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Appraisal and coping predict health and well-being during the COVID-19 pandemic: An international approach

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COVID-19 has had a devastating impact on people worldwide. We conducted an international survey (n = 3646) examining the degree to which people's appraisals and coping activities around the pandemic predicted their health and well-being. We obtained subsamples from 12 countries—Bangladesh, Bulgaria, China, Colombia, India, Israel, the Netherlands, Norway, Peru, Portugal, Turkey and the United States. For each, we assessed appraisals and coping strategies as well as indicators of physical and mental health and well-being. Results indicated that, despite mean-level societal differences in outcomes, the pattern of appraisals and coping strategies predicting health and well-being was consistent across countries. Use of disengagement coping (particularly behavioural disengagement and self-isolation) was associated with relatively negative outcomes. In contrast, optimistic appraisals (particularly of high accommodation-focused coping potential and the ability to meet one's physical needs), use of problem-focused coping strategies (especially problem-solving) and accommodative

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coping strategies (especially positive reappraisal and self-encouragement) were associated with relatively positive outcomes. Our study highlights the critical importance of considering accommodative coping in stress and coping research. It also provides important information on how people have been dealing with the pandemic, the predictors of well-being under pandemic conditions and the generality of such relations.

Keywords: COVID-19; Pandemic; International; Appraisal theory; Coping; Health; Well-being.

Worldwide, people have struggled with the devastating impact the ongoing COVID-19 pandemic has had on health and well-being. As of mid-July 2020, when we completed data collection, the World Health Organization (WHO) had already reported over 13,000,000 cases of COVID-19 in 216 countries or territories, with almost 600,000 deaths; the virus spread worldwide within 2 months and had already dwarfed the impact (in terms of both cases and deaths) of the combined total of all other infectious diseases so far this century (WHO, 2020). Since then, the numbers of cases and deaths have only continued to rise, sometimes with steep surges in some countries and seemingly out of control in others. In response, COVID-19 has led to unprecedented restrictions, with more than half of the world's population (over 3.9 billion people in 90 countries/territories) on lockdown in April 2020 (Euronews, 2020). Subsequently, such restrictions in various locales have been lifted and (re)imposed as local infection rates have waned and waxed. These restrictions have produced massive economic and social turmoil including extensive job loss and feelings of social isolation (e.g., Saltzman et al., 2020).

All of this takes a profound psychological toll, and many blame the pandemic for a growing mental health crisis. Early in the pandemic, a study in China found that 18.2% of participants reported sleep problems, 35.1% reported generalised anxiety disorder and 20.1% reported major depressive symptoms (Huang & Zhao, 2020). Since then, concerns over mental health have risen to where *The New York Times* has referred to the emerging mental health crisis as an additional "wave" (beyond infection surges) of the pandemic (Manjoo, 2020).

With people around the globe struggling, it is important to understand the ways in which people have coped with and adjusted to the pandemic's consequences, and to examine how effective various strategies might be. Across a broad range of domains, the appraisal, stress and coping theory developed by Lazarus and colleagues (e.g., Lazarus & Folkman, 1984) has been a valuable lens for understanding how people evaluate and cope with a broad range of life stressors. For instance, this theory has provided significant insights regarding the strategies individuals with chronic conditions such as arthritis (Smith et al., 1997) and abdominal pain (Walker et al., 1997) use to manage their condition. The theory has also been useful in understanding how people contend with stresses in other domains such as unemployment (Langens & Mose, 2006) and general life stress (Folkman et al., 1986).

Our study sought to examine the degree to which two key constructs in the theory—appraisal and coping—were related to health and well-being during the early phases of the pandemic. Appraisals represent individuals' evaluations of the adaptive significance of their situations and are important in determining their emotional reactions and coping responses. The appraisal model we use is a theoretical elaboration of the Lazarus and Folkman (1984) model, developed to describe the appraisal antecedents of various emotions (e.g., Smith & Lazarus, 1990).

The Vanderbilt team (Leslie Kirby, Weiqiang Qian and Craig Smith) designed the study. Leslie Kirby and Craig Smith assembled the international research team, coordinated communication among the team members and compiled and cleaned data sets across sites. The Vanderbilt team also performed data analyses and wrote the first draft of the paper. As a result, they are first, second and senior (final) authors on the paper. All other authors made similar contributions and are listed in alphabetical order. Each author worked on recruitment, data collection and coordination at their sites. Zafer Adiguzel, Asghar Afshar Jahanshahi, Margarita Bakracheva, María Camila Orejarena Ballestas, José Fernando A. Cruz, Arobindu Dash, Claudia Dias, Maria José Ferreira, Johanna G. Goosen, Shanmukh V. Kamble, Nikolay Mihaylov, Fada Pan, Rui Sofia, Mirre Stallen, Maya Tamir, Wilco W. van Dijk & Joar Vittersø worked on translations of the survey into their native language. Asghar Afshar Jahanshahi and José Fernando A. Cruz assisted with recruiting additional members to the international team. And Margarita Bakracheva, María Camila Orejarena Ballestas, José Fernando A. Cruz, Claudia Dias, Maria José Ferreira, Johanna G. Goosen, Rui Sofia & Wilco W. van Dijk offered extensive help with manuscript revisions. The Vanderbilt team would like to acknowledge the assistance of Martin Grady, Jr. in researching background economic information on COVID-19. The Dutch team would like to acknowledge the assistance of Minou van der Werf with the translation into Dutch.

The original survey was reviewed by the Vanderbilt University Institutional Review Board, and as an anonymous survey not containing any identifying information, it was determined to be exempt. While this was sufficient for our administration of the survey to anyone through use of snowballing techniques, most sites sought and received additional specific ethics board approvals at their own universities, per their local guidelines.

After reading a description of the study, all individual participants explicitly declared that they were at least 18 years of age, and indicated that they had given their informed consent to participate in the study by clicking a link to begin the survey.

In the present study, we use this elaborated model, which describes six components of appraisal. Motivational relevance is an evaluation of how important the situation is to the person. Motivational congruence is an evaluation of the degree to which current circumstances are consistent or inconsistent with the person's goals or desires. Accountability involves an evaluation of who or what is responsible for the situation, which provides a target for one's coping efforts. The model includes two distinct appraisals of coping potential, which are evaluations of the person's ability to contend with the situation. Together, they theoretically represent the two major pathways for reducing stress through coping: problem-focused coping potential (PFCP), an evaluation of one's ability to act on the situation directly to bring it more in line with one's desires; and accommodation-focused coping potential (AFCP), an evaluation of one's ability to adjust and adapt to a situation, regardless of outcome.[1] The final component is future expectancy, one's expectations as to whether the situation will likely change in the future, for any reason. As the latter three components are all concerned with the potential for the stressful situation to be successfully resolved in one way or another, they can be combined into a higher-order construct of "optimism." Optimism has consistently been associated with relatively positive physical and mental health outcomes (e.g., Zacher & Rudolph, 2020).

Appraisals of coping potential reflect a person's evaluations of their options for coping. Coping itself represents their actual cognitive and behavioural efforts to engage in strategies aimed at reducing the stressful nature of the situation. In line with appraisals of coping potential, the theory emphasises two major types of coping, both of which subsume a variety of specific strategies. Problem-focused coping (commonly referred to as active coping, e.g., Brown & Nicassio, 1987; Walker et al., 1997) includes attempts to take direct action to improve the situation, planning such action and seeking help, advice and social support around the situation. Accommodative coping includes efforts to adjust to situations without actually changing them, using such strategies as acceptance, reprioritizing goals, positive reappraisal, humour and so on. To these, we add a third set of coping strategies, disengagement coping (commonly referred to as passive coping, e.g., Brown & Nicassio, 1987; Walker et al., 1997), which represent efforts to disengage from the stressful situation behaviourally (e.g., quitting) or mentally (through such strategies as distraction and denial), or to avoid dealing with the situation (e.g., through substance use or wishful thinking). Although employing different terminology, this tripartite conceptualization is similar to that proposed by Compas and colleagues (Connor-Smith et al., 2000).

Generally speaking, a disengagement coping style has been consistently linked to relatively poor adaptational outcomes, including anxiety, depression and poor management of chronic health conditions (e.g., Brown & Nicassio, 1987). Tending to approach stress through problem-focused coping has been linked to more positive outcomes, but the evidence for this form of coping is not as consistent as that for disengagement coping (cf., Smith et al., 1997).

The literature on accommodative coping is much less developed. Many coping studies—including those emerging around the pandemic—have typically employed two-dimensional conceptualizations of coping that do not include accommodative coping. It is fairly common for studies to compare "adaptive" versus "maladaptive" coping strategies, where adaptive coping combines aspects of both problem-focused and accommodative coping (e.g., Rettie & Daniels, 2020). It is even more common for studies to cite Lazarus and Folkman (1984) and then compare problem-focused and emotion-focused coping. However, in almost every case, the operationalization of emotion-focused coping corresponds closely to disengagement coping (e.g., Guo et al., 2020), which is very different from the original Lazarus and Folkman (1984) conceptualization of this construct.

Accommodative coping should be especially beneficial under conditions in which problem-focused coping is unable to be effective (e.g., if the situation involves harm or loss that cannot be undone; cf., Brandtstädter & Renner, 1990). In line with this theorising, some studies have linked accommodative coping to beneficial outcomes (e.g., Thomsen et al., 2015), but there is a need for further empirical study of this type of coping.

By now, a literature has begun to emerge regarding how people are coping with COVID-19 and its associated stressors. A number of these studies (e.g., Bogg & Milad, 2020) are directed at understanding factors that compel individuals to follow or ignore safety guidelines. Others have focused on the effects of particular coping behaviours, such as alcohol and substance use (e.g., Rodriguez et al., 2020). Still, others have relied on a two-dimensional conceptualization of coping as discussed above (e.g., Guo et al., 2020). Most of the emerging studies have collected data in just one or two countries.

To our knowledge, no studies on the pandemic to date have examined the theoretically based conceptualization of appraisal and coping we are advancing, and none has

[1] In the original theoretical formulation (e.g., Lazarus & Folkman, 1984), problem-focused coping was contrasted with emotion-focused coping—efforts to manage one's emotions in a difficult encounter. We have since become convinced that the true function of the second type of coping is to accommodate to one's circumstances to the extent that they cannot be changed to fit one's desires (cf., Smith & Kirby, 2011). Thus, we now refer to the two types of coping, and hence the two types of appraised coping potential, as problem-focused and accommodation-focused.

examined appraisal and coping in a broad international sample. Our study was designed to fill both these gaps. Our hope was that our findings would help identify likely "best practices" in terms of how people respond not only to the current pandemic but to potential future crises as well.

We assessed appraisals, coping and indicators of health and well-being in a single-session survey. Drawing on the literature reviewed above, we hypothesised:

H_{1a}: We would see broad mean-level differences across countries in indicators of both health and well-being, and

H_{1b}: these differences would be at least partially attributable to differential impacts of the pandemic. Although there are many reasons for countries to differ in mean levels of health and well-being (differential poverty, availability of health care, and so on), we expected some of these differences to be attributable to the effects of the pandemic. For example, respondents from societies with rising rates of illness and deaths should be characterised by higher levels of stress and lower levels of mental health and well-being than respondents from societies in which these rates were falling or low.

H_2: Overall, we expected appraisals and coping to be systematically related to health and well-being, and we expected these relations to be quite general across countries. More specifically:

H_{2a}: We predicted the relations of appraisal and coping to mental health outcomes would be stronger than those to physical health ones. Our theoretical framework focuses on emotion, and the measures of mental health and well-being have a stronger affective basis than those of physical health.

H_{2b}: We predicted optimism would be associated with positive outcomes. We did not advance specific predictions for other appraisal constructs, but examined their relations in a more exploratory vein.

H_{2c}: We predicted engaging in problem-focused coping strategies would be associated with positive outcomes, but

H_{2d}: disengagement coping would be even more strongly associated with negative outcomes.

H_{2e}: Finally, we predicted accommodative coping would be associated with positive outcomes. Numerous aspects of the pandemic (e.g., the societal imposition of behavioural restrictions, controlling the infection rate, and so on) are largely beyond the individual's control, thereby creating conditions under which accommodative coping is proposed to be most efficacious.

METHODS

Participants

Participants were 3646 individuals (1195 male, 2076 female, 375 unknown) from 12 countries (Bangladesh, Bulgaria, China, Colombia, India, Israel, the Netherlands, Norway, Peru, Portugal, Turkey and the USA) on four continents, aged 18 and above. Across all countries, an additional 638 potential participants started the survey but did not supply enough data to be entered into any of the presented analyses. Overall, participants were highly educated with a median education level of college or above. The median ages for the samples varied considerably, ranging from 20–24 to 40–44. Appendix A of the Online Supplementary Materials (OSM) shows the demographic data by country.

Translations

The original English questionnaire was used in the USA and India (where the sample was mainly university faculty and students, and the official language of instruction is English). Other sites used translations into the most common local language. All sites used a committee to complete and check their translations. In addition, three sites (Bangladesh, Colombia and Portugal) utilised backward translation; six sites utilised multiple independent translations (Bangladesh, Bulgaria, the Netherlands, Norway, Peru and Portugal; Norway's were double-blind parallel translations), and three sites (Bulgaria, Peru and Turkey) conducted a pilot study with the translation before moving into final data collection. In general, our multi-item scales had high levels of reliability both for the entire sample, and within each country (see below), which suggests the translations largely have high fidelity. It should be noted, however, that certain first-order coping scales, both overall and especially within some countries, demonstrated reliabilities that were quite low.

Sampling and Procedure

Most sites used snowballing sampling procedures to recruit respondents. Investigators posted links to the study on social media and sent the link through email and messaging apps. Recipients were encouraged to further share the link with their social circles, and to encourage those people to share the link as well. Two exceptions were that both Israel and China used student participant pools.

All participants voluntarily clicked the survey link and were presented with a study overview. After giving consent, they completed the survey in a single session, which took approximately 15 minutes. All of our data collection began in April or May of 2020 and ended between May and July 2020.

Measures[2]

Demographic variables

Our demographic variables were age, gender and education. *Age* was assessed by bands, beginning with "below 20," followed by "20–24," "25–29" and so on through "75–79", with a final "over 80" band. *Gender* was assessed as male (1)/female (2)/other (3). Individuals identifying as "other" were coded as having missing data in the reported analyses.[3] *Education* was assessed on a 0–9 categorical scale where 0 = no high school and 9 = completed graduate/professional degree. Due to differences between countries' educational systems, this was reduced to form a variable with four levels—0 = no high school; 1 = high school (anyone with at least some high school level education); 2 = college (anyone with at least some college); 3 = graduate school (anyone with at least some graduate/professional school).

COVID-19 impact

We created six variables to estimate the impact of the pandemic on our respondents. Four of these—COVID-19 restrictions, case level, case slope and unemployment—were computed at the country level. Two—personal disease experience and acquaintance disease experience—were computed at the individual level.

COVID-19 restrictions quantified the degree to which each country was under pandemic-related restrictions at the time of data collection. We derived this based on both WHO reports and our authors' direct experience with their own country. This measure was computed as a four-point scale (0–3), where 0 indicated no restrictions; 1 indicated "social distancing," where people are asked/required to socially distance and wear masks; 2 indicated "shelter in place," with individuals expected to stay home as much as possible and certain businesses closed; and 3 indicated being under a strict mandatory lock-down. Intermediate scores were possible if a country seemed between two stages (e.g., in Norway, people practiced social distancing but did not wear masks).

We derived case level and case slope from WHO data for each country using the 3-day average of new infections for the specific dates marking the start and end of data collection for that country (WHO, 2020). *Case level* was the mid-point between the number of cases for the data collection start and end dates, expressed per 100,000 people, using WHO conventions to facilitate comparison across countries. *Case slope* was the average rate of change in the number of cases diagnosed per day, expressed per 10,000 people, to prevent the resulting numbers from being extremely small.

Unemployment. In addition, because several co-authors noted high levels of economic anxiety in their countries, we included the most recently available unemployment index (May or June 2020) for each country (Trading Economics, 2020).

Personal disease experience was coded on 0 to 2 scale indicating whether or not (0) the respondent had been exposed to (1) or diagnosed with (2) COVID-19. *Acquaintance disease experience* was also a 0–2 scale, in this case indicating whether or not (0) any friends or family members had contracted the disease (1) or had died from it (2). Across countries, the means for both disease experience variables were extremely low, indicating very little direct personal experience with the disease at that point in the pandemic. For instance, across all 12 countries, only 15 individuals (0.4% of the total sample) indicated they had been diagnosed with the disease, and only 129 (3.7% of the total sample) were close to someone who had died from it. Summary data for each indicator of COVID-19 impact, as well as the data collection dates for each country, are presented in Table 1.

Appraisals

A pandemic-modified version of the Smith Kirby Appraisal Scale (SKAS) was used (e.g., Yih et al., 2020; see OSM Appendix B for full version). Participants indicated the degree to which each item characterised their thinking about the pandemic over the past week.

Motivational relevance was assessed with 3 items that were combined into a single scale (Cronbach's $\alpha = .79$).[4]

Motivational congruence was assessed separately for the extent to which the situation around the pandemic

[2] This paper is part of a larger project that included a number of additional measures that are beyond the scope of this paper. We report only on the measures used for this paper.

[3] This was performed for a couple of reasons. First, due to cultural sensitivities, in a few countries the "other" option was not offered to respondents. In addition, very few respondents who selected this option used the text-box they were then provided to describe how they identified themselves. This precluded being able to meaningly classify these responses.

[4] All reported α's are derived from the present sample; the α's based on the full sample are reported in the main text, and the country-specific α's are listed in OSM Appendix C.

TABLE 1
Estimates of COVID-19 impact for each country

Country	*Sample size*	*COVID-19 restrictions (0–3)*	*Case rate (per 100,000)*	*Case slope (per 10,000)*	*Unemployment (percent)*	*Personal disease experience (0–2)*	*Acquaintance disease experience (0–2)*	*Collection dates (all in 2020)*
Bangladesh	200	3	1.37	0.36	4.4	0.04 (0.26)	0.38 (0.57)	May 13–June 21
Bulgaria	301	1.75	1.28	0.35	9.0	0.28 (0.45)	0.04 (0.22)	May 15–June 25
China	658	1	0.001	−.001	5.9	0.05 (0.24)	0.00 (0.00)	April 20–April 26
Colombia	226	2.5	5.01	1.61	21.1	0.13 (0.34)	0.28 (0.51)	June 1–June 29
India	261	3	0.52	0.21	11.1	0.02 (0.18)	0.06 (0.25)	April 22–May 22
Israel	125	1	2.56	1.11	4.2	0.02 (0.15)	0.18 (0.40)	May 19–June 29
The Netherlands	172	1	0.79	−0.31	3.6	0.13 (0.35)	0.70 (0.67)	June 8–June 29
Norway	135	0.5	0.17	−0.08	4.1	0.06 (0.32)	0.41 (0.49)	May 24–June 14
Peru	409	3	11.90	−0.62	13.1	0.28 (0.56)	0.66 (0.73)	May 18–May 25
Portugal	199	1	3.26	−0.64	5.5	0.09 (0.29)	0.53 (0.65)	May 20–July 25
Turkey	203	1	1.19	−0.08	16.3	0.01 (0.14)	0.35 (0.51)	May 23–June 6
The United States	757	2	7.75	−0.29	11.1	0.04 (0.22)	0.26 (0.49)	April 4–June 16

had positive and negative aspects. These items were only weakly negatively correlated ($r = -0.21$) and were included separately in the analyses.

For *accountability*, a single item assessed *self-accountability*, whereas *other-accountability* was assessed with five items focusing on different loci relevant to the pandemic (other people in general, health professionals, politicians, nature and luck). These items were only weakly intercorrelated (average intercorrelation = 0.16) and thus were entered separately into our analyses.

A second-order *optimism* scale ($\alpha = .75$) combined 8 items assessing coping potential and future expectancy: PFCP (4 items, general coping potential, confidence about avoiding virus exposure, confidence about meeting social needs and confidence about meeting physical needs), AFCP (one item) and *future expectancies* (3 items, for the next month, next 3 months and next year).

Coping strategies

Coping strategies (OSM Appendix D) were assessed using a modified and expanded version of the Brief COPE (Carver, 1997) that included items from other existing coping scales (Smith et al., 1997; Walker et al., 1997), as well as subscales adapted from Rimé and colleagues' (e.g., Rimé et al., 2010) work on the social sharing of emotion. These additions were designed to improve the assessment of the three dimensions of the tripartite conceptualization of coping described above. Participants responded to each item indicating the extent to which they had utilised the strategy over the past week.

The resulting measure included 15 two-item subscales, each assessing a particular coping strategy, that were combined into the 3 second-order scales comprising our primary coping measures as follows:

Problem-focused coping ($\alpha = .81$) combined problem-solving ($\alpha = .61$), seeking social support ($\alpha = .52$), information sharing ($\alpha = .64$) and emotion sharing ($\alpha = .69$);

Accommodative coping ($\alpha = .69$) combined positive reappraisal ($\alpha = .74$), acceptance ($\alpha = .46$), humour ($\alpha = .80$), reprioritizing goals ($\alpha = .48$) and self-encouragement ($\alpha = .63$); and

Disengagement coping ($\alpha = .68$) combined wishful thinking ($\alpha = .64$), behavioural disengagement ($\alpha = .41$), mental disengagement ($\alpha = .63$), substance use ($\alpha = .85$), denial ($\alpha = .58$) and self-isolation ($\alpha = .67$).

Religion ($\alpha = .86$), an additional subscale from the original COPE, did not contribute to any of the second-order scales. Depending on context, this strategy can represent an active attempt to seek help from one's God, akin to seeking social support, or desperately wishing for things to improve, akin to wishful thinking (cf. Bradshaw & Kent, 2018). Therefore, religion was included as a standalone scale.

Finally, we created three pandemic-specific coping items, each retained as separate items: "I practiced social distancing"; "I kept up my normal routine"; and "I quarantined myself."

Perceived stress

The Perceived Stress Scale (Cohen et al., 1983; $\alpha = .81$) measures the extent to which one's current circumstances are appraised as stressful. We used the 10-item version of the scale and changed the time-frame from the last month to the past week.

Well-being

The nine-item Positive Affect & Well-Being scale (NIH Toolbox, 2020; Salsman et al., 2014; $\alpha = .87$) focuses

on life satisfaction and overall sense of purpose. Sample items include "I had a sense of well-being" and "I felt hopeful."

Health

Physical and mental health were assessed using the 10-item PROMIS Global Health Short Form (NIH Toolbox). Each item was evaluated for the past 7 days. This measure is generally scored as separate four-item subscales for physical and mental health, with standalone items for global health and pain (Hays et al., 2009). However, in our sample, fatigue did not correlate well with the other physical health items (average $r = .14$), and was of considerable interest in and of itself. Thus, we kept fatigue as a separate item. In addition, global health correlated moderately with the other physical health items (average $r = .41$) and thus was included on that scale. This resulted in 2 four-item scales for *physical health* ($\alpha = .74$) and *mental health* ($\alpha = .70$), with standalone items for *pain* and *fatigue*.

Preliminary analyses

Data reduction

To enable us to model our predictor variables in a single analysis, we reduced the variables through a series of backward-stepping regressions (Cohen & Cohen, 1983) on the six outcome variables. We eliminated any variables that did not demonstrate a small effect (β with a magnitude of at least .10, i.e., $|\beta| \geq 0.10$). These procedures, described more fully in OSMAppendix E, yielded the final set of variables retained for analysis: demographics —age, sex and education; COVID-19 Impact—COVID-19 restrictions, case level, case slope and unemployment; appraisal—motivational relevance and optimism; coping—accommodative coping, problem-focused coping, disengagement coping and religion. Country-specific means and standard deviations for all surviving appraisal and coping measures, including the first-order coping scales, are presented in OSM Appendix F.

Assessment of measurement invariance

We initially set out to test the degree to which our scales demonstrated measurement invariance across the countries (Milfont & Fischer, 2010). However, we were stymied in these efforts because the measurement models for the scales across the entire sample did not show a good degree of fit (e.g., the confirmatory factor analysis for the second-order accommodative coping scale had poor model fit even before constraining factor loadings to be the same across countries, RMSEA = .13, CFI = .86). This precluded us testing whether the models were stable across sites. The likely implications of our inability to establish measurement invariance, combined with the low reliabilities for some scales, are considered in the discussion, and at more length in OSM Appendix G.

RESULTS

Analysis plan

We first hypothesised that levels of outcomes would vary across countries, and that a portion of this variability would be attributable to differences in the impact of the pandemic on each country. We examined country-level differences in outcomes through a series of one-way ANOVAs, and then assessed the effects of the demographic and COVID-impact variables on the outcomes through multi-level modelling (using lme4 1.1-25 package in R, Bates et al., 2014), with country as Level 2, and individuals within countries as Level 1. We planned to model both country-level intercepts and slopes as random factors; however, in virtually all cases, both for these analyses and for the appraisal and coping analyses below, these models failed to converge due to collinearity problems: the slope estimates were highly correlated with one another and/or the intercept estimates. In addition, the variances of the slope estimates were very small (indicating minimal variation in the slopes across countries). Therefore, in all multilevel analyses, we only modelled country-specific intercepts as random effects.

The reported probability levels for the level one regression coefficients can be difficult to interpret because they are based on a normal approximation that assumes infinite degrees of freedom (i.e., the z-distribution), and thus may be too liberal when sample size is small (Barr et al., 2013). Therefore, despite our relatively large sample, in all multilevel analyses, we determined statistical significance using 95% confidence intervals estimated through parametric bootstrapping with 1000 iterations. For these analyses, the R^2s we report are conditional R^2s that compute the proportion of variance explained by both fixed and random effects.

For our main analyses, we hypothesised that, controlling for demographics and COVID-19 impact, appraisals and coping would reliably predict each of the outcomes across countries. To examine this, we computed the residuals from the above analyses of demographic and COVID-19 impact variables (in order to control for the effects of these variables) and used the residuals in a series of multilevel models, analogous to the ones described above, in which the final set of appraisal and coping variables were used to predict each of the outcomes.

Where we observed associations between optimism or the second-order coping scales and the outcomes, we performed exploratory analyses to examine whether

some of the lower-order variables underlying the broader construct (i.e., particular appraisals or particular coping strategies) were more consistently predictive of the outcome than others. These analyses consisted of multilevel analyses analogous to the ones involving the second-order scales, except that within each analysis only the first-order items or scales underlying a particular second-order scale were included.[5]

Country-level variations in outcome

Table 2 presents the ANOVAs examining differences in the six outcomes across the 12 countries. Table 3 presents the multi-level models using both the demographic and COVID-19 impact variables to predict the outcomes.

In support of H_{1a}, the ANOVAs clearly indicate systematic differences across countries in all six outcomes. These effects are small to moderate, with η^2 ranging from .04 (for well-being) to .10 (for physical health), but are highly reliable. Notably, the patterns of country differences are far from identical, supporting the idea that the outcome variables capture different aspects of health and well-being. For example, Turkey is characterised by relatively high levels of fatigue, pain and perceived stress combined with relatively low levels of well-being, all of which suggest relatively negative outcomes. However, it is also characterised by moderate levels of mental health and moderate to high levels of physical health. Israel is characterised by relatively high levels of fatigue, and low levels of well-being, but also is characterised by relatively moderate levels of perceived stress, low levels of pain and high levels of both physical and mental health. Norway is characterised by relatively positive outcomes for all six variables.

The results in Table 3 indicate that demographic and COVID-19 impact variables account for some of the variation across countries for each outcome. The effects are small to medium, but highly significant, with R^2 ranging from .05 for fatigue to .16 for pain. In at least partial support of H_{1b}, the COVID-19 restrictions in place at the time of data collection reliably predicted most outcomes, with stronger restrictions associated with higher levels of pain and lower levels of both physical and mental health. Interestingly, stronger restrictions were also associated with less fatigue. With the exception of daily case level being associated with higher fatigue, the other COVID-19 impact variables were not reliably associated with the outcomes. Potential reasons for this are considered in the discussion.

Both age and gender were associated with multiple outcomes. Although increasing age was associated with poorer physical health and higher levels of pain, it was also associated with lower fatigue and better outcomes along all three indicators of mental health. With the exception of well-being, being female was associated with poorer outcomes. Education was not related to the outcomes.

Appraisal and coping predicting health and well-being

Table 4 presents the analyses using appraisal and coping to predict health and well-being. In cases of relations observed for optimism or one of the 3 second-order coping scales, the results of the follow-up analyses examining the component measures are presented immediately below the results for the broader scale.

As hypothesised, both appraisal and coping are predictive of health and well-being. In support of H_{2a}, the relations of appraisal and coping to mental health, perceived stress and well-being are stronger than those to physical health, pain and fatigue, with the former explaining over twice the proportion of variance as the later.

We did not advance specific hypotheses for motivational relevance, but higher levels of concern over the pandemic were associated with less positive outcomes for all indicators of physical and mental health except well-being.

The results for optimism provided strong support for H_{2b} in that, for all six variables, more optimistic appraisals were associated with more positive outcomes. Follow-up analyses indicated that both confidence in one's ability to get one's physical needs met (PFCP-physical) and AFCP were most responsible for these results as they, too, were associated with better outcomes for all six indicators. Interestingly, confidence in one's ability to avoid exposure to the virus (PFCP-expose) was associated with poorer mental health and increased stress.

Problem-focused coping was associated with better physical and mental health and well-being, but not for the other outcomes, providing some support for H_{2c}. Follow-up analyses indicated that problem-solving was the strategy most responsible for these effects.

Disengagement coping reliably predicted negative outcomes for all six indicators, consistent with H_{2d}. Behavioural disengagement and self-isolation were the most consistent strategies contributing to these findings, although other disengagement strategies contributed to the prediction of subsets of the outcomes. Notably, mental disengagement was associated with more positive outcomes for physical and mental health and well-being, demonstrating relations that ran counter to those observed for both the overall scale and the other subscales.

[5] In some cases, these analyses failed to find a singular solution due to small variances of the country-level intercepts. In these cases, we removed the intercepts as random factors, and hence the second level, from the analyses.

TABLE 2
Means and standard deviations for six outcomes overall and by country

	All	*Bangladesh*	*Bulgaria*	*China*	*Colombia*	*India*	*Israel*
Physical health	3.74 (.76)	3.35 (.84)	3.82 (.74)	4.08 (.75)	3.82 (.59)	3.58 (.71)	3.97 (.62)
Pain	25.00 (25.20)	40.15 (27.75)	22.17 (26.48)	21.23 (24.00)	22.89 (23.40)	33.64 (26.38)	17.38 (17.87)
Fatigue	2.74 (.97)	2.35 (1.08)	2.73 (1.04)	2.93 (.79)	2.63 (1.04)	2.44 (.91)	3.00 (.83)
Mental health	3.41 (.84)	3.21 (.84)	3.48 (.80)	3.74 (.92)	3.46 (.72)	3.40 (.87)	3.58 (.73)
Perceived stress	2.72 (.64)	2.83 (.77)	2.54 (.71)	2.66 (.49)	2.76 (.62)	2.84 (.57)	2.78 (.70)
Well-being	3.67 (.77)	3.49 (.93)	3.63 (.86)	3.70 (.75)	3.87 (.62)	3.87 (.79)	3.45 (.78)

	The Netherlands	*Norway*	*Peru*	*Portugal*	*Turkey*	*The United States*	*ANOVA result*
Physical health	3.92 (.60)	3.58 (.77)	2.69 (.69)	3.62 (.62)	3.64 (.71)	3.83 (.69)	F (11, 3482) = 35.1***, η^2 = .10
Pain	10.61 (14.82)	20.62 (20.81)	34.84 (30.81)	17.94 (20.48)	35.62 (21.84)	21.73 (22.22)	F (11, 3343) = 30.4***, η^2 = .09
Fatigue	2.88 (1.08)	2.21 (.96)	2.76 (.91)	3.02 (.81)	2.94 (1.19)	2.71 (.92)	F (11, 3416) = 14.8***, η^2 = .05
Mental health	3.58 (.74)	3.48 (.77)	2.97 (.74)	3.29 (.79)	3.37 (.79)	3.33 (.82)	F (11, 3634) = 22.1***, η^2 = .06
Perceived stress	2.36 (.61)	2.38 (.69)	2.69 (.49)	2.72 (.67)	3.06 (.65)	2.83 (.66)	F (11, 3439) = 21.2***, η^2 = .06
Well-being	3.84 (.60)	3.87 (.60)	3.85 (.67)	3.72 (.69)	3.40 (.85)	3.54 (.73)	F (11, 3419) = 12.8***, η^2 = .04

Notes: *N*s vary across analyses, due to analysis-wise deletion of cases with missing data. Pain is on a 0–100 scale, other outcomes are on a 1–5 scale. For each variable, higher scores indicate more of the labelled construct (more pain, better health and so on). *** $p < .001$.

Perhaps most noteworthy, the results for accommodative coping provided strong support for H_{2e}. Accommodative coping was associated with more positive outcomes for all six indicators. Analysis of the first-order coping scales indicated that positive reappraisal consistently mirrored the overall results for accommodative coping, and self-encouragement did so for all of the outcomes except pain and fatigue. Interestingly, use of humour went in the opposite direction, and demonstrated small but reliable relations with more negative outcomes for each indicator except physical and mental health.

Religion was positively associated with both pain and well-being, consistent with the idea that use of religion can sometimes represent a form of problem-focused coping and sometimes an act of desperation.

Finally, although the small variances observed for the country-level slopes in our preliminary analyses suggest the above findings are quite general, our inability to model those slopes in our main analyses precluded a direct estimate of their actual generality. To provide such an estimate, we conducted analyses in which, within each country, we replicated the analyses presented in Table 4 using multiple regression. Across the six outcomes, Table 4 documents a total of 52 statistically significant effects with coefficients of magnitude .10 or above. To provide an indication of the degree to which these relations were general across countries, we tallied the percentage of those effects that were replicated within each country with Beta coefficients with a magnitude of .10 or above. Overall, a median of 61% of these relations was replicated within countries. For four countries (Norway, Turkey, China and Bangladesh) the degree of replication was rather low, with only about half or fewer of the relations being replicated. For the other countries, the percentages of replication were higher, with both Colombia and Peru attaining a replication rate of 81%. Based on these results, we conclude that, although not doing so perfectly, the relations described here generalise well to the countries we sampled.

DISCUSSION

This study was designed to examine the roles of appraisals and coping as predictors of health and well-being in the context of the COVID-19 pandemic in a sample of 12 countries from 4 continents. Each of our hypotheses received support. We demonstrated systematic differences in health and well-being across countries that were partially attributable to differences in how the pandemic was impacting each country. Despite these country-level differences, appraisals and all three modes of coping predicted health and well-being in ways that were highly theoretically consistent and quite general across countries. These results are a significant theoretical and empirical advance in emotion and stress research. They provide validation for using our more elaborated conceptualizations of both appraisal and coping than have typically been used in previous research examining individuals' attempts to contend with stress. In addition, they suggest both that much of what we have learned about coping and adjustment to stress in other domains is applicable to the pandemic, and that the findings of this study can contribute to the development and validation of the broader theory.

Our results also provide insights into "best practices" for individuals struggling to deal with the pandemic. For example, given the strong and consistent findings for the subscales underlying optimism, accommodative coping and disengagement coping, targets for intervention might

TABLE 3
Predicting outcomes from demographic and COVID-impact variables

Variable	*Physical health*		*Pain*		*Fatigue*		*Mental health*		*Perceived stress*		*Well-being*	
Age	−0.05*	−0.09, −0.01	0.04*	0.01, 0.08	−0.11***	−0.15, −0.07	0.09***	0.05, 0.13	−0.24***	−0.28, −0.20	0.15***	0.11, 0.18
Gender	−0.07***	−0.10, −0.03	0.09***	0.05, 0.12	0.05**	0.02, 0.09	−0.09***	−0.12, −0.05	0.10***	0.07, 0.14		
Education												
COVID-19 restrictions	−0.25**	−0.42, −0.06	0.28**	0.06, 0.49	−0.22***	−0.29, −0.15	−0.14*	−0.26, −0.03				
Daily case level					0.13**	0.04, 0.22						
Daily case slope												
Unemployment												
Random intercept variance	0.07	0.01, 0.17	0.11	0.02, 0.25	0.01	0.00, 0.02	0.03	0.00, 0.07	0.07	0.01, 0.17	0.06	0.01, 0.15
	$R^2 = .14$		$R^2 = .16$		$R^2 = .05$		$R^2 = .09$		$R^2 = .14$		$R^2 = .09$	

Notes: Depicted regression coefficients are standardised (β). For each, the 95% bootstrap confidence interval is presented in the column to its right. Only coefficients whose confidence intervals do not overlap with 0 are presented. ***$p < .001$ **$p < .01$ *$p < .05$.

be to assist struggling individuals in developing confidence in their coping abilities, and especially their abilities to adapt to difficult situations that cannot be changed; adopting self-encouragement techniques; improving their abilities to see the positive in their circumstances; and slowing their disengagement from difficult situations.

Countries' levels of COVID-related restrictions (mandating social distancing, lockdowns and so on) were reliable predictors across multiple outcomes. These restrictions had substantial direct effects on the daily lives of our respondents in ways that more abstract changes in the levels and rates of COVID-19 infection did not. This was especially the case because we collected our data at an early stage of the pandemic, when very few of our participants had direct experience with the virus. As the pandemic has progressed with differentially mounting infection and death rates across countries, we would expect that disease impact has become a stronger predictor of health and well-being. Similarly, to assess the impact of economic effects of the pandemic on health and well-being, rather than relying on the official unemployment rate, which is rather abstract and technically defined, in retrospect we would advocate assessing the direct, concrete financial impacts at the individual level.

The findings for optimism, problem-focused coping and disengagement coping are highly consistent with the existing literature, but aspects of each are noteworthy. The findings for disengagement coping contribute to a large literature indicating that habitually disengaging from problems is likely to be associated with relatively poor physical and mental health in the face of a broad array of stressors. In this regard, it is noteworthy that mental disengagement (a component of disengagement coping) was found to be positively associated with physical and mental health and well-being. These findings are consistent with other studies of adaptation to COVID-19 suggesting that focusing too much on the pandemic, such as by very frequently seeking out pandemic-related news, can be deleterious to one's physical and mental health (e.g., Fullana et al., 2020). Our findings suggest that using mental disengagement techniques such as distraction to take breathers from pandemic news can be beneficial.

The findings for optimism similarly add to a large literature indicating that maintaining an optimistic outlook is associated with positive outcomes across a broad array of health conditions. It is therefore interesting that confidence in one's ability to avoid exposure to the virus was associated with higher levels of stress and lower levels of mental health. It is possible that such confidence characterises individuals who are in quarantine or sheltered in place, and thus are especially vulnerable to loneliness. It is also worth noting that AFCP emerged as one of the most consistent components of optimism in predicting health and well-being. The prominence of AFCP as a predictor suggests that accommodative coping itself may be especially important in adaptation to pandemic conditions.

TABLE 4
Predicting outcomes with appraisal and coping variables

	Physical Health		*Pain*		*Fatigue*		*Mental Health*		*Perceived Stress*		*Well-Being*	
	$R^2 = .09$		$R^2 = .13$		$R^2 = .10$		$R^2 = .19$		$R^2 = .30$		$R^2 = .28$	
Random intercept variance	0.01	0.00, 0.03	0.03	0.01, 0.08	0.02	0.00, 0.05	0.04	0.01, 0.08	0.08	0.02, 0.16	0.04	0.01, 0.08
Motivational relevance	**−0.10*** **	**−0.14, −0.06**	**0.13*** **	**0.09, 0.17**	**0.13*** **	**0.09, 0.17**	**−0.13*** **	**−0.17, −0.09**	**0.15*** **	**0.11, 0.19**		
Optimism	**0.16*** **	**0.12, 0.20**	**−0.14*** **	**−0.18, −0.09**	**−0.14*** **	**−0.18, −0.10**	**0.18*** **	**0.14, 0.22**	**−0.18*** **	**−0.22, −0.14**	**0.29*** **	**0.26, 0.33**
PFCP-general									−0.07**	−0.11, −0.02	0.10***	0.05, 0.15
PFCP-expose							−0.07**	−0.11, −0.03	0.05*	0.01, 0.09		
PFCP-social							0.11***	0.06, 0.16	−0.06*	−0.11, −0.01	0.06*	0.01, 0.11
PFCP-physical	0.16***	0.11, 0.21	−0.09***	−0.14, −0.04	−0.10***	−0.14, −0.05	0.11***	0.06, 0.15	−0.07**	−0.12, −0.02	0.12***	0.07, 0.17
AFCP	0.09***	0.04, 0.14	−0.05*	−0.10, 0.00	−0.05*	−0.10, −0.01	0.18***	0.13, 0.23	−0.20***	−0.24, −0.16	0.19***	0.15, 0.24
Expectations-year	0.08**	0.03, 0.13	−0.07**	−0.12, −0.02							0.10***	0.05, 0.15
Expectations-month					−0.07*	−0.12, −0.01					0.07**	0.02, 0.12
Problem-focused coping	**0.10*** **	**0.06, 0.14**					**0.06** **	**0.02, 0.11**			**0.15*** **	**0.11, 0.19**
Problem-solving	*0.09*** *	*0.05, 0.13*					*0.13*** *	*0.09, 0.16*			0.23***	0.19, 0.27
Emotion-sharing											0.06***	0.01, 0.12
Disengagement coping	**−0.13*** **	**−0.17, −0.09**	**0.16*** **	**0.12, 0.21**	**0.17*** **	**0.13, 0.22**	**−0.26*** **	**−0.31, −0.23**	**0.37*** **	**0.33, 0.41**	**−0.24*** **	**−0.28, −0.20**
Wishful Thinking					*0.06***	*0.02, 0.10*	−0.08***	−0.11, −0.04	0.15***	0.11, 0.18	0.05**	0.02, 0.09
Beh disengagement	*−0.10*** *	*−0.14, −0.06*	*0.10*** *	*0.06, 0.14*	*0.11*** *	*0.07, 0.15*	−0.14***	−0.17, −0.10	0.16***	0.13, 0.20	−0.15***	−0.18, −0.11
Mental disengagement	*0.08*** *	*0.04, 0.11*					0.06***	0.02, 0.10			0.15***	0.12, 0.19
Substance use			*0.08*** *	*0.04, 0.11*	*0.08*** *	*0.04, 0.12*	−0.05*	−0.09, −0.01	0.11***	0.07, 0.14	−0.11***	−0.15, −0.08
Denial									0.07***	0.02, 0.11	−0.08***	−0.12, −0.04
Self-Isolation	*−0.12*** *	*−0.15, −0.08*	*0.09*** *	*0.05, 0.12*	*0.10*** *	*0.07, 0.14*	−0.17***	−0.20, −0.13	0.16***	0.13, 0.19	−0.08***	−0.11, −0.04
Accommodative coping	**0.08***	**0.04, 0.12**	**−0.08***	**−0.12, −0.03**	**−0.07*** **	**−0.11, −0.03**	**0.18*** **	**0.14, 0.22**	**−0.20*** **	**−0.23, −0.16**	**0.22*** **	**0.19, 0.26**
Positive reappraisal	0.13***	0.08, 0.17	*−0.08*** *	*−0.12, −0.04*	−0.08***	−0.11, −0.03	0.16***	0.12, 0.20	−0.13***	−0.17, −0.09	0.29***	0.25, 0.33
Acceptance									−0.05**	−0.09, −0.01		
Humour			*0.04**	*0.01, 0.08*	0.05*	0.01, 0.08			0.06***	0.02, 0.10	−0.07***	−0.10, −0.03
Self-encouragement	0.06**	0.02, 0.10					0.07***	0.02, 0.11	−0.07***	−0.11, −0.03	0.19***	0.15, 0.23
Religion			**0.07*** **	**0.03, 0.11**							**0.13** **	**0.09, 0.16**

Notes. Depicted regression coefficients are standardised (β). For each, the 95% bootstrap confidence interval is presented in the column to its right. Only coefficients whose confidence intervals do not overlap with 0 are presented. Second-order variables are presented in bold typeface. Italics coefficients and confidence intervals represent cases in which country-specific intercepts could not be modelled in the Level 2 analysis of the first-order subscales. ***$p < .001$, **$p < .01$, *$p < .05$.

This possibility is further reinforced by considering the results for problem-focused coping. In line with the existing literature, problem-focused coping was found to be predictive of positive outcomes, but less consistently so than disengagement coping was for negative outcomes (see also Dawson & Golijani-Moghaddam, 2020). Specifically, problem-focused coping reliably predicted just three of the outcomes: physical health, mental health and well-being. This result does not indicate that problem-focused coping was unimportant in our participant's adjustment to the problems raised by the pandemic, but it does suggest that there were constraints on the effectiveness of this coping style. In line with the theorising of Brandtstäder and Renner, problem-focused coping is most likely to be effective under conditions in which it is possible to influence and potentially solve the problems confronting the person. There are many aspects of the pandemic (e.g., which restrictions are in place, whether others behave responsibly, when a vaccine will become available to them and so on) that are beyond the control of most individuals. Thus, the pandemic represents a set of stressors for which the efficacy of problem-focused coping may be limited.

Conversely, as Brandtstädter and Renner (1990) argue, such conditions are precisely the ones in which accommodative coping strategies are likely to be effective. Thus, it is significant that accommodative coping emerged as a stronger, more consistent predictor of health and well-being than did problem-focused coping. Accommodative coping was predictive of better adjustment in all six indicators. The two specific strategies contributing most consistently to these predictions were positive reappraisal and self-encouragement. It appears that being able to maintain a positive attitude and find the good in difficult situations may be key ingredients in adjusting to intractable chronic stressors, such as those presented by the pandemic. These results highlight the importance of considering accommodative coping strategies, which heretofore has rarely been done, not only in studies of adjustment to the pandemic, but also in stress and coping research more generally.

Appraisals of high motivational relevance were consistently associated with worse outcomes for each indicator except well-being, highlighting a limitation of our study. In interpreting these relations, it is important to remember that the data are cross-sectional, and to be cautious about drawing causal conclusions. Many of the relations we observed are likely bidirectional. It is quite plausible that concerns about one's health, especially if it was somewhat poor to begin with, led to increased concern about the pandemic rather than those concerns leading to declines in physical health. At the same time, such concerns could readily contribute to increased stress and fatigue. Similarly, use of humour was the one accommodative strategy negatively associated with some outcomes. This may reflect that many individuals tried to use humour to lighten particularly bad situations, rather than the use of humour being directly harmful.

A second limitation of this study involves potential measurement issues associated with our data. To be able to collect maximal information from respondents in a brief time, we used an abbreviated coping measure with two items to represent each major coping strategy. The rather low reliabilities for some of these scales is fairly characteristic of these measures (cf., Kato, 2015; Langens & Mose, 2006), although the reliabilities were very low for some scales in some countries. We also relied on a number of single-item measures, for which internal consistency cannot be estimated. Finally, we were unable to establish measurement equivalency across the countries, leaving open the possibility that subtle translation differences left some of our measures assessing nonidentical things in different countries, thereby blurring the cross-country comparisons.

All of these considerations contribute to the likelihood that a nontrivial amount of measurement error was associated with our data. However, as argued in OSM Appendix G, the most likely effect of such error would be to attenuate the relations we observed. Thus, we believe it is likely that we failed to document some of the relations between appraisal/coping and well-being that actually exist, particularly at the level of individual appraisals and coping strategies. However, especially given their theoretical consistency and stability across the countries, we have considerable confidence in the relations we did document. Nonetheless, some caution should be exercised in interpreting the mean outcome differences observed across the countries. If, for instance, the translations in one or more countries used scale anchors that were not well calibrated with those for the other countries, this could produce systematic distortions in the observed means. Given the results of the demographic and COVID-19 impact analyses, it seems unlikely that such errors can fully account for the observed mean differences. Nevertheless, such differences should be viewed with caution.

A further limitation is that our study is based on a convenience sample, which cannot be considered representative of the countries' populations. One consequence of the snowballing sampling procedures most countries used was that we obtained a highly educated sample in every country. It therefore remains an open question as to whether we would observe the same relations of appraisal and coping to health and well-being had we studied more educationally representative samples.

Relatedly, due to the sampling differences across the countries, the countries vary in the extent to which they represent community versus student samples. In addition, the exact timing of the data collections varied from country to country. Both of these considerations add noise to the comparisons one might want to make across countries.

However, given the consistency in the relations among appraisal, coping and adaptation we observed, we find this sampling variability to be something of a strength because it increases the generalizability of our findings and suggests that they are robust.

Finally, although the contributions of both appraisal and coping in predicting health and well-being appear robust and are theoretically consistent, it is important not to overstate their generality. In no country were all of the somewhat sizeable relations observed in the multilevel analyses replicated, and in four countries only about half or fewer of them were replicated. This highlights a further limitation of this study. By looking for the commonalities in coping and adjustment across the countries, we are telling only half the story. The countries we sampled varied widely in their initial and continued responses to the pandemic, and in their effectiveness in managing the spread of the disease, both at the time we observed them and subsequently. Clearly, there is another story to be told regarding cultural differences in how people respond and adapt to the challenges of this pandemic, as well as how these differences may have contributed to the countries' overall management of the disease. Our next project is to examine these cultural differences.

In terms of future work, the promise of our findings highlights the need to continue examining people's efforts to contend with this pandemic and its implications through the lens of appraisal, stress and coping theory. The pandemic is a rapidly shifting set of intersecting situations, and what is happening in many countries at this writing is very different than it was during our data collection. It is likely different yet again from what will happen as vaccines become more generally available. It is important to continue to examine how people are coping with and adjusting to these fluids, unpredictable and challenging sets of circumstances. As a result, we have added a longitudinal component to our project to document these changes over time and to strengthen evidence of the extent to which appraisal and coping affect the course of changes to health and well-being.

The results we have presented provide a clear indication that our theoretical conceptualization of both appraisal and coping provides a powerful lens for understanding how people are contending with the pandemic. They also provide a strong theoretical basis for helping to improve the appraisal and coping styles of individuals who are experiencing adjustment difficulties by suggesting a roadmap for mental health practitioners (and individuals) in terms of how best to deal with pandemic-related and other forms of stress.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Appendix S1. Supporting Information.

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