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Psychodynamic and sociopolitical predictors of COVID Distress and Gravity

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ABSTRACT

This study examined the relationship between attachment style and fear of contamination during the COVID-19 pandemic, hypothesizing that anxiously attached participants would be more distressed when their safe space was threatened by someone leaving and returning. During May 2020, $n = 355$ participants provided demographics, personality, health anxiety scores, attachment styles, political ideology, and attitudes towards the pandemic. In both social media and MTurk subsamples (but not in a subsample from a ListServ of professional psychologists), anxious attachment was a significant predictor of distress above and beyond personality and health anxiety. In addition, political ideology emerged as a consistent predictor of perceptions of the seriousness of COVID-19, even holding the other predictors constant. Understanding an individual's attachment style may be helpful in working with them in their trauma. This research also contributes to early empirical evidence for the impact of political ideology on self-reported attitudes and behaviors during the COVID-19 pandemic.

1. Introduction

The December 2019 novel coronavirus (COVID-19) outbreak has exploded into a pandemic with a significant worldwide death toll (WHO, 2020). Restrictive social distancing measures and quarantine orders aimed at reducing viral transmission have led to reports in the news of people experiencing feelings of isolation (Ducharme, 2020), uncertainty about the future (Blow, 2020), concern over finances (Frazier, 2020), and to mass protests over loss of freedoms (e.g., among many others, Beer, 2020; Wilson, 2020; Martina et al., 2020). The combination of psychological distress experienced during the worldwide spread of a mass infectious disease coupled with prolonged, mandated stay-at-home orders has led to a collision of mental health stressors for which it is difficult to find precedents.

Previous research has revealed a profound range of psychological impacts on people during such outbreaks, such as fear of becoming sick or dying, feeling helpless, and becoming stigmatized (Hall & Chapman, 2008). This finding goes as far back as Menninger's (1919) observation that seemingly profound psychological symptoms in patients admitted to the hospital during the height of the Spanish Flu resolved completely within a few years. Studies of the 2003 SARS outbreak revealed that healthcare workers had an increase in stress, post-traumatic stress disorder symptoms, depression, and anxiety a full year after the epidemic ended (Lee et al., 2007). During the 2007 equine influenza outbreak in Australia (in which the government imposed travel restrictions and

quarantining), one study found increased psychological distress among higher vulnerability populations including horse owners, young adults, and people with low levels of educational achievement (Taylor et al., 2008). The H1N1 influenza pandemic in 2009 marked another period of uncertainty and anxiety: Taha et al. (2014) noted increased sense of threat, loss of control, and use of emotion-focused coping in individuals with low tolerance of uncertainty. The enduring psychological impact of the current times is unknown.

1.1. Psychological effects of COVID-19

Research is already demonstrating the grave impact of the current pandemic on the psyche: Odriozola-Gonzalez et al. (2020) found that 50.43% of their $N = 2530$ participants endorsed being impacted at a moderate to severe level from the outbreak, 34.19% endorsed moderate to extremely severe depression symptoms, 21.34% endorsed moderate to extremely severe anxiety symptoms, and 28.14% endorsed moderate to extremely severe stress symptoms. Vindegaard and Benros (2020) conducted a meta-analysis of 43 studies (largely conducted in continental Asia) that focused on the psychological implications of COVID-19 among infected patients and non-infected psychiatric patients, healthcare workers, and non-healthcare workers. They determined that infected individuals experienced higher levels of post-traumatic stress symptoms and significant depressive symptoms; non-infected patients with preexisting psychiatric disorders reported heightened symptom

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expression; healthcare workers endorsed heightened anxiety, depression, psychological distress, and sleep disturbances; and non-healthcare workers in the general population reported increased anxiety and depression, as well as a lower sense of psychological well-being.

Moccia et al. (2020) recently conducted research examining psychological distress during COVID-19 in the general population of Italian participants with temperament and attachment style analyzed as possible mediating factors. The researchers found that 38% of individuals might have endured psychological distress during an early stage of the COVID-19 pandemic, also noting that when compared to an anxious attachment style, features of secure and avoidant attachment seemed to serve as mitigating factors protecting individuals from experiencing psychological distress.

1.2. Predictors of COVID-19 distress

Studies are already showing that theoretically convergent variables such as health anxiety and neuroticism are related to increased virus anxiety during this pandemic; those with higher trait health anxiety reported significantly increased virus anxiety during the early months of the COVID-19 outbreak (Jungmann & Wiffhöft, 2020). Kroencke et al. (2020) found that those high in neuroticism experienced more negative affect and higher variability in negative affect during the study.

In addition to distress, these predictors may also play a role in the gravity with which one takes the pandemic. Those with health anxiety may be more likely to practice mask-wearing and hand-washing (Harper et al., 2020; Tyrer, 2020); the trait of neuroticism has been linked to increased preventative behaviors and lowered likelihood of underestimating the virus (Qian & Yahara, 2020). Political ideology, particularly here in the United States, can also clearly be seen to play a part in the seriousness with which one views this outbreak (e.g., Barrios & Hochberg, 2020, but also in major news outlets everywhere). While some research seems to indicate that conservatives may be more generally fearful (e.g. Block & Block, 2006; Oxley et al., 2008) and concerned with cleanliness (Helzer & Pizarro, 2011), current research suggests that due to Republican leadership and partisan media coverage, they tend to perceive the virus as less threatening (Calvillo et al., 2020). Other research (Harper et al., 2020) still fails to find an empirical connection.

1.3. Attachment style and the secure base

According to attachment theory (Bowlby, 1969; Ainsworth & Bell, 1970), children use their caretaker as a secure base from which to explore the world and may seek them out after exploration in times of distress. Exploratory behaviors are more easily facilitated when a child has secure attachment and can be a protective factor when faced with future stressors (Sroufe et al., 1999). These patterns persist into adulthood; Hazan and Shaver (1987) noted a similar distribution of attachment categories in adults as observed in infancy, and were the first to detail ways in which adult romantic relationships shared important characteristics with that of the infant and their caregiver. Brennan et al. (1998) specifically examined attachment-related anxiety in adults, finding that participants scoring high on this variable tend to worry more about whether their partner will be responsive and attentive to their needs. But other research (e.g., Roisman, 2007) has gone further to demonstrate that attachment security even plays a role in non-romantic interactions with strangers. The evidence seems to indicate that our earliest relationships continue to affect the way we view many of our interactions with others as adults.

Intrapersonal and environmental situations may heighten or reduce attachment behavior: it is “heightened in situations perceived as threatening, whether [to] an external danger or an actual impending separation from the attachment object” (Ainsworth & Bell, 1970, p. 64). Additionally, stressful situations seem to activate the physiological systems related to attachment; the hypothalamic–pituitary–adrenal

(HPA) axis is sensitive to attachment processes because it responds in situations that evoke social-evaluative threat (Blascovich & Tomaka, 1996; Denson et al., 2009; Dickerson & Kemeny, 2004), is sensitive to interpersonal situations (Diamond, 2001; Kirschbaum et al., 1995), and shows individual variation in response to interpersonal relations (Gerra et al., 2001).

There are other long-term sequelae of these early attachment experiences; O'Connor and Elklit (2008) evaluated the association between post-traumatic stress disorder (PTSD) and adult attachment, finding fearful and dismissive attachment styles to be connected to poor psychological adjustment, with secure attachment being a possible protective factor. Other research suggests that insecure forms of attachment can intensify experiences of posttraumatic symptoms and increase intrusive symptoms as well as rumination on traumatic memories (Mikulincer et al., 2015).

Anxious attachment style in particular has been identified as being predictive of health anxiety (Sherry et al., 2014), and has been associated with various cardiovascular issues, including stroke, heart attack, and high blood pressure (McWilliams & Bailey, 2010).

Attachment style has also been specifically evaluated in connection with other collective catastrophes: Wayment (2006) examined adult attachment in relation to empathy for the bereaved in the wake of the September 11th, 2001 terrorist attacks, finding that individuals with lower avoidant attachment scores (i.e., those who were more secure) tended to have higher levels of empathy.

Under current conditions – with many people sheltering in place, their homes becoming safe havens for them – we have an opportunity to see attachment anxiety at play during an unusually stressful situation. A person’s home might be viewed as a psychological and emotional “safe space” similar to the cloth mother in Harlow’s (1958) classic study. Those with an anxious attachment style may then experience increased distress when leaving and exploring the novel and dangerous world outside. Within these parameters, and considering past research outcomes on attachment styles, it is hypothesized that health anxiety, the Big Five trait of neuroticism, and the anxious scale of the AAS will be positively and significantly correlated to an outcome measure of COVID Distress that relates to leaving the home (or a partner leaving the home and returning); secure attachment ought to be negatively and significantly correlated to this outcome. Exploratorily, we predict conservatism to be related to lower COVID Distress. Finally, scores on the anxious scale of the AAS will be able to explain incremental variance in the criterion beyond what can be accounted for by the other predictors.

2. Materials and methods

2.1. Participants

This study was conducted online (via Qualtrics) across three different acquisition channels during the week of May 11–18, 2020, resulting in an initial sample size of 430 individuals. This window was shortly after what had initially been considered the peak of the pandemic in the United States (e.g., McLaughlin & Vera, 2020), when many states were still in the midst of shelter-in-place orders.

After excluding 75 participants for incomplete data (having completed <15% of the total survey, i.e., little more than demographics), the final dataset consisted of $N = 355$ participants (60% female, 39.4% male, 0.06% identifying as nonbinary; median age = 38 years). Sample size does vary by analysis, however, due to pairwise

Table 1
Demographic characteristics of overall sample and subsamples.

Sample	N	Mdn age	(% F/% M)	%C	%A/P	% B/AA	%L	% O	% PhD
Overall	355	38	60/40	71.5	16.3	3.1	3.1	6	15.3
MTurk	147	37	60/40	53.7	33.3	4.8	1.4	6.2	1.4
Social Media	136	38	70/29 ^a	80.9	5.1	1.5	5.1	7.4	16.2
ListServ	72	51	82/18	90.3	2.8	2.8	1.4	2.8	41.7

C = Caucasian; A/P = Asian or Pacific Islander; B/AA = Black or African-American; L = Latinx; O = Other.

^a 1.5% of this sample identified as gender nonbinary.

deletion. See Table 1 for differences among acquisition channels.

2.2. Acquisition channels

2.2.1. Mechanical Turk (MTurk)

An international sample (68% from the United States; 29% from India; 3% from Canada, France, or Singapore) was gathered using only MTurk Master Workers,¹ $n = 147$ (60% male, 40% female; median age = 37 years). These participants were compensated 0.50c when they returned to MTurk with the randomly-generated number given to them by the survey software at the conclusion of the study.

2.2.2. Social media distribution

The survey was also distributed online via private social media accounts, resulting in a subsample of $n = 136$ (69.9% female, 28.7% male, 1.5% nonbinary; median age = 38 years). These respondents were all in the same social network as at least one of the researchers (e.g., “friends of friends” on Facebook and/or Instagram), and participated out of goodwill.

2.2.3. Local listserv distribution

A link to the online survey was offered as well to members of two local Listservs: the Los Angeles County Psychological Association (LACPA), serving some 1100 members, largely licensed or pre-licensed psychologists in LA County; and the Orange County Psychological Association, providing a similar service for the 250 members in their region. This resulted in $n = 72$ participants, (81.9% female, 18.1% male; median age = 51 years). They also participated without compensation.

2.3. Materials

2.3.1. Adult attachment survey (AAS)

The 18-item AAS (Collins & Read, 1990) arose from the work of Hazan and Shaver (1987), assessing adult attachment via three subscales: one measuring ability to be intimate with others (CLOSE; “I do not worry about someone getting too close to me,” “Romantic partners often want me to be closer than I am comfortable being”); one which measures ability to depend on others (DEPEND; “I find it difficult to trust others completely,” “I find people are never there when you need them”); and one which measures concern about being rejected (ANXIETY; “I often worry romantic partners won’t want to stay with me,” “I want to get close to others, but I worry about being hurt”). Functionally,

¹ MTurk Master Workers are automatically granted this status by a proprietary statistical model that analyzes performance based on data points such as quality of results (indicated by approval rates), length of tenure, and variety of work performed. It is unclear whether or not there is an advantage in utilizing them, as burgeoning research suggests that “research findings are only minimally impacted by Worker type” (Loepp and Kelly (2020), p. 7).

the CLOSE subscale has aspects similar to Ainsworth’s (1978) conception of secure attachment and DEPEND reflects aspects of avoidant, although the scale is not made to split them in exactly this way (S. Read, personal conversation, June 6, 2008). However, the ANXIETY subscale has been used here and elsewhere as a more direct measure of anxious attachment style.

2.3.2. Short health anxiety inventory (SHAI)

Health anxiety was measured via the shortened version of Salkovskis et al.’s (2002) 18-item questionnaire, using only 14 items that were shown in Salkovskis’ work to have comparable psychometric properties to the longer scale (the final 4 items may be conceptualized as part of a separate, ‘perceived negative consequences to illness’ subscale). The SHAI consists of a series of responses increasing in intensity (e.g., “as a rule, I am not afraid/am sometimes afraid/am often afraid/am always afraid that I have serious illness”) and scaled from 0 (generally referring to no anxious thoughts or attitudes) to 3, generating an overall inventory score ranging from 0 to 42.

2.3.3. Ten-item personality inventory (TIPI)

As personality was not the primary topic of interest, the TIPI was utilized. This extremely brief questionnaire uses only 2 items each to measure the five traits of extraversion, agreeableness, conscientiousness, openness to experience, and neuroticism. The TIPI nonetheless correlates highly (on average) with scores from its much longer counterparts, as well as having demonstrated adequate test-retest reliability, convergent validity with predicted correlates, and relatively high self-other ratings (Gosling et al., 2003).

A single, minor alteration was made: being that a majority of the items across the survey were scaled from 1 to 5, the TIPI (which normally uses a 1–7 scale) was adjusted to the same format, in service of reducing cognitive load (and potential confusion) for our participants.

2.3.4. Political ideology

This construct was measured with a single question among the other demographic variables: “Politically, I am...” with answers ranging on a scale from 1 (“Very Liberal”) to 5 (“Very Conservative”).

2.3.5. Attitudes during COVID questionnaire

In order to assess attitudes related to the COVID pandemic, 14 questions were constructed, covering a host of social (“it is distressing for me to have to stay inside so much”), political (“I feel my country’s government has done a good job of dealing with the threat of COVID-19”), and psychological aspects (“I see people outside of my home as a threat”) of living within the current milieu. Each item was scaled from 1 to 5. Two of these items (“When my partner leaves the home and returns, it makes me anxious,” “I sometimes argue with my partner over their leaving the home”) were specifically written to serve as dependent variables in a linear regression that uses health anxiety and attachment style as predictors. The others, relating to more generalized attitudes towards the pandemic (e.g., “COVID-19 is a serious threat to me and my family”) were exploratory in nature, with potential for use in the creation of additional composite variables to measure things such as the degree of gravity with which one views the current situation.

2.4. Procedure

All data were collected online via a self-report questionnaire measuring demographic variables of interest (age, gender, educational level, nation of residence), information on quarantine/shelter-in-place conditions for their area, and a number of psychometric assessments meant to measure personality, attachment style, and health anxiety. A final set of questions examined various attitudes towards the pandemic, some of which were not necessarily intended for use with this particular study.

3. Results

3.1. Group-level differences

The three data-gathering channels were first compared on all scale-level variables (i.e., “Total SHAI score” rather than each of the individual SHAI items) in the hopes of merging them together into one large dataset. A MANOVA was conducted, treating all DVs as a set (i.e., “survey items”) in order to maintain a low familywise error rate. Post-hoc Tukey’s tests on group membership were conducted individually at the 0.05 level (see Table 2).

As a result of the differences between groups, merging the three sources did not seem appropriate. The main analyses of the study were instead completed separately for each group and treated as replications.

3.2. Zero-order correlations: COVID Distress

The dependent variable, “COVID Distress” was created in service of the hypothesis that people leaving and re-entering the safe space (i.e., P’s residence) would be more distressing to those with higher scores on the Anxiety subscale of the AAS. The items written to measure that, “When my partner/roommate/family member leaves the home and returns, it makes me feel anxious” and “I sometimes argue with my partner/roommate/family member over their leaving the home” ($r(286) = 0.58, p = 1.5 \times 10^{-26}$) were averaged to form a composite variable. All major variables in the study were correlated with this composite.

There were no significant correlations between gender and any of the variables included in this study (after having corrected for the number of tests conducted). Across two of the three samples, four variables

Table 2
Univariate differences on DVs by data-gathering channel.

Item	F	Adjusted p	Partial η^2	Direction (HSD $p < 0.05$)
Government has done good job	15.10	1.4×10^{-5}	0.11	MTurk > SocMedia, ListServ
Anxious to get package from China	10.49	8.6×10^{-4}	0.08	MTurk > SocMedia, ListServ
Neuroticism	7.20	0.02	0.06	SocMedia, ListServ > MTurk
Willing to go for a walk/jog/hike	6.78	0.03	0.05	SocMedia, ListServ > MTurk
Conscientiousness	6.62	0.03	0.05	MTurk > SocMedia
Openness to experience	6.28	0.04	0.05	SocMedia, ListServ > MTurk
Anxious subscale score (AAS)	6.05	0.05	0.05	SocMedia > MTurk, ListServ
It’s distressing to have to stay inside	4.15	0.34	0.03	
Argue with partner over leaving	3.94	0.42	0.03	
I disinfect packages	3.86	0.45	0.03	
People outside are a threat to me	2.98	1.00	0.02	
Anxious when partner leaves	2.75	1.00	0.02	
COVID is a serious threat	2.71	1.00	0.02	
Depend subscale score (AAS)	2.23	1.00	0.02	
Anxious to go outside	2.21	1.00	0.02	
Agreeableness	1.20	1.00	0.01	
Extraversion	1.16	1.00	0.01	
Close subscale score (AAS)	0.67	1.00	0.01	
Wear a mask outside	0.23	1.00	0.00	
SHAI total score	0.21	1.00	0.00	

$N_{MTurk} = 81; N_{ListServ} = 58; N_{SocMedia} = 100$. For all analyses, $df = (2236)$.

emerged as generally correlated with COVID Distress: Health Anxiety (SHAI Total Score), Anxious Attachment (AAS Anxiety Score), TIPI Neuroticism, and Political Ideology. These correlations between COVID Distress and its hypothesized predictors (as well as the other main variables in the study) are presented in Table 3. The ListServ subsample, it is worth noting, scored significantly lower than the other subsamples on this composite variable ($F(2.284) = 8.18, p = 3.5 \times 10^{-4}, \eta^2 = 0.06$; both Tukey’s $ps < 0.05$).

3.3. Anxious attachment as a predictor of COVID distress

First, a simultaneous regression was conducted, entering all the significantly correlated predictors described above. This model was significant for both the MTurk and Social Media samples, explaining 20% and 21% of the variance in COVID Distress, respectively (the adjusted R^2 for the ListServ group was near-zero). All predictors were significant in the Social Media group; only Health Anxiety and Anxious Attachment were significant predictors of COVID Distress in the MTurk sample. None of the predictors were significant for the ListServ group; see Table 4.

To assess the hypothesis that Anxious Attachment increases COVID Distress, hierarchical regression analyses were performed on the DV with Anxious Attachment entered last. The incremental contribution of Anxious Attachment is illustrated in Table 5. Health Anxiety, Personality, and Political Ideology retain their predictive power at the final step for the Social Media group, but Anxious Attachment ($\beta = 0.21, p = 0.04$) explains an additional 3% of the variance for a model that explains 18.4% of the total variance in COVID Distress. This pattern is similar for the MTurk group, but even more favorable towards attachment style: only AAS Anxiety score and Health Anxiety remained significant at the final step, with Anxious Attachment ($\beta = 0.23, p = 0.02$) adding 4% variance explained above and beyond the other predictors in a model explaining 17% of the total variance in COVID Distress. The overall model was nonsignificant for the ListServ group, as were each of the predictors in that model.

3.4. Political ideology

Included as an exploratory or possible third variable, Political Ideology showed unexpected results in the regression equation, retaining modest predictive validity (adding 2.5% and 2.7% variance explained to the models for the MTurk and Social Media subsamples, respectively) above and beyond Health Anxiety, Personality, and Attachment Style. Further exploratory analyses were conducted to examine its relationship to attitudes in the time of COVID-19.

The eleven items written to explore attitudes towards the pandemic were first examined via an exploratory principal components analysis. The screen test indicated a 2-component solution; solutions 1–3 were tested with principal axis factoring, using both oblique and varimax rotations. In all cases, the items seemed to resolve into a large first factor (“COVID Gravity”; attitudes relating to how seriously one views the nature of the pandemic) and a smaller second factor containing only two items that seemed to pertain to partisan political outlook (“Political COVID Outlook”; see Table 6).

The “COVID Gravity” items were tested in a reliability analysis, removing items until alpha was optimized. With seven items, Cronbach’s alpha achieved an acceptable reliability of 0.82. Composites of both COVID Gravity and Political COVID Outlook were created, and correlates examined.

Unsurprisingly, Political COVID Outlook (a composite of “the Government is handling the pandemic well” and “receiving an item from China would make me especially uncomfortable”) was most strongly correlated with political ideology such that the more conservative a person rated themselves, the higher their score tended to be on this composite ($r = 0.50, 0.30, \text{ and } 0.35$ for the ListServ, MTurk, and Social Media subsamples, respectively, all $p < 0.01$). Being low in Openness to

Table 3
Correlates of COVID Distress, Gravity, and political outlook by data-gathering channel.

Variable	COVID Distress			COVID Gravity			Political COVID Outlook		
	MTurk	SocMedia	ListServ	MTurk	SocMedia	ListServ	MTurk	SocMedia	ListServ
SHAI total score	0.37**	0.37**	0.12	0.32**	0.43**	0.19	0.01	0.08	0.27*
Political ideology	-0.22*	-0.20*	-0.06	-0.34**	-0.37**	-0.36**	0.30**	0.35**	0.54**
Close AAS subscale	-0.29**	-0.01	-0.01	-0.10	0.02	-0.08	0.08	-0.08	-0.03
Depend AAS subscale	-0.22**	-0.08	-0.17	-0.11	0.04	-0.13	0.02	-0.20*	-0.03
Anxious AAS subscale	0.32**	0.21*	0.00	0.24**	-0.05	-0.03	0.31**	0.08	0.03
Openness to experience	-0.12	0.05	0.00	-0.10	0.08	0.07	0.00	-0.22**	-0.25*
Conscientiousness	-0.16	-0.10	-0.19	-0.04	-0.04	-0.30*	0.00	0.09	0.10
Extraversion	0.09	-0.09	0.01	0.02	-0.01	0.04	0.15	0.21*	-0.16
Agreeableness	-0.07	-0.04	-0.02	0.06	0.03	0.13	0.19*	0.19*	-0.05
Neuroticism	0.22*	0.33**	0.10	0.24**	0.19*	-0.09	-0.02	-0.04	-0.02

N_{MTurk} = 112; N_{SocMedia} = 110; N_{ListServ} = 64

** p < 0.01.

* p < 0.05.

Table 4
Simultaneous regression of selected variables on COVID Distress.

Variables (by subsample)	b	SE b	β	F
MTurk				
Political ideology	-0.17	0.09	-0.16	F(4,107) = 6.70*
Neuroticism	-0.03	0.12	-0.02	
SHAI total	0.05	0.02	0.26*	
Anxious AAS score	0.32	0.14	0.23*	
Social media				
Political ideology	-0.19	0.10	-0.17*	F(4,103) = 7.03*
Neuroticism	0.29	0.12	0.26*	
SHAI total	0.06	0.02	0.29*	
Anxious AAS score	-0.27	0.13	-0.21*	
ListServ				
Political ideology	-0.06	0.10	-0.07	F(4,59) = 0.59
Neuroticism	0.17	0.17	0.18	
SHAI total	0.02	0.02	0.14	
Anxious AAS score	-0.21	0.21	-0.18	

* p < 0.05.

Experience ($r = -0.25$ for ListServ and $r = -0.22$ for Social Media) and high in Agreeableness ($r = 0.19$ for both MTurk and Social Media subsamples) was also correlated to higher scores. For the MTurk Group, Anxious Attachment was also related ($r = 0.31, p < 0.01$); for the ListServ group, SHAI Total score correlated $0.27 (p < 0.05)$ to Political COVID Outlook. See Table 3.

The larger question of whether political ideology could predict the other seven items related to “COVID Gravity” was of even greater interest. Across all three data gathering channels, Political Ideology was a significant correlate of this composite ($r = -0.36, -0.34,$ and -0.37 for ListServ, MTurk, and Social Media subsamples respectively, all $ps < 0.01$), indicating that the more conservative one rated themselves, the lower one scored on the composite variable containing items including “this pandemic is a serious threat,” “I wear a mask when I go outside,” and “I disinfect packages that come into my house” (e.g.). Other correlates included Health Anxiety score ($r = 0.32$ and 0.43 for MTurk and Social Media groups, both $p < 0.01$) and TIPI Neuroticism ($r = 0.24, p < 0.01$ and $r = 0.19, p < 0.05$ for MTurk and Social Media subsamples, respectively), among a few others. See Table 3.

In a hierarchical regression, entering all the significantly correlated predictors at one step and Political Ideology at the final step, the latter was a significant predictor of the COVID Gravity composite across all data-gathering channels, adding an additional 11.4% (ListServ, Total $R^2 = 21.3%$), 9.8% (MTurk, Total $R^2 = 20.2%$), and 8.8% (Social Media, Total $R^2 = 30.7%$) variance above and beyond all other predictors in the model. See Table 7.

Table 5
Hierarchical regression of selected variables on COVID Distress.

Variables (by subsample)	R ²	R ² Δ	b	SE b	β	F
Social media						
(1) SHAI total	0.18		0.05*	0.02	0.24*	F(3,104) = 7.8**
Neuroticism			0.20	0.12	0.18	
Political ideology	0.21	0.03	-0.21*	-0.18*	-0.18*	F(4,103) = 7.0**
(2) SHAI total			0.06**	0.29**	0.29**	
Neuroticism			0.29*	0.26*	0.26*	
Political ideology	-0.19	-0.16	-0.16			
Anxious AAS score	-0.27*	-0.21*	-0.21*			
MTurk						
(1) SHAI total	0.15		0.06**	0.02	0.32**	F(3,109) = 6.7**
Neuroticism			0.06	0.12	0.05	
Political ideology	-0.14	0.09	-0.13			
(2) SHAI total	0.20	0.05	0.05**	0.02	0.26*	F(4,108) = 6.8**
Neuroticism			-0.02	0.12	-0.01	
Political ideology			-0.15	0.09	-0.15	
Anxious AAS score	0.38**	0.14	0.24**			
ListServ						
(1) SHAI total	0.02		0.02	0.02	0.10	F(3,60) = 0.46
Neuroticism			0.06	0.13	0.07	
Political ideology	-0.05	0.10	-0.06			
(2) SHAI total	0.04	0.02	0.02	0.02	0.14	F(4,59) = 0.67
Neuroticism			0.17	0.17	0.18	
Political ideology			-0.06	0.11	-0.07	
Anxious AAS score	-0.21	0.21	-0.18			

** p < 0.01.

* p < 0.05.

4. Discussion

Scores on health anxiety were a strong predictor of COVID Distress and Gravity across two of the three data-gathering channels, as was neuroticism, a trait that describes people who already tend to experience worry and distress in a variety of seemingly normative situations (e.g., Bolger & Schilling, 1991; Wagerman, 2007). But perhaps less obviously,

Table 6
Factor analysis of attitudes towards COVID items.

Item	Factor	
	1	2
I'm anxious when I go outside	0.76	0.04
I see people outside as a threat	0.72	-0.06
I'm anxious when my partner leaves	0.69	0.16
I'm likely to go outside for a walk/hike/jog	-0.59	-0.16
I argue with my partner over leaving	0.55	0.25
I'm likely to wear a mask outside	0.54	-0.03
COVID is a serious threat	0.54	-0.25
I disinfect packages I receive	0.48	0.14
It's distressing having to stay inside	0.07	0.04
My government is doing a good job	-0.12	0.72
I'd be worried to receive a package from China	0.21	0.40

Extraction method: Principal Axis Factoring.
Rotation method: Varimax.

Table 7
Hierarchical regression of selected variables on COVID Gravity.

Variables (by subsample)	R ²	R ² Δ	b	SE b	β	F
ListServ						
(1) SHAI total	0.10		0.03	0.02	0.21	F(4,66) = 3.02*
Conscientiousness			-0.29	0.10	-0.33**	
Neuroticism			-0.09	0.12	-0.12	
Anxious AAS score			-0.13	0.16	-0.13	
(2) SHAI total	0.21	0.11	0.03	0.02	0.20	F(5,65) = 4.79**
Conscientiousness			-0.28	0.10	-0.33**	
Neuroticism			-0.07	0.11	-0.09	
Anxious AAS score			-0.15	0.15	-0.16	
Political ideology			-0.24	0.07	-0.34**	
MTurk						
(1) SHAI total	0.11		0.03	0.01	0.23**	F(4,141) = 5.33**
Conscientiousness			0.13	0.11	0.11	
Neuroticism			0.10	0.10	0.11	
Anxious AAS score			0.18	0.10	0.15	
(2) SHAI total	0.20	0.10	0.03	0.01	0.19*	F(5,140) = 6.60**
Conscientiousness			0.13	0.10	0.11	
Neuroticism			0.09	0.09	0.10	
Anxious AAS score			0.21	0.10	0.18*	
Political ideology			-0.26	0.06	-0.32**	
ListServ						
(1) SHAI total	0.22		0.09	0.02	0.52**	F(4,128) = 10.36**
Conscientiousness			0.04	0.09	0.04	
Neuroticism			0.05	0.09	0.05	
Anxious AAS score			-0.31	0.10	-0.28**	
(2) SHAI total	0.31	0.09	0.08	0.02	0.47**	F(5,127) = 12.67**
Conscientiousness			0.09	0.08	0.09	
Neuroticism			0.05	0.09	0.05	
Anxious AAS score			-0.24	0.09	-0.22*	
Political ideology			-0.28	0.07	-0.31**	

** p < 0.01.
* p < 0.05.

the hypothesis at hand was also supported in two of the three subsamples: Anxious Attachment (as measured by scores on the Anxiety subscale of the AAS) was shown to be significantly correlated with COVID Distress and was a significant predictor of it, even above and beyond the variance explained by health anxiety, personality, and political ideology. The first relationships we develop continue to be demonstrated as fundamental ones in terms of adult behavior, and specifically so in regards to feelings of safety and security in the face of this global pandemic. This is consistent with previous research

suggesting that anxious/insecure attachment, particularly, is associated with increased perceptions of stress (Ditzen et al., 2008) and an increased reactivity to it (Powers et al., 2006; Rifkin-Graboi, 2008), as well as research that has identified a positive correlation between insecure attachment styles and hypochondriacal and somatic symptom presentations (Noyes Jr et al., 2003).

While the MTurk and Social Media subsamples supported our hypothesis sufficiently, the ListServ subsample returned null results for nearly all variables in all cases. There may be a number of reasons for this striking departure, but the simplest may be the differences between this group and the others: they were significantly older ($F(2,346) = 15.9, p = 2.44 \times 10^{-7}, \eta^2 = 0.08$), almost exclusively from the United States, were composed disproportionately of educated participants (68% with a graduate degree or higher; a full 42% of them holding doctorates), and endorsed significantly lower levels of attachment anxiety. Their profession was not gathered among the demographic data, but it is not wild to speculate that members of this ListServ are largely professional psychologists. They also scored significantly lower on the composite DV, COVID Distress. The problem may have been one of restricted range.

Political ideology, however, emerged as a strong predictor of each of the composite outcome variables (COVID Distress, COVID Gravity, and Political COVID Outlook) across all three subsamples. While the hindsight bias may cause this result to appear obvious, there is good reason to believe it might have not been the case; previous research on the differences between conservative and progressive ideologies seem to have indicated that conservatives have a stronger physiological reaction to threat (Oxley et al., 2008), and that manipulations that target physical cleanliness (i.e., body purity) or provoke disgust seem to engender more politically conservative attitudes in participants (Helzer & Pizarro, 2011; Schnall et al., 2008). In addition, a recent COVID study based in the UK (but including a US sample) examining predictors of behavior change (e.g., social distancing and hand-washing) found that political ideology contributed little to no variance, finding no evidence in their data of a political effect (Harper et al., 2020). The authors posited this might be due to the US being in an earlier stage of the pandemic at the time of their data-gathering (end of March 2020), and hoped it meant that “in times of (inter)national crisis, people can forgo their ideological commitments and behave consistently with government advice in pursuit of a common public health good” (p. 10). Our findings, then – gathered slightly further along the timeline – may be more illustrative of the real effect of partisan politics on attitude and behavior during this pandemic, at least in the United States.

4.1. Limitations of the study

Findings of this study should be interpreted in light of several limitations. The data presented were all self-report in nature, and might therefore be subject to social desirability or response biases, especially in regards to a high-stakes phenomenon so widely-covered by the media. Gathering informant-report data or even actual behavioral data would have been a more effective (if much more difficult) method for assessing many of these attitudes.

While all of the subsamples obtained were in one way or another self-selecting (i.e., not random), two of them (the Social Media and ListServ groups) were especially problematic, being made up of some combination of colleagues, personal friends, or – at the very least – “friends of friends” of the researchers themselves. The ListServ group, especially, differed significantly across so many of the demographic and response variables that results related to this subsample should be interpreted with great caution. Efforts to gather a more random sample, or to at least have exclusively sampled from MTurk (about which, at least, a good deal of research has examined both its pros and cons as a crowdsourced sample of convenience; see, e.g., Chandler & Shapiro, 2016) would be preferable. In addition, while a handful of countries were represented in this (mainly US-based) sample, a wider, more diverse sample would be more desirable and representative during such a global phenomenon.

While the AAS continues to be used in studies similar to this one (e.g., Moccia et al., 2020), it may not be the ideal instrument for measuring attachment anxiety, as it does not easily resolve itself into the classic four attachment styles (secure, anxious, avoidant, disorganized). A more modern scale, such as Brennan et al.'s (1998) Experiences in Close Relationships (ECR) scale or even Hazan and Shaver's extremely brief (1987) three-question scale measuring adult attachment might have been easier to work with and provided clearer results regarding attachment anxiety.

Results may have differed had we controlled for pre-existing mental or general health conditions. This study also did not ask about the participant's or participant's loved ones having previous or current COVID-19 symptoms or diagnosis; these factors should be screened for in future studies.

4.2. Future directions

Future research may continue to focus on how anxious attachment style could be a risk factor for a variety of distressing responses to this pandemic (or others), especially as the correlation between anxious attachment and COVID Distress was consistent with the findings of Moccia et al.'s (2020) study. As the COVID crisis continues to impact people globally, there may be future opportunities to evaluate the predictive relationship between Anxious Attachment and the conceptual backbone of "COVID Distress" (leaving the safe space and returning, or a partner doing so) at a later phase of this pandemic. Since COVID cases and death tolls have continued to rise significantly in various geographic regions, and the deleterious impact of the illness itself has been well-documented, future research might examine the ways in which attachment style impacts outcomes and recovery among those who have directly suffered from the virus. While the current study found political ideology to be highly predictive of attitudes towards the pandemic, it could be helpful to determine whether or not personal experience with the virus (including perhaps knowing someone personally who has been afflicted with it) might supersede this tendency.

5. Conclusion

While changing the state of partisan politics in America is well beyond the scope of this research, these findings may at least offer some direction for those seeking to improve mental health and prevent the development of PTSD during and post-pandemic. Symptom reduction through cognitive strategies and resilience-building have been useful for these purposes (Jakovljevic, 2018; Siriwardhana et al., 2014; Vernberg et al., 2008); this research supports, in addition, the development of psychological interventions aimed at assessing and building attachment bonds for those struggling with distress in the face of COVID-19.

CRedit authorship contribution statement

Seth A. Wagerman: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Software, Supervision, Visualization, Writing - original draft, Writing - review & editing. **Alique Bedikian:** Conceptualization, Data curation, Investigation, Visualization, Writing - original draft, Writing - review & editing. **Benjamin S. Ross:** Conceptualization, Investigation, Writing - original draft, Writing - review & editing.

Declaration of competing interest

None.

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