Exploring the Perceptions of Perceived Mental Health Among Young and Older Adults in Ontario in Relation to their Level of Concern for their Physical Health and Financial Impacts due to the COVID-19 Pandemic

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INTRODUCTION

In early December 2019, the emergence of a novel coronavirus SARS-CoV-2 (COVID-19) caused millions of deaths worldwide (World Health Organization, 2020). Within the following month, Canada identified its first positive case of COVID-19 in Toronto, Ontario (Scarabel et al., 2020). The rapid increase in deaths across the country resulted in travel restrictions and provincial lockdowns. Similar to many governments around the world, the province of Ontario, Canada has responded to the widespread disease with a series of public health measures to protect its citizens. This involved social distancing, wearing masks and the closure of nonessential businesses (Government of Ontario, 2020). These changes disrupted the daily routines of many Canadian families, causing them to stress and worry. The economy has also been negatively impacted, leaving many out of work (Carroll et al., 2020). It is believed that the implementation of quarantine has taken a significant toll on the mental health of all demographics.

Quarantine has affected the levels of depression and anxiety among adolescents and young adults. In attempts to flatten the curve, stay-at-home orders have caused students to experience a lack of structure, physical activity, and social interaction in their life (Daly et al., 2021). Canadians have been more reliant on screen time for entertainment, online learning and virtual work. This spike in sedentary time is associated with increased risks of depression, poor mental health, and poor physical health outcomes (Sultana et al., 2020). Symptoms of mental illness are expected to worsen during the pandemic (Chanchlani et al., 2020). Young adults, in particular, are exuding psychological distress. They are at a stage in their life where new responsibilities such as pursuing further education and job-seeking are prioritized. However, the constant closures of businesses have left many unemployed. Constant worries of receiving enough income to meet financial obligations and basic survival needs have become pressing concerns (Daly et al., 2021). As the pandemic restrictions continue to be enforced, Canadians will quarantine at home and experience heightened risk for adverse mental health consequences.

To date, several research studies have identified common themes of lifestyle modifications and changes in health-related behaviours in young adults during the COVID-19 pandemic (Violant-Holz et al., 2020). The influence of lockdown restrictions on stress and mental health is currently a large area of discussion. For example, a study by Varma et al., (2020) examined the psychological distress and its effects upon vulnerable groups during the early stages of the pandemic. The results from the global online survey revealed that respondents were significantly distressed about their financial situation, which were associated with poor sleep quality and loneliness. The younger age groups experienced a significant decline in mental health compared to middle age groups. Furthermore, the impact of COVID-19 on the mental health of the general Canadian population has also been explored in various

studies (Xiong et al., 2020). However, there has been limited attention given to health anxiety and stress levels related to the concern of COVID-19's impact on the perception of mental health and financial stability among adolescents, young adults and older adults in Canada. Previous research also suggests that the pandemic has contributed to the deterioration of perceived mental health in younger populations on a global scale, however, the reasons for this remain unexplored (Power et al., 2020). Concerns among individuals may vary depending on socioeconomic status.

Addressing this knowledge gap will allow for the development and improvement of health services that would help to reduce mental health issues for younger working populations, including high school students and young adults. It is also important to note that Canada's population is aging rapidly than ever before. Adults 65 years and older are expected to represent 25% of the country's population by 2035 (Chong et al., 2020). Many elderly people are living with dementia and disabilities. They are experiencing their own set of obstacles during the pandemic. This involves a delay in care for chronic conditions, reduced access to social support and being the most susceptible to contracting the virus (Chong et al., 2020). It is difficult to envision post-pandemic interventions to alleviate these intensified health risks. By comparing the effects of the pandemic between these age groups, there is a potential bridge for similarities and differences that may reveal new insights into factors affecting an individual's overall mental health - regardless of age. This will allow for improved quality of life across different lifespans in Canada.

The objectives of this study are to (1) determine if there was a difference in the perception of mental health between Ontarians aged 15 to 29 who were extremely concerned about the impact of COVID-19 on their physical health compared to Ontarians aged 15 to 29 who were not at all concerned about the impact of COVID-19 on their physical health, (2) determine the association between mental health perceptions of Ontarians aged 15 to 29 and those above the age of 65, and (3) determine whether the relationships are affected by the ability to meet financial obligations or fulfil essential needs.

MATERIALS AND METHODS

Study Design and Database

The dataset for this cross-sectional study was obtained from the Odesi database, titled "Impacts of COVID-19 on Canadians- Mental health, 2020: Crowdsource file". The data explored Canadians' mental health in 2020, specifically during the early stages of the COVID-19 pandemic. A total of 45,989 responses were reported. The sampling procedure used is a non-probabilistic approach without the use of a sample design (Statistics Canada, 2021). The voluntary data was collected via a self-administered online questionnaire using the Crowdsourcing application collected from April 24, 2020, to May 11, 2020. The survey consisted of questions pertaining to demographic questions related to age, gender and location. Additionally, questions on the concerns about the impact of COVID-19 on various determinants of mental and physical health and access to resources and economics.

Study Participants

This cross-sectional study was conducted with men and women ages 15-29 and ≥65 years from Ontario, Canada. This study included participants recruited for the purpose of comparing the perception of mental health among young and older adults in one of the leading hotspot regions for COVID-19 (Dougherty et al., 2021); therefore the exclusion criteria were; (1) participants 30-64 years old; and (2) other provinces in Canada.

Study Outcomes

The primary outcome of the research question is the measurement of perception of mental health among Ontarians aged 15 to 29 years old during the COVID-19 pandemic. Specifically, comparing the perceived mental health of participants with extreme concern about the potential impact of COVID-19 on their physical health, compared to those not at all concerned. Participants selected an option on a nominal scale ranging from 1 = Not at all [concerned] to 4 = Extremely [concerned]. For the purpose of the research question, the data from this question was narrowed to only the extreme values, Not at all and Extremely categories. This simplifies the examination of the relationship between overall perceived mental health and level of concern of the impact of COVID-19 on their own health. The perception of mental health is a self-reported measure obtained from the database. Participants had the option of selecting a categorical value ranging from 1 (Excellent) to 5 (Poor) to describe their perceived mental health. To further investigate other factors that might influence the primary outcome, the relationship between different age groups and perceived mental health during the COVID-19 pandemic was explored. Participants selected an interval containing their age group on a nominal scale. Recent studies on the mental health effects of COVID-19 suggest that older adults may be more resilient to mental health strains caused by the pandemic in comparison to young adults (Vahia et al, 2020). To further explore the reasoning of this finding, our second outcome examines the difference in perceived mental health in the working population aged 15 to 29 years and Ontarians aged 65 years or above. As a further investigation into the implications of age on perceived mental health, the tertiary outcome examines the ability of participants to meet their financial obligations and fulfil their needs during the pandemic.

Additional Data Collection

Data on the age of participants and the impacts of COVID-19 on the ability to meet financial obligations or essential needs was collected. The Age group variable was used to compare the perceived mental health of adolescents and young adults in Ontario in comparison to those above the age of 65. Participants selected an interval containing their age on a nominal scale. The intervals used for the purpose of this study were 15 to 24 years old and 25 to 29 years old which were collapsed into a single variable to account for the working population. The 65 years and older age group was used to conduct the comparison. The categorical COVID-19 impacts the ability to meet financial obligations or essential needs variables ranging from No impact to Major impact. This variable was used to further investigate the research question by conducting a comparison between perceived mental health and the ability to fulfil financial and essential needs during COVID-19 between age groups.

Statistical Analysis

Analyses were performed using the IBM SPSS Statistics (Version 26) software package. Descriptive data were presented as proportions and percents for categorical data. Statistical significance between proportions ($p < 0.05$) for each categorical descriptive characteristic was determined through Chi-square analysis. Between-group differences for each perceived mental health category for 15 to 29 year old Ontarians in the control and exposure group were determined using a Chi-square test. Bar graphs were constructed to compare results of the Chi-square test, as frequencies between perceived mental health and financial concerns among Ontarians 15 to 29 years old and those 65 years and older. A Spearman's Rho analysis was performed to determine the strength of the relationship between the ordinal variables; perceived mental health and COVID-19's impact on financial obligations in Ontarians 15 to 19 years old, and 65 years and older. Where a positive Spearman correlation coefficient, $\boldsymbol{\rho}$, indicates a positive association between variables with values ranging from 0.20-0.39 categorized as being weak. The dataset revealed that some values were reported as invalid, and 19 surveys were excluded from the analysis due to missing values.

RESULTS

Of 1324 participants, 383 individuals were Extremely concerned about their physical health and 891 individuals were Not at all concerned (control group). Descriptive data are presented in Table 1. Most participants who were Extremely concerned about the impact of COVID-19 on their physical health had Fair perceived mental health (8% [108/1324]). Meanwhile, most participants who were Not at all concerned were 15 to 29 year olds (52% [664/1324]) and had Very good perceived mental health (22% [284/1324]).

Table 1. Descriptive characteristics of Ontarians (N=1324) during the first-wave of the COVID-19 pandemic (April to May 2020)

Variable	Extremely (n = 383)	Not at all (n = 891)	p-value
Age group, years			<.001*
15 to 29	203 (16)	664 (52)	
≥65	180 (14)	227 (18)	
Gender			<.001*
Male	93(7)	318 (24)	
Female	305 (23)	609 (46)	

Perceived mental health			<.001*
Excellent	34 (3)	176 (13)	
Very good	75 (6)	284 (22)	
Good	104 (7)	266 (20)	
Fair	108 (8)	162 (12)	
Poor	62 (5)	53 (4)	

Note: Data are presented as the number (%) of individuals unless otherwise noted. *P < 0.05 considered significant.

The percentage of 15 to 29-year-olds who reported Very good, Good, and Fair perceived mental health was less in individuals who were Extremely Concerned about their physical health compared to those who were Not at all concerned (control group). Chi-square analyses revealed that there was a between-group difference in individuals who reported Very good, Good, Fair and Poor perceived mental health (Table 2).

Table 2. Perception of mental health reported by 15 to 29 year old Ontarians in either exposure or control group.

	Extremely (n = 159)	Not at all (n = 663)	p-value
Perceived mental health			
Excellent	11 (2)	61 (7)	0.090
Very good	21 (3)	167 (20)	< 0.001*
Good	49 (5)	221 (25)	0.008*
Fair	70 (8)	159 (18)	0.002*
Poor	53 (6)	55 (6)	< 0.001*

Note: Data are presented as the number (%) of individuals unless otherwise noted. *P < 0.05 considered significant.

The bar graph in Figure 1 illustrates the percentage of participants aged 15 to 29 and ≥65 in each perceived mental health category. The percentage of participants who reported Poor, Fair and Good perceived mental health was greater in participants 15 to 29 years old than those who were ≥65. There was also a greater percentage of participants ≥65 years old who reported Very good and Excellent perceived mental health compared to those who were 15 to 29 years old. There were significant differences between all the proportions, with p-values < 0.05.

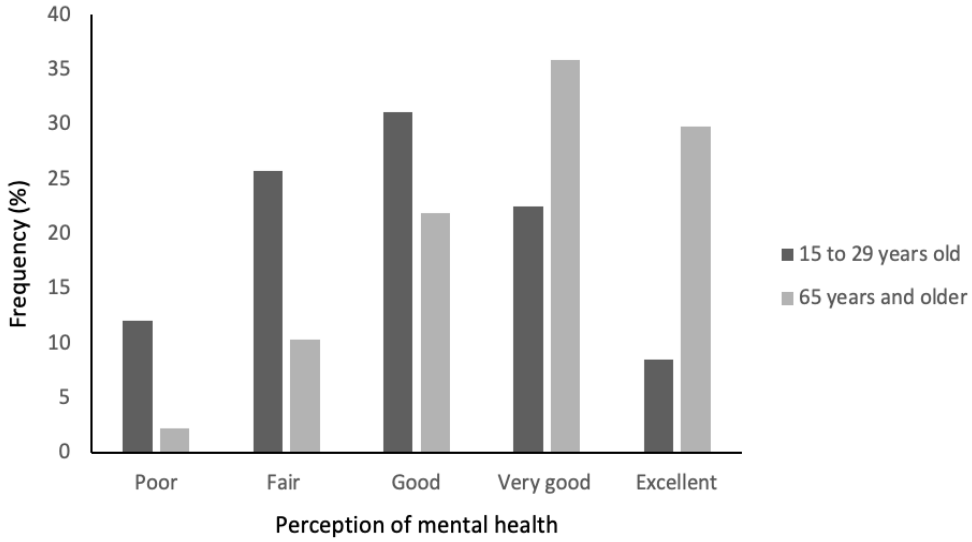

Figure 1. Perception of Mental Health Between Age Groups.

The bar graph in Figure 2 illustrates the percentage of participants aged 15 to 29 and ≥65 in each impact of COVID-19 level. There was a greater percentage of 15 to 29 year olds who reported Major impact, Moderate impact, and Minor impact levels of COVID-19 compared to adults 65 years and older. Meanwhile, 70% of adults ≥ 65 reported No impact compared to 48% of 15 to 29 year olds.

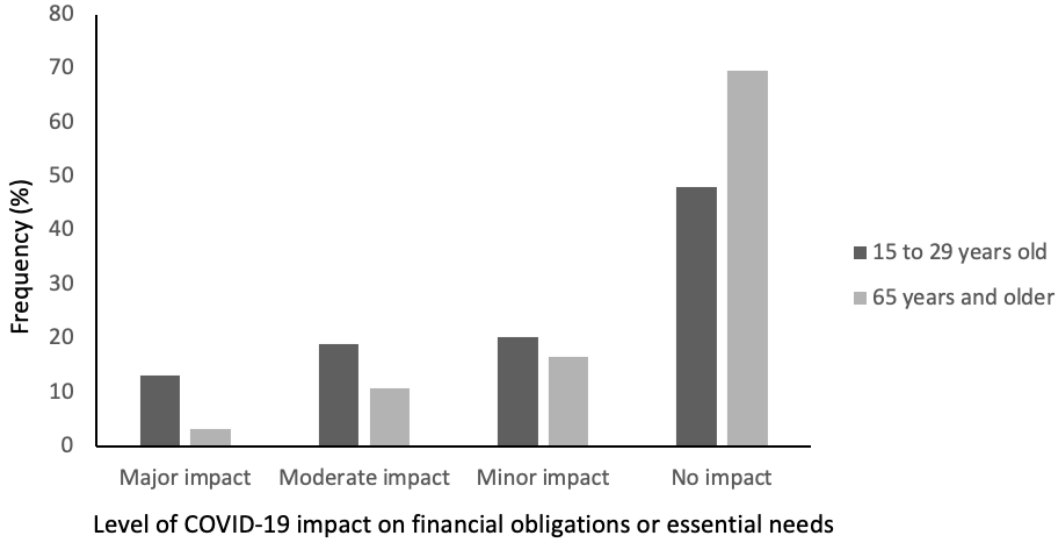

Figure 2. COVID-19 Impact On Financial Obligations or Essential Needs Between Age Groups.

DISCUSSION

This study demonstrated that during the initial stages of the COVID-19 pandemic, young adults were more likely to report poor mental health if they were concerned about the impact of COVID-19 on their own physical health (Table 2). The older population reported significantly better mental health perception compared to younger age groups (Figure 1), and had less of an impact on their financial burden due to COVID-19 (Figure 2). Young adults experienced greater financial concerns in comparison to older adults, however, we found that the relationship between the two is weak.

Previous research by Findlay et al. in 2020 similarly examined the self-perceived mental health of Canadians in relation to quarantine, with an earlier data collection period, from March 29 to April 3rd 2020, which received a lower rate of responses as specific individuals were invited to participate in their survey (Findlay et al., 2020). The 4,627 total responses from those older than 15 living in any of the 10 provinces reported Excellent, Very good, Good, Fair or Poor mental health and levels of concern regarding various socioeconomic and health situations while in periods of quarantine (Findlay et al., 2020). Results found that 54% of individuals reported Excellent or Very good mental health (Findlay et al., 2020). All age groups of participants except those over the age of 65 years reported lower perceived mental health compared to the control group of participants from the 2018 Canadian Community Health Survey (Findlay et al., 2020). Young adults and adolescents were less likely to report lower levels of family stress, ability to maintain social ties and showed increased concern about their own health. This data is reflective of earlier stages of quarantine in comparison to our study which had a later data collection period of late-April to early May. Both Findlay et al.'s results and our study suggest that the overall mental health of Canadians decreased during the COVID-19 pandemic, with the exception of adults over the age of 65. Unlike previous research, our research also accounted for differences in perceived mental health between age groups, as well as financial burden, insecurity and fear caused by the later stages of quarantine. Furthermore, we addressed the knowledge gap on the implications of the COVID-19 pandemic on the mental health of young working populations that include high-school students, specifically Ontarians.

There are several limitations in our study and database to be noted. The first being the vagueness of categories in the questions asked to participants. The categories Excellent, Very good, Good, Fair, and Poor as indicators of perceived mental health are subjective to an individual's interpretation of these levels as well as how they differentiate between them. It would be in future studies best interest to improve upon categories of perceived mental health by establishing more detailed objective measures when self-reporting. Secondly, approximately half of the participants in the database hailed from Ontario, which had different social distancing protocols in place than other provinces, thus limiting the applicability of these findings to reflect the entire Canadian population. Thirdly, there are regional differences between provinces and within Ontario jurisdictions in terms of the social distancing parameters in place during the study period. The limited period of data collection fails to account for the mental health impacts from extended and inconsistent lockdowns, and changes in social distancing measures. How the study participants endured or followed these regulations may have uniquely impacted these individuals' perceived mental health. Finally, the data collection period was short, done during the initial stages of the early evolving pandemic in an 18 day period which is

not indicative of the pandemic which has spanned over a year. This limits the ability to make any conclusions about the long-term implications that the pandemic has had on mental health.

The high impact of COVID-19 on the financial stability and poor mental health of the workforce was more prevalent in younger populations than other age groups in Ontario. This can be attributed to food insecurity and inability to fulfil essential needs in those dependent on jobs for financial support, whereas the older population may be primarily retired, receiving financial aid, and experiencing little-to-no financial concerns during the pandemic. Young adults have experienced a number of pandemic-related consequences, such as closures of universities and loss of income, that may contribute to poor mental health. As reported in existing literature, a recent study by Panchal et al., (2020) found that prior economic downturns show that job loss is associated with increased levels of depression, anxiety, and low self-esteem which may lead to higher rates of substance abuse and suicide. During the pandemic, adults in households with job loss or lower incomes reported higher rates of mental illness than those without (Panchal et al., 2020). The social distancing and lockdown measures have deprived young adults of their daily school structure and access to social groups. A study published by the Centers for Disease Control and Prevention showed that young adults were hit the hardest by loneliness during the pandemic (Czeisler, 2020). Young people are also often making critical decisions about their professional and personal lives and relationships, which can add to the stress and sense of isolation. The difference in mental health between the two age groups could be due to the financial support given to seniors. This includes being eligible for the Canada Emergency Response Benefit (CERB) and the extension of Guaranteed Income Supplement (GIS) and allowance payments. They are also prioritized to receive the COVID-19 vaccine, thus reducing their stress of contracting the disease. The majority of seniors reside in long-term care homes, which provides them with social support from their community, unlike younger populations experiencing quarantine in isolation from their social circles.

Future directions include extending the survey to a longer period of time, to account for the effects of changing social distancing measures and produce results that more accurately reflect the mental health impacts of different interventions during the pandemic. Additionally, examining other variables in the study such as the Increase in domestic violence, Household income and Level of home security during the pandemic would provide further insight into factors contributing to decreased mental health in the general population. Exploring implications of extended periods of time spent in the home could provide insight into the significance of our findings on poorer reported perceived mental health. Furthermore, it is possible that COVID-19 is both magnifying and contributing to the increased rates of poor mental health reported by young adults aged 15 to 29. Moreover, it would be informative to perform a longitudinal study by re-launching the survey. This would account for changes due to varying lockdown measures, and the newly launched financial benefit for individuals of this age group. This would provide important information to healthcare workers to identify individuals who may need mental health support in different lockdown measures. Finally, the pandemic has caused stress and mental health impacts for all people, but vulnerable populations including minorities, the mentally ill and the immunocompromised may have experienced more pronounced effects, due to unmet and unanticipated needs, which was not taken into account for this survey, nor specified in the database. Accounting for vulnerable populations in future data collection surrounding mental health impacts of

COVID-19 can provide insight into the fundamental reasons for variability in perceived mental health among citizens. This would assist healthcare workers in developing evidence-informed, standardized resources for different demographics, and tailor the support systems and resources to the needs of groups impacted in different ways by COVID-19.

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