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Sociodemographic differences in patient experience with virtual care during COVID-19

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ABSTRACT

Purpose: We sought to understand patients' care-seeking behaviours during the pandemic, their use and views of different virtual care modalities, and whether these differed by sociodemographic factors.

Methods: We conducted a multi-site cross-sectional patient experience survey at thirteen academic primary care teaching practices between May and June of 2020. An anonymized link to an electronic survey was sent to a subset of patients with a valid email address on file; sampling was based on birth month. For each question, the proportion of respondents who selected each response was calculated, followed by a comparison by sociodemographic characteristics using chi-squared tests.

Results: In total, 7482 participants responded to the survey. Most received care from their primary care clinic during the pandemic (67.7%, 5068/7482), the majority via phone (82.5%, 4195/5086). Among those who received care, 30.53% (1509/4943) stated that they delayed seeking care because of the pandemic. Most participants reported a high degree of comfort with phone (92.4%, 3824/4139), video (95.2%, 238/250) and email or messaging (91.3%, 794/870). However, those reporting difficulty making ends meet, poor or fair health, and arriving in Canada in the last 10 years reported lower levels of comfort with virtual care and fewer wanted their practice to continue offering virtual options after the pandemic.

Conclusions: Our study suggest that newcomers, people living with a lower income, and those reporting poor or fair health have a stronger preference and comfort for in-person primary care.

Further research should explore potential barriers to virtual care and how these could be addressed.

Strengths and Limitations of this study:

- Our study included a large sample of respondents from multiple clinics across both urban and suburban communities; however, all clinics were academic practices within the Greater Toronto Area which may limit generalizability of findings
- Patients were randomly sampled using birth month; however, our findings are open to selection bias because of the response rate, mode of delivery (email), and the survey being offered primarily in English
- Demographics of our sample confirm that we reached a diverse group of patients
- Survey questions were relevant to COVID-19 and informed by primary care leaders and patients
- Our survey reports on experience during the early phase of the pandemic and patients' comfort and preferences may have evolved since

INTRODUCTION

The COVID-19 pandemic has dramatically shifted the way health care is delivered and experienced by patients. Primary care practices in Canada, the US and elsewhere, rapidly switched to a virtual first approach in the first wave of the pandemic to limit transmission of the SARS-CoV2 virus and conserve Personal Protective Equipment[1]. A study from Ontario found that shortly after the pandemic was declared, in-office visits reduced by 79% and virtual care increased 56-fold, comprising 71% of primary care physician visits[2]. While this approach supported immediate public health goals, its impact on access, receipt of patient centered evidence-based care, and longer -term health outcomes is unclear[3]. As health systems consider what the "new normal" should look like, an examination of these impacts will be crucial.

This shift to a virtual-first approach in primary care has raised several concerns. Clinicians have noted anecdotally that patients with worrisome symptoms are delaying care[4]. Some note that the switch to virtual care may make care more accessible[5-8] , while others have highlighted barriers certain populations face in accessing virtual care[9-12]. Prior studies suggest patient characteristics including older age and lower income may limit one's ability to benefit from digital health and

virtual care services[13-14]. In addition, patients may not have access to required technologies such as a phone or internet access[15-16]. Despite this, very little literature to date is available on patient experience during the COVID-19 pandemic and how these differ by sociodemographic characteristics. Most existing studies on patient experience during COVID-19 are from acute care, and do not stratify experience based on patient demographics[17-21].

We conducted a patient survey at multiple academic primary care clinics in Ontario, Canada to better understand patient experience during COVID-19. We were interested in patients' care-seeking behaviours, their use and views of different virtual care modalities, and whether these differed by sociodemographic factors.

METHODS

Study design and setting

We conducted a multi-site cross-sectional survey to understand patient experience during the COVID-19 pandemic at thirteen core teaching practices affiliated with the University of Toronto Department of Family and Community Medicine situated in the Greater Toronto Area, Canada's

largest metropolitan area. Participating practices were located in Toronto and surrounding areas including Mississauga, Markham, and Barrie. Practices range in size from roughly 11 physicians serving 14,000 patients to 80 physicians serving 50,000 patients; some have multiple locations. Physicians in all teaching practices are part of Family Health Organizations and formally enroll patients, have shared responsibility for after-hours care, and are paid primarily by age-sex adjusted capitation; twelve of the thirteen sites were part of Family Health Teams that included non-physician health professionals such as nurses, nurse practitioners, social workers and dieticians.

The survey was developed to directly inform quality improvement (QI) efforts at participating sites during COVID-19.

Study Population and Recruitment

A link to an open electronic patient experience survey is emailed every quarter to a subset of patients with a valid email address on file; sampling each quarter is based on birth month with all eligible patients receiving a survey in a given year. The current analysis focuses on patients who were sent the survey between May and June of 2020 because they had a birthday during the

months of March, April or May of 2020. Each site distributed an anonymized link to patients in the manner by which they usually communicate electronically to patients (i.e. by email or using a secure messaging service). In some cases, the email address on file may belong to a family member or caregiver to allow them the option of filling out the survey on behalf of the patient. Recruitment was done in English, with one site also doing recruitment and survey completion in French. No incentives were provided to participants.

Survey Design

The survey was developed collaboratively by the family physicians who had a QI leadership role at participating sites. Where possible, questions were informed by existing surveys including the Commonwealth Fund International Health Policy Survey[22-23] and the Ontario Primary Care Experience Survey, which was developed as part of a larger Primary Care Performance Measurement strategy to measure the performance across 9 domains[24-25]. The survey went through several iterations based on feedback from practice QI teams, a survey methodologist, a biostatistician, patient education and engagement specialists, and patient and family advisors. A paragraph at the start of the survey outlined the purpose of the survey, the reason they were being

asked to participate, and highlighted that the survey was voluntary and anonymous. The final survey was prepared in Qualtrics software, a digital platform to capture experience data, and included 43 potential questions over 5 thematic domains including: 1) seeking and delaying care, 2) use and comfort with virtual care, 3) urgent care access, 4) patient centeredness and 5) patient demographic and contextual factors. Participants could end the survey at any point and were able to review previously answered questions before submission. (See Supplementary file 1 for full survey)

Data Collection and Storage

Data collected via the electronic survey were stored on Qualtrics. All data was downloaded onto a secure research server at the University of Toronto. A script was run to remove any potentially identifying information including 1) IP addresses, 2) Email address, 3) longitude/latitude coordinates and 4) any free text fields (which may contain unstructured protected health information).

Statistical Analysis

We performed an initial descriptive statistics analysis on the responses of all participants across all sites who answered at least one question in the survey. For each question, we calculated the proportion of respondents who selected each response. We then compared patient responses by sociodemographic characteristics including age, gender, education, self-reported financial issues, immigration status, primary language, self-reported health, and usual primary care provider (PCP). P values were calculated using chi-squared tests and all data analysis was conducted using R version 4.0.

Patient and Public Involvement

Patients and families at participating clinic sites informed the survey questions and methods and have been engaged in discussions about the results and potential next steps.

RESULTS

The survey link was emailed to 32,307 patients at 13 practices (see Supplementary file 2). We presented sociodemographic data (Table 1) on the 7482 participants who answered one or more questions in the survey (23.3% response rate). Sixty-five percent of respondents were female

(4379/6713) and 78.3% (5159/6588) reported having a college, university or graduate degree. Nine percent of respondents (590/6556) reported trouble making ends meet at the end of the month, while 29.0% (1928/6656) were not born in Canada (with 16.9% of these having arrived in the last 10 years). Eight percent (553/6851) reported filling out the survey on behalf of a family member. Fifty-five surveys were completed in French.

Care-seeking during COVID-19

Of all respondents, 67.7% (5068/7482) reported they received care in some way from their primary care clinic since the start of the pandemic. Financial status and self-reported health were significantly associated with care seeking behaviours during the pandemic ($p<0.001$); a higher proportion of patients who noted trouble making ends meet (yes: 74.8%, 441/590, no: 65.3%, 3396/5201, prefer not to answer: 68.0%, 520/765) and those with lower self-rated health (fair or poor: 76.9%, 752/978, excellent: 59.8%, 599/1002) reported receiving care during the study period. Of the 32.3% (2414/7482) of patients who did not receive care during the study period, the most commonly cited reasons were that patients had no health need (72.4%) and patients were worried about safety (9.5%).

Of the 5068 patients who reported receiving care at their primary care practice during the pandemic, 30.5% (1509/4943) stated that they delayed seeking care because of the pandemic. Gender, age, education level, financial status and self-reported health status were significantly associated with differences in seeking care ($p<0.05$ for all); for example, a higher proportion of those with trouble making ends meet and those with lower self-rated health reported delays in seeking care (see Table 2).

Use and perceptions of virtual care

Eighty-two (4195/5086) percent of participants reported receiving care by phone, 30.5% (1553/5086) in-person, 17.4% (886/5086) via email or secure messaging, and 5.1% (260/5086) via video. Age, immigration status and self-rated health were significantly associated with differences in receiving in person care ($p<0.05$ for all); the proportion who reported receiving in-person care was lower among those over the age of 65, those not born in Canada and those with lower self-rated health (Table 3). Women, young adults, those who rate their health as fair or poor and those who reported trouble making ends meet reported higher rates of phone use (see

Table 3). Age and education level were significantly associated with differences in using email and secure messaging ($p<0.001$ for all); those over the age of 65 (16.9%, 269/1592) and those with a high school degree or less (13.5%, 130/962) reported less use of email and secure messaging relative to other groups.

Overall, most respondents indicated they were extremely or somewhat comfortable with the privacy and security of virtual modalities including phone (92.4%, 3824/4139), video (95.2%, 238/250) and email or secure messaging (91.3%, 794/870). Financial status, immigration status and self-reported health status were significantly associated with differences in comfort with virtual care use ($p<0.05$ for all); those having trouble making ends meet, those not born in Canada and those rating their health as fair or poor reported lower levels of comfort with phone calls and email or secure messaging relative to other groups (see Table 4).

Future preferences for virtual care

Seventy-five percent (3798/5068), 52.2% (2644/5068), and 42.9% (2172/5068) of respondents said they wanted their practice to continue offering phone, email/secure messaging, and video

after the pandemic, respectively. Age, education status, financial status, immigration status and self-reported health status were significantly associated with differences in wanting ongoing use of each of the three virtual care modalities ($p<0.05$ for all); those over age 65, those whose education was high school or less, those reporting yes or "I don't know" when asked about difficulty making ends meet, those born outside Canada, and those in fair or poor health reported the lowest desire for the three virtual care modalities to continue after the pandemic compared to other groups (see Table 5).

DISCUSSION

Our analysis of more than 7400 patient experience surveys across 13 primary care clinics during the first months of the COVID-19 pandemic found important differences in care-seeking and comfort with virtual care based on patient income, self-reported health, and other demographic characteristics. Most participants received care from their primary care clinic in some way during the study period; however, almost a third who sought care reported they delayed it due to concerns about the pandemic. Patients who had trouble making ends meet and those who reported their health as fair or poor were more likely to seek care during the pandemic, yet were

also more likely to report they delayed seeking care. Patient generally reported a high degree of comfort with phone, video and email or secure messaging. But, those reporting difficulty making ends meet, poor or fair health, and arriving in Canada in the last 10 years reported lower levels of comfort and less likely to want their practice to continue offering these virtual options.

Our results, similar to other emerging literature, suggests a complex relationship between the social determinants of health and patient comfort and preference regarding accessing care through virtual tools. A US based study prior to the pandemic found that while younger patients and those with physical disabilities were more likely to use video visits to access care, those who reported lower incomes and lived in rural populations were less likely to use this modality[26]. A recent US-based primary care study found that after care shifted to a virtual-first approach during the pandemic, a significantly smaller proportion of visits overall were with people who were low income, non-white, or non-English speakers[27]. However, a Canadian based study found that similar to our participants, those with the highest care needs (older, multiple co-morbidities), were more likely to access primary care during the early months of the pandemic compared to other groups[2].

As many predict virtual care will continue to be a part of care delivery post-pandemic, this study highlights the importance of integrating patient experience data into future care delivery planning. Similar to other recently published data [2,28,29], our experience data indicates phone was by far the most utilized modality of virtual care and overall, participants were comfortable using virtual modalities to receive care. Patients who report financial troubles and poor health, had a higher percentage reporting accessing care (virtually and in person) during the pandemic compared to other groups; however, they reported greater concerns with the privacy and security of virtual care and less desire for virtual care to be an ongoing part of their primary care experience. This suggests that while public health measures may have pushed populations with the highest care needs to use virtual care, these modalities did not provide all patients with an equitable, patient-centered care experience. Further research should explore reasons behind the relative discomfort and low interest in virtual care and how barriers could be addressed. While access to technology may be part of this problem, other factors such as health and digital literacy, and support from peers and health care providers may also be significant[30]. Without further

patient experience and demographic data to understand the ongoing use of virtual care, we risk leaving behind those who need care most.

Strengths and Limitations

Our study had several key strengths and limitations. Our study included a large sample of respondents from multiple clinics across both urban and suburban communities. Patients were randomly sampled using birth month. Survey questions were relevant to COVID-19 and informed by primary care leaders and patients. However, our findings are open to selection bias because of the response rate, mode of delivery, and the survey being offered primarily in English; however, demographics of our sample confirm that we reached a diverse group of patients. We found substantial differences in utilization and perspectives of virtual care by sociodemographic characteristics, but these may be an underestimate of true differences. Our survey reports on experience during the early phase of the pandemic and patients' comfort and preferences may have evolved since. Finally, although our sample was taken from 13 primary care practices, these were all academic practices in the Greater Toronto Area where physicians were paid by capitation which may limit the generalizability of the findings.

CONCLUSIONS

We found that most patients were comfortable using virtual modalities and wanted virtual care options to continue. However, there were important differences by sociodemographic characteristics, for example, with those having difficulty making ends meet, reporting poor or fair health, and being born outside of Canada being less likely to report comfort with virtual modalities and less likely to want virtual care options to continue post-pandemic. Moving forward, clinicians and system decision makers need to carefully consider how we integrate virtual care into practices to ensure equity in access to primary care.

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Ethics statement

The initiative was formally reviewed by institutional authorities at Unity Health Toronto and deemed to neither require Research Ethics Board approval nor written informed consent from participants.

Conflicts of interest
The authors declare no conflicts of interest.

Prior presentations: None

Author contributions
PA and TK conceived of and designed the study together. RW and CM conducted the analysis. All authors helped interpret the data. PA drafted the manuscript with the support of TK and all authors critically reviewed it. All authors read and approved the final manuscript.

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Data sharing

No additional data is available

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Table 1. Demographic characteristics of survey respondents (n=7482)

Demographic characteristic		Survey respondents n (%)
Age (n=6744)		
	0 to 5 years old	169 (2.51%)
	6 to 17 years old	166 (2.46%)
	18 to 24 years old	120 (1.78%)
	25 to 34 years old	520 (7.71%)
	35 to 49 years old	1412 (20.94%)
	50 to 64 years old	2002 (29.69%)
	65 to 79 years old	1921 (28.48%)
	80 years or older	434 (6.44%)
Gender (n=6713)		
	Woman	4379 (65.23%)
	Man	2221 (33.09%)
	Other	60 (0.89%)
	Prefer not to answer	53 (0.79%)
Education level (n=6588)		
	Highschool or less	1429 (21.69%)
	College/University	3198 (48.54%)
	Graduate/Professional	1961 (29.77%)
Trouble making ends meet (n=6556)		
	Yes	590 (9.00%)

	No	5201 (79.33%)
	Don't know/Prefer not to answer	765 (11.67%)
Born in Canada (n=6656)		
	Yes	4728 (71.03%)
	No	1928 (28.97%)
Arrive in last 10 years (n=1856)		
	Yes	326 (17.56%)
	No	1530 (82.44%)
Preferred language (n=6678)		
	English	6576 (98.47%)
	Non-English	102 (1.53%)
Self rated health (n=6665)		
	Excellent	1002 (15.03%)
	Very good	2599 (38.99%)
	Good	2086 (31.30%)
	Fair/Poor	978 (14.67%)
Usual PCP (n=6545)		
	Staff physician	4842 (73.98%)
	Resident physician	1217 (18.59%)
	Nurse practitioner	173 (2.64%)
	Unsure	313 (4.78%)

*Created by the authors.

Table 2. Proportion of respondents who received care at their primary care practice who reported that they delayed seeking care because of the pandemic, by sociodemographic characteristic

Demographics		Delayed Care n (%)	P-value
All		1509 (30.53%)	
Age			
	<18 years old	61 (29.90%)	<0.01
	18-34 years old	158 (35.03%)	
	35-64 years old	704 (31.44%)	
	65+ years old	429 (26.85%)	
Gender			
	Woman	932 (31.65%)	<0.001
	Man	376 (26.07%)	
	Other	20 (42.55%)	
	Prefer not to answer	18 (46.15%)	
Education			
	Highschool or less	238 (24.74%)	<0.001
	College/University	637 (30.09%)	
	Graduate/Professional	443 (33.95%)	
Trouble making ends meet			
	Yes	188 (42.63%)	<0.001
	No	928 (27.33%)	
	Don't know/Prefer not to answer	196 (37.69%)	

Born in Canada			
	Yes	966 (30.92%)	0.07
	No	366 (28.09%)	
Arrive <10 years			
	Yes	66 (29.33%)	0.79
	No	289 (28.20%)	
Preferred Language			
	English	1322 (30.20%)	0.49
	Non-English	24 (34.78%)	
Self rated health			
	Excellent	153 (25.54%)	<0.001
	Very good	475 (28.84%)	
	Good	433 (30.20%)	
	Fair/Poor	275 (36.57%)	
Usual PCP			
	Staff physician	976 (30.13%)	0.47
	Resident physician	246 (29.85%)	
	Nurse practitioner	45 (36.59%)	
	Unsure	52 (29.21%)	

*Created by the authors.

Table 3. Percentage of patients who reported receiving care by phone and in person during the pandemic, by sociodemographic characteristic

Demographics		In person care n (%)	P-value	Phone care n (%)	P-value
All		1553 (30.64%)		4195(82.77%)	
Age					
	<18 years old	102 (50.00%)	<0.001	143 (70.10%)	<0.001
	18-34 years old	181 (40.13%)		404 (89.58%)	
	35-64 years old	603 (26.93%)		1922 (85.84%)	
	65+ years old	476 (29.79%)		1338 (83.73%)	
Gender					
	Woman	882 (29.95%)	0.57	2559 (86.89%)	<0.001
	Man	443 (30.72%)		1163 (80.65%)	
	Other	17 (36.17%)		41 (87.23%)	
	Prefer not to answer	9 (23.08%)		33 (84.62%)	
Education Level					
	Highschool or less	303 (31.50%)	0.42	787 (81.81%)	<0.05
	College/University	618 (29.19%)		1818 (85.88%)	
	Graduate/Professional	396 (30.34%)		1109 (84.98%)	
Trouble making ends meet					
	Yes	122 (27.66%)	0.28	396 (89.80%)	<0.001
	No	1047 (30.83%)		2840 (83.63%)	
Born in Canada					

	Yes	977 (31.27%)	<0.05	2630 (84.19%)	0.13
	No	363 (27.86%)		1121 (86.03%)	
Arrive <10 years					
	Yes	77 (34.22%)	<0.05	196 (87.11%)	0.73
	No	276 (26.93%)		881 (85.95%)	
Preferred language					
	English	1326 (30.29%)	0.88	3706 (84.67%)	1.00
	Non-English	22 (31.88%)		58 (84.06%)	
Self Reported Health					
	Excellent	221 (36.89%)	<0.001	470 (78.46%)	<0.001
	Very good	522 (31.69%)		1390 (84.40%)	
	Good	383 (26.71%)		1222 (85.22%)	
	Fair/Poor	220 (29.26%)		673 (89.49%)	
Usual PCP					
	Staff physician	963 (29.73%)	0.10	2750 (84.90%)	0.22
	Resident physician	270 (32.77%)		701 (85.07%)	
	Nurse practitioner	46 (37.40%)		97 (78.86%)	
	Unsure	50 (28.09%)		146 (82.02%)	

*Created by the authors.

Table 4. Percentage of patients who reported they were comfortable with the privacy and security of using phone, video and email or secure messaging to receive care during the pandemic, by sociodemographic characteristic

Demographics		Phone n (%)	P-value	Video n (%)	P-value	Email Messaging n (%)	P-value
All		3824 (92.39%)		238 (95.20%)		794 (91.26%)	
Age							
	<18 years old	138 (96.50%)	<0.05	19 (95.00%)	0.60	17 (94.44%)	0.43
	18-34 years old	371 (91.83%)		28 (93.33%)		90 (87.38%)	
	35-64 years old	1800 (93.65%)		104 (94.55%)		383 (90.54%)	
	65+ years old	1223 (91.41%)		63 (98.44%)		249 (92.57%)	
Gender							
	Woman	2385 (93.20%)	<0.001	128 (96.97%)	0.17	501 (90.60%)	<0.001
	Man	1077 (92.61%)		75 (94.94%)		219 (92.80%)	
	Other	40 (97.56%)		4 (80.00%)		15 (100.00%)	
	Prefer not to answer	24 (72.73%)		6 (85.71%)		2 (40.00%)	
Education Level							
	Highschool or less	743 (94.41%)	0.17	47 (92.16%)	0.20	121 (93.08%)	0.65
	College/University	1679 (92.35%)		94 (97.92%)		358 (90.63%)	
	Graduate/Professional	1032 (93.06%)		66 (92.96%)		250 (91.91%)	
Trouble making ends meet							
	Yes	354 (89.39%)	<0.001	24 (92.31%)	0.63	70 (85.37%)	<0.001

	No	2679 (94.33%)		153 (96.23%)		576 (93.96%)	
	I don't know/Prefer not to answer	400 (87.53%)		30 (96.77%)		75 (78.12%)	
Born in Canada							
	Yes	2471 (93.95%)	<0.001	159 (95.78%)	1.00	526 (92.93%)	<0.05
	No	1019 (90.90%)		54 (94.74%)		204 (87.18%)	
Arrive in the last 10 years							
	Yes	176 (89.80%)	0.80	7 (100.00%)	1.00	34 (82.93%)	0.52
	No	799 (90.69%)		45 (93.75%)		163 (88.11%)	
Preferred language							
	English	3440 (92.82%)	0.50	209 (95.43%)	0.48	727 (91.33%)	0.40
	Non-English	52 (89.66%)		3 (75.00%)		7 (77.78%)	
Self Reported Health							
	Excellent	455 (96.81%)	<0.001	30 (93.75%)	0.98	105 (95.45%)	<0.05
	Very good	1324 (95.25%)		65 (95.59%)		259 (93.50%)	
	Good	1131 (92.55%)		72 (94.74%)		235 (90.04%)	
	Fair/Poor	579 (86.03%)		42 (95.45%)		133 (85.81%)	
Usual PCP							
	Staff physician	2575 (93.64%)	<0.05	164 (96.47%)	0.17	568 (92.21%)	0.07
	Resident physician	640 (91.30%)		28 (87.50%)		107 (87.70%)	
	Nurse practitioner	86 (88.66%)		4 (100.00%)		17 (89.47%)	
	Unsure	130 (89.04%)		11 (91.67%)		24 (80.00%)	

*Created by the authors.

Table 5. Preferences for ongoing uses of virtual care options after the pandemic, by sociodemographic characteristic

Demographics	Phone n (%)	P-value	Video n (%)	P-value	Email Messaging n (%)	P-value
All	3798 (74.94%)		2172 (42.86%)		2644 (52.17%)	
Age						
<18 years old	171 (83.82%)	<0.05	120 (58.82%)	<0.001	117 (57.35%)	<0.001
18-34 years old	385 (85.37%)		252 (55.88%)		292 (64.75%)	
35-64 years old	1886 (84.23%)		1206 (53.86%)		1352 (60.38%)	
65+ years old	1291 (80.79%)		549 (34.36%)		834 (52.19%)	
Gender						
Woman	2510 (85.23%)	<0.001	1418 (48.15%)	0.45	1758 (59.69%)	<0.01
Man	1142 (79.20%)		662 (45.91%)		780 (54.09%)	
Other	37 (78.72%)		23 (48.94%)		31 (65.96%)	
Prefer not to answer	29 (74.36%)		21 (53.85%)		20 (51.28%)	
Education Level						
Highschool or less	770 (80.04%)	<0.05	384 (39.92%)	<0.001	468 (48.65%)	<0.001
College/University	1777 (83.94%)		993 (46.91%)		1227 (57.96%)	
Graduate/Professional	1098 (84.14%)		705 (54.02%)		846 (64.83%)	
Trouble making ends meet						
Yes	362 (82.09%)	<0.001	195 (44.22%)	<0.001	257 (58.28%)	<0.001
No	2869 (84.48%)		1665 (49.03%)		2037 (59.98%)	
I don't know/Prefer not to answer	387 (74.42%)		204 (39.23%)		232 (44.62%)	

Born in Canada						
Yes	2687 (86.01%)	<0.001	1579 (50.54%)	<0.001	1890 (60.50%)	<0.001
No	1005 (77.13%)		527 (40.45%)		683 (52.42%)	
Arrive in the last 10 years						
Yes	166 (73.78%)	0.13	89 (39.56%)	0.90	101 (44.89%)	<0.05
No	806 (78.63%)		413 (40.29%)		554 (54.05%)	
Preferred language						
English	3642 (83.21%)	0.12	2086 (47.66%)	0.08	2532 (57.85%)	<0.05
Non-English	52 (75.36%)		25 (36.23%)		29 (42.03%)	
Self Reported Health						
Excellent	519 (86.64%)	<0.01	330 (55.09%)	<0.001	382 (63.77%)	<0.001
Very good	1392 (84.52%)		843 (51.18%)		977 (59.32%)	
Good	1179 (82.22%)		635 (44.28%)		809 (56.42%)	
Fair/Poor	597 (79.39%)		294 (39.10%)		394 (52.39%)	
Usual PCP						
Staff physician	2730 (84.29%)	<0.001	1613 (49.80%)	<0.001	1943 (59.99%)	<0.001
Resident physician	659 (79.98%)		336 (40.78%)		415 (50.36%)	
Nurse practitioner	104 (84.55%)		55 (44.72%)		73 (59.35%)	
Unsure	133 (74.72%)		79 (44.38%)		92 (51.69%)	

*Created by the authors.

Improving your Patient Experience

Dept of Family and Community Medicine, University of Toronto
Draft Jun 1, 2020

Start of Block: Intro Block

Q1 Dear THE CLINIC'S NAME Patient,

The CLINIC wants to know about your experience getting health care during the COVID-19 pandemic. We are asking you to complete a short survey, which will take about 5 minutes. Your answers will help us to improve the care we provide.

You are receiving this survey because either you or your family member is a patient with CLINIC and have a birthday in MONTH1, MONTH2, MONTH3. Participation is voluntary and responses are confidential. We do not ask for your name in the survey and your answers cannot be linked back to your chart. We are interested in your honest opinion, whether it is negative or positive. Your responses to this survey will not change the care you receive from us.

PLEASE NOTE: This survey is for the person in your family who has a birthday in MONTH1, MONTH2, MONTH3. If this person is someone you are a caregiver for (a child or parent), please respond based on their care experience. If your own birthday is also in MONTH 1, MONTH 2, MONTH 3, you can choose to respond based on your own care experience.

End of Block: Intro Block

Start of Block: Block 1

Q2 Section 1 – Care needs during pandemic

The following questions will help us better understand your comfort with accessing care during the COVID-19 pandemic. Please think about the care you received after March 17, 2020 (the date Ontario declared a state of emergency due to COVID-19).

Q3 **Did you receive care from a doctor, nurse or healthcare provider at CLINIC during the COVID-19 pandemic? This includes care delivered in person, by phone, by video or by email or secure message.**

- ○ Yes (1)
- ○ No (2)

Skip To: Q12 If DFCM1.1 = No

Q4 **How did you receive care during this time?** (Select all that apply)

- ☐ In person (1)
- ☐ Phone call (2)
- ☐ Video (3)
- ☐ Email or secure message (4)

Display This Question:
If DFCM1.2 = Phone call

Q5 When using the PHONE to discuss your health concerns, how comfortable were you with the level of privacy and security? (Select one response)

- ○ Extremely comfortable (1)
- ○ Somewhat comfortable (2)
- ○ Neither comfortable nor uncomfortable (3)
- ○ Somewhat uncomfortable (4)
- ○ Extremely uncomfortable (5)

Display This Question:

If DFCM1.2 = Phone call

Q6 **When using the PHONE , was there anything you did not talk about because you were worried about privacy?** (Select one response with optional comments)

- ☐ Yes (1)
- ☐ No (2)
- ☐ Comments: (3) _____

Display This Question:

If DFCM1.2 = Video

Q7 When using VIDEO to discuss your health concerns, how comfortable were you with the level of privacy and security? (Select one response)

- ○ Extremely comfortable (1)
- ○ Somewhat comfortable (2)
- ○ Neither comfortable nor uncomfortable (3)
- ○ Somewhat uncomfortable (4)
- ○ Extremely uncomfortable (5)

Display This Question:

If DFCM1.2 = Video

Q8 **When using VIDEO, was there anything you did not talk about because you were worried about privacy?** (Select one response with optional comments)

- ☐ Yes (1)
- ☐ No (2)
- ☐ Comments: (3) _____

Display This Question:

If DFCM1.2 = Email or secure message

Q9 When using EMAIL or SECURE MESSAGE to discuss your health concerns, how comfortable were you with the level of privacy and security? (Select one response)

- ○ Extremely comfortable (1)
- ○ Somewhat comfortable (2)
- ○ Neither comfortable nor uncomfortable (3)
- ○ Somewhat uncomfortable (4)
- ○ Extremely uncomfortable (5)

Display This Question:

If DFCM1.2 = Email or secure message

Q10 **When using EMAIL or SECURE MESSAGE, was there anything you did not talk about because you were worried about privacy?** (Select one response with optional comments)

- ☐ Yes (1)
- ☐ No (2)
- ☐ Comments: (3) _____

Q11 **Did you avoid or delay receiving care from THE CLINIC because of the COVID-19 pandemic?** (Select one response)

- ○ Yes (1)
- ○ No (2)

Display This Question:

If DFCM1.1 = No

Q12 **Please tell us why you did not get care from THE CLINIC during the COVID pandemic:** (Select all that apply)

- ☐ I did not have any health needs (1)
- ☐ I did not know I could receive care from the clinic during the pandemic (2)
- ☐ I did not want to come into the clinic because I was worried for my personal safety (3)
- ☐ I tried but could not get an appointment (4)
- ☐ The hours were inconvenient (5)
- ☐ I could not get through to the clinic on the phone (7)
- ☐ Other (please specify): (6) _____

Display This Question:

If DFCM1.1 = No

Q13 **Did you get care somewhere else during the COVID pandemic?** (Select all that apply)

- ☒ No, I did not get care elsewhere (1)
- ☐ I got care from a walk-in clinic in person (2)
- ☐ I got care from a walk-in clinic by phone or video (3)
- ☐ I went to the emergency department (4)
- ☐ Other (please specify): (5) _____

End of Block: Block 1

Start of Block: Block 2

Q14 **Section 2: Getting URGENT CARE when you are sick during the COVID-19 pandemic**
The following questions help us better understand the experience of patients who were sick and wanted to be seen urgently. Please answer the questions below for the time during the COVID-19 pandemic only (starting March 17, 2020).

Q15 **During the COVID-19 pandemic, was there a time when you were sick and URGENTLY needed care at THE CLINC?** (Select one response)

- ○ Yes (1)
- ○ No (2)

Skip To: End of Block If DFCM2.1 = No

Q16 **Think about the time you needed URGENT CARE. How many days did it take from when you first tried to book an appointment at our clinic to when you received care?**

Care could include an in-person visit, phone visit, video visit and/or email or secure messaging. (Select one response).

- ○ On the same day (1)
- ○ The next day (2)
- ○ In 2 to 3 days (3)
- ○ In 4 to 7 days (4)
- ○ After more than 1 week (5)
- ○ Never able to get an appointment (6)
- ○ Not sure (7)

Display This Question:

If DFCM2.2 = In 2 to 3 days

Or DFCM2.2 = In 4 to 7 days

And DFCM2.2 = After more than 1 week

And DFCM2.2 = Never able to get an appointment

Q17 **Why were you not able to get care the same or next day?** (Select all that apply)

- ☐ I was informed that there was no availability (1)
- ☐ I was offered an appointment but not with the provider I preferred (2)
- ☐ I was offered an appointment but not at the time I preferred (3)
- ☐ I could not get through to the clinic on the phone (4)
- ☐ Other (Please specify) (5) _____

Q18 How would you describe the length of time it took between making the appointment and receiving care? (Select one response)

- About right (1)
- Somewhat too long (2)
- Much too long (3)

Q19 During the COVID-19 pandemic, did you need urgent care on an evening, weekend, or public holiday?

- Yes (1)
- No (2)

Display This Question:
If DFCM2.5 = Yes

Q20 How easy or difficult was it to get urgent care from CLINIC on an evening, weekend, or holiday during the COVID-19 pandemic?

- Very easy (1)
- Somewhat easy (2)
- Neither easy nor difficult (3)
- Somewhat difficult (4)
- Very difficult (5)

End of Block: Block 2

Start of Block: Block 3

Q21 ***Section 3: Care experience***

For the next set of questions, please think about your experience when receiving care from your doctor or nurse practitioner during the COVID-19 pandemic only (starting March 17, 2020). This includes care delivered in person, by phone, by video or by email or secure message.

Q22 **How often did you receive care from the doctor or nurse practitioner that you prefer?** (select one response)

- I do not have a preferred health care provider (1)
- Always (2)
- Usually (3)
- Occasionally (4)
- Rarely (5)
- Never (6)

Q23 **How often did you receive care within a reasonable time from your doctor or nurse practitioner**? (Select one response)

- Always (1)
- Usually (2)
- Occasionally (3)
- Rarely (4)
- Never (5)

Page Break

Q24 **When you received care from your doctor or nurse practitioner, how often did they involve you as much as you want to be in decisions about your care and treatment?** (Select one response)

- Always (1)
- Usually (2)
- Occasionally (3)
- Rarely (4)
- Never (5)

Q25 **When you received care from your doctor or nurse practitioner, how often did they spend enough time with you?** (Select one response)

- Always (1)
- Usually (2)
- Occasionally (3)
- Rarely (4)
- Never (5)

End of Block: Block 3

Start of Block: Block ADDITIONAL

Q26 Click to write the question text

End of Block: Block ADDITIONAL

Start of Block: Block 4

Q27 **Section 4: Your recommendations** *For the next set of questions, please share your thoughts on how we can improve THE CLINIC.*

Q28 **After the COVID-19 pandemic is over, which of these care options should the clinic continue to offer?** (Select all that apply)

- ☐ Phone (1)
- ☐ Video (2)
- ☐ Email/secure messaging portal (3)
- ☐ Other (4) _____
- ☐ None of the above (5)

Q29 **What changes did our clinic make during COVID-19 that you would like us to continue?** (Optional)

_____

_____

_____

_____

_____

Q30 **What do you think our clinic could have done differently to better meet your health needs during the COVID-19 pandemic?** (Optional)

_____

_____

_____

_____

_____

Q31 **Overall, would you recommend our clinic, to your friends and family?** (Select one response)

- Yes (1)
- No (2)

End of Block: Block 4

Start of Block: Block 5a

Q32 **Are you filling this survey out on behalf of someone else?** (Select one response)

- Yes (1)
- No (2)

End of Block: Block 5a

Start of Block: Block 5b - Family

Q33 **Section 5: About Your Family Member**

This final section of the survey helps us understand if some groups are experiencing care differently than others.

Q34 I am filling this survey on behalf of my child or family member who is: (optional)

- 0-5 years old (1)
- 6-17 years old (2)
- 18-24 years old (3)
- 25-34 years old (4)
- 35-49 years old (5)
- 50-64 years old (6)
- 65-79 years old (7)
- 80+ years old (8)

Q35 What gender do they identify with? (optional)

- Woman/girl (1)
- Man/boy (2)
- Transgender woman/girl (3)
- Transgender man/boy (4)
- Non-binary (for example gender queer, 2-spirit) (5)
- Identity not listed (please specify) (6) _____
- Prefer not to answer (7)

Q36 What is their highest level of education? (optional)

- Elementary school or less (1)
- Some High school (2)
- High School Diploma (3)
- College or University Diploma Degree (4)
- Graduate or Professional Degree (5)

Q37 **Do they have trouble making ends meet (money problems) at the end of the month?** (optional)

- Yes (1)
- No (2)
- I don't know (3)
- Prefer not to answer (4)

Q38 Were they born in Canada? (optional)

- Yes (1)
- No (2)

Display This Question:

If DFCM5b.5 = No

Q39 **Did you arrive in Canada in the last 10 years?** (optional)

- Yes (1)
- No (2)

Q40 **What language would they prefer speaking with their primary care provider?** (optional)

- English (1)
- French (2)
- Other (please specify): (3) _____

Q41 In general, would you say their health is: (optional)

- Excellent (1)
- Very Good (2)
- Good (3)
- Fair (4)
- Poor (5)

Q42 What is their postal code? (optional)

_____

Q43 Which primary care provider do they usually see? (optional)

- Staff Physician (1)
- Resident Physician (2)
- Nurse Practitioner (3)
- Unsure (4)

End of Block: Block 5b - Family

Start of Block: Block 5c - Yourself

Q44 **Section 5: About You**

This final section of the survey helps us understand if some groups are experiencing care differently than others.

Q45 **How old are you?** (optional)

- 0-5 years old (1)
- 6-17 years old (2)
- 18-24 years old (3)
- 25-34 years old (4)
- 35-49 years old (5)
- 50-64 years old (6)
- 65-79 years old (7)
- 80+ years old (8)

Q46 **What gender do you identify with?** (optional)

- Woman/girl (1)
- Man/boy (2)
- Transgender woman/girl (3)
- Transgender man/boy (4)
- Non-binary (for example gender queer, 2-spirit) (5)
- Identity not listed (please specify) (6) _____
- Prefer not to answer (7)

Q47 **What is your highest level of education?** (optional)

- Elementary school or less (1)
- Some High school (2)
- High School Diploma (3)
- College or University Diploma Degree (4)
- Graduate or Professional Degree (5)

Q48 **Do you have trouble making ends meet (money problems) at the end of the month?** (optional)

- Yes (1)
- No (2)
- I don't know (3)
- Prefer not to answer (4)

Q49 **Were you born in Canada?** (optional)

- Yes (1)
- No (2)

Display This Question:

If DFCM5c.5 = No

Q50 **Did you arrive in Canada in the last 10 years?** (optional)

- Yes (1)
- No (2)

Q51 **What language would you prefer speaking with your primary care provider?** (optional)

- ○ English (1)
- ○ French (2)
- ○ Other (please specify): (3) _____

Q52 **In general, would you say your health is:** (optional)

- ○ Excellent (1)
- ○ Very Good (2)
- ○ Good (3)
- ○ Fair (4)
- ○ Poor (5)

Q53 What is your postal code? (optional)

_____

Q54 Which primary care provider do you usually see? (optional)

- Staff Physician (1)
- Resident Physician (2)
- Nurse Practitioner (3)
- Unsure (4)

End of Block: Block 5c - Yourself

Start of Block: End of Survey

Q55 Thank you for spending the time to complete this survey. Note: Please click "Submit" to record all your answers.

End of Block: End of Survey

SUPPLEMENTARY FILE 2: Site Demographics

Site name	City	Number of surveys sent (N= 32, 307)	Number of responses (N=7,532)	Response Rate (%)
Barrie and Community Family Health Team	Barrie	748	279	37%
Credit Valley Family Health Team	Mississauga	2,056	645	31%
Health for All Family Health Team	Markham	1,900	535	28%
Mount Sinai Academic Family Health Team	Toronto	2,100	391	19%
Southlake Family Health Team	Newmarket	1,968	735	37%
North York Family Health Team	North York	1,466	390	27%
Platinum Medical Family Health Organization	Scarborough	1,792	222	12%
Sunnybrook Academic Family Health Team	Toronto	1,447	409	28%
St. Joseph's Health Centre Family Medicine/Urban Family Health Team	Toronto	1,135	265	23%

St. Michael's Hospital Academic Family Health Team	Toronto	5,180	1337	26%
South East Toronto Family Health Team	Toronto	5,244	591	11%
Summerville Family Health Team	Mississauga	5,070	1426	28%
Women's College Hospital Family Practice Health Centre	Toronto	2,201	307	14%

*Created by the authors.

Checklist for Reporting Results of Internet E-Surveys (CHERRIES)

Checklist Item	***Explanation***	***Page Number***
Describe survey design	Describe target population, sample frame. Is the sample a convenience sample? (In "open" surveys this is most likely.)	5
IRB approval	Mention whether the study has been approved by an IRB.	6
Informed consent	Describe the informed consent process. Where were the participants told the length of time of the survey, which data were stored and where and for how long, who the investigator was, and the purpose of the study?	7
Data protection	If any personal information was collected or stored, describe what mechanisms were used to protect unauthorized access.	7
Development and testing	State how the survey was developed, including whether the usability and technical functionality of the electronic questionnaire had been tested before fielding the questionnaire.	7
Open survey versus closed survey	An "open survey" is a survey open for each visitor of a site, while a closed survey is only open to a sample which the investigator knows (password-protected survey).	6
Contact mode	Indicate whether or not the initial contact with the potential participants was made on the Internet. (Investigators may also send out questionnaires by mail and allow for Web-based data entry.)	6
Advertising the survey	How/where was the survey announced or advertised? Some examples are offline media (newspapers), or online (mailing lists – If yes, which ones?) or banner ads (Where were these banner ads posted and what did they look like?). It is important to know the wording of the announcement as it will heavily influence who chooses to participate. Ideally the survey announcement should be published as an appendix.	6
Web/E-mail	State the type of e-survey (eg, one posted on a Web site, or one sent out through e-mail). If it is an e-mail survey, were the responses entered manually into a database, or was there an automatic method for capturing responses?	6
Context	Describe the Web site (for mailing list/newsgroup) in which the survey was posted. What is the Web site about, who is visiting it, what are visitors normally looking for? Discuss to what degree the content of the Web site could pre-select the sample or influence the results. For example, a survey about vaccination on a anti-immunization Web site will have different results from a Web survey conducted on a government Web site	n/a
Mandatory/voluntary	Was it a mandatory survey to be filled in by every visitor who wanted to enter the Web site, or was it a voluntary survey?	n/a
Incentives	Were any incentives offered (eg, monetary, prizes, or non-monetary incentives such as an offer to provide the survey results)?	n/a

Time/Date	In what timeframe were the data collected?	6
Randomization of items or questionnaires	To prevent biases items can be randomized or alternated.	n/a
Adaptive questioning	Use adaptive questioning (certain items, or only conditionally displayed based on responses to other items) to reduce number and complexity of the questions.	n/a
Number of Items	What was the number of questionnaire items per page? The number of items is an important factor for the completion rate.	7
Number of screens (pages)	Over how many pages was the questionnaire distributed? The number of items is an important factor for the completion rate.	n/a
Completeness check	It is technically possible to do consistency or completeness checks before the questionnaire is submitted. Was this done, and if "yes", how (usually JAVAScript)? An alternative is to check for completeness after the questionnaire has been submitted (and highlight mandatory items). If this has been done, it should be reported. All items should provide a non-response option such as "not applicable" or "rather not say", and selection of one response option should be enforced.	n/a
Review step	State whether respondents were able to review and change their answers (eg, through a Back button or a Review step which displays a summary of the responses and asks the respondents if they are correct).	6
Unique site visitor	If you provide view rates or participation rates, you need to define how you determined a unique visitor. There are different techniques available, based on IP addresses or cookies or both.	n/a
View rate (Ratio of unique survey visitors/unique site visitors)	Requires counting unique visitors to the first page of the survey, divided by the number of unique site visitors (not page views!). It is not unusual to have view rates of less than 0.1 % if the survey is voluntary.	n/a
Participation rate (Ratio of unique visitors who agreed to participate/unique first survey page visitors)	Count the unique number of people who filled in the first survey page (or agreed to participate, for example by checking a checkbox), divided by visitors who visit the first page of the survey (or the informed consents page, if present). This can also be called "recruitment" rate.	n/a
Completion rate (Ratio of users who finished the survey/users who	The number of people submitting the last questionnaire page, divided by the number of people who agreed to participate (or submitted the first survey page). This is only relevant if there is a separate "informed consent" page or if the survey goes over several pages. This is a measure for attrition. Note that	8

agreed to participate)	"completion" can involve leaving questionnaire items blank. This is not a measure for how completely questionnaires were filled in. (If you need a measure for this, use the word "completeness rate".)	
Cookies used	Indicate whether cookies were used to assign a unique user identifier to each client computer. If so, mention the page on which the cookie was set and read, and how long the cookie was valid. Were duplicate entries avoided by preventing users access to the survey twice; or were duplicate database entries having the same user ID eliminated before analysis? In the latter case, which entries were kept for analysis (eg, the first entry or the most recent)?	n/a
IP check	Indicate whether the IP address of the client computer was used to identify potential duplicate entries from the same user. If so, mention the period of time for which no two entries from the same IP address were allowed (eg, 24 hours). Were duplicate entries avoided by preventing users with the same IP address access to the survey twice; or were duplicate database entries having the same IP address within a given period of time eliminated before analysis? If the latter, which entries were kept for analysis (eg, the first entry or the most recent)?	n/a
Log file analysis	Indicate whether other techniques to analyze the log file for identification of multiple entries were used. If so, please describe.	n/a
Registration	In "closed" (non-open) surveys, users need to login first and it is easier to prevent duplicate entries from the same user. Describe how this was done. For example, was the survey never displayed a second time once the user had filled it in, or was the username stored together with the survey results and later eliminated? If the latter, which entries were kept for analysis (eg, the first entry or the most recent)?	n/a
Handling of incomplete questionnaires	Were only completed questionnaires analyzed? Were questionnaires which terminated early (where, for example, users did not go through all questionnaire pages) also analyzed?	7
Questionnaires submitted with an atypical timestamp	Some investigators may measure the time people needed to fill in a questionnaire and exclude questionnaires that were submitted too soon. Specify the timeframe that was used as a cut-off point, and describe how this point was determined.	n/a
Statistical correction	Indicate whether any methods such as weighting of items or propensity scores have been used to adjust for the non-representative sample; if so, please describe the methods.	n/a

BMJ Open

Sociodemographic differences in patient experience with primary care during COVID-19

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Sociodemographic differences in patient experience with primary care during COVID-19

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ABSTRACT

Purpose: We sought to understand patients' care-seeking behaviours early in the pandemic, their use and views of different virtual care modalities, and whether these differed by sociodemographic factors.

Methods: We conducted a multi-site cross-sectional patient experience survey at thirteen academic primary care teaching practices between May and June of 2020. An anonymized link to an electronic survey was sent to a subset of patients with a valid email address on file; sampling was based on birth month. For each question, the proportion of respondents who selected each response was calculated, followed by a comparison by sociodemographic characteristics using chi-squared tests.

Results: In total, 7482 participants responded to the survey. Most received care from their primary care clinic during the pandemic (67.7%, 5068/7482), the majority via phone (82.5%, 4195/5086). Among those who received care, 30.53% (1509/4943) stated that they delayed seeking care because of the pandemic. Most participants reported a high degree of comfort with phone (92.4%, 3824/4139), video (95.2%, 238/250) and email or messaging (91.3%, 794/870). However, those reporting difficulty making ends meet, poor or fair health, and arriving in Canada in the last 10 years reported lower levels of comfort with virtual care and fewer wanted their practice to continue offering virtual options after the pandemic.

Conclusions: Our study suggest that newcomers, people living with a lower income, and those reporting poor or fair health have a stronger preference and comfort for in-person primary care.

Further research should explore potential barriers to virtual care and how these could be addressed.

ARTICLE SUMMARY

Strengths and Limitations of this study

- Our study included a large sample of respondents from multiple clinics across both urban and suburban communities; however, all clinics were academic practices within the Greater Toronto Area which may limit generalizability of findings.
- Patients were randomly sampled using birth month; however, our findings are open to selection bias because of the response rate, mode of delivery (email), and the survey being offered primarily in English.
- Demographics of our sample confirm that we reached a diverse group of patients.
- Survey questions were relevant to COVID-19 and informed by primary care leaders and patients.
- Our survey reports on experience during the early phase of the pandemic and patients' comfort and preferences may have evolved since.

INTRODUCTION

The COVID-19 pandemic has dramatically shifted the way health care is delivered and experienced by patients in many developed nations. Primary care practices in Canada, the US and elsewhere, rapidly switched to a virtual first approach—including the use of video, phone and secure messaging—to limit transmission of the SARS-CoV2 virus and conserve Personal Protective Equipment[1,2,3,4,5]. A study from Ontario, Canada found that shortly after the pandemic was declared, in-office visits reduced by 79% and virtual care conducted by phone or video increased 56-fold, comprising 71% of primary care physician visits[6]. While this approach supported immediate public health goals, its impact on access, receipt of patient centered evidence-based care, and longer -term health outcomes is unclear[7]. As health systems consider what the "new normal" should look like, an examination of these impacts will be crucial.

This shift in care delivery has raised several concerns, including potential negative impacts on patient experience and access. Clinicians have noted anecdotally that patients with worrisome symptoms are delaying care[8]. Some note that the switch to virtual care may make care more accessible[9-12], while others have highlighted barriers certain populations face in accessing virtual care[13-16]. Prior studies suggest patient characteristics including older age and lower income may

limit one's ability to benefit from digital health and virtual care services[17-18]. In addition, patients may not have access to required technologies such as a phone or internet access[19-20]. Despite this, very little literature to date is available on patient experiences during the COVID-19 pandemic and how these differ by sociodemographic characteristics. Most existing studies on patient experience during COVID-19 are from acute care, and do not stratify experience based on patient demographics[21-25].

We conducted a patient survey at multiple academic primary care clinics in Ontario, Canada to better understand patient experience during COVID-19. We were interested in patients' care-seeking behaviours, their use and views of different virtual care modalities, and whether these differed by sociodemographic factors.

METHODS

Study design and setting

We conducted a multi-site cross-sectional survey to understand patient experience during the COVID-19 pandemic at thirteen core teaching practices affiliated with the University of Toronto

Department of Family and Community Medicine situated in the Greater Toronto Area, a large, demographically diverse metropolitan area with more than 250 different ethnicities and half of all residents being foreign-born[26-27]. Participating practices were located in Toronto and surrounding areas including Mississauga, Markham, and Barrie. Practices range in size from roughly 11 physicians serving 14,000 patients to 80 physicians serving 50,000 patients; some have multiple locations; one provides services in English and French. Physicians in all teaching practices are part of Family Health Organizations and formally enroll patients, have shared responsibility for after-hours care, and are paid primarily by age-sex adjusted capitation; twelve of the thirteen sites were part of Family Health Teams that included non-physician health professionals such as nurses, nurse practitioners, social workers and dieticians.

The survey in an ongoing effort to directly inform quality improvement (QI) efforts at participating sites during COVID-19. The initiative was formally reviewed by institutional authorities at Unity Health Toronto and deemed to neither require Research Ethics Board approval nor written informed consent from participants.

Study Population and Recruitment

A link to an open electronic patient experience survey is emailed every quarter to a subset of patients with a valid email address on file; sampling each quarter is based on birth month with all eligible patients receiving a survey in a given year. The current analysis summarizes results of the first survey, which was send to patients with birthday during the months of March, April or May of 2020. They were sent the survey between May and June of 2020 which corresponded with the end of the first wave of COVID-19 in the Toronto region[28]. Each site distributed an anonymized link to patients in the manner by which they usually communicate electronically to patients (i.e. by email or using a secure messaging service). In some cases, the email address on file may belong to a family member or caregiver to allow them the option of filling out the survey on behalf of the patient. Recruitment was done in English, with one site also doing recruitment and survey completion in French. No incentives were provided to participants.

Survey Design

The survey was developed collaboratively by the family physicians who had a QI leadership role at participating sites, to support quality improvement efforts related to the COVID-19 pandemic. Where possible, questions were informed by existing surveys including the Commonwealth Fund

International Health Policy Survey[29-30] and the Ontario Primary Care Experience Survey, which was developed as part of a larger Primary Care Performance Measurement strategy to measure the performance across 9 domains[31-32]. The survey went through several iterations based on feedback from practice QI teams, a survey methodologist, a biostatistician, patient education and engagement specialists, and patient and family advisors. A paragraph at the start of the survey outlined the purpose of the survey, the reason they were being asked to participate, and highlighted that the survey was voluntary and anonymous. The final survey was prepared in Qualtrics software, a digital platform to capture experience data, and included 43 potential questions over 5 thematic domains including: 1) seeking and delaying care, 2) use and comfort with virtual care, 3) urgent care access, 4) patient centeredness and 5) patient demographic and contextual factors. Participants could end the survey at any point and were able to review previously answered questions before submission. (See Supplementary file 1 for full survey)

Data Collection and Storage

Data collected via the electronic survey were stored on Qualtrics. All data was downloaded onto a secure research server at the University of Toronto. A script was run to remove any potentially identifying information including 1) IP addresses, 2) Email address, 3) longitude/latitude

coordinates and 4) any free text fields (which may contain unstructured protected health information).

Statistical Analysis

We performed an initial descriptive statistics analysis on the responses of all participants across all sites who answered at least one question in the survey. For each question, we calculated the proportion of respondents who selected each response. We then compared patient responses by sociodemographic characteristics including age, gender, education, self-reported financial issues, immigration status, primary language, self-reported health, and usual primary care provider (PCP). P values were calculated using chi-squared tests and all data analysis was conducted using R version 4.0.

RESULTS

The survey link was emailed to 32,307 patients at 13 practices (see Supplementary file 2). We presented sociodemographic data (Table 1) on the 7482 participants who answered one or more questions in the survey (23.3% response rate). Sixty-five percent of respondents were female

(4379/6713) and 78.3% (5159/6588) reported having a college, university or graduate degree. Nine percent of respondents (590/6556) reported trouble making ends meet at the end of the month, while 29.0% (1928/6656) were not born in Canada (with 16.9% of these having arrived in the last 10 years). Eight percent (553/6851) reported filling out the survey on behalf of a family member. Fifty-five surveys were completed in French.

Care-seeking during COVID-19

Of all respondents, 67.7% (5068/7482) reported they received care in some way from their primary care clinic since the start of the pandemic. Financial status and self-reported health were significantly associated with care seeking behaviours during the pandemic ($p<0.001$); a higher proportion of patients who noted trouble making ends meet (yes: 74.8%, 441/590, no: 65.3%, 3396/5201, prefer not to answer: 68.0%, 520/765) and those with lower self-rated health (fair or poor: 76.9%, 752/978, excellent: 59.8%, 599/1002) reported receiving care during the study period. Of the 32.3% (2414/7482) of patients who did not receive care during the study period, the most commonly cited reasons were that patients had no health need (72.4%) and patients were worried about safety (9.5%).

Of the 5068 patients who reported receiving care at their primary care practice during the pandemic, 30.5% (1509/4943) stated that they delayed seeking care because of the pandemic. Gender, age, education level, financial status and self-reported health status were significantly associated with differences in seeking care ($p<0.05$ for all); for example, a higher proportion of those with trouble making ends meet and those with lower self-rated health reported delays in seeking care (see Table 2).

Use and perceptions of virtual care

Eighty-two (4195/5086) percent of participants reported receiving care by phone, 30.5% (1553/5086) in-person, 17.4% (886/5086) via email or secure messaging, and 5.1% (260/5086) via video. Age, immigration status and self-rated health were significantly associated with differences in receiving in person care ($p<0.05$ for all); the proportion who reported receiving in-person care was lower among those over the age of 65, those not born in Canada and those with lower self-rated health (Table 3). Women, young adults, those who rate their health as fair or poor and those who reported trouble making ends meet reported higher rates of phone use (see

Table 3). Age and education level were significantly associated with differences in using email and secure messaging ($p<0.001$ for all); those over the age of 65 (16.9%, 269/1592) and those with a high school degree or less (13.5%, 130/962) reported less use of email and secure messaging relative to other groups.

Overall, most respondents indicated they were extremely or somewhat comfortable with the privacy and security of virtual modalities including phone (92.4%, 3824/4139), video (95.2%, 238/250) and email or secure messaging (91.3%, 794/870). Financial status, immigration status and self-reported health status were significantly associated with differences in comfort with virtual care use ($p<0.05$ for all); those having trouble making ends meet, those not born in Canada and those rating their health as fair or poor reported lower levels of comfort with phone calls and email or secure messaging relative to other groups (see Table 4).

Future preferences for virtual care

Seventy-five percent (3798/5068), 52.2% (2644/5068), and 42.9% (2172/5068) of respondents said they wanted their practice to continue offering phone, email/secure messaging, and video

after the pandemic, respectively. Age, education status, financial status, immigration status and self-reported health status were significantly associated with differences in wanting ongoing use of each of the three virtual care modalities ($p<0.05$ for all); those over age 65, those whose education was high school or less, those reporting yes or "I don't know" when asked about difficulty making ends meet, those born outside Canada, and those in fair or poor health reported the lowest desire for the three virtual care modalities to continue after the pandemic compared to other groups (see Table 5).

DISCUSSION

Our analysis of more than 7400 patient experience surveys across 13 primary care clinics during the first months of the COVID-19 pandemic found important differences in care-seeking and comfort with virtual care based on patient income, self-reported health, and other demographic characteristics. Most participants received care from their primary care clinic in some way during the study period; however, almost a third who sought care reported they delayed it due to concerns about the pandemic. Patients who had trouble making ends meet and those who reported their health as fair or poor were more likely to seek care during the pandemic, yet were

also more likely to report they delayed seeking care. Patient generally reported a high degree of comfort with phone, video and email or secure messaging. But, those reporting "yes" or "don't know/prefer not to answer" when asked about difficulty making ends meet, poor or fair health, and arriving in Canada in the last 10 years reported lower levels of comfort and less likely to want their practice to continue offering these virtual options.

Our results, similar to other emerging literature, suggests a complex relationship between the social determinants of health and patient comfort and preference regarding accessing care through virtual tools. A US based study prior to the pandemic found that while younger patients and those with physical disabilities were more likely to use video visits to access care, those who reported lower incomes and lived in rural populations were less likely to use this modality[33]. A recent US-based primary care study found that after care shifted to a virtual-first approach during the pandemic, a significantly smaller proportion of visits overall were with people who were low income, non-white, or non-English speakers[34]. However, a Canadian based study found that similar to our participants, those with the highest care needs (older, multiple co-morbidities),

were more likely to access primary care during the early months of the pandemic compared to other groups[6].

As many predict virtual care will continue to be a part of care delivery post-pandemic, this study highlights the importance of integrating patient experience data into future care delivery planning. Similar to other recently published data [6,35,36], our experience data indicates phone was by far the most utilized modality of virtual care and overall, participants were comfortable using virtual modalities to receive care. Patients who report financial troubles and poor health, had a higher percentage reporting accessing care (virtually and in person) during the pandemic compared to other groups; however, they reported greater concerns with the privacy and security of virtual care and less desire for virtual care to be an ongoing part of their primary care experience. This suggests that while public health measures may have pushed populations with the highest care needs to use virtual care, these modalities did not provide all patients with an equitable, patient-centered care experience. Further research should explore reasons behind the relative discomfort and low interest in virtual care and how barriers could be addressed. While access to technology may be part of this problem, other factors such as health and digital literacy,

and support from peers and health care providers may also be significant[37]. Without further patient experience and demographic data to understand the ongoing use of virtual care, we risk leaving behind those who need care most.

Strengths and Limitations

Our study had several key strengths and limitations. Our study included a large sample of respondents from multiple clinics across both urban and suburban communities. Patients were randomly sampled using birth month. Survey questions were relevant to COVID-19 and informed by primary care leaders and patients. However, our findings are open to selection bias because of the response rate, mode of delivery, and the survey being offered primarily in English; however, demographics of our sample confirm that we reached a diverse group of patients. We found substantial differences in utilization and perspectives of virtual care by sociodemographic characteristics, but these may be an underestimate of true differences. Our survey reports on experience during the early phase of the pandemic and patients' comfort and preferences may have evolved since. Finally, although our sample was taken from 13 primary care practices, these were all academic practices in the Greater Toronto Area where physicians

were paid by capitation which may limit the generalizability of the findings to other settings including rural or low resource settings.

CONCLUSIONS

We found that sociodemographic characteristics impacted patients experience accessing and receiving primary care during the early months of the COVID-19 pandemic. While most patients were comfortable using virtual modalities, those having difficulty making ends meet, reporting poor or fair health, and being born outside of Canada being less likely to report comfort with virtual modalities and less likely to want virtual care options to continue post-pandemic. Moving forward, clinicians and system decision makers need to carefully consider how we integrate virtual care into practices to ensure equity in access to primary care.

Contributors: PA and TK conceived of and designed the study together. PA, CM, SW, AD, NG, GY, DE, TF, SF, MW, TP, NR, and TK designed the survey. RW and CM informed and conducted the analysis. PA, RW, CM, SW, AD, NG, GY, DE, TF, SF, MW, TP, NR, and TK

helped interpret the data. PA drafted the manuscript with the support of TK and all authors critically reviewed it. All authors read and approved the final manuscript.

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Data sharing statement: Data are available upon reasonable request. Extra data is available by emailing Tara Kiran at tara.kiran@utoronto.ca.

Ethics approval statement: The initiative was formally reviewed through the ReQUIST (Review of Quality Improvement Studies) process at Unity Health Toronto, which is overseen by the Vice-President, Care Experience and Equity and the Vice-President, Quality and Chief Information Officer. The study was deemed to neither require Research Ethics Board approval nor written informed consent from participants (i.e. the need for ethical approval was waived).

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Table 1. Demographic characteristics of survey respondents (n=7482)

Demographic characteristic		Survey respondents n (%)
Age (n=6744)		
	0 to 5 years old	169 (2.51%)
	6 to 17 years old	166 (2.46%)
	18 to 24 years old	120 (1.78%)
	25 to 34 years old	520 (7.71%)
	35 to 49 years old	1412 (20.94%)
	50 to 64 years old	2002 (29.69%)
	65 to 79 years old	1921 (28.48%)
	80 years or older	434 (6.44%)
Gender (n=6713)		
	Woman	4379 (65.23%)
	Man	2221 (33.09%)
	Other	60 (0.89%)
	Prefer not to answer	53 (0.79%)
Education level (n=6588)		
	Highschool or less	1429 (21.69%)
	College/University	3198 (48.54%)
	Graduate/Professional	1961 (29.77%)
Trouble making ends meet (n=6556)		
	Yes	590 (9.00%)

	No	5201 (79.33%)
	Don't know/Prefer not to answer	765 (11.67%)
Born in Canada (n=6656)		
	Yes	4728 (71.03%)
	No	1928 (28.97%)
Arrive in last 10 years (n=1856)		
	Yes	326 (17.56%)
	No	1530 (82.44%)
Preferred language (n=6678)		
	English	6576 (98.47%)
	Non-English	102 (1.53%)
Self rated health (n=6665)		
	Excellent	1002 (15.03%)
	Very good	2599 (38.99%)
	Good	2086 (31.30%)
	Fair/Poor	978 (14.67%)
Usual PCP (n=6545)		
	Staff physician	4842 (73.98%)
	Resident physician	1217 (18.59%)
	Nurse practitioner	173 (2.64%)
	Unsure	313 (4.78%)

*Created by the authors.

Table 2. Proportion of respondents who received care at their primary care practice who reported that they delayed seeking care because of the pandemic, by sociodemographic characteristic

Demographics		Delayed Care n (%)	P-value
All		1509 (30.53%)	
Age			
	<18 years old	61 (29.90%)	<0.01
	18-34 years old	158 (35.03%)	
	35-64 years old	704 (31.44%)	
	65+ years old	429 (26.85%)	
Gender			
	Woman	932 (31.65%)	<0.001
	Man	376 (26.07%)	
	Other	20 (42.55%)	
	Prefer not to answer	18 (46.15%)	
Education			
	Highschool or less	238 (24.74%)	<0.001
	College/University	637 (30.09%)	
	Graduate/Professional	443 (33.95%)	
Trouble making ends meet			
	Yes	188 (42.63%)	<0.001
	No	928 (27.33%)	
	Don't know/Prefer not to answer	196 (37.69%)	

Born in Canada			
	Yes	966 (30.92%)	0.07
	No	366 (28.09%)	
Arrive <10 years			
	Yes	66 (29.33%)	0.79
	No	289 (28.20%)	
Preferred Language			
	English	1322 (30.20%)	0.49
	Non-English	24 (34.78%)	
Self rated health			
	Excellent	153 (25.54%)	<0.001
	Very good	475 (28.84%)	
	Good	433 (30.20%)	
	Fair/Poor	275 (36.57%)	
Usual PCP			
	Staff physician	976 (30.13%)	0.47
	Resident physician	246 (29.85%)	
	Nurse practitioner	45 (36.59%)	
	Unsure	52 (29.21%)	

*Created by the authors.

Table 3. Percentage of patients who reported receiving care by phone and in person during the pandemic, by sociodemographic characteristic

Demographics		In person care n (%)	P-value	Phone care n (%)	P-value
All		1553 (30.64%)		4195(82.77%)	
Age					
	<18 years old	102 (50.00%)	<0.001	143 (70.10%)	<0.001
	18-34 years old	181 (40.13%)		404 (89.58%)	
	35-64 years old	603 (26.93%)		1922 (85.84%)	
	65+ years old	476 (29.79%)		1338 (83.73%)	
Gender					
	Woman	882 (29.95%)	0.57	2559 (86.89%)	<0.001
	Man	443 (30.72%)		1163 (80.65%)	
	Other	17 (36.17%)		41 (87.23%)	
	Prefer not to answer	9 (23.08%)		33 (84.62%)	
Education Level					
	Highschool or less	303 (31.50%)	0.42	787 (81.81%)	<0.05
	College/University	618 (29.19%)		1818 (85.88%)	
	Graduate/Professional	396 (30.34%)		1109 (84.98%)	
Trouble making ends meet					
	Yes	122 (27.66%)	0.28	396 (89.80%)	<0.001
	No	1047 (30.83%)		2840 (83.63%)	
Born in Canada					

	Yes	977 (31.27%)	<0.05	2630 (84.19%)	0.13
	No	363 (27.86%)		1121 (86.03%)	
Arrive <10 years					
	Yes	77 (34.22%)	<0.05	196 (87.11%)	0.73
	No	276 (26.93%)		881 (85.95%)	
Preferred language					
	English	1326 (30.29%)	0.88	3706 (84.67%)	1.00
	Non-English	22 (31.88%)		58 (84.06%)	
Self Reported Health					
	Excellent	221 (36.89%)	<0.001	470 (78.46%)	<0.001
	Very good	522 (31.69%)		1390 (84.40%)	
	Good	383 (26.71%)		1222 (85.22%)	
	Fair/Poor	220 (29.26%)		673 (89.49%)	
Usual PCP					
	Staff physician	963 (29.73%)	0.10	2750 (84.90%)	0.22
	Resident physician	270 (32.77%)		701 (85.07%)	
	Nurse practitioner	46 (37.40%)		97 (78.86%)	
	Unsure	50 (28.09%)		146 (82.02%)	

*Created by the authors.

Table 4. Percentage of patients who reported they were comfortable with the privacy and security of using phone, video and email or secure messaging to receive care during the pandemic, by sociodemographic characteristic

Demographics		Phone n (%)	P-value	Video n (%)	P-value	Email Messaging n (%)	P-value
All		3824 (92.39%)		238 (95.20%)		794 (91.26%)	
Age							
	<18 years old	138 (96.50%)	<0.05	19 (95.00%)	0.60	17 (94.44%)	0.43
	18-34 years old	371 (91.83%)		28 (93.33%)		90 (87.38%)	
	35-64 years old	1800 (93.65%)		104 (94.55%)		383 (90.54%)	
	65+ years old	1223 (91.41%)		63 (98.44%)		249 (92.57%)	
Gender							
	Woman	2385 (93.20%)	<0.001	128 (96.97%)	0.17	501 (90.60%)	<0.001
	Man	1077 (92.61%)		75 (94.94%)		219 (92.80%)	
	Other	40 (97.56%)		4 (80.00%)		15 (100.00%)	
	Prefer not to answer	24 (72.73%)		6 (85.71%)		2 (40.00%)	
Education Level							
	Highschool or less	743 (94.41%)	0.17	47 (92.16%)	0.20	121 (93.08%)	0.65
	College/University	1679 (92.35%)		94 (97.92%)		358 (90.63%)	
	Graduate/Professional	1032 (93.06%)		66 (92.96%)		250 (91.91%)	
Trouble making ends meet							
	Yes	354 (89.39%)	<0.001	24 (92.31%)	0.63	70 (85.37%)	<0.001

	No	2679 (94.33%)		153 (96.23%)		576 (93.96%)	
	I don't know/Prefer not to answer	400 (87.53%)		30 (96.77%)		75 (78.12%)	
Born in Canada							
	Yes	2471 (93.95%)	<0.001	159 (95.78%)	1.00	526 (92.93%)	<0.05
	No	1019 (90.90%)		54 (94.74%)		204 (87.18%)	
Arrive in the last 10 years							
	Yes	176 (89.80%)	0.80	7 (100.00%)	1.00	34 (82.93%)	0.52
	No	799 (90.69%)		45 (93.75%)		163 (88.11%)	
Preferred language							
	English	3440 (92.82%)	0.50	209 (95.43%)	0.48	727 (91.33%)	0.40
	Non-English	52 (89.66%)		3 (75.00%)		7 (77.78%)	
Self Reported Health							
	Excellent	455 (96.81%)	<0.001	30 (93.75%)	0.98	105 (95.45%)	<0.05
	Very good	1324 (95.25%)		65 (95.59%)		259 (93.50%)	
	Good	1131 (92.55%)		72 (94.74%)		235 (90.04%)	
	Fair/Poor	579 (86.03%)		42 (95.45%)		133 (85.81%)	
Usual PCP							
	Staff physician	2575 (93.64%)	<0.05	164 (96.47%)	0.17	568 (92.21%)	0.07
	Resident physician	640 (91.30%)		28 (87.50%)		107 (87.70%)	
	Nurse practitioner	86 (88.66%)		4 (100.00%)		17 (89.47%)	
	Unsure	130 (89.04%)		11 (91.67%)		24 (80.00%)	

*Created by the authors.

Table 5. Preferences for ongoing uses of virtual care options after the pandemic, by sociodemographic characteristic

Demographics	Phone n (%)	P-value	Video n (%)	P-value	Email Messaging n (%)	P-value
All	3798 (74.94%)		2172 (42.86%)		2644 (52.17%)	
Age						
<18 years old	171 (83.82%)	<0.05	120 (58.82%)	<0.001	117 (57.35%)	<0.001
18-34 years old	385 (85.37%)		252 (55.88%)		292 (64.75%)	
35-64 years old	1886 (84.23%)		1206 (53.86%)		1352 (60.38%)	
65+ years old	1291 (80.79%)		549 (34.36%)		834 (52.19%)	
Gender						
Woman	2510 (85.23%)	<0.001	1418 (48.15%)	0.45	1758 (59.69%)	<0.01
Man	1142 (79.20%)		662 (45.91%)		780 (54.09%)	
Other	37 (78.72%)		23 (48.94%)		31 (65.96%)	
Prefer not to answer	29 (74.36%)		21 (53.85%)		20 (51.28%)	
Education Level						
Highschool or less	770 (80.04%)	<0.05	384 (39.92%)	<0.001	468 (48.65%)	<0.001
College/University	1777 (83.94%)		993 (46.91%)		1227 (57.96%)	
Graduate/Professional	1098 (84.14%)		705 (54.02%)		846 (64.83%)	
Trouble making ends meet						
Yes	362 (82.09%)	<0.001	195 (44.22%)	<0.001	257 (58.28%)	<0.001
No	2869 (84.48%)		1665 (49.03%)		2037 (59.98%)	
I don't know/Prefer not to answer	387 (74.42%)		204 (39.23%)		232 (44.62%)	

Born in Canada						
Yes	2687 (86.01%)	<0.001	1579 (50.54%)	<0.001	1890 (60.50%)	<0.001
No	1005 (77.13%)		527 (40.45%)		683 (52.42%)	
Arrive in the last 10 years						
Yes	166 (73.78%)	0.13	89 (39.56%)	0.90	101 (44.89%)	<0.05
No	806 (78.63%)		413 (40.29%)		554 (54.05%)	
Preferred language						
English	3642 (83.21%)	0.12	2086 (47.66%)	0.08	2532 (57.85%)	<0.05
Non-English	52 (75.36%)		25 (36.23%)		29 (42.03%)	
Self Reported Health						
Excellent	519 (86.64%)	<0.01	330 (55.09%)	<0.001	382 (63.77%)	<0.001
Very good	1392 (84.52%)		843 (51.18%)		977 (59.32%)	
Good	1179 (82.22%)		635 (44.28%)		809 (56.42%)	
Fair/Poor	597 (79.39%)		294 (39.10%)		394 (52.39%)	
Usual PCP						
Staff physician	2730 (84.29%)	<0.001	1613 (49.80%)	<0.001	1943 (59.99%)	<0.001
Resident physician	659 (79.98%)		336 (40.78%)		415 (50.36%)	
Nurse practitioner	104 (84.55%)		55 (44.72%)		73 (59.35%)	
Unsure	133 (74.72%)		79 (44.38%)		92 (51.69%)	

*Created by the authors.

Improving your Patient Experience

Dept of Family and Community Medicine, University of Toronto
Draft Jun 1, 2020

Start of Block: Intro Block

Q1 Dear THE CLINIC'S NAME Patient,

The CLINIC wants to know about your experience getting health care during the COVID-19 pandemic. We are asking you to complete a short survey, which will take about 5 minutes. Your answers will help us to improve the care we provide.

You are receiving this survey because either you or your family member is a patient with CLINIC and have a birthday in MONTH1, MONTH2, MONTH3. Participation is voluntary and responses are confidential. We do not ask for your name in the survey and your answers cannot be linked back to your chart. We are interested in your honest opinion, whether it is negative or positive. Your responses to this survey will not change the care you receive from us.

PLEASE NOTE: This survey is for the person in your family who has a birthday in MONTH1, MONTH2, MONTH3. If this person is someone you are a caregiver for (a child or parent), please respond based on their care experience. If your own birthday is also in MONTH 1, MONTH 2, MONTH 3, you can choose to respond based on your own care experience.

End of Block: Intro Block

Start of Block: Block 1

Q2 Section 1 – Care needs during pandemic

The following questions will help us better understand your comfort with accessing care during the COVID-19 pandemic. Please think about the care you received after March 17, 2020 (the date Ontario declared a state of emergency due to COVID-19).

Q3 **Did you receive care from a doctor, nurse or healthcare provider at CLINIC during the COVID-19 pandemic? This includes care delivered in person, by phone, by video or by email or secure message.**

- ○ Yes (1)
- ○ No (2)

Skip To: Q12 If DFCM1.1 = No

Q4 **How did you receive care during this time?** (Select all that apply)

- ☐ In person (1)
- ☐ Phone call (2)
- ☐ Video (3)
- ☐ Email or secure message (4)

Display This Question:
If DFCM1.2 = Phone call

Q5 When using the PHONE to discuss your health concerns, how comfortable were you with the level of privacy and security? (Select one response)

- ○ Extremely comfortable (1)
- ○ Somewhat comfortable (2)
- ○ Neither comfortable nor uncomfortable (3)
- ○ Somewhat uncomfortable (4)
- ○ Extremely uncomfortable (5)

Display This Question:

If DFCM1.2 = Phone call

Q6 **When using the PHONE , was there anything you did not talk about because you were worried about privacy?** (Select one response with optional comments)

- ☐ Yes (1)
- ☐ No (2)
- ☐ Comments: (3) _____

Display This Question:

If DFCM1.2 = Video

Q7 When using VIDEO to discuss your health concerns, how comfortable were you with the level of privacy and security? (Select one response)

- ○ Extremely comfortable (1)
- ○ Somewhat comfortable (2)
- ○ Neither comfortable nor uncomfortable (3)
- ○ Somewhat uncomfortable (4)
- ○ Extremely uncomfortable (5)

Display This Question:

If DFCM1.2 = Video

Q8 **When using VIDEO, was there anything you did not talk about because you were worried about privacy?** (Select one response with optional comments)

- ☐ Yes (1)
- ☐ No (2)
- ☐ Comments: (3) _____

Display This Question:

If DFCM1.2 = Email or secure message

Q9 When using EMAIL or SECURE MESSAGE to discuss your health concerns, how comfortable were you with the level of privacy and security? (Select one response)

- ○ Extremely comfortable (1)
- ○ Somewhat comfortable (2)
- ○ Neither comfortable nor uncomfortable (3)
- ○ Somewhat uncomfortable (4)
- ○ Extremely uncomfortable (5)

Display This Question:

If DFCM1.2 = Email or secure message

Q10 **When using EMAIL or SECURE MESSAGE, was there anything you did not talk about because you were worried about privacy?** (Select one response with optional comments)

- ☐ Yes (1)
- ☐ No (2)
- ☐ Comments: (3) _____

Q11 **Did you avoid or delay receiving care from THE CLINIC because of the COVID-19 pandemic?** (Select one response)

- ○ Yes (1)
- ○ No (2)

Display This Question:

If DFCM1.1 = No

Q12 **Please tell us why you did not get care from THE CLINIC during the COVID pandemic:** (Select all that apply)

- ☐ I did not have any health needs (1)
- ☐ I did not know I could receive care from the clinic during the pandemic (2)
- ☐ I did not want to come into the clinic because I was worried for my personal safety (3)
- ☐ I tried but could not get an appointment (4)
- ☐ The hours were inconvenient (5)
- ☐ I could not get through to the clinic on the phone (7)
- ☐ Other (please specify): (6) _____

Display This Question:

If DFCM1.1 = No

Q13 **Did you get care somewhere else during the COVID pandemic?** (Select all that apply)

- ☒ No, I did not get care elsewhere (1)
- ☐ I got care from a walk-in clinic in person (2)
- ☐ I got care from a walk-in clinic by phone or video (3)
- ☐ I went to the emergency department (4)
- ☐ Other (please specify): (5) _____

End of Block: Block 1

Start of Block: Block 2

Q14 **Section 2: Getting URGENT CARE when you are sick during the COVID-19 pandemic**
The following questions help us better understand the experience of patients who were sick and wanted to be seen urgently. Please answer the questions below for the time during the COVID-19 pandemic only (starting March 17, 2020).

Q15 **During the COVID-19 pandemic, was there a time when you were sick and URGENTLY needed care at THE CLINC?** (Select one response)

- ○ Yes (1)
- ○ No (2)

Skip To: End of Block If DFCM2.1 = No

Q16 **Think about the time you needed URGENT CARE. How many days did it take from when you first tried to book an appointment at our clinic to when you received care?**

Care could include an in-person visit, phone visit, video visit and/or email or secure messaging. (Select one response).

- ○ On the same day (1)
- ○ The next day (2)
- ○ In 2 to 3 days (3)
- ○ In 4 to 7 days (4)
- ○ After more than 1 week (5)
- ○ Never able to get an appointment (6)
- ○ Not sure (7)

Display This Question:

If DFCM2.2 = In 2 to 3 days

Or DFCM2.2 = In 4 to 7 days

And DFCM2.2 = After more than 1 week

And DFCM2.2 = Never able to get an appointment

Q17 **Why were you not able to get care the same or next day?** (Select all that apply)

- ☐ I was informed that there was no availability (1)
- ☐ I was offered an appointment but not with the provider I preferred (2)
- ☐ I was offered an appointment but not at the time I preferred (3)
- ☐ I could not get through to the clinic on the phone (4)
- ☐ Other (Please specify) (5) _____

Q18 How would you describe the length of time it took between making the appointment and receiving care? (Select one response)

- About right (1)
- Somewhat too long (2)
- Much too long (3)

Q19 During the COVID-19 pandemic, did you need urgent care on an evening, weekend, or public holiday?

- Yes (1)
- No (2)

Display This Question:
If DFCM2.5 = Yes

Q20 How easy or difficult was it to get urgent care from CLINIC on an evening, weekend, or holiday during the COVID-19 pandemic?

- Very easy (1)
- Somewhat easy (2)
- Neither easy nor difficult (3)
- Somewhat difficult (4)
- Very difficult (5)

End of Block: Block 2

Start of Block: Block 3

Q21 ***Section 3: Care experience***

For the next set of questions, please think about your experience when receiving care from your doctor or nurse practitioner during the COVID-19 pandemic only (starting March 17, 2020). This includes care delivered in person, by phone, by video or by email or secure message.

Q22 **How often did you receive care from the doctor or nurse practitioner that you prefer?** (select one response)

- I do not have a preferred health care provider (1)
- Always (2)
- Usually (3)
- Occasionally (4)
- Rarely (5)
- Never (6)

Q23 **How often did you receive care within a reasonable time from your doctor or nurse practitioner**? (Select one response)

- Always (1)
- Usually (2)
- Occasionally (3)
- Rarely (4)
- Never (5)

Page Break

Q24 **When you received care from your doctor or nurse practitioner, how often did they involve you as much as you want to be in decisions about your care and treatment?** (Select one response)

- Always (1)
- Usually (2)
- Occasionally (3)
- Rarely (4)
- Never (5)

Q25 **When you received care from your doctor or nurse practitioner, how often did they spend enough time with you?** (Select one response)

- Always (1)
- Usually (2)
- Occasionally (3)
- Rarely (4)
- Never (5)

End of Block: Block 3

Start of Block: Block ADDITIONAL

Q26 Click to write the question text

End of Block: Block ADDITIONAL

Start of Block: Block 4

Q27 **Section 4: Your recommendations** *For the next set of questions, please share your thoughts on how we can improve THE CLINIC.*

Q28 **After the COVID-19 pandemic is over, which of these care options should the clinic continue to offer?** (Select all that apply)

- ☐ Phone (1)
- ☐ Video (2)
- ☐ Email/secure messaging portal (3)
- ☐ Other (4) _____
- ☐ None of the above (5)

Q29 **What changes did our clinic make during COVID-19 that you would like us to continue?** (Optional)

_____

_____

_____

_____

_____

Q30 **What do you think our clinic could have done differently to better meet your health needs during the COVID-19 pandemic?** (Optional)

_____

_____

_____

_____

_____

Q31 **Overall, would you recommend our clinic, to your friends and family?** (Select one response)

- Yes (1)
- No (2)

End of Block: Block 4

Start of Block: Block 5a

Q32 **Are you filling this survey out on behalf of someone else?** (Select one response)

- Yes (1)
- No (2)

End of Block: Block 5a

Start of Block: Block 5b - Family

Q33 **Section 5: About Your Family Member**

This final section of the survey helps us understand if some groups are experiencing care differently than others.

Q34 I am filling this survey on behalf of my child or family member who is: (optional)

- 0-5 years old (1)
- 6-17 years old (2)
- 18-24 years old (3)
- 25-34 years old (4)
- 35-49 years old (5)
- 50-64 years old (6)
- 65-79 years old (7)
- 80+ years old (8)

Q35 What gender do they identify with? (optional)

- Woman/girl (1)
- Man/boy (2)
- Transgender woman/girl (3)
- Transgender man/boy (4)
- Non-binary (for example gender queer, 2-spirit) (5)
- Identity not listed (please specify) (6) _____
- Prefer not to answer (7)

Q36 What is their highest level of education? (optional)

- Elementary school or less (1)
- Some High school (2)
- High School Diploma (3)
- College or University Diploma Degree (4)
- Graduate or Professional Degree (5)

Q37 **Do they have trouble making ends meet (money problems) at the end of the month?** (optional)

- Yes (1)
- No (2)
- I don't know (3)
- Prefer not to answer (4)

Q38 Were they born in Canada? (optional)

- Yes (1)
- No (2)

Display This Question:

If DFCM5b.5 = No

Q39 **Did you arrive in Canada in the last 10 years?** (optional)

- Yes (1)
- No (2)

Q40 **What language would they prefer speaking with their primary care provider?** (optional)

- English (1)
- French (2)
- Other (please specify): (3) _____

Q41 In general, would you say their health is: (optional)

- Excellent (1)
- Very Good (2)
- Good (3)
- Fair (4)
- Poor (5)

Q42 What is their postal code? (optional)

_____

Q43 Which primary care provider do they usually see? (optional)

- Staff Physician (1)
- Resident Physician (2)
- Nurse Practitioner (3)
- Unsure (4)

End of Block: Block 5b - Family

Start of Block: Block 5c - Yourself

Q44 **Section 5: About You**

This final section of the survey helps us understand if some groups are experiencing care differently than others.

Q45 **How old are you?** (optional)

- 0-5 years old (1)
- 6-17 years old (2)
- 18-24 years old (3)
- 25-34 years old (4)
- 35-49 years old (5)
- 50-64 years old (6)
- 65-79 years old (7)
- 80+ years old (8)

Q46 **What gender do you identify with?** (optional)

- Woman/girl (1)
- Man/boy (2)
- Transgender woman/girl (3)
- Transgender man/boy (4)
- Non-binary (for example gender queer, 2-spirit) (5)
- Identity not listed (please specify) (6) _____
- Prefer not to answer (7)

Q47 **What is your highest level of education?** (optional)

- Elementary school or less (1)
- Some High school (2)
- High School Diploma (3)
- College or University Diploma Degree (4)
- Graduate or Professional Degree (5)

Q48 **Do you have trouble making ends meet (money problems) at the end of the month?** (optional)

- Yes (1)
- No (2)
- I don't know (3)
- Prefer not to answer (4)

Q49 **Were you born in Canada?** (optional)

- Yes (1)
- No (2)

Display This Question:

If DFCM5c.5 = No

Q50 **Did you arrive in Canada in the last 10 years?** (optional)

- Yes (1)
- No (2)

Q51 **What language would you prefer speaking with your primary care provider?** (optional)

- ○ English (1)
- ○ French (2)
- ○ Other (please specify): (3) _____

Q52 **In general, would you say your health is:** (optional)

- ○ Excellent (1)
- ○ Very Good (2)
- ○ Good (3)
- ○ Fair (4)
- ○ Poor (5)

Q53 What is your postal code? (optional)

_____

Q54 Which primary care provider do you usually see? (optional)

- Staff Physician (1)
- Resident Physician (2)
- Nurse Practitioner (3)
- Unsure (4)

End of Block: Block 5c - Yourself

Start of Block: End of Survey

Q55 Thank you for spending the time to complete this survey. Note: Please click "Submit" to record all your answers.

End of Block: End of Survey

SUPPLEMENTARY FILE 2: Site Demographics

Site name	City	Number of surveys sent (N= 32, 307)	Number of responses (N=7,532)	Response Rate (%)
Barrie and Community Family Health Team	Barrie	748	279	37%
Credit Valley Family Health Team	Mississauga	2,056	645	31%
Health for All Family Health Team	Markham	1,900	535	28%
Mount Sinai Academic Family Health Team	Toronto	2,100	391	19%
Southlake Family Health Team	Newmarket	1,968	735	37%
North York Family Health Team	North York	1,466	390	27%
Platinum Medical Family Health Organization	Scarborough	1,792	222	12%
Sunnybrook Academic Family Health Team	Toronto	1,447	409	28%
St. Joseph's Health Centre Family Medicine/Urban Family Health Team	Toronto	1,135	265	23%

St. Michael's Hospital Academic Family Health Team	Toronto	5,180	1337	26%
South East Toronto Family Health Team	Toronto	5,244	591	11%
Summerville Family Health Team	Mississauga	5,070	1426	28%
Women's College Hospital Family Practice Health Centre	Toronto	2,201	307	14%

*Created by the authors.

Checklist for Reporting Results of Internet E-Surveys (CHERRIES)

Checklist Item	***Explanation***	***Page Number***
Describe survey design	Describe target population, sample frame. Is the sample a convenience sample? (In "open" surveys this is most likely.)	5
IRB approval	Mention whether the study has been approved by an IRB.	6
Informed consent	Describe the informed consent process. Where were the participants told the length of time of the survey, which data were stored and where and for how long, who the investigator was, and the purpose of the study?	7
Data protection	If any personal information was collected or stored, describe what mechanisms were used to protect unauthorized access.	7
Development and testing	State how the survey was developed, including whether the usability and technical functionality of the electronic questionnaire had been tested before fielding the questionnaire.	7
Open survey versus closed survey	An "open survey" is a survey open for each visitor of a site, while a closed survey is only open to a sample which the investigator knows (password-protected survey).	6
Contact mode	Indicate whether or not the initial contact with the potential participants was made on the Internet. (Investigators may also send out questionnaires by mail and allow for Web-based data entry.)	6
Advertising the survey	How/where was the survey announced or advertised? Some examples are offline media (newspapers), or online (mailing lists – If yes, which ones?) or banner ads (Where were these banner ads posted and what did they look like?). It is important to know the wording of the announcement as it will heavily influence who chooses to participate. Ideally the survey announcement should be published as an appendix.	6
Web/E-mail	State the type of e-survey (eg, one posted on a Web site, or one sent out through e-mail). If it is an e-mail survey, were the responses entered manually into a database, or was there an automatic method for capturing responses?	6
Context	Describe the Web site (for mailing list/newsgroup) in which the survey was posted. What is the Web site about, who is visiting it, what are visitors normally looking for? Discuss to what degree the content of the Web site could pre-select the sample or influence the results. For example, a survey about vaccination on a anti-immunization Web site will have different results from a Web survey conducted on a government Web site	n/a
Mandatory/voluntary	Was it a mandatory survey to be filled in by every visitor who wanted to enter the Web site, or was it a voluntary survey?	n/a
Incentives	Were any incentives offered (eg, monetary, prizes, or non-monetary incentives such as an offer to provide the survey results)?	n/a

Time/Date	In what timeframe were the data collected?	6
Randomization of items or questionnaires	To prevent biases items can be randomized or alternated.	n/a
Adaptive questioning	Use adaptive questioning (certain items, or only conditionally displayed based on responses to other items) to reduce number and complexity of the questions.	n/a
Number of Items	What was the number of questionnaire items per page? The number of items is an important factor for the completion rate.	7
Number of screens (pages)	Over how many pages was the questionnaire distributed? The number of items is an important factor for the completion rate.	n/a
Completeness check	It is technically possible to do consistency or completeness checks before the questionnaire is submitted. Was this done, and if "yes", how (usually JAVAScript)? An alternative is to check for completeness after the questionnaire has been submitted (and highlight mandatory items). If this has been done, it should be reported. All items should provide a non-response option such as "not applicable" or "rather not say", and selection of one response option should be enforced.	n/a
Review step	State whether respondents were able to review and change their answers (eg, through a Back button or a Review step which displays a summary of the responses and asks the respondents if they are correct).	6
Unique site visitor	If you provide view rates or participation rates, you need to define how you determined a unique visitor. There are different techniques available, based on IP addresses or cookies or both.	n/a
View rate (Ratio of unique survey visitors/unique site visitors)	Requires counting unique visitors to the first page of the survey, divided by the number of unique site visitors (not page views!). It is not unusual to have view rates of less than 0.1 % if the survey is voluntary.	n/a
Participation rate (Ratio of unique visitors who agreed to participate/unique first survey page visitors)	Count the unique number of people who filled in the first survey page (or agreed to participate, for example by checking a checkbox), divided by visitors who visit the first page of the survey (or the informed consents page, if present). This can also be called "recruitment" rate.	n/a
Completion rate (Ratio of users who finished the survey/users who	The number of people submitting the last questionnaire page, divided by the number of people who agreed to participate (or submitted the first survey page). This is only relevant if there is a separate "informed consent" page or if the survey goes over several pages. This is a measure for attrition. Note that	8

agreed to participate)	"completion" can involve leaving questionnaire items blank. This is not a measure for how completely questionnaires were filled in. (If you need a measure for this, use the word "completeness rate".)	
Cookies used	Indicate whether cookies were used to assign a unique user identifier to each client computer. If so, mention the page on which the cookie was set and read, and how long the cookie was valid. Were duplicate entries avoided by preventing users access to the survey twice; or were duplicate database entries having the same user ID eliminated before analysis? In the latter case, which entries were kept for analysis (eg, the first entry or the most recent)?	n/a
IP check	Indicate whether the IP address of the client computer was used to identify potential duplicate entries from the same user. If so, mention the period of time for which no two entries from the same IP address were allowed (eg, 24 hours). Were duplicate entries avoided by preventing users with the same IP address access to the survey twice; or were duplicate database entries having the same IP address within a given period of time eliminated before analysis? If the latter, which entries were kept for analysis (eg, the first entry or the most recent)?	n/a
Log file analysis	Indicate whether other techniques to analyze the log file for identification of multiple entries were used. If so, please describe.	n/a
Registration	In "closed" (non-open) surveys, users need to login first and it is easier to prevent duplicate entries from the same user. Describe how this was done. For example, was the survey never displayed a second time once the user had filled it in, or was the username stored together with the survey results and later eliminated? If the latter, which entries were kept for analysis (eg, the first entry or the most recent)?	n/a
Handling of incomplete questionnaires	Were only completed questionnaires analyzed? Were questionnaires which terminated early (where, for example, users did not go through all questionnaire pages) also analyzed?	7
Questionnaires submitted with an atypical timestamp	Some investigators may measure the time people needed to fill in a questionnaire and exclude questionnaires that were submitted too soon. Specify the timeframe that was used as a cut-off point, and describe how this point was determined.	n/a
Statistical correction	Indicate whether any methods such as weighting of items or propensity scores have been used to adjust for the non-representative sample; if so, please describe the methods.	n/a

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Sociodemographic differences in patient experience with primary care during COVID-19: results from a cross-sectional survey in Ontario, Canada

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Sociodemographic differences in patient experience with primary care during COVID-19: results from a cross-sectional survey in Ontario, Canada

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ABSTRACT

Purpose: We sought to understand patients' care-seeking behaviours early in the pandemic, their use and views of different virtual care modalities, and whether these differed by sociodemographic factors.

Methods: We conducted a multi-site cross-sectional patient experience survey at thirteen academic primary care teaching practices between May and June of 2020. An anonymized link

to an electronic survey was sent to a subset of patients with a valid email address on file; sampling was based on birth month. For each question, the proportion of respondents who selected each response was calculated, followed by a comparison by sociodemographic characteristics using chi-squared tests.

Results: In total, 7482 participants responded to the survey. Most received care from their primary care clinic during the pandemic (67.7%, 5068/7482), the majority via phone (82.5%, 4195/5086). Among those who received care, 30.53% (1509/4943) stated that they delayed seeking care because of the pandemic. Most participants reported a high degree of comfort with phone (92.4%, 3824/4139), video (95.2%, 238/250) and email or messaging (91.3%, 794/870). However, those reporting difficulty making ends meet, poor or fair health, and arriving in Canada in the last 10 years reported lower levels of comfort with virtual care and fewer wanted their practice to continue offering virtual options after the pandemic.

Conclusions: Our study suggest that newcomers, people living with a lower income, and those reporting poor or fair health have a stronger preference and comfort for in-person primary care. Further research should explore potential barriers to virtual care and how these could be addressed.

ARTICLE SUMMARY

Strengths and Limitations of this study

- Our study included a large sample of respondents from multiple clinics across both urban and suburban communities; however, all clinics were academic practices within the Greater Toronto Area which may limit generalizability of findings.
- Patients were randomly sampled using birth month; however, our findings are open to selection bias because of the response rate, mode of delivery (email), and the survey being offered primarily in English.
- Demographics of our sample confirm that we reached a diverse group of patients.
- Survey questions were relevant to COVID-19 and informed by primary care leaders and patients.
- Our survey reports on experience during the early phase of the pandemic and patients' comfort and preferences may have evolved since.

INTRODUCTION

The COVID-19 pandemic has dramatically shifted the way health care is delivered and experienced by patients in many developed nations. Primary care practices in Canada, the US and elsewhere, rapidly switched to a virtual first approach—including the use of video, phone and secure messaging—to limit transmission of the SARS-CoV2 virus and conserve Personal Protective Equipment[1,2,3,4,5]. A study from Ontario, Canada found that shortly after the pandemic was declared, in-office visits reduced by 79% and virtual care conducted by phone or video increased 56-fold, comprising 71% of primary care physician visits[6]. While this approach supported immediate public health goals, its impact on access, receipt of patient-centred evidence-based care and long-term health outcomes is unclear[7]. As health systems consider what the "new normal" should look like, an examination of these impacts will be crucial.

This shift in care delivery has raised several concerns, including potential negative impacts on patient experience and access. Clinicians have noted anecdotally that patients with worrisome symptoms are delaying care[8]. Some note that the switch to virtual care may make care more accessible[9-12], while others have highlighted barriers certain populations face in accessing virtual care[13-16]. Prior studies suggest patient characteristics including older age and lower income may

limit one's ability to benefit from digital health and virtual care services[17-18]. In addition, patients may not have access to required technologies such as a phone or internet access[19-20]. Despite this, very little literature to date is available on patient experiences during the COVID-19 pandemic and how these differ by sociodemographic characteristics. Most existing studies on patient experience during COVID-19 are from acute care, and do not stratify experience based on patient demographics[21-25].

We conducted a patient survey at multiple academic primary care clinics in Ontario, Canada to better understand patient experience during COVID-19. We were interested in patients' care-seeking behaviours, their use and views of different virtual care modalities, and whether these differed by sociodemographic factors.

METHODS

Study design and setting

We conducted a multi-site cross-sectional survey to understand patient experiences during the COVID-19 pandemic at thirteen core teaching practices affiliated with the University of Toronto

Department of Family and Community Medicine situated in the Greater Toronto Area, a large, demographically diverse metropolitan area with more than 250 different ethnicities and half of all residents being foreign-born[26-27]. Participating practices were located in Toronto and surrounding areas including Mississauga, Markham, and Barrie. Practices range in size from roughly 11 physicians serving 14,000 patients to 80 physicians serving 50,000 patients; some have multiple locations; one provides services in English and French. Physicians in all teaching practices are part of Family Health Organizations and formally enrol patients, have shared responsibility for after-hours care, and are paid primarily by age-sex adjusted capitation; twelve of the thirteen sites were part of Family Health Teams that included non-physician health professionals such as nurses, nurse practitioners, social workers and dieticians.

The survey is an ongoing effort to directly inform quality improvement (QI) efforts at participating sites during COVID-19. The initiative was formally reviewed by institutional authorities at Unity Health Toronto and deemed to neither require Research Ethics Board approval nor written informed consent from participants.

Study Population and Recruitment

A link to an open electronic patient experience survey is emailed every quarter to a subset of patients with a valid email address on file; sampling each quarter is based on birth month with all eligible patients receiving a survey in a given year. The current analysis summarizes results of the first survey, which was sent to patients with a date of birth during the months of March, April or May. They were sent the survey between May and June of 2020 which corresponded with the end of the first wave of COVID-19 in the Toronto region[28]. Each site distributed an anonymized link to patients in the manner by which they usually communicate electronically to patients (i.e. by email or using a secure messaging service). In some cases, the email address on file may belong to a family member or caregiver to allow them the option of filling out the survey on behalf of the patient. Recruitment was done in English, with one site also doing recruitment and survey completion in French. No incentives were provided to participants.

Survey Design

The survey was developed collaboratively by family physicians who had a QI leadership role at participating sites, to support quality improvement efforts related to the COVID-19 pandemic. Where possible, questions were informed by existing surveys including the Commonwealth Fund

International Health Policy Survey[29-30] and the Ontario Primary Care Experience Survey, which was developed as part of a larger Primary Care Performance Measurement strategy to measure the performance across 9 domains[31-32]. The survey went through several iterations based on feedback from practice QI teams, a survey methodologist, a biostatistician, patient education and engagement specialists, and patient and family advisors. A paragraph at the start of the survey outlined the purpose of the survey, the reason they were being asked to participate, and highlighted that the survey was voluntary and anonymous. The final survey was prepared using Qualtrics software, a digital platform to capture experience data, and included 43 potential questions over 5 thematic domains including: 1) seeking and delaying care, 2) use and comfort with virtual care, 3) urgent care access, 4) patient centeredness and 5) patient demographic and contextual factors. Participants could end the survey at any point and were able to review previously answered questions before submission. (See Supplementary file 1 for full survey)

Data Collection and Storage

Data collected via the electronic survey were stored in Qualtrics. All data was downloaded onto a secure research server at the University of Toronto. A script was run to remove any potentially identifying information including 1) IP addresses, 2) Email addresses, 3) longitude/latitude

coordinates and 4) any free text fields (which may contain unstructured protected health information).

Statistical Analysis

We performed an initial descriptive statistics analysis on the responses of all participants across all sites who answered at least one question in the survey. For each question, we calculated the proportion of respondents who selected each response. We then compared patient responses by sociodemographic characteristics including age, gender, education, self-reported financial issues, immigration status, primary language, self-reported health, and usual primary care provider (PCP). P values were calculated using chi-squared tests and all data analysis was conducted using R version 4.0.

Patient and Public Involvement

Patients and families at participating clinic sites informed the survey questions and methods and have been engaged in discussions about the results and potential next steps.

RESULTS

The survey link was emailed to 32,307 patients at 13 practices (see Supplementary file 2). We present sociodemographic data (Table 1) on the 7482 participants who answered one or more questions in the survey (23.3% response rate). Sixty-five percent of respondents were female (4379/6713) and 78.3% (5159/6588) reported having a college, university or graduate degree. Nine percent of respondents (590/6556) reported trouble making ends meet at the end of the month, while 29.0% (1928/6656) were not born in Canada (with 16.9% of these having arrived in the last 10 years). Eight percent (553/6851) reported filling out the survey on behalf of a family member. Fifty-five surveys were completed in French.

Care-seeking during COVID-19

Of all respondents, 67.7% (5068/7482) reported they received care in some way from their primary care clinic since the start of the pandemic. Financial status and self-reported health were significantly associated with care seeking behaviours during the pandemic ($p<0.001$); a higher proportion of patients who noted trouble making ends meet (yes: 74.8%, 441/590, no: 65.3%, 3396/5201, prefer not to answer: 68.0%, 520/765) and those with lower self-rated health (fair or

poor: 76.9%, 752/978, excellent: 59.8%, 599/1002) reported receiving care during the study period. Of the 32.3% (2414/7482) of patients who did not receive care during the study period, the most commonly cited reasons were that patients had no health need (72.4%) and patients were worried about safety (9.5%).

Of the 5068 patients who reported receiving care at their primary care practice during the pandemic, 30.5% (1509/4943) stated that they delayed seeking care because of the pandemic. Gender, age, education level, financial status and self-reported health status were significantly associated with differences in seeking care ($p<0.05$ for all); for example, a higher proportion of those with trouble making ends meet and those with lower self-rated health reported delays in seeking care (see Table 2).

Use and perceptions of virtual care

Eighty-two percent (4195/5086) of participants reported receiving care by phone, 30.5% (1553/5086) in-person, 17.4% (886/5086) via email or secure messaging, and 5.1% (260/5086) via video. Age, immigration status and self-rated health were significantly associated with

differences in receiving in-person care ($p<0.05$ for all); the proportion who reported receiving in-person care was lower among those over the age of 65, those not born in Canada and those with lower self-rated health (Table 3). Women, young adults, those who rate their health as fair or poor and those who reported trouble making ends meet reported higher rates of phone use (see Table 3). Age and education level were significantly associated with differences in using email and secure messaging ($p<0.001$ for all); those over the age of 65 (16.9%, 269/1592) and those with a high school degree or less (13.5%, 130/962) reported less use of email and secure messaging relative to other groups.

Overall, most respondents indicated they were extremely or somewhat comfortable with the privacy and security of virtual modalities including phone (92.4%, 3824/4139), video (95.2%, 238/250) and email or secure messaging (91.3%, 794/870). Financial status, immigration status and self-reported health status were significantly associated with differences in comfort with virtual care use ($p<0.05$ for all); those having trouble making ends meet, those not born in Canada and those rating their health as fair or poor reported lower levels of comfort with phone calls and email or secure messaging relative to other groups (see Table 4).

Future preferences for virtual care

Seventy-five percent (3798/5068), 52.2% (2644/5068), and 42.9% (2172/5068) of respondents said they wanted their practice to continue offering phone, email/secure messaging, and video after the pandemic, respectively. Age, education status, financial status, immigration status and self-reported health status were significantly associated with differences in wanting ongoing use of each of the three virtual care modalities ($p<0.05$ for all); those over age 65, those whose education was high school or less, those reporting yes or "I don't know" when asked about difficulty making ends meet, those born outside Canada, and those in fair or poor health reported the lowest desire for the three virtual care modalities to continue after the pandemic compared to other groups (see Table 5).

DISCUSSION

Our analysis of more than 7400 patient experience surveys across 13 primary care clinics during the first months of the COVID-19 pandemic found important differences in care-seeking and comfort with virtual care based on patient income, self-reported health, and other demographic

characteristics. Most participants received care from their primary care clinic in some way during the study period; however, almost a third who sought care reported they delayed it due to concerns about the pandemic. Patients who had trouble making ends meet and those who reported their health as fair or poor were more likely to seek care during the pandemic yet were also more likely to report they delayed seeking care. Patient generally reported a high degree of comfort with phone, video and email or secure messaging. But, those reporting "yes" or "don't know/prefer not to answer" when asked about difficulty making ends meet, poor or fair health, and arriving in Canada in the last 10 years reported lower levels of comfort and less likely to want their practice to continue offering these virtual options.

Our results, similar to other emerging literature, suggests a complex relationship between the social determinants of health and patient comfort and preference regarding accessing care through virtual tools. A US-based study prior to the pandemic found that while younger patients and those with physical disabilities were more likely to use video visits to access care, those who reported lower incomes and lived in rural populations were less likely to use this modality[33]. A recent US-based primary care study found that after care shifted to a virtual-first approach during

the pandemic, a significantly smaller proportion of visits overall were with people who were low income, non-white, or non-English speakers[34]. However, a Canadian-based study found that similar to our participants, those with the highest care needs (older, multiple co-morbidities), were more likely to access primary care during the early months of the pandemic compared to other groups[6].

As many predict virtual care will continue to be a part of care delivery post-pandemic, this study highlights the importance of integrating patient experience data into future care delivery planning. Similar to other recently published data [6,35,36], our data indicates phone was by far the most utilized modality of virtual care and overall, participants were comfortable using virtual modalities to receive care. Patients who report financial troubles and poor health, had a higher percentage reporting accessing care (virtually and in person) during the pandemic compared to other groups; however, they reported greater concerns with the privacy and security of virtual care and less desire for virtual care to be an ongoing part of their primary care experience. This suggests that while public health measures may have pushed populations with the highest care needs to use virtual care, these modalities did not provide all patients with an equitable, patient-

centred care experience. Further research should explore reasons behind the relative discomfort and low interest in virtual care and how barriers could be addressed. While access to technology may be part of this problem, other factors such as health and digital literacy, and support from peers and health care providers may also be significant[37]. Without further patient experience and demographic data to understand the ongoing use of virtual care, we risk leaving behind those who need care most.

Strengths and Limitations

Our study had several key strengths and limitations. Our study included a large sample of respondents from multiple clinics across both urban and suburban communities. Patients were randomly sampled using birth month. Survey questions were relevant to COVID-19 and informed by primary care leaders and patients. However, our findings are open to selection bias because of the response rate, mode of delivery, and the survey being offered primarily in English; however, demographics of our sample confirm that we reached a diverse group of patients. We found substantial differences in utilization and perspectives of virtual care by sociodemographic characteristics, but these may be an underestimate of true differences. Our

survey reports on experience during the early phase of the pandemic and patients' comfort and preferences may have evolved since then. Finally, although our sample was taken from 13 primary care practices, these were all academic practices in the Greater Toronto Area where physicians were paid by capitation which may limit the generalizability of the findings to other settings including rural or low resource settings.

CONCLUSIONS

We found that sociodemographic characteristics impacted patients experience accessing and receiving primary care during the early months of the COVID-19 pandemic. While most patients were comfortable using virtual modalities, those having difficulty making ends meet, reporting poor or fair health, and born outside of Canada being less likely to report comfort with virtual modalities and less likely to want virtual care options to continue post-pandemic. Moving forward, clinicians and system decision makers need to carefully consider how we integrate virtual care into practices to ensure equity in access to primary care.

Contributors: PA and TK conceived of and designed the study together. PA, CM, SW, AD, NG, GY, DE, TF, SF, MW, TP, NR, and TK designed the survey. RW and CM informed and conducted the analysis. PA, RW, CM, SW, AD, NG, GY, DE, TF, SF, MW, TP, NR, and TK helped interpret the data. PA drafted the manuscript with the support of TK and all authors critically reviewed it. All authors read and approved the final manuscript.

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Data sharing statement: Data are available upon reasonable request by emailing DFCM.quality@utoronto.ca.

Ethics approval statement: The initiative was formally reviewed through the ReQUIST (Review of Quality Improvement Studies) process at Unity Health Toronto, which is overseen by the Vice-President, Care Experience and Equity and the Vice-President, Quality and Chief Information Officer. The study was deemed to neither require Research Ethics Board approval nor written informed consent from participants (i.e. the need for ethical approval was waived).

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Table 1. Demographic characteristics of survey respondents (n=7482)

Demographic characteristic		Survey respondents n (%)
Age (n=6744)		
	0 to 5 years old	169 (2.51%)
	6 to 17 years old	166 (2.46%)
	18 to 24 years old	120 (1.78%)
	25 to 34 years old	520 (7.71%)
	35 to 49 years old	1412 (20.94%)
	50 to 64 years old	2002 (29.69%)
	65 to 79 years old	1921 (28.48%)
	80 years or older	434 (6.44%)
Gender (n=6713)		
	Woman	4379 (65.23%)
	Man	2221 (33.09%)
	Other	60 (0.89%)
	Prefer not to answer	53 (0.79%)
Education level (n=6588)		
	Highschool or less	1429 (21.69%)
	College/University	3198 (48.54%)
	Graduate/Professional	1961 (29.77%)
Trouble making ends meet (n=6556)		
	Yes	590 (9.00%)

	No	5201 (79.33%)
	Don't know/Prefer not to answer	765 (11.67%)
Born in Canada (n=6656)		
	Yes	4728 (71.03%)
	No	1928 (28.97%)
Arrive in last 10 years (n=1856)		
	Yes	326 (17.56%)
	No	1530 (82.44%)
Preferred language (n=6678)		
	English	6576 (98.47%)
	Non-English	102 (1.53%)
Self-rated health (n=6665)		
	Excellent	1002 (15.03%)
	Very good	2599 (38.99%)
	Good	2086 (31.30%)
	Fair/Poor	978 (14.67%)
Usual PCP (n=6545)		
	Staff physician	4842 (73.98%)
	Resident physician	1217 (18.59%)
	Nurse practitioner	173 (2.64%)
	Unsure	313 (4.78%)

*Created by the authors.

Table 2. Proportion of respondents who received care at their primary care practice who reported that they delayed seeking care because of the pandemic, by sociodemographic characteristic

Demographics		Delayed Care n (%)	P-value
All		1509 (30.53%)	
Age			
	<18 years old	61 (29.90%)	<0.01
	18-34 years old	158 (35.03%)	
	35-64 years old	704 (31.44%)	
	65+ years old	429 (26.85%)	
Gender			
	Woman	932 (31.65%)	<0.001
	Man	376 (26.07%)	
	Other	20 (42.55%)	
	Prefer not to answer	18 (46.15%)	
Education			
	High school or less	238 (24.74%)	<0.001
	College/University	637 (30.09%)	
	Graduate/Professional	443 (33.95%)	
Trouble making ends meet			
	Yes	188 (42.63%)	<0.001
	No	928 (27.33%)	
	Don't know/Prefer not to answer	196 (37.69%)	

Born in Canada			
	Yes	966 (30.92%)	0.07
	No	366 (28.09%)	
Arrive <10 years			
	Yes	66 (29.33%)	0.79
	No	289 (28.20%)	
Preferred Language			
	English	1322 (30.20%)	0.49
	Non-English	24 (34.78%)	
Self-rated health			
	Excellent	153 (25.54%)	<0.001
	Very good	475 (28.84%)	
	Good	433 (30.20%)	
	Fair/Poor	275 (36.57%)	
Usual PCP			
	Staff physician	976 (30.13%)	0.47
	Resident physician	246 (29.85%)	
	Nurse practitioner	45 (36.59%)	
	Unsure	52 (29.21%)	

*Created by the authors.

Table 3. Percentage of patients who reported receiving care by phone and in person during the pandemic, by sociodemographic characteristic

Demographics		In person care n (%)	P-value	Phone care n (%)	P-value
All		1553 (30.64%)		4195(82.77%)	
Age					
	<18 years old	102 (50.00%)	<0.001	143 (70.10%)	<0.001
	18-34 years old	181 (40.13%)		404 (89.58%)	
	35-64 years old	603 (26.93%)		1922 (85.84%)	
	65+ years old	476 (29.79%)		1338 (83.73%)	
Gender					
	Woman	882 (29.95%)	0.57	2559 (86.89%)	<0.001
	Man	443 (30.72%)		1163 (80.65%)	
	Other	17 (36.17%)		41 (87.23%)	
	Prefer not to answer	9 (23.08%)		33 (84.62%)	
Education Level					
	High school or less	303 (31.50%)	0.42	787 (81.81%)	<0.05
	College/University	618 (29.19%)		1818 (85.88%)	
	Graduate/Professional	396 (30.34%)		1109 (84.98%)	
Trouble making ends meet					
	Yes	122 (27.66%)	0.28	396 (89.80%)	<0.001
	No	1047 (30.83%)		2840 (83.63%)	
Born in Canada					

	Yes	977 (31.27%)	<0.05	2630 (84.19%)	0.13
	No	363 (27.86%)		1121 (86.03%)	
Arrive <10 years					
	Yes	77 (34.22%)	<0.05	196 (87.11%)	0.73
	No	276 (26.93%)		881 (85.95%)	
Preferred language					
	English	1326 (30.29%)	0.88	3706 (84.67%)	1.00
	Non-English	22 (31.88%)		58 (84.06%)	
Self-Reported Health					
	Excellent	221 (36.89%)	<0.001	470 (78.46%)	<0.001
	Very good	522 (31.69%)		1390 (84.40%)	
	Good	383 (26.71%)		1222 (85.22%)	
	Fair/Poor	220 (29.26%)		673 (89.49%)	
Usual PCP					
	Staff physician	963 (29.73%)	0.10	2750 (84.90%)	0.22
	Resident physician	270 (32.77%)		701 (85.07%)	
	Nurse practitioner	46 (37.40%)		97 (78.86%)	
	Unsure	50 (28.09%)		146 (82.02%)	

*Created by the authors.

Table 4. Percentage of patients who reported they were comfortable with the privacy and security of using phone, video and email or secure messaging to receive care during the pandemic, by sociodemographic characteristic

Demographics		Phone n (%)	P-value	Video n (%)	P-value	Email Messaging n (%)	P-value
All		3824 (92.39%)		238 (95.20%)		794 (91.26%)	
Age							
	<18 years old	138 (96.50%)	<0.05	19 (95.00%)	0.60	17 (94.44%)	0.43
	18-34 years old	371 (91.83%)		28 (93.33%)		90 (87.38%)	
	35-64 years old	1800 (93.65%)		104 (94.55%)		383 (90.54%)	
	65+ years old	1223 (91.41%)		63 (98.44%)		249 (92.57%)	
Gender							
	Woman	2385 (93.20%)	<0.001	128 (96.97%)	0.17	501 (90.60%)	<0.001
	Man	1077 (92.61%)		75 (94.94%)		219 (92.80%)	
	Other	40 (97.56%)		4 (80.00%)		15 (100.00%)	
	Prefer not to answer	24 (72.73%)		6 (85.71%)		2 (40.00%)	
Education Level							
	High school or less	743 (94.41%)	0.17	47 (92.16%)	0.20	121 (93.08%)	0.65
	College/University	1679 (92.35%)		94 (97.92%)		358 (90.63%)	
	Graduate/Professional	1032 (93.06%)		66 (92.96%)		250 (91.91%)	
Trouble making ends meet							
	Yes	354 (89.39%)	<0.001	24 (92.31%)	0.63	70 (85.37%)	<0.001

	No	2679 (94.33%)		153 (96.23%)		576 (93.96%)	
	I don't know/Prefer not to answer	400 (87.53%)		30 (96.77%)		75 (78.12%)	
Born in Canada							
	Yes	2471 (93.95%)	<0.001	159 (95.78%)	1.00	526 (92.93%)	<0.05
	No	1019 (90.90%)		54 (94.74%)		204 (87.18%)	
Arrive in the last 10 years							
	Yes	176 (89.80%)	0.80	7 (100.00%)	1.00	34 (82.93%)	0.52
	No	799 (90.69%)		45 (93.75%)		163 (88.11%)	
Preferred language							
	English	3440 (92.82%)	0.50	209 (95.43%)	0.48	727 (91.33%)	0.40
	Non-English	52 (89.66%)		3 (75.00%)		7 (77.78%)	
Self-Reported Health							
	Excellent	455 (96.81%)	<0.001	30 (93.75%)	0.98	105 (95.45%)	<0.05
	Very good	1324 (95.25%)		65 (95.59%)		259 (93.50%)	
	Good	1131 (92.55%)		72 (94.74%)		235 (90.04%)	
	Fair/Poor	579 (86.03%)		42 (95.45%)		133 (85.81%)	
Usual PCP							
	Staff physician	2575 (93.64%)	<0.05	164 (96.47%)	0.17	568 (92.21%)	0.07
	Resident physician	640 (91.30%)		28 (87.50%)		107 (87.70%)	
	Nurse practitioner	86 (88.66%)		4 (100.00%)		17 (89.47%)	
	Unsure	130 (89.04%)		11 (91.67%)		24 (80.00%)	

*Created by the authors.

Table 5. Preferences for ongoing uses of virtual care options after the pandemic, by sociodemographic characteristic

Demographics	Phone n (%)	P-value	Video n (%)	P-value	Email Messaging n (%)	P-value
All	3798 (74.94%)		2172 (42.86%)		2644 (52.17%)	
Age						
<18 years old	171 (83.82%)	<0.05	120 (58.82%)	<0.001	117 (57.35%)	<0.001
18-34 years old	385 (85.37%)		252 (55.88%)		292 (64.75%)	
35-64 years old	1886 (84.23%)		1206 (53.86%)		1352 (60.38%)	
65+ years old	1291 (80.79%)		549 (34.36%)		834 (52.19%)	
Gender						
Woman	2510 (85.23%)	<0.001	1418 (48.15%)	0.45	1758 (59.69%)	<0.01
Man	1142 (79.20%)		662 (45.91%)		780 (54.09%)	
Other	37 (78.72%)		23 (48.94%)		31 (65.96%)	
Prefer not to answer	29 (74.36%)		21 (53.85%)		20 (51.28%)	
Education Level						
High school or less	770 (80.04%)	<0.05	384 (39.92%)	<0.001	468 (48.65%)	<0.001
College/University	1777 (83.94%)		993 (46.91%)		1227 (57.96%)	
Graduate/Professional	1098 (84.14%)		705 (54.02%)		846 (64.83%)	
Trouble making ends meet						
Yes	362 (82.09%)	<0.001	195 (44.22%)	<0.001	257 (58.28%)	<0.001
No	2869 (84.48%)		1665 (49.03%)		2037 (59.98%)	
I don't know/Prefer not to answer	387 (74.42%)		204 (39.23%)		232 (44.62%)	

Born in Canada						
Yes	2687 (86.01%)	<0.001	1579 (50.54%)	<0.001	1890 (60.50%)	<0.001
No	1005 (77.13%)		527 (40.45%)		683 (52.42%)	
Arrive in the last 10 years						
Yes	166 (73.78%)	0.13	89 (39.56%)	0.90	101 (44.89%)	<0.05
No	806 (78.63%)		413 (40.29%)		554 (54.05%)	
Preferred language						
English	3642 (83.21%)	0.12	2086 (47.66%)	0.08	2532 (57.85%)	<0.05
Non-English	52 (75.36%)		25 (36.23%)		29 (42.03%)	
Self-Reported Health						
Excellent	519 (86.64%)	<0.01	330 (55.09%)	<0.001	382 (63.77%)	<0.001
Very good	1392 (84.52%)		843 (51.18%)		977 (59.32%)	
Good	1179 (82.22%)		635 (44.28%)		809 (56.42%)	
Fair/Poor	597 (79.39%)		294 (39.10%)		394 (52.39%)	
Usual PCP						
Staff physician	2730 (84.29%)	<0.001	1613 (49.80%)	<0.001	1943 (59.99%)	<0.001
Resident physician	659 (79.98%)		336 (40.78%)		415 (50.36%)	
Nurse practitioner	104 (84.55%)		55 (44.72%)		73 (59.35%)	
Unsure	133 (74.72%)		79 (44.38%)		92 (51.69%)	

*Created by the authors.

Improving your Patient Experience

Dept of Family and Community Medicine, University of Toronto
Draft Jun 1, 2020

Start of Block: Intro Block

Q1 Dear THE CLINIC'S NAME Patient,

The CLINIC wants to know about your experience getting health care during the COVID-19 pandemic. We are asking you to complete a short survey, which will take about 5 minutes. Your answers will help us to improve the care we provide.

You are receiving this survey because either you or your family member is a patient with CLINIC and have a birthday in MONTH1, MONTH2, MONTH3. Participation is voluntary and responses are confidential. We do not ask for your name in the survey and your answers cannot be linked back to your chart. We are interested in your honest opinion, whether it is negative or positive. Your responses to this survey will not change the care you receive from us.

PLEASE NOTE: This survey is for the person in your family who has a birthday in MONTH1, MONTH2, MONTH3. If this person is someone you are a caregiver for (a child or parent), please respond based on their care experience. If your own birthday is also in MONTH 1, MONTH 2, MONTH 3, you can choose to respond based on your own care experience.

End of Block: Intro Block

Start of Block: Block 1

Q2 Section 1 – Care needs during pandemic

The following questions will help us better understand your comfort with accessing care during the COVID-19 pandemic. Please think about the care you received after March 17, 2020 (the date Ontario declared a state of emergency due to COVID-19).

Q3 **Did you receive care from a doctor, nurse or healthcare provider at CLINIC during the COVID-19 pandemic? This includes care delivered in person, by phone, by video or by email or secure message.**

- ○ Yes (1)
- ○ No (2)

Skip To: Q12 If DFCM1.1 = No

Q4 **How did you receive care during this time?** (Select all that apply)

- ☐ In person (1)
- ☐ Phone call (2)
- ☐ Video (3)
- ☐ Email or secure message (4)

Display This Question:
If DFCM1.2 = Phone call

Q5 When using the PHONE to discuss your health concerns, how comfortable were you with the level of privacy and security? (Select one response)

- ○ Extremely comfortable (1)
- ○ Somewhat comfortable (2)
- ○ Neither comfortable nor uncomfortable (3)
- ○ Somewhat uncomfortable (4)
- ○ Extremely uncomfortable (5)

Display This Question:

If DFCM1.2 = Phone call

Q6 **When using the PHONE , was there anything you did not talk about because you were worried about privacy?** (Select one response with optional comments)

- ☐ Yes (1)
- ☐ No (2)
- ☐ Comments: (3) _____

Display This Question:

If DFCM1.2 = Video

Q7 When using VIDEO to discuss your health concerns, how comfortable were you with the level of privacy and security? (Select one response)

- ○ Extremely comfortable (1)
- ○ Somewhat comfortable (2)
- ○ Neither comfortable nor uncomfortable (3)
- ○ Somewhat uncomfortable (4)
- ○ Extremely uncomfortable (5)

Display This Question:

If DFCM1.2 = Video

Q8 **When using VIDEO, was there anything you did not talk about because you were worried about privacy?** (Select one response with optional comments)

- ☐ Yes (1)
- ☐ No (2)
- ☐ Comments: (3) _____

Display This Question:

If DFCM1.2 = Email or secure message

Q9 When using EMAIL or SECURE MESSAGE to discuss your health concerns, how comfortable were you with the level of privacy and security? (Select one response)

- ○ Extremely comfortable (1)
- ○ Somewhat comfortable (2)
- ○ Neither comfortable nor uncomfortable (3)
- ○ Somewhat uncomfortable (4)
- ○ Extremely uncomfortable (5)

Display This Question:

If DFCM1.2 = Email or secure message

Q10 **When using EMAIL or SECURE MESSAGE, was there anything you did not talk about because you were worried about privacy?** (Select one response with optional comments)

- ☐ Yes (1)
- ☐ No (2)
- ☐ Comments: (3) _____

Q11 **Did you avoid or delay receiving care from THE CLINIC because of the COVID-19 pandemic?** (Select one response)

- ○ Yes (1)
- ○ No (2)

Display This Question:

If DFCM1.1 = No

Q12 **Please tell us why you did not get care from THE CLINIC during the COVID pandemic:** (Select all that apply)

- ☐ I did not have any health needs (1)
- ☐ I did not know I could receive care from the clinic during the pandemic (2)
- ☐ I did not want to come into the clinic because I was worried for my personal safety (3)
- ☐ I tried but could not get an appointment (4)
- ☐ The hours were inconvenient (5)
- ☐ I could not get through to the clinic on the phone (7)
- ☐ Other (please specify): (6) _____

Display This Question:

If DFCM1.1 = No

Q13 **Did you get care somewhere else during the COVID pandemic?** (Select all that apply)

- ☒ No, I did not get care elsewhere (1)
- ☐ I got care from a walk-in clinic in person (2)
- ☐ I got care from a walk-in clinic by phone or video (3)
- ☐ I went to the emergency department (4)
- ☐ Other (please specify): (5) _____

End of Block: Block 1

Start of Block: Block 2

Q14 **Section 2: Getting URGENT CARE when you are sick during the COVID-19 pandemic**
The following questions help us better understand the experience of patients who were sick and wanted to be seen urgently. Please answer the questions below for the time during the COVID-19 pandemic only (starting March 17, 2020).

Q15 **During the COVID-19 pandemic, was there a time when you were sick and URGENTLY needed care at THE CLINC?** (Select one response)

- ○ Yes (1)
- ○ No (2)

Skip To: End of Block If DFCM2.1 = No

Q16 **Think about the time you needed URGENT CARE. How many days did it take from when you first tried to book an appointment at our clinic to when you received care?**

Care could include an in-person visit, phone visit, video visit and/or email or secure messaging. (Select one response).

- ○ On the same day (1)
- ○ The next day (2)
- ○ In 2 to 3 days (3)
- ○ In 4 to 7 days (4)
- ○ After more than 1 week (5)
- ○ Never able to get an appointment (6)
- ○ Not sure (7)

Display This Question:

If DFCM2.2 = In 2 to 3 days

Or DFCM2.2 = In 4 to 7 days

And DFCM2.2 = After more than 1 week

And DFCM2.2 = Never able to get an appointment

Q17 **Why were you not able to get care the same or next day?** (Select all that apply)

- ☐ I was informed that there was no availability (1)
- ☐ I was offered an appointment but not with the provider I preferred (2)
- ☐ I was offered an appointment but not at the time I preferred (3)
- ☐ I could not get through to the clinic on the phone (4)
- ☐ Other (Please specify) (5) _____

Q18 How would you describe the length of time it took between making the appointment and receiving care? (Select one response)

- About right (1)
- Somewhat too long (2)
- Much too long (3)

Q19 During the COVID-19 pandemic, did you need urgent care on an evening, weekend, or public holiday?

- Yes (1)
- No (2)

Display This Question:
If DFCM2.5 = Yes

Q20 How easy or difficult was it to get urgent care from CLINIC on an evening, weekend, or holiday during the COVID-19 pandemic?

- Very easy (1)
- Somewhat easy (2)
- Neither easy nor difficult (3)
- Somewhat difficult (4)
- Very difficult (5)

End of Block: Block 2

Start of Block: Block 3

Q21 ***Section 3: Care experience***

For the next set of questions, please think about your experience when receiving care from your doctor or nurse practitioner during the COVID-19 pandemic only (starting March 17, 2020). This includes care delivered in person, by phone, by video or by email or secure message.

Q22 **How often did you receive care from the doctor or nurse practitioner that you prefer?** (select one response)

- I do not have a preferred health care provider (1)
- Always (2)
- Usually (3)
- Occasionally (4)
- Rarely (5)
- Never (6)

Q23 **How often did you receive care within a reasonable time from your doctor or nurse practitioner**? (Select one response)

- Always (1)
- Usually (2)
- Occasionally (3)
- Rarely (4)
- Never (5)

Page Break

Q24 **When you received care from your doctor or nurse practitioner, how often did they involve you as much as you want to be in decisions about your care and treatment?** (Select one response)

- Always (1)
- Usually (2)
- Occasionally (3)
- Rarely (4)
- Never (5)

Q25 **When you received care from your doctor or nurse practitioner, how often did they spend enough time with you?** (Select one response)

- Always (1)
- Usually (2)
- Occasionally (3)
- Rarely (4)
- Never (5)

End of Block: Block 3

Start of Block: Block ADDITIONAL

Q26 Click to write the question text

End of Block: Block ADDITIONAL

Start of Block: Block 4

Q27 **Section 4: Your recommendations** *For the next set of questions, please share your thoughts on how we can improve THE CLINIC.*

Q28 **After the COVID-19 pandemic is over, which of these care options should the clinic continue to offer?** (Select all that apply)

- ☐ Phone (1)
- ☐ Video (2)
- ☐ Email/secure messaging portal (3)
- ☐ Other (4) _____
- ☐ None of the above (5)

Q29 **What changes did our clinic make during COVID-19 that you would like us to continue?** (Optional)

_____

_____

_____

_____

_____

Q30 **What do you think our clinic could have done differently to better meet your health needs during the COVID-19 pandemic?** (Optional)

_____

_____

_____

_____

_____

Q31 **Overall, would you recommend our clinic, to your friends and family?** (Select one response)

- Yes (1)
- No (2)

End of Block: Block 4

Start of Block: Block 5a

Q32 **Are you filling this survey out on behalf of someone else?** (Select one response)

- Yes (1)
- No (2)

End of Block: Block 5a

Start of Block: Block 5b - Family

Q33 **Section 5: About Your Family Member**

This final section of the survey helps us understand if some groups are experiencing care differently than others.

Q34 I am filling this survey on behalf of my child or family member who is: (optional)

- 0-5 years old (1)
- 6-17 years old (2)
- 18-24 years old (3)
- 25-34 years old (4)
- 35-49 years old (5)
- 50-64 years old (6)
- 65-79 years old (7)
- 80+ years old (8)

Q35 What gender do they identify with? (optional)

- Woman/girl (1)
- Man/boy (2)
- Transgender woman/girl (3)
- Transgender man/boy (4)
- Non-binary (for example gender queer, 2-spirit) (5)
- Identity not listed (please specify) (6) _____
- Prefer not to answer (7)

Q36 What is their highest level of education? (optional)

- Elementary school or less (1)
- Some High school (2)
- High School Diploma (3)
- College or University Diploma Degree (4)
- Graduate or Professional Degree (5)

Q37 **Do they have trouble making ends meet (money problems) at the end of the month?** (optional)

- Yes (1)
- No (2)
- I don't know (3)
- Prefer not to answer (4)

Q38 Were they born in Canada? (optional)

- Yes (1)
- No (2)

Display This Question:

If DFCM5b.5 = No

Q39 **Did you arrive in Canada in the last 10 years?** (optional)

- Yes (1)
- No (2)

Q40 **What language would they prefer speaking with their primary care provider?** (optional)

- English (1)
- French (2)
- Other (please specify): (3) _____

Q41 In general, would you say their health is: (optional)

- Excellent (1)
- Very Good (2)
- Good (3)
- Fair (4)
- Poor (5)

Q42 What is their postal code? (optional)

_____

Q43 Which primary care provider do they usually see? (optional)

- Staff Physician (1)
- Resident Physician (2)
- Nurse Practitioner (3)
- Unsure (4)

End of Block: Block 5b - Family

Start of Block: Block 5c - Yourself

Q44 **Section 5: About You**

This final section of the survey helps us understand if some groups are experiencing care differently than others.

Q45 **How old are you?** (optional)

- 0-5 years old (1)
- 6-17 years old (2)
- 18-24 years old (3)
- 25-34 years old (4)
- 35-49 years old (5)
- 50-64 years old (6)
- 65-79 years old (7)
- 80+ years old (8)

Q46 **What gender do you identify with?** (optional)

- Woman/girl (1)
- Man/boy (2)
- Transgender woman/girl (3)
- Transgender man/boy (4)
- Non-binary (for example gender queer, 2-spirit) (5)
- Identity not listed (please specify) (6) _____
- Prefer not to answer (7)

Q47 **What is your highest level of education?** (optional)

- Elementary school or less (1)
- Some High school (2)
- High School Diploma (3)
- College or University Diploma Degree (4)
- Graduate or Professional Degree (5)

Q48 **Do you have trouble making ends meet (money problems) at the end of the month?** (optional)

- Yes (1)
- No (2)
- I don't know (3)
- Prefer not to answer (4)

Q49 **Were you born in Canada?** (optional)

- Yes (1)
- No (2)

Display This Question:

If DFCM5c.5 = No

Q50 **Did you arrive in Canada in the last 10 years?** (optional)

- Yes (1)
- No (2)

Q51 **What language would you prefer speaking with your primary care provider?** (optional)

- ○ English (1)
- ○ French (2)
- ○ Other (please specify): (3) _____

Q52 **In general, would you say your health is:** (optional)

- ○ Excellent (1)
- ○ Very Good (2)
- ○ Good (3)
- ○ Fair (4)
- ○ Poor (5)

Q53 What is your postal code? (optional)

_____

Q54 Which primary care provider do you usually see? (optional)

- Staff Physician (1)
- Resident Physician (2)
- Nurse Practitioner (3)
- Unsure (4)

End of Block: Block 5c - Yourself

Start of Block: End of Survey

Q55 Thank you for spending the time to complete this survey. Note: Please click "Submit" to record all your answers.

End of Block: End of Survey

SUPPLEMENTARY FILE 2: Site Demographics

Site name	City	Number of surveys sent (N= 32, 307)	Number of responses (N=7,532)	Response Rate (%)
Barrie and Community Family Health Team	Barrie	748	279	37%
Credit Valley Family Health Team	Mississauga	2,056	645	31%
Health for All Family Health Team	Markham	1,900	535	28%
Mount Sinai Academic Family Health Team	Toronto	2,100	391	19%
Southlake Family Health Team	Newmarket	1,968	735	37%
North York Family Health Team	North York	1,466	390	27%
Platinum Medical Family Health Organization	Scarborough	1,792	222	12%
Sunnybrook Academic Family Health Team	Toronto	1,447	409	28%
St. Joseph's Health Centre Family Medicine/Urban Family Health Team	Toronto	1,135	265	23%

St. Michael's Hospital Academic Family Health Team	Toronto	5,180	1337	26%
South East Toronto Family Health Team	Toronto	5,244	591	11%
Summerville Family Health Team	Mississauga	5,070	1426	28%
Women's College Hospital Family Practice Health Centre	Toronto	2,201	307	14%

*Created by the authors.

Checklist for Reporting Results of Internet E-Surveys (CHERRIES)

Checklist Item	***Explanation***	***Page Number***
Describe survey design	Describe target population, sample frame. Is the sample a convenience sample? (In "open" surveys this is most likely.)	5
IRB approval	Mention whether the study has been approved by an IRB.	6
Informed consent	Describe the informed consent process. Where were the participants told the length of time of the survey, which data were stored and where and for how long, who the investigator was, and the purpose of the study?	7
Data protection	If any personal information was collected or stored, describe what mechanisms were used to protect unauthorized access.	7
Development and testing	State how the survey was developed, including whether the usability and technical functionality of the electronic questionnaire had been tested before fielding the questionnaire.	7
Open survey versus closed survey	An "open survey" is a survey open for each visitor of a site, while a closed survey is only open to a sample which the investigator knows (password-protected survey).	6
Contact mode	Indicate whether or not the initial contact with the potential participants was made on the Internet. (Investigators may also send out questionnaires by mail and allow for Web-based data entry.)	6
Advertising the survey	How/where was the survey announced or advertised? Some examples are offline media (newspapers), or online (mailing lists – If yes, which ones?) or banner ads (Where were these banner ads posted and what did they look like?). It is important to know the wording of the announcement as it will heavily influence who chooses to participate. Ideally the survey announcement should be published as an appendix.	6
Web/E-mail	State the type of e-survey (eg, one posted on a Web site, or one sent out through e-mail). If it is an e-mail survey, were the responses entered manually into a database, or was there an automatic method for capturing responses?	6
Context	Describe the Web site (for mailing list/newsgroup) in which the survey was posted. What is the Web site about, who is visiting it, what are visitors normally looking for? Discuss to what degree the content of the Web site could pre-select the sample or influence the results. For example, a survey about vaccination on a anti-immunization Web site will have different results from a Web survey conducted on a government Web site	n/a
Mandatory/voluntary	Was it a mandatory survey to be filled in by every visitor who wanted to enter the Web site, or was it a voluntary survey?	n/a
Incentives	Were any incentives offered (eg, monetary, prizes, or non-monetary incentives such as an offer to provide the survey results)?	n/a

Time/Date	In what timeframe were the data collected?	6
Randomization of items or questionnaires	To prevent biases items can be randomized or alternated.	n/a
Adaptive questioning	Use adaptive questioning (certain items, or only conditionally displayed based on responses to other items) to reduce number and complexity of the questions.	n/a
Number of Items	What was the number of questionnaire items per page? The number of items is an important factor for the completion rate.	7
Number of screens (pages)	Over how many pages was the questionnaire distributed? The number of items is an important factor for the completion rate.	n/a
Completeness check	It is technically possible to do consistency or completeness checks before the questionnaire is submitted. Was this done, and if "yes", how (usually JAVAScript)? An alternative is to check for completeness after the questionnaire has been submitted (and highlight mandatory items). If this has been done, it should be reported. All items should provide a non-response option such as "not applicable" or "rather not say", and selection of one response option should be enforced.	n/a
Review step	State whether respondents were able to review and change their answers (eg, through a Back button or a Review step which displays a summary of the responses and asks the respondents if they are correct).	6
Unique site visitor	If you provide view rates or participation rates, you need to define how you determined a unique visitor. There are different techniques available, based on IP addresses or cookies or both.	n/a
View rate (Ratio of unique survey visitors/unique site visitors)	Requires counting unique visitors to the first page of the survey, divided by the number of unique site visitors (not page views!). It is not unusual to have view rates of less than 0.1 % if the survey is voluntary.	n/a
Participation rate (Ratio of unique visitors who agreed to participate/unique first survey page visitors)	Count the unique number of people who filled in the first survey page (or agreed to participate, for example by checking a checkbox), divided by visitors who visit the first page of the survey (or the informed consents page, if present). This can also be called "recruitment" rate.	n/a
Completion rate (Ratio of users who finished the survey/users who	The number of people submitting the last questionnaire page, divided by the number of people who agreed to participate (or submitted the first survey page). This is only relevant if there is a separate "informed consent" page or if the survey goes over several pages. This is a measure for attrition. Note that	8

agreed to participate)	"completion" can involve leaving questionnaire items blank. This is not a measure for how completely questionnaires were filled in. (If you need a measure for this, use the word "completeness rate".)	
Cookies used	Indicate whether cookies were used to assign a unique user identifier to each client computer. If so, mention the page on which the cookie was set and read, and how long the cookie was valid. Were duplicate entries avoided by preventing users access to the survey twice; or were duplicate database entries having the same user ID eliminated before analysis? In the latter case, which entries were kept for analysis (eg, the first entry or the most recent)?	n/a
IP check	Indicate whether the IP address of the client computer was used to identify potential duplicate entries from the same user. If so, mention the period of time for which no two entries from the same IP address were allowed (eg, 24 hours). Were duplicate entries avoided by preventing users with the same IP address access to the survey twice; or were duplicate database entries having the same IP address within a given period of time eliminated before analysis? If the latter, which entries were kept for analysis (eg, the first entry or the most recent)?	n/a
Log file analysis	Indicate whether other techniques to analyze the log file for identification of multiple entries were used. If so, please describe.	n/a
Registration	In "closed" (non-open) surveys, users need to login first and it is easier to prevent duplicate entries from the same user. Describe how this was done. For example, was the survey never displayed a second time once the user had filled it in, or was the username stored together with the survey results and later eliminated? If the latter, which entries were kept for analysis (eg, the first entry or the most recent)?	n/a
Handling of incomplete questionnaires	Were only completed questionnaires analyzed? Were questionnaires which terminated early (where, for example, users did not go through all questionnaire pages) also analyzed?	7
Questionnaires submitted with an atypical timestamp	Some investigators may measure the time people needed to fill in a questionnaire and exclude questionnaires that were submitted too soon. Specify the timeframe that was used as a cut-off point, and describe how this point was determined.	n/a
Statistical correction	Indicate whether any methods such as weighting of items or propensity scores have been used to adjust for the non-representative sample; if so, please describe the methods.	n/a