued to have the option of interacting in-person.[29–31] However, COVID-19 required primary care teams that previously worked in-person to shift to using virtual modalities with little to no preparation.[3 4] As such, there are limited data on the impact of the new virtual context on the team collaboration in primary care settings.

This study was part of a larger qualitative study investigating primary care teams' experiences of delivering mental healthcare during the COVID-19 pandemic.[13] Ashcroft *et al* present findings stemming from the project specifically pertaining to the research question: What is the impact of the COVID-19 pandemic on primary care teams' delivery of mental healthcare?. Given the challenges of including all findings in one manuscript due to space limitations which can be challenging for qualitative studies, and to promote coherence in the presentation and discussion of findings, we opted to dedicate this second manuscript from the study to one specific research question that pertained specifically to primary teams' experiences with collaboration during the COVID-19 pandemic. Although the overarching aim of the study presented in Ashcroft *et al* focused on mental

healthcare, any person working within the primary care team was invited to participate,[13] thus, our study generated significant findings on team collaboration in general. Thus, this article presents findings specifically related to the following research question: What were primary care teams' experiences with collaboration during the COVID-19 pandemic?. Understanding the impact of COVID-19 on interprofessional collaboration will inform how to support virtual primary care teams—including hybrid (ie, virtual and in-person combined)—and maintain the benefits of team-based primary care for patients and providers both during and after the pandemic.

METHODS

Design

A qualitative descriptive research design was used to understand impacts on collaboration during the COVID-19 pandemic while working virtually.[32 33] Qualitative descriptive designs are common in healthcare research, aim to describe participants' experiences and also strive to provide straightforward descriptions of perceptions.[34] Although qualitative descriptive designs may not increase a theoretical understanding, they are useful in healthcare research because they contribute to practice and organisational level changes.[34] This research design was appropriate given the understandable limited previous research in this area. This research team had representation from a variety of disciplinary perspectives including social work, family medicine, pharmacy, occupational therapy, policy and epidemiology. Team members included researchers, clinicians and leaders representing various facets of primary care. The research team is composed of individuals representing a range of genders (although there is no person on the research team identifying as non-binary), sexual orientations and ethnicities. The principal investigator (RA) held the position of assistant professor at the Factor-Inwentash Faculty of Social Work at the University of Toronto at the time of the study and completed an advanced primary care research training programme during her doctoral studies (https://www.uwo.ca/fammed/csfm/tutor-phc/) and advanced postdoctoral research training at the Centre for Addiction and Mental Health following her PhD training. Lastly, our team also included key knowledge users representing professional advocacy organisations—the Association of Family Health Teams of Ontario (AFHTO) and the Ontario Association of Social Workers.

Context

Ontario is Canada's most populous province with 14.7 million residents.[35] Family health teams (FHTs) are one example of a team-based model of primary care in Ontario, Canada.[36] First implemented in 2015, there are currently 184 FHTs located across the province of Ontario, providing care for approximately 25% of the population.[36] FHTs are heterogeneous in terms of geographical region, population and team configuration.[5 6 36]

The WHO declared COVID-19 to be a global pandemic on 11 March 2020.[37] Ontario's Chief Medical Officer of Health directed a ramping down of non-emergent health services on 15 March 2020.[38] On 19 March 2020, healthcare organisations and providers were directed to halt or substantially reduce non-essential and/or elective services.[38] Public Health Ontario reported a total of 34 911 cases of COVID-19 in Ontario near the end of the first wave of the COVID-19 pandemic (as of 28 June 2020), and 467 000 during the third wave.[35]

Sample and recruitment

We used a purposive sampling technique to engage a diversity of provider perspectives with primary care teams. Potential participants were healthcare providers and administrators (programme managers and executive directors) working in FHTs who were able to participate in a virtual focus group. Our aim was to recruit FHTs from each of the five Ontario Health geographical regions: West, Central, Toronto, East and North. We strived for representation from each of these five regions to: (1) include regional variation in terms of rural and urban; (2) reflect the varying diversity of populations in these regions and (3) gain a provincial-wide understanding. With these criteria in mind, and with the help of AFHTO, we generated a list of FHTs in each of the geographical regions. We recruited FHTs by contacting the executive directors of the identified FHTs through email and inviting their interprofessional teams to participate. Executive directors then shared the invitation with the various healthcare providers working within their FHT. Executive directors of FHTs that were interested in participating in the study then contacted the research coordinator. The first two FHTs that expressed interest in each of Ontario Health's five geographical regions were selected for inclusion, to ensure representation across rural and urban settings and from diverse populations. Participants had no established relationship with the principal investigator (RA).

Data collection

We used focus groups for data collection because of their numerous advantages for this study. The dynamic nature of focus groups, and their ability to allow for a deeper understanding of each member's perspectives, can enhance the breadth and depth of the discussion that takes place.[39–41] Focus groups are also effective for generating information at the beginning of an inquiry,[39] such as our inquiry on collaboration in primary care teams during the pandemic. As well, focus groups supported our aim to generate information that represents the collective nature of collaborative teams.[39] A semistructured interview guide, developed by the research team, was used to facilitate focus groups. The interview guide used in this study is available as online supplemental file.

Focus groups were conducted on an online virtual platform due to the physical distancing measures in place because of the COVID-19 pandemic. Each focus group

consisted of participants working in the same FHT. Two members of the research team cofacilitated each focus group (RA/MD or SL/MD). The cofacilitators debriefed immediately after each focus group, as well, the three cofacilitators (RA/MD/SL) met once per week for a minimum of 1 hour during the data collection phase. Only participants and facilitators were present during the focus groups. All focus groups were audiorecorded, and then transcribed verbatim. Each focus group was approximately 60 min in length. Data collection occurred between October 2020 and December 2020.

Data analysis

Data analysis occurred at the same time as data collection. Data analysis was inductive and followed a thematic analysis process.[42] Two members of the research team acted as primary coders (RA/MD), and both read the transcripts and familiarise themselves with the data. The two primary coders and the study coordinator (RA/MD/SL) regularly met twice a week for a minimum of 1 hour for each meeting during the data analysis process, with additional meetings of the two primary coders scheduled as needed. Together, the coders analysed each transcript and inductively generated a list of initial codes and themes then reviewed and refined with the data analysis subcommittee (RA/MD/SL/CD/SG/JBB). The data analysis subcommittee met three times prior to presenting the themes to all members of the research team. The entire research team then discussed and finalised the themes during a virtual meeting and, decisions were documented through notes and memos. Exemplary quotes illustrating themes were selected from the data. We also maintained an audit trail and tracked the data analysis process to enhance dependability of the data. Rigour and trustworthiness were established through the use of reflexivity and peer debriefing.[43 44] Reflexivity was incorporated into the focus group facilitator debrief meetings, primary coder meetings, data analysis subcommittee meetings, and to some extent the larger team meetings comprised of all research team members. These meetings provided an opportunity to discuss contextual elements that may be intersecting with the study and ourselves as researchers[44]—for example, the evolving nature of the pandemic and differing distancing measures across various geographical locations. Within these meetings, we routinely discussed the potential influence of each of our disciplinary background in shaping our understanding of the research context, and ensured that all members of our interdisciplinary research team had opportunities to provide input from their own disciplinary perspective. The reflexivity and the audit trail of meeting notes and memos contribute to trustworthiness.[45] NVivo V.12 was used to organise the data and facilitate data analysis.

Patient and public involvement

No patients or public were involved in the design, conduct, reporting or dissemination of this study.

Table 1 List of focus group participant roles at FHT

Participant role	N
Social worker	20
Counsellor	10
Programme manager/coordinator	9
Executive director	4
Nursing (nurse practitioner, nurse health promoter, nursing manager)	3
Family physician	2
Total	48

FHT, family health team.

RESULTS

We conducted 11 focus groups with 10 FHTs, and a total of 48 participants. Two focus groups were conducted at one FHT to accommodate the competing schedules of participants. No participants who attended focus groups dropped out of the study. On average, there were four participants per focus group, with the largest group composed of nine participants. Participants (N=48) represented various types of healthcare providers and administrators (eg, programme managers, executive directors) working within the primary care team (see table 1). Participants were diverse in the number of years working in their current primary care setting. For example, four participants worked in their team for less than 1 year at time of the focus group while four participants had worked in their team for more than 10 years. In addition, there was geographical diversity in the sample with two FHTs representing each of Ontario's five health regions. All participants reported experience with team collaboration both prior to and during the COVID-19 pandemic. With respect to teams' experiences with collaboration during the COVID-19 pandemic, we identified three themes: (1) prepandemic team functioning facilitated adaptation, (2) new processes of team interactions and collaboration, and (3) team as a foundation of support.

Prepandemic team functioning facilitated adaptation

Teams highlighted the importance of prepandemic practices in facilitating adaptation to collaboration during the COVID-19 pandemic. All focus groups reported that it was beneficial having established team-based primary care as the range of services enabled them to address the diversity of difficulties that patients encountered during the pandemic. A nurse in one focus group noted:

> *It's a really important point…that we work in a team-based model. I think this would be a very different discussion if you were talking to primary care providers, who are working without a team, because we have an occupational therapist…our social work team.… We have resources, but…a large number of our population…has no tie to a team-based group* (FG3, nurse practitioner)

All focus groups reflected on how the importance of having a cohesive collaborative foundation prior to the pandemic helped teams adapt to collaborating within the new virtual context. As noted by a family physician in one focus group, *'Our Family Health Team is…a high-functioning team…You can't run a marathon without any training ahead of time right? So we'd had a lot of experience with collaboration, and working through difficult times*' (FG7, family physician). This focus group continued to discuss the importance of having strong collaborative bonds prior to shifting to virtual care. *'Our team members are all so engaged…it's nice to know that those bonds are still there. It's not quite the same on the phone or by Zoom, but I think that we're grateful that the team model has withstood the COVID storm*' (FG7, family physician).

New processes of team interactions and collaboration

All focus groups explained that maintaining good collaboration virtually required team commitment and adoption of new ways of interacting as a team, which led to some positive and some challenging experiences with team-collaboration. A range of communication methods—including texting, telephone calls and video calls—were used by all focus groups to connect with their team members. For example, a nurse practitioner in one focus group explained, *'We've been talking about it actually a lot—a lot of group text messaging and…we're using all of these resources to connect to each other, but it's getting really hard*' (FG3, nurse practitioner). All focus groups reported that virtual collaboration during the pandemic was more difficult than in-person collaboration. *'For me as being the new lead, now I find what's more challenging is I want to do a lot of team discussions and program planning and it's so hard to connect with the team virtually*' (FG4, social worker). An executive director from another focus group also noted some of the challenges associated with working virtually off-site: *'I would say as a manager, I found it difficult to have staff working from home on all fronts. It takes longer to communicate, there's more room for misinterpretation, [and] it's difficult to manage staff working from home.*' (FG8, executive director).

All focus groups explained that the processes of collaboration were different now that they were working virtually. For example, prior to the pandemic, hallway conversations and other informal methods of engagement were frequent methods of team interaction as explained by an executive director, *'You don't realize how much of that collaboration you do on the fly and so that's been hard*' (FG10, executive director). A family physician from a different focus group also explained how teams were faced with finding new ways to collaborate without the opportunities for impromptu hallway conversations:

> *I think a lot of the really good work within high-functioning teams happens right at the beginning, before a meeting, or after a meeting, or when you run into each in the hallway and stuff, and so it's a little bit depressing when you're walking through the hallway and everyone's door is closed, and it says 'working from home'…There's been a change that way. We've successfully converted to keeping up with each other virtually or what have you, but it's not quite the same as popping by, or just being able to walk down the hall to ask somebody something.* (FG7, family physician)

A social worker from a different focus group shared a similar perspective explaining that it was important to schedule times to come together:

> *It's easy to get swept up in call after call after call, and then not necessarily connect with other people, and just live in this little insular bubble at home. [We] have to make it a priority…we schedule a [team] meeting every Friday, where we look at the referrals, and we touch base with one another. And for a couple weeks it kind of got swept under the wayside because there was a lot of other stuff going on.* (FG3, social worker)

All focus groups also described a change in the frequency of interactions they had within their team. Most focus groups explained that they interacted with fewer members of the team. For example, a social worker in one primary care team explained:

> *I'm interacting with a smaller subset of the staff. I wouldn't be popping my head into the admin and saying hi, I wouldn't be passing someone by the hallway and then having a conversation, now I'm talking with people that I need to talk to. So my circle, when it comes to collaborating, has sort of become smaller. It became an as needed basis* (FG10, social worker).

A social worker from a different focus group emphasised that there were more frequent interactions with the physicians in the team which was noted as a positive experience because the collaboration opportunities increased:

> *I've…had more contact with the physicians since COVID than I would typically before, because I've gotten into the routine of just texting a doctor saying, 'can you give me a call when you have a chance', where before it was much more like, trying to run down and catch them between patients* (FG3, social worker).

Another social worker in a different focus group also noted that despite the limited hallway conversations, family physicians and other team members remained accessible for collaboration:

> *Before you might see them in passing, or I'd kind of run downstairs, and try and grab someone in between [patients]. So, what I've been doing, is just sending a message to the doctor, or the nurse, and they've actually been really good. A lot of them will just give out their personal cell phone number, and give us a specific time or range to call, or if they are in the office, then they'll say to just call over… So they've been fairly accessible.*' (FG2, social worker)

While teams needed to rapidly adapt processes for team collaboration early in the pandemic to accommodate for working virtually off-site, a family physician explained

that some aspects of working virtually will continue into the future:

> *Virtual care is here to stay….I can tell you right now, my practice will not be the same…I'm going to look to my team to give me their advice and their ideas…the idea that the [name of primary care clinic] is going to go back to the way it was prior to March 2020, I think is, is, for lack of a better word, crazy.* (FG3, family physician)

Interestingly, most focus groups noted that working virtually facilitated new or more frequent interactions with community-based partners. For example, a participant in one focus group mentioned, *'One of the other things that's happened is that…we've been more connected with… other community partner organizations'* (FG5, program coordinator and counsellor). An executive director from another focus group also noted that the conditions of the pandemic required primary care teams to forage new collaborations:

> *The pandemic has…forced collaboration and cooperation amongst so many healthcare providers, that actually wasn't there before. Or that would take us years to do…I always say that…to get change to happen, is to have some catalyst, whether that catalyst is something catastrophic or something positive…so COVID has forced a whole bunch of system changes and collaboration, and communication, amongst the community itself.* (FG7, executive director)

Team as a foundation of support

All focus groups overwhelmingly spoke about the primary care team as a foundation for support for all types of providers within these teams. With the rapid shift to working virtually off-site, participants explained that they experienced extreme isolation which was different from their prepandemic experiences. Within and across all focus groups, participants emphasised the challenges of not having the consistent support provided by their colleagues when working in-person. For example, a nurse practitioner in one focus group explained:

> *We're isolated from each other as well; we're…used to being … a very cohesive team. We work in a bullpen, so my office at work is not my own office. I sit with physicians, and pharmacists, and lots of interaction that's face-to-face. And now we're isolated…it's burning us out* (FG3, nurse practitioner).

Additionally, a family physician in a separate focus group similarly described how challenging it was not having in-person team support, particularly following difficult practice situations:

> *I feel the brunt of that particularly when I've had a really challenging encounter with a patient, or something sad has happened, where if I was in the office it would be an easy conversation with a colleague…that's met this patient before. And now…there's this very sad moment in my office by myself* (FG7, family physician).

A social worker from an additional focus group also noted how challenging it was without the in-person team support, particularly in the form of debriefing with colleagues after difficult encounters with patients. *'If a [patient]…is aggressive, other team members would come in and check in on you…but now you can't really have that debriefing time, you just have to go from one patient to the next patient… and then you realize, OK, I'm exhausted!'* (FG4, social worker).

Despite some of the challenges, participants across all focus groups noted that being part of a team fostered a foundation of support for one another. For example, a nurse practitioner explained:

> *I think it's a really, really important…we are very fortunate…that we work in a team-based model. I think this would be a very different discussion if you were talking to primary care providers who are working without a team because we have…we have resources. But I think…there's a large number of our population that has no tie to a team-based group.'* (FG3, nurse practitioner)

A social worker from a different focus group also highlights how the team comradery and support continued despite working virtually off-site:

> *'I think the comradery is so helpful, for sure… just knowing that if something does come up, even though I'm physically alone in my house, I can easily reach out to someone. And even if it's someone that I didn't chat with necessarily that much when we were in-person, they've all always been open to a phone call or a message, and people are really prompt to get back to us… we get regular emails from upper management, acknowledging that, and giving us updates in terms of what's happening in, in the community, in the world—which I think is really helpful too.'* (FG7, social worker)

DISCUSSION

With the rapid uptake of virtual care to adhere to the physical distancing measures of the COVID-19 pandemic, primary care teams have been attempting to navigate collaborative processes for patient care and provider support in this new virtual context.[2–4] Our study provides early insights into the experiences of primary care teams in Ontario during the pandemic, and the disruption to collaboration that teams experienced. The three themes of this study were prepandemic team functioning, team interaction and isolation. Taken together, each of these themes underline interconnected challenges primary care teams navigated early in the pandemic, and the importance of identifying opportunities for collaboration and connection.

Prepandemic team functioning

Our study demonstrates that primary care teams had little experience with virtual means of collaborating prior to the COVID-19 pandemic. Teams spoke uniformly about the importance of prior collaboration facilitating

practices as precursors to successful collaboration in the pandemic context. We suspect that many of the teams that participated in our study possessed strong social bonds, collegial respect, and shared philosophies given the relative ease with which they described navigating the transition to virtual care.[8 46]

Research on collaboration in primary care teams demonstrates that effective collaboration is enhanced by shared philosophies, respect, engaging in formal and informal team activities, established methods for resolving conflicts, sharing physical space and leadership to guide change management.[8 47] There is literature demonstrating teams' successful transitioning from working in-person to virtual when it was a planned shift, supported by change management processes to guide the transition.[46–48] The pandemic, however, created a context for the primary care teams in our study, where the shift from working in-person to virtual occurred overnight and without adequate preparation.[3 4] While the shift from in-person to virtual care was new for all teams in our study, their existing underlying foundations and established collaborative processes likely enabled them to rapidly cultivate a sense of psychological safety, joint success and shared resilience in the high-stress COVID-19 pandemic context.[49] It is notable that primary care teams reported successful collaborations in our study despite the lack of co-location. Strong prepandemic in-person team functioning may protect against some of the difficulties documented for geographically disparate primary care collaboration.[8] While colocation has been argued as beneficial or even necessary for collaboration within primary care teams,[26 27] this study indicates that colocation may neither be a necessary nor sufficient condition for virtual collaboration, provided that teams have previous experience working in-person. This offers support for the contention that some in-person teams may be able to transition to working virtually, with little loss of collaboration efficacy, if care is taken to ensure existing workflows are maintained,[50] and flexibility to facilitate adaptation to changing circumstances is emphasised.[51]

Redesigning primary care teams to enhance virtual collaboration also presents opportunities to collaborate with other health and social service agencies. Team collaboration in primary care often relies on frequent in-person encounters in appropriate physical space.[8 27 52 53] Participants described collaboration as mainly taking place within their own primary care organisation, however, there were some examples of collaborations taking place with other community and health organisations. This is consistent with an identified gap between primary care teams and other community-based health agencies where collaborations across organisations and health sectors were the exception.[26] It is crucial to ensure that primary care teams maintain collaborative care, given the significant investments made in the recent past to establish such teams[6]; virtual care modalities may present new opportunities for creative collaboration across organisations and sectors, for even more comprehensive patient-centred care.[50] This would serve both population health targets, by fostering the relationships built during the COVID-19 pandemic between previously siloed healthcare organisations, as well as improving both patient and caregiver experience.

Importance of team interaction

Participants spoke about the need for planning and intention in order to facilitate interaction and collaboration during the COVID-19 pandemic. This is unlike in-person care contexts that rely on informal hallway conversations for team collaboration to occur.[27] Providers in our study reported virtual collaboration as challenging and difficult, and less satisfying than in-person care.[54] Explicit attempts to increase the frequency of virtual collaborations, and increase knowledge sharing between providers, present as effective antidotes.[55 56] Participants in this study spontaneously made use of these strategies to maintain collegiality by directly contacting one another on an as-needed basis to engage in knowledge sharing, and by attending regular team meetings online. In addition, Sur emphasises the need to ensure that the actions and intent commonly affiliated with the operationalisation of empathy in interprofessional teams.[57] Improving patient outcomes is a team responsibility involving purposeful activities such as team huddles.[57] The use of consistent synchronous and asynchronous communication platforms can introduce new ways of communicating and collaborating that enhances intentional methods of engagement.[58 59] However, maintaining connections through these processes as the pandemic continues remains challenging because optimal ways of working are not yet known or in place as routine practice.[3]

The range of technologies used by team members to communicate with one another may have positively influenced the frequency and depth of communications. However, fatigue due to how much more attention-taxing virtual meetings are versus face-to-face interactions[60 61] poses a novel workplace stressor that was identified during the COVID-19 pandemic. This exhaustion appears to contribute to a decrease in collaboration, communication and coordination outside of virtual meetings.[61] Our participants may have benefited from the relatively few video meetings they endorsed, and from the diversity of platforms through which they interacted with one another. Virtual primary care teams are encouraged to consider the use of a similar range of technologies.

In our study, primary care team leaders influenced the success of team communication by the context they nurtured. Leadership influences how primary care teams communicate when in-person.[8 57] Fostering team communication in virtual primary care teams requires distinct skills for leaders. Perceived leadership in virtual contexts, which includes members' trust in their leader and leaders' communication and co-ordination abilities, has a significant small effect on virtual team collaboration.[62] Relationship-focused leadership in virtual contexts, in particular, appears to be a predictor of team-perceived performance in ad hoc virtual

teams with high task interdependence like those in our study.[57] Virtual leadership skills can be acquired[51] and can foster team communication in virtual contexts. Further, combining these skills with leadership training in rapid qualitative assessment,[63] can enable more immediate organisational course-correction in response to rapidly changing circumstances. Additionally, leadership that is inclusive of different perspectives of emotional intelligence including self-awareness, self-regulation, self-motivation, empathy and social skill contributes to advancing change and addressing barriers.[57 64] Devoting additional funding to training primary care team leaders will benefit teams' postpandemic.

Provider well-being

An important finding of our study relates to the profound isolation experienced by members of primary care teams. A central component of the quadruple aim strives to improve provider well-being.[21] Our study suggests that by reducing opportunities for collaboration and receiving team support, the pandemic has created challenges for provider well-being. This is consistent with the available literature indicating physical distancing practices may lead to social isolation and loneliness, particularly for providers who were used to working within collaborative environments with strong relationships, such as these primary care teams.[3 65–67]

The well-being of team members can be fostered by setting time for connections with coworkers during the working day for support and debriefing. This can occur through organisational outreach practices or by integrating in-person components as part of the working week.[49 68] Provider experience may be improved if care is taken to foster interpersonal connections.[69] Support can also be offered by accommodating for providers' domestic situations (eg, for persons with children in online schooling) in terms of communication and job task expectations when collaborating virtually.[61] It is not clear the degree to which the latter occurred on the teams in our study; a retrospective review of primary care practices in terms of job demands during the pandemic could serve to illuminate if this contributed to the relatively high levels of functioning voiced by providers in our study even in the pandemic context.

This study provides support for the notion that care for providers is essential during situations as challenging as the COVID-19 pandemic. It also alludes to organisational-level interpersonal connection interventions as more beneficial than the encouragement of individual practitioner self-care behaviours that characterise current advice for healthcare practitioners.[70] This is consistent with the wider literature on primary care burnout and indicates that current healthcare guidelines for providers may be individualising provider care, when in fact, collaborative care is more supported by literature.[71 72] Devoting additional organisational-level attention to ensuring that collaboration is not limited to instrumental tasks, and is also extended to provider sustainment, is recommended as the COVID-19 pandemic continues.[71 72]

Limitations

There are some limitations to acknowledge about this study. First, FHTs represent only one team-based model of primary care in Ontario, Canada so may not be indicative of experiences across all primary care settings. Second, focus groups were conducted during the second wave of the COVID-19 pandemic and as such, it is anticipated that primary care team response to the ongoing stresses of the pandemic has evolved since that time and will continue to develop. Third, we did not collect information about focus group participants' gender, ethnicity or years in practice, thus are not able to provide insights about collaborative experiences in relation to these attributes. Lastly, our study provides some insights into primary care teams' experiences with collaboration during the COVID-19 pandemic; however, more information can provide a better understanding of the logistics of integrating virtual care in collaborative processes. For example, our study did not assess new collaborative skills that may have emerged in relation to the uptake and use of virtual care, and the extent to which team communication and comprehension compared with in-person collaboration.

CONCLUSIONS

Interprofessional primary care teams have continued to collaborate and innovate during the COVID-19 pandemic while working virtually. The foundation of previously developed collaborative relationships has allowed primary care teams to navigate throughout the pandemic context but it has also been challenging for providers. While these teams have been able to implement new processes of collaboration during the pandemic to adapt to working virtually off-site. Virtual collaboration requires the intentional adoption of practices that will sustain both teams and their members. Subsequent research is needed to identify how teams and providers can function best in virtual and hybrid environments over time. Further research is also needed to understand the specific aspects of virtual practice that contribute to positive team collaboration and supportive patient care, what might work better in person and how to achieve a workplace that leverages and implements the best of both. Doing so will provide both patients and providers in primary care teams with a healthcare system capable of supporting them through future challenges. Advancements and strengthening collaboration in interprofessional primary care teams will provide an innovative system of treatment for combatting such pandemic situations and uncertain events in the future.

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REFERENCES

1 Thornton J. Covid-19: how coronavirus will change the face of general practice forever. *BMJ* 2020:m1279.
2 Glazier RH, Green ME, Wu FC, *et al*. Shifts in office and virtual primary care during the early COVID-19 pandemic in Ontario, Canada. *CMAJ* 2021;193:E200–10.
3 Donnelly C, Ashcroft R, Bobbette N, *et al*. Interprofessional primary care during COVID-19: a survey of the provider perspective. *BMC Fam Pract* 2021;22:31.
4 Ashcroft R, Donnelly C, Gill S, *et al*. The delivery of patient care in ontario's family health teams during the first wave of the COVID-19 pandemic. *Healthc Policy* 2021;17:72–89.
5 College of Family Physicians of Canada. *A new vision for canada: family practice - the patient's medical home*. Mississagua: College of Family Physicians, 2019.
6 Hutchison B, Levesque J-F, Strumpf E, *et al*. Primary health care in Canada: systems in motion. *Milbank Q* 2011;89:256–88.
7 Ashcroft R. Health promotion and primary health care: examining the discourse. *Soc Work Public Health* 2015;30:107–16.
8 Brown JB, Ryan BL. Processes that influence the evolution of family health teams. *Can Fam Physician* 2018;64:e283–9.
9 Black S, Fadaak R, Leslie M. Integrating nurse practitioners into primary care: policy considerations from a canadian province. *BMC Fam Pract* 2020;21:254.
10 Chamberlain-Salaun J, Mills J, Usher K. Terminology used to describe health care teams: an integrative review of the literature. *J Multidiscip Healthc* 2013;6:65–74.
11 Rich K, Murray K, Smith H, *et al*. Interprofessional practice in health: a qualitative study in PSYCHOLOGISTS, exercise physiologists, and dietitians. *J Interprof Care* 2021;35:682–90.
12 Ashcroft R, McMillan C, Ambrose-Miller W, *et al*. The emerging role of social work in primary health care: a survey of social workers in Ontario family health teams. *Health Soc Work* 2018;43:109–17.
13 Ashcroft R, Donnelly C, Dancey M, *et al*. Primary care teams' experiences of delivering mental health care during the COVID-19 pandemic: a qualitative study. *BMC Fam Pract* 2021;22:143.
14 McCutcheon LRM, Haines ST, Valaitis R, *et al*. Impact of interprofessional primary care practice on patient outcomes: a scoping review. *SAGE Open* 2020;10:215824402093589.
15 Supper I, Catala O, Lustman M, *et al*. Interprofessional collaboration in primary health care: a review of facilitators and barriers perceived by involved actors. *J Public Health (Oxf)* 2015;37:716–27.
16 Kates N, Arroll B, Currie E, *et al*. Improving collaboration between primary care and mental health services. *World J Biol Psychiatry* 2019;20:748–65.
17 Mulvale G, Embrett M, Razavi SD. "Gearing up" to improve interprofessional collaboration in primary care: a systematic review and conceptual framework. *BMC Fam Pract* 2016;17:83:83.:.
18 Horsfall J, Cleary M, Hunt GE. Stigma in mental health: clients and professionals. *Issues Ment Health Nurs* 2010;31:450–5.
19 Ashcroft R, Menear M, Greenblatt A, *et al*. Patient perspectives on quality of care for depression and anxiety in primary health care teams: a qualitative study. *Health Expect* 2021;24:1168–77.
20 Bosch B, Mansell H. Interprofessional collaboration in health care: lessons to be learned from competitive sports. *Can Pharm J (Ott)* 2015;148:176–9.
21 Bodenheimer T, Sinsky C. From triple to quadruple aim: care of the patient requires care of the provider. *Ann Fam Med* 2014;12:573–6.
22 Combs T, Witter JM, Pauli E, *et al*. Meeting the challenges of training for interdisciplinary care. *Arch Psychiatr Nurs* 2014;28:355–6.
23 Cleary M, Foong A, Kornhaber R, *et al*. Interprofessional collaborations for improved health care. *Issues Ment Health Nurs* 2019;40:1045–8.
24 Gittell JH, Godfrey M, Thistlethwaite J. Interprofessional collaborative practice and relational coordination: improving healthcare through relationships. *J Interprof Care* 2013;27:210–3.
25 Kozlowski SWJ, Ilgen DR. Enhancing the effectiveness of work groups and teams. *Psychol Sci Public Interest* 2006;7:77–124.
26 Harris MF, Advocat J, Crabtree BF, *et al*. Interprofessional teamwork innovations for primary health care practices and practitioners: evidence from a comparison of reform in three countries. *J Multidiscip Healthc* 2016;9:35–46.
27 Ryan BL, Brown JB, Thorpe C. Moving from space to place: reimagining the challenges of physical space in primary health care teams in ontario. *Can Fam Phys* 2019;65:e405–10.
28 Wong A, Bhyat R, Srivastava S, *et al*. Patient care during the COVID-19 pandemic: use of virtual care. *J Med Internet Res* 2021;23.
29 Abarca VMG, Palos-Sanchez PR, Rus-Arias E. Working in virtual teams: a systematic literature review and a bibliometric analysis. *IEEE Access* 2020;8:168923–40.
30 Großer B, Baumöl U. Why virtual teams work – state of the art. *Procedia Computer Science* 2017;121:297–305.
31 Morrison-Smith S, Ruiz J. Challenges and barriers in virtual teams: a literature review. *SN Appl Sci* 2020;2:1096.
32 Sandelowski M. Whatever happened to qualitative description? *Res Nurs Health* 2000;23:334–40.
33 Sandelowski M. What's in a name? qualitative description revisited. *Res Nurs Health* 2010;33:77–84.
34 Doyle L, McCabe C, Keogh B, *et al*. An overview of the qualitative descriptive design within nursing research. *Journal of Research in Nursing* 2020;25:443–55.
35 Government of Ontario. COVID-19: all ontario: case numbers and spread office of the premier. 2021. Available: https://covid-19.ontario.ca/data
36 Hutchison B, Glazier R. Ontario's primary care reforms have transformed the local care landscape, but a plan is needed for ongoing improvement. *Health Aff (Millwood)* 2013;32:695–703.
37 World Bank. *The COVID-19 pandemic*. The World Health Organization: Geneva, 7 May 2020.

38 Canadian Institute for Health Information. COVID-19 intervention timeline in canada. Ottawa: Canadian Institute for Health Information; 2020. Available: www.cihi.ca/en/covid-19-intervention-timeline-in-canada
39 Brown JB. The use of focus groups in clinical research. In: Crabtree B, Miller W, eds. *Doing qualitative research*. Thousand Oaks: Sage, 1999.
40 Corbin J, Strauss A. *Basics of qualitative research: techniques and procedures for developing grounded theory*. 3rd ed. Thousand Oaks: Sage, 2018.
41 Lehoux P, Poland B, Daudelin G. Focus group research and " the patien''s view. " *Soc Sci Med* 2006;63:2091–104.
42 Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Research in Psychology* 2006;3:77–101.
43 Lincoln YS, Guba EG, Pilotta JJ. Naturalistic inquiry. *International Journal of Intercultural Relations* 1985;9:438–9.
44 Dodgson JE. Reflexivity in qualitative research. *J Hum Lact* 2019;35:220–2.
45 Nowell LS, Norris JM, White DE, *et al*. Thematic analysis: striving to meet the trustworthiness criteria. *Int J Qual Methods* 2017;16:1–13.
46 Salas E, Shuffler ML, Thayer AL, *et al*. Understanding and improving teamwork in organizations: a scientifically based practical guide. *Hum Resour Manage* 2015;54:599–622. 10.1002/hrm.21628 Available: http://doi.wiley.com/10.1002/hrm.2015.54.issue-4
47 Breuer C, Hüffmeier J, Hertel G. Does trust matter more in virtual teams? A meta-analysis of trust and team effectiveness considering virtuality and documentation as moderators. *J Appl Psychol* 2016;101:1151–77.
48 Park B, Kotnour T. Distributed project teams: observations from the leader's seat. 2021 ASEM Virtual International Annual Conference "Engineering Management and The New Normal; 2021:340–5
49 Tannenbaum SI, Traylor AM, Thomas EJ, *et al*. Managing teamwork in the face of pandemic: evidence-based tips. *BMJ Qual Saf* 2021;30:59–63.
50 Shaw J, Jamieson T, Agarwal P, *et al*. Virtual care policy recommendations for patient-centred primary care: findings of a consensus policy dialogue using a nominal group technique. *J Telemed Telecare* 2018;24:608–15.
51 Kilcullen M, Feitosa J, Salas E. Insights from the virtual team science: rapid deployment during COVID-19. *Hum Factors* 2022;64:1429–40.
52 Goldman J, Xyrichis A. Interprofessional working during the COVID-19 pandemic: sociological insights. *J Interprof Care* 2020;34:580–2.
53 Levesque J-F, Harris MF, Scott C, *et al*. Dimensions and intensity of inter-professional teamwork in primary care: evidence from five international jurisdictions. *Fam Pract* 2018;35:285–94.
54 Feijt M, de Kort Y, Bongers I, *et al*. Mental health care goes online: practitioners' experiences of providing mental health care during the COVID-19 pandemic. *Cyberpsychol Behav Soc Netw* 2020;23:860–4.
55 Alsharo M, Gregg D, Ramirez R. Virtual team effectiveness: the role of knowledge sharing and trust. *Information & Management* 2017;54:479–90.
56 Morgan KH, Barroso CS, Bateman S, *et al*. Patients' experiences of interprofessional collaborative practice in primary care: a scoping review of the literature. *J Patient Exp* 2020;7:1466–75.
57 Sur D. Interprofessional intentional empathy centered care (IP-IECC) in healthcare practice: a grounded theory study. *J Interprof Care* 2021;35:175–84.
58 Matusik SF, Mickel AE. Embracing or embattled by converged mobile devices? users' experiences with a contemporary connectivity technology. *Human Relations* 2011;64:1001–30.
59 Mazmanian M, Orlikowski WJ, Yates J. The autonomy paradox: the implications of mobile email devices for knowledge professionals. *Organization Science* 2013;24:1337–57.
60 Bailenson JN. Nonverbal overload: a theoretical argument for the causes of zoom fatigue. *Technology, Mind, and Behavior* 2021;2.
61 Waizenegger L, McKenna B, Cai W, *et al*. An affordance perspective of team collaboration and enforced working from home during COVID-19. *European Journal of Information Systems* 2020;29:429–42.
62 Elyousfi F, Anand A, Dalmasso A. Impact of e-leadership and team dynamics on virtual team performance in a public organization. *IJPSM* 2021;34:508–28.
63 Srinivasan M, Phadke AJ, Zulman D, *et al*. Enhancing patient engagement during virtual care: a conceptual model and rapid implementation at an academic medical center. *NEJM Catal* 2020.
64 Issah M. Change leadership: the role of emotional intelligence. *SAGE Open* 2018;8:215824401880091.
65 Banerjee D, Rai M. Social isolation in covid-19: the impact of loneliness. *Int J Soc Psychiatry* 2020;66:525–7.
66 Daly Z, Slemon A, Richardson CG, *et al*. Associations between periods of COVID-19 quarantine and mental health in canada. *Psychiatry Res* 2021;295:113631.
67 Usher K, Bhullar N, Jackson D. Life in the pandemic: social isolation and mental health. *J Clin Nurs* 2020;29:2756–7.
68 Delanoeije J, Verbruggen M, Germeys L. Boundary role transitions: a day-to-day approach to explain the effects of home-based telework on work-to-home conflict and home-to-work conflict. *Human Relations* 2019;72:1843–68.
69 Fiks AG, Jenssen BP, Ray KN. A defining moment for pediatric primary care telehealth. *JAMA Pediatr* 2021;175:9–10.
70 Adams JG, Walls RM. Supporting the health care workforce during the COVID-19 global epidemic. *JAMA* 2020;323:1439–40.
71 Dai M, Willard-Grace R, Knox M, *et al*. Team configurations, efficiency, and family physician burnout. *J Am Board Fam Med* 2020;33:368–77.
72 Willard-Grace R, Hessler D, Rogers E, *et al*. Team structure and culture are associated with lower burnout in primary care. *J Am Board Fam Med* 2014;27:229–38.