



Original Research

Canadian university students' perceptions of COVID-19 severity, susceptibility, and health behaviours during the early pandemic period

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ABSTRACT

Objectives: We surveyed university students to assess their demographic factors, perceived severity, personal susceptibility, and the adoption of health behaviours in relation to COVID-19.

Study design: Ethics approval was obtained from the University of Toronto's Research Ethics Board (#39169). Responses were collected between March 20 and April 17, 2020, capturing the first month of government-mandated social distancing in Ontario, Canada.

Methods: We distributed the online survey to the University of Toronto student population, yielding a total convenience sample of 592 participants. We summarised the results and conducted Mann-Whitney U and Kruskal-Wallis tests to explore relationships between demographic data and perceived severity of COVID-19. Pearson's Chi-square tests were used to explore the relationship between demographic variables and perceived susceptibility, with *phi* being used to explore the strength of the association. A value of $p < 0.05$ was used to determine significance.

Results: The majority of participants (60.1%) judged COVID-19 to be Very Severe; there was a significant relationship between being female and the adoption of new health behaviours. 57.4% indicated they felt susceptible to COVID-19, while 40.9% did not. Feeling susceptible was associated with studying a healthcare field or being personally affected by COVID-19. Individuals who stated they were not susceptible to COVID-19 declared mitigating factors such as new health behaviours to be a major driver in their perception.

Conclusion: University students believe COVID-19 is a severe disease and have adopted new and increased health behaviours to mitigate the spread. While this study demonstrates differing health behaviour adoption rates based upon demographic factors, overall this research finds young adults supportive and accepting of government policy as a protective and susceptibility-mitigating measure.

1. Introduction

COVID-19 (coronavirus disease of 2019), the disease caused by the novel coronavirus SARS-CoV-2, has quickly become one of the most significant global health threats of the past century. COVID-19, like Severe Acute Respiratory Syndrome (SARS) before it, "has redefined the significance of using public health measures to control infectious disease." [1]^{P461} While as of April 9, 2021, four vaccines are approved for use in Canada, and worldwide there are 87 in clinical development, and 186 in pre-clinical development, the continued shared goal of medicine and public health is to slow the spread of the virus through widespread enactment of preventative measures [2]. Knowledge translation of

disease information and communicating prevention measures to the general public has focused on the concept of "flattening the curve." Health behaviour changes discussed by the Canadian government include: social distancing, hand hygiene, use of appropriate personal protective equipment, and reducing non-essential movement outside the home [3].

The Health Belief Model (HBM) and Protection Motivation Theory (PMT) show that decisions to change behaviours are strongly associated with individuals' perceptions of their personal risk, their ability to make changes, and the believed efficacy of such changes [4–6]. Research engaging with the HBM seeks to understand an individual's belief in their personal susceptibility to a disease, the severity of the effect an individual

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believes the disease may have on their life, perceptions of barriers to or benefits of engaging in a behaviour, and an individual's conception of the effects of taking particular actions [4]. Here, we focus on the first two factors of the HBM, perceptions of susceptibility and severity, since the greater the perceived severity of the disease and the more susceptible an individual feels they are to it, the more likely they are to engage in prevention behaviours. Cues to actions, or triggers that influence the adoption of new health behaviours, are of interest in studies using the HBM. In this research, cues to action include government-mandated lockdowns and public health campaigns encouraging social distancing. Protection Motivation Theory evolved from studies investigating how health appeals using fear tactics affected behaviours into a broader study of how individuals react when facing threats to their health [4,5]. The two frameworks both incorporate analyses of individuals' perceptions of the effectiveness of adopting a health behaviour. PMT is also used to examine the thought processes people use to understand and assess health threats [6]. Using these frameworks, this paper assesses perceptions of severity and susceptibility related to COVID-19 as well as changes to health behaviours in a sample of Canadian university students.

The perceptions of young adults as a subsection of the general public are important to understand because they have fewer co-morbidities and less overall concerns about their health, which leads to a fundamentally different understanding of disease risk than is seen in older adults [7]. Ramsey and Marczynski (2011) concluded that college students "are inaccurate in assessing their risk level." [8]^{p7599} Regarding COVID-19, Faase and Newby's (2020) Australian study found that younger age (18–29 years) was associated with low engagement in health protective behaviours [9]. Previous studies of university students have found low seasonal flu vaccine uptake and low vaccine knowledge [10–12]. It is essential to understand individuals' perceptions of disease severity and susceptibility and how these affect the adoption of health behaviours. Understanding where the messaging of health care practitioners and public health officials is succeeding and where more targeted engagement may be necessary is critical for reducing the COVID-19 case load and preventing subsequent waves of recurrence. This research represents, as far as the authors are aware, the earliest survey data collected in Canada targeting university students during the pandemic period.

2. Methods

2.1. Study setting

A state of emergency due to COVID-19 was declared in the Canadian province of Ontario on March 17, 2020, with a progressive shut down of all non-essential businesses and social distancing measures implemented between March 16 to April 3, 2020. Our team conducted an online survey between March 20 and April 17, 2020 to assess University of Toronto students' perceptions and knowledge related to COVID-19 as well as any changes to their health behaviours (e.g., handwashing, wearing personal protective equipment), responses to social distancing measures, and concerns about their own personal risk. Survey data captured the first month of social distancing measures in Ontario.

2.2. Sample, survey, and recruitment

Ethics approval was obtained from the University of Toronto (U of T) Research Ethics Board (#39169) and permission to conduct research with U of T students was obtained from the Vice-Provost's office. The survey was distributed to University of Toronto students using social media (Facebook and Twitter), a link on the University of Toronto Mississauga Department of Anthropology's website under the COVID-19 information heading, and through the authors sharing the link with University of Toronto colleagues and student group representatives. These methods yielded a voluntary convenience sample. All participants were anonymous, and compensation was offered through the

opportunity to enter a draw for a \$50 gift certificate. The online survey was adapted from a previous study surveying Canadian undergraduate students about SARS which was piloted and validated by Bergeron and Sanchez [13]. The survey included multiple choice, 7-point Likert scale, and free-form responses. Participant demographics (e.g., age, gender, self-described ethnicity, location of residence, household income) were collected. Measures of severity were collected using the Likert scale, measured from 1 ("Not Severe") to 7 ("Very Severe"). Susceptibility was captured through free-form response, and health behaviours were measured through a checklist (participants could select as many health behaviours as they liked). Participants consented to participate by clicking to the second page of the survey and answering the questions. The survey was hosted on the Survey Planet platform; participants viewed one question per page and the order of questions was the same for all participants. Participants were not required to answer every question and could not move backwards in the survey to change answers. The Checklist for Reporting Results of Internet E-Surveys (CHERRIES) was employed as a framework in survey design and result reporting [14].

2.3. Statistical analysis

The survey data were exported from the Survey Planet platform into Microsoft Excel and analysis was completed in SPSS 20.0 (IBM). Participant demographic data were summarised using simple proportions. Frequencies, proportions, and analyses of variance were examined using Mann-Whitney U and Kruskal-Wallis tests to explore relationships between demographic data and perceived severity of COVID-19. Pearson's Chi-square tests were used to explore the relationship between demographic variables and perceived susceptibility, with *phi* being used to explore the strength of the association. A value of $p < 0.05$ was used to determine significance.

3. Results

3.1. Study subject demographics

The survey was completed by 594 participants. Surveys that were at least 70% complete were included in the final analysis; two surveys were thus removed for a final total of 592 participants (Table 1). The age of participants ranged from 18 to 43, with 94.6% of participants aged 18–29 years. Female participants dominated the sample at 82.3% ($n = 487$), with 17.1% ($n = 101$) male, and 0.5% ($n = 3$) identifying as gender variant/non-conforming. Participants were asked to self-identify their ethnicity, which was categorised into East/South East Asian (22.3%, $n = 132$) and all others (76.9%, $n = 455$), due to the racialised media coverage of the virus [15–18]. Only 11.8% of participants are studying a healthcare field ($n = 70$). The Greater Toronto Area was the most common geographic location for participants (79.6%, $n = 471$), followed by Southwestern Ontario (7.9%, $n = 47$). The majority of participants indicated that they had not been personally affected by COVID-19 (92.1%, $n = 545$).

3.2. Perceived severity of COVID-19

Severity was measured on a 7-point Likert scale and categorised into Very severe (6–7), Moderately severe (4–5), or Not severe (1–3). The majority of participants (60.1%, $n = 356$) felt that COVID-19 was Very severe (Table 1; Fig. 1). None of the demographic variables were associated with perceptions of severity.

3.3. Perceived susceptibility to contracting COVID-19

Perceived susceptibility was divided into Yes or No, with 57.4% ($n = 340$) indicating they felt susceptible to COVID-19, while 40.9% ($n = 242$) did not; 10 participants did not respond. Chi square tests indicated an association between feeling susceptible and studying a healthcare field

Table 1
Demography of survey sample, perceptions of susceptibility to COVID-19, and severity of COVID-19.

Socio-demographic variable	Number of participants n (%) ^a	Susceptibility			Severity							
		Yes	No	No response	1	2	3	4	5	6	7	No response
Age												
18–19	197 (33.3)	80 (40.6)	115 (58.4)	2 (1.0)	1 (0.5)	3 (1.5)	3 (1.5)	21 (10.7)	58 (29.4)	59 (30.0)	52 (26.4)	0
20–22	259 (43.8)	154 (59.5)	100 (38.6)	5 (1.9)	0	2 (0.8)	5 (1.9)	23 (8.9)	74 (28.6)	87 (33.6)	66 (25.5)	2 (0.8)
23–25	73 (12.3)	51 (69.9)	21 (28.8)	1 (1.4)	0	0	1 (1.4)	5 (6.8)	24 (32.9)	24 (32.9)	19 (26.0)	0
26–28	31 (5.2)	25 (80.6)	6 (19.4)	0	0	0	2 (6.5)	1 (3.2)	4 (12.9)	12 (38.7)	12 (38.7)	0
29–30	17 (2.9)	16 (94.1)	1 (5.9)	0	0	0	2 (11.8)	1 (5.9)	3 (17.6)	2 (11.8)	9 (52.9)	0
31–43	15 (2.5)	11 (73.3)	4 (26.7)	0	0	0	0	0	2 (13.3)	7 (46.7)	6 (40.0)	0
Gender^b												
Male	101 (17.1)	51 (50.5)	49 (48.5)	1 (1.0)	1 (1.0)	1 (1.0)	4 (4.0)	11 (10.9)	30 (29.7)	29 (28.7)	25 (24.8)	0
Female	487 (82.3)	286 (58.7)	194 (39.8)	7 (1.4)	0	4 (0.8)	9 (1.8)	40 (8.2)	131 (26.9)	162 (33.3)	139 (28.5)	2 (0.4)
Gender variant/non-conforming	3 (0.5)	0	3 (100.0)	0	0	0	0	0	3 (100.0)	0	0	0
Prefer not to answer	1 (0.2)	1 (100.0)	0	0	0	0	0	0	0	1 (100.0)	0	0
Health Fields^c												
Yes	70 (11.8)	54 (77.1)	16 (22.9)	0	0	1 (1.4)	2 (2.9)	3 (4.3)	22 (31.4)	24 (34.3)	18 (25.7)	0
No	521 (88.0)	283 (54.3)	230 (44.1)	8 (1.5)	1 (0.2)	4 (0.8)	11 (2.1)	48 (9.2)	142 (27.3)	168 (32.2)	145 (27.8)	2 (0.4)
No response	1 (0.2)											
Annual Income (CAD)^d												
< \$24,999	125 (21.1)	77 (61.6)	45 (36.0)	3 (2.4)	0	0	4 (3.2)	10 (8.0)	29 (23.2)	43 (34.4)	39 (31.2)	0
\$25,000-\$49,999	102 (17.2)	53 (52.0)	49 (48.0)	0	0	2 (2.0)	3 (2.9)	7 (6.9)	23 (22.5)	34 (33.3)	33 (32.4)	0
\$50,000-\$74,999	99 (16.7)	55 (55.6)	41 (41.4)	3 (3.0)	0	0	4 (4.0)	10 (10.1)	27 (27.3)	24 (24.2)	33 (33.3)	1 (1.0)
\$75,000-\$99,999	76 (12.8)	48 (63.2)	27 (35.5)	1 (1.3)	1 (1.3)	1 (1.3)	1 (1.3)	5 (6.6)	25 (32.9)	25 (32.9)	18 (23.7)	0
\$100,000-\$124,999	75 (12.7)	45 (60.0)	30 (40.0)	0	0	2 (2.7)	1 (1.3)	3 (4.0)	25 (33.3)	28 (37.3)	15 (20.0)	1 (1.3)
\$125,000-\$149,999	46 (7.8)	22 (47.8)	23 (50.0)	1 (2.2)	0	0	0	11 (23.9)	13 (28.3)	12 (26.1)	10 (21.7)	0
>\$150,000	55 (9.3)	30 (54.5)	25 (45.5)	0	0	0	0	4 (7.3)	20 (36.4)	19 (34.5)	12 (21.8)	0
No response	14 (2.4)											
Ethnicity^e												
All others	455 (76.9)	260 (57.1)	189 (41.5)	6 (1.3)	1 (0.2)	3 (0.7)	11 (2.4)	38 (8.4)	131 (28.8)	138 (30.3)	131 (28.8)	2 (0.4)
East and Southeast Asian	132 (22.3)	75 (56.8)	55 (41.7)	2 (1.5)	0	2 (1.5)	2 (1.5)	11 (8.3)	32 (24.2)	52 (39.4)	33 (25.0)	0
No response	5 (0.8)											
Location of Residence^f												
Greater Toronto Area	471 (79.6)	268 (56.9)	196 (41.6)	7 (1.5)	1 (0.2)	4 (0.8)	13 (2.8)	36 (7.6)	130 (27.6)	154 (32.7)	131 (27.8)	2 (0.4)
Southwestern Ontario	47 (7.9)	31 (66.0)	16 (34.0)	0	0	1 (2.1)	0	7 (14.9)	11 (23.4)	13 (27.7)	15 (31.9)	0
Northern Ontario	12 (2.0)	6 (50.0)	6 (50.0)	0	0	0	0	0	5 (41.7)	4 (33.3)	3 (25.0)	0
Western Canadian Provinces	20 (3.4)	11 (55.0)	9 (45.0)	0	0	0	0	5 (25.0)	7 (35.0)	6 (30.0)	2 (10.0)	0
Eastern Canadian Provinces	5 (0.8)	2 (40.0)	3 (60.0)	0	0	0	0	0	3 (60.0)	1 (20.0)	1 (20.0)	0
Quebec	9 (1.5)	5 (55.6)	4 (44.4)	0	0	0	0	2 (22.2)	3 (33.3)	1 (11.1)	3 (33.3)	0
Other	28 (4.7)	15 (53.6)	12 (42.9)	1 (3.6)	0	0	0	1 (3.6)	5 (17.9)	13 (46.4)	9 (32.1)	0

^a Not all columns will add up to exactly 100.0% due to rounding.

^b Susceptibility: Chi-square ($p = 0.071$), severity: Mann-Whitney U ($p = 0.072$).

^c Susceptibility: Chi-square ($X^2 [2] (1, N = 592) = 11.709, p = 0.001$), severity: Mann-Whitney U ($p = 0.967$).

^d Susceptibility: Chi-square ($p = 0.440$), severity: Kruskal-Wallis ($p = 0.372$).

^e Susceptibility Chi-square ($p = 0.577$), severity: Mann-Whitney ($p = 0.785$).

^f Susceptibility: Chi-square ($p = 0.833$), severity: Kruskal-Wallis ($p = 0.418$).

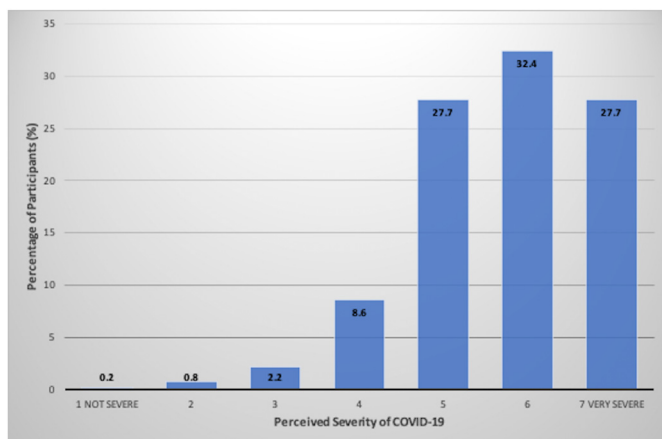


Fig. 1. Perceived severity of COVID-19, 7-point Likert scale (Very severe [6-7], Moderately severe [4-5], Not severe [1-3])

($\chi^2(1, N = 592) = 11.709, p=0.001$) or being personally affected by COVID-19 ($\chi^2(1, N = 592) = 6.484, p=0.011$), though the strength of these associations was small ($\phi = 0.142$ and 0.105 respectively). Themes gathered from the freeform responses concerning explanations of perceived susceptibility are presented in Table 2.

3.4. Health behaviours

Regarding changes in behaviour, 91.2% (n = 539) indicated that COVID-19 had caused changes to their travel plans. Participants were asked to select all the health behaviours they were engaging in, with four new behaviours being the most common response (32.1%, n = 190), followed by three new behaviours (29.7%, n = 176). Social distancing (91.6%, n = 542) was the most commonly reported behaviour, followed by hand washing (85.6%, n = 507), hand sanitizer use (66.7%, n = 395), purchasing extra food (56.4%, n = 334), wearing a mask (20.4%, n = 121), calling public health (5.1%, n = 30), calling their doctor (2.4%, n = 14), and visiting the ER/hospital (1.2%, n = 7). Seven participants (1.2%) indicated there was no change to their behaviours.

There was no association between perceived susceptibility and the number of new health behaviours, but there was a significant association between perceived severity and health behaviours (Kruskal-Wallis H test, $\chi^2(6, N = 592) = 20.087, p = 0.003$) where participants that ranked severity as 5 (Moderate) were more likely to have a higher number of new health behaviours. There was also a significant association between gender and new health behaviours, indicating female participants were more likely to engage in a higher number of new health behaviours when compared to males (Mann Whitney U = 21255.5, $p=0.026$).

4. Discussion

Our study demonstrates that during the first month of government-mandated social distancing measures in Ontario nearly all participants reported multiple new health behaviours. These cues to action were communicated by the Canadian government, the Chief Public Health Officer of Canada, and provincial Chief Medical Officers. Studying a healthcare-related field or having been personally affected by COVID-19 were associated with participants' feelings of susceptibility, while female gender and participants ranking the severity of COVID-19 as 'moderate' were related to having a higher number of new health behaviours.

These results are similar to a survey conducted in the United Kingdom on March 16 and 17, 2020, the two days directly following the UK government's directive to begin socially distancing, in which 94.2% of surveyed adults reported at least one preventative health behaviour [19]. This research also indicates that female individuals were more likely to engage in recommended health behaviours. This result echoes previous

Table 2

Reasons given for perceptions of susceptibility to COVID-19.

Susceptible (n = 340) ^a	Not Susceptible (n = 242)
<i>Internal factors</i>	<i>Internal factors</i>
41 essential worker	26 young
33 underlying medical condition	22 healthy
31 family member is an essential worker	6 strong immune system
23 family member is a healthcare worker	<i>Disease specific</i>
21 healthcare worker	3 low transmission rates
2 involved in screening	3 no nearby cases
<i>Disease specific</i>	2 no contact with COVID positive cases
83 widespread, everyone will get it	<i>Travel</i>
35 exposed anywhere you go out	7 no plans to travel
15 asymptomatic carriers	<i>Personal activities</i>
10 spreads easily	106 social distancing
3 community spread	79 self-isolation
<i>Travel</i>	27 going out for groceries/essentials
9 recent travel	21 handwashing
4 plan to travel soon	7 good hygiene
3 contacts with recent travel	7 mask
<i>External factors</i>	6 gloves
14 urban area	<i>External factors</i>
14 live with others	9 no contact with others
7 use public transport	9 not working
<i>Behaviours of others</i>	5 rural area
20 people not social distancing/isolating	
2 people not wearing masks	
<i>Systemic factors</i>	
5 maybe exposed before social distancing	
3 not enough PPE	
2 slow government response	
Mitigating Factors	Concerns
<i>Internal factors</i>	<i>Behaviours of others</i>
17 young	4 family members working
16 healthy	2 people not social distancing
3 good immune system	2 family members travelling
1 athletic	<i>External factors</i>
<i>Personal actions taken</i>	3 going to the grocery store
42 social distancing	<i>Internal factors</i>
23 self-isolating	2 concern about being a carrier
22 taking precautions	
12 handwashing	
<i>Perceptions about outcomes</i>	
9 not worried about themselves	
8 worried about infecting others	
7 would not get very sick	

^a - Reasons given were sourced from free-form survey responses. Individuals could provide more than one reason for their perceived susceptibility or non-susceptibility.

studies, concerning SARS and H1N1, which reported females were more likely to engage with health behaviours [20-28]. The UK COVID-19 survey also found that females were more likely to report they were willing to self-isolate than males [19].

It has been established that perceptions of severity can drive the adoption of health behaviours [19]. While previous studies have found that self-reported gender [29,30] (female) or ethnic background [31] (in this case, Asian-born students in Australia, hypothesized to have been affected by previous outbreaks of SARS and avian influenza) related to perceptions of disease outbreak severity, our results reveal that COVID-19 was perceived to be Moderately or Very Severe by 96.5% of respondents and this judgment showed no association with demographic factors. These results are hypothesized to reflect the perceived pervasiveness of the threat of COVID-19, since it is geographically more widespread than previous outbreaks (e.g., SARS, H1N1). In addition, COVID-19 was not connected to congenital abnormalities in public health communications, unlike Zika and congenital Zika syndrome, which potentially drove female perceptions of the severity of Zika [32]. Further, the age of the survey respondents affects their experience with previous outbreaks: 77.1% of survey respondents were between the ages of 18 and 22, meaning they were between one and five years old during the SARS outbreak in 2003.

Notably, perceptions of individual susceptibility varied. The 57.4% of participants who declared themselves to be susceptible most commonly located their susceptibility in features of the disease itself and their internal risk factors. Disease-specific concerns included ideas of inevitability (“everyone will get it”) and the role of asymptomatic carriers. Internal factors included underlying medical conditions, but most reflected participants’ own or family member’s roles in essential services. There was a significant relationship between studying a healthcare field and perceived susceptibility, which echoes with previous studies of healthcare workers’ perceptions of disease, with particular concerns about infecting others [33]. Perceptions of susceptibility were mitigated by internal factors (e.g., their age and health status) and the actions they were taking (e.g., social distancing/self-isolating, handwashing). For the 40.9% of participants who did not feel susceptible, their reasoning differed distinctly. Few cited features of the disease itself, focusing instead on their personal health behaviours (e.g., social distancing/self-isolation, only going out for essentials, handwashing) and internal factors (e.g., their age, reported healthiness, and perceptions of their immune system). These results indicate these individuals are operating within Protection Motivation Theory, wherein response efficacy – how effective precautionary health behaviours are – and self-efficacy – how effectively an individual believes they can engage with the protective behaviour – influence risk perception [34,35]. Though some indicated that they had concerns over other people’s behaviour, the mitigating health behaviours were perceived to decrease their personal susceptibility.

This research has key implications for public health knowledge translation. Our results show that the majority of participants judged the health risk of COVID-19 to be Moderately to Very Severe and most engaged in multiple new health behaviours, regardless of whether or not they judged themselves to be personally susceptible. Further research is important since the COVID-19 pandemic is a rapidly unfolding situation. Perceptions of outbreak severity and resulting anxiety can change quickly over the course of an outbreak [36,37]. As the Canadian and provincial governments seek to systematically open the country, understanding individuals’ willingness to maintain health behaviours is important. Previous studies in the United States, the Netherlands, and Australia during the pandemic peak and post-pandemic phases of H1N1 found that individuals’ intentions to maintain health behaviours stayed high [38-40] and researchers found hand hygiene and other health-seeking behaviours were maintained following the SARS outbreak [1,22]. These outbreaks, however, were more geographically contained than COVID-19 and were over in a matter of months, and it is interesting to note that a review study of international perceptions concerning the H1N1 pandemic found perceived severity dropped quickly from May through August 2009, as case levels dropped internationally [37]. A meta-analysis of Protection Motivation Theory studies notes that many studies invoking PMT focus upon the immediate effectiveness of a health communication and individuals’ intention to follow such a recommendation [6]. As the pandemic evolves, sustained communication concerning health behaviours is necessary, thus further research concerning individuals’ health behaviours through time is required. Even as vaccines are rolled out, individual action in maintaining a flattened curve will be of critical importance.

This study has several limitations. The survey is based upon a convenience sample of university students who self-selected to participate in the study. The study population was entirely drawn from one university in a major urban centre in Ontario, and thus may not be suitable for generalizations to be drawn about other university contexts or the Canadian population. The gender imbalance in the sample is notable. It is important that further research be undertaken at other Canadian and international universities to understand potential variability in student responses to the pandemic. Despite the limitations inherent in the dataset, our research provides insight into the perceptions of young adults concerning COVID-19 and their resulting health behaviours during the first month of government-mandated social distancing. This research

represents the earliest university-student survey dataset in Canada regarding the pandemic. All in-person University of Toronto undergraduate classes were cancelled on March 16, 2020; the survey data capture responses from March 20 to April 17, 2020, thus this dataset forms an important foundation for future comparative work.

Importantly, unlike during the SARS and H1N1 outbreaks in Canada, health behaviours were government-mandated. As the pandemic progresses, serial surveys of this population will provide guidance on how the government’s actions continue to affect perceptions of susceptibility and continued participant engagement in health behaviours. Further surveys relating knowledge of COVID-19 to perceived susceptibility will shed light upon the efficacy of current public health information.

5. Conclusion

Public health messaging from the Canadian federal and provincial governments has emphasised the role of the public in “flattening the curve.” This research shows that university students view COVID-19 as a severe disease; new and increased health behaviours are being employed to mitigate the spread of infection. This research contributes to broader investigations of health protective behaviours. The effects of COVID-19 have entirely altered individuals’ ‘normal’ lives. COVID-19 is a dominant international force, which has caused unprecedented social, educational, and occupational disruption. While this study demonstrates differing health behaviour adoption rates among the genders, overall this research finds young adults supportive and accepting of government policy as a protective and susceptibility-mitigating measure. This finding is particularly key given its occurrence in young adults, a subgroup known to have a lower baseline rate of health concerns than older adults. As Canada, and the world, seek to slowly reopen and the possibility of recurrence is realised, it is critical to monitor perceptions of severity and health behaviour adoption in this population through the continuation of serial surveys through time.

Ethical approval

Ethics approval was obtained from the University of Toronto (U of T) Research Ethics Board (#39169) and permission to conduct research with U of T students was obtained from the Vice-Provost’s office. Survey participants indicated their informed consent by reading the Letter of Information and clicking through the survey and answering the questions.

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CRedit authorship contribution statement

M. Mant: Conceptualization, Methodology, Investigation, Visualization, Writing – original draft, Funding acquisition. **A. Holland:** Conceptualization, Methodology, Investigation, Formal analysis, Writing – review & editing. **A. Prine:** Conceptualization, Methodology, Visualization, Writing – review & editing.

Declaration of competing interest

The authors have no competing interests to declare.

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