

“A ROLLERCOASTER OF EMOTIONS”: SOCIAL DISTANCING, ANXIETY, AND LONELINESS AMONG PEOPLE WITH DISABILITIES AND CHRONIC HEALTH CONDITIONS

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ABSTRACT

Purpose: Although social distancing measures enacted during COVID-19 prevented the spread of the virus and acted as important coping mechanisms during this stressful time, they also contributed to loneliness and anxiety. The pros and cons of social distancing measures were especially relevant among people with disabilities and chronic health conditions – a high-risk group concerned about infection through contact with non-household members and visiting public places like school, healthcare providers, and work.

Methods/Approach: Drawing on data from a national online survey (N = 1,027) and in-depth virtual interviews (N = 50) with Canadians with disabilities and chronic health conditions, we examine the positive and negative effects of three types of social distancing measures – avoiding public places, transitioning to remote work or school, and avoiding contact with non-household members – on perceptions of increases in anxiety and loneliness during the pandemic.

Findings: We find that the relationships between engaging with social distancing measures and anxiety and loneliness could be positive or negative,

with measures acting as both adaptive and maladaptive coping mechanisms. Although avoiding public places or non-household members and transitioning to remote work or school often resulted in increased anxiety and loneliness, respondents also described situations where these measures helped them cope with concerns about catching COVID-19.

Implications: Our findings highlight potential implications for public health policy in allocating different coping resources among marginalized groups during times of crisis and demonstrate the importance of using a social model of stress, coping mechanisms, and mental health.

INTRODUCTION

The COVID-19 pandemic has clearly been a stressful global life event. Stemming from the fear of infection and growing economic insecurity, many groups have reported declining mental health in relation to the added stress ([Bierman & Schieman, 2020](#); [Hub Staff Report, 2020](#); [Statistics Canada, 2020](#)). To combat COVID-19, social distancing measures intended to reduce social contact were governments' primary way to curb the spread of the virus and protect vulnerable groups, especially prior to the widespread distribution of vaccines. By restricting travel, closing schools and businesses, and asking individuals to reduce in-person contacts, many countries were able to limit COVID-19 cases, hospitalization, and deaths. These measures were especially important for protecting at-risk communities, including people with disabilities, people with chronic illness, older adults, and people in low-income neighborhoods, who were more vulnerable to COVID-19, especially at school, work, and in other public settings.

Despite these protective benefits, such restrictions also disrupted day-to-day living, led to economic hardship, and increased isolation by limiting social ties ([Pfefferbaum & North, 2020](#)). COVID-19 fatigue and repeated periods of lockdown have generated social unrest. Some, including anti-maskers, anti-vaxxers, and more recently, the "trucker protestors," have mobilized this unrest into organized demonstrations and occupations ([Martin & Vanderslott, 2021](#)). For others, their disability and health status made them especially vulnerable to the virus, which required that they strictly adhere to safety and social distancing measures, even when "following the rules" potentially generated other adverse effects including increased loneliness, disconnectedness, and anxiety. Being disproportionately at risk for complications from the virus and already marginalized by ableist institutions and cultures, people with disabilities and chronic health conditions experienced deteriorating mental and physical wellbeing during COVID-19 ([Kavanagh et al., 2022](#); [Turk et al., 2020](#)) with varying outcomes among this group, particularly in relation to their relative access to resources, supports, and coping mechanisms.

For people with disabilities and chronic health conditions, social distancing measures present a complicated coping mechanism for dealing with pandemic stress. Coping strategies include “behavioral and/or cognitive attempts to manage specific situational demands which are appraised as taxing or exceeding one’s ability to adapt” (Thoits, 1995, p. 60). Strategies can act as maladaptive coping mechanisms, such as when COVID-19 related restrictions like staying home and limiting social interaction result in prolonged isolation and social disconnectedness, contributing to increased fear, anger, stress, and anxiety (Choi et al., 2021; Summaka et al., 2021). However, because these strategies effectively curb viral transmission, they can also be adaptive, relieving anxiety about having to engage with non-household members, increasing feelings of safety and security, and potentially mitigating some pandemic-related stress. And so, for many, adherence to social distancing measures became an important coping strategy for managing the stress and risk involved with COVID-19.

This chapter explores how three types of social distancing measures – avoiding public places, transitioning to remote work or school, and avoiding contact with non-household members – functioned as both adaptive and maladaptive coping strategies for people with disabilities and chronic health conditions during the COVID-19 pandemic, a period of increased stress, especially for high-risk groups. Exposure to stressors and access to coping mechanisms depend on a person’s positionality within the social structure (Brown, 2003; Pearlin & Bierman, 2013), meaning that certain groups like people with disabilities and chronic health conditions face different barriers but also stand to benefit in different ways from protections provided by coping mechanisms like social distancing measures. Building on this perspective, we address two central questions. How is adherence to social distancing measures associated with experiences of loneliness and anxiety among people with disabilities and chronic health conditions? Does the relationship differ based on the specific type of social distancing?

We use a mixed-methods approach to address these questions, employing a national online survey (June 2020, $N = 1,027$) and integrated set of in-depth virtual qualitative interviews (August–November 2020, $N = 50$) among people with disabilities and chronic health conditions. We find that social distancing measures acted as both adaptive and maladaptive coping strategies, depending on how each was implemented. Our findings speak to the impacts of crises and corresponding public health and policy responses, as well as broader understandings about how marginalized communities attempt to manage stressful events. We therefore contribute to the sociological tradition of understanding mental health disparities as a function of social status and social group membership (Link & Phelan, 1995; Pearlin, 1999; Reichard et al., 2011).

SOCIAL BARRIER-BASED UNDERSTANDINGS OF ANXIETY AND LONELINESS

Anxiety, loneliness, and other forms of psychological distress are common among people with disabilities and chronic health conditions (Brown & Turner, 2010;

Cage et al., 2018; Chan et al., 2011; Turner & Beiser, 1990; Turner et al., 2006). This is also true for specific subgroups, like individuals on the autism spectrum (Cage et al., 2018; Gillott & Standen, 2007; Park et al., 2019). Excluded from social networks, people with disabilities have weaker social ties and experience greater social isolation (Macdonald et al., 2018; Nosek & Hughes, 2003; Schafer, 2018; Shandra, 2017, 2021), which further contribute to distress (Bierman et al., 2021). This is partly due to mobility-related issues (Rosso et al., 2013; Schafer, 2018), but also because of disablist attitudes and ableist structures that stigmatize, marginalize, and exclude (Maroto & Pettinicchio, 2022; Schafer, 2018; also see Cage et al., 2018; Ciciurkaite et al., 2022; Moloney et al., 2019). Here, disablism reflects negative attitudes that support the unequal treatment of people with disabilities, but ableism is much broader, reflecting structures designed to support certain abilities (Campbell, 2009; Maroto & Pettinicchio, 2022; Wolbring, 2008).

Although the links between disability, loneliness, and anxiety are well documented, only recently have health scholars borrowed from disability studies to apply a social model or barrier-based approach to explain these links. This approach moves the focus away from individual impairment to socially constructed or environmental barriers that contribute to marginalization. In the context of mental health, social policies, ableist institutional practices, negative attitudes, and stigmatizing labels undermine social ties that act as key coping mechanisms buffering against everyday stressors that add to depression and anxiety, lowering social welfare and personal wellbeing (Brown, 2017; Cross, 2013; Oliver, 1996).

A social barrier-based framework further demonstrates how loneliness results from lack of or poor-quality social ties and the feelings it brings on (Dahlberg & McKee, 2014). As Hawkey and Cacioppo explain, loneliness is “distressing feeling that accompanies the perception that one’s social needs are not being met by the quantity or especially the quality of one’s social relationships” (2010, p. 218). Consequently, loneliness has increasingly been used as a proxy for social disconnectedness, which people with disabilities experience at greater rates (Emerson et al., 2021; Mithen et al., 2015).

Structural alienation and social disconnectedness are a result of disabling barriers across different spheres of life including work and school. These barriers not only contribute to loneliness but also to anxiety (MacDonald et al., 2018), a negative affect that decreases personal well-being (Emerson et al., 2020). Living alone, lack of employment, and lack of community resources all contribute to worsening loneliness and anxiety (Emerson et al., 2021). Low social connectedness contributes to anxiety because the quality of contact with others – a coping mechanism – is low or altogether absent. Already higher levels of loneliness and anxiety then leave this group more vulnerable to further negative outcomes under stressful situations, especially when coping mechanisms are lacking.

EXPOSURE TO STRESSORS AND ACCESS TO COPING MECHANISMS

Uncovering how coping mechanisms (or lack thereof) buffer stressors particular to given social groups and statuses – so-called minority stressors (Meyer, 2003) that include alienation, devaluation, and exclusion – requires a within-group focus rather than a between-group comparison because stressors are experienced differently by different groups (Brown, 2017; Nosek & Hughes, 2003). Although research on disability and mental health emphasizes disability as a “chronic stressor” leading to increased depression and anxiety (Chan et al., 2011; Zheng et al., 2021), multiple social contexts and factors like social ties, employment, marriage and household structure, access to formal and informal care, and social supports and resources provide coping mechanisms to protect people from stressors (Bierman, 2012; Schieman & Plickert, 2007). As Brown (2017) finds, coping mechanisms against depressive symptoms like supportive social relationships are less effective at buffering disability-relevant social stressors when they are diminished. Social ties therefore help mitigate the negative effects of stressors when they are available, promoting positive mental health outcomes through the provision of social, emotional, informational, and instrumental supports (see Thoits, 1995, 2011; Umberson & Karas Montez, 2010).

Crises including natural disasters, economic emergencies, and pandemics lead to increased stress throughout the population. A chief stressor during health pandemics is increased “health anxiety” which disproportionately affects vulnerable and at-risk groups (Asmundson & Taylor, 2020). But because crises represent major exogenous shocks, secondary stressors also include loss of work, financial insecurity, and breaks in social ties (Zheng et al., 2021). These secondary stressors affect already vulnerable groups disproportionately, including people with disabilities (Maroto et al., 2021). Crises also make coping resources unavailable. This is particularly true in the case of COVID-19 as social distancing, self-isolation, and lockdowns affected everything from work and school, to being with family and friends, and accessing healthcare professionals.

SOCIAL DISTANCING MEASURES: ADAPTIVE OR MALADAPTIVE COPING MECHANISMS?

Examining the circumstances that simultaneously increase stressors and undermine coping mechanisms provides an important contribution to the scholarship on group-specific stressors, access to coping mechanisms, and mental health outcomes. COVID-19 is one such circumstance. Zheng et al. (2021) found that pandemic-related secondary stressors led to depressive symptoms, and Summaka et al. (2021) showed not only increased fear, anger, annoyance, stress, and sadness, but also increases in anxiety. Pettinicchio et al. (2021) found that Canadians with disabilities and chronic health conditions reported increased anxiety, stress, despair, and loneliness. These studies reveal how health-related concerns and disruptions to social ties (i.e., stress buffers) because of social

distancing and lockdown measures contribute to negative mental health outcomes, including anxiety and loneliness (Kar et al., 2020). We build on this research by examining the potential positive and negative effects of adherence to different social distancing measures.

Social distancing measures implemented by the Canadian government and others starting in March 2020 limited the spread of COVID-19 and mortality from the virus (Courtemanche et al., 2020). They have also been important for protecting people who are especially vulnerable to complications from the virus. However, although these sweeping measures provided important protection against the spread of COVID-19, they also disrupted key supports (Douglas et al., 2020). People's day-to-day living and routines – everything from meeting friends for lunch and going shopping, to getting adequate home care or visiting a mental health professional – were affected. Many people with disabilities and chronic health conditions living at home lost in-person paid health care services due to COVID-19 related restrictions (Jeste et al., 2020). With increased obstacles in accessing healthcare and social supports, they faced challenges in managing their health throughout the pandemic (Lunsky et al., 2022; Pendo, 2020). As a result of social distancing measures interrupting social ties and support systems, many individuals felt disconnected and experienced elevated mental health issues during the pandemic, a stressful time where individuals need social supports the most (Brooks et al., 2020; Scharf & Oinonen, 2020).

With already high levels of social isolation and weak social ties, social distancing and stay-at-home orders can act as maladaptive coping mechanisms, adding to feelings of loneliness and anxiety among people with disabilities and chronic health conditions. Despite the increases in social isolation, however, social and physical distancing measures still provided important protections for combatting the spread of COVID-19, especially among people with disabilities and chronic health conditions for whom the dangers of getting sick were much greater. This means that measures like limiting contact with people outside the household, working from home, and spending less time in public add to a sense of safety and assuage some pandemic-related fears. And so, these may not negatively affect mental health. Indeed, as adaptive coping mechanisms, they may improve mental health, especially among members of communities whose health is a salient feature of daily life (Pettinicchio et al., 2021). In other words, distancing and self-isolation are also adaptive coping mechanisms providing mental health benefits by limiting fears and concerns.

DATA AND METHODS

We use a mixed-methods approach to study the relationship between social distancing measures, loneliness, and anxiety among people with disabilities and chronic health conditions. We classified disability using six questions following the Canadian Survey on Disability (CSD), the World Health Organization, and the Washington Group on Disability Statistics (Morris et al., 2020; see also Pettinicchio & Maroto, 2021). Questions asked respondents if they never,

sometimes, often, or always experienced difficulties seeing, hearing, walking, or doing other physical activities, or learning, remembering, or concentrating. They also asked if respondents had any emotional, psychological, or mental health conditions or any other health concern or long-term condition that has lasted or is expected to last for six months or more. We classified chronic conditions based on whether the respondent indicated the presence of the following nine conditions: asthma, cancer, chronic kidney disease, chronic respiratory or lung disease, diabetes, hypertension, heart disease, immunocompromised, or obesity.

The present study uses data from a quota-based online survey conducted from June 11 to June 22, 2020 ($N = 1,027$) and a set of follow-up interviews collected from August through November 2020 ($N = 50$). Participants were recruited by *Qualtrics*, an Internet-based survey company using paid research panels. All respondents were 18 years or older at the time of surveying, resided in a Canadian province, and reported one or more of the six listed disabilities or nine listed chronic health conditions. To ensure that we obtained a representative sample of all 10 Canadian provinces, data were collected via quota-based sampling based on 2016 Census provincial population estimates. We did not employ post-stratification weights (Bethlehem, 2010). Many of the characteristics observed in our sample (e.g., age, gender, and education) mirror those for individuals sampled in the CSD and Canadian Community Health Survey (CCHS) (Pettinichio et al., 2021).

Supplementing our quantitative data, we conducted 50 qualitative in-depth phone interviews between August and November 2020 with a sample of respondents from our survey. In-depth interviews allowed us to further explore and seek clarity about how respondents were experiencing the pandemic by asking integrated follow-up questions not often available through surveys alone (Lamont & Swidler, 2014; Pugh, 2013). From our initial survey, 506 respondents requested to be contacted for a follow-up interview. We then selected 100 respondents to ensure a diversity of characteristics (i.e., age, gender, race) as well as different disabilities and health conditions, and then drew 50 who were ultimately interviewed. We provided respondents a \$30 incentive, informed them of ethical clearance from our university review boards, and noted that all names used would be pseudonyms to protect their confidentiality.

Survey Analysis and Measures

We examine two outcome variables that measure whether a respondent self-reported any increase in *anxiety* or *loneliness* within the last 14 days (a time referring to early June 2020). These were part of a series of 10 questions that asked respondents: “Have you experienced any changes in the following feelings within the last 14 days?” Respondents were given choices of decrease, about the same, and increase. We coded variables for anxiety and loneliness as binary variables indicating an increase in these feelings.

We connect these outcomes with three predictor variables accounting for the major social distancing measures taken and their potential negative effects. They indicate whether the respondent reported *avoiding public places*, *avoiding*

in-person work or school, and *avoiding contact with non-household members*. These variables were created from a set of questions that first asked respondents about 14 potential measures that they took to combat COVID-19 and then asked to what extent these measures affected them negatively or made things worse to capture the adaptive or maladaptive dimensions of each strategy. Combining these questions, the final variables include three categories – did not use this measure (no strategy), used the measure with no negative effects (adaptive strategy), and used the measure with at least some negative effects (maladaptive strategy).

Several control variables were included. We measure disability condition/severity as the *number of reported disabilities and health conditions*, which indicated whether the respondent reported one, two or three, four or five, or six or more disabilities or chronic health conditions. We also control for *age*, measured in years; *gender* measured as male, female, and other or non-binary; and *marital status* measured as never married, cohabiting, married, and formerly married (i.e., widowed, separated, or divorced). We include an indicator variable for the *presence of children* in the household. Education is measured as obtaining a Bachelor's degree or higher. We also control for whether the respondent was *employed*. We include an indicator for *race/ethnic minority*. Finally, *region* includes the following categories: Ontario, Québec, British Columbia, Prairie provinces, and Atlantic province. Descriptive statistics are presented in the appendix.

With binary outcome variables, we use logistic regression models to examine the association between social distancing practices and increases in anxiety and loneliness. We primarily discuss our results as predicted probabilities and average marginal effects (AMEs). Applied to our categorical focal variables, AMEs indicate the average percentage point difference in the probability of experiencing increased anxiety or loneliness associated with a discrete change in the predictor variable.

Interview Data Analysis

We combined these quantitative analyses with results from our in-depth interviews that reveal more about how social distancing, especially not going to work, contributed to loneliness and declining mental health. Interviews lasted from 12 to 60 minutes in length with an average of 34 minutes and were transcribed verbatim by a team of research assistants and coded on Dedoose – a qualitative data analysis program. We first open coded transcripts to create a preliminary coding scheme (Strauss, 1987), which was deductively based on our research questions and inductively through emergent themes from respondents (Deterding & Waters, 2021). Here, we looked for discursive claims from participants (Strauss & Corbin, 1990) before we analytically coded and identified common themes across respondents (Auerbach & Silverstein, 2003) to establish inter-coder reliability. Our in-depth interviews provide rich descriptions of our respondents' experiences of loneliness, anxiety, and social isolation during the COVID-19 pandemic.

FINDINGS

Most survey respondents engaged in at least one social distancing measure, but the usage and effects varied considerably. As shown in Fig. 1, 22% of respondents reported that they did not avoid public places, 60% reported that avoiding public places negatively affected them, and 18% reported avoiding public places with no negative effects. Most respondents reported that they were not able to transition to remote work or school, 29% reported that they were negatively affected by a remote school or work transition, and 15% reported that they were not negatively affected. Finally, 29% of respondents reported that they were still socializing with people outside their household, 52% reported that avoiding contact with individuals outside their household negatively affected them, and 18% reported that avoiding contact with non-household members did not negatively affect them. These findings indicate that social distancing measures can act as both adaptive and maladaptive coping strategies, which means that may not always contribute negatively to anxiety and loneliness.

To address the adaptive and maladaptive dimensions of social distancing behaviors, we use two sets of logistic regression models predicting increased anxiety or loneliness in Table 1 (Model Sets 1–2) and Figs. 2–4. The table includes model coefficients and average marginal effects for all focal variables. Figures present predicted probabilities of increased anxiety and loneliness associated with avoiding public places (Fig. 2), avoiding in-person work/school (Fig. 3), and avoiding contact with non-household members (Fig. 4).

Table 1 shows that engaging with different social distancing measures offered both benefits and drawbacks for loneliness and anxiety that varied with the specific measure. Avoiding public places and transitioning to remote work or school were associated with increased anxiety and loneliness, but only when they were reported as having negative effects in a maladaptive context. When not accompanied by negative effects, these measures were associated with reduced anxiety, showing that they can also be adaptive.

The pattern differed for avoiding contact with non-household members. Engaging with this type of social distancing without negative effects was associated with decreased anxiety and loneliness. It was the only measure associated with decreased loneliness. When negative effects were present, however, this measure did not significantly increase anxiety but it was associated with increased loneliness.

These varying effects were further supported by our interview data, where respondents discussed both the benefits and drawbacks of different measures. The interviews allowed us to explore patterns established within the quantitative data. Following the goals of mixed methods research, we integrate our discussion of these findings with the quantitative results below.

Avoiding Public Places

When accompanied by negative effects, avoiding public places was associated with an 11.7 percentage point increase in the probability of experiencing increased anxiety and a 16.4 percentage point increase in the probability of

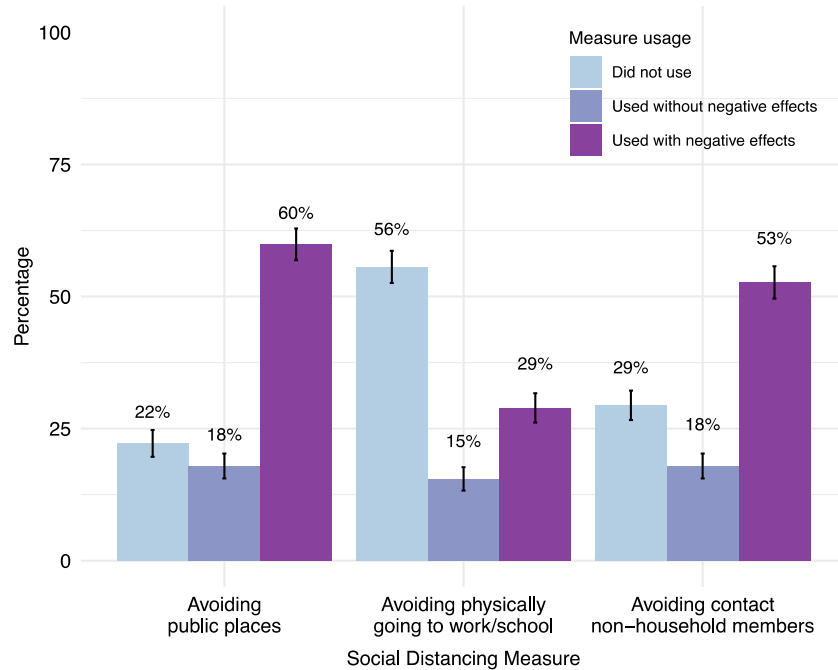


Fig. 1. Use of Social Distancing Measures. *Source:* 2020 COVID-19 Response Survey of People with Disabilities and Chronic Health Conditions. *N* = 1,027 adults.

loneliness (Table 1). However, when not accompanied by negative effects, this measure was associated with a 9.5 percentage point reduction in anxiety. Expanding these findings, Fig. 2 shows that 44% of respondents who reported that avoiding public places negatively affected them experienced increased anxiety compared to 33% of those who did not avoid public places and 23% who avoided public places with no negative effects. Differences were also apparent in terms of increased loneliness; 38% of respondents who avoided public places with negative effects experienced increased loneliness compared to 21% of those who did not avoid public places and 19% who avoided public places with no negative effects.

Interview respondents echoed these findings. In the words of one study participant, Lina, a 36-year-old homemaker with asthma, “if you’re unwell for physical reasons and then you’re told to isolate, I feel like that’s hard on a person’s mental health. At the same time, you can’t even really go get the mental health help.” Lina further discusses the implications for people with disabilities, saying, “It’s hard for the average person, but for people with disabilities and seniors and for your quality of life, it’s hard to sit in a room. It’s hard to just sit in a house with nobody in to contact, right?” Indeed, for Margo, avoiding public

Table 1. Results From Logistic Regression Models Predicting Increased Anxiety and Loneliness.

	Model Set 1: Anxiety			Model Set 2: Loneliness		
	<i>b</i>	SE	AME	<i>B</i>	SE	AME
Intercept	0.329	(0.429)		-1.018	(0.641)	
Avoiding public places (Ref: Did not use)						
Yes, without negative effects	-0.520*	(0.244)	-0.095*	-0.164	(0.412)	-0.025
Yes, with negative effects	0.547***	(0.123)	0.117***	0.875***	(0.154)	0.164***
Pseudo R-Squared	0.101			0.099		
Intercept	0.367	(0.507)		-0.819	(0.533)	
Remote work or school (Ref: Did not use)						
Yes, without negative effects	-0.540*	(0.216)	-0.104**	-0.026	(0.206)	-0.005
Yes, with negative effects	0.633***	(0.156)	0.140***	0.687***	(0.175)	0.140***
Pseudo R-Squared	0.099			0.084		
Intercept	0.514	(0.485)		-0.728	(0.674)	
Avoiding contact with non-household members (Ref: Did not use)						
Yes, without negative effects	-0.668*	(0.279)	-0.129*	-0.485**	(0.163)	-0.079**
Yes, with negative effects	0.254	(0.145)	0.055	0.503**	(0.184)	0.099**
Pseudo R-Squared	0.092			0.088		

Notes: Logistic regression models predicting probability of a reported increase in anxiety (Column set 1) and loneliness (Column set 2) based on three sets of social distancing measures. All models include control variables: number of disabilities or chronic health conditions, age, gender, racial/ethnic minority status, marital status, presence of children, education, employment status, and province. Full model results appear in the appendix. “*b*” refers to logit model coefficients. Odds ratios can be obtained by exponentiating (*b*). AME refers to average marginal effects, which can be interpreted as a percentage point change in the probability of the outcome category associated with a unit change in the predictor variable. Standard errors are in parentheses. Standard errors account for clustering by province/region.

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Source: 2020 COVID-19 Response Survey of People with Disabilities and Health Conditions, $N = 1,027$ adults.

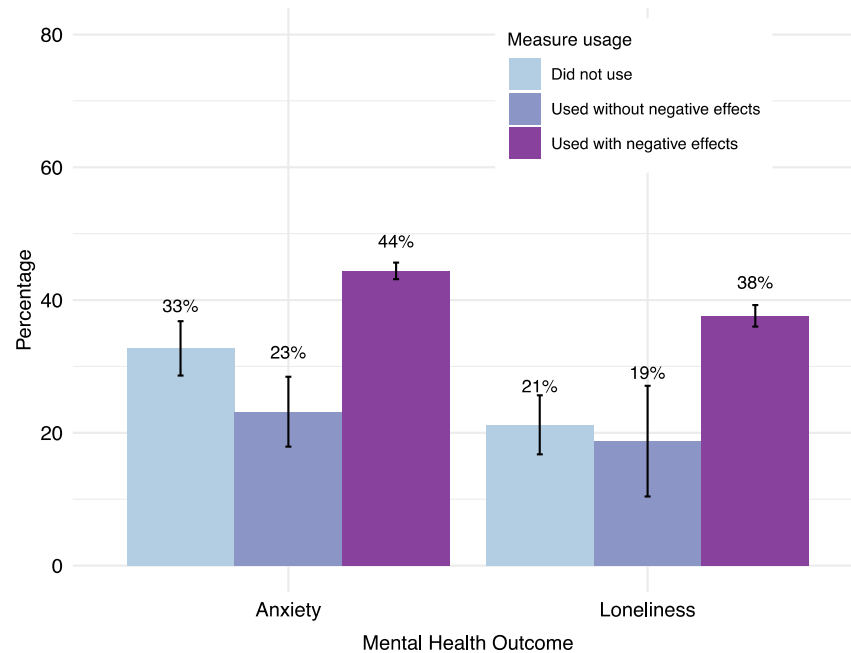


Fig. 2. Increase in Anxiety and Loneliness by Experiences Avoiding Public Places. *Notes:* Predicted probabilities (expressed as percentages) and 95% confidence intervals based on logistic regression models predicting increased anxiety and loneliness in relation to experiences avoiding public places. Models appear in [Table 1](#). *Source:* 2020 COVID-19 Response Survey of People with Disabilities and Chronic Health Conditions. $N = 1,027$ adults.

places made her situation “really tough.” She told us: “I don’t get dressed. I wander around. Some days, I just sit and cry. That makes it really tough.”

Anxieties associated with being physically confined at home were captured well by Reagan:

There were stories from other parts of the province where there were people who ran out of food because they were older. They couldn’t get to the store or they were afraid to go to the store, and they had nobody else who could help them. . . I think more should have been put in place to help people like that, and older people and people with a disability.

It is not only older people with disabilities and chronic health conditions who reported mental health related issues around social distancing. As Allison, a 47-year-old administrative assistant working from home with asthma and obesity told us: “So, I kind of feel like a shut-in. Because I start to hyperventilate. I do all my grocery shopping online and just have it, once at Walmart, they’ll put it in the back of the car for me.” Allison and many participants point to the negative

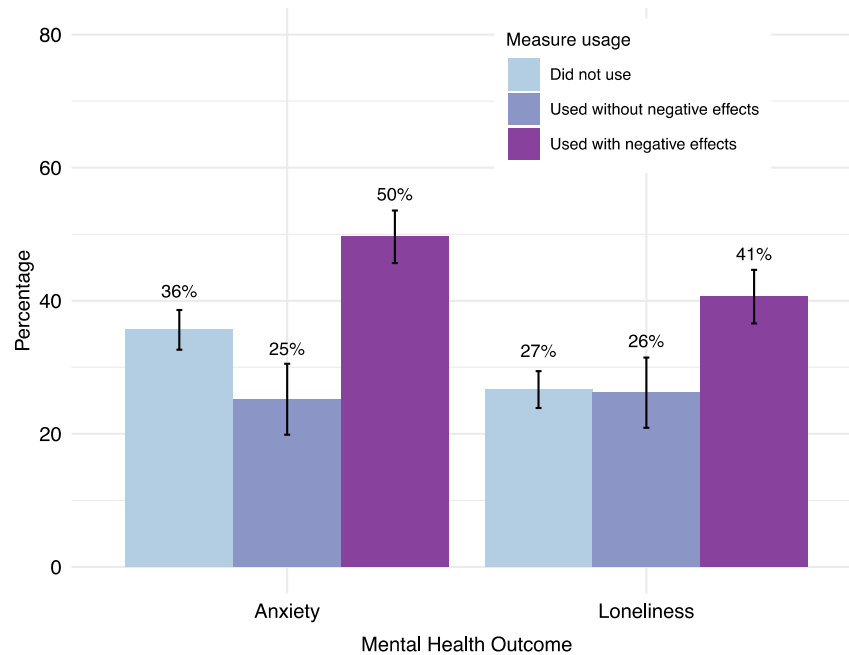


Fig. 3. Increase in Anxiety and Loneliness by Experiences Avoiding Physically Attending Work/School. *Notes:* Predicted probabilities (expressed as percentages) and 95% confidence intervals based on logistic regression models predicting increased anxiety and loneliness in relation to experiences avoiding physically attending work or school. Models appear in [Table 1](#). *Source:* 2020 COVID-19 Response Survey of People with Disabilities and Chronic Health Conditions. $N = 1,027$ adults.

mental health consequences of avoiding public places and disruptions to social ties, which generated feelings of isolation, loneliness, and anxiety.

Avoiding In-Person Work or School

The associations between transitioning to remote work or school and anxiety and loneliness also depended on whether negative effects were present, demonstrating how this strategy could be both adaptive and maladaptive. Respondents who reported that avoiding going into work or school negatively affected them were 14.0 percentage points more likely to report increased anxiety and to report increased loneliness ([Table 1](#)). For example, Maryam, a 35-year-old coach with claustrophobia and obesity, explained that working from home during the pandemic “has taken a toll mentally too for me because I’ve always worked all my life. . . I have mostly done jobs that required me to be at the office.” Maryam told us how the move to remote work posed challenges to her mental wellbeing: “mentally, I feel quite restless and I actually want to go out.” Yet, given her

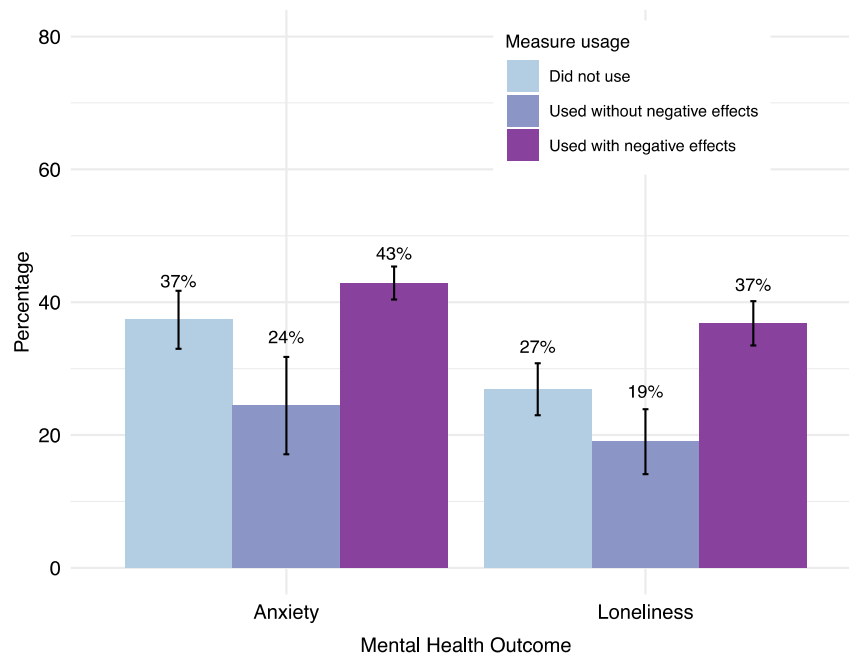


Fig. 4. Increase in Anxiety and Loneliness by Experiences Avoiding Contact with Non-household Members. *Notes:* Predicted probabilities (expressed as percentages) and 95% confidence intervals based on logistic regression models predicting increased anxiety and loneliness in relation to experiences avoiding contact with non-household members. Models appear in [Table 1](#). *Source:* 2020 COVID-19 Response Survey of People with Disabilities and Chronic Health Conditions. *N* = 1,027 adults.

heightened stress about being more at-risk of getting COVID, she remained “very fearful” and was “literally not even opening the house door to take a breath.” Like many others, Maryam was wrestling with the effects of social disruption, on the one hand, and concerns about safety if those disruptions had not taken place, on the other.

However, those who reported that avoiding in-person work or school did not negatively affect them were 10.4 percentage points *less* likely to experience increased anxiety than respondents who were still attending work or school in-person ([Table 1](#)). According to Dillan’s experience about working from home, “I transitioned to working from home and teaching from home. So, I was still getting paid, so it wasn’t really an issue. In June, the teachers all went back to work for a month and just in the school building. At that point, I still hadn’t been okay to go back.” It appears working and attending school remotely offered benefits for some respondents but not others.

Those who were able to work or attend school from home without negative effects reported some of the lowest rates of anxiety. As shown in Fig. 3, only 25% reported increased anxiety and 26% reported increased loneliness. However, those who worked or attended school remotely and reported negative effects from this situation experienced the *highest* rates of anxiety and loneliness. Among these respondents, 50% experienced increased anxiety and 41% experienced increased loneliness.

For many respondents with disabilities and chronic health issues, the thought of working in person during the pandemic brought new challenges and anxieties. Aayan, a 31-year-old recreational therapist who was considered an essential worker, described her anxiety of having to go in to work:

I was mandated to still come in and that is stressful because I work for a hospital in Toronto and I'm frontlined with a vulnerable population. So, I found that it did affect me even more so than I think the average person because not only was I... I already have the anxiety in general but then I had to, on top of that, go into an environment where I was at a very high risk of getting it. I would be traveling by TTC [public transit] there and back, which was also very anxiety inducing because not everyone followed the protocols.

Dora, a 76-year-old retired teacher, described her concerns about the potential distancing measures taken by the schools. She says: "I'm not even sure about taking the teaching job, because I'd be involved with kids again. I don't know how careful they're going to be... So, my son does not want me going...so I kind of dropped that job."

Avoiding in-person work or school was not always linked with increased anxiety. This makes sense because individuals with disabilities and chronic health conditions have heightened concerns about getting COVID-19 and have a higher risk of developing serious complications if they did. Respondents had to balance safety, the need to earn an income, and concerns over mental health. According to Ramona, "it's so hard because it's like I know I want to work, but then the numbers are going up, and so there's this conflict between wanting to keep myself safe, but also wanting to work." Similarly, as Maryam explained, "Eventually, I have to go out for an interview and hopefully to work as well" yet expressed some anxieties when she said, "but then there is still that uncertainty because we can [at least] control our lives within our homes at the most." For some, the opportunity to work from home meant feeling less anxious and stressed.

Avoiding Contact With Non-Household Members

Compared to the first two measures, patterns differed with avoiding contact with non-household members. Avoiding contact with non-household members without negative effects was associated with a 12.9 percentage point decrease in anxiety and a 7.9 percentage point decrease in loneliness, net of other covariates (Table 1). Negative effects with this measure, however, were associated with a 9.9 percentage point increase in loneliness but were not significantly associated with anxiety. Fig. 4 shows that 43% of people who had limited contact with non-household members with negative effects reported increased anxiety and 37% reported increased loneliness, much higher percentages than those who

limited contact but did not see any negative effects. Here, it is likely that being isolated to protect one's health is seen as taking precedence over socializing with non-household members and risking infection. However, this still did often lead to greater loneliness, as many respondents described.

Some respondents, like Esther, a 60-year-old woman with hypertension, were aware of the risks of contact with others. She noted, "The one thing I'm worried about is even if I worked frontline . . . and I know they have the PPE for it, what's to say that I won't catch it? I'm afraid of that. That's what's cautioning me so terribly. Is it worth going out there to die?" However, for people like Slater, a 33-year-old man with depression, not being able to meet people in public was associated with loneliness. According to Slater: "I went on Facebook and there's people that I see are interested in me and I was going to make a date, but then I couldn't. . . So, my depression, it's on a day-to-day basis. . . It's gotten a little worse over the time. Can't go on dates, can't meet up for friends, feel pretty lonely, feel pretty depressed. It's pretty difficult."

Dora emphasized the negative effects of being isolated from family, saying, "I feel very isolated, and I'm going through emotional times right now, and I've got nobody except my son, when he's here, to share it with." For Dora, being isolated and lacking in-person interactions was similar to Ramona, a 28-year-old market researcher with vision and hearing impairments who described "not being able to hug people" alongside strictly virtual communication which she felt was isolating.

Sydney, a 71-year-old retired woman, further described the negative effects of avoiding social interactions, like socializing with friends, during the pandemic. She says: "I feel like I'd want to cry. . . And I think, well, I'm 71 and a half. This is a really crappy bunch of years at the end of my life if this keeps going." For Sydney, who described herself as a "social person," not being able to participate in her exercise group, celebrate birthdays, or have lunch with friends created significant feeling of loneliness. This was also true for Allison, who indicated: "I don't see loved ones nearly as much. We would have got together as a family for Easter and Thanksgiving. And I'm sure Christmas was also canceled. So, I'm kind of feeling disenfranchised and not connected to anybody, anymore."

Again, though, avoiding contact with people outside the household also offered vulnerable respondents certain protections. For Nicki, a 50-year-old woman with kidney failure on dialysis, avoiding contact with those outside her household gave her a sense of security, at the same time contributing to her loneliness: "No one wants to be around you. Now that there's this 10-person bubble, no one wants me in it because I have to maintain all of those 10 people and know that they don't do bad things. And no one wants to commit to that. It has completely changed my life and made it worse." While maintaining her social bubble granted Nicki safety during the pandemic, she described her isolation from her family: "You think that my own family would at least understand and make changes for me." And part of me says, "They got to live too." So, I don't know. It's a roller coaster of emotions."

Nicki's experience demonstrates both the benefits and drawbacks of social distancing for those who have underlying conditions that make them vulnerable to COVID-19. Although not socializing with people can relieve those with

disabilities and chronic health conditions from worrying about contracting a harmful virus, this is at the expense of minimizing contact with loved ones.

DISCUSSION AND CONCLUSION

Our examination of social distancing measures' associations with loneliness and anxiety among people with disabilities and chronic health conditions shows how these measures can function as both adaptive and maladaptive coping mechanisms for dealing with the stress of COVID-19. People who reported that avoiding public places and transitioning to remote work or school negatively affected them were more likely to experience anxiety and loneliness. But, those who did not report negative consequences experienced decreases in anxiety, demonstrating some of the protective benefits of using these social distancing measures to cope with the stress brought on by COVID-19. Avoiding contact with non-household members was also associated with decreased anxiety and loneliness in some situations, and associated with increased loneliness in others. As respondents described in interviews, these strategies resulted in both benefits and drawbacks.

Our findings from the only mixed method study incorporating a national survey and set of interviews with Canadians with disabilities and chronic health conditions collected during the COVID-19 pandemic offer important insights regarding the benefits and drawbacks of social distancing measures. However, there are limitations associated with our sampling methods.

First, even though it was a useful strategy for contacting a marginalized community, our non-probability quota-based sample limited the generalizability of our results. Although quota sampling does not meet the requirements of probability sampling, our survey did provide representation of our population of interest by mirroring demographic characteristics as compared to the CSD and the CCHS. Second, we were unable to recruit individuals without access to the Internet, alongside people with more severe disabilities requiring assistance from caregivers. This means that these groups are likely underrepresented in our study. Third, our smaller sample sizes limited our ability to examine differences by specific disability type, which has been shown to matter for outcomes like loneliness and isolation (MacDonald et al., 2018). Future research would benefit from incorporating these differences. Finally, given that we sought to create an accessible survey, we included single question measures associated with recent self-reported anxiety and loneliness by instructing respondents to recall their health only during the last two weeks. More expansive measures could reveal broader differences. However, our follow-up interviews also allowed respondents to expand on their experiences, providing more detail about their mental health during the pandemic.

Our study advances the growing need for public health studies of vulnerable populations during pandemics (McLaren & Dutton, 2020) by exploring an important but understudied research area involving the mental health effects of social distancing (Scharf & Oinonen, 2020). We show that social distancing

measures do not necessarily contribute to greater mental health disparities among people with disabilities and chronic health conditions. For instance, those who were able to use the strategies of avoiding public places and contact with non-household adaptively did not experience increased anxiety and loneliness. In fact, those who adaptively transitioned to remote work or school were among the least likely to experience increased anxiety.

Although some studies emphasize the negative effects of social distancing on mental health (Brooks et al., 2020; Scharf & Oinonen, 2020), our findings suggest that adherence to social distancing measures is not always tied to worsening mental health. Pointing to important scope conditions, one explanation we put forth is that individuals with disabilities and chronic health conditions who are at greater risk and disproportionately worried about contracting a deadly virus (Kavanagh et al., 2022; Lunskey et al., 2022) nevertheless understand the benefits of social distancing as a way to avoid these risks. As a result, avoiding socialization with nonfamily members, such as friends and coworkers, is deemed more beneficial than putting oneself or others at risk of contagion. For many but not all, virtual alternatives to keep in touch and maintain social ties partially filled the gaps caused by social distancing measures. In the words of one of our participants, Glenn, a 46-year-old retail manager from Alberta, who spoke on adapting to living in a pandemic, “it’s a brand-new world” of socialization.

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APPENDIX A. DESCRIPTIVE STATISTICS FOR MODEL VARIABLES

	Sample Frequency	Estimate	Percentage or Mean	
			Lower	Higher
Increased anxiety	392	0.382	0.352	0.411
Increased loneliness	316	0.308	0.279	0.336
Avoiding public places				
No	228	0.222	0.198	0.249
Yes, without negative effects	184	0.179	0.157	0.204
Yes, with negative effects	615	0.599	0.568	0.628
Avoiding physically going into work or school				
No	571	0.556	0.525	0.586
Yes, without negative effects	159	0.155	0.134	0.178
Yes, with negative effects	297	0.289	0.262	0.318
Avoiding contact with non-household members				
No	302	0.294	0.267	0.323
Yes, without negative effects	184	0.179	0.157	0.204
Yes, with negative effects	541	0.527	0.496	0.557
Number of disabilities or conditions				
One	109	0.106	0.089	0.127
Two or three	359	0.350	0.321	0.379
Four or five	333	0.324	0.296	0.354
Six or more	226	0.220	0.196	0.246
Age (mean)				
Gender				
Male	472	0.460	0.429	0.490
Female	544	0.530	0.499	0.560
Non-binary or other	11	0.011	0.006	0.019
Member of a racialized minority group	183	0.178	0.156	0.203
Marital status				
Never married	324	0.315	0.288	0.345
Cohabiting	138	0.134	0.115	0.157
Married	406	0.395	0.366	0.426
Formerly married	159	0.155	0.134	0.178
Presence of children	246	0.240	0.214	0.267

(Continued)

	Sample Frequency	Estimate	Percentage or Mean	
			95% Confidence Interval	
			Lower	Higher
Ba or higher	360	0.351	0.321	0.380
Employed	490	0.477	0.447	0.508
Province (reduced variable)				
Ontario	399	0.389	0.359	0.419
Quebec	230	0.224	0.199	0.251
British Columbia	134	0.130	0.111	0.153
Prairie provinces (AB, MA, SK)	199	0.194	0.171	0.219
Atlantic provinces (NB, NL, NS, PEI)	65	0.063	0.050	0.080

Notes: Estimates refer to sample data.

Source: 2020 COVID-19 Response Survey of People with Disabilities and Health Conditions, $N = 1,027$ adults.

APPENDIX B. RESULTS FROM LOGISTIC REGRESSION MODELS PREDICTING INCREASED ANXIETY

	Model 1		Model 2		Model 3	
	B	SE	B	SE	B	SE
Intercept	0.329	(0.429)	0.367	(0.507)	0.514	(0.485)
Avoiding public places (Ref: Did not use)						
Yes, without negative effects	-0.520*	(0.244)				
Yes, with negative effects	0.547***	(0.123)				
Remote work or school (Ref: Did not use)						
Yes, without negative effects			-0.540*	(0.216)		
Yes, with negative effects			0.633***	(0.156)		
Avoiding contact with non-household members (Ref: Did not use)						
Yes, without negative effects					-0.668*	(0.279)
Yes, with negative effects					0.254	(0.145)
Number of reported disabilities and health conditions (Ref: One)						
Two or three	0.588	(0.370)	0.570	(0.356)	0.565	(0.349)
Four or five	0.899	(0.479)	0.945	(0.489)	0.895	(0.474)
Six or more	1.265***	(0.320)	1.243***	(0.318)	1.214***	(0.320)
Age	-0.040***	(0.004)	-0.038***	(0.003)	-0.039***	(0.004)
Gender (Ref: Male)						
Female	0.126	(0.100)	0.101	(0.142)	0.121	(0.102)
Other or non-binary	0.097	(0.417)	0.048	(0.567)	0.083	(0.458)
Marital status (Ref: Never married)						
Cohabiting	0.266	(0.207)	0.261	(0.165)	0.219	(0.188)
Married	0.210	(0.178)	0.208	(0.137)	0.151	(0.165)
Formerly married	0.404	(0.321)	0.453	(0.234)	0.399	(0.297)

(Continued)

	Model 1		Model 2		Model 3	
	B	SE	B	SE	B	SE
Any children	-0.048	(0.309)	-0.069	(0.292)	-0.017	(0.324)
BA or higher	-0.013	(0.080)	0.001	(0.078)	0.016	(0.064)
Employed	-0.329**	(0.107)	-0.325**	(0.102)	-0.344***	(0.094)
Member of a racialized minority group	-0.197	(0.144)	-0.231	(0.158)	-0.164	(0.154)
Province (Ref: Ontario)						
Quebec	-0.045	(0.041)	0.027	(0.051)	0.021	(0.052)
British Columbia	0.267***	(0.041)	0.376***	(0.026)	0.296***	(0.030)
Prairie provinces	-0.195***	(0.021)	-0.195***	(0.028)	-0.195***	(0.026)
Atlantic provinces	0.322***	(0.053)	0.256***	(0.036)	0.289***	(0.062)
Pseudo R-Squared	0.101		0.099		0.092	

Notes: Logistic regression models predicting probability of reported increase in anxiety. Continuous variables are mean centered. “*b*” refers to logit model coefficients. Odds ratios can be obtained by exponentiating (*b*). Standard errors are in parentheses. Standard errors account for clustering by province/region.

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Source: 2020 COVID-19 Response Survey of People with Disabilities and Health Conditions, $N = 1,027$ adults.

APPENDIX C. RESULTS FROM LOGISTIC REGRESSION MODELS PREDICTING INCREASED LONELINESS

	Model 1		Model 2		Model 3	
	<i>b</i>	SE	B	SE	B	SE
Intercept	-1.018	(0.641)	-0.819	(0.533)	-0.728	(0.674)
Avoiding public places (Ref: Did not use)						
Yes, without negative effects	-0.164	(0.412)				
Yes, with negative effects	0.875***	(0.154)				
Remote work or school (Ref: Did not use)						
Yes, without negative effects			-0.026	(0.206)		
Yes, with negative effects			0.687***	(0.175)		
Avoiding contact with non-household members (Ref: Did not use)						
Yes, without negative effects					-0.485**	(0.163)
Yes, with negative effects					0.503**	(0.184)
Number of reported disabilities and health conditions (Ref: One)						
Two or three	0.743	(0.387)	0.700*	(0.324)	0.701*	(0.344)
Four or five	0.956***	(0.227)	0.968***	(0.231)	0.952***	(0.246)
Six or more	1.024***	(0.169)	1.000***	(0.146)	0.984***	(0.166)

(Continued)

	Model 1		Model 2		Model 3	
	<i>b</i>	SE	B	SE	<i>B</i>	SE
Age	-0.022*	(0.011)	-0.019*	(0.009)	-0.021*	(0.010)
Gender (Ref: Male)						
Female	0.037	(0.089)	0.025	(0.092)	0.055	(0.096)
Other or non-binary	0.177	(0.692)	0.103	(0.737)	0.185	(0.709)
Marital status (Ref: Never married)						
Cohabiting	-0.565***	(0.132)	-0.601***	(0.118)	-0.632***	(0.141)
Married	-0.597***	(0.166)	-0.585***	(0.134)	-0.652***	(0.163)
Formerly married	0.433	(0.407)	0.473	(0.306)	0.413	(0.403)
Any children	-0.060	(0.349)	-0.054	(0.340)	-0.028	(0.364)
BA or higher	-0.046	(0.154)	-0.045	(0.133)	-0.001	(0.130)
Employed	0.068	(0.137)	0.086	(0.160)	0.046	(0.143)
Member of a racialized minority group	0.070	(0.170)	0.069	(0.167)	0.088	(0.175)
Province (Ref: Ontario)						
Quebec	0.413***	(0.033)	0.452***	(0.033)	0.474***	(0.052)
British Columbia	-0.175***	(0.029)	-0.079***	(0.023)	-0.142***	(0.032)
Prairie provinces	0.044	(0.028)	0.012	(0.022)	0.015	(0.032)
Atlantic provinces	-0.121***	(0.032)	-0.166**	(0.058)	-0.134*	(0.063)
Pseudo <i>R</i> -Squared	0.099		0.084		0.088	

Notes: Logistic regression models predicting probability of reported increase in loneliness. “*b*” refers to logit model coefficients. Odds ratios can be obtained by exponentiating (*b*). Standard errors are in parentheses. Standard errors account for clustering by province/region. ****p* < 0.001, ***p* < 0.01, **p* < 0.05.

Source: 2020 COVID-19 Response Survey of People with Disabilities and Health Conditions, *N* = 1,027 adults.