Mental health-related calls in Toronto during the COVID-19 pandemic

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Introduction

Mental health needs in Ontario have been on the rise in the past several years.[1] The onset of COVID-19 and the introduction of lockdown practices to prevent its spread have raised considerable concerns about their impact on mental health, and the potential for an 'echo pandemic' of mental health problems.

At the present time there is considerable evidence that levels of distress may have risen under the pandemic. Levels of stress and anxiety appeared to rise in Canada with the onset of the pandemic,[2] and youth in particular showed elevated rates of poor mental health – often worse than what their parents believed was their current level of distress.[3,4]

Focusing in on Ontario, one sees a similar story. A survey of Ontario youth showed declines in mental health after the advent of COVID-19 restrictions that were greater than the three months previous.[5] Opioid-related deaths also spiked in Ontario in the first 15 weeks of the COVID-19 pandemic.[6,7,8] Some preliminary findings suggest as much as 70 per cent of children in Toronto experienced a decline in their mental health during the pandemic.[9] Furthermore, the Children's Hospital of Eastern Ontario, the Kids Help Phone, and eating disorder clinics in Ottawa were all seeing a significant spike in demand for their mental health services.[10] Finally, 211 (a service linking callers to social support services), reported an increase in mental health-related calls.[11]

It is important to note that our understanding of these processes is still limited, and it is unclear whether the data will eventually bear out that there is an 'echo pandemic' of mental health problems. Some experts have argued that the pandemic and lockdowns have caused feelings of anxiety and sadness. Because these types of reactions are to be expected in difficult circumstances, it may not be accurate to describe this as poor mental health – and addressing these acute problems is no substitute for systemically re-investing in defunded mental health supports.[12] Regardless, individuals still need mental health supports during the COVID-19 pandemic, even if rates remain the same as they were pre-pandemic.

For this reason, the City of Toronto announced a mental health support strategy in April of 2020, urging residents to call 211 in order to connect them to partnered mental health support organizations.[13] Residents could reach 211 Central 24 hours a day, seven days a week, through the phone or through online. Use of this support line offers us a window into the impact of COVID-19 on mental health.

Accordingly, the purpose of this study is to examine trends in calls made to 211 Central for mental health supports before and after the onset of the COVID-19 pandemic. The objectives of this project were to:

1) Describe caller characteristics, and overall call trends in 2020;

2) Investigate trends in calls in 2020, pre- and post-COVID-19 onset, by demographic groups and by mental health service needs;

3) Investigate associations between demographic characteristics and calls for specific mental health services from 2015 to 2020. This is to better understand the specific needs of population sub-groups over the years.

Methods

Data Source

Findhelp Information Services/211 Central Region's database was used for this analysis. 211 Central is a helpline and online repository of community and social services in Ontario, which was launched in 2002 in the 416 and 647 area codes. Since 2011, the service has grown to encompass all of Ontario.[14] In Toronto, 211 is currently funded through the Province of Ontario, Government of Canada, City of Toronto, United Way Greater Toronto and United Way Centraide Canada.[15] Regional service providers affiliated with 211, such as 211 Central Region, collect data on individual service needs and unmet needs, along with some caller demographic information (caller age and gender). This data is collected to inform policymakers on the needs of their communities.[16]

Through a Data Sharing Agreement with Findhelp Information Services/211 Central Region, Wellesley Institute was able to access de-identified data including call records of those seeking mental health-related supports from April 1, 2015 to July 31, 2020. It is important to note that these records are based on tracking 75% of 211 Central's total contact volume. This data also measures reported needs, meaning that multiple records indicating separate needs may be linked to one call.

Study Variables

In Canada, 211 providers are required to be accredited by the Alliance of Information and Referral Systems (AIRS), a non-profit organization which aims to build a high-quality community information and referral sector across North America.[17] AIRS uses the 211 LA County Taxonomy system to define and categorize the services referred, adapted to the Canadian context, which included the development of a French translation.[18] This taxonomy system is hierarchical and contains more than 9,000 fully-defined terms that cover a complete range of human services.[21]

Taken from the mental health and substance use disorder services taxonomy dictionary, these services were classified as: *counselling, mental health support services (programs that offer early intervention and mental health promotion), mental health assessment and treatment, mental health care facilities, substance use disorder services and mutual support programs*. Definitions for these services can be found in the Appendix.

The analysis included variables measuring caller characteristics, such as caller age group (Youth, Adult, Older Adult), caller gender (Female, Male) and season of the call (Winter, Else (including Spring, Summer and Fall)). Caller age was categorized as Youth for callers under 24, Adults for callers aged 25 to 59 years, and Older Adults for callers above the age of 60. Season is an important control in our analysis due to the evidence surrounding the seasonal pattern commonly observed with symptoms associated with depression in the winter months.[19] Note that caller gender is restricted and does not account for a full range of gender identities.

Statistical Analysis

Descriptive statistics were performed for the characteristics of all callers in 2020.

Trends pre- and post-COVID-19 were visualized using smoothed lines to show the rise and fall of call volume over time. These smoothed lines were created using Locally Weighted Scatterplot Smoothing (LOWESS) curves, by age group, by gender, and by category of services needed. A LOWESS curve creates a smooth line through a cloud of data to view relationships between variables, bending as relationships between the variables also become more or less strong over time. March 17, 2020 was determined to be the start of the post-COVID-19 period, as it was the date the COVID-19 State of Emergency was declared in Ontario. The observation period for the data continued through July 31, 2020.

Statistical models appropriate for count data (i.e. number of calls) were also used. Specifically, a 'negative binomial regression' technique was applied. A 'knot' was placed in this model on March 17, which allowed for observations on how call patterns changed after the advent of COVID-19 restrictions (using what is called a 'linear spline' in statistical modeling).

In addition to examining how call volume changed over time, statistical models to investigate how the *rate of increase* in calls changed over time were also used.

Note, that our analysis was interested in considering how changes in volume and rate were different for different groups (e.g. male and female). As a result, these models were estimated separately for these groups, to see how they compared. Because changes in one group might be related to changes in another, a robustness check for our findings was included by allowing for interdependence between groups (specifically a 'Famoye' model was used to accomplish this).

Finally, a third statistical technique was used to investigate associations between call characteristics, such as age, gender and season, and mental health service needs from 2015 to 2020. In these models, service category was the outcome, predicted by age, gender, and season. Because the outcome is a binary (yes/no) variable, we used a logit regression, which is the appropriate model for this kind of variable. Analyses were carried out with Stata software version 15.[20]

Results

Characteristics of 2020 Callers

Our final dataset consisted of 3924 calls made to 211 from January 1 to July 31 in 2020; 1215 (31 per cent) of these calls were made before the State of Emergency declaration date of March 17 and 2709 (69 per cent) of these calls were made afterwards. The majority of callers were female-identifying and from the Adult age group, both before the declaration of the COVID-19 State of Emergency (Female: 62 per cent; Adult: 81 per cent) and after (Female: 60 per cent; Adult: 72 per cent).

With regards to support needs, the majority of callers were referred to a mental health assessment and treatment both before March 17, 2020 (50.9 per cent) and after (59.2 per cent). This category includes referrals to general crisis intervention hotlines, and psychiatric services, such as mobile response teams.

Table 1: Caller Characteristics in 2020

Characteristic	Total No. (%)	Pre-COVID* No. (%)	Post-COVID** No. (%)
Overall calls	3,924 (100)	1,215 (100)	2,709 (100)
Gender			
Female	2,399 (61.1)	758 (62.3)	1,641 (60.6)
Male	1281 (32.6)	412 (33.9)	869 (32.1)
Age Group			
Youth	56 (1.4)	11 (0.9)	45 (1.7)
Adult	2,926 (74.6)	985 (81.1)	1,941 (71.7)
Older Adult	386 (9.8)	74 (6.1)	312 (11.5)
Support Need			
Counselling	279 (7.1)	61 (5.0)	218 (8.0)
Mental Health Support Service	184 (4.7)	42 (3.5)	142 (5.2)
Mental Health Assessment and Treatment	2,224 (56.7)	619 (50.9)	1,605 (59.2)
Mental Health Care Facilities	205 (5.2)	81 (6.7)	124 (4.6)
Substance Use Disorder Services	870 (22.2)	345 (28.4)	525 (19.4)
Mutual Support	162 (4.1)	67 (5.5)	95 (3.5)

*Pre-COVID: Jan 1 – Mar 16, 2020
**Post-COVID: Mar 17 – July 31, 2020

Trend analysis for 2020

Trends visualized through LOWESS smoothing (**Figures 1-4**) show a steady rise in daily calls starting slightly before the State of Emergency on March 17, 2020. Similar patterns can be found when examining the trends by age group and gender. With regards to call trends by gender, women were found to be calling in more than men, with the gap between the two groups widening as time passed.

When examining call trends by mental health need, the number of calls for mental health assessment and treatment increased. Calls under this category were defined as for "diagnostic and treatment services for individuals whose psychiatric difficulties are not severe enough to require 24-hour care, but who can benefit from regular consultation and therapy with a mental health professional."[18]

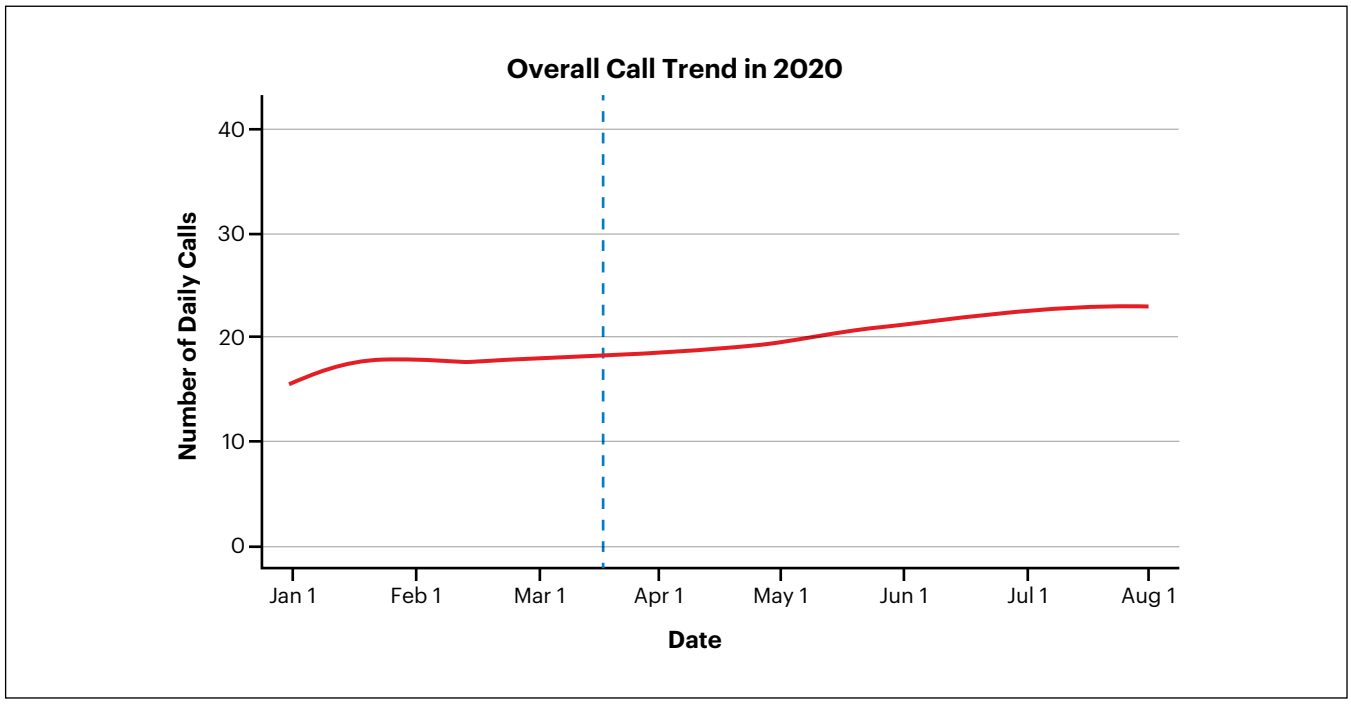

Figure 1. Overall Trend for Mental Health-Related Calls to 211 Central in 2020

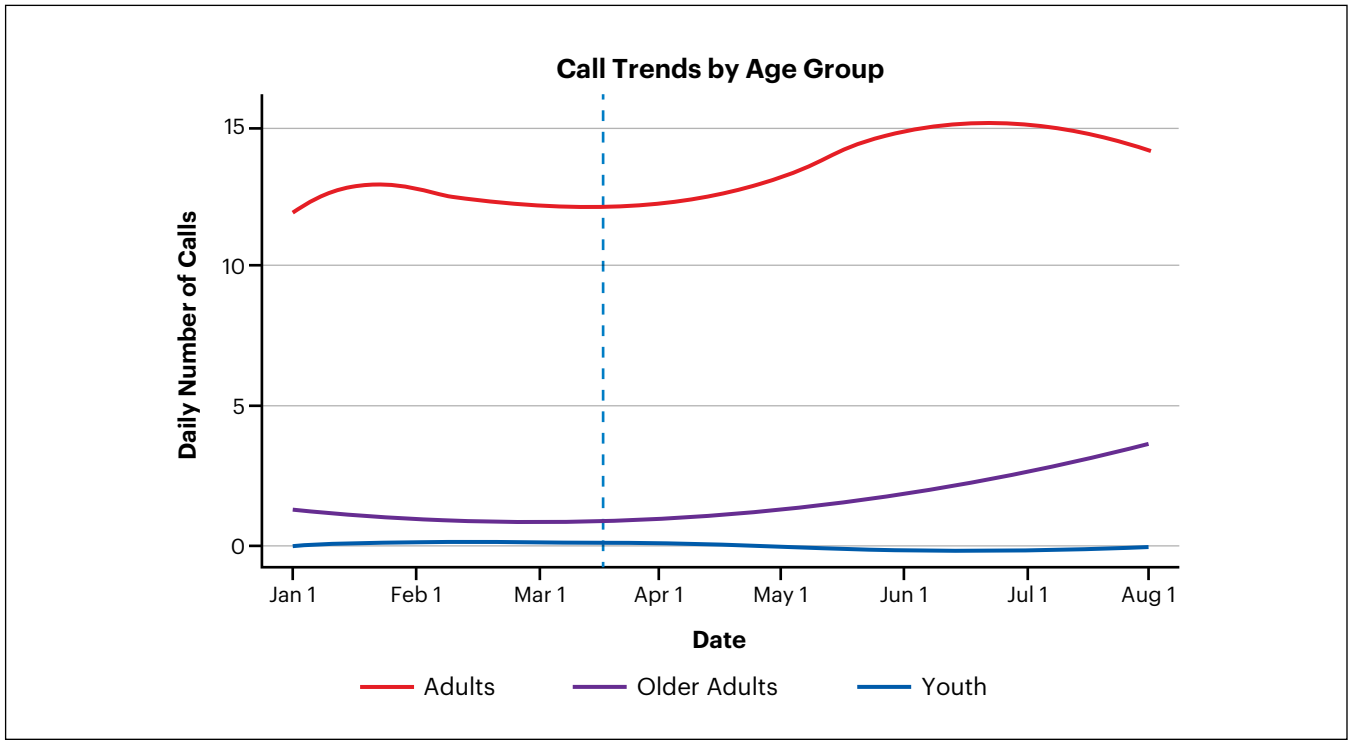

Figure 2. 211 Central Trends for Mental Health-Related Calls by Age Group in 2020

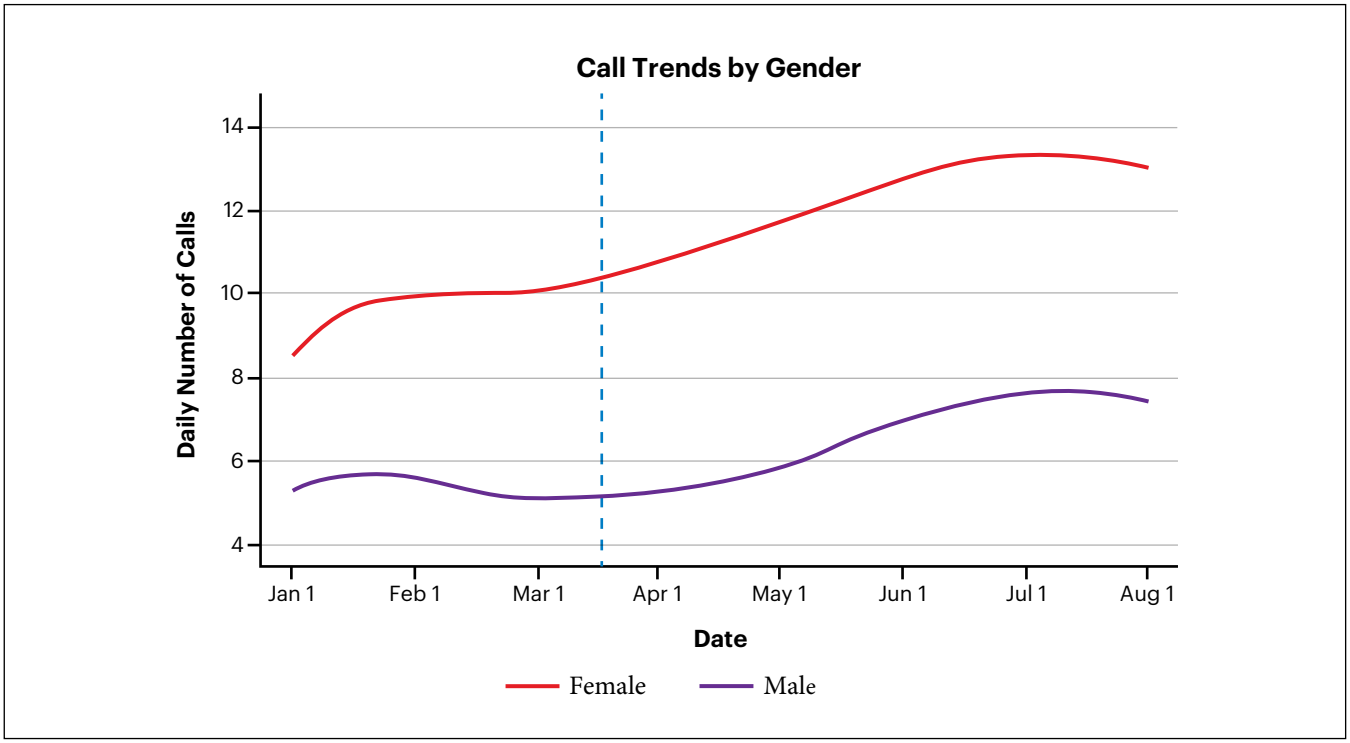

Figure 3. 211 Central Trends for Mental Health-Related Calls by Gender in 2020

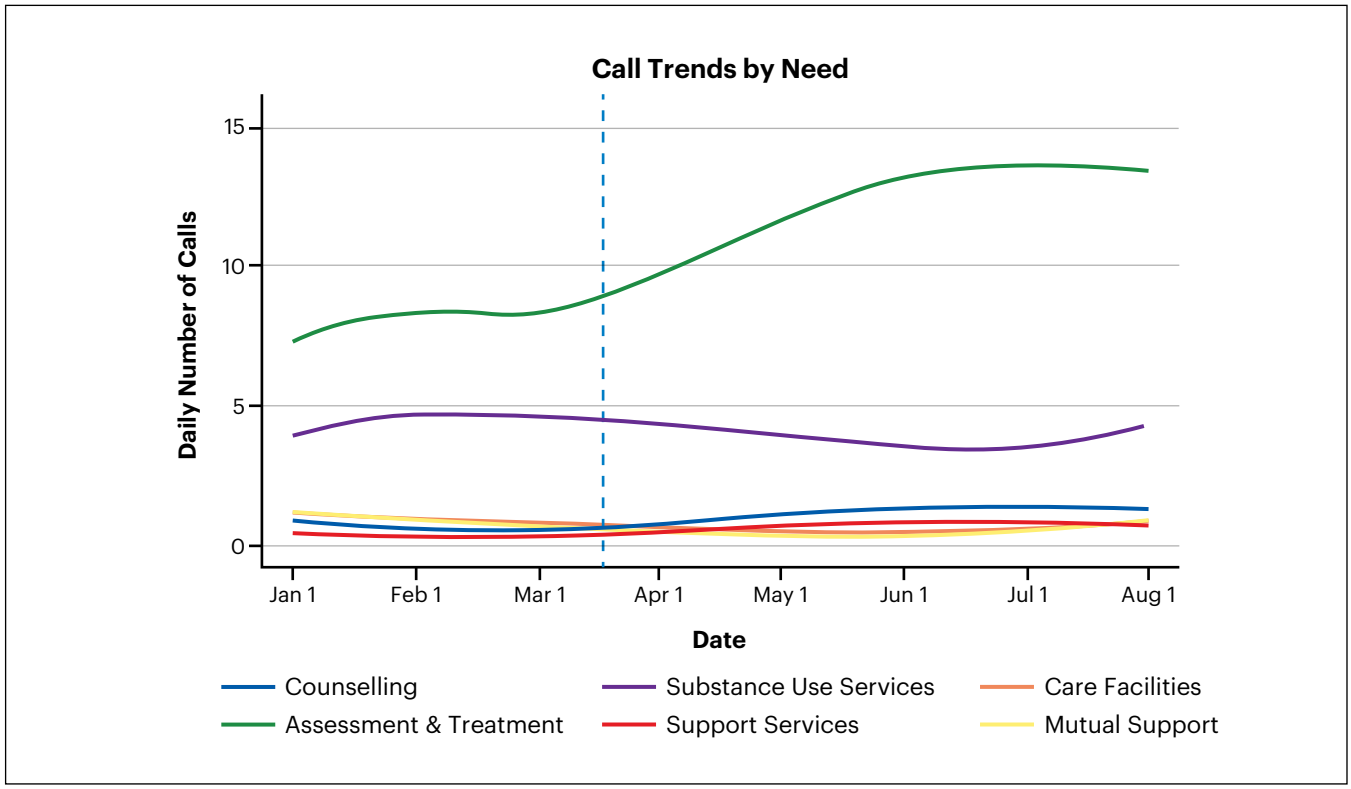

Figure 4. 211 Central Trends for Mental Health-Related Calls by Need in 2020

Regression analyses found the number of calls significantly increasing from 11.9 per day, to 19.7 per day post-COVID-19. Calls from men significantly increased from 3.7 to 6.3 a day, while for women calls significantly increased from 7.8 to 12 calls daily. Significant increases were found across all age groups, with youth calls increasing from 0.14 to 0.31 calls daily, adult calls increasing from 9.8 to 14.1 calls a day, and older adult calls increasing from 0.52 to 2.4 calls a day (all p-values less than .001).

In terms of the change in rates of increase in daily calls, 211 Central would be expected to wait 142 days before they started getting one additional call per day before the COVID-19 pandemic. After the onset of the State of Emergency on March 17, it took 35.3 days for the organization to start getting an additional call per day. This means that post-COVID-19, considerably less time would pass for 211 Central to receive an increased number of calls per day.

This changing rate of increase was also found in analyses within sub-groups. For instance, to receive an extra call per day from men, it took 316.0 days pre-COVID-19, and this number reduced to 154.4 days after the onset of the COVID-19. For women, this rate changed from 291.9 days to 57.7 days to receive an additional call per day. For adults aged 18 to 64, the rate changed from 191.2 days to 106.3 days.

Mental health service needs from 2015 to 2020

When gender, age and season were controlled for, callers were more likely to ask for counselling, support services, and for assessment and treatment services after March 17, 2020. Calls were less likely to be for mental health care facilities, substance use disorder services and for mutual support programs.

Discussion

Overall, mental health needs increased over the first wave of the pandemic. Specifically, treatment and assessment services were in increased demand, and groups most impacted included women and working age individuals. The increased volume of calls for mental health services aligns with the increase in adverse mental health outcomes across international studies conducted since the onset of COVID-19.[21–23]

Work situations have drastically changed through the first phase of the pandemic with many losing their jobs, working from home, and working reduced hours. According to Ontario's Financial Accountability Officer, Ontario lost more than 355,000 jobs in 2020, with ten per cent of workers having their hours reduced due to the pandemic.[24]

Furthermore, in addition to work and home lives being affected, connections with friends and family have been impacted. Therefore, this is a time of uncertainty for many working age individuals, potentially leading to increased stress.[7]

The COVID-19 pandemic has negatively impacted lower income groups disproportionately, and lower-income persons faced many challenges in avoiding COVID-19 exposure since they were less likely to work at home, experienced existing health inequities, and had inequitable access to health care and social services.[25] Although the pandemic may have taken a toll on the mental health of the population as a whole, this group is likely at a greater risk of experiencing stressors through means of increased financial stress, and heightened exposure to COVID-19.[12]

These findings may inform service planning and policy decisions made surrounding the mental health sector in Toronto, and potentially across Ontario.

Limitations

There are several limitations to this study, including the fact that we did not have access to data on race or income. Additionally, most records are missing information on what neighbourhood the person is calling from. Therefore, our research does not have access to more detailed information on the populations that are reaching out to 211 Central, either by equity-seeking group, or by region of the city.

The reader should use caution when interpreting the result that gender gaps widened during the pandemic. It may be the case that women were more likely to engage in help-seeking behaviours even at the same levels of distress, compared to men. The results should therefore not be interpreted as indicating a lack of mental distress on the part of men, or that they are somehow more resilient to crisis, and all genders should be taken into consideration when expanding mental health supports.

It is also unknown whether the increase in calls is due to increased promotion of 211 Central's services by the City of Toronto. However, increased promotion would not account for the widening gender gap, as well as the increase in demand for some services and not others. Further research may help to disentangle the impact of awareness on calls, which is likely a complex process where awareness is only one component of who actually calls.

Finally, the data used in this study is strictly a measure of needs, and do not tell us who actually used the services they were referred to. Progress along this pipeline is not documented in the data used in our study, and there may be non-random attrition. The reader should not, therefore, interpret the findings as how many people received help, but only how many asked 211 for help.

Conclusion

This study examined trends in calls made to 211 Central for mental health supports before and after the onset of the COVID-19 pandemic. The results point to an increase in demand for mental health supports, and furthermore, where the pressure on the system is likely to emerge. Namely, there was increased demand from women, and from people seeking assessment and treatment with a mental health professional (excluding those facing severe psychiatric difficulties),[18] and among older adults especially. No types of calls declined during this period. In fact, not only did the daily number of calls increase, but there was clearly a strong take-off point where increases began to occur with greater frequency. This underscores the need for crisis planning, and for capacity of the system to exceed current need so that it can react to times of crisis. While building this infrastructure, equity must be a central concern, to ensure that in times of scarcity, those who experience the greatest disadvantage are not left out or left behind.

Bibliography

1. Chiu M, Amartey A, Wang X, Vigod S, Kurdyak P. Trends in objectively measured and perceived mental health and use of mental health services: A population-based study in Ontario, 2002–2014. CMAJ. 2020;192(13):E329-E337. doi:10.1503/cmaj.190603

2. Nwachukwu I, Nkire N, Shalaby R, et al. COVID-19 Pandemic: Age-Related Differences in Measures of Stress, Anxiety and Depression in Canada. *International Journal of Environmental Research and Public Health*. 2020;17(17):6366. doi:10.3390/ijerph17176366

3. Government of Canada SC. The Daily — Canadian Health Survey on Children and Youth, 2019. Published July 23, 2020. Accessed June 21, 2021. https://www150.statcan.gc.ca/n1/daily-quotidien/200723/dq200723a-eng.htm

4. Government of Canada SC. The Daily — Health of youth in Canada. Published February 1, 2021. Accessed June 21, 2021. https://www150.statcan.gc.ca/n1/daily-quotidien/210201/dq210201b-eng.htm

5. Hawke LD, Monga S, Korczak D, et al. Impacts of the COVID-19 pandemic on youth mental health among youth with physical health challenges. *Early Intervention in Psychiatry*. n/a(n/a). doi:https://doi.org/10.1111/eip.13052

6. Ontario Drug Policy Research Network, Office of the Chief Coroner for Ontario, Public Health Ontario, Centre on Drug Policy Evaluation. *Preliminary Patterns in Circumstances Surrounding Opioid-Related Deaths in Ontario during the COVID-19 Pandemic*.; 2020:24.

7. CAMH Policy Advice. *Mental Health in Canada: Covid-19 and Beyond*. CAMH; 2020.

8. Tracking the COVID-19 Recession's Effects on Food, Housing, and Employment Hardships. Center on Budget and Policy Priorities. Accessed February 24, 2021. https://www.cbpp.org/research/poverty-and-inequality/tracking-the-covid-19-recessions-effects-on-food-housing-and

9. Feb 02 LC• TCP• P, February 2 2021 10:46 PM ET | Last Updated: "Kids are not all right": Mental health among Ontario children deteriorating amid COVID-19 | CBC News. CBC. Published February 3, 2021. Accessed February 23, 2021. https://www.cbc.ca/news/canada/toronto/covid-kids-not-ok-1.5898715

10. Jan 18 MK• CN• P, February 3 2021 4:00 AM ET | Last Updated: Pandemic driving more young people to seek mental health help | CBC News. CBC. Published January 18, 2021. Accessed February 23, 2021. https://www.cbc.ca/news/canada/ottawa/ottawa-youth-mental-health-covid-19-pandemic-2021-1.5875367

11. Palamarchuk A. 211 sees spike in "mental health-related calls" during pandemic. Toronto.com. Published February 11, 2021. Accessed February 23, 2021. https://www.toronto.com/news-story/10329445-211-sees-spike-in-mental-health-related-calls-during-pandemic/

12. Rose N, Manning N, Bentall R, et al. The social underpinnings of mental distress in the time of COVID-19 – time for urgent action. Wellcome Open Res. 2020;5. doi:10.12688/wellcomeopenres.16123.1

13. City of Toronto announces mental health support strategy for residents. City of Toronto. Published April 9, 2020. Accessed February 24, 2021. https://www.toronto.ca/news/city-of-toronto-announces-mental-health-support-strategy-for-residents/

14. The History of 211 Service Helplines | Ontario 211. Accessed February 23, 2021. https://211ontario.ca/about-211-ontario/history-of-211-ontario/

15. What is Ontario 211 Services? | Our Vision | Ontario 211. Accessed February 23, 2021. https://211ontario.ca/about-211-ontario/what-is-211-ontario/

16. 211 Data. Accessed February 24, 2021. https://211ontario.ca/211-data/

17. Who We Are; What We Do - Alliance of Information and Referral Systems. Accessed February 24, 2021. https://www.airs.org/i4a/pages/index.cfm?pageid=3300

18. 211 LA County Taxonomy of Human Services. Accessed February 23, 2021. https://211taxonomy.org/

19. Kurlansik SL, Ibay AD. Seasonal Affective Disorder. AFP. 2012;86(11):1037-1041.

20. StataCorp. *Stata Statistical Software: Release 15*. StataCorp LLC; 2017.

21. Gloster AT, Lamnisos D, Lubenko J, et al. Impact of COVID-19 pandemic on mental health: An international study. PLoS One. 2020;15(12). doi:10.1371/journal.pone.0244809

22. Pierce M, Hope H, Ford T, et al. Mental health before and during the COVID-19 pandemic: a longitudinal probability sample survey of the UK population. *The Lancet Psychiatry*. 2020;7(10):883-892. doi:10.1016/S2215-0366(20)30308-4

23. Xiong J, Lipsitz O, Nasri F, et al. Impact of COVID-19 pandemic on mental health in the general population: A systematic review. *Journal of Affective Disorders*. 2020;277:55-64. doi:10.1016/j.jad.2020.08.001

24. Financial Accountability Office of Ontario. *Ontario's Labour Market in 2020: COVID-19 Pandemic Causes Record Job Loss*.; 2021.

25. COVID-19: Status of Cases in Toronto. City of Toronto. Published March 31, 2020. Accessed February 24, 2021. https://www.toronto.ca/home/covid-19/covid-19-latest-city-of-toronto-news/covid-19-status-of-cases-in-toronto/

APPENDIX

Table 2: Definitions of Mental Health and Substance Use Disorder Service Categories

Service Categories	Definitions
Counselling	Programs that modify the way their therapeutic sessions are structured in order to best meet the individual needs of people who have mental, emotional or social problems or are having difficulty coping with a particular life situation.
Mental health support services	Programs that offer early intervention, transitional care or other services that supplement and facilitate primary and adjunctive therapies; which offer community mental health education programs; or which link people who are in need of treatment with appropriate private providers.
Mental health assessment and treatment	Programs that provide diagnostic and treatment services for individuals whose psychiatric problems or other emotional difficulties are not severe enough to require 24-hour care but who can benefit from regular consultation and therapy with a mental health professional.
Mental health care facilities	Long or short-term care inpatient facilities, counseling agencies and therapists in private practice that offer diagnostic and treatment services for children, adolescents and/or adults who have an identifiable mental disorder such as depression or anxiety or for people who are experiencing difficult life transitions or are having problems coping with daily living.
Substance use disorder services	Programs that provide preventive, diagnostic and inpatient, outpatient and residential treatment services as well as transitional support for people whose use of one or a combination of substances including alcohol, tobacco or other drugs has resulted in impaired control over their use of the substance, risky use (e.g., using alcohol or other drugs while operating machinery or driving), impairment of personal, social or occupational functioning and/or evidence of tolerance or withdrawal symptoms.
Mutual support programs	Programs that foster relationships in which experiences, feelings, ideas or other personal perspectives are exchanged to the shared benefit of those involved.

Source: 211 LA County Taxonomy of Human Services (https://211taxonomy.org)