

WORKING DRAFT – NOT PEER-REVIEWED

Measuring Two Distinct Psychological Threats of COVID-19 and their Unique Impacts on Well-being and Adherence to Public Health Behaviors

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Authors' Note: This manuscript has not been peer-reviewed. This is a working draft of this paper and may be subsequent to further changes. Our scale may undergo further revision and refinement as we receive feedback from the scientific community. We will make our data available on the OSF—for the access code, please email Frank Kachanoff at fkach@email.unc.edu. This research was funded by the Charles Koch Foundation.

Abstract

COVID-19 threatens lives, livelihoods, and civic institutions. Although public health initiatives (i.e., social distancing) help manage its impact, these initiatives can further sever our connections to people and institutions that affirm our identities. Three studies ($N=1,195$) validated a brief 10-item COVID-19 threat scale that assesses 1) realistic threats to physical or financial safety, and 2) symbolic threats to one's sociocultural identity. Studies reveal that both realistic and symbolic threat predict higher anxiety and lower wellbeing, and demonstrate convergent validity with other measures of threat sensitivity. Importantly, the two kinds of threat diverge in their relationship to public health behaviors (e.g., social distancing): Realistic threat predicted greater self-reported compliance, whereas symbolic threat predicted *less* self-reported compliance to these social-disconnection initiatives. Symbolic threat also predicted using creative ways to affirm identity even in isolation. Our findings highlight how social psychological theory can be leveraged to understand and predict people's behavior in pandemics.

(wordcount =150)

Key words: COVID-19, Scale Validation, Realistic Threat, Symbolic Threat, Psychological Health, Public Health.

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“An almost ‘perfect killing machine’ ”

(Sanchez, CNN, March 15, 2020, referring to COVID-19)

“America, as we knew it, is on hold”

(Maxouris, Almasy, McLaughlin, CNN, March 12, 2020)

In December 2019, an outbreak of pneumonia was reported in Wuhan, China, which scientists attributed to a novel coronavirus: SARS-CoV-2 (or, colloquially, COVID-19). Months later, this novel coronavirus unleashed a global pandemic of sickness on a scale unseen since the Spanish flu pandemic of 1918. The spread of the coronavirus is clearly reshaping the fabric of social life, and social psychology is at the forefront of studying these changes (Everett, Colombatto, Chituc, Brady, & Crockett, 2020; Priniski & Holyoak, 2020; Van Bavel et al., 2020.) Essential to this nascent research movement is understanding—and *measuring*—how people perceive the *threat* of the virus (Flake, Pek, & Hehman, 2017).

Laypeople (Sanchez, 2020), public health leaders (Hennekens, George, Adirim, & Johnson, 2020), and social psychologists (Sherif, 1966; Esses, Jackson, & Armstrong, 1998) often conceptualize threat as *realistic threat*, a concrete attack on physical and material well-being. Although realistic threat is undoubtedly important, social psychology research highlights another important kind of threat: *symbolic threat*, an assault on our cultural and national identity (e.g., Kachanoff, Kteily, Khullar, Park, & Taylor, in press; Stephan, Ybarra, & Morrison, 2006; Tajfel & Turner, 1979). Although both realistic and symbolic threat likely increase psychological distress, they may differentially predict public health behaviors—which can have important implications for how well people and communities respond to pandemics. Here, we validate a

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brief ten-item scale that assesses the experience of both symbolic and realistic threat of COVID-19, and examine each of their consequences for well-being and public health behaviors.

Disease and Threat

The threat of disease powerfully impacts humanity by endangering physical health (Hennekens, et al., 2020; Viboud, Tam, Fleming, Handel, Miller, & Simonsen, 2006), psychological health (Matsuishi, et al., 2012; O’Leary, Jalloh, Neria, 2018), and the economy (Smith, Keogh-Brown, Barnett, & Tait, 2009). The ubiquitous specter of disease across history has shaped the evolution of human behavior, emotions, and morality (Rozin, Lowery, Imada, & Haidt, 1999; Haidt, 2001), and the structure of sociocultural systems (Gelfand et al., 2011; Harrington & Gelfand, 2014).

Diseases most obviously pose *realistic threats*: concrete risks to an individual’s (or group’s) physical health and economic well-being (Esses, et al., 1998; Kachanoff & Taylor, 2017). COVID-19 certainly represents a realistic threat through its attack on physical health and capacity to create mass-unemployment (Davies, Partington & Wearden, 2020; Patterson, 2020). Pundits (Sanchez, 2020) and global health leaders (Hennekens, et al., 2020) have emphasized realistic threats from COVID-19, calling the virus “an almost perfect killing machine”. A recent Pew research poll on Americans’ perceptions of threat from COVID-19 focused exclusively on realistic threat (Pew Research Poll, Wave 63.5, March 10, 2020).

Despite the importance of realistic threat, it is not the only threat caused by pandemics. Humans are not just animals with basic needs for physical self-preservation; we are *social* animals who depend on our cultural groups for motivation (Oyserman, 2007), psychological well-being (Kachanoff, Wohl, Koestner, & Taylor, 2020), and structure (Gelfand et al., 2011). Threats to the “integrity or validity of the ingroup’s meaning system [*such as*] religion, values,

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belief system, ideology, philosophy, morality, and world view” (Stephan, Ybarra, & Morrison, 2006, p.3-5) are called *symbolic threats*. COVID-19 poses a symbolic threat because social distancing—the primary method for combatting its spread—results in a weakened sense of community or national identity. The neighborhoods, religious communities, schools, and sports groups that give people a sense of meaning are unraveled by COVID-19 (ur-Rehman et al., 2020; Maxouris, et al., 2020). As one quote suggests, COVID-19 means that “America [and all Nations] as we knew it, is on hold” (Maxouris et al., 2020).

Although realistic threats can translate into symbolic threats—if everyone in a group dies, so will its culture—theories of intergroup relations argue for the distinctness of these two kinds of threat. Social identity theory (1979) introduced symbolic (social identity) threat when the field was focused solely on realistic concerns (Sherif, 1966; see Jackson, 1993 for review). Later, integrated threat theory (Stephan & Stephan, 2000; Zárate, Garcia, Garza, & Hiltan, 2004) reconciled both literatures by showing the unique consequences of both types of threat for intergroup attitudes. Here, we apply this integrated approach and distinction between symbolic and realistic threat to a global pandemic¹.

Unique and Sometimes Opposite Consequences of Realistic Versus Symbolic Threats

Examining realistic and symbolic threat of COVID-19 provides a unique opportunity to test the predictions of integrated threat theory and may also help better understand people’s response to public health initiatives.

One clear prediction is that—as psychological threats—the experience of realistic and symbolic threats should each independently predict increased distress (Beck, Epstein, Brown, & Steer, 1988; Horowitz, Wilner, & Alvarez, 1979) and lower psychological well-being (Diener,

¹ Our focus is not on whether pandemics exacerbate the symbolic or realistic threats of other groups, but, on the perceived threats posed directly by the pandemic.

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Emmons, Larsen, Griffin, 1985; Watson, Clark, & Tellegen, 1988). Within intergroup contexts, threats to one's personal or collective physical safety and resources (i.e. realistic threat), or to what it means to be a member of one's group (i.e., symbolic threat), are both detrimental to psychological well-being (e.g., Kachanoff, Taylor, Caouette, Khullar, & Wohl, 2019, de la Sablonnière, Taylor, Perozzo, & Sadykova, 2009).

Although both kinds of threat should increase distress, they may be associated with opposite reactions to public health outcomes such as social distancing. The goal of social distancing is to combat the dangers of contagion, but by isolating people from their social groups, it sacrifices social connection. In other words, social distancing might increase symbolic threat while attempting to decrease realistic threat. Accordingly, we hypothesize that feelings of realistic threat would predict increased self-reported support and adherence to public health initiatives, whereas feelings of symbolic threat would predict decreased self-reported support and adherence. The idea that people might compromise their physical health to protect their sense of social identity is clear in cases when people risk their lives to protect the causes and values of their group (Bélanger, Caouette, Sharvit, & Dugas, 2014; King & Taylor, 2011).

One final prediction is that symbolic threat might also have a more constructive aspect: predicting when individuals find new ways to affirm their social identity, even while social distancing (e.g., interacting virtually online with cultural groups, family dinners). People may find creative solutions to the cruel ultimatum posed by global pandemics of physical safety versus social meaning.

Present Research

We conducted three studies using cross-sectional (Study 1 and 2) and longitudinal (Study 1 and 3) designs to achieve two core objectives. First, we developed a brief and psychometrically

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sound 10-item scale measuring realistic or symbolic threat. To assess factor structure, we used principal component analysis (Study 1), confirmatory factor analysis (Study 2), and invariance analysis (Study 3). To examine convergent and divergent validity (Studies 1 and 2), we examined associations with individual differences related to threat sensitivity (need for cognitive closure (Rubin, 2018), beliefs in a dangerous world (Duckitt & Fisher, 2013), valuing conservation (Schwartz, Sagiv, Boehnke, 2000), and emotional (in)stability (Schneider, 2004)). Second, as outlined above, we examined the dissociable impact of realistic and symbolic threat on 1) psychological distress/well-being, 2) self-reported adherence to public health initiatives, and 3) new ways of maintaining social identity in the face of social distance.

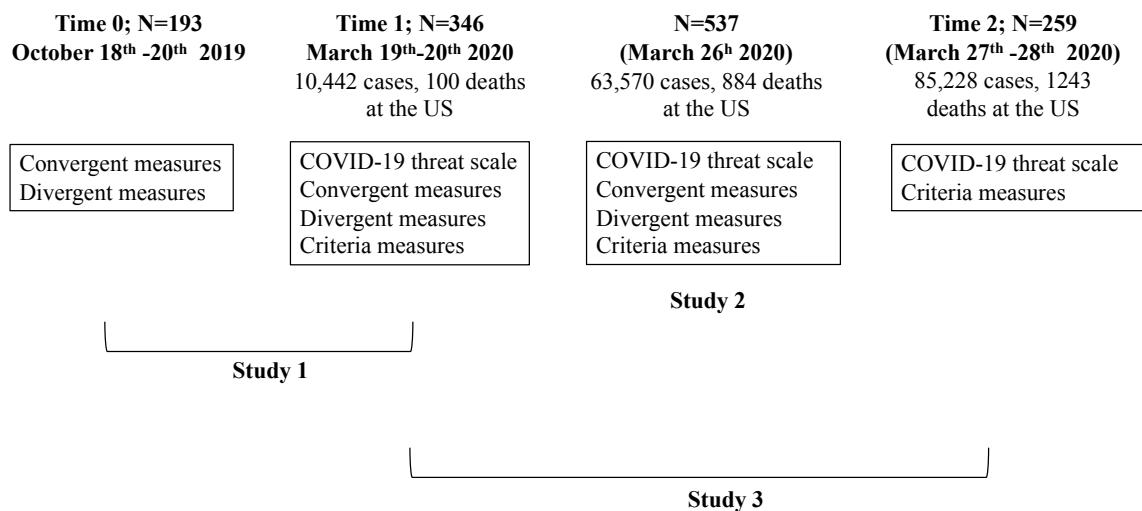


Figure 1. Overview of all studies.

Study 1

This study examined the convergent, divergent, and criterion validity of an initial set of items developed to assess perceptions of symbolic and realistic threat of COVID-19. Half of our sample had previously completed a survey unrelated to COVID-19 in October 2019, which allowed us to assess scale validity both cross-sectionally (analyzing all responses during COVID-19), and longitudinally (analyzing pre- and post-COVID-19 differences among the same sample).

Method

Sample. Between March 19th and 20th, 2020, 399 American participants were recruited from MTurk. After pre-registered exclusions, 346 participants (160 male, 184 female, 2 other; $M_{age}=41.51$, $SD_{age}=13.46$; 80.9% White, 9.5% Black or African American, 4.9% Latinx/Hispanic) completed all measures during the COVID-19 crisis. One-hundred and ninety-three of these participants (after exclusions, 86 male, 105 female, 2 other, $M_{age}=42.27$, $SD_{age}=13.99$; 85.5% White, 8.8% Black or African American, 3.1% Latinx/Hispanic) also had completed all non-COVID-19 items in October 2019. See Supplemental Materials and <https://aspredicted.org/blind.php?x=zj99wh> for more information, including statistical power considerations²

Measures. For brevity we only describe the Integrated COVID-19 Threat Scale in detail. All questionnaires reported are available in the Supplemental Materials and detailed in Table 2.

Integrated COVID-19 Threat Scale. All items were framed with the opening: “How much of a threat, if any, is the coronavirus outbreak to...” and were rated from 1 (Not a Threat) to 4 (Major Threat). To assess *realistic threat*, we adapted 5 pre-existing items ($\alpha=.77$) used by

² We note that the scales focused on in Study 1 were part of a larger study focusing on the impact of COVID-19 threat and morality most broadly. See registration for all collected measures.

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the Pew Research Poll (Pew Research Poll, Wave 63.5, March 10, 2020) to document perceived threat of COVID-19. Participants were asked about the threat of COVID-19 to “your personal health”, “the health of the U.S. population as a whole”, “your personal financial safety”, “the U.S economy”, and “day-to-day life in your local community”³

We used 5 items ($\alpha=.85$) to assess symbolic threat of COVID-19. Four items were based on Stephan and colleagues’ (2006) definition of symbolic threat cited above. We asked participants if they felt COVID-19 poses a threat to “What it means to be American”, “American values and traditions”, “The maintenance of law and order in America”, and “American Democracy”. We also included one item assessing threat to the “The rights and freedoms of the U.S. population as a whole” adapted from Kachanoff and colleagues (2019).

Results

For all studies, we provide a more detailed result summary in Supplemental Materials.

Factor structure of Integrated COVID-19 Threat Scale. Principal component analysis revealed a 2-factor solution: one factor with 5 items assessing symbolic threat (Eigen Value = 4.20, Variance Explained = 42.02%), and one factor with 5 items assessing realistic threat (Eigen Value = 1.64, Variance Explained = 16.34%). See Table 1 for factor loadings.

³ In this initial study we generated a pool of 20 items to explore different types of threat which go beyond the focus of this paper (e.g., threat to loved ones). All items are available in Supplemental Materials and OSF data. We do to focus on items pertaining to loved ones because of their substantial overlap with items pertaining to the self. We also limited the realistic threat items to only those used in the PEW poll so our findings can generalize to their report. Because of the exploratory nature of our initial scale construction we validated our scale structure in two subsequent pre-registered studies (Study 2 and 3) using only the 10-items we focused on.

Table 1. Varimax rotated-factor loadings of a Principal Factor Analysis of the 10-item Integrated COVID-19 Threat Scale.

How much of a threat, if any, is the coronavirus outbreak for....	Symbolic Threat	Realistic Threat
1. The rights and freedoms of the U.S. population as a whole	0.73	0.21
2. What it means to be American	0.83	0.09
3. American values and traditions	0.85	0.08
4. American democracy	0.76	0.22
5. The maintenance of law and order in America	0.69	0.31
6. Your personal health*	0.21	0.72
7. The health of the U.S. population as a whole*	0.13	0.80
8. Your personal financial safety*	0.31	0.62
9. The U.S. economy*	0.11	0.65
10. Day-to-day life in your local community*	0.10	0.71

*Starred items were adapted from the Pew Research Poll concerning COVID-19

Cross-sectional analysis (full sample).

Convergent and divergent validity. Indicating convergent validity, the perceived threat of COVID-19 was positively associated with the need for cognitive closure, belief in a dangerous world, values associated with conservation, and was negatively associated with emotional stability (whether both dimensions were combined or—largely—examined independently). Indicating divergent validity, threat of COVID-19 (combining both dimensions) was not significantly associated with any of the other dimensions of Schwartz's value scale or the Ten-Item-Personality Inventory. See Table 2 for descriptive statistics and correlations.

Criterion validity. We examined the association between symbolic threat and realistic threat, and the three criterion outcomes simultaneously with one structural equation path model (SEM; Byrne, 1994), see Supplemental Materials for full description of the analysis. Symbolic threat was significantly positively associated with COVID-19 impact avoidance ($b=.98$, 95% CI [.26, 1.70], $p=.008$) and COVID-19 impact intrusion ($b=1.10$, 95% CI [.43, 1.77], $p=.001$), but

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was not significantly associated with anxiety ($b=.56$, 95% CI [-.14, 1.26], $p=.114$). Realistic threat was significantly positively associated with anxiety ($b=2.79$, 95% CI [1.85, 3.72], $p<.001$), as well as with COVID-19 impact intrusion ($b=3.18$, 95% CI [2.29, 4.07], $p<.001$), but was not associated with COVID-19 impact avoidance ($b=.25$, 95% CI [-.72, 1.22], $p=.613$).

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Table 2. Correlations between COVID-19 Threat and All Measures Assessed at During the COVID-19 Outbreak (N=346). Study 1.

	COVID-19 Threat – Full Scale	COVID-19 Threat – Symbolic	COVID-19 Threat - Realistic	Mean	SD	Reliability
Convergent Validity						
COVID-19 Threat - Full Scale				2.74	0.59	$\alpha = .85$
COVID-19 Threat – Symbolic	.89***			2.28	0.79	$\alpha = .85$
COVID-19 Threat – Realistic	.80***	.45***		3.21	0.59	$\alpha = .77$
Need for Cognitive Closure (Webster & Kruglanski, 1998)	.20***	.18***	.16**	3.97	0.84	$\alpha = .89$
Belief in a Dangerous World (Altemeyer, 1988)	.30***	.30***	.21***	4.06	1.32	$\alpha = .93$
Schwartz Values – Conservation (Stern, Dietz, & Guagnano, 1998)	.23***	.31***	.043	4.28	1.48	$\alpha = .65$
TIPI – Emotional Stability (Gosling, Rentfrow, & Swann, 2003)	-.18***	-.11*	-.21***	4.93	1.58	$r = .41$
Divergent Validity						
Schwartz Value Openness to Change (Stern, Dietz, & Guagnano, 1998)	0.08	0.07	0.06	5.17	1.29	$r = .23$
Schwartz Value Self Enhancement (Stern, Dietz, & Guagnano, 1998)	0.08	.12*	-0.01	3.69	1.40	$\alpha = .58$
Schwartz Value Self Transcendence (Stern, Dietz, & Guagnano, 1998)	0.06	0.01	0.10	4.57	1.74	$r = .33$
TIPI – Openness to Experiences (Gosling, Rentfrow, & Swann, 2003)	-0.03	-0.03	-0.02	5.25	1.31	$r = .46$
TIPI – Extraversion (Gosling, Rentfrow, & Swann, 2003)	-0.02	0.02	-0.06	3.49	1.80	$r = .69$
TIPI – Agreeableness (Gosling, Rentfrow, & Swann, 2003)	0.01	0.01	0.02	5.54	1.16	$r = .31$
TIPI – Conscientiousness (Gosling, Rentfrow, & Swann, 2003)	0.04	0.05	0.02	5.65	1.17	$r = .49$
Criterion Validity						
Anxiety (<i>During COVID-19</i>) (Beck, Epstein, Brown, & Steer, 1988)	.34***	.24**	.37***	5.91	5.06	$\alpha = .87$
COVID-19 Impact Intrusion (Horowitz, Wilner, & Alvarez, 1979)	.45***	.34***	.45**	7.15	5.09	$\alpha = .87$
COVID-19 Impact Avoidance (Horowitz, Wilner, & Alvarez, 1979)	.17**	.17**	0.10	7.32	4.92	$\alpha = .81$

Longitudinal evidence (repeat participants only).

Convergent and divergent validity. Indicating convergent validity, and replicating our cross-sectional results, the perceived threat of COVID-19 was positively associated with all four individual differences associated with threat sensitivity (whether both dimensions were combined or—largely—examined independently). Indicating divergent validity, threat of COVID-19 was largely not associated with other values or personality traits. See Table 3 for descriptive statistics and correlations.

Criterion validity. We regressed anxiety during the COVID-19 pandemic onto symbolic threat, realistic threat, and base-line anxiety assessed 5 months prior to the global pandemic. Realistic threat ($b=1.71$, 95% CI [.67, 2.75], $p=.001$) but not symbolic threat ($b=.28$, 95% CI [-.50, 1.06], $p=.486$) was associated with anxiety during the pandemic, controlling for base-line anxiety.

Discussion

We found initial support in Study 1 for the factorial structure, as well as, evidence for the convergent and divergent validity of our scale. While the threat of COVID-19 was robustly associated with individual differences linked to threat sensitivity, COVID-19 threat was not consistently associated with other individual differences. Demonstrating criterion validity, both symbolic and realistic threat were both uniquely related to psychological distress. Realistic threat was robustly associated with having intrusive thoughts about the virus, and heightened anxiety (even when controlling for anxiety five months prior). Symbolic threat (but not realistic threat) was associated with trying to avoid thinking about or dealing with the virus, as well as, intrusive thoughts. We further tested the validity of our scale in Study 2 and examined whether/how realistic or symbolic threat predict public health behaviors.

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Table 3. Correlations between COVID-19 Threat at Time 1 and All Measures Assessed at Time 0 (N=193)

	COVID-19 Threat – Full Scale	COVID-19 Threat – Symbolic	COVID-19 Threat – Realistic	Mean	SD	Reliability
Convergent Validity						
Need for Cognitive Closure (<i>Before COVID-19</i>)	.26***	.24***	.20**	3.92	0.89	$\alpha = .90$
Belief in a Dangerous World (<i>Before COVID-19</i>)	.31***	.30***	.23**	4.13	1.32	$\alpha = .92$
Schwartz Values – Conservation (<i>Before COVID-19</i>)	.168*	.21**	.06	4.13	1.45	$\alpha = .63$
TIPI – Emotional Stability (<i>Before COVID-19</i>)	-.23***	-.16*	-.24***	4.89	1.64	$r = .69$
Divergent Validity						
Schwartz Values – Openness to Change (<i>Before COVID-19</i>)	.07	.07	.04	5.18	1.34	$r = .28$
Schwartz Values – Self Enhancement (<i>Before COVID-19</i>)	.19**	.17*	.15*	3.46	1.26	$\alpha = .44$
Schwartz Values – Self Transcendence (<i>Before COVID-19</i>)	.14\	.03	.23***	4.35	1.59	$r = .13$
TIPI – Openness to Experiences (<i>Before COVID-19</i>)	-.08	-.11	-.02	5.21	1.42	$r = .52$
TIPI – Extraversion (<i>Before COVID-19</i>)	.03	.07	-.03	3.33	1.79	$r = .70$
TIPI – Agreeableness (<i>Before COVID-19</i>)	.03	.04	.00	5.58	1.10	$r = .18$
TIPI – Conscientiousness (<i>Before COVID-19</i>)	-.02	.03	-.07	5.72	1.17	$r = .51$

\ $p < .10$, * $p = .05$, ** $p = .01$, *** $p = .001$

Study 2

Study 2 further examined the validity of the Integrated COVID-19 Threat Scale and also whether realistic and symbolic threat might be differentially related to self-reported behavioral adherence and support for public health initiatives, and with finding new ways to maintain social identity while in isolation. We also assessed psychological well-being (Diener, et al., 1985) and affect (Watson, et al., 1988).

Method

Sample. Five-hundred and fifty American participants recruited from Mturk completed the survey on March 26th, 2020. After pre-registered exclusions, 537 participants (256 male, 278 female, 3 other; $M_{age}=41.51$, $SD_{age}=13.46$; 77.8% White, 11.7% Black or African American, 5.6% Latinx/Hispanic) were included in our analyses. See Supplemental Materials and <http://aspredicted.org/blind.php?x=5uu4kf> for more information (including statistical power).

Measures. All questionnaires reported are available in the Supplemental Materials and are detailed in Table 5. In Table 4 we provide all items used to assess compliance with public health behaviors and social identity affirmation in isolation.

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Table 4. Items used to measure attitudinal and behavioral responses to COVID-19 (Study 2).

(R) indicate reversed-scored items.

<p><i>Compliance with the Center for Infectious Diseases (CDC) guidelines (adapted from Everett et al., 2020) (1 = “Not at all” to 5 = “Always” scale; $\alpha = .68$)</i></p>	<ol style="list-style-type: none">1. Washing your hands often for at least 20 seconds especially after being in a public place.2. Avoiding public gatherings.3. Staying at home and avoiding all social contact
<p><i>Support for Public Health Initiatives to Reduce Spread of COVID-19 (1 = “Strongly disagree” to 7 = “Strongly agree” scale; $\alpha = .89$)</i></p>	<ol style="list-style-type: none">1. The social distancing restrictions being put into place to stop the spread of Covid-19 are doing more harm than good. (R)2. We need to prioritize going back to our normal routines as soon as possible, regardless of COVID-19’s spread. (R)3. Right now the most important thing we can do is take all measures possible to stop the spread of COVID-19.4. It is essential that we strictly practice social distancing as a nation, until health care experts say otherwise.
<p><i>Social Identity Affirming Behaviors in Isolation (1 = “Not at all” to 5 = “Always” scale; $\alpha = .80$)</i></p>	<ol style="list-style-type: none">1. I find creative new ways to maintain my old routines (e.g., video chats with family and friends; online exercise classes; cultural activities online).2. I watch or listen to music, videos, movies, or re-plays of cultural events that remind me most of American culture.3. I share things with my friends and family on the phone or through social media that remind us of what life was like in America before COVID-19.4. I engage with “virtual communities” through social media and online groups to replace the in-person communities I can no longer be a part of.5. I engage in behaviors that I associate with American identity (e.g., I cook foods that make me feel American).

Results

Confirmatory factor analysis. Confirmatory factor analysis (CFA; Byrne, 1994)

indicated the two-factor model had acceptable model fit indices: comparative fit index

($CFI=.93$, standard root mean square intervals ($SRMR$)= $.06$, root mean square error

Approximation ($RMSEA$)= $.08$, 90% CI[$.07, .10$], $BIC=12206.97$, $\chi^2=161.08$ (Hu & Bentler,

1999; Byrne, 1994; Steiger, 1990) and no negative error variances or improper solutions, see

Figure 2. We compared the two-factor model to a one-factor model which did not differentiate

between symbolic threat or realistic threat ($CFI=.75$, $SRMR=.12$, $RMSEA=.15$, 90% CI[$.14,.16$],

$BIC=12519.63$, $\chi^2=480.37$). The one-factor model had inferior model fit, $\chi_{\text{dif}}^2=-319.29$, $p<.001$.

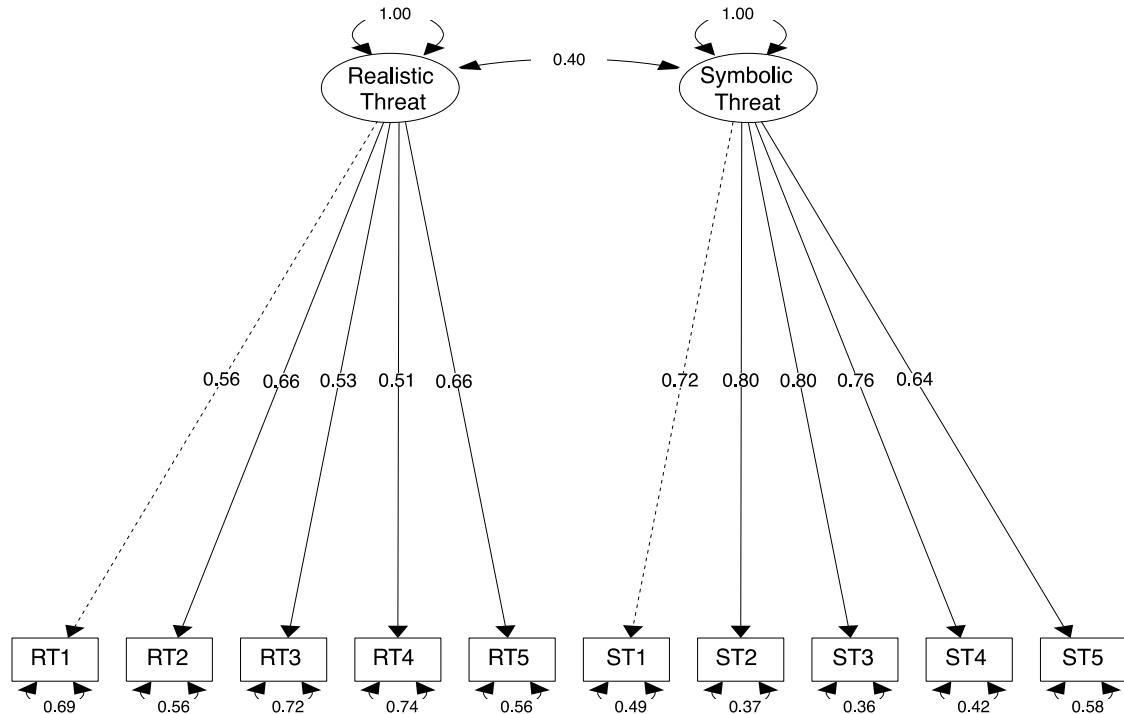


Figure 2. Confirmatory Factor Analysis testing the predicted 2-factor structure of the 10-Item Integrated COVID-19 Threat Scale (Study 2)

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Table 5. Descriptives, reliability, and Pearson's Correlations for Variables Pertaining to Convergent and Divergent Validity (Study 2)

	COVID-19 Threat – Full Scale	COVID-19 Threat – Symbolic	COVID-19 Threat– Realistic	Mean	SD	Reliability
Convergent Validity						
COVID-19 Threat - Full Scale				2.80	0.55	$\alpha = .83$
COVID-19 Threat - Symbolic	.89***	1		2.37	0.77	$\alpha = .86$
COVID-19 Threat - Realistic	.75***	.37***	1	3.24	0.54	$\alpha = .73$
Need for Cognitive Closure	.20***	.17***	.17***	3.99	0.82	$\alpha = .89$
Belief in a Dangerous World	.38***	.39***	.20***	3.80	1.28	$\alpha = .89$
Schwartz Values –Conservation	.16***	.18***	.08	4.36	1.47	$\alpha = .92$
TIPI– Emotional Stability	-.16***	-.11*	-.17***	4.97	1.51	$r = .64$
Divergent Validity						
Schwartz Values – Openness to Change	.08	.08\	.06	5.26	1.37	$r = .29$
Schwartz Values– Self Enhancement	.10*	.13***	.02	3.85	1.44	$\alpha = .59$
Schwartz Values – Self Transcendence	.08\	.01	.16***	4.44	1.56	$r = .20$
TIPI – Openness to Experiences	-.06	-.10*	.02	5.20	1.21	$r = .37$
TIPI – Extraversion	-.05	-.02	-.06	3.51	1.66	$r = .64$
TIPI – Agreeableness	-.01	-.08\	.09*	5.36	1.29	$r = .39$
TIPI – Conscientiousness	-.01	-.01	.01	5.61	1.25	$r = .39$

\ $p < .10$, * $p = .05$, ** $p = .01$, *** $p = .001$

Convergent and divergent validity. Overall, we found a consistent pattern of results with Study 1, supporting both convergent and divergent validity. See Table 5 for descriptives and correlations and Supplemental Materials for full description of results.

Criterion validity.

We examined the association between symbolic threat and realistic threat, and all criterion outcomes of interest simultaneously within one structural equation path model (SEM; Byrne, 1994; using the Lavaan package in R, (Rosseel, 2012), see Supplemental Materials for full description of the analysis. See Table 6 for descriptive statistics and correlations.

Psychological distress. Replicating Study 1, symbolic threat was significantly positively associated with COVID-19 impact avoidance and COVID-19 impact intrusion. In contrast to Study 1, symbolic threat was also significantly associated with anxiety. Replicating Study 1, realistic threat was significantly positively associated with anxiety and COVID-19 impact intrusion. In contrast to Study 1, realistic threat was also associated with COVID-19 impact avoidance.

Psychological well-being. Symbolic and realistic threat were positively associated with negative affect. Realistic threat (but not symbolic threat) was negatively associated with life satisfaction. We observed an unanticipated significant positive relation between symbolic threat and positive affect. Exploratory parallel-mediation analysis revealed this effect was partially mediated by increased social identity affirming behaviors in isolation (but not decreased adherence to public health initiatives; See analysis in Supplemental Materials for details).

Support and adherence with public health initiatives. As predicted, realistic threat was significantly and *positively* associated with support of and self-reported adherence to public

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health initiatives like social distancing and handwashing. In contrast, symbolic threat was significantly and negatively associated with support and adherence to public health initiatives.

Social identity affirmation in isolation. As we expected, symbolic threat was positively associated with engaging in creative behaviors (while in isolation) to affirm one's American identity (e.g., cooking food subjectively associated with America). Realistic threats were also significantly positively associated with such behaviors.

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Table 6. Descriptives and Pearson's Correlations for Criterion Outcomes (Study 2)

	COVID-19 Threat – Full Scale	COVID-19 Threat – Symbolic	COVID-19 Threat– Realistic	Mean	SD	Reliability
Anxiety	.36***	.25***	.37***	6.07	5.38	$\alpha = .89$
COVID-19 – Impact Intrusion	.40***	.27***	.43***	6.80	4.92	$\alpha = .86$
COVID-19 – Impact Avoidance	.21***	.18***	.18***	7.72	4.87	$\alpha = .79$
Life Satisfaction (Diener, Emmons, Larsen, Griffin, 1985)	-.15**	-.09*	-.17***	4.23	1.49	$\alpha = .89$
Positive Affect (Watson, Clark, & Tellegen, 1988)	.06	.10*	-.03	27.63	8.45	$\alpha = .91$
Negative Affect (Watson, Clark, & Tellegen, 1988)	.36***	.28***	.32***	17.40	7.89	$\alpha = .92$
Adherence to CDC Guidelines (Everett et al., 2020)	.16***	-.01	.33***	4.51	0.58	$\alpha = .68$
Support for Public Health Initiatives to Reduce Spread of COVID-19	.03	-.20***	.35***	5.97	1.32	$\alpha = .89$
Social Identity Affirming Behaviors in Isolation	.18***	.14***	.16***	2.79	0.95	$\alpha = .80$

$\backslash p < .10$, $*p = .05$, $**p = .01$, $***p = .001$

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Table 7. Americans' perceived symbolic and realistic threat of the COVID-19 virus in relation to psychological distress, psychological well-being, adherence to and support of public health initiatives, and social identity affirming behaviors in social isolation (Study 2; Cross-sectional data collected on March 26, 2020).

	Realistic Threat			Symbolic Threat		
	b(se)	p	95%CI	b(se)	p	95%CI
Anxiety	3.24(0.43)***	.000	2.39, 4.08	0.91(0.30)**	.002	.32, 1.50
COVID-19 – Impact	3.56(0.38)***	.000	2.80, 4.31	0.78(0.27)**	.003	.26, 1.31
Intrusion						
COVID-19 – Impact	1.18(0.42)**	.005	.36, 1.99	0.80(0.29)**	.005	.24, 1.37
Avoidance						
Life Satisfaction	-0.45(0.13)***	.000	-.70, -.20	-0.06(0.09)	.532	-.23, .12
Positive Affect	-1.26(0.73)	.086	-2.69, .18	1.46(0.51)**	.004	.47, 2.45
Negative Affect	3.61(0.64)***	.000	2.35, 4.67	1.98(.45)***	.000	1.10, 2.85
Adherence to CDC Guidelines	0.42(0.05)***	.000	.33, .51	-0.11(0.03)***	.000	-.18, -.05
Support for Public Health Initiatives to Reduce Spread of COVID-19	1.23(0.10)***	.000	1.03, 1.42	-0.67(0.07)***	.000	-.80, -.53
Social Identity Affirming Behaviors in Isolation	0.21(0.08)*	.011	.05, .37	0.12(0.06)*	.029	.01, .23

Note. b values reflect non-standardized path estimates from one SEM model including all measured variables simultaneously.

Realistic and Symbolic Threat were covaried in the model. All outcomes were covaried with each other in the model.

\p < .10 , *p=.05, **p=.01, ***p=.001

Discussion

Study 2 provides further evidence for the psychometric properties of the integrated COVID-19 threat scale (using CFA) and replicated findings pertaining to convergent and divergent validity shown in Study 1. Both threats were also consequential. People who experienced greater symbolic and realistic threat reported greater psychological distress, and realistic threats were associated with less life-satisfaction.

Symbolic and realistic threats had opposite associations with support and engagement with important public health initiatives. People higher in realistic threat reported greater compliance and support for initiatives such as social distancing and hand-washing, while people higher in symbolic threat reported being less supportive and compliant. As predicted, experiencing symbolic threat was positively associated with engaging in social identity affirming behaviors in social isolation. Unexpectedly, realistic threat was also associated with identity affirming behaviors, potentially because individuals high in realistic threat were spending more time in isolation.

Study 3

In Study 3 we aimed to replicate Study 2's findings pertaining to criterion outcomes, using a longitudinal design in which we examined whether perceived threat of COVID-19 predicted outcomes one week later. To do this, we re-sampled as many participants who took part in Study 1 (Time 1: March 19th-20th) as possible and asked them to complete criterion measures one week later (Time 2: March 27th-28th). In addition, we asked participants to complete the ten-item COVID-19 threat scale at the end of the survey, so we could test the longitudinal invariance of the scale.

Method

Sample. Three hundred and eleven participants recruited from Mturk completed the survey on March 27th-28th 2020. Three hundred and ten participants had completed the study one week prior (T1) on March 19th-20th (i.e., participants from Study 1). After pre-registered exclusions, our sample consisted of 259 participants (122 male, 137 female; $M_{age}=41.51$, $SD_{age}=13.46$; 81.9% White, 9.3% Black or African American, 3.5 % Latinx/Hispanic). See Supplemental Materials and <https://aspredicted.org/blind.php?x=2ed62c> for more information.

Measures. We assessed realistic and symbolic threat and all criterion validity measures used in Study 2. See Tables 9 for reliability and the Supplemental Materials for the full questionnaires.

Results

Scale invariance. We examined the invariance of both subscales using longitudinal confirmatory factor analysis (Meredith, 1993) with the SemTools package in R (Jorgensen, 2019). Because we confirmed there being two distinct factors in Study 2, and because all our analyses focus on the separate sub-scales we explored the invariance of each sub-scale separately. We tested for *configural invariance* (i.e., does the scale assess the same construct over time), *metric invariance* (i.e., does the scale have the same meaning over time), scalar invariance (i.e., can we compare means over time) and the equivalence of means over time. See Supplemental Materials for full details. As illustrated in Table 8, we find evidence for configural, metric and scalar invariance, as well as equivalence in the latent means, for both the symbolic and realistic threat scales (all $\Delta CFI < .003$; all $\Delta \chi^2$ n.s; all $\Delta RmSEAs < .007$; Cheung & Rensvold, 2002).

Criterion validity.

Using SEM, we examined the association between symbolic threat and realistic threat (at T1), and all criterion outcomes assessed one week later (at T2), simultaneously in one model. See Table 9 for descriptive statistics and correlations.

Psychological distress. Symbolic threat (at T1) was significantly positively associated with COVID-19 impact avoidance, COVID-19 impact intrusion, and general anxiety over the course of the following week (measured at T2). Realistic threat was also associated with COVID-19 impact intrusion and anxiety, but was not associated with COVID-19 impact avoidance.

Psychological well-being. Both types of threat (at T1) were positively associated with negative affect experienced over the course of a subsequent week. Replicating Study 2, Realistic threat (but not symbolic threat) was negatively associated with life satisfaction. As in Study 2, we again observed an unanticipated significant positive relation between symbolic threat and positive affect. Consistent with Study 2, exploratory parallel-mediation analysis showed this effect was mediated by increases in social identity affirming behaviors in isolation (but not decreased adherence to public health initiatives).

Support and adherence with public health initiatives. Replicating Study 2, experiencing realistic threat (at T1) was significantly and positively associated with support and compliance with public health initiatives to fight COVID-19 over the course of the subsequent week (assessed at T2). In direct contrast, experiencing symbolic threat was significantly and *negatively* associated with support and compliance.

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Symbolic threat (but not realistic threat) assessed at T1 was positively associated with engaging in behaviors (while in isolation) to affirm one's American identity over the course of the next week.⁴

Discussion

Both dimensions of the 10-item threat scale were invariant over time. This provides initial evidence showing the scale can be used to compare changes in perceived threat over time (Flake et al., 2017).

Consistent with Study 1-2, both threats were uniquely associated with greater psychological distress and diminished psychological well-being one week later (with some nuance in terms of which outcome they impacted). Both threats had distinct consequences for adherence to public health initiatives, such that realistic threat predicted greater self-reported compliance and support, while symbolic threat predicted diminished compliance and support. However, symbolic threat (but not realistic threat) was associated with greater engagement in behaviors affirming American identity.

⁴ In all studies we assessed political ideology by having participants rate their overall political views from 1 (extremely conservative) to 7 (extremely liberal). Across studies, total threat was not related to political ideology; symbolic threat was weakly and inconsistently positively associated with conservatism and; realistic threat was consistently negatively associated with conservatism. We repeated the SEM analyses assessing outcomes, including political orientation as a predictor. Results were consistent except: In Study 2 the positive association between positive affect and symbolic threat became n.s.; In Study 2 the positive association between social identity affirmation and symbolic threat became n.s; in Study 3 the negative association between life satisfaction and realistic threat became marginal. See Supplemental Materials for details.

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Table 8. Longitudinal invariance analysis testing invariance of the Integrated COVID-19 Threat Sub-Scales across time (1 week).

	<i>df</i>	<i>X</i> ₂	CFI	RMSEA	ΔX_2	ΔCFI	$\Delta RMSEA$
Realistic Threat Sub-Scale							
1.Configural Invariance (No parameters constrained)	29	59.97	0.961	0.064	NA	NA	NA
2.Metric Invariance (Loadings constrained)	33	65.81	0.959	0.062	5.84, <i>p</i> =.211	0.002	0.002
3.Scalar (Strong) Invariance (Intercepts and item loadings constrained)	37	72.32	0.955	0.061	6.50, <i>p</i> =.164	0.003	0.001
4.Invariance of latent means (Intercepts, item loadings, and latent means constrained)	38	72.25	0.956	0.059	.408, <i>p</i> =.523	0.001	0.001
Symbolic Threat Sub-Scale							
1.Configural Invariance (No parameters constrained)	29	71.94	.969	.076	NA	NA	NA
2.Metric Invariance (Loadings constrained)	33	79.33	.966	.074	7.39, <i>p</i> =.117	.002	.002
3.Scalar (Strong) Invariance (Intercepts and item loadings constrained)	37	79.79	.969	.067	.467, <i>p</i> =.977	.003	.007
4.Invariance of latent means (Intercepts, item loadings, and latent means constrained)	38	80.09	.969	.065	.296, <i>p</i> =.586	.001	.001

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Table 9. Descriptives and Pearson's Correlations of COVID-19 Threat at T1 and Criterion Outcomes at T2 one week later (Study 3)

	COVID-19 Threat – Full Scale (T1)	COVID-19 Threat – Symbolic (T1)	COVID-19 Threat – Realistic (T1)	Mean	SD	Reliability
COVID-19 Threat - Full Scale (T1)				2.73	0.58	$\alpha = .84$
COVID-19 Threat – Symbolic (T1)	.89***			2.26	0.80	$\alpha = .86$
COVID-19 Threat – Realistic (T1)	.78***	.42***		3.20	0.58	$\alpha = .75$
Anxiety (T2)	.38***	.29***	.37***	5.61	5.26	$\alpha = .89$
COVID-19 – Impact Intrusion (T2)	.38***	.29***	.37***	6.65	5.38	$\alpha = .90$
COVID-19 – Impact Avoidance (T2)	.14*	.15*	.08	7.67	5.03	$\alpha = .81$
Life Satisfaction (T2)	-.05	.02	-.12\	4.34	1.59	$\alpha = .91$
Positive Affect (T2)	.02	0.11	-.12	28.67	8.28	$\alpha = .91$
Negative Affect (T2)	.38***	.30***	.36***	19.52	8.35	$\alpha = .92$
Adherence to CDC Guidelines (T2)	.11\	-.04	.26***	4.59	0.48	$\alpha = .58$
Support for Public Health Initiatives to Reduce Spread of COVID-19 (T2)	.11\	-.10	.34***	6.08	1.21	$\alpha = .89$
Social Identity Affirming Behaviors in Isolation (T2)	.24***	.27***	0.11\	2.86	0.96	$\alpha = .80$
COVID-19 Threat - Full Scale (T2)	.60***	.53***	.48***	2.73	0.58	$\alpha = .85$
COVID-19 Threat – Symbolic (T2)	.51***	.57***	.25***	2.28	0.82	$\alpha = .86$
COVID-19 Threat – Realistic (T2)	.49***	.23***	.64***	3.18	0.54	$\alpha = .76$

\p < .10 , *p=.05, **p=.01, ***p=.001

Table 10. Americans' perceived symbolic and realistic threat of the COVID-19 virus on March 20,2020 predicting one week later (March 27, 2020) psychological distress, psychological well-being, adherence to and support of public health initiatives, and engagement in affirming social identity from social isolation (Study 3).

	Realistic Threat (Time 1)			Symbolic Threat (Time 1)		
Outcomes (week later)	b(se)	p	95%CI	b(se)	p	95%CI
Anxiety	2.67(0.56)***	.000	1.57, 3.78	1.12(0.41)**	.007	.31, 1.93
COVID-19 – Impact	0.39(0.08)***	.000	.23, .55	0.16(0.06)**	.006	.05, .28
Intrusion						
COVID-19 – Impact	0.02(0.07)	.826	-.13,.16	0.11(0.05)*	.033	.01, .22
Avoidance						
Life Satisfaction	-0.42(0.18)*	.025	-.78, -.05	0.16(0.14)	.225	-.10, .43
Positive Affect	-2.88(0.95)**	.002	-4.74, -1.03	2.06(0.69)**	.003	.70, 3.42
Negative Affect	4.02(0.90)***	.000	2.26, 5.78	1.92(0.66)**	.004	.63, 3.21
Adherence to CDC Guidelines	0.27(0.05)***	.000	.17, .38	-0.10(0.04)**	.008	-.18, -.03
Support for Public Health Initiatives to Reduce Spread of COVID-19	0.95(0.13)***	.000	.70, 1.21	-0.43(0.09)***	.000	-.62, -.25
Social Identity Affirming Behaviors in Isolation	-0.01(0.11)	.910	-.22, .20	0.33(0.08)***	.000	.18, .49

Note. *b* values reflect non-standardized path estimates from one SEM model including all measured variables simultaneously.

Realistic and Symbolic Threat were covaried in the model. All outcomes were covaried with each other in the model. We note that participants in Study 3 were the same as those recruited in Study 1 (which reflects responses at T1 in Study 3).

\p < .10 , *p=.05, **p=.01, ***p=.001

General Discussion

We validated a ten-item scale assessing two kinds of psychological threats—realistic threat and symbolic threat—in response to the COVID-19 pandemic. Using cross-sectional and longitudinal methodologies, we found the psychometric properties of the scale were sound, with both principal component analysis (Study 1) and confirmatory factor analysis (Study 2) supporting two distinct types of COVID-19 threat (realistic and symbolic). In Study 3, we also found evidence of strong scalar invariance when administering the scale twice over a one-week period (Flake, et al., 2017).

Our scale demonstrated convergent and divergent validity. Symbolic and realistic threats were significantly related to individual difference traits linked to threat sensitivity. On the other hand, COVID-19 threat was not reliably related to individual difference traits less clearly tied to threat sensitivity. This pattern of results was robust when we assessed COVID-19 threat and the individual difference traits at the same time, as well as when we assessed the individual difference traits five months prior to the pandemic hitting the United States.

Both threats were uniquely associated with important outcomes for psychological health and public health, when measured simultaneously with (Study 2) or one week prior (Study 3) to outcomes. Perceptions of symbolic and realistic threat were both uniquely associated with having greater anxiety, greater negative affect, and more intrusive thoughts about the pandemic. Realistic threat was also associated with diminished life-satisfaction, while symbolic threat was most consistently associated with having an avoidant response to the pandemic.

Symbolic and realistic threats also had significant yet different consequences for self-reported adherence to and support of public health initiatives essential to stopping the spread of the virus (i.e., social distancing, hand washing). People who perceived high levels of realistic

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threat to their (and their group's) physical and financial security reported greater adherence and support for such practices. In direct contrast, people who perceived more symbolic threat to what it means to be an American, reported less support for and adherence to public health guidelines. However, if people do engage in social distancing, symbolic threat is positively associated with finding creative ways to enact and express their social (e.g., national) identity even in isolation.

Implications

The global impact of COVID-19 is undeniable. Beyond the race for a vaccine and treatment, it will be important for the scientific community to find ways to mitigate the psychological toll of the pandemic, and increase people's adherence to public health initiatives geared at reducing transmission (e.g., Everett et al., 2020). Investigating these questions requires valid and psychometrically sound tools, such as the Integrated COVID-19 Threat Scale we offer in this work.

The most obvious starting point for assessing threats posed by a global pandemic are realistic threats, such as those captured by the recent Pew research poll (Pew Research Poll, Wave 63.5, March 10, 2020). By applying insights from theories of intergroup relations, we show the importance of also considering another distinct form of threat—symbolic threats to social identity—especially as they relate to public health behaviors. Only by considering both realistic and symbolic threats can we have a complete picture of how people respond to global health pandemics⁵.

By providing a scale to assess both threats, we provide a tool for research which aims to develop future interventions—interventions which should hopefully address both realistic and

⁵ In contexts in which both symbolic and realistic threat are theoretically expected to predict outcomes in the same direction, it may be acceptable to also combine both factors into a composite measure (so that shared variance is not lost). However, even in these contexts, like when assessing psychological distress, we find that useful information can be garnered from assessing the independent contributions of both threats.

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symbolic threats. Our work is also one of the first papers to demonstrate the validity of applying theories of intergroup threat (Stephan et al., 2006) to understand how people perceive threats from an agent or entity *other* than another social group (but see Gamez-Djokic & Waytz, *in press* for their analysis of threat elicited by automation).

Limitations and Future Directions

We note some limitations of this initial work. First, we only assessed COVID-19 threat amongst online samples of Americans. People from different nations or cultural groups might be impacted differently by COVID-19, and may have different perceptions or responses to symbolic and realistic threats of the virus. For instance, nations with more (or less) vulnerable health care systems, or with greater (or less) poverty may be most susceptible to realistic threats posed by the pandemic. Cultures relying on social gatherings to express their identity (e.g., religious communities; ur-Rehman et al., 2020) may be particularly susceptible to symbolic threat. Future work is needed to validate our scale in these different social contexts, as well as with different racial groups, genders, and people of different socioeconomic status (Stephens, Markus, & Fryberg, 2012). This research relied fully on self-reported measures: More research is essential to see if our findings replicate when assessing actual behavior.

We acknowledge some unexpected results. In both Study 2 and Study 3, symbolic threat was associated with greater positive affect. Exploratory parallel-mediation analysis we conducted suggests this increase in positive affect might be due to increases in practicing social identity affirming behaviors in social isolation but not diminished compliance with public health initiatives (See Supplemental Materials). Values relating to self-enhancement were also associated with realistic threat. While we did not predict this *a priori*, previous work has found self-enhancement to be associated with threat sensitivity (Schwartz et al., 2000). It is possible

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people who value self-enhancement may be concerned about the realistic threat COVID-19 poses to their (or their group's) resources, as scarce resources can be important for maintaining power and status (Kachanoff & Taylor, 2017).

Conclusion

As the scientific community rallies to help flatten the curve of COVID-19 and mitigate its negative psychological toll, it will be essential for us to fully capture how people feel threatened by the pandemic. We offer a brief scale which helps capture two important kinds of threat, and present preliminary evidence that it may be important for public health initiatives to not only help protect people's physical bodies, but also their social identities.

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Supplemental Materials

Measuring the Distinct Psychological Threats of COVID-19 and their Unique Impact on Well-being and Adherence to Public Health Behaviors

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Study 1 – Detailed Description of Sample, Measures and Results

Sample. Between March 19th and 20th, 2020, 399 American participants were recruited from MTurk. After pre-registered exclusions, 346 participants (160 male, 184 female, 2 other; $M_{age}=41.51$, $SD_{age}=13.46$; 80.9% White, 9.5% Black or African American, 4.9% Latinx/Hispanic) completed all measures during the COVID-19 crisis. One-hundred and ninety-three of these participants (after exclusions, 86 male, 105 female, 2 other, $M_{age}=42.27$, $SD_{age}=13.99$; 85.5% White, 8.8% Black or African American, 3.1% Latinx/Hispanic) also had completed all non-COVID-19 items in October 2019. We determined our sample size on the basis of the number of participants we had available in our pre-COVID-19 sample, and thus we aimed for ~ 200 participants who completed pre-COVID measures and ~200 new participants (to increase sample size and statistical power). A large sample size of ~ 400 (or ~ 200 cases for our longitudinal sub-sample) provides sufficient power (> 80%) for the correlational based analyses we used in this study in which we expected effects of at least $r=.20$. We also had at least 5-10 observations per parameter for our planned SEM analysis (in this case at least an $n=150$; see Kline, 2011). See our pre-registration at <https://aspredicted.org/blind.php?x=zj99wh> for more information¹.

Measures

All scores represent the means of all items, with the exception of the Beck Anxiety Inventory and Impact of the COVID-19 event which was summed according to guidelines (Gosling, Rentfrow, & Swann, 2003; Horowitz, Wilner, & Alvarez, 1979).

Integrative COVID-19 Threat Scale. All items were framed with the opening: “How much of a threat, if any, is the coronavirus outbreak to...” and were rated from 1 (Not a threat) to

¹ We note that the scales focused on in Study 1 were part of a larger study focusing on the impact of COVID-19 threat and morality most broadly. See registration for all collected measures.

4 (Major Threat). To assess *realistic threat*, we adapted 5 pre-existing items ($\alpha_{\text{during_COV19}} = .77$) used by the Pew Research Poll (Pew Research Poll, Wave 63.5, March 10, 2020) to document perceived threat of COVID-19. Participants were asked about the threat of COVID-19 to “your personal health”, “the health of the U.S. population as a whole”, “your personal financial safety”, “the U.S economy”, and “day-to-day life in your local community”

We used 5 items ($\alpha_{\text{during_COV19}} = .85$) to assess symbolic threat of COVID-19. Four items were based on Stephan and colleagues’ (2006) definition of symbolic threat cited above. We asked participants if they felt COVID-19 poses a threat to “What it means to be American”, “American values and traditions”, “The maintenance of law and order in America”, and “American Democracy”. We also included one item assessing threat to the “The rights and freedoms of the U.S. population as a whole” adapted from Kachanoff and colleagues (2019).

We used 5 novel items ($\alpha_{\text{during_COV19}} = .85$) to assess symbolic threat of COVID-19. Four items were based on Stephan and colleagues’ (2006) definition of symbolic threat cited above. Specifically, we asked participants if they felt COVID-19 poses a threat to “What it means to be American”, “American values and traditions”, “The maintenance of law and order in America”, and “American Democracy”. We also included one item based on Kachanoff and colleagues’ (2019, in press) extension of symbolic threat as involving threats to the group’s collective freedoms. Participants reported whether COVID-19 poses a threat to “The rights and freedoms of the U.S. population as a whole”.²

² For full transparency, in this initial study we generated a pool of 20 items to explore different types of threat which go beyond the focus of this paper (e.g., threat to loved ones). All items are shown below p.9 and we make the data for all items available on OSF. We decided not to focus on items pertaining to loved ones because of their substantial overlap with items pertaining to the self. We also limited the realistic threat items to only those used in the PEW poll so our findings can generalize to their report. Because of the exploratory nature of our initial scale construction we validated our scale structure in two subsequent pre-registered studies (Study 2 and 3) using only the 10-items we focused on.

Convergent validity. We tested whether each dimension of COVID-19 (as well as the total threat scale) related significantly to several individual difference traits which were found in previous research to associate threat sensitivity in other contexts (e.g., intergroup contexts).

These included:

The Need for Cognitive Closure. We assessed need for cognitive closure with 15 items (Webster & Kruglanski, 1998). Participants rated agreement on a scale anchored at 1 (Completely Disagree) and 6 (Completely Agree). A sample item included: “I feel uncomfortable when I don’t understand the reason why an event occurred in my life” ($\alpha_{\text{before_COV19}} = .89$; $\alpha_{\text{during_COV19}} = .89$).

The Fear of a Dangerous World. We assessed fear of a dangerous world with 12 items (Altemeyer, 1988). Participants rated agreement on a scale anchored at 1 (Strongly Disagree) and 7 (Strongly Agree). A sample item included: “There are many dangerous people in our society who will attack someone out of pure meanness, for no reason at all” ($\alpha_{\text{before_COV19}} = .92$; $\alpha_{\text{during_COV19}} = .93$).

Values associated with Conservation. We assessed the importance that people placed on three values tapping into Schwartz’s (1992) conceptualization of conservation: valuing security, conformity, and tradition (items adapted from Stern, Dietz, & Guagnano, 1998). Participants rated each value (e.g., security) on a scale anchored at 0 (Opposed to My Principals) and 8 (Of Supreme Importance; $\alpha_{\text{before_COV19}} = .63$; $\alpha_{\text{during_COV19}} = .65$)

Emotional Stability (Neuroticism). We assessed emotional stability using two items from the Ten Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003). Participants rated if they saw themselves as having different traits on a scale anchored at 1 (Strongly Disagree) to 7

(Strongly Agree). A sample item included: “Anxious, easily upset” ($r_{\text{before_COV19}} = .69$; $r_{\text{during_COV19}} = .41$).

Divergent Validity. We also tested if, compared to values associated with conservation, there would be relatively weaker associations between COVID-19 threat and other values assessed using the Schwartz value survey: These included values associated with *openness to change* (i.e., stimulation, self-direction; $r_{\text{before_COV19}} = .23$; $r_{\text{during_COV19}} = .23$), values associated with *self-enhancement* (i.e., achievements, hedonism, power; $\alpha_{\text{before_COV19}} = .58$; $\alpha_{\text{during_COV19}} = .58$), and values associated with *self-transcendence* (i.e., universalism, benevolence; $r_{\text{before_COV19}} = .33$; $r_{\text{during_COV19}} = .33$).

Similarly, we tested whether compared to emotional stability we would find relatively weaker associations between COVID-19 threat and other personality traits assessed using the Ten Item Personality Inventory: *extraversion* ($r_{\text{before_COV19}} = .70$; $r_{\text{during_COV19}} = .69$), *agreeableness* ($r_{\text{before_COV19}} = .18$; $r_{\text{during_COV19}} = .31$), *conscientiousness* ($r_{\text{before_COV19}} = .51$; $r_{\text{during_COV19}} = .49$), and *openness to experience* ($r_{\text{before_COV19}} = .52$; $r_{\text{during_COV19}} = .46$).

Because there is no clear theoretical basis to suggest their association with threat, we did not expect associations with perceived threat from COVID-19.

Criterion Validity.

Impact of COVID-19 Pandemic. We assessed distress in response to the pandemic by adapting the 15-item Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979). The scale assesses potentially maladaptive responses to traumatic or stressful events. The scale includes two distinct sub-scales assessing (1) *impact intrusion* (i.e., whether people have *intrusive thoughts* about the event, e.g., “I thought about the event when I didn’t mean to” $\alpha_{\text{during_COV19}} = .80$).

.87); and (2) *impact avoidance* (i.e., whether people avoided thinking about the event, e.g., “I stayed away from reminders of the virus”; $\alpha_{\text{during_COV19}} = .81$). Participants rated how much each of these affective responses to COVID-19 were true of how they felt during the past seven days. Responses were rated on a scale anchored at 0 (Not at all) and 3 (Often).

Anxiety. We assessed general anxiety using the 9-item Beck Anxiety Inventory (Beck, Epstein, Brown, & Steer, 1988). Participants rated symptom severity of anxiety symptoms in the past week on a scale anchored at 0 (Not at all) to 3 (Severely – I could barely stand it; $\alpha_{\text{before_COV19}} = .85$; $\alpha_{\text{during_COV19}} = .87$).

Results

Factor Structure of COVID Threat Scale

We used Principal Component Analysis to extract the factors, and a Varimax rotation to interpret the factor loadings (Bryant & Yarnold, 1995; Thompson, 2004). This analysis revealed a 2-factor solution in which one factor reflected the 5 items assessing symbolic threat of the pandemic (Eigen Value = 4.20, Variance Explained = 42.02%) and one factor reflected the 5 items assessing realistic threat from the pandemic (Eigen Value = 1.64, Variance Explained = 16.34%). We summarize the rotated factor loadings for each scale item in Table 1.

(See Table 1 reported in Main Text)

Cross-Sectional Analysis (Full Sample)

We report in Table 2 descriptive statistics for all scales measured during the COVID-19 crisis (i.e., N= 346 participants) as well as the zero-order correlations between symbolic and realistic threat and each other variable.

(See Table 2 reported in Main Text)

Convergent and divergent validity. Overall, we found evidence for convergent and divergent validity of the COVID-19 threat scale. Consistent with the literature, the perceived threat of COVID-19 (combining both dimensions) was positively associated with the need for cognitive closure, belief in a dangerous world, values associated with conservation, and was negatively associated with emotional stability. In contrast, indicating divergent validity, threat to COVID-19 (combining both dimensions) was not significantly associated with any of the other dimensions of Schwartz's value scale or the Ten-Item-Personality Inventory.

Results were consistent when we examined the associations for each threat dimension separately, with a few exceptions. Valuing conservation was robustly associated with symbolic threat but not realistic threat. However, examination of the sub-values associated with conservation revealed that realistic threat was significantly related to valuing security ($r(346)=.15, p=.006$), but not valuing tradition, or conformity. Symbolic threat in contrast was significantly associated with all three sub-dimensions (all $p < .001$). We also observed an unanticipated significant association between symbolic threat and values associated with self-enhancement.

Criterion Validity. We examined the association between symbolic threat and realistic threat, and the three negative psychological responses that people might have to the pandemic (i.e., anxiety, COVID-19 impact intrusion and COVID-19 impact avoidance) simultaneously within one structural equation path model (SEM; Byrne, 1994). This analysis was conducted using the Lavaan package in R (Rosseel, 2012). In the model, we regressed each of the three outcomes onto both threat dimensions. We allowed the two threat dimensions to covary, and, the three outcomes to covary. The model was fully saturated, $\chi^2 (0) = 0$. Our results remained

consistent when regressing symbolic and realistic threat simultaneously on each single outcome in a series of separate regressions.

Symbolic threat was significantly positively associated with COVID-19 impact avoidance ($b=.98$, 95% CI [.26, 1.70], $p=.008$) and COVID-19 impact intrusion ($b=1.10$, 95% CI [.43, 1.77], $p=.001$), but was not significantly associated with anxiety ($b=.56$, 95% CI [-.14, 1.26], $p=.114$). Realistic threat was significantly positively associated with anxiety ($b=2.79$, 95% CI [1.85, 3.72], $p<.001$), as well as with COVID-19 impact intrusion ($b=3.18$, 95% CI [2.29, 4.07], $p<.001$), but was not associated with COVID-19 impact avoidance ($b=.25$, 95% CI [-.72, 1.22], $p=.613$).

Study 1 from the Qualtrics Survey

Threat of COVID-19- Initial Item Pool: We initially generated an exploratory pool of 20 items to explore people's threat of COVID-19. The final 10 items focused on in the paper are reported in Table 1 of the main text.

How much of a threat, if any, is the coronavirus outbreak for...

	Not a threat 1	Minor threat 2	Moderate threat 3	Major threat 4
Your personal health	●	●	●	●
The health of your loved ones	●	●	●	●
The health of the U.S. population as a whole	●	●	●	●
Your personal financial safety	●	●	●	●
The financial safety of your loved ones	●	●	●	●
The U.S. economy	●	●	●	●
Your personal access to basic resources like food and water	●	●	●	●
Your loved ones' access to basic resources like food and water	●	●	●	●
The U.S. populations' access to basic resources like food and water as a whole	●	●	●	●
Your personal access to health care	●	●	●	●
Your loved ones' access to health care	●	●	●	●
The U.S. healthcare system	●	●	●	●
Your personal rights and freedoms	●	●	●	●
The rights and freedoms of your loved ones	●	●	●	●
The rights and freedoms of the U.S. population as a whole	●	●	●	●
Day-to-day life in your local community	●	●	●	●
What it means to be American	●	●	●	●
American values and traditions	●	●	●	●
American democracy	●	●	●	●
The maintenance of law and order in America	●	●	●	●

The Need for Cognitive Closure

I don't like situations that are uncertain.



I dislike questions which could be answered in many different ways.



I find that a well ordered life with regular hours suits my temperament.



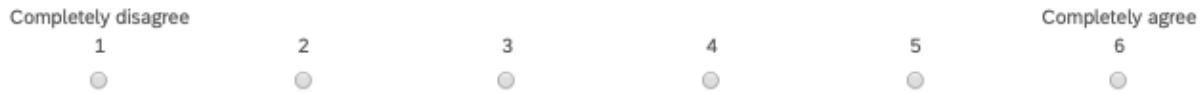
I feel uncomfortable when I don't understand the reason why an event occurred in my life.



I feel irritated when one person disagrees with what everyone else in a group believes.



I don't like to go into a situation without knowing what I can expect from it.



When I have made a decision, I feel relieved.



When I am confronted with a problem, I'm dying to reach a solution very quickly.



I would quickly become impatient and irritated if I would not find a solution to a problem immediately.



I don't like to be with people who are capable of unexpected actions.



I dislike it when a person's statement could mean many different things.



I find that establishing a consistent routine enables me to enjoy life more.



I enjoy having a clear and structured mode of life.



I do not usually consult many different opinions before forming my own view.



I dislike unpredictable situations.



The Belief in a Dangerous World

Please indicate your agreement with the following statements.

It seems that every year there are fewer and fewer truly respectable people, and more and more persons with no morals at all who threaten everyone else.



Although it may appear that things are constantly getting more dangerous and chaotic, it really isn't so. Every era has its problems, and a person's chances of living a safe, untroubled life are better today than ever before.



If our society keeps degenerating the way it has been lately, it's liable to collapse like a rotten log and everything will be chaos.



Our society is **not** full of immoral and degenerate people who prey on decent people. News reports of such cases are grossly exaggerating and misleading.



The "end" is not near. People who think that earthquakes, wars, and famines mean God might be about to destroy the world are being foolish.



Every day, as our society becomes more lawless and bestial, a person's chances of being robbed, assaulted, and even murdered go up and up.



Things are getting so bad, even a decent law-abiding person who takes sensible precautions can still become a victim of violence and crime.



Our country is not falling apart or rotting from within.



Schwartz Value Survey (adapted to be condensed for present research)

Please rate the importance of the following values as a life-guiding principle for you. Use the 8-point scale in which 0 indicates that the value is opposed to your principles, 1 indicates that the value is not important for you, 4 indicates that the value is important, and 8 indicates that the value is of supreme importance for you.

	Opposed to my principles		Not important		Important				Of supreme importance
	0	1	2	3	4	5	6	7	8
Power	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Achievement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hedonism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stimulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-Direction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Universalism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Choose "Important"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Benevolence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tradition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conformity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Ten Item Personality Inventory (TIPI)

I see myself as...

	Neither						
	Disagree strongly	Disagree moderately	Disagree a little	agree nor disagree	Agree a little	Agree moderately	Agree strongly
Extraverted, enthusiastic.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Critical, quarrelsome.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dependable, self- disciplined.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anxious, easily upset.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Neither						
	Disagree strongly	Disagree moderately	Disagree a little	agree nor disagree	Agree a little	Agree moderately	Agree strongly
Open to new experiences, complex.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reserved, quiet.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sympathetic, warm.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Disorganized, careless.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Neither						
	Disagree strongly	Disagree moderately	Disagree a little	agree nor disagree	Agree a little	Agree moderately	Agree strongly
Choose "Disagree a little"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Calm, emotionally stable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conventional, uncreative.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Impact of Event Scale – Adapted to COVID-19 Context

On March 11th, 2020 the World Health Organization officially declared the COVID-19, a viral disease that has swept the globe, a pandemic.

Below is a list of comments made by people after stressful life events. Please read each item, indicating how frequently these comments were true for you DURING THE PAST SEVEN DAYS. If they did not occur during that time, please mark the "not at all" column.

	Not At All	Rarely	Sometimes	Often
I thought about the virus when I didn't mean to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I avoided letting myself get upset when I thought about the virus or was reminded of the virus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tried to remove the virus from my memory.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had trouble falling asleep or staying asleep, because thoughts about the virus came into my mind.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had waves of strong feelings about the virus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had dreams about the virus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I stayed away from reminders of the virus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt as if the virus hadn't happened or it wasn't real.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tried not to talk about the virus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pictures about the virus popped into my mind.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other things kept making me think about the virus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was aware that I still had a lot of feelings about the virus, but I didn't deal with them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tried not to think about the virus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Any reminder brought back feelings about the virus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My feelings about the virus were kind of numb.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Beck Anxiety Inventory

Please rate how much you've been bothered by each of the following symptoms over the past week.

	Not at all 0	Mildly, but it didn't bother me much 1	Moderately-it wasn't pleasant at times 2	Severely-I could barely stand it 3
Unable to relax	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fear of the worst happening	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Terrified	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nervous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feeling of choking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Choose "Moderately"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fear of losing control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficulty breathing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fear of dying	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Indigestion or discomfort in abdomen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Study 2 – Detailed Description of Sample, Measures, and Results

Sample. Five-hundred and fifty American participants recruited from Mturk completed the survey on March 26th, 2020. After pre-registered exclusions, 537 participants (256 male, 278 female, 3 other; $M_{age}=41.51$, $SD_{age}=13.46$; 77.8% White, 11.7% Black or African American, 5.6% Latinx/Hispanic) were included in our analyses. We pre-registered a desired sample of at least ~ 500 participants and oversampled (i.e., N=550) in anticipation of exclusions. We aimed for a slightly larger sample size than Study 1 to ensure that we followed guidelines of having at least 5-10 cases per parameter in our pre-determined CFA and SEM models (in this case at least 105-210 for our CFA model and 330-660 for our SEM model; see Kline, 2011). See Supplemental Materials and <http://aspredicted.org/blind.php?x=5uu4kf> for more information.

Measures

All scores represent the means of all items, with the exception of the Beck Anxiety Inventory, the Positive and Negative Affect scales, and the Impact of COVID-19 Event scales which were summed.

Integrative COVID-19 Threat Scale. We assessed realistic threat ($\alpha=.73$) and symbolic threat ($\alpha=.86$) using the 10-items we focused on in Study 1.

Convergent Validity. We used scales identical to Study 1 to assess *the need for cognitive closure* ($\alpha = .89$), *the fear of a dangerous world* ($\alpha = .89$), *values related to conservation* ($\alpha = .92$), *emotional stability* ($r=.64$).

Divergent Validity. We used scales identical to Study 1 to assess *values related to openness to change* ($r=.29$), *values related to self-enhancement* ($\alpha = .59$), *values related to self-transcendence* ($r=.20$), *extraversion* ($r=.64$), *agreeableness* ($r=.39$), *conscientiousness* ($r=.52$), *openness to experience* ($r=.37$).

Criterion Validity.

Psychological Distress. We used scales identical to Study 1 to assess *COVID-19 impact intrusion* ($\alpha=.86$), *COVID-19 impact avoidance* ($\alpha=.79$), and *general anxiety* ($\alpha=.89$).

Psychological Well-Being.

Life-Satisfaction. We assessed people's general satisfaction with life using Diener's five-item scale (Diener, Emmons, Larsen, Griffin, 1985). Participants rated each item on a scale anchored from 1 (Strongly Disagree) and 7 (Strongly Agree). A sample item included: "In most ways my life is close to my ideal"; $\alpha = .89$).

Positive and Negative Affect. Participants rated their positive affect ($\alpha = .91$) and negative affect ($\alpha = .92$) at the time of writing the survey using the PANAS short form (Watson, Clark, & Tellegen, 1988). Participants rated to what extent they felt each emotion at the time of completing the survey with scales anchored at 1 (Very Slightly or Not at All) and 7 (Extremely).

Attitudinal and Behavioral Responses to COVID-19.

Compliance with the Center for Infectious Diseases (CDC) guidelines. We adapted three items from Everette and colleagues (2020) used to assess how much people reported adhering to the practices recommended by the CDC for preventing the spread of the COVID-19 virus. Participants rated how much they were doing each of these behaviors on a scale anchored at 1 (Not at All) and 5 (Always). A sample item included: "Staying at home and avoiding all social contact" ($\alpha=.68$).

Social Identity Affirming Behaviors in Isolation. We developed 4 items to assess support for restrictive policies aimed at reducing the spread of COVID-19. Participants rated their agreement with the following statements: "The social distancing restrictions being put into place to stop the spread of Covid-19 are doing more harm than good" (reverse coded); "We need to

prioritize going back to our normal routines as soon as possible, regardless of COVID-19's spread" (reverse coded); "Right now the most important thing we can do is take all measures possible to stop the spread of COVID-19"; "It is essential that we strictly practice social distancing as a nation, until health care experts say otherwise". Participants rated agreement to each item on a scale anchored from 1 (Strongly Disagree) to 7 (Strongly Agree) ($\alpha = .89$).

Integrative COVID-19 Threat Scale. We developed five items to assess how much people engaged in behaviors aimed at maintaining their old way of life while still conforming to restrictive social distancing. Participants rated how much they were doing each of these behaviors on a scale anchored at 1 (Not at All) and 5 (Always). Behaviors included: "I find creative new ways to maintain my old routines (e.g., video chats with family and friends; online exercise classes; cultural activities online)" ; "I watch or listen to music, videos, movies, or replays of cultural events that remind me most of American culture"; "I share things with my friends and family on the phone or through social media that remind us of what life was like in America before COVID-19" ; "I engage with "virtual communities" through social media and online groups to replace the in-person communities I can no longer be a part of" ; "I engage in behaviors that I associate with American identity (e.g., I cook foods that make me feel American)" ($\alpha = .80$).

Results

Confirmatory Factor Analysis

We conducted confirmatory factor analysis (CFA; Byrne, 1994) to test whether a two-factor solution representing symbolic threat and realistic threat perceptions of COVID-19 fit our data well (See Figure 1). Overall, the two-factor model had acceptable model fit indices: comparative fit index (CFI)=.93, standard root mean square intervals ($SRMR$)=.06, root mean

square error Approximation ($RMSEA=.08$, 90% CI[.07, .10], $BIC=12206.97$, $\chi^2=161.08$ (Hu & Bentler, 1999; Byrne, 1994; Steiger, 1990) and no negative error variances or improper solutions. We compared the two-factor model to a one-factor model which did not differentiate between symbolic threat or realistic threat ($CFI=.75$, $SRMR=.12$, $RMSEA=.15$, 90% CI[.14,.16], $BIC=12519.63$, $\chi^2=480.37$). The one-factor model had inferior model fit, $\chi_{\text{dif}}^2=319.29$, $p<.001$.

Convergent and divergent validity

We report in Table 4 descriptive statistics and inter-item correlations for the variables pertaining to convergent and divergent validity.

Overall, we found a consistent pattern of results with Study 1. As in Study 1, the perceived threat of COVID-19 (combining both dimensions) was positively associated with the need for cognitive closure, belief in a dangerous world, values related to conservation, and was negatively associated with emotional stability. Supporting divergent validity, threat to COVID-19 (combining both dimensions) was not significantly associated with the other dimensions of Schwartz's value scale of the Ten-Item-Personality Invention with the exception of a weak yet significant correlation with self-enhancement values (this association was also observed in Study 1 when assessing self-enhancement values 5 months prior to the global pandemic).

Our results were mostly consistent when we examined the associations for each threat dimension separately. Overall, conservation was robustly associated with symbolic threat but not realistic threat. However, as in Study 1, realistic threat was significantly related to valuing security ($r(537)=.11$, $p=.010$), but not valuing tradition, or conformity. Symbolic threat in contrast was significantly associated valuing tradition and conformity (all $p<.001$), but not valuing security ($r(537)=.02$, $p=.657$). Consistent with Study 1, we again observed unanticipated

significant associations between symbolic threat and values relating to self-enhancement, and realistic threat and values relating self-transcendence.

Criterion Validity

In Table 5 we summarize descriptive statistics for all nine criterion outcomes, as well as their zero-order correlations with realistic and symbolic threat.

(Table 5 is presented in Main Manuscript)

We examined the association between symbolic threat and realistic threat, and all criterion outcomes of interest simultaneously within one structural equation path model (SEM; Byrne, 1994). This analysis was conducted using the Lavaan package in R (Rosseel, 2012). In the model, we regressed each of the 9 criterion outcomes onto both threat dimensions. We allowed the two threat dimensions to covary, and, the nine psychological response outcomes to covary. The model was fully saturated, $\chi^2(0) = 0$. Results for the SEM path analyses are summarized in Table 6. Our results remained consistent when regressing symbolic and realistic threat simultaneously on each single outcome in a series of separate regressions.

Psychological Distress. Replicating Study 1, symbolic threat was significantly positively associated with COVID-19 impact avoidance and COVID-19 impact intrusion. In contrast to Study 1 we found that symbolic threat was also associated significantly associated with anxiety. Replicating Study 1, realistic threat was significantly positively associated with anxiety and COVID-19 impact intrusion. In contrast to Study 1, realistic threat was also associated with COVID-19 impact avoidance.

Psychological Well-Being. Experiencing symbolic and realistic appeared to be detrimental for psychological well-being. Both types of threat were robustly positively associated

with negative affect. Realistic threat (but not symbolic threat) was negatively associated with life satisfaction.

We observed an unanticipated significant positive relation between symbolic threat and positive affect. To probe this effect further, we conducted an exploratory parallel-mediation analysis in which we tested whether experiencing symbolic threat was associated with greater positive affect because of symbolic threat being associated with (1) reductions in adherence to CDC guidelines and/or (2) increases in social identity affirming behaviors. The two potential mediators (CDC adherence and identity affirming behaviors) were entered in parallel in the model. We found a significant indirect effect of symbolic threat on positive affect through greater engagement in social identity affirming behaviors (indirect effect = .37, 95%[.01, .78]) but not in changes to CDC adherence (indirect effect = .06, 95%[-.07, .22]).

Attitudinal and Behavioral Responses to COVID-19. As we predicted, experiencing symbolic threat was significantly and negatively associated with support for restrictive preventative policies like social distancing, and significantly less self-reported behavioral adherence to CDC guidelines. In direct contrast, we found that experiencing realistic threat was significantly and *positively* associated with support for restrictive preventative policies like social distancing, and significantly greater self-reported behavioral adherence to CDC guidelines.

As we expected, symbolic threat was positively associated with engaging in behaviors (while in isolation) to affirm one's American identity (e.g., cooking food people associate with America). Realistic threats were also significantly positively associated with such behaviors.

(Table 6 is presented in Main Manuscript)

Study 2 Scales from the Qualtrics Survey

***Note.** In this survey we also included: the TIPI, the Schwartz value scale, the Need for Cognitive Closure Scale, the Fear of a Dangerous World Scale, The Beck Depression Inventory, and The Impact of Event Scale. We do not show these scales again because they were presented in identical fashion to Study 1.

Integrated COVID-19 Threat Scale (Final 10 item Version used in Study 2 and 3)

On March 11th, 2020 the World Health Organization officially declared the COVID-19, a viral disease that has swept the globe, a pandemic. How much of a threat, if any, is the coronavirus outbreak for...

	Not a threat 1	Minor threat 2	Moderate threat 3	Major threat 4
Your personal health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The health of the U.S. population as a whole	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your personal financial safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The U.S. economy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Day-to-day life in your local community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The rights and freedoms of the U.S. population as a whole	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What it means to be American	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
American values and traditions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
American democracy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The maintenance of law and order in America	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Life Satisfaction (Psychological Well-Being)

Below are five statements that you may agree or disagree with. Please indicate your agreement with each item. Please be open and honest in your responding.

	Strongly disagree 1	Disagree 2	Slightly disagree 3	Neither agree nor disagree 4	Slightly agree 5	Agree 6	Strongly agree 7
In most ways my life is close to my ideal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The conditions of my life are excellent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with my life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
So far I have gotten the important things I want in life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I could live my life over, I would change almost nothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Positive and Negative Affect

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer. Indicate to what extent you feel this way right now, that is, at the present moment.

	Very slightly or not				
	at all 1	A little 2	Moderately 3	Quite a bit 4	Extremely 5
Interested	<input type="radio"/>				
Distressed	<input type="radio"/>				
Excited	<input type="radio"/>				
Upset	<input type="radio"/>				
Strong	<input type="radio"/>				
Guilty	<input type="radio"/>				
Scared	<input type="radio"/>				
	Very slightly or not				
	at all 1	A little 2	Moderately 3	Quite a bit 4	Extremely 5
Hostile	<input type="radio"/>				
Enthusiastic	<input type="radio"/>				
Proud	<input type="radio"/>				
Irritable	<input type="radio"/>				
Alert	<input type="radio"/>				
Ashamed	<input type="radio"/>				
Inspired	<input type="radio"/>				
	Very slightly or not				
	at all 1	A little 2	Moderately 3	Quite a bit 4	Extremely 5
Nervous	<input type="radio"/>				
Determined	<input type="radio"/>				
Attentive	<input type="radio"/>				
Jittery	<input type="radio"/>				
Active	<input type="radio"/>				
Afraid	<input type="radio"/>				

Compliance with the Centers for Infectious Diseases Guidelines

Here are several behaviors which the Centers for Disease Control and Prevention (CDC) recommends for reducing the spread of COVID-19. Please rate how much you are doing each the following behaviors.

	Not at all 1	Rarely 2	Sometimes 3	Often 4	Always 5
Washing your hands often for at least 20 seconds especially after being in a public place.	<input type="radio"/>				
Avoiding public gatherings	<input type="radio"/>				
Staying at home and avoiding all social contact	<input type="radio"/>				

Support for Public Health Initiatives to Reduce Spread of COVID-19

Please rate your agreement with the following statements.

	Strongly disagree							Neutral							Strongly agree						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7							
The social distancing restrictions being put into place to stop the spread of COVID-19 are doing more harm than good.	<input type="radio"/>																				
We need to prioritize going back to our normal routines as soon as possible, regardless of COVID-19's spread.	<input type="radio"/>																				
Right now the most important thing we can do is take all measures possible to stop the spread of COVID-19.	<input type="radio"/>																				
It is essential that we strictly practice social distancing as a nation, until health care experts say otherwise.	<input type="radio"/>																				

Social Identity Affirmation While Social Distancing

Here are several behaviors which you might have started doing during the COVID-19 pandemic. Please rate how much you are doing each the following behaviors.

	Not at all 1	Rarely 2	Sometimes 3	Often 4	Always 5
I find creative new ways to maintain my old routines (e.g., video chats with family and friends; online exercise classes; cultural activities online).	<input type="radio"/>				
I watch or listen to music, videos, movies, or re-plays of cultural events that remind me the most of American culture.	<input type="radio"/>				
I share things with my friends and family on the phone or through social media that remind us of what life was like in America before COVID-19.	<input type="radio"/>				
I engage with "virtual communities" through social media and online groups to replace the in-person communities I can no longer be a part of.	<input type="radio"/>				
I engage in behaviors that I associate with American identity (e.g., I cook foods that make me feel American).	<input type="radio"/>				

Emotion Regulation Questionnaire (Not focused on in paper, see OSF data and Syntax; Neither factor of the ERQ was associated with either symbolic or realistic threat)

We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. The questions below involve two distinct aspects of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please indicate whether you disagree or agree with it.

	Strongly disagree 1	2	3	Neutral 4	5	6	Strongly agree 7
When I want to feel more positive emotion (such as joy or amusement), <i>I change what I'm thinking about.</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I keep my emotions to myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I want to feel less negative emotion (such as sadness or anger), <i>I change what I'm thinking about.</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I am feeling positive emotions, I am careful not to express them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I'm faced with a stressful situation, I make myself <i>think about it</i> in a way that helps me stay calm.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I control my emotions by <i>not expressing them.</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I want to feel more positive emotion, <i>I change the way I'm thinking about the situation.</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I control my emotions by <i>changing the way I think about the situation I'm in.</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I am feeling negative emotions, I make sure not to express them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I want to feel less negative emotion, <i>I change the way I'm thinking about the situation.</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Study 3 – Detailed Description of Sample, Measures, and Results

Sample. Three hundred and eleven participants recruited from Mturk completed the survey on March 27th-28th 2020. Three hundred and ten participants had completed the study one week prior (T1) on March 19th-20th (i.e., participants from Study 1). After pre-registered exclusions, our sample consisted of 259 participants (122 male, 137 female; $M_{age}=41.51$, $SD_{age}=13.46$; 81.9% White, 9.3% Black or African American, 3.5 % Latinx/Hispanic). In terms of sample-size we were limited to being able to recruit as many participants who also completed the T1 survey. Because of the urgency of producing this manuscript as quickly as possible so that researchers can have access to our measure we limited the data collection time window to 24 hours. See our pre-registration <https://aspredicted.org/blind.php?x=2ed62c> for more information.

Measures

All scores represent the means of all items, with the exception of the Beck Anxiety Inventory, the Positive and Negative Affect scales, and the Impact of COVID-19 Event scales which were summed. Most scales were framed with respect to how participants felt over the past week (or last seven days). The only exceptions to this were the Life Satisfaction Scale, the Support for Restrictive Policies to Prevent COVID-19 scale, and the Integrated COVID-19 threat scale.

Integrative COVID-19 Threat Scale (T1 and T2). Amongst the sample who completed both T1 and T2, we assessed realistic threat ($\alpha_{t1}=.75$; $\alpha_{t2}=.76$) and symbolic threat ($\alpha_{t1}=.86$; $\alpha_{t2}=.86$) using the ten-item Integrated COVID-19 Threat Scale.

Criterion Validity.

Psychological Distress. As in Study 2 we used the Beck anxiety scale to assess *general anxiety* except that here we asked participants to report on symptoms they experienced over the

past week ($\alpha=.89$). As in Study 2 participants also completed the *COVID-19 impact intrusion* ($\alpha=.89$) and *COVID-19 impact avoidance* ($\alpha=.90$) scales, however, here participants were asked to “indicate to what extent you have felt this way during the past week”.

Psychological Well-Being.

Life-Satisfaction. Identical to Study 2, we assessed people’s general satisfaction with life using Diener’s five-item scale (Diener, et al., 1985; $\alpha = .91$).

Positive and Negative Affect. As in Study 2, Participants rated their positive affect ($\alpha = .91$) and negative affect ($\alpha = .91$) using the PANAS short form (Watson, et al., 1988), but with respect to “what extent you felt this way during the past week”.

Attitudinal and Behavioral Responses to COVID-19.

Compliance with the Center for Infectious Diseases (CDC) guidelines. We used identical items as in Study 2 ($\alpha=.58$), except that participants rated how much they did each behavior “over the past week”.

Support for Restrictive Policies to Prevent COVID-19. We used the same scale and framing as in Study 2 ($\alpha = .89$).

Social Identity Affirming Behaviors in Isolation. We used the same scale as in Study 2, except that items were framed with respect to how much participants did each behavior “over the past week” ($\alpha=.80$).

Results

Scale Invariance. We examined the invariance of both subscales using longitudinal confirmatory factor analysis (Meredith, 1993) with the SemTools package in R (Jorgensen, 2019). Because we confirmed there being two distinct factors in Study 2, and because all our

analyses focus on the separate sub-scales we explored the invariance of each sub-scale separately.

To assess whether our scale items assessed the same construct over time (*configural invariance*) we allowed the factor loadings, item intercepts, residual item variances, and the variance of the latent means to freely co-vary across groups. The latent means were set to equal zero. To assess whether the scale had the same meaning overtime (*metric invariance*) we fixed the factor loadings to be equivalent across groups and assessed the resulting change in model fit relative to the configural (base-line) model. To justify mean comparisons across time (*scalar invariance*) we additionally constrained the item intercepts and fixed the latent means of one group to 0 while estimating the latent means in the other group: we compared the scalar invariance model to the metric invariance model. Lastly, in an additional model, we constrained the latent means to be equivalent across groups and compared this to the scalar invariance model. As illustrated in Table 8 we find evidence for configural, metric and scalar invariance, as well as equivalence in the latent means, for both the symbolic and realistic threat scales (all $\Delta\text{CFIs} < .003$; all ΔX_2 n.s.; all $\Delta\text{RmSEAs} < .007$; Cheung & Rensvold, 2002).

(Table 8 is Presented in Main Manuscript)

Criterion Validity

In Table 9 we summarize descriptive statistics for all nine criterion outcomes, as well as their zero-order correlations with realistic and symbolic threat.

(Table 9 is Presented in Main Manuscript)

Using SEM, we examined the association between symbolic threat and realistic threat (at T1), and all criterion outcomes assessed one week later, simultaneously in one model. We covaried symbolic and realistic threat in the model, and, we covaried the nine psychological

response outcomes in the model. The model was fully saturated, $\chi^2 (0) = 0$. Results for the SEM path analyses are summarized in Table 10.

(Table 10 is Presented in Main Manuscript)

Psychological Distress. Symbolic threat (at T1) was significantly positively associated with COVID-19 impact avoidance, COVID-19 impact intrusion, and general anxiety over the course of the following week (measured at T2). Realistic threat was also associated with COVID-19 impact intrusion and anxiety, but was not associated with COVID-19 impact avoidance.

Psychological Well-Being. Both types of threat (at T1) were robustly positively associated with negative affect experienced over the course of a subsequent week. Replicating Study 2, Realistic threat (but not symbolic threat) was negatively associated with life satisfaction.

As in Study 2, we again observed an unanticipated significant positive relation between symbolic threat and positive affect. As in Study 2, we also found a significant indirect effect of symbolic threat on positive affect through greater engagement in social identity affirming behaviors (indirect effect = .60, 95%[.18,.11]) but not in changes to CDC adherence (indirect effect = -.09, 95%[-.44, .14]), when we conducted an exploratory parallel-mediation analysis (both mediators were entered simultaneously into one model).

Attitudinal and Behavioral Responses to COVID-19. Replicating Study 2, we found that experiencing symbolic threat (at T1) was significantly and negatively associated with support for restrictive preventative policies like social distancing, and significantly less self-reported behavioral adherence to CDC guidelines over the course of the subsequent week

(assessed at T2). In direct contrast, we again found that experiencing realistic threat was significantly and *positively* associated with support and compliance.

Replicating Study 2 we found that symbolic threat assessed at T1 was positively associated with engaging in behaviors (while in isolation) to affirm one's American identity over the course of the next week. Unlike Study 2 we did not see an association between realistic threat and identity affirming behaviors.

Support for Public Health Initiatives to Reduce Spread of COVID-19

Please rate your agreement with the following statements.

	Strongly disagree							Neutral			Strongly agree		
	1	2	3	4	5	6	7	8	9	10	11	12	
The social distancing restrictions being put into place to stop the spread of COVID-19 are doing more harm than good.	<input type="radio"/>												
We need to prioritize going back to our normal routines as soon as possible, regardless of COVID-19's spread.	<input type="radio"/>												
Right now the most important thing we can do is take all measures possible to stop the spread of COVID-19.	<input type="radio"/>												
It is essential that we strictly practice social distancing as a nation, until health care experts say otherwise.	<input type="radio"/>												

Compliance with the Centers for Infectious Diseases guidelines

Here are several behaviors which the Centers for Disease Control and Prevention (CDC) recommends for reducing the spread of COVID-19.
Over the past week, please rate how much you are doing each the following behaviors.

	Not at all 1	Rarely 2	Sometimes 3	Often 4	Always 5
Washing your hands often for at least 20 seconds especially after being in a public place.	<input type="radio"/>				
Avoiding public gatherings	<input type="radio"/>				
Staying at home and avoiding all social contact	<input type="radio"/>				

Social Identity Affirmation While Social Distancing

Here are several behaviors which you might have started doing during the COVID-19 pandemic. Please rate how much you did each the following behaviors over the past week.

	Not at all 1	Rarely 2	Sometimes 3	Often 4	Always 5
I find creative new ways to maintain my old routines (e.g., video chats with family and friends; online exercise classes; cultural activities online).	<input type="radio"/>				
I watch or listen to music, videos, movies, or re-plays of cultural events that remind me the most of American culture.	<input type="radio"/>				
I share things with my friends and family on the phone or through social media that remind us of what life was like in America before COVID-19.	<input type="radio"/>				
I engage with "virtual communities" through social media and online groups to replace the in-person communities I can no longer be a part of.	<input type="radio"/>				
I engage in behaviors that I associate with American identity (e.g., I cook foods that make me feel American).	<input type="radio"/>				

Beck Anxiety Inventory

Please rate how much you've been bothered by each of the following symptoms over the past week.

	Not at all 0	Mildly, but it didn't bother me much 1	Moderately-it wasn't pleasant at times 2	Severely-I could barely stand it 3
Unable to relax	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fear of the worst happening	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Terrified	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nervous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feeling of choking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Choose "Moderately"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fear of losing control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Difficulty breathing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fear of dying	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Indigestion or discomfort in abdomen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Positive and Negative Affect

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer. Indicate to what extent you have felt this way during the past week.

	Very slightly or not at all 1	A little 2	Moderately 3	Quite a bit 4	Extremely 5
Interested	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Distressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Excited	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Upset	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guilty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scared	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Very slightly or not at all 1	A little 2	Moderately 3	Quite a bit 4	Extremely 5
Hostile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enthusiastic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Proud	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Irritable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ashamed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inspired	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Very slightly or not at all 1	A little 2	Moderately 3	Quite a bit 4	Extremely 5
Nervous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Determined	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attentive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jittery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Active	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Afraid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Life Satisfaction (Psychological Well-Being)

Below are five statements that you may agree or disagree with. Please indicate your agreement with each item. Please be open and honest in your responding.

	Strongly disagree 1	Disagree 2	Slightly disagree 3	Neither agree nor disagree 4	Slightly agree 5	Agree 6	Strongly agree 7
In most ways my life is close to my ideal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The conditions of my life are excellent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with my life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
So far I have gotten the important things I want in life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I could live my life over, I would change almost nothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Impact of Event Scale – Adapted to COVID-19 Context

On March 11th, 2020 the World Health Organization officially declared the COVID-19, a viral disease that has swept the globe, a pandemic.

Below is a list of comments made by people after stressful life events. Please read each item, indicating how frequently these comments were true for you **DURING THE PAST SEVEN DAYS**. If they did not occur during that time, please mark the "not at all" column.

	Not At All	Rarely	Sometimes	Often<
I thought about the virus when I didn't mean to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I avoided letting myself get upset when I thought about the virus or was reminded of the virus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tried to remove the virus from my memory.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had trouble falling asleep or staying asleep, because thoughts about the virus came into my mind.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had waves of strong feelings about the virus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I had dreams about the virus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I stayed away from reminders of the virus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt as if the virus hadn't happened or it wasn't real.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tried not to talk about the virus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pictures about the virus popped into my mind.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other things kept making me think about the virus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I was aware that I still had a lot of feelings about the virus, but I didn't deal with them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tried not to think about the virus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Any reminder brought back feelings about the virus.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My feelings about the virus were kind of numb.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Integrated COVID-19 Threat Scale (Final 10 item Version used in Study 2 and 3)

On March 11th, 2020 the World Health Organization officially declared the COVID-19, a viral disease that has swept the globe, a pandemic. How much of a threat, if any, is the coronavirus outbreak for...

	Not a threat 1	Minor threat 2	Moderate threat 3	Major threat 4
Your personal health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The health of the U.S. population as a whole	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your personal financial safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The U.S. economy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Day-to-day life in your local community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The rights and freedoms of the U.S. population as a whole	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What it means to be American	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
American values and traditions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
American democracy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The maintenance of law and order in America	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Supplementary Analyses with Respect to Political Ideology

Supplemental Table 1. The association between political ideology and COVID-19 threat across all studies. Political ideology was scored such that higher scores reflect political conservatism.

		COVID-19 Threat – Full Scale	COVID-19 Threat – Symbolic	COVID-19 Threat – Realistic	Mean	SD
Study 1 (Longitudinal Sample; N=193)	October 19 th -20 th , 2019 political ideology predicting March 19 th - 20 th 2020 threat	-.06	.06	-.21**	3.85	1.81
Study 1 (Cross- Sectional Sample; N=346)	March 19 th -20 th 2020 political ideology predicting March 19 th - 20 th 2020 threat	-.03	.13*	-.22**	3.65	1.80
Study 2 (Cross- sectional; N = 537)	March 26 th 2020 political ideology predicting March 26 th 2020 threat)	.03	.16***	-.17***	3.61	1.78
Study 3 (Longitudinal; N=259)	March 19 th -20 th political ideology predicting March 27 th - 28 th threat)	.01	.11	-.15*	3.64	1.78
Study 3 (Cross- Sectional; N=259)	March 27 th -28 th political ideology predicting March 27 th - 28 th threat)	.03	.13*	-.13*	3.66	1.78

Supplemental Table 2. Repeating the Study 1 SEM analysis including political ideology as a predictor of outcomes. All patterns of significance remained consistent.

	Realistic Threat			Symbolic Threat		
	b(se)	p	95%CI	b(se)	p	95%CI
Anxiety	2.34(0.49)***	.000	1.37, 3.31	0.84(0.36)*	.022	.12, 1.55
COVID-19 – Impact	2.89(0.48)***	.000	1.96, 3.82	1.28(0.35)***	.000	.59, 1.96
Intrusion						
COVID-19 – Impact Avoidance	0.11(0.52)	.834	-.91, 1.12	1.06(0.38)**	.005	.32, 1.81

Note. *b* values reflect non-standardized path estimates from one SEM model including all measured variables simultaneously.

Realistic Threat, Symbolic Threat, and Political Ideology were covaried in the model. All outcomes were covaried with each other in the model.

\p < .10 , *p=.05, **p=.01, ***p=.001

Supplemental Table 3. Repeating the Study 2 SEM analysis including political ideology as a predictor of outcomes. All patterns of significance remained consistent with the exception that the relation between positive affect and symbolic threat became non-significant and the relation between social identity affirming behaviors and symbolic threat became non-significant.

	Realistic Threat			Symbolic Threat		
	b(se)	p	95%CI	b(se)	p	95%CI
Anxiety	2.99(0.45)***	.000	2.11, 3.86	1.08(0.31)***	.000	.47, 1.68
COVID-19 – Impact Intrusion	3.52(0.40)***	.000	2.74, 4.31	0.81(0.28)**	.003	.27, 1.35
COVID-19 – Impact Avoidance	1.24(0.43)**	.004	.39, 2.08	0.76(0.30)*	.010	.18, 1.35
Life Satisfaction	-0.29(0.13)*	.025	-.55, -.04	-0.16(0.09)*	.070	-.34, .01
Positive Affect	-0.29(0.74)	.697	-1.74, 1.16	0.80(0.51)	.117	-.20, 1.81
Negative Affect	3.30(0.66)***	.000	2.00, 4.60	2.18(0.46)***	.000	1.29, 3.08
Adherence to CDC Guidelines	0.41(0.05)***	.000	.32, .51	-0.11(0.03)***	.001	-.18, -.05
Support for Public Health Initiatives to Reduce Spread of COVID-19	1.13(0.10)***	.000	.93, 1.33	-0.60(0.07)***	.000	-.74, -.46
Social Identity Affirming Behaviors in Isolation	0.27(0.08)**	.002	.10,.43	0.08(0.06)	.147	-.03,.20

Note. b values reflect non-standardized path estimates from one SEM model including all measured variables simultaneously.

Realistic Threat, Symbolic Threat, and Political Ideology were covaried in the model. All outcomes were covaried with each other in the model. $\backslash p < .10$, * $p = .05$, ** $p = .01$, *** $p = .001$

Supplemental Table 4. Repeating the Study 3 SEM analysis including political ideology (at Time 1) as a predictor of outcomes (at Time 2). All patterns of significance remained consistent with the exception that the relation between life-satisfaction and realistic threat became marginal.

	Realistic Threat			Symbolic Threat		
	b(se)	p	95%CI	b(se)	p	95%CI
Anxiety	2.32(0.58)***	.000	1.18, 3.46	1.40(0.43)**	.001	.56, 2.24
COVID-19 – Impact	0.35(0.09)***	.000	.18, .51	0.20(0.06)**	.001	.08, .32
Intrusion						
COVID-19 – Impact	0.02(0.08)	.826	-.13, .17	0.11(0.06)*	.042	.004,.22
Avoidance						
Life Satisfaction	-0.36(0.19)\	.062	-.73, -.02	0.12(0.14)	.399	-.16,.40
Positive Affect	-2.12(0.97)*	.028	-4.02, -.23	1.46(0.71)*	.040	.07, 2.81
Negative Affect	3.42(0.92)***	.000	1.61,5.22	2.39(0.68)***	.000	1.06, 3.73
Adherence to CDC Guidelines	0.24(0.06)***	.000	.13, .35	-0.08(0.04)*	.048	-.16, -.001
Support for Public Health Initiatives to Reduce Spread of COVID-19	0.80(0.13)***	.000	.55, 1.05	-0.32(0.09)***	.001	-.50, -.13
Social Identity Affirming Behaviors in Isolation	-0.02(0.11)	.891	-.24,.21	0.34(0.08)***	.000	.17,.50

Note. *b* values reflect non-standardized path estimates from one SEM model including all measured variables simultaneously. Realistic Threat, Symbolic Threat, and Political Ideology were covaried in the model. All outcomes were covaried with each other in the model. \p < .10 ,

*p=.05, **p=.01, ***p=.001

Additional References Beyond Main Text

Kline, R. B. (2011). *Convergence of structural equation modeling and multilevel modeling.*