# Social Estrangement and Psychological Distress Before and During the COVID-19 Pandemic: Patterns of Change in Canadian Workers

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Social Estrangement and Psychological Distress Before and During the COVID-19 Pandemic:
Patterns of Change in Canadian Workers*

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**Abstract**

In this paper, we argue that the COVID-19 pandemic and associated social distancing measures intended to slow the virus' rate of transmission resulted in greater subjective isolation and community distrust, in turn adversely impacting psychological distress. To provide support for this argument, we examine data from the Canadian Quality of Work and Economic Life Study, two national surveys of Canadian workers—one from late September of 2019 (N= 2,477), and the second from mid-March of 2020 (N=2,448). We find that both subjective isolation and community distrust increased between the two surveys, which lead to a substantial rise in levels of psychological distrust. Increases in subjective isolation were stronger in older respondents, resulting in a more precipitous escalation in psychological distress. These findings suggests that public health measures intended to stop the spread of the COVID-19 virus may also have had substantial adverse penalties for mental health in North America.

Social Estrangement and Psychological Distress Before and During the COVID-19 Pandemic: Patterns of Change in Canadian Workers

The global COVID-19 pandemic presented a threat to rival the Spanish influenza pandemic, more than a hundred years before (Sly 2020). In many nations, public health measures intended to prevent the spread of the virus and "flatten the curve" in terms of the rate of transmission resulted in extreme changes to norms of social contact (Lai 2020; Morgan 2020). In Canada, larger public gatherings were banned, and citizens were urged to stay at home as much as possible (Government of Alberta 2020; Loewen 2020; Public Health Agency of Canada 2020). The purpose of the current study is to apply a synthesis of Durkheimian and life course perspectives to examine whether the social estrangement created by these public health measures resulted in increasing psychological distress in the Canadian public, as well as whether estrangement and consequent psychological distress was more predominant in older cohorts.

To address these questions, we compare two national probability samples of working Canadians from the Canadian Quality of Work and Economic Life Study. The first was gathered in late September of 2019, and the second was gathered in 2020, from March 17th to March 23rd, when social isolation measures were enacted in Canada. Comparison of these two samples in measures of feelings of isolation, community distrust, and symptoms of psychological distress allow us to not only examine whether the average level of psychological distress shifted in the population, but also whether population differences in subjective isolation and distrust explain evolving levels of distress. We therefore contribute to the research in the sociology of mental health by examining whether public health measures intended to stop the spread of the COVID-19 virus may also have had substantial adverse consequences for public mental health in North America.

**Background**

From a Durkheimian perspective, social integration is a central determinant of population health (Tsai and Papachristos 2015). A large body of social research supports this general perspective, demonstrating that enmeshment in a network of supportive social relationships is critical for mental health (Thoits 2011). Notably, key to a Durkheimian perspective is the negative consequences of rapid social change for mental health (Lester 2001). From this perspective, times of social turbulence weaken the social bonds of society (Berkman, Glass, Brissette, and Seeman 2000), thereby creating conditions that deplete societal integration (Zhao and Cao 2010). Similarly, expanding from a Durkheimian perspective, Abrutyn and Mueller (2016) argue that periods of social disruption can threaten or sever meaningful social ties, in turn creating subsequent negative emotions.

The sum of these arguments suggests that social policies which create a large-scale alteration in patterns of social interactions, and especially increased isolation, will result in greater psychological distress. Even if policies of social isolation were necessary to slow the spread of the COVID-19 virus, these policies were also likely to have substantial negative repercussions for mental health. Empirical studies support this argument, as research shows that feelings of social isolation are substantially associated with psychological distress (Cacioppo, Hawkley, Norman, and Berntson 2011). Consequently, the increased isolation that was at the heart of measures to prevent the spread of COVID-19 was likely to lead to a substantial degree of psychological distress.

The social conditions of a pandemic may also have broader consequences for social estrangement by resulting in decreasing social trust. From a Durkhemian perspective, rapid social change can result in anomic conditions that constitute a rising threat as the normative

limits on behavior disintegrate (Berkman et al. 2000; Thorlindsson and Bernburg 2004; Zhao and Cao 2010). Decreasing normative constraints are in turn harmful for social trust because fundamental to a high degree of social trust is a willingness to make one's self vulnerable in uncertain situations (Baumert, Halmburger, Rothmund, and Schemer 2017). These general processes are highly relevant in the context of a pandemic, because the fear of infection and consequent novel requirements to maintain social distance signal that the threat posed by members of the community inherently cannot be contained, thereby fomenting distrust of others.

Evidence from prior pandemics support these arguments. In particular, evidence from the Spanish influenza pandemic suggests that pandemics can lower levels of social trust (Aassve, Alfani, Gandolfi, and Le Moglie 2020). For example, in describing the consequences of the Spanish influenza pandemic for Philadelphia, Barry (2005) describes a process by which increasing fear eroded social trust: "Fear began to break down the community of the city. Trust broke down. Signs began to surface of not just edginess but anger, not just finger-pointing or protecting one's own interests but active selfishness in the face of general calamity" (pg. 329). Similarly, suspicion increased following the H1N1 outbreak in the late 2000s, as individuals infected with the virus were seen as putting others at risk (Gilman 2010). Consequently, as public leaders addressing the COVID-19 pandemic began to call for social distancing, and in particular warn people to guard against interactions with others outside of their homes and in the community, we expect distrust of others in the community to increase.

Decreasing trust in members of the community is in turn likely to have substantial consequences for psychological distress. Trust in members of one's own neighborhood is associated with better mental health (Murayama et al. 2013; Tomita amd Burns 2013; Wu et al. 2018), even when additional aspects of social contact are taken into account (Carpiano and

Fitterer 2011).  Trust in members of the community can be important for mental health by increasing a sense of being accepted and facilitating social support, as well as by reinforcing informal social control that serves to prevent harmful health behaviors (Fujiwara and Kawachi 2008; Glanville and Story 2018).  Conversely, feeling suspicion and needing to be on guard of the people we come into contact with outside of our homes may act as a stressor that increases psychological distress (Ross, 2011).  In the context of increased isolation associated with the COVID-19 pandemic, neighbors may become a focus of social acceptance and sources of support, with the result that declining trust in the member of one's community will act as a further stressor that elevates psychological distress.

*Integrating a Life-Course Perspective*

The consequences of the COVID-19 pandemic and subsequent public health measures for subjective isolation and community distrust are, however, likely to be circumscribed by a life course context.  A key paradigmatic principle of a life course perspective is that historical events can affect people differently depending on the timing of these events in the life course (Elder 1999).  The question of timing is especially relevant to the threat of the COVID-19 pandemic. The threat of serious adverse health consequences due to contraction of the virus are greater in older individuals (Heymann and Shindo 2020).  Consequently, older individuals may have isolated to a greater degree as a result of the pandemic, and also may have experienced a greater distrust of members of their community due to their heightened vulnerability and subsequent fear of contracting the virus.  Greater increases in isolation and distrust would in turn lead to greater increases in psychological distress.

Yet, differentiation in the consequences of historical events can also occur in part because the times in which individuals are born into and develop alter the resources and deficits that different birth cohorts bring to bear in times of crisis (Elder 1994; Keyes, Utz, Robinson, and Li 2014). Birth cohorts may be differently equipped to meet the challenges of historical turbulence, in turn altering the degree to which historical events create negative repercussions across age cohorts. We suggest that we will observe differences across age cohorts due to a "digital divide" between cohorts in the comfort and use of internet and other electronic means of communications (Friemel 2016). A common characterization of this divide between cohorts is that younger cohorts, particularly those born before 1980, are "digital immigrants," and those born after the 1980s and "digital natives" (Nevin and Schieman 2020; Prensky 2001). In support of this characterization, research thoroughly documents that members of younger age cohorts have greater comfort and facility in internet use (Büchi, Just, and Latzer 2016; Hargittai and Dobransky 2017). Concomitantly, there tends to be greater reticence towards the use of social networking technology with age (Yu, Ellison, McCammon, and Langa 2016). Older users may find less social utility and fulfillment from social networking technology (Lüders & Brandtzæg 2014), and instead prefer face-to-face interactions (Yuan, Hussain, Hales, and Cotten 2016).

Evidence of cohort differences in comfort with and utility in online social interactions suggests that we will observe that patterns of change in subjective isolation and community distrust will differ across age cohorts. Members of younger cohorts may feel less isolation as a result of social distancing measures as a part of the COVID-19 response because they more likely to gain social sustenance through online interactions. Similarly, younger cohorts may be more able to use social media and other electronic resources to gain information on local spread

of the infection and means of minimizing risk of transmission, which may in turn serve to lessen generalized suspicion of one's neighbors.

It is critical to underscore that the sum of both age and cohorts effects is that older individuals are likely to experience more substantial social estrangement. A lack of ability to differentiate between age and birth cohort in the current analyses is therefore not a substantial weakness, because we expect moderation by both factors to be in the same direction. Within this research, we therefore expect that increases in subjective isolation and community distrust will be observed more prominently in older individuals, which will result in a stronger increase in psychological distress.

*Summary of Expectations*

[FIGURE 1 ABOUT HERE]

Figure 1 summarizes the primary expectations of this paper. First, the figure indicates that we expect to observe increased feelings of social isolation and community distrust in 2020, following the outbreak of the COVID-19 pandemic. Second, we expect that subjective isolation and community distrust will be associated with greater psychological distress. Consequently, increases in subjective isolation and community distrust will lead to a rise in psychological distrust following the outbreak of the pandemic. However, Figure 1 also shows positive paths between age and the paths between wave of survey and the measures of social estrangement, which illustrates that we expect amplified increases in subjective isolation and community distrust among older members of our study, in turn leading to greater increases in psychological distress.

**Method**

*Data*

      Data are taken from two waves of the Canadian Quality of Work and Economic Life Study, national surveys intended to examine social conditions and well-being among Canadians who were currently employed. Data were gathered by the study authors in cooperation with the Angus Reid Forum, a Canadian national survey research firm that maintains an ongoing national panel of Canadian respondents. The C-QWELS I was gathered from September 19th to September 24th, 2019, and was an online survey was conducted among a representative sample of 2,524 working Canadians. The response rate was 42%, but results were statistically weighted according to the most current education, age, gender and region Census data to ensure a sample representative of working Canadians. The C-QWELS II was conducted from March 17th to March 23rd, 2020 with another nationally representative sample of 2,530 working Canadians. The response rate was 43%, and responses were similarly weighted. Of the 5,054 total respondents, 4,925 are retained in the analytic sample (2019 Sample=2,477; 2020 Sample=2,448), a retention rate of over 97%, suggesting little bias due to listwise deletion.

*Focal Measures*

      *Psychological distress*. Psychological distress was measured using five common symptoms of non-specific psychological distress (Kessler et al. 2002): Feel anxious or tense; feel nervous; feel restless or fidgety; feel sad or depressed; feel hopeless. Respondents indicated the frequency they experienced each symptom in the previous month, with response scales of all of the time, most of the time, some of the time, a little of the time, and none of the time. All responses were coded so that higher values indicated more frequent symptoms. Psychological

distress was measured as the mean of responses to these five questions (Cronbach's alpha= 0.8767). In ancillary analyses, we also modeled psychological distress as a latent variable and found results that were similar to those presented here. We present the results using the mean of the five items, though, because the results are more directly interpretable based on the original response scale.

*Community distrust.* Similar to other studies (e.g., Carpiano and Fitterer 2011; Fujiwara and Kawachi 2008), community distrust was measured using single item that asked, "Thinking about the people in your neighbourhood—that is, the local area in which you live" how much respondents agreed or disagreed with the statement "My neighbours can be trusted." Response scales were strongly agree, somewhat agree, somewhat disagree, strongly disagree. Responses were coded so that higher values indicated greater disagreement, thereby creating a measure of community distrust. However, a small proportion of respondents indicated strong disagreement, and ancillary analyses showed that standard errors were substantially inflated due to the small number of these cases. We therefore combined responses of strongly disagree and disagree into an overall "disagree" category. Ancillary analyses indicated a similar overall pattern of results, regardless of whether these response categories were combined.

*Subjective isolation.* Subjective isolation was measured using one item which asked respondents how often they felt "isolated from other people" in the previous month, with the same response categories as the distress items. Preliminary analyses showed that a small proportion of respondents indicated "all of the time," but a much more substantial number indicated "most of the time," and we therefore combined responses to the two most frequent categories together to lessen sampling variability due to small cell sizes. Overall results were substantively similar regardless of combining these two categories.

*Age*.  Age was measured in years of age.  One issue with age was that, because the sample was based on the working population, there were few respondents over the age of 65, approximately 4% of the sample.  We therefore coded the top age in the sample as age 65, to avoid the influence of sparse values of high age from unduly influencing the tests of moderation.  Age was centered over a value of 40, the approximate median age in the sample, to provide clearer interpretations of the interactions.  We also undertook a series of sensitivity tests to ensure that results were not attributable to the sparse observations of older adults.  First, we recoded age as a dichotomous variable in which 0=40 or younger (digital natives) and 1=41+ (digital immigrants).  Second, we retained age as a continuous variable, but limited analyses only to those aged 59 and younger (approximately 40% of the analytic sample was between the ages of 41 and 59, indicating a substantial concentration of respondents).  In both alternative analyses, the moderation remained significant and in the same direction as the main analyses.  It therefore appears that the moderation results that we present are not purely due to the older respondents in the sample or the high ages of a small subset of respondents.

*Wave of survey*.  Membership in the surveys was indicated by a dichotomous variable in which a value of 0 indicated the respondent participated in the September 2019 survey and a value of 1 indicated the respondent participated in the March 2020 sample.  In the results, these will be referred to as the 2019 and 2020 samples, respectively.

*Control Measures*

*Generalized trust*.  To take broader social trust into account, respondents were asked a common survey question on social trust:  "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people? Please tell me what you

think, where 1 means you can't be too careful and 5 means most people can be trusted." In the analyses, indicators of the lowest level of trust is contrasted with a set of dichotomous indicators for each of the other categories of trust. We also examined using generalized trust as a linear predictor, or using a collapsed set of categories, but ancillary analyses showed that using the full set of response categories as a set of dichotomous predictors provided maximal control. Ancillary analyses also showed that community and generalized trust were not substantially correlated, suggesting that each are distinct indicators of trust.

*Employment conditions*. Because analyses are based on two samples of working Canadians, employment conditions were taken into account to address the degree to which occupational experiences contributed to psychological distress. Occupational class was measured using a five-category classification—professional, administrative, sales, clerical, and laborer—with professional as reference. Number of work hours in main job were controlled using a set of dichotomous indicators, in which part-time (29 hours or less) was contrasted with fill time (30-49) and extended hours (50+). Working more than one job was controlled by a dichotomous indicator in which the higher value indicated that the respondent worked more than one job.

*Familial statuses*. Familial statuses that may provide support and ward off social estrangement were taken into account with a dichotomous indicator in which the higher value indicated that the respondent lived with a romantic partner and dichotomous variable in which the higher value indicated that the respondent lived with at least one child under the age of 18.

*Social and economic statuses*. Social and economic statuses that may contribute to both social estrangement and psychological distress were also controlled, including education, income, gender, minority status, and age. Education was operationalized as a set of categories,

in which individuals with a university degree were compared to a category of high school and/or trade school, and a category of some university or college/trade school; because less than 2% of weighted sample at each wave had less than a high school degree, these respondents were grouped with those with a high school or trade school.  Income was measured as a set of categories in which $150,000 or more in household income was compared to less than $25,000, $25,000 to less than $50,000, $50,000 to less than $100,000, and $100,000 to less than $150,000. Because individuals who do not provide income often reside in high income categories and taking non-response into account would help to control for biases in self-reports, missing income was considered as an additional analytic category.  Gender was coded as 0=men, 1=women.  As is common in Canadian research (Little 2016), minority status was measured by a dichotomous variable in which the higher value indicated a "visible minority."

*Plan of Analysis*

All analyses are conducted in Stata 16.1.  Analyses are conducted in three stages.  In the first stage, we examine bivariate differences between the focal study measures in the two waves of the surveys.  In the second stage, we examine predictors of community distrust and subjective isolation in a multiple regression model.  Each outcome is examined using two models.  First, we examine between-wave differences in the outcome, independent of the control variables; second, we test whether between-wave differences in each measure differs by respondent's age by testing an interaction between wave of survey and age.  Because both community distrust and subjective isolation are based on an ordinal response scale, we utilize ordered logistic regression in the multiple regression analyses (Hoffmann 2016).  Critically, ordered logistic regression depends on an assumption of parallel lines (Williams 2006), in which the change in risk based on a

predictor is the same between each category of the dependent variable. Preliminary analyses that applied a Brant test (Brant 1990), however, showed that this assumption was supported for the association between wave of survey and both outcomes, as well as for the interaction term.

In a third stage of analyses, we use OLS regression to examine the association between wave of survey and psychological distress. We first examine between-wave differences in psychological distress, while holding constant all background controls. In additional models, we sequentially control for community distrust and subjective isolation, which demonstrates the extent to which each explains between-wave differences in psychological distress (MacKinnon 2008). To account for the non-continuous nature of the measures of community distrust and subjective isolation, each measure is entered into the regression model as a set of categorical indicators, with strong trust or no sense of isolation as the reference group, respectively. We then repeat this process by removing the measures of community distrust and subjective isolation and testing an interaction between wave of survey and age, which demonstrates the extent to which between-wave differences in psychological distress differ by age cohort. A reintroduction of the measures of community distrust and subjective isolation into the model examines the extent to which these factors explain age-based contingencies in between-wave changes in psychological distress.

**Results**

[TABLE 1 ABOUT HERE]

Table 1 displays the distribution of measures for each wave of survey and for the combined sample. Table 1 shows that mean levels of psychological distress were greater in 2020 as compared to 2019. To demonstrate the strength of this difference, we examined the semi-

standardized difference, in which the metric difference is divided by the standard deviation of distress (McClendon 2002), thereby expressing this difference in units of standard deviations of distress. When semi-standardized, this difference was 0.0971, indicating almost a tenth of a standard deviation increase. It should be emphasized that this difference was observed in the population of working adults in a relatively short six-month period, indicating a precipitous increase in population levels of psychological distress.

Table 1 also shows a substantial shift in both community distrust and subjective isolation. The proportion of respondents who had strong trust in their neighbors dropped almost 8.5%. Notably, both the "somewhat agree" and combined disagreement categories showed increased prevalence, indicating a general weakening of trust in neighbors. Subjective isolation showed an even more substantial change, with the percentage of respondents reporting frequent feelings of isolation jumping from 10.75% to almost 15%. Respondents experiencing even occasional feelings of isolation increased from four percent. These changes are especially notable because the society-wide social isolation measures had only recently been enacted when the 2020 survey was administered in mid-March.

We otherwise observe few substantial differences between waves in additional factors. Particularly notable is that generalized trust appeared relatively stable, which reflects the importance of considering trust in specific targets with whom an individual may interact, rather than more diffuse perceptions of trust. These analyses therefore suggest that it is community distrust and subjective isolation that are likely to be the primary contributors to the rise in psychological distress that we observe over the six-month period.

*Multiple Regression Analyses*

[TABLE 2 ABOUT HERE]

Table 2 displays the results of the ordered logistic regression analyses of community distrust and subjective isolation. Model 1 shows that, independent of the controls, respondents in 2020 evidenced a significantly increased risk of community distrust. Being a respondent in the 2020 survey was associated almost 50% greater odds of reporting a higher level of distrust than being a respondent in the 2019 sample. However, these between-wave differences did not vary by age, as the interaction between wave of survey and age in Model 2 is not significant.

Turning to subjective isolation, Model 3 shows that respondents in 2020 also had increased risk of subjective isolation. Being a respondent in the 2020 sample was associated with over 40% greater odds of reporting a higher level of isolation than being a respondent in the 2019 sample. Furthermore, between-wave differences in subjective isolation differ by age, as Model 4 shows that the interaction between wave of survey and age is statistically significant.

[FIGURE 2 ABOUT HERE]

To explicate this interaction, Figure 2 presents the estimated odds ratios for between-wave differences in subjective isolation across the range of ages in the survey. This figure shows that, for respondents in their 20s and 30s, the odds ratios for between-wave differences in subjective isolation are relatively small and not significant. By age 40, though, respondents in 2020 had over a 30% greater odds of reporting increased feelings of isolation, and this difference was significant. The between-wave odds of subjective isolation increased further in strength in later age cohorts. Respondents at age 50 had almost 50% greater odds of increased feelings of isolation in 2020, and by age 60 the odds were 75% greater in 2020. In accordance with our

expectations, then, the increased risk of subjective isolation following the COVID-19 outbreak was greater among older respondents.

[TABLE 3 ABOUT HERE]

Table 3 presents the results of the OLS regression analyses of psychological distress. Model 1 shows that between-wave increases in distress remain significant, independent of controls. Ancillary analyses showed that, with controls, the semi-standardized difference in distress was similar to the bivariate difference, at 0.100. Model 2 controls for categories of community distrust and, when compared to respondents who reported strong agreement with trust in neighbors, all other categories reported significantly greater mean levels of distress. Ancillary analyses showed that the semi-standardized differences were relatively strong for those who disagreed with trust in neighbors. The semi-standardized difference for respondents in the combined disagreement category was 0.219, while the semi-standardized difference for those in the "somewhat agree" category was 0.0851. Furthermore, the between-wave difference in distress declined over 10% from the previous model, from 0.086 to 0.075, and reduced in significance from $p<0.001$ to $p<0.01$, indicating that increased community distrust contributed to explaining between-wave differences in psychological distress (MacKinnon, 2008). There was also a commensurate decline in the semi-standardized between-wave difference in distress, from 0.100 to 0.087.

Model 3 introduces controls for categories of responses to subjective isolation, with no feelings of isolation as the reference group. All categories of feelings of isolation are significantly associated with greater distress. Furthermore, these differences are quite substantial. Ancillary analyses showed that the semi-standardized coefficient feeling isolated some of the time was 0.893, while the semi-standardized coefficient for feeling isolated most or

all of the time was 1.549. There is also a substantial decrease in the between-wave difference in psychological distress when feelings of isolation are taken into account, as the between-wave difference in distress is essentially negated and is no longer statistically significant. Increasing levels of subjective isolation from September 2019 to March 2020 therefore substantially explain increases in psychological distress

[FIGURE 3 ABOUT HERE]

Model 4 removes the indicators of community distrust and subjective isolation, but introduces an interaction between wave of survey and age. This interaction is significant, demonstrating that between-wave differences in psychological distress varied significantly by age cohort. Figure 3 clarifies the meaning of this interaction by depicting the semi-standardized coefficients for differences in psychological distress across values of age. Figure 3 shows that, at younger ages, between-wave differences in psychological distress are not significant. At age 40, though respondents in 2020 reported significantly higher mean levels of psychological distress. These differences increased in strength at older ages. For respondents at age 50, there was an increase of over a tenth of a standard between 2019 and 2020, and for respondents at age 60, this increase was almost a fifth of a standard deviation, indicating a change in population mental health that is relatively substantial, especially in the short amount of time between waves.

Model 5 introduces controls for categories of community distrust. The interaction between wave of survey and age in Model 5 almost entirely unchanged compared to the coefficient for the interaction in Model 4. Community distrust therefore does not explain age cohort contingencies in between-wave differences in psychological distress, but this is to be expected, as age did not moderate between-wave differences in risk of community distrust. The ordered logistic regression analyses did show significant age contingencies in between-wave

differences in risk of subjective isolation, though.  Moreover, Model 6 shows that controlling for categories of subjective isolation reduces the size of the interaction by over 50% and this interaction is no longer significant.  That older respondents were more vulnerable to an increased risk in subjective isolation between 2019 and 2020 therefore explains why older respondents were more at risk for an increase in psychological distress between waves of the survey.

**Discussion**

The COVID-19 pandemic resulted in substantial changes in patterns of social interactions, as governments enacted social distancing and other safety measures intended to slow the spread of the virus.  From a Durkhemian perspective, large-scale social change may disrupt social connections, resulting in a loss of social integration and commensurate harm to public health.  The loss of social integration is especially likely be experienced in the wake of the COVID-19 pandemic because individuals were expected to minimize in-person interactions and social gatherings.

Our comparisons of two surveys of the Canadian working population—one pre-pandemic in September of 2019 and another mid-March of 2020 as the pandemic accelerated—confirm these expectations.  An increase in the sense of isolation was substantial, with a nearly 10% increase in at least some indications of feelings of isolation.  While it is not surprising that a substantial portion of respondents experienced an increased sense of isolation, the ramifications of isolation for distress should be emphasized.  Feelings of isolation were substantially associated with distress, and largely explained a precipitous increase in psychological distress between waves of the surveys.

These findings are especially notable for two reasons. First, the social distancing measures enacted by governments were intended to prevent a public health crisis, and particularly strains on the health care system that could be caused by widespread infection. Yet, our analyses suggest that these public health measures may also have harmed public health by leading to a rise in psychological distress. The mental health costs of social distancing is especially important because these measures also curtailed individuals' abilities to seek out medical or therapeutic assistance for increased distress. Second, the 2020 survey was gathered shortly after the Canadian federal and provincial governments instituted social distancing requirements. It is likely that many people experienced additional feelings of isolation as the requirements to refrain from in-person social contacts continued. Thus, we are likely observing in these analyses only the beginning of increased feelings of isolation that lead to even greater increases in psychological distress.

Between-wave increases in both subjective isolation and subsequent psychological distress were, however, demarcated by age. In particular, respondents at older ages experienced greater risk of increases in a sense of isolation, with subsequent heightened increases in psychological distress. Although we cannot differentiate between age and cohort effects in the current analyses, given the critical question is whether older adults were more at risk for adverse mental health effects in the wake of COVID-19, an inability to differentiate between the two is less important than in demonstrating that it was older individuals who were at greater risk. Furthermore, the survey data analyzed in this study are intended to be representative of Canadian workers, which will under-represents the larger population of older adults, many of whom are retired. As the working population will tend to have at least some social contact through inter-work relations, it is likely that this study minimizes the consequences of social distancing

measures for a sense of isolation among the larger population of older adults.  The risk to the psychological well-being of older adults as a result of COVID-19 social distancing measures are therefore likely even stronger than those presented here.

Yet, it should also be noted that we expected birth cohort to create contingencies in processes of social estrangement because older cohorts were likely to gain less social fulfillment from digital forms of social interactions.  In particular, some have characterized those born before 1980 as "digital immigrants," and those born in 1980 as after as "digital natives."  This is notable because our results followed this categorization.  Those younger than 40 (and therefore born after 1980) were much less at risk for increased feelings of social isolation than those born after 1980.  In fact, for younger respondents in our sample, there was little increased risk of feelings of isolation.  This pattern therefore provides support for our argument that cohort differences in patterns of use of and comfort with electronic forms of communication were likely a primary contributor to feelings of isolation among older respondents.  It is also possible, however that these age cohort differences could diminish as the pandemic continued and members of older cohorts became more comfortable with electronic forms of communication.

Research in the history of pandemics also highlights how public trust can change as a result of pandemics.  In particular, Barry (2005) underscores the extent to which fear can undermine levels of public trust and enhance selfish motives.  We observed some evidence of this increase as well.  Even in the short time between surveys, trust in neighbors declined precipitously—especially in terms of strong trust in neighbors.  Furthermore, we observed this decline even though overall trust remained relatively consistent between waves of the survey.  The increase specifically in distrust of others in local surroundings suggests that individuals began to look at one-another more suspiciously, even if they did not perceive people more

generally as less trustworthy.  Essentially, the risk of infection lead to less trust in people with whom individuals were likely to come into contact in the community.

There may be a hesitancy to attribute substantial meaning to the loss of community trust because community distrust only minorly explained between-wave differences in psychological distress.  There may, however, be striking consequences of declining community trust that extend beyond measures of psychological distress.  Trust is a core dimension of human relations. Without trust, individuals cannot engage in fundamental processes of reciprocity that serve to build equity in human relationships (Cialdini & Goldstein, 2004).  Thus, increasing levels of distrust could have even more substantial consequences for social order.  This could especially be the case if a greater number of people shifted to more extreme levels of distrust.  Within our survey, there was a sparse proportion of respondents who strongly disagreed with trust in neighbors, but our 2020 survey was administered fairly early in the course of the pandemic. Subsequent wider transmission of the virus could lead to increased proportions of stark distrust, with resultant harm to the structure of social interactions, as well as clearer ramifications for psychological distress.

Several limitations of this study should be noted.  First, both community distrust and subjective isolation were measured with single-item measures.  Although community distrust has previously been measured using single questions (e.g., Carpiano and Fitterer 2011; Fujiwara and Kawachi 2008), single-item measures typically have lower levels of reliability that multiple scales.  However, that we see similar increases in both measures suggests that the changes observed in these analyses are not simply due to random fluctuations caused by unreliability.  In addition, it should be emphasized that while the changes observed here are likely attributable to the COVID-19 pandemic and associated social distancing measures, we cannot directly link any

observed changes to the COVID-19 pandemic.  This does not weaken the underlying findings of this paper that the Canadian working population experienced a dramatic increase in social estrangement that lead to greater levels of psychological distress.  Finally, and similar to the question of retired older adults, these analyses focused on employed individuals, and it is possible that unemployed individuals may have also experienced an even greater increase in subjective isolation in the absence of social interactions with co-workers.

*Conclusion*

The Covid-19 pandemic represents a once-in-a-lifetime kind of shock to social life across societies.  From Durkheim's view, it would be unsurprising that we would to see the consequences of such rapid and all-encompassing social change for integration and cohesion— and, ultimately, for population health and well-being.  Supportive relationships and trust matter, perhaps even more so when society is facing a collective threat.  As the pandemic accelerated, we began to observe the expected fallout for social life.  Our study demonstrates how in just a short period of time—from September 2019 to mid-March 2020—we document a substantial rise in social isolation and community distrust.  However, the patterns are not equivalent across age. In particular, social isolation increased more dramatically during this period for older workers compared to their younger counterparts.  Importantly, differences in social isolation represent a primary contribution to a rise in psychological distress during this period.  In these times of great turbulence and social disruption, it is critical to maintain meaningful social ties.  But in the time of pandemic, we see that sustaining those bonds becomes increasingly more challenging, resulting in challenges to mental health.

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| | 2019 Survey | 2020 Survey | Merged Surveys | p |
|---|---|---|---|---|
| Distress | 2.257 | 2.340 | 2.298 | ** |
| Community Distrust (Trust in Neighbors) | | | | |
| Strongly Agree | 0.360 | 0.275 | 0.318 | |
| Somewhat Agree | 0.502 | 0.547 | 0.525 | |
| Somewhat Disagree/Strongly Disagree | 0.138 | 0.178 | 0.158 | *** |
| Subjective Isolation | | | | |
| None of the Time | 0.438 | 0.374 | 0.406 | |
| A Little of the Time | 0.259 | 0.241 | 0.250 | |
| Some of the Time | 0.196 | 0.236 | 0.216 | |
| Most/All of the Time | 0.108 | 0.150 | 0.129 | *** |
| Age | 45.931 | 45.637 | 45.785 | |
| Generalized Trust | | | | |
| Low Trust | 0.128 | 0.108 | 0.118 | |
| 2 | 0.161 | 0.172 | 0.166 | |
| 3 | 0.392 | 0.384 | 0.388 | |
| 4 | 0.243 | 0.265 | 0.254 | |
| High Trust | 0.077 | 0.072 | 0.074 | |
| Occupational Class | | | | |
| Professional | 0.399 | 0.401 | 0.400 | |
| Administrative | 0.162 | 0.134 | 0.148 | |
| Sales | 0.178 | 0.186 | 0.182 | |
| Clerical | 0.175 | 0.170 | 0.172 | |
| Laborer | 0.088 | 0.109 | 0.098 | |
| Work Hours | | | | |
| Part-Time | 0.187 | 0.218 | 0.202 | |
| Full-Time | 0.680 | 0.651 | 0.666 | |
| Extended Hours | 0.132 | 0.131 | 0.132 | |
| Working Multiple Jobs | | | | |
| One Job | 0.775 | 0.776 | 0.776 | |
| More than One Job | 0.225 | 0.224 | 0.225 | |
| Living with Romantic Partner | | | | |
| Partner | 0.663 | 0.672 | 0.668 | |
| No Partner | 0.337 | 0.328 | 0.333 | |
| Any Children in Household | 0.502 | 0.617 | 0.559 | |
| No Children | 0.712 | 0.656 | 0.684 | |
| Children | 0.289 | 0.344 | 0.316 | *** |
| Education | | | | |
| High School/Trade School | 0.341 | 0.362 | 0.351 | |
| Some University or College/Trade School | 0.189 | 0.213 | 0.201 | |
| University Degree | 0.470 | 0.425 | 0.448 | * |
| Income | | | | |
| Under $25,000 | 0.050 | 0.054 | 0.052 | |
| $25,000 to Less than $50,000 | 0.149 | 0.137 | 0.143 | |
| $50,000 to Less than $100,000 | 0.305 | 0.307 | 0.306 | |
| $100,000 to Less than $150,000 | 0.228 | 0.232 | 0.230 | |
| $150,000 and Over | 0.173 | 0.165 | 0.169 | |
| Missing Income | 0.096 | 0.105 | 0.100 | |
| Gender | | | | |
| Men | 0.474 | 0.474 | 0.474 | |
| Women | 0.526 | 0.526 | 0.526 | |
| Visible Minority | | | | |
| Not a Visible Minority | 0.474 | 0.474 | 0.474 | |
| Visible Minority | 0.526 | 0.526 | 0.526 | |

*N*=4,925 (2019 Sample=2,477; 2020 Sample=2,448). Descriptives are weighted.

Means are presented for continous measures, proportions for categorical measures.

*p <0.05. **p <0.01. ***p <0.001 (Two-tailed tests).

TABLE 2
Ordinal Logistic Regression Analyses of Social Estrangement

| | Community Distrust | | | | | | | | Subjective Isolation | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Model 1 | | | | Model 2 | | | | Model 3 | | | | Model 4 | | | |
| | *b* | SE | exp(*b*) | *p* | *b* | SE | exp(*b*) | *p* | *b* | SE | exp(*b*) | *p* | *b* | SE | exp(*b*) | *p* |
| *Focal Predictors* | | | | | | | | | | | | | | | | |
| Survey (2019 is Reference) | 0.396 | 0.063 | 1.485 | *** | 0.369 | 0.062 | 1.446 | *** | 0.334 | 0.060 | 1.396 | *** | 0.266 | 0.058 | 1.305 | *** |
| Age | -0.013 | 0.003 | 0.987 | *** | -0.015 | 0.004 | 0.985 | *** | -0.032 | 0.002 | 0.969 | *** | -0.038 | 0.003 | 0.962 | *** |
| Survey X Age | | | | | 0.005 | 0.005 | 1.005 | | | | | | 0.013 | 0.005 | 1.013 | ** |
| | | | | | | | | | | | | | | | | |
| *Control Measures* | | | | | | | | | | | | | | | | |
| Generalized Trust | | | | | | | | | | | | | | | | |
| 2.000 | -0.257 | 0.134 | 0.774 | | -0.260 | 0.134 | 0.771 | * | -0.250 | 0.130 | 0.779 | | -0.259 | 0.130 | 0.772 | * |
| 3.000 | -0.561 | 0.117 | 0.570 | *** | -0.565 | 0.117 | 0.568 | *** | -0.545 | 0.116 | 0.580 | *** | -0.556 | 0.116 | 0.573 | *** |
| 4.000 | -1.193 | 0.124 | 0.303 | *** | -1.196 | 0.125 | 0.302 | *** | -0.674 | 0.122 | 0.510 | *** | -0.680 | 0.122 | 0.507 | *** |
| High Trust | -1.703 | 0.171 | 0.182 | *** | -1.708 | 0.171 | 0.181 | *** | -1.166 | 0.161 | 0.312 | *** | -1.179 | 0.161 | 0.308 | *** |
| Occupational Class | | | | | | | | | | | | | | | | |
| Administrative | -0.076 | 0.102 | 0.927 | | -0.078 | 0.102 | 0.925 | | 0.119 | 0.095 | 1.126 | | 0.113 | 0.096 | 1.120 | |
| Sales | 0.168 | 0.094 | 1.183 | | 0.168 | 0.093 | 1.183 | | 0.133 | 0.089 | 1.142 | | 0.132 | 0.089 | 1.142 | |
| Clerical | 0.148 | 0.098 | 1.159 | | 0.149 | 0.098 | 1.160 | | -0.114 | 0.099 | 0.892 | | -0.111 | 0.099 | 0.895 | |
| Laborer | 0.277 | 0.119 | 1.319 | * | 0.278 | 0.119 | 1.321 | * | -0.036 | 0.111 | 0.965 | | -0.027 | 0.111 | 0.974 | |
| Work Hours | | | | | | | | | | | | | | | | |
| Full-Time | 0.105 | 0.088 | 1.111 | | 0.103 | 0.088 | 1.108 | | -0.009 | 0.084 | 0.991 | | -0.014 | 0.084 | 0.986 | |
| Extended Hours | -0.162 | 0.120 | 0.850 | | -0.166 | 0.120 | 0.847 | | 0.094 | 0.117 | 1.099 | | 0.088 | 0.117 | 1.092 | |
| Working Multiple Jobs | -0.128 | 0.079 | 0.880 | | -0.129 | 0.079 | 0.879 | | 0.186 | 0.070 | 1.205 | ** | 0.185 | 0.071 | 1.203 | ** |
| Not Living with Romantic Partner | 0.140 | 0.077 | 1.150 | | 0.143 | 0.077 | 1.153 | | 0.323 | 0.074 | 1.381 | *** | 0.334 | 0.074 | 1.397 | *** |
| Any Children in Household | -0.094 | 0.068 | 0.911 | | -0.089 | 0.068 | 0.914 | | 0.057 | 0.065 | 1.058 | | 0.072 | 0.065 | 1.074 | |
| Education | | | | | | | | | | | | | | | | |
| High School/Trade School | 0.001 | 0.079 | 1.001 | | 0.003 | 0.079 | 1.003 | | -0.109 | 0.075 | 0.897 | | -0.101 | 0.075 | 0.904 | |
| Some University or College/Trade School | -0.090 | 0.092 | 0.914 | | -0.090 | 0.092 | 0.914 | | -0.212 | 0.088 | 0.809 | * | -0.213 | 0.088 | 0.808 | * |
| Income | | | | | | | | | | | | | | | | |
| Under $25,000 | 0.494 | 0.190 | 1.640 | ** | 0.495 | 0.190 | 1.640 | ** | 0.641 | 0.165 | 1.898 | *** | 0.645 | 0.166 | 1.906 | *** |
| $25,000 to Less than $50,000 | 0.299 | 0.129 | 1.348 | * | 0.295 | 0.129 | 1.343 | * | 0.422 | 0.122 | 1.524 | ** | 0.413 | 0.122 | 1.511 | ** |
| $50,000 to Less than $100,000 | 0.285 | 0.099 | 1.330 | ** | 0.281 | 0.100 | 1.325 | ** | 0.235 | 0.090 | 1.265 | ** | 0.225 | 0.091 | 1.252 | * |
| $100,000 to Less than $150,000 | 0.122 | 0.100 | 1.129 | | 0.120 | 0.100 | 1.127 | | 0.064 | 0.094 | 1.066 | | 0.061 | 0.095 | 1.063 | |
| Missing Income | 0.259 | 0.127 | 1.295 | * | 0.256 | 0.127 | 1.292 | * | 0.196 | 0.123 | 1.217 | | 0.188 | 0.123 | 1.207 | |
| Women | -0.054 | 0.066 | 0.948 | | -0.053 | 0.066 | 0.948 | | 0.054 | 0.064 | 1.056 | | 0.056 | 0.064 | 1.057 | |
| Visible Minority | 0.334 | 0.091 | 1.397 | *** | 0.332 | 0.091 | 1.394 | *** | 0.263 | 0.091 | 1.300 | ** | 0.257 | 0.091 | 1.293 | ** |
| | | | | | | | | | | | | | | | | |
| Cut 1 | -1.092 | 0.177 | | | -1.111 | 0.178 | | | -0.583 | 0.172 | | | -0.625 | 0.172 | | |
| Cut 2 | 1.551 | 0.178 | | | 1.532 | 0.179 | | | 0.547 | 0.171 | | | 0.508 | 0.172 | | |
| Cut 3 | --- | --- | | | --- | --- | | | 1.917 | 0.173 | | | 1.876 | 0.173 | | |

N=4,925. *p<0.05. **p<0.01. ***p <0.001 (Two-tailed tests).

TABLE 3
Ordinary Least Squares Regression Analyses of Psychological Distress

| | Model 1 | | | Model 2 | | | Model 3 | | | Model 4 | | | Model 5 | | | Model 6 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *b* | SE | *p* | *b* | SE | *p* | *b* | SE | *p* | *b* | SE | *p* | *b* | SE | *p* | *b* | SE | *p* |
| *Focal Predictors* | | | | | | | | | | | | | | | | | | |
| Survey (2019 is Reference) | 0.086 | 0.025 | *** | 0.075 | 0.025 | ** | 0.001 | 0.021 | | 0.056 | 0.025 | * | 0.046 | 0.025 | | -0.012 | 0.021 | |
| Age | -0.021 | 0.001 | *** | -0.021 | 0.001 | *** | -0.014 | 0.001 | *** | -0.023 | 0.001 | *** | -0.023 | 0.001 | *** | -0.015 | 0.001 | *** |
| Survey X Age | | | | | | | | | | 0.005 | 0.002 | ** | 0.005 | 0.002 | ** | 0.002 | 0.002 | |
| Community Distrust (Trust in Neighbors) | | | | | | | | | | | | | | | | | | |
| Somewhat Agree | | | | 0.073 | 0.028 | * | 0.021 | 0.023 | | | | | 0.073 | 0.028 | * | 0.021 | 0.023 | |
| Somewhat Disagree/Strongly Disagree | | | | 0.187 | 0.041 | *** | 0.089 | 0.034 | ** | | | | 0.186 | 0.041 | *** | 0.088 | 0.034 | ** |
| Subjective Isolation | | | | | | | | | | | | | | | | | | |
| A Little of the Time | | | | | | | 0.386 | 0.025 | *** | | | | | | | 0.384 | 0.025 | *** |
| Some of the Time | | | | | | | 0.762 | 0.029 | *** | | | | | | | 0.761 | 0.029 | *** |
| Most/All of the Time | | | | | | | 1.322 | 0.039 | *** | | | | | | | 1.320 | 0.039 | *** |
| | | | | | | | | | | | | | | | | | | |
| *Control Measures* | | | | | | | | | | | | | | | | | | |
| Generalized Trust | | | | | | | | | | | | | | | | | | |
| 2 | -0.232 | 0.054 | *** | -0.223 | 0.054 | *** | -0.159 | 0.044 | *** | -0.234 | 0.054 | *** | -0.225 | 0.054 | *** | -0.160 | 0.044 | *** |
| 3 | -0.438 | 0.048 | *** | -0.420 | 0.049 | *** | -0.289 | 0.040 | *** | -0.441 | 0.048 | *** | -0.422 | 0.048 | *** | -0.291 | 0.040 | *** |
| 4 | -0.543 | 0.051 | *** | -0.506 | 0.051 | *** | -0.355 | 0.042 | *** | -0.544 | 0.050 | *** | -0.507 | 0.051 | *** | -0.356 | 0.042 | *** |
| High Trust | -0.708 | 0.062 | *** | -0.660 | 0.063 | *** | -0.434 | 0.053 | *** | -0.710 | 0.062 | *** | -0.663 | 0.063 | *** | -0.436 | 0.053 | *** |
| Occupational Class | | | | | | | | | | | | | | | | | | |
| Administrative | 0.040 | 0.039 | | 0.041 | 0.039 | | 0.015 | 0.033 | | 0.037 | 0.039 | | 0.039 | 0.039 | | 0.014 | 0.033 | |
| Sales | 0.086 | 0.036 | * | 0.081 | 0.036 | * | 0.051 | 0.029 | | 0.086 | 0.036 | * | 0.081 | 0.036 | * | 0.051 | 0.029 | |
| Clerical | -0.094 | 0.040 | * | -0.098 | 0.040 | * | -0.071 | 0.032 | * | -0.093 | 0.040 | * | -0.097 | 0.040 | * | -0.071 | 0.032 | * |
| Laborer | 0.044 | 0.049 | | 0.036 | 0.049 | | 0.047 | 0.040 | | 0.046 | 0.049 | | 0.039 | 0.049 | | 0.048 | 0.040 | |
| Work Hours | | | | | | | | | | | | | | | | | | |
| Full-Time | 0.028 | 0.034 | | 0.026 | 0.034 | | 0.036 | 0.028 | | 0.026 | 0.034 | | 0.023 | 0.034 | | 0.035 | 0.028 | |
| Extended Hours | -0.009 | 0.047 | | -0.005 | 0.047 | | -0.029 | 0.038 | | -0.013 | 0.047 | | -0.009 | 0.047 | * | -0.031 | 0.038 | |
| Working Multiple Jobs | 0.057 | 0.029 | | 0.060 | 0.029 | * | 0.016 | 0.025 | | 0.056 | 0.029 | | 0.059 | 0.029 | | 0.016 | 0.025 | |
| Not Living with Romantic Partner | 0.042 | 0.030 | | 0.038 | 0.030 | | -0.041 | 0.024 | | 0.045 | 0.030 | | 0.041 | 0.030 | | -0.039 | 0.024 | |
| Any Children in Household | -0.043 | 0.028 | | -0.040 | 0.028 | | -0.052 | 0.023 | * | -0.039 | 0.028 | | -0.035 | 0.028 | | -0.050 | 0.023 | * |
| Education | | | | | | | | | | | | | | | | | | |
| High School/Trade School | 0.030 | 0.031 | | 0.030 | 0.030 | | 0.043 | 0.025 | | 0.033 | 0.031 | | 0.032 | 0.030 | | 0.044 | 0.025 | |
| Some University or College/Trade School | -0.005 | 0.037 | | -0.002 | 0.036 | | 0.033 | 0.030 | | -0.005 | 0.037 | | -0.002 | 0.036 | | 0.033 | 0.030 | |
| Income | | | | | | | | | | | | | | | | | | |
| Under $25,000 | 0.233 | 0.067 | ** | 0.219 | 0.066 | ** | 0.074 | 0.055 | | 0.235 | 0.068 | ** | 0.220 | 0.067 | ** | 0.075 | 0.055 | |
| $25,000 to Less than $50,000 | 0.242 | 0.049 | *** | 0.234 | 0.049 | *** | 0.136 | 0.040 | ** | 0.238 | 0.049 | *** | 0.230 | 0.049 | *** | 0.134 | 0.040 | ** |
| $50,000 to Less than $100,000 | 0.106 | 0.037 | ** | 0.099 | 0.037 | ** | 0.046 | 0.031 | | 0.102 | 0.037 | ** | 0.095 | 0.037 | * | 0.044 | 0.031 | |
| $100,000 to Less than $150,000 | 0.094 | 0.037 | * | 0.091 | 0.037 | * | 0.068 | 0.031 | * | 0.092 | 0.037 | * | 0.089 | 0.037 | * | 0.067 | 0.031 | * |
| Missing Income | 0.088 | 0.051 | | 0.081 | 0.051 | | 0.038 | 0.042 | | 0.085 | 0.051 | | 0.078 | 0.051 | | 0.036 | 0.042 | |
| Women | 0.138 | 0.026 | *** | 0.139 | 0.026 | *** | 0.127 | 0.021 | *** | 0.138 | 0.026 | *** | 0.140 | 0.026 | *** | 0.127 | 0.021 | *** |
| Visible Minority | 0.050 | 0.037 | | 0.040 | 0.037 | | -0.024 | 0.029 | | 0.048 | 0.036 | | 0.038 | 0.037 | | -0.025 | 0.029 | |
| | | | | | | | | | | | | | | | | | | |
| Constant | 2.538 | 0.068 | *** | 2.460 | 0.072 | *** | 2.042 | 0.060 | *** | 2.556 | 0.068 | *** | 2.478 | 0.071 | *** | 2.052 | 0.060 | *** |
| R2 | 0.203 | | | 0.207 | | | 0.449 | | | 0.204 | | | 0.209 | | | 0.450 | | |

N=4,925. *$p$ <0.05. **$p$ <0.01. ***$p$ <0.001 (Two-tailed tests).
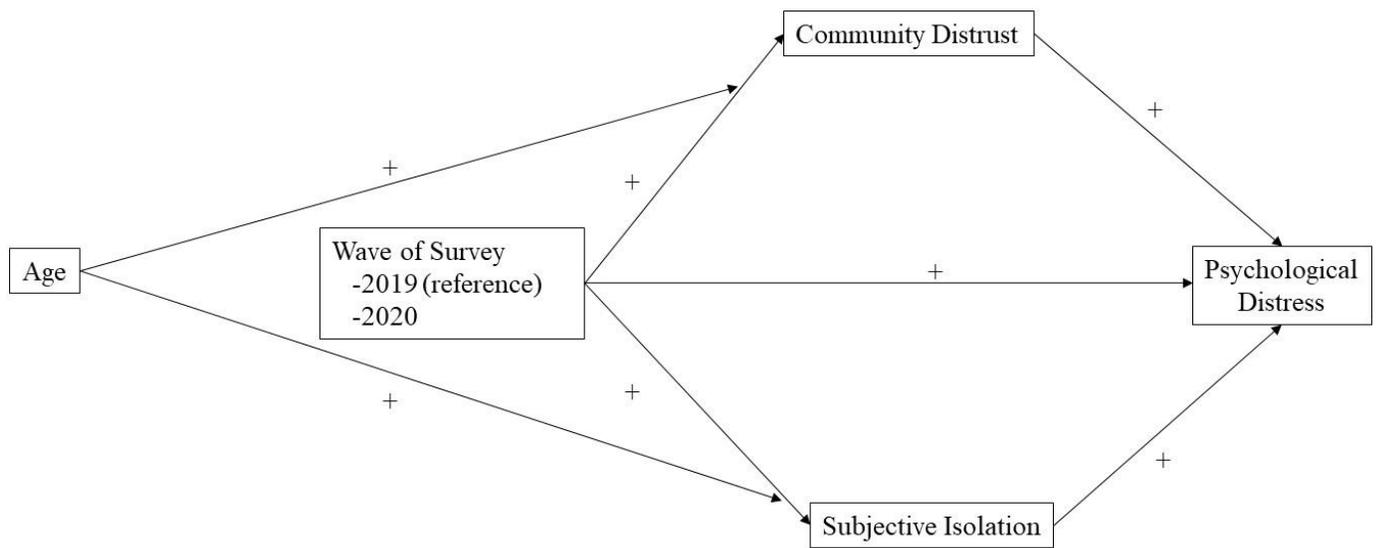
Figure 1: Model of social estrangement and psychological distress following the outbreak of COVID-19.
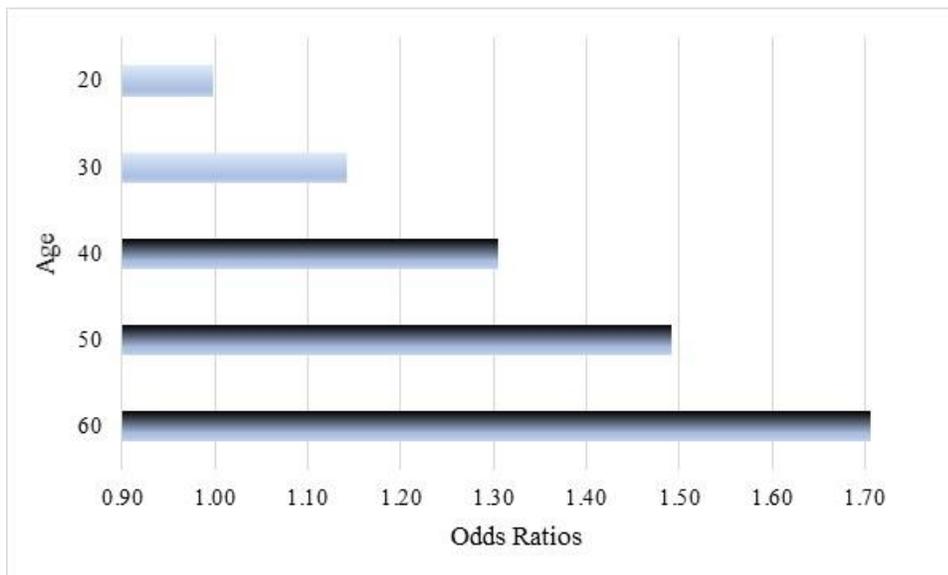
Figure 2. Odds ratios of increased risk in subjective isolation across ages. Dark bars indicate statistically significant odds ratios, while light bars indicate non-significant odd ratios. All significant differences are significant at $p<0.001$.
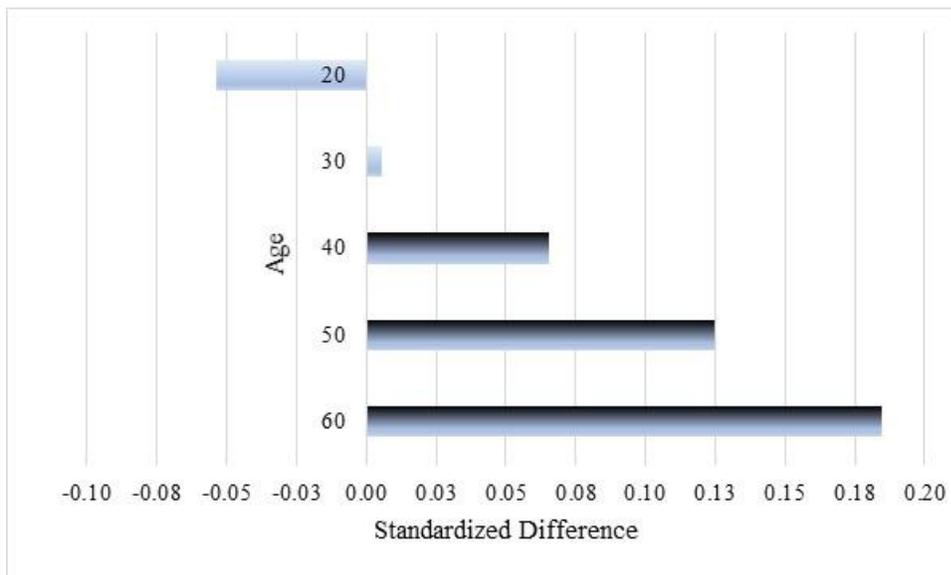
Figure 3. Standardized difference in psychological distress across ages. Dark bars indicate

statistically significant differences, while light bars indicate non-significant differences.

Difference at age 40 is significant at $p<0.05$, for later ages at $p<0.001$.