Research Articles

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Examining Associations Between Distress Tolerance, Perceived COVID-19 Threat, and Psychological Outcomes: The Moderating Role of Social Support

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Supplementary Materials: Materials [see Index of Supplementary Materials]

Abstract

The COVID-19 pandemic has caused significant psychological distress worldwide. It is important to enhance our understanding of the interpersonal and intrapersonal processes that can be addressed to promote psychological well-being after experiencing an adverse event like a pandemic. Therefore, to understand the direct and indirect associations between distress tolerance and diverse psychological outcomes following the onset of the COVID-19 pandemic, we examined whether perceived COVID-19 threat mediates the association between distress tolerance and several psychological outcomes (i.e., psychological well-being, depression, anxiety, and stress). We also investigated whether social support moderates the indirect associations between distress tolerance and these psychological outcomes. We collected online survey data between April and July 2020 from individuals living in Canada (N = 139). Moderated mediation analyses indicated higher distress tolerance was associated with lower perceived COVID-19 threat which in turn was associated with higher psychological well-being, and lower depression and stress. Additionally, social support satisfaction enhanced the indirect association between distress tolerance and psychological well-being. Our findings may inform the design of interventions that promote psychological well-being after the onset of an adversity like the COVID-19 pandemic by presenting

distress tolerance, perceived threat, and social support as targets for intervention. Future research should investigate the moderating role of different types of social support on the association between distress tolerance and psychological outcomes.

Keywords

> *[I experience]* worries about my health, my partner's health, and the health of my loved ones - including suffering through COVID, any long-term negative effects, hospitalizations and death. (Chiarolanza et al., 2021)

As indicated in this quote, the COVID-19 pandemic caused distress worldwide. Individuals reported elevated levels of depression and anxiety (McPherson et al., 2021) and poor psychological wellbeing (Khan et al., 2021). Simultaneously, due to social distancing measures implemented to prevent the spread of COVID-19, rates of loneliness increased (Ernst et al., 2022), and people were less likely than before the pandemic to benefit from the support of their social networks.

Importantly, psychological outcomes (including psychological well-being, depression, stress, and anxiety) of a stressful event such as the COVID-19 pandemic depend partly on the individual's ability to tolerate distress, which in turn may determine how threatening adversity appears to them. The present paper is predicated on the assumption that understanding the association between distress tolerance—or the ability to manage aversive psychological states (Simons & Gaher, 2005)—and psychological outcomes may help us assist those who are struggling to cope with stressors such as COVID-19.

In the study reported here, we investigated whether perceived COVID-19 threat as experienced during the early months of the COVID-19 pandemic would explain the association between distress tolerance, an intrapersonal variable, and psychological outcomes (specifically, psychological well-being, depression, stress, and anxiety) following the onset of a major stressor (i.e., the COVID-19 pandemic). Additionally, we tested whether social support, an interpersonal variable of considerable potential importance in the context of the COVID-19 pandemic, would moderate the indirect associations between distress tolerance and these psychological outcomes. Psychological symptoms and psychological well-being (defined as having positive affect, good psychological functioning [such as personal growth], and fulfilling interpersonal relationships; Tennant et al., 2007) are affected by both internal and external factors, and therefore, a combined study of interpersonal and intrapersonal variables that are associated with psychological outcomes will yield a more robust explanation than the investigation of each type of variables separately.

Distress Tolerance, Illness Perception, Social Support, and Psychological Outcomes

Individuals low in distress tolerance perceive distress as unbearable and unacceptable and tend to either avoid distress or become preoccupied with it to the point that, in either case, they are unable to function effectively (Simons & Gaher, 2005). Research shows that low distress tolerance is associated with negative affectivity and affect dysregulation (Simons & Gaher, 2005) and unhealthy coping strategies (like substance use) to cope with negative affective states (Ali et al., 2015). For example, among HIV positive individuals, a pairing of major life events with low distress tolerance is associated with higher depression and substance use (O'Cleirigh et al., 2007). Low distress tolerance is also associated with symptoms of Post-Traumatic Stress Disorder, such as avoiding distressing memories and reminders of the trauma, as well as experiencing intrusive re-experiencing of the trauma (Fetzner et al., 2014).

As the COVID-19 pandemic is a source of distress and discomfort (Chiarolanza et al., 2021), people's ability to tolerate distress in an effective manner may be related to their perceptions of COVID-19 as a threatening illness. According to Leventhal et al. (2003), illness perception reflects individuals' beliefs about an illness's symptoms, causes, consequences, duration, and the degree to which they can control the illness and its treatment. It also incorporates individuals' emotional responses to the illness. The more people view themselves as adversely affected by an illness, the less control they believe they have over the illness and the longer they expect it to last, the more they tend to view the illness as threatening (Broadbent et al., 2015). Given that distress tolerance is associated with (1) individuals' views of themselves as capable of dealing with distress and (2) whether they perceive aversive situations as a burden or a problem to overcome (Russell et al., 2019), we hypothesized that distress tolerance should be associated with the extent to which individuals perceive COVID-19 as a threatening illness.

Importantly, in addition to predicting that perceived COVID-19 threat may be directly associated with distress tolerance, we also anticipated that perceived COVID-19 threat might help explain the association between distress tolerance and psychological outcomes. Because illness perception predicts coping behaviors, such as denial and adherence to treatment (Leventhal et al., 2003), and also has implications for psychosocial well-being (Kaptein et al., 2006), we predicted that the more individuals perceived COVID-19 as threatening, the more they would report experiencing negative emotions, such as stress, depression, and anxiety, and diminished psychological well-being.

A further goal of this study was to identify variables that may either attenuate or exacerbate individuals' vulnerability to psychological symptoms and low psychological well-being resulting from low distress tolerance during times of adversity. We therefore examined social support as a potential moderator of the indirect association between distress tolerance and psychological outcomes.

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Social support may be a particularly important moderator to examine in the context of the COVID-19 pandemic as many efforts to limit infection rely on physical distancing mandates and social isolation (this was particularly true in the early months of the COVID-19 pandemic when we collected our data). In addition, research shows that low social support can amplify the negative effects of low distress tolerance on coping with stressors (Cohen et al., 2016). When both social support and distress tolerance are low, individuals employ fewer problem-focused coping strategies (Southwick & Charney, 2012) and lack the support of a social network to prevent dysfunctional coping (e.g., substance abuse; Cohen et al., 2016). We thus tested the moderating effects of both social support availability (the number of people an individual feels they can rely on in times of hardship and need; Sarason et al., 1987) and social support satisfaction (an individual's appraisal of available social support; Sarason et al., 1987) on the indirect association between distress tolerance and psychological outcomes. The literature shows that both aspects of social support are linked to psychological outcomes such as lower experience of depression and anxiety symptoms (Priel & Shamai, 1995).

In sum, we tested the following hypotheses:

Hypothesis 1: Higher distress tolerance will be directly associated with (a) perceiving COVID-19 as less threatening, (b) greater psychological well-being, and (c) lower depression, anxiety, and stress symptoms.

Hypothesis 2: The more threatening participants perceive COVID-19 to be (a) the poorer will be their psychological well-being and (b) the higher their depression, anxiety, and stress symptoms.

Hypothesis 3a: Perceived COVID-19 threat will mediate the association between distress tolerance and psychological outcomes. As such, higher distress tolerance will be associated with perceiving COVID-19 as less threatening which in turn will be associated with (a) higher psychological well-being and (b) lower depression, anxiety, and stress symptoms.

Hypothesis 3b: Social support satisfaction and availability will moderate the indirect associations between distress tolerance and outcome variables via perceived COVID-19 threat. Specifically, higher levels of social support availability and satisfaction will (a) enhance the positive indirect association between distress tolerance and psychological well-being and (b) attenuate the negative indirect association between distress tolerance and depression, stress, and anxiety.

To our knowledge, no study to date has explored the mediating role of perceived COVID-19 threat in the association between distress tolerance and psychological outcomes. Studying such processes may help us determine the best factors to target for interventions. For example, both distress tolerance and perceived COVID-19 threat should be considered in psychological interventions if they prove to be associated with distress. Additionally, the results of our study may help us understand whether the negative association between an intrapersonal trait such as low distress tolerance and psychological

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well-being can be attenuated by an external factor such as social support. This research may expand our options for designing more feasible interventions since social support may be more amenable to intervention than distress tolerance.

Method

Pre-Registration

We pre-registered our hypotheses and analysis plan on the Open Science Framework. All materials are available on OSF as well (see Salavati et al., 2023a).

Participants

The present data are a subset of the Canadian data collected as part of a large multinational project investigating the impact of the COVID-19 pandemic on individuals' health and romantic relationships (Randall et al., 2022). Only individuals living in Canada who were 18 years old or older, involved in a romantic relationship of at least one year duration, and who had been cohabiting with their partner for at least one year at the time of the study were eligible to participate in the larger project. The Canadian research team did not wish to limit participation exclusively to those who met these eligibility criteria, however, and therefore, developed an alternative branch of the survey for completion by those who did not meet the inclusion criteria for the larger project. We report data from this group of individuals here. The current paper is thus based on data from sample of individuals (N = 139) who were 18 years old or older (M_{age} = 29.23, SD = 10.30), living in Canada, and either not cohabiting with a romantic partner at the time of the study or who had cohabited with their partner for less than one year. See Table 1 for descriptive statistics for the demographic variables.

Table 1

Demographic Information

Variable	N	$\%$
Gender		
Women	117	84.2
Men	21	15.1
Non-binary	2	1.4
Fluid/genderqueer	1	.7
Sexual Orientation		
Gay	5	3.6
Heterosexual	110	79.1
Bisexual	19	13.7

Variable	N	%
Pansexual	3	2.2
Lesbian	5	3.6
Queer	5	3.6
Other (e.g., heteroflexible)	4	2.9
Ethnicity		
Black/African/African descent	1	.7
White/European/European descent	108	77.7
East Asian/East Asian descent	12	8.6
Indigenous Peoples of Canada/First Nations	2	1.4
Latin(X)/Latin American descent	9	6.5
Middle Eastern/Middle Eastern descent	2	1.4
South Asian/Indian descent	10	7.2
Other (e.g., mixed)	5	3.6
Annual Income		
$0–$24,999	70	50.4
$25,000–$49,999	33	23.7
$50,000–$74,999	21	15.1
$75,000–$99,999	10	7.2
$100,000–$149,999	3	2.2
Greater than $150,000	1	.7
Education Level		
Less than high school	1	.7
High school	21	15.1
Professional program	12	8.6
Undergraduate degree	80	57.6
Graduate degree	25	18
Relationship Status[a]		
Married	1	.7
Casually dating	3	2.2
Exclusively dating	87	62.6
Engaged	4	2.9
Consensually non-monogamous/Polyamorous	4	2.9

Note. N = 139.

[a]All participants were in current romantic relationships, 48% had been with their romantic partner for a year or more, and most did not live with their partners (73%).

Procedure

This study was approved by the Conjoint Faculties Research Ethics Board (CFREB) at the first author's institution (ethics certificate number REB20-0499). We advertised the study on social media and collected data from individuals living in Canada from April 27, 2020, to July 30, 2020. After indicating consent, participants completed an online

survey in either English or French. As discussed above, participants who did not meet the eligibility criteria for the larger study were directed to the branch of the survey examined in the current study. All participants had the chance to win one of ten $50CAD gift cards.

Materials

Distress Tolerance Scale (DTS)

The 15-item DTS (Simons & Gaher, 2005) assesses the extent to which an individual (1) believes distress is tolerable (tolerance), (2) is preoccupied with the presence of distress (absorption), (3) regulates negative emotions associated with distress (regulation), and (4) believes their coping abilities are better or worse than others' (appraisal). Example items are "feeling distressed or upset is unbearable to me" and "when I feel distressed or upset, all I can think about is how bad I feel". Participants answered items on a 1 (*strongly disagree*) to 5 (*strongly agree*) response scale. We reverse-coded all negatively phrased items so that higher scores represent higher overall distress tolerance. We calculated an average score based on Simons and Gaher's (2005) assumption that all items represent a single higher-order distress tolerance factor. We report Cronbach's alphas for all study variables in Table 2.

Table 2

Descriptive Statistics and Correlations Among Variables

Variable	M	SD	α	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Distress tolerance	3.03	.80	.91													
2. Perceived COVID-19 threat	26.38	5.35	.69	-.41**												
3. Psychological well-being	45.72	8.65	.90	.34**	-.36**											
4. Pre-Depression[a]	4.58	4.15	.89	-.38**	.25**	-.39**										
5. Pre-Stress	6.93	4.04	.83	-.36**	.21*	-.28**	.62**									
6. Pre-Anxiety	3.17	2.92	.73	-.32**	.24**	-.30**	.43**	.70**								
7. Post-Depression[b]	7.27	5.15	.91	-.39**	.42**	-.66**	.64**	.41**	.36**							
8. Post-Stress	8.36	4.92	.88	-.39**	.38**	-.42**	.37**	.62**	.53**	.63**						
9. Post-Anxiety	4.22	3.98	.83	-.41**	.30**	-.34**	.27**	.47**	.67**	.53**	.73**					
10. Residual-Depression[c]	.00	3.94	—	-.19*	.33**	-.55**	.00	.01	.10	.77**	.50**	.47**				
11. Residual-Stress	.00	3.87	—	-.22*	.32**	-.31**	-.02	.00	.12	.48**	.79**	.55**	.64**			
12. Residual-Anxiety	.00	2.95	—	-.28**	.19*	-.19*	-.04	.00	.00	.39**	.50**	.74**	.54**	.63**		
13. Satisfaction with support	4.82	1.09	.92	.21*	-.26**	.52**	-.21*	-.19*	-.15	-.34**	-.12	-.14	-.27**	.00	-.05	
14. Availability of support	4.12	1.85	.88	.09	-.20*	.35**	-.12	.08	-.04	-.17*	.05	.00	-.13	.01	.04	.36**
10. Residual-Depression[c]	.00	3.94	—	-.19*	.33**	-.55**	.00	.01	.10	.77**	.50**	.47**				
11. Residual-Stress	.00	3.87	—	-.22*	.32**	-.31**	-.02	.00	.12	.48**	.79**	.55**	.64**			
12. Residual-Anxiety	.00	2.95	—	-.28**	.19*	-.19*	-.04	.00	.00	.39**	.50**	.74**	.54**	.63**		
13. Satisfaction with support	4.82	1.09	.92	.21*	-.26**	.52**	-.21*	-.19*	-.15	-.34**	-.12	-.14	-.27**	.00	-.05	
14. Availability of support	4.12	1.85	.88	.09	-.20*	.35**	-.12	.08	-.04	-.17*	.05	.00	-.13	.01	.04	.36**

[a]Pre-depression, pre-stress, and pre-anxiety scores are based on participants' ratings of the symptoms experienced before the COVID-19 quarantine. [b]Post-depression, post-stress, and post-anxiety scores are based on participants' ratings of the symptoms experienced after the start of quarantine. [c]Residual-Depression, Residual-Stress, and Residual-Anxiety represent residual scores after regressing post-DASS on pre-DASS.

*p < .05. **p < .01.

The Brief Illness Perception Questionnaire (BIPQ)

We measured the degree to which participants perceived COVID-19 as threatening (i.e., illness perceptions) using a version of the BIPQ (Broadbent et al., 2006) tailored to COVID-19. The 9-item BIPQ assesses the dimensions of consequences, timeline, personal control, treatment control, identity, emotional representation, and concern. We excluded items 5 ("How much do you experience symptoms from your illness?") and 9 ("Please list in rank-order the three most important factors that you believe caused your illness") because they were irrelevant to perceptions of COVID-19. Anchors varied as appropriate across items, but all response scales ranged from 0 to 10 (e.g., 0 = *no effect as all* to 10 = *severely affects my life*).

   Initially, we aggregated across all seven items to create an index representing the degree to which participants perceived COVID-19 as threatening. However, the Cronbach's α showed poor internal consistency (α = .51). To resolve this issue, we conducted an Exploratory Factor Analysis (EFA) with Oblimin rotation. Conceptually, we expected factors to be correlated, as they assess different aspects of illness perception. However, the EFA with Oblimin rotation resulted in a two-factor solution with uncorrelated factors (r = .01, p = .872). Therefore, we proceeded to conduct an EFA with a varimax rotation, which resulted in the same two-factor solution. The first factor accounted for 30.65% of the variance with an eigenvalue of 2.14. The second factor explained 20.51% of the variance with an eigenvalue of 1.44. Only factor one indicated adequate internal consistency (factor one α = .69, factor two α = .43). We thus tested our models using factor one, which included the items: "How much has the COVID-19 pandemic affected your life?", "How concerned are you about the COVID-19 pandemic?", "How much does the COVID-19 pandemic affect you emotionally? (e.g., does it make you angry, scared, upset or depressed?" and "How long do you think the COVID-19 pandemic will continue?" Following Broadbent et al. (2015), we calculated a total score with higher scores reflecting greater perceived threat (theoretical range 0 to 40).

The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS)

The 14-item WEMWBS (Tennant et al., 2007) measures positive aspects of psychological well-being (e.g., "I am feeling optimistic about the future"). The anchors range from 1 (*none of the time*) to 5 (*all of the time*). We calculated a total score as per Tennant et al. (2007). Higher scores represent greater psychological well-being (theoretical range 14 to 70).

Depression, Anxiety, and Stress Scales (DASS-21)

Depression, anxiety, and stress were measured using the DASS-21 (Lovibond & Lovibond, 1995). Participants completed the measure twice, first reporting how much they recalled experiencing the symptoms before the COVID-19 quarantine (pre-DASS). Immediately afterward, they completed it a second time, reporting how much they experienced the

symptoms after the start of quarantine (post-DASS). The depression (e.g., "I couldn't seem to experience any positive feeling at all"), anxiety (e.g., "I felt I was close to panic"), and stress subscales (e.g., "I found it difficult to relax") each contained seven items. Participants indicated their response to each item using a 0 (*did not apply to me at all*) to 3 (*applied to me very much, or most of the time*) scale. We calculated total scores for each subscale as per Lovibond and Lovibond (1995), with higher scores corresponding to higher depression, anxiety, and stress symptoms. For purposes of analysis, we regressed post-DASS scores on each subscale on pre-DASS scores on that subscale and then, in line with our pre-registered analysis plan, used the residuals from these analyses as the outcome variables in our main analyses. The use of residual scores enabled us to account for participants' reports of the depression, anxiety, and stress symptoms they perceived experiencing before the COVID-19 restrictions without increasing the number of variables in our models (given our relatively small sample size).

Social Support Questionnaire (SSQ6)

We measured participants' perceptions of the availability of and their satisfaction with social support with the SSQ6 (Sarason et al., 1987). Six items asked participants to list individuals to whom they turn for social support in different situations (e.g., "whom can you really count on to help you feel more relaxed when you are under pressure or tense?"). We calculated scale scores following Rascle et al. (2005). As such, we used the average of the number of people in participants' lists across situations as our measure of social support availability. Further, for each situation, participants rated the extent to which they were satisfied with the social support they received (e.g., "how satisfied are you?") on a scale from 1 (*very dissatisfied)* to 6 (*very satisfied*). We calculated the average across the six satisfaction ratings to create a measure of social support satisfaction. For both subscales, higher scores represent greater perceived social support.

Analytic Plan

We used bivariate correlations to test H1 and H2 (Table 2). To test H3a and H3b, we conducted mediation and moderated mediation analyses using Bayes estimation procedures (Zyphur & Oswald, 2015) in Mplus software (iterations = 20,000). A total of four mediation models were run in order to test H3a. Distress tolerance predicted perceived COVID-19 threat, which in turn predicted outcome variables (i.e., psychological well-being, depression, stress, and anxiety). In order to determine whether perceived COVID-19 threat mediates the association between distress tolerance and psychological outcomes, we looked at whether the indirect path coefficient differed significantly from zero.

In addition, as shown in Figure 1, we ran four moderated mediations to examine the indirect associations between distress tolerance and our dependent variables, first with social support satisfaction as a moderator and then with social support availability as a moderator (H3b, eight moderated mediation models in total). To decide whether

satisfaction with and availability of social support moderated the indirect association between distress tolerance and the outcome variables via perceived COVID-19 threat, we calculated indices of moderated mediation (Hayes, 2015) for each of the moderated mediation models. The index of moderated mediation is a formal test of moderated mediation to determine if it is statistically different from zero (Hayes, 2015). To probe a significant moderated mediation, we examined the conditional indirect association between distress tolerance and psychological well-being using simple slope analysis. We used one standard deviation below and above the mean to represent high and low levels of the moderator (i.e., social support satisfaction and availability).

Figure 1

Statistical Diagrams of Moderated Mediations: Social Support Satisfaction as Moderator
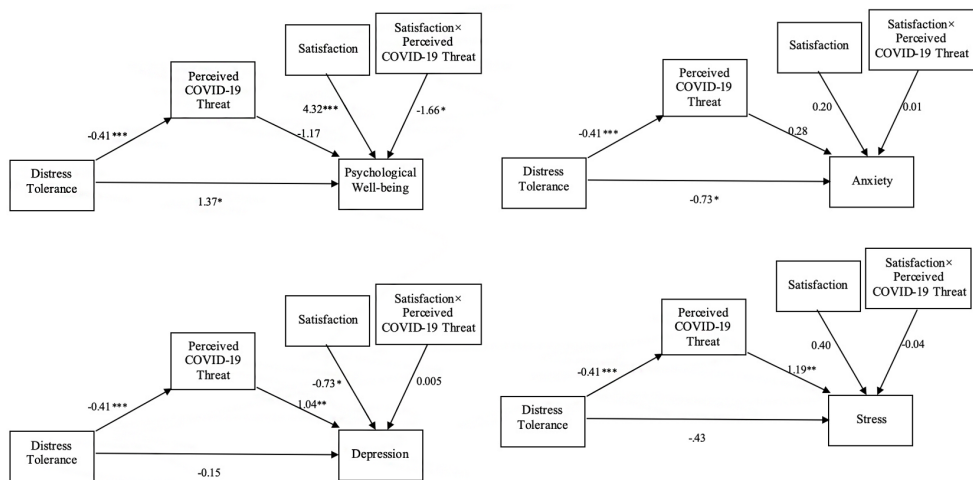
Note. Values represent unstandardized coefficients.
*$p < .05$. **$p < .01$. ***$p < .001$.

Results

Table 2 presents descriptive statistics, alpha coefficients, and correlations for all study variables. We hypothesized that higher distress tolerance would be associated with (a) perceiving COVID-19 as less threatening, and reporting (b) greater psychological well-being, and (c) lower depression, anxiety, and stress symptoms (H1).[1] As shown in Table 2, the data fully supported H1.

H2 further hypothesized that participants would experience (a) poorer psychological well-being and (b) more depression, stress, and anxiety the more they perceived COVID-19 as threatening. H2 was also fully supported (see Table 2).

H3a received partial support. The analyses showed that perceived COVID-19 threat explained the associations between distress tolerance and (a) psychological well-being, $B = 0.90$, $p = .004$, 95% CI [0.23, 1.68], (b) depression, $B = -0.48$, $p = .002$, 95% CI [-0.84, -0.14], and (c) stress, $B = -0.45$, $p = .002$, 95% CI [-0.81, -0.13], but not the association between distress tolerance and anxiety, $B = -0.10$, $p = .374$, 95% CI [-0.32, .14].

Finally, based on the index of moderated mediation and in support of H3b, satisfaction with social support moderated the indirect association between distress tolerance and psychological well-being via perceived COVID-19 threat, $B = 0.66$, $p = .010$, 95% CI [0.13, 1.29]. In contrast, and counter to H3b, however, neither social support satisfaction nor availability of social support moderated the mediations for the other outcome variables (see Figure 1 and Figure 2).

Figure 2

Statistical Diagrams of Moderated Mediations: Availability of Social Support as Moderator
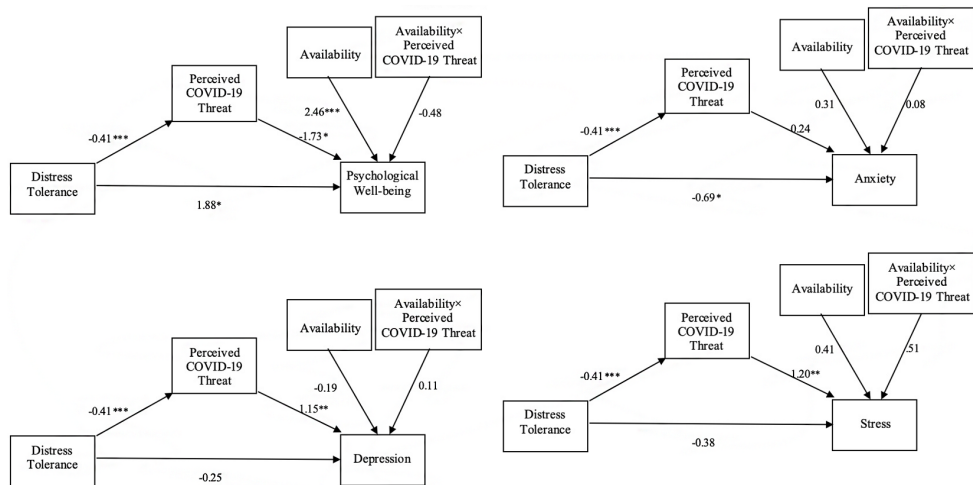
Note. Values represent unstandardized coefficients.
$^*p < .05.$ $^{**}p < .01.$ $^{***}p < .001.$

Probing this significant moderated mediation (i.e., satisfaction with social support moderated the indirect association between distress tolerance and psychological well-being via perceived COVID-19 threat) indicated that the conditional indirect association was non-significant at low levels of social support satisfaction, $B = -0.05$, $p = .874$,

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1) Though it was not part of our pre-registered analysis plan, we later tested all DASS models with post-DASS scores as dependent variables, controlling for pre-DASS scores. The results were the same as those using the residualized DASS variables.

95% CI [-0.80, 0.68], but reached significance at medium, *B* = 0.49, *p* = .016, 95% CI [0.02, 1.09], and high levels, *B* = 1.05, *p* < .001, 95% CI [0.34, 1.90]. As shown in Figure 3, high satisfaction with social support enhanced the indirect association between distress tolerance and psychological well-being via lower perceived COVID-19 threat. As per our pre-registration, we also tested whether the interaction between satisfaction with and availability of social support moderates the relationship between perceived COVID-19 threat and (a) psychological well-being, and (b) depression, anxiety, and stress. There were no significant interactions. The results can be found in the supplemental materials.

Figure 3

Social Support Satisfaction Moderating the Indirect Association Between Distress Tolerance and Psychological Well-being via Perceived COVID-19 Threat
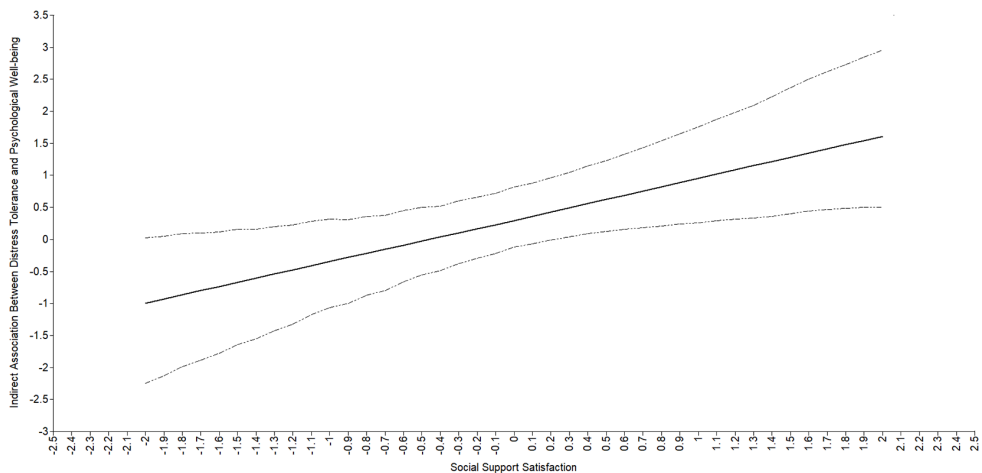
Note. Johnson-Neyman plot of the indirect association between distress tolerance and psychological well-being via perceived COVID-19 threat at varying levels of social support satisfaction. The regression line indicates an increase in the indirect association between distress tolerance and psychological well-being as social support satisfaction increases. Lines surrounding regression line indicate high and low 95% confidence intervals.

Discussion

Our study aimed to evaluate whether perceived COVID-19 threat mediates the associations between distress tolerance as an intrapersonal variable and psychological well-being and symptoms as psychological outcomes following the onset of an adversity. We further investigated whether social support as an interpersonal factor can moderate these indirect associations. Since external and internal factors interact in real life to determine our reaction to threats, an investigation that explores the effects of both intra-

and interpersonal factors offers a more reliable explanation of psychological outcomes resulting from adversity than investigating such factors separately.

Our findings supported some, but not all, of our hypotheses. Consistent with H1, the greater their ability to tolerate distress, the less participants perceived COVID-19 as threatening, the greater their psychological well-being, and the lower their symptoms of depression, anxiety, and stress. Also, as predicted (see H2), the more individuals perceived COVID-19 as threatening, the poorer their reported psychological well-being and the higher their reports of depression, anxiety, and stress symptoms.

In contrast, H3a was only partially supported. As expected, perceived COVID-19 threat mediated the association between distress tolerance and (a) psychological well-being and (b) depression and stress. The better their ability to tolerate distress, the less threatening participants found COVID-19 and, in turn, the greater their psychological well-being and lower depression and stress symptoms. However, counter to our hypothesis, the indirect association between distress tolerance and anxiety via perceived COVID-19 threat was not significant.

As we consider reasons why perceived COVID-19 threat may have failed to mediate the association between distress tolerance and anxiety symptoms, one potential explanation hinges on the possibility that participants had largely adapted to the new anxieties COVID imposed on them by the time they completed the survey. If so, because anxiety is related to acute fear responses (Lovibond & Lovibond, 1995), any anxiety participants may have experienced due to the pandemic might have declined by the time they participated in our study, thus attenuating the indirect association between distress tolerance and anxiety. Future research should explore such explanations and other variables that may explain the indirect association between distress tolerance and anxiety.

H3b also received partial support. The predicted moderated mediation was significant only when psychological well-being was the outcome variable and then only when satisfaction with social support was the moderator. Consistent with H3b, the indirect association between distress tolerance and psychological well-being via perceived COVID-19 threat was stronger among participants who reported high versus low satisfaction with the social support they received. However, and counter to H3b, the corresponding indirect associations between distress tolerance and symptoms of depression, anxiety, and stress did not depend on social support satisfaction and availability of social support did not moderate the indirect association between distress tolerance and any psychological outcome variable.

Why might satisfaction with social support buffer the effects of distress tolerance on psychological well-being but not symptoms of depression, anxiety, and stress? Perhaps when they are partly driven by a dispositional vulnerability (i.e., low distress tolerance), psychological symptoms resulting from an external adversity need more in-depth interventions (e.g., requiring resilience training) than are generally available through the emotional and instrumental support provided by individuals' social networks. Alterna-

tively, perhaps the buffering effect of social support on psychological symptoms may, due to the nature/severity of these symptoms, take longer to manifest than the buffering effect of social support on psychological well-being. If so, the moderating impact of satisfaction with social support on distress tolerance might predict psychological symptoms only after some critical period of time has elapsed since the onset of the adversity. For instance, during the COVID-19 pandemic, as a result of gaining experience seeking and receiving social support in new formats (such as over the Internet), people's satisfaction with social support and its mitigating impact on psychological symptoms might have increased over time. A longitudinal approach would help elucidate how variables such as social support might buffer the effect of adversity.

It is worth noting that our finding that social support satisfaction—but not availability of social support—moderated the association between distress tolerance and psychological well-being aligns with research showing that the quality of social support received is more important in mitigating distress than the size of the available social network (Cohen & Wills, 1985). An additional possibility, however, is that preventive measures imposed during the pandemic (e.g., restrictions on social gatherings, social distancing mandates) restricted participants' access to their usual support resources; this may have led to a reduction in the size of people's social networks and, consequently, diminished the capacity of social support availability to moderate the association between distress tolerance and psychological outcomes. Whatever the explanation for this finding, we believe it is important to investigate the availability of social support in future research on responses to adversity as availability and satisfaction are significantly correlated, implying that people need a minimum number of individuals offering support to be satisfied with social support (Rascle et al., 2005).

Limitations, Implications, and Future Directions

Because our sample was relatively small, we cannot know whether the nonsignificant associations reflect limited statistical power or a true lack of association between the variables. Women were also overrepresented in our sample. Given documented gender differences in the association between distress tolerance and psychological outcomes (e.g., Ali et al., 2015), our findings may not generalize to other gender identities. Further, all of the participants in our study were in a romantic relationship, which both limits our ability to generalize our findings to single individuals and may have implications for the findings, such as the level of social support perceived by participants. Additionally, the cross-sectional design of our study precludes conclusions about causality and the direction of effects. Finally, our measure of pre-pandemic depression, anxiety, and stress symptoms was retrospective, raising concerns about the accuracy of participants' responses. Future research should investigate the associations under examination here in a longitudinal study with a diverse sample (e.g., different age ranges, relationship status, and race).

Despite such limitations, our findings are a first step toward advancing our understanding of the association between distress tolerance and psychological outcomes following the onset of a health-related adversity. Specifically, our findings suggest that people's ability to tolerate distress is associated with their appraisals of COVID-19 as threatening and this perceived threat in turn is associated with their psychological well-being and experience of psychological symptoms. One implication of this finding is that, when dealing with problematic perceptions of a stressor (such as believing that infection with COVID lies outside one's control), other underlying factors such as distress tolerance should also be addressed.

Importantly, our findings also suggest that social support may bolster psychological well-being when one possesses the ability to handle stressful events well. Armed with this knowledge, individuals may come to understand that, even if they tolerate stress well, they may still find effective social support beneficial.

To devise effective interventions for individuals who experience psychological symptoms and low psychological well-being following the onset of an adversity, future research should investigate other variables that might mediate the association between distress tolerance and psychological outcomes. For example, distress tolerance might predict behavioral coping (e.g., substance abuse or seeking help) or emotion regulation strategies (e.g., suppression or acceptance) which may in turn predict psychological well-being. Additionally, future research should investigate the moderating role of different types of social support (emotional, instrumental, and informational; House, 1981). We measured social support as a global construct which may help explain why, in our study, social support did not function as a buffer in the association between distress tolerance and depression, stress, and anxiety. For example, Cohen and Wills (1985) suggested that social support's buffering effect is accentuated when the type of support matches the stressor. Future research might investigate whether, in situations where people's knowledge of epidemiology may be limited (such as during the COVID-19 pandemic), informational rather than emotional support might help individuals reappraise the stressor and mitigate the emergence of symptoms of depression, anxiety, and stress.

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Supplementary Materials

For this article, the following Supplementary Materials are available:

- The survey (see Salavati et al., 2021)
- The supplementary document includes the results on the interactive effects of satisfaction with and availability of social support on psychological well-being, depression, stress, and anxiety (see Salavati et al., 2023)

Index of Supplementary Materials

Salavati, S., Boon, S. D., Peloquin, K., Brassard, A., Lafontaine, M., Randall, A. K., & Chiarolanza, C. (2021). *Perception of COVID-19 and psychological wellbeing* [Survey]. OSF. https://osf.io/rnb6g

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