PERSONALITY AS A PREDICTOR OF ADHERENCE TO PUBLIC HEALTH MEASURES FOR CONTROLLING COVID-19 VIRAL SPREAD: THE MEDIATING ROLES OF PROBLEM DRINKING AND PANDEMIC-RELATED DISTRESS

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Abstract

Nonadherence to the public health guidelines implemented in response to COVID-19 is concerningly common, with some research implicating personality as a contributing factor. Thus, there is a need to examine the mechanisms behind personality-nonadherence associations. We examined the associations between a four-factor risk model of personality and nonadherence to COVID-19 guidelines during the initial 30-days of the lockdown. Results indicated that in 400 Canadians, a majority reported they were Caucasian (67.7%), that they were single and never married (36.2%), that they were not a parent (70.9%), and that they were working from home (56.9%). Individuals higher in impulsivity left home more frequently for non-essential reasons, due to greater problem drinking. Elevated sensation seeking and hopelessness did not predict higher nonadherence. In contrast, higher anxiety sensitivity resulted in greater adherence, explained by higher levels of COVID-related distress. Acknowledging such factors may target adherence to mandates as well as psychological distress.

Dedication

I would like to dedicate this thesis to my lovely parents and sister, who continue to be my number one cheerleaders every day.

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Introduction

In March of 2020, the novel coronavirus disease (COVID-19) outbreak led to the current global pandemic, requiring immediate action from countries worldwide (World Health Organization, 2020). In attempts to control the rapid spread of COVID-19, jurisdictions have instituted restrictive public health measures including stay-at-home orders in the early phases of the pandemic to social distancing advisements, mask-wearing, and travel restrictions, many of which continue to date. During the beginning stages of the pandemic, most countries implemented rapid closure of many institutions, including businesses, schools and other public places. These sudden closures and restrictions have had a drastic impact on the social and work life of many people. Without the ability to attend gatherings, visit public spaces (e.g., restaurants, movie theatres), or socially engage in the same way as before the pandemic, social isolation and pandemic-related distress may be relevant concerns for many individuals.

Despite the efforts of jurisdictions to reduce viral spread, nonadherence to public health measures was observed during the initial stages of the pandemic (Lavoie, 2020). These public health measures have been empirically supported as important strategies for reducing the spread of COVID-19 (Yi, Lagniton, Ye, Li, & Xu, 2020; Zhong et al., 2020), yet some individuals remain nonadherent to these measures. For example, recent data from an international study conducted during the COVID-19 lockdown suggests that more than 20% of adults worldwide did not follow public health measures like social distancing (Lavoie, 2020). Little is known about factors that contribute to nonadherence in response to such public health containment measures; however, recent COVID-19 research suggests that personality factors are likely involved. For example, Blagov (2020) found that disinhibition was negatively correlated with intentions to social distance and practice good hygiene, while Miguel et al. (2021) showed that antisocial traits (e.g., risk-

taking) predicted continued nonadherence to viral containment measures. Further findings indicate that psychopathy traits and boldness predict engagement in risky behaviours (Blagov, 2020), and that less instances of complying with public health measures can be seen in those high in narcissism (Nowak et al., 2020). Additionally, individuals high in conscientiousness have shown to be more likely to engage in social distancing guidelines and handwashing (Carvalho, Pianowski, & Gonçalves, 2020) while also taking more cautionary measures to prevent being infected (Aschwanden et al., 2020). Regarding pandemic-related worry, individuals higher in neuroticism show higher concerns towards COVID-19 (Aschwanden et al., 2020). Adherence to public health measures can help in decreasing risk of infection; thus, knowledge about who is least likely to adhere to these measures would be beneficial in informing efforts to target such nonadherence.

One personality theory that may be promising for understanding who is at greatest risk of nonadherence to COVID-19 public health containment measures is the four-factor personality risk model for alcohol and substance misuse (Conrod, Pihl, Stewart, & Dongier, 2000; Pihl & Peterson, 1995). This theory posits that two externalizing personality traits – impulsivity and sensation seeking – put individuals at risk of engaging in both risk-taking behaviours and substance misuse, while two internalizing personality traits – anxiety sensitivity and hopelessness – put individuals at risk for both distress and substance misuse. Impulsiveness refers to acting without sufficient forethought, whereas sensation seeking refers to one's preference for novel and intense experiences. In contrast, anxiety sensitivity refers to fear of anxiety-related sensations, and hopelessness refers to pessimism about the self, world, and future. Theory and empirical research in non-pandemic times links impulsiveness and sensation seeking to risk-taking (e.g., shoplifting or driving while intoxicated; Woicik, Stewart, Pihl, & Conrod, 2009; Zuckerman, 1979). Research also links anxiety sensitivity and hopelessness to a variety of measures of distress, including worry

and fears of social embarrassment (Taylor, 2014) or elevated expectations of unpreventable, unwanted events (Abramson, Metalsky, & Alloy, 1989) respectively. These outlined personality factors and their related risks may thus be a potentially useful framework for explaining higher instances of adherence or nonadherence in the context of COVID-19 public health measures.

With regard to adherence to public health measures, individuals with elevated impulsiveness, sensation seeking, and hopelessness personality traits may all engage in higher instances of nonadherence than others, although for varying reasons. Specifically, those high in impulsiveness are less likely to consider long-term consequences of their behaviour (to themselves or close others; Pihl & Peterson, 1995), leading to higher instances of breaking the pandemic containment rules. In contrast, those high in sensation seeking may perceive public health strategies like social distancing as interfering with their fun (a valued experience for sensation seekers; Woicik et al., 2009) and they may comply less often to these measures as a result. Individuals higher in hopelessness are depression-prone (Woicik et al., 2009); the apathy that accompanies their depressed mood may interfere with the motivation needed to properly implement public health strategies, like social distancing or staying at home.

As the four-factor vulnerability model suggests personality risk for drinking, higher instances of problem drinking may serve as an explanatory mechanism in the relationships of impulsiveness, sensation seeking, and hopelessness with nonadherence. For example, among individuals high in impulsiveness, drinking likely further increases disinhibition or may be a reason for leaving home for non-essential reasons (e.g., to party with others). Individuals high in sensation seeking may be nonadherent to these COVID-19 regulations because of feeling bored or wanting to engage in risk-taking behaviours, such as heavy drinking. Regarding individuals high in hopelessness, engaging in problem drinking may exacerbate or increase experiences of low

mood and apathy to the pandemic situation, possibly resulting in a decreased level of care. Research examining adherence to stay-at-home orders in young adults has shown that problem drinking in these individuals leads to poor adherence to such public health guidelines and is linked with higher in-person contact, and that this level of adherence can continue to decrease overtime (Suffoletto, Ram, & Chung, 2020). Ultimately, if problem drinking behaviours are increased due to these personality risk factors, higher nonadherence may be a possible consequence.

Of the personality traits outlined in the four-factor model, anxiety sensitivity may be the only trait related to *greater* adherence to COVID-19 containment strategies. High anxiety sensitivity is closely related to health anxiety (Abramowitz & Braddock, 2008; Fergus & Bardeen, 2013). Therefore, individuals high in anxiety sensitivity may be *more* adherent to strategies designed to minimize their risk of infection due to high levels of concern and stress surrounding the possibility of becoming infected (i.e., COVID-19-related distress). Engaging in behaviours that may compromise this adherence and, ultimately, present possible risk of infection may in turn make behaviours such as heavy drinking appear to be less appealing or altogether avoided. While understanding factors that may contribute to problem drinking are necessary in understanding nonadherence, it is important to also consider factors that may contribute to increased adherence and possible higher COVID-related distress.

The proposed study has two main goals. First, we aimed to examine links between four personality factors (i.e., impulsiveness, sensation seeking, hopelessness, and anxiety sensitivity; Woicik, Stewart, Pihl, & Conrod, 2009) and the degree of adherence to public health measures among Canadian adults during the first month of the COVID-19 lockdown. Specifically, we aimed to understand the connections between these personality factors and adherence to two public health directives: leaving one's residence only for essential reasons, and maintaining a 6-foot distance

from anyone outside your household. These were the primary public health guidelines given to individuals by many jurisdictions during the initial stages of COVID-19; other measures, such as mask-wearing guidelines, were implemented later in Canada. Based on the personality-risk model and previous literature, we hypothesized that impulsiveness, sensation seeking, and hopelessness would be associated with greater nonadherence to initial public health guidelines to reduce COVID-19 spread. We hypothesized that increased problem drinking during the initial stages of COVID-19 would explain these associations. Moreover, we expected that individuals high in anxiety sensitivity would be *more* adherent to these public health guidelines, and that high levels of COVID-related distress would explain these effects. Indeed, differences in adherence towards public health measures may be explained by all four of these personality factors, and understanding such associations is necessary in ultimately informing current viral-spread prevention tactics.

Methods

Participants and Procedure

Baseline data from an ongoing longitudinal study examining substance use habits during COVID-19 (Wardell et al., 2020) were used for the present study. Participants were recruited via Prolific, an online crowdsourcing platform that was designed specifically to get high quality survey data (Palan & Schitter, 2018), and informed consent was obtained before participation in the study. Four attention checks were included in the administered survey in order to implement quality control in our sample. Participants' data were removed from the dataset if they failed two or more attention checks, or if they completed the survey abnormally fast (i.e., in under 20 minutes). As a result, two participants were removed from the dataset. Based on these inclusion criteria, the final sample included $N = 400$ participants ($M_{age} = 32.05$ years, $SD_{age} = 9.53$ years; 44.9% female, 55.1% male). Data were collected between April 30, 2020 and May 4, 2020, approximately 4-7 weeks after the initial lockdown was implemented across Canada (depending on location). The timeframe for problem drinking, COVID-distress, and adherence measures was past 30 days. The study was approved by the York University Research Ethics Board. For their role in the study, each participant was compensated $13 CAD.

Participants were from across Canada, with the largest representation coming from Ontario (51%), British Columbia (14%), Alberta (11%), and Quebec (10%). The remaining participants were approximately equally distributed across the other provinces/territories. The majority of the sample had a university degree (74%), but most participants were not currently students (75%). The median household income was in the range of $80,000 to $99,000. Finally, approximately 28% of the sample reported having children under the age of 18 at home.

Measures

Personality. The Substance Use Risk Profile (SURPS; Woicik, Stewart, Pihl, & Conrod, 2009; 23 items) was used to measure personality risk. Participants responded to statements using a 4-point scale (1 – *'strongly disagree'* to 4 – *'strongly agree'*). The SURPS has four subscales measuring impulsiveness (5 items, e.g., "I often don't think things through before I speak"), anxiety sensitivity (5 items, e.g., "It frightens me when I feel my heartbeat change"), sensation seeking (6 items, e.g., "I like doing things that frighten me a little"), and hopelessness (7 items, e.g., "I feel that I'm a failure"). The SURPS is both a reliable and valid personality measure (Woicik et al., 2009). The internal consistencies for the SURPS subscales were all acceptable to good in the current sample, ranging from $\alpha = .73 - .87$.

Problem Drinking. To measure alcohol-related problems, the Short Inventory of Problems (SIP-2R; 15 items) was administered. The SIP-2R is a list of items taken from the Drinker Inventory of Consequences (DrInC; Miller, 1995) which outlines various problems that participants may have experienced as a consequence of their drinking (e.g., "problems between you and your partner"). Participants indicated on a 4-point scale (0 – *'never'* to 3 – *'daily or almost daily'*) how frequently each problem had occurred within the past 30 days (i.e., the first 30 days of the COVID-19 lockdown). The SIP-2R is a strong measure of severity of problem drinking. Previous research supports the validity and reliability of the SIP-2R (Kiluk, Dreifuss, Weiss, Morgenstern, & Carroll, 2013). The internal consistency of the SIP-2R in our sample was acceptable (α = .70).

Pre-COVID Problem Drinking. To control for pre-COVID problem drinking, the Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, De la Fuente, & Grant, 1993; 10 items) was administered to participants. The AUDIT asks participants to respond

to questions regarding their alcohol use during the *past year* specifically and includes questions such as, "how often during the last year have you found that you were not able to stop drinking once you had started?". Participants answered the first 8 items using a 5-point scale (0 to 4), with scale responses being unique to each question (i.e., '*Never*' to '*Daily or Almost Daily*'; '*Never*' to *4 or more times a week*'; etc.). The final two items of the AUDIT are based on a 3-point scale (0 – *'No'*, 2 – *'Yes, but not in the last year'*, or 4 – *'Yes, during the last year'*). A sum score was calculated from responses to all items. The internal consistency of the AUDIT was good in our sample ($\alpha = .87$).

COVID-Related Distress. One author-derived item was used to assess overall distress related to the COVID-19 pandemic. Participants answered to the following question, "*In general, how worried are you about COVID-19?*". Participants responded using a 7-point scale (1 – '*not at all worried'* to 7 – '*extremely worried'*). This item was used as a mediator of the hypothesized associations between anxiety sensitivity and adherence to COVID-19 guidelines.

Adherence to COVID-19 Guidelines. Two items were used to assess nonadherence to initial COVID-19 public health guidelines during the first month of the pandemic state-of-emergency lockdown. The first item assessed the frequency of leaving one's residence for non-essential reasons (i.e., "*What sorts of things have you left your residence for in the past month?*"). Participants were given a list of 14 activities that involved leaving one's residence, nine of which were non-essential (e.g., to pick up alcohol or to go on a date). Participants were asked to indicate *'yes*' (1) or *'no'* (0) to leaving their home for each activity, and a sum score was calculated. Higher sum scores reflected poorer adherence to the guideline of leaving one's home only for essential reasons during the early stages of the COVID-19 lockdown. The second item assessed the degree to which participants violated the social distancing guidelines. Participants were asked, "*IN THE*

PAST MONTH (30 Days), since COVID-19 Emergency was declared in your area, how often have you engaged in a social activity that involved going within 2 meters of someone you did not live with (e.g., going to a party, indoor or outdoor social gathering, visiting friends or family or having them over)?". Participants responded using a 7-point scale (0 – '*never'* to 6 – *'21+ times'*). Higher scores on this item reflected greater nonadherence to the social distancing guideline during the initial stages of the COVID-19 lockdown.

Data Analytic Strategy

Preliminary analyses (i.e., bivariate correlations and descriptive statistics) were conducted in SPSS Version 26. MPlus Version 7 (Muthén & Muthén, 2012) was used to test the mediation model from personality (predictors: anxiety sensitivity, impulsiveness, sensation seeking and hopelessness) to nonadherence to COVID-19 public health guidelines (outcomes: not leaving your home for non-essential reasons and not going within 6-feet of others) via increased problem drinking and COVID-related distress during the initial 30 days of the pandemic (mediators). We controlled for pre-COVID-19 problem drinking with the AUDIT (past 12 months). We built a hypothesis-driven model, such that hopelessness, impulsivity, and sensation seeking were specified as predictors of problem drinking during the first month of the pandemic, and anxiety sensitivity was specified as a predictor of initial levels of COVID-related distress. Both COVID-related problem drinking and distress were specified as positive and negative predictors of nonadherence to public health guidelines. Model fit was evaluated using the following guidelines: fit was considered *excellent* if the comparative fit index (CFI) was > .95, the root mean square error of approximation (RMSEA) was ≤ .05, standardized root mean square residual (SRMR) was ≤ .08, and the model chi square to degrees of freedom ($\chi 2/df$) ratio was < 3.0 (Hu & Bentler, 1999). Covariances among predictors and between outcomes were added to the model to control for

shared variance. Path and mediation effects were evaluated using bias-corrected bootstrapped 95% confidence intervals (CI; Fritz & MacKinnon, 2007). Path and mediation effects were considered to be supported if the 95% CI did not include zero as a possible value. Based on existing recommendations of 20 cases per variable in regression approaches (Kline, 2015, 2020), we concluded that we would be sufficiently powered at a sample size of $N = 180$ to detect small-to-medium effect sizes (as observed in prior research; see Blagov, 2020) from personality to nonadherence outcomes.

Results

Data Screening, Descriptive Statistics, and Bivariate Correlations

The data were inspected for outliers ($z > 3.29$; Tabachnick & Fidell, 2013) prior to examining normality. Outliers on all study variables were replaced with the next highest value in the acceptable range (Kline, 2011). The data did not violate any assumptions of multiple regression, and therefore, were appropriate to be used in the substantive path analysis. Some study variables were positively skewed (i.e., problem drinking and the two COVID-19 adherence outcomes) and therefore, robust maximum likelihood estimation was used to estimate path model effects. Descriptive statistics and bivariate correlations are presented in Table 1. On average, participants reported leaving their home for two non-essential reasons during the first 30 days of the COVID-19 pandemic. However, our sample had considerable variability on this measure (ranging from zero to nine non-essential reasons). Moreover, on average, our sample reported one instance of going within 6 feet of others, though responses ranged considerably from *'never'* to *'greater than 21 instances'*. Finally, our sample reported moderate COVID-related distress (i.e., Mean = 4.26 on a scale of 1 to 7).

Table 1. *Descriptive statistics and bivariate correlations.*

	1	2	3	4	5	6	7	8
1. Hopelessness	-	.20**	.20**	-.14**	.10*	-.06	-.06	.03
2. Anxiety Sensitivity		-	.27**	-.15**	.07	-.01	.00	.24**
3. Impulsivity			-	.19**	.27**	.08	.15**	-.02
4. Sensation Seeking				-	.13**	.17**	.13**	-.09
5. Problem Drinking (*Post COVID emergency*)					-	.35**	.12*	.03
6. Leaving Home (non-essential reasons)						-	.36**	-.13**
7. Going within 6-feet of others							-	-.12**
8. COVID-related distress								-
M	13.36	12.75	10.29	14.68	2.58	1.63	0.86	4.26
SD	3.21	2.67	2.55	3.56	4.54	1.36	1.33	1.38
Range	6 - 24	5 - 20	5 - 19	6 - 21	0 - 21	0 - 9	0 - 6	1 - 7

Note. *M*, mean; *SD*, standard deviation.

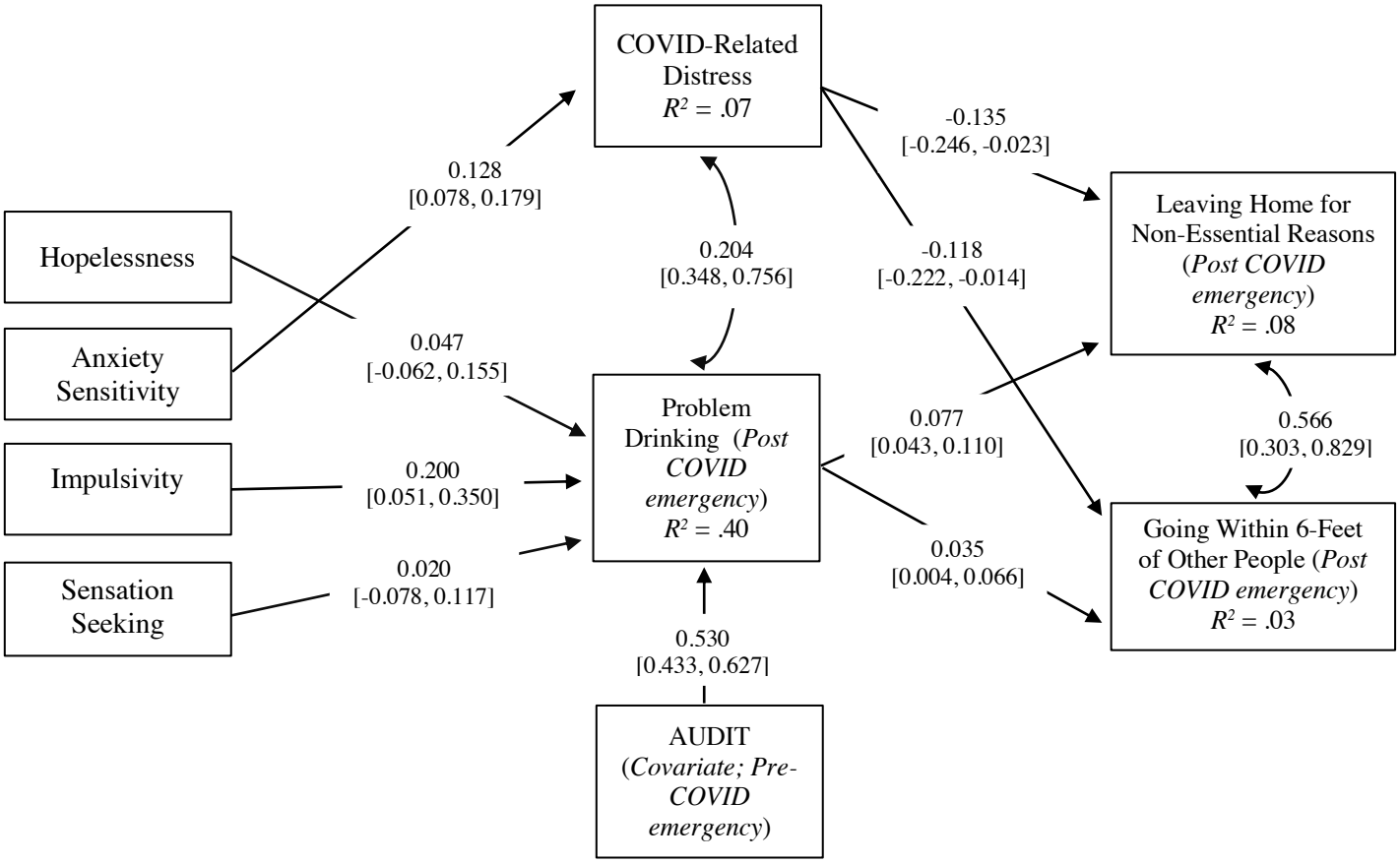
* $p < .05$, ** $p < .01$

At the bivariate level, sensation seeking was positively correlated with both nonadherence behaviours, as well as with problem drinking post-COVID-19 lockdown. Impulsivity was positively correlated with greater levels of violating social distancing guidelines (but not with leaving one's home for non-essential reasons) and with greater post-COVID problem drinking. Hopelessness and anxiety sensitivity were not associated with nonadherence behaviours, though hopelessness was associated with greater levels of post-COVID problem drinking. Finally, anxiety sensitivity was positively associated with COVID-related distress, and distress levels were associated with greater adherence to both public health guidelines.

Hypothesis Testing: Path Modelling

The hypothesized model fit the data well ($\chi^2 = 24.680, p = .054, df = 15, \chi^2/df = 1.645$; *CFI* = 0.964; *RMSEA* = 0.040 (95% *CI* [0.022, 0.068]); *SRMR* = 0.056; see Figure 1). Only impulsiveness (and none of the other personality factors) positively predicted problem drinking during the first 30 days of the COVID-19 pandemic. Moreover, problem drinking during the first month of COVID-19 predicted both nonadherence outcomes. Finally, anxiety sensitivity predicted overall COVID-related distress, and this distress related to greater levels of adherence to public health guidelines.

Figure 1. *Pathway model of COVID-19 public health measure adherence*



Next, CIs for indirect effects were examined to test hypothesized indirect effects (see Table 2). Three main hypothesized indirect pathways were supported. First, the CIs indicated that impulsiveness positively predicted leaving one's residence for non-essential reasons (but not going within 6 feet of others in a social setting) and that this effect was explained by increased problem drinking during the initial stages of the COVID-19 lockdown. Second, the CIs showed that anxiety sensitivity related to greater adherence to the two public health guidelines and that both these effects were explained by higher levels of COVID-related distress.

Table 2. *Estimates and Confidence Intervals for Indirect Pathways from Personality to Nonadherence to COVID-19 Public Health Guidelines via Problem Drinking and COVID-Related Distress*

Indirect Pathway	Standardized Estimate	95% CI[a]
Hopelessness ➔ Problem Drinking ➔ Non-essential	.004	[-.005, .012]
Hopelessness ➔ Problem Drinking ➔ Within 6-Feet	.002	[-.002, .005]
Anxiety Sensitivity ➔ COVID-Related Distress ➔ Non-essential	-.017*	[-.033, -.001]
Anxiety Sensitivity ➔ COVID-Related Distress ➔ Within 6-Feet	-.015*	[-.029, -.001]
Impulsivity ➔ Problem Drinking ➔ Non-essential	.015*	[.002, .029]
Impulsivity ➔ Problem Drinking ➔ Within 6-Feet	.007	[-.002, .016]
Sensation Seeking ➔ Problem Drinking ➔ Non-essential	.001	[-.007, .009]
Sensation Seeking ➔ Problem Drinking ➔ Within 6-Feet	.001	[-.003, .004]

Notes.

[a]Bias-corrected confidence intervals based on 10,000 bootstrapped samples.

*mediation supported as per the 95% CI

Discussion

The goal of the current study was to understand the associations between the four-factor model of personality risk and levels of adherence to COVID-19 public health measures during the first 30 days of the lockdown. In line with our hypotheses, we found that impulsiveness uniquely predicted higher instances of leaving one's residence for non-essential reasons, and this association was explained by higher problem drinking during the initial stages of the COVID-19 pandemic. We also found that those high in anxiety sensitivity were *more likely* to adhere to *both* not going within 6 feet of others, and not leaving their residence for non-essential reasons. These effects were explained by higher COVID-related distress experienced by higher anxiety sensitive individuals. There were no significant associations found between sensation seeking and hopelessness in regards to nonadherence. These findings are essential to targeting interventions towards individuals who are not adhering to necessary COVID-19 public health measures, suggesting important public health and clinical implications.

Individuals with elevated anxiety sensitivity were seen to engage in more instances of adherence because of high COVID-related distress. These findings are in line with previous pandemic-related studies, which highlight the significance that higher levels of anxiety sensitivity have on individuals dealing with contamination fears, increased body vigilance and sensitivity, and overall higher levels of distress (Blakey, Reuman, Jacoby, & Abramowitz, 2015). These tendencies lead to their apparent precautions and safety behaviours for fear of contracting possible viruses. Similarly, our findings indicate that these individuals high in anxiety sensitivity are adhering more often to these public health measures, which aids in combatting the spread of the virus.

However, the mechanism by which anxiety sensitive individuals are adhering to public health measures is distress-related, indicating that they may be struggling with disproportionately high levels of psychological distress during the pandemic. In fact, a study recently conducted by the Centre for Addiction and Mental Health in Canada at the start of the COVID-19 pandemic found that certain consequences of stay-at-home mandates (e.g., working from home, children being unable to attend school or daycare, etc.) were associated with higher levels of anxiety. This increased anxiety may be related to the demands and disruptions associated with working from home or having to take care of children simultaneously, or with the isolation that comes with living alone (Centre for Addiction and Mental Health, 2020). These findings highlight important public and clinical implications. Higher adherence that results from COVID-related distress may ultimately prevent the spread of COVID-19 and help in maintaining or improving public health and safety. However, there may also be negative impacts that these individuals experience in terms of their mental health and wellbeing, highlighting the need for interventions such as telepsychology services and mental health hotlines that address anxiety related to the pandemic and how to mitigate high levels of COVID-related distress. Our findings suggest that those high in anxiety sensitivity may be particularly in need of such services.

Regarding individuals with elevated impulsivity, we found impulsivity to be associated with greater instances of individuals leaving their residences for non-essential reasons (e.g., leaving their residence to get alcohol) an association explained by higher drinking problems early in the pandemic (while controlling for past-year problem drinking levels). Incongruent with the original hypotheses, though elevated impulsivity did predict higher instances of problematic drinking, this relationship did not predict higher instances of nonadherence specific to maintaining a distance of 6 feet between others. Regarding individuals leaving their residences, higher problem

alcohol use may suggest that impulsive people were engaging in more risky drinking (i.e., continuing to drink at illegal parties) or have difficulties controlling drinking, especially during the early stages of the pandemic. This possibly resulted in higher instances of impaired judgement and leaving home without considering health risks. This lack of adherence is problematic as it poses the potential spreading of the virus (Nussbaumer-Streit et al., 2020; Yi et al., 2020). Public health messaging strategies should target highly impulsive individuals and gear messages to focus on the consequences of risky drinking behaviours. Psychoeducation on the ramifications of risky drinking and nonadherence may possibly highlight the need to intervene in their problem drinking behaviours. Nonadherence behaviours may be used in conversations regarding ways to facilitate change in an individual's drinking habits. Future studies should further explore motives for risky drinking behaviours. For example, studies on impulsivity and problematic drinking suggest that different motives, such as coping with distress, may lead to these risky drinking behaviours (Adams, Kaiser, Lynam, Charnigo, & Milich, 2012). It is possible that highly impulsive individuals are engaging in problem alcohol use to cope with COVID-related distress, and these motives should be further explored.

Finally, we did not find sensation seeking or hopelessness to be associated with greater instances of leaving one's home for nonessential reasons due to problem drinking behaviours. Bivariate correlations showed relationships between those high in sensation seeking and going within 6-feet of others, leaving home for nonessential reasons, and problem drinking were significant, and this lack of relationship seen in the overall model may be attributable to possible overlap seen in those high in sensation seeking and impulsivity (Pihl & Peterson, 1995). Regarding individuals high in hopelessness, bivariate analysis indicated that hopelessness was not associated

with individuals' levels of energy towards adhering to public health guidelines. Future studies may want to directly explore this association in individuals higher in depression or depressive traits.

This study is not without limitations. First, only two nonadherence behaviours were measured (i.e., 'not leaving one's residence for non-essential reasons', and 'not going within 6 feet of others'). Although additional guidelines currently exist (e.g., mask-wearing mandates), these were guidelines that were adopted in Canada in the later stages of the pandemic, as public health measures have been updated in response to the effects of COVID-19. The two adherence guidelines used in this study were guided by the primary, early directives communicated to the Canadian public at the beginning of COVID-19, and were accordingly used for reference. Second, this study collected self-report data and is cross-sectional in nature. As a result, data may be subject to certain biases, and is not reflective of the long-term impacts of personality on adherence behaviours in the general population. However, measures such as attention checks were implemented on the Prolific platform to ensure accuracy of data collection, and as the COVID-19 pandemic had a sudden onset and rapid intensification, our goals were to gather data relevant to the beginning stages of public health measures. Future studies should consider utilizing a longitudinal approach when assessing adherence behaviours. Finally, only single items were used to capture COVID-related distress, and using a single-item measure may have excluded other possible responses. Future studies may want to incorporate a more comprehensive assessment of distress in order to optimize responses. It is important to note that these results may not generalize to individuals with alcohol use disorder, and that future studies may want to focus on this population.

To conclude, our findings aid in identifying potential personality risk factors that contribute to levels of adherence/nonadherence to essential public health measures. These measures are

necessary in reducing the viral spread of COVID-19, and such insight can inform current public health messaging strategies that are in place so that key risks (i.e., problem drinking behaviours) may be targeted so as to reach specific populations (i.e., those high in impulsivity). Additionally, acknowledgement of increased distress surrounding the COVID-19 pandemic among those with higher anxiety sensitivity highlights the need for mental health services that are accessible to these individuals, as well as the development of interventions that effectively target their COVID-related anxieties. It is important to continue to monitor levels of adherence to public health measures, especially as these measures evolve with the changing state of the pandemic, and how factors such as personality and related behaviours may influence such adherence.

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