



# Physical Activity as a Coping Strategy for Mental Health Due to the COVID-19 Virus: A Potential Disconnect Among Canadian Adults?

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COVID-19 was declared a global pandemic by the World Health Organization on March 11, 2020. The COVID-19 pandemic and resulting social disruption has left many to struggle with changes to routines and feelings of uncertainty as the impact of the virus continues to unfold. Evidence suggests an increase in symptoms of anxiety, depression, and stress as a result. Given the well-documented association between physical activity and mental health—be it preventing the onset of depressive or anxious symptoms to minimizing the prognosis of certain conditions—we posit more emphasis be placed in health communications on physical activity as a coping strategy for Canadians. As the ramifications of COVID-19 continue, coupled with the concern of a pending second wave, identifying how Canadians are managing stress and mental health can inform the development of interventions aimed at mitigating the negative impact of COVID-19 on adults' overall wellness. Though social interactions and activities might look different right now, Canadians should be actively looking for safe ways to engage in health promoting and socializing behaviors—physical activity is one such behavior. Herein we explore how a representative sample of Canadian adults are coping with increased stress and mental health issues as a result of COVID-19 and identify a potential disconnect between considering physical activity as a strategy to support social connection and stress management and how Canadians are coping with the pandemic. Given the protective role of physical activity in supporting mental health, our perspective is that health communication efforts should focus on the mental health benefits of physical activity particularly during these uncertain times.

**Keywords:** COVID, physical activity, mental health, social marketing, health communication

## INTRODUCTION

COVID-19 was declared a global pandemic by the World Health Organization on March 11, 2020 (World Health Organization, 2020). In response to the fast-spreading virus, states of emergency were declared worldwide resulting in community-wide lockdowns and “stay-at-home” orders (Dawson, 2020). Countries implemented lockdowns and social distancing regulations at differing rates and levels, but by early April 2020, more than 90% of the world’s population were under some level of restriction (Connor, 2020). Initially, these COVID-19-related closures and restrictions undoubtedly disrupted daily routines, arrangements, and rhythms of individual and family lives. As a result, the COVID-19 pandemic has negatively impacted mental health globally. Emerging literature among adults indicates a 16–28% increase in anxiety and depressive symptoms, and a 5% increase in self-reported stress since the onset of the pandemic (Rajkumar, 2020). Contributing issues include social isolation, travel bans, border closures, concerns about personal or familial health, financial constraints, job loss, and interruptions to education. Importantly, the impact of these issues is extensive and far-reaching, and have left many Canadians, at least anecdotally, feeling stressed, anxious, depressed, scared, and bored during these unprecedented times (Canadian Mental Health Association, 2020; Centre for Addictions Mental Health, 2020).

Various coping strategies have been identified in the literature as being effective in addressing mental health, including pharmaceuticals (Gartlehner et al., 2017), psychotherapy, bright-light therapy (Holvast et al., 2017), and meditation (Jain et al., 2015). Physical activity has also been highlighted in the literature as an important modifiable lifestyle behavior for brain function and development (Sharma et al., 2006; American Psychological Association, 2011; Chekroud et al., 2018). Specific to mental health, there is evidence reporting a positive association between physical activity (particularly at higher intensities) and alleviation of symptoms related to anxiety and depression (Sharma et al., 2006; Chekroud et al., 2018; Schuch et al., 2018; Schuch and Stubbs, 2019). The use of physical activity to treat and/or prevent mental health disorders has met with increasing clinical and scientific interest, due to lower side-effect burden, increased accessibility and health promoting abilities, as well as potential reduction of polypharmacy. The mechanisms behind such phenomena are varied including plausible neurobiological, psychosocial, and behavioral mechanisms with the most popular theories being linked to the propagation of neurotransmitters (i.e., dopamine, serotonin, glutamate, GABA) (Maddock et al., 2016) and neurotrophins (BDNF) (Schuch et al., 2016), as well as an increase in neurogenesis, synaptogenesis, and angiogenesis (Saravalli et al., 2017). There is also a body of work to suggest that physical activity can assist with reducing stress reactivity (Mücke et al., 2018) and enhancing resiliency (Childs and de Wit, 2014).

## HOW ARE CANADIANS COPING NOW?

Though social interactions and activities might look different right now, Canadians should be actively looking for safe ways to

engage in health promoting and socializing behaviors—physical activity is one such behavior. In April 2020, ParticipACTION (www.participaction.com), a national non-profit organization tasked with educating, advocating, and providing opportunities for Canadians to be more physically active and less sedentary, launched a large-scale brand survey to explore how Canadian adults are coping with increased stress and mental health issues as a result of the COVID-19 pandemic. A representative sample of 1,500 Canadian adults (18+) were invited to complete a 15-min online survey in either French or English over a 7 days period in April 2020. Participants who completed the survey received small cash incentives valued at \$0.50–\$3.00. The sample was comparable to the Canadian census in terms of age, gender, geography, income, and language spoken. Questions included assessment of self-reported levels of physical activity and attitudes toward coping mechanisms for stress, anxiety, and social isolation. Demographic information (i.e., age, gender, education, marital status, and household income) was also collected. Participants were recruited by Maru/Matchbox, a third-party market research company. Maru/Matchbox panelists consent to participate in survey-based research when they sign-up for the panel and when they agreed to complete this survey.

Approximately half the participants were male (49.0%), with a mean age of 48 years ( $SD = 15.4$ ), the majority had a post-secondary degree (85%), and 60% reported an annual household income < \$100,000. Upon examination of responses provided regarding mental health coping behaviors, it was revealed that only 48% engaged in physical activity, which was lower than screen-use behaviors (54%), but more than prescribed medication (14%) or virtual consults with a therapist or physician (8%). Only 1% of the sample reported that nothing helped with their mental health (see **Table 1**). Cross-tabulations indicated that younger Canadians (56% among those 18–34 years vs. 43% among those 55+ years), as well as more educated (54% with university degrees vs. 37% with high school education or less) and higher income earners (\$100K+/year vs. <\$50K/year), were significantly more likely to be engaging in physical activity to cope with their mental health ( $p < 0.05$ ). No gender-based differences were ascertained ( $p = 0.13$ ). **Table 2** provides a list of various behaviors on which respondents indicated placing more/less emphasis while social distancing. Compared to physical activity (48%), ~35 and 36% reported placing more emphasis on connecting with family and friends as well as relaxing and “de-stressing.” Twenty percent of Canadians reported placing less emphasis on physical activity during the pandemic—the greatest “de-emphasis” compared to all other behavior choice options.

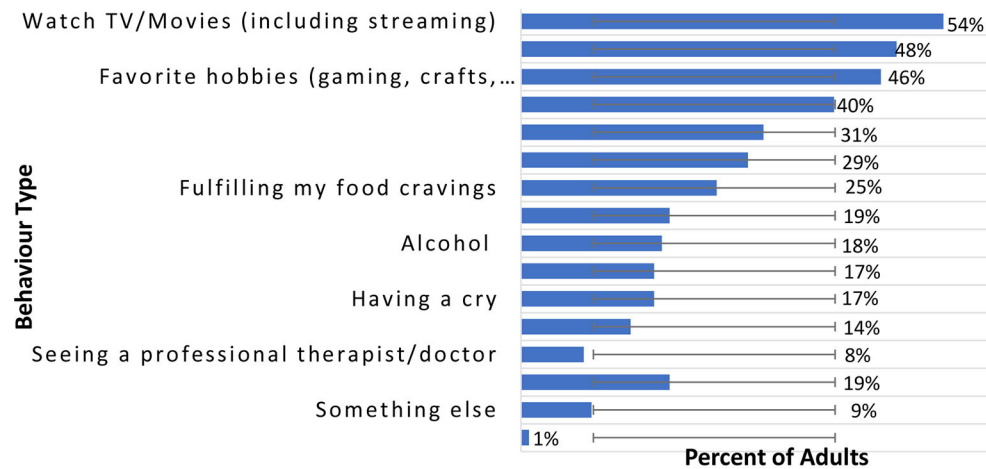
## PERSPECTIVE

Considering global declines in physical activity (Fitbit, 2020), we were interested in understanding *how* Canadians coped throughout COVID-19 and the role of physical activity in supporting mental health during the pandemic. Data collected by ParticipACTION suggests Canadians are less likely to use

**TABLE 1** | Mental health coping behaviors among Canadians during COVID-19 ( $n = 1,472$ ).

Behavior type	Percent of adults
Watch TV/Movies (this could include Netflix, Crave, Amazon Prime, etc.)	54%
Physical activity	48%
Favorite hobbies (gaming, crafts, checking social media etc.)	46%
Spending time with family/friends	40%
Relaxation (bath, hot water bottle, etc.)	31%
Diet/eating well	29%
Fulfilling my food cravings	25%
Mindfulness/meditation	19%
Alcohol	18%
Yoga/stretching	17%
Having a cry	17%
Prescribed medications	14%
Seeing a professional therapist/doctor	8%
Something else	9%
Nothing helps me to cope with depression/anxiety	1%

Responses were asked to “check all that apply” (hence why zeros exceed 100%). Approximately 19% of respondents did not select a behavior given their indication of not experiencing depression/anxiety.



physical activity as compared to more sedentary activities (e.g., watching TV) as a coping mechanism for stress or anxiety reduction. Given broad “stay-at-home” directions, it might be expected that individuals are more likely to resort to passive indoor leisure vs. active leisure to handle stress in general—pandemic or not. More concerning is a potential reluctance to consider physical activity as a primary coping measure. This risks shifting an already inactive population even lower.

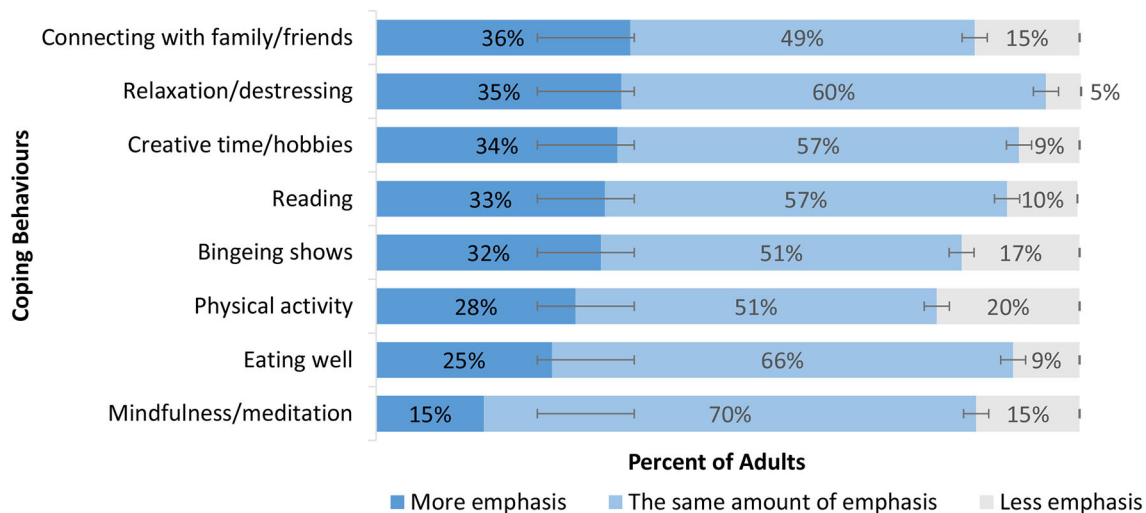
Correlates of using physical activity as a coping mechanism are consistent with prior research—younger, more educated, and those of higher socio-economic status (Cairney et al., 2014). These individuals may have better access to physical activity resources (whether online or in their personal homes) and more time (e.g., fewer family responsibilities). Further, during times of social isolation, Canadians are reporting placing less emphasis on engaging in physical activity compared to connecting with family or friends and relaxing/distressing. The current COVID-19 crisis has created a “new normal,” with less emphasis placed

on physical activity (in comparison to screen use, socialization) by a significant minority of Canadians. The fact that 20% of respondents reported less emphasis on physical activity during the pandemic suggests that the social distancing and isolation regulations may have put new barriers in place for some to engage in physical activity compared to pre-pandemic times.

The findings suggest a potential disconnect between participating in physical activity as a strategy to support social connection and stress management and how Canadians are coping with stress in particular. While it is possible that people are choosing less effective strategies to deal with the consequences of COVID-19 (possibly due to personal interest or boredom), it is important that individuals remain informed of the compounding effects behaviors like excess screen-viewing can have on the mind and body, potentially exacerbating symptoms of poor mental health (Madhav et al., 2017). Consequently, we believe a potential role exists for social marketing initiatives to address this disconnect and communicate more explicitly the mental health

**TABLE 2** | Level of emphasis placed by Canadian adults while social distancing during COVID-19 ( $n=1,472$ ).

	More emphasis	The same amount of emphasis	Less emphasis
Connecting with family/friends	36%	49%	15%
Relaxation/destressing	35%	60%	5%
Creative time/hobbies	34%	57%	9%
Reading	33%	57%	10%
Bingeing shows	32%	51%	17%
Physical activity	28%	51%	20%
Eating well	25%	66%	9%
Mindfulness/meditation	15%	70%	15%



benefits of physical activity. In the context of physical distancing measures, this may take the form of focusing on family or household co-participation in physical activity. Sharing evidence about the stress management benefits of physical activity may also be beneficial. Such messaging also needs to convey the “how to” and develop individual’s self-efficacy to engage in physical activity for mental health benefits. Consequently, health communications are likely to be less than optimally beneficial if they are not supported by parallel initiatives that support access to opportunities for physical activity while allowing for physical distancing (Institute of Medicine, 2015). For example, these initiatives could include temporary reallocation of roadway space and keeping expansive green spaces open. In dense urban environments, initiatives could include reallocating traffic lanes to allow for cycling and walking with social distancing possible.

In response to the COVID-19 pandemic, coupled with the growing incidence of stress, anxiety, and depression among Canadians (Rajkumar, 2020), many other health-based organizations have begun to tailor their communication and marketing efforts to better reflect the current social and environmental climate. For example, based on the presented results ParticipACTION’s social marketing and communications platforms will now focus on educating Canadians on how engaging in physical activity can support social connectivity and mental health. By strategically re-working

the organization’s content plans (including key messages, web and e-communications messaging, app content, and marketing materials), ParticipACTION aims to facilitate physical activity participation as a coping mechanism during stressful life situations. ParticipACTION plans to develop content, resources and opportunities for Canadians to be more active where they live, work and play. Through ongoing evaluations, ParticipACTION will assess whether the organization’s new focus on social wellness and mental health reduces the disconnect between coping with stress and using physical activity as a tool to manage stress.

We provide data suggesting evidence of immediate collateral consequences of the COVID-19 outbreak with regards to how Canadian adults are coping with stress and mental health as well as the reduced role of physical activity in addressing or supporting these issues. For the immediate future, organizations like ParticipACTION are uniquely positioned during this pandemic to re-tool its messaging and engagement initiatives to help encourage Canadians to participate in more physical activity. As the ramifications of COVID-19 continue, coupled with the concern of a pending second wave, supporting Canadians to better manage stress and wellness by encouraging physical activity participation may help to mitigate the negative impact of the virus and related social distancing on adults’ mental health. We suggest that physical activity is an important



health behavior worth highlighting when developing health communications and social marketing campaigns specific to supporting social connectedness and mental health during the current pandemic.

## DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The patients/participants provided their written informed consent to participate in this study.

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## AUTHOR CONTRIBUTIONS

GF, TC-B, and LV conceptualized the manuscript, analyzed, interpreted the available data, and drafted the initial draft of the manuscript. All authors read, reviewed, and approved the final version of the paper.

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**Conflict of Interest:** GF, JS, NO'R, RR, and LF are members of the ParticipACTION Research Advisory Group (RAG); a panel of experts that provides strategic direction regarding the organization's research, evaluation, and knowledge translation activities. ParticipACTION provides meeting expenses for the RAG to meet but does not provide any additional compensation. TC-B and LV are employed by ParticipACTION in the roles of Behavioral Insights Manager and Knowledge Translation Manager, respectively.

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