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# Coexistence Reasoning about Misfortune During COVID-19 is Associated with Positive Psychological Well-Being

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## Abstract

Across cultures, people use natural and supernatural explanations to explain adverse life events, such as illness or death. Yet little is known about the psychological implications of this type of causal reasoning. Here, we ask, does explanatory coexistence help or hinder coping with significant misfortune? We examined this question through structured interviews with a diverse sample of 147 Los Angelinos who had suffered from severe illness or bereavement during the COVID-19 pandemic. As predicted, mean scores on the Posttraumatic Growth Inventory were significantly higher for participants who employed coexisting explanations for their misfortune than those who employed singular explanations (natural, supernatural) alone. These findings provide evidence of an association between coexistence reasoning about misfortune and positive post-event processing.

**Keywords:** causal reasoning, coexistence thinking, misfortune, illness, death, COVID-19

## Introduction

Globally, people employ natural and supernatural explanations to explain the same unfortunate event (Legare & Gelman, 2008; Legare et al., 2012; Legare & Shtulman, 2018). For instance, individuals can explain illness as a consequence of getting a viral infection (i.e., a natural, biological cause), divine punishment for wrongdoing (i.e., a supernatural cause, karma), or both (i.e., viral infection *and* karma). This cognitive phenomenon is often referenced as explanatory pluralism or coexistence reasoning.

People of all ages preferentially appeal to natural causes when reasoning about events and typically only appeal to supernatural causes when prompted to consider them (Lupfer, Tolliver, & Jackson, 1996; Wenger, 2001; Woolley, Cornelius, & Lacy, 2011; Vaden & Woolley, 2011; Watts et al., 2020; Payir et al., 2021; Payir et al., 2022). Furthermore, it is well documented across over 100 societies that people often appeal to supernatural causes when explaining natural phenomena, such as illness and death, rather than social phenomena, such as theft and warfare (Jackson et al., 2023).

Despite the widespread prevalence, little is known about how coexistence explanations for adverse life events impact

copied with misfortune, especially as compared to exclusively singular (i.e., natural or supernatural) explanations. Two fundamental questions guide the current study: (1) How do individuals impacted by misfortune in the biological domain (illness or death) construct explanations about these events<sup>1</sup>? And (2) how do explanations about misfortune impact psychological well-being?

To investigate these questions, we conducted structured interviews with Los Angeles (L.A.) residents who had suffered from a serious illness or bereavement in the past 12 months (2021-22). Los Angeles is a modern, cosmopolitan City in the United States. L.A. is also one of the most religiously and ethnically diverse cities in California (Qadeer, 2016; U.S. Census Bureau, 2020), providing insight into how variation in exposure and endorsement of supernatural conceptualizations of illness and death within a bounded geographical area affect causal reasoning and coping (Cooperman, Smith, & Ritchie, 2015; 2020 U.S. Census Bureau).

The study occurred amidst an evolving COVID-19 pandemic. Proceeding data collection in 2021, public debates over the bio-medical prevention and treatment of severe symptoms were predominant (Nagler et al., 2020). By December 2022—when data collection for the current study ended—around one in every three Angelinos had tested positive for COVID, 170,000 had been hospitalized due to COVID-19-associated illnesses, and almost 35,000 deaths were officially recorded (County of Los Angeles Public Health, 2022)<sup>2</sup>. Correspondingly, conducting the study during this time period facilitated conclusions about the employment of biological and supernatural explanations of misfortune when multiple are readily culturally available and personally consequential.

We operationalized psychological well-being as posttraumatic growth, measured by scores on the revised short form of the Posttraumatic Growth Inventory (PTGI). The PTGI measures positive change following highly challenging life circumstances. We selected this questionnaire because of its multidimensionality and predominance in the psychological literature on coping (Tedeschi & Calhoun, 1996; Shakespeare-Finch et al., 2013;

<sup>1</sup>We chose illness and death because our sample population would have comparable levels of scientific understanding about biological processes.

<sup>2</sup> These numbers likely represent an underestimation of COVID-19 statistics in Los Angeles because they only account for official reports of positive cases, deaths, vaccination, and hospitalizations.

Cann et al., 2010), and because the structure of PTGI enables insight into post-event processing, facilitating insight into the relationship between causal reasoning, cognitive processing, and coping.

We expected that the mean scores of participants who employed coexistence reasoning to explain illness or death would be significantly higher on the PTGI than those who employed a single explanation (i.e., natural or supernatural) for their misfortune alone due to what we coin here as *epistemological flexibility* in the causal appraisal of events.

Our hypothesis about epistemological flexibility as a protective factor of psychological health is grounded in the meaning-making model of coping (see Park & Folkman, 1997 for a review). Mounting evidence suggests that events, such as the loss of a loved one, compound psychological distress because the initial causal explanations are discordant with one's global system of meaning (i.e., basic internal cognitive structures that individuals construct about the nature of the world) and decisions regarding what can be done to cope with the event (Park & Folkman, 1997). For example, losing a parent due to COVID-19 is discrepant from global meaning about the world as a source of immanent justice. The extent of this discrepancy (i.e., the extent to which the causal explanation violates the person's global beliefs) determines the level of subsequent distress (see Park, 2010 for a review).

To decrease their distress, people can adopt multiple processes, such as adjusting their causal explanation of the event or revising their global meaning about the world to accommodate the new information (Parkes, 1993). These processes can restore a sense of control, predictability, or comprehensibility of the world, as reflected in higher levels of well-being and stress-related growth (McIntosh, Silver, & Wortman, 1993; Park, Cohen, & Murch, 1996).

Employing a single epistemological framework (i.e., natural or supernatural principles about the world) may leave individuals susceptible to psychological distress following adverse events because the single epistemological framework binds the causal explanation. By contrast, individuals who employ multiple epistemologies (i.e., supernatural and natural) have relatively more flexibility in their cognitive appraisal or reappraisal of the event's causes.

The presence of multiple epistemologies allows for a flexible tradeoff between natural and supernatural explanations, where there one type of reasoning may support well-being in a way that the other does not. For example, natural explanations may be more positive than supernatural explanations, such as being randomly exposed to germs that cause an illness *and* becoming ill from a divinely ordained punishment. Furthermore, the reasoning that "the virus caused my mother to die" *and* "God wanted her to be with my father" represents the tradeoff between a positive supernatural explanation and a negative natural explanation.

Concurrent research on social identity likewise demonstrates an association between holding multiple roles and psychological well-being; namely—the multiplicity of roles acts as a protective factor when one role is threatened or ends (Haslam et al., 2008; Nordenmark, 2004). We posit here that a similar cognitive process, holding multiple explanations for a single event—likewise serves as a protective factor in post-event processing.

We were also curious about whether potential differences would emerge depending upon the type of misfortune (i.e., illness or death) or the target of misfortune (i.e., whether illness occurred to the self or other). Important questions included whether coexistence reasoning was more or less likely to be employed when the worst social outcome has been abated—a loved one recovers from illness, than when actualized—a loved one dies. Or whether coexistence reasoning is used more or less frequently when the primary target of misfortune is another person—a loved one becomes gravely ill or dies— or the individual themselves—they become gravely ill? One likely possibility is that other factors moderate or even mediate the relationships between type, target, and frequency of coexistence reasoning, such as the perceived extent of control, prescribed actions readily culturally available, and subjective suffering. We did not collect data on these variables and are agnostic to the outcome of these inquiries.

## Method

This study was conducted in accordance with and approved by the Committee for Protection of Human Subjects at California State University, Northridge.

### Participants

A total of 147 volunteers met the criteria for the study sample<sup>3</sup>. Participants who did not complete the survey, did not live in Los Angeles County, and were under the age of 18 were excluded from this study ( $n = 20$ )<sup>4</sup>. Recruitment took place from April 2022 to December 2022. Participants reasoned about an illness (to them or another person) or the death of a loved one that occurred up to 12 months prior, between April 2021 and December 2022. Participants were recruited by students in the final author's classes at California State University, Northridge, in Los Angeles. Students advertised the study website to friends and family and on their social media accounts for extra credit.

Participants were Los Angeles adult residents who experienced a significant misfortune in the last 12 months from the date of the interview. The majority of participants identified as female (69.39%), followed by male (29.93%), and other or prefer not to say (0.68%), with a wide age range

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<sup>3</sup> The minimum sample size for this study was specified a priori  $N = 72$  based on previous research that used a similar design and procedure (Busch et al., 2017).

<sup>4</sup> This data is a subset of a larger sample that includes various types of misfortune in addition to illness and death ( $N = 286$ ).

of between 18 to 68 years old ( $M = 35.56$  years old)<sup>5</sup>. Aligning with the demographic make-up of Los Angeles as being one of the most ethnically diverse cities in the United States (Qadeer, 2016; U.S. Census Bureau, 2020), participants identified as Hispanic or Latino (42.18%), followed by White or Euro-American (22.44%), Multiracial (12.24%), Black or African American (8.16%), Asian (6.12%), Middle Eastern (6.12%), and less than 3% other or prefer not to say. The majority of participants (59.86%) identified as affiliated with a mainstream religious tradition (e.g., Christian, Jewish, Buddhist, Muslim), followed by participants who identified as being spiritual (20.41%), not religious (14.29%), and don't know or prefer not to say (5.44%). Income level was also representative of our diverse sample, where the mean income was between \$50,000-\$100,000. The level of education was skewed towards a higher education sample and representative of Los Angeles County: post-college degree (51.02%), college degree (23.81%), other education (14.29%), less than high school (2.27%), and prefer not to say (8.16%).

We also collected data on the type and target of misfortune. The majority of participants suffered from a loss of a loved one (69.39%), followed by a significant illness (30.61%). Of the participants who reasoned about the cause of a serious illness, most (51.11%) experienced the illness of a loved one, some (20%) reported an illness to themselves, and few reported an illness to themselves and others (8.89% reported a single illness episode that impacted both themselves and others). When asked, "Why do you think this misfortune happened to you?" 12.75% of participants mentioned COVID-19 as related to the death of a loved one, and 17.78% as related to the illness (see Table 1).

Table 1: Qualities of Misfortune.

| Misfortune                      | Death |       | Illness |       |
|---------------------------------|-------|-------|---------|-------|
|                                 | N     | %     | N       | %     |
| <b>Type</b>                     | 102   | 69.39 | 45      | 30.61 |
| <b>Target</b>                   |       |       |         |       |
| Illness of self                 | -     | -     | 9       | 20    |
| Illness of others               | -     | -     | 23      | 51.11 |
| Illness to self and others      | -     | -     | 4       | 8.89  |
| Unspecified                     | -     | -     | 9       | 20    |
| <b>Reasoning narrative</b>      |       |       |         |       |
| Other                           | 32    | 31.37 | 8       | 17.78 |
| Natural                         | 59    | 57.84 | 31      | 68.89 |
| Supernatural                    | 8     | 7.84  | 3       | 6.67  |
| Coexistence                     | 3     | 3.95  | 3       | 6.67  |
| <b>Reasoning: Forced choice</b> |       |       |         |       |

<sup>5</sup> Mean of age was calculated with a subset of our sample ( $N = 55$ ), data ( $N = 92$ ) were missing because this question was optional in the survey.

<sup>6</sup> Possible misfortunes listed for participants to choose that are beyond the scope of our study include: injury, mental health

|                         |    |       |    |       |
|-------------------------|----|-------|----|-------|
| Other                   | 12 | 11.76 | 8  | 17.78 |
| Natural                 | 46 | 45.10 | 23 | 51.11 |
| Supernatural            | 9  | 8.82  | 1  | 2.22  |
| Coexistence             | 35 | 34.32 | 13 | 28.89 |
| <b>COVID-19-related</b> | 13 | 12.75 | 8  | 17.78 |

## Design

Interviewers were senior-level undergraduate and graduate students in the final author's classes who conducted the interviews for credit as part of an experiential learning activity. The first author provided protocol instructions and an hour-long interview training session via Zoom for each interviewer. Participants were interviewed in person or via Zoom. Interviewees' responses were digitally recorded and transcribed into a Qualtrics e-survey within 48 hours of the interview. Recordings were deleted immediately after transcription. Personally identifying information such as last names or addresses was not recorded. The interview consisted of 56 questions and typically lasted 90 minutes.

After collecting demographic information and consent, participants were asked to think about an instance of misfortune they experienced over the past 12 months that significantly impacted their life. If a participant had multiple instances of misfortune, then they were instructed to think about the event that most impacted them as they answered the remaining questions. The main prompts and questions are presented below in the order they were asked. We used a combination of open and forced-choice questions to ascertain the frequency of spontaneously generated and quantifiably comparable explanations of theoretical interest in the study.

**Misfortune narrative** Participants provided a narrative about their misfortune via the following verbal prompt: "Describe an event or experience in the last 12 months that stands out from others as having the greatest impact on your life."

**Misfortune type: Forced choice question** Participants characterized the type and target of their misfortune from a list of possibilities<sup>6</sup>, including illness and the death of a loved one. Participants could select multiple types of misfortune. If participants selected an illness and death, misfortune was coded as death.

**Causal reasoning narrative** Participants provided a causal account of this misfortune by answering the question: "Why do you think this misfortune happened to you?" These responses were coded by hand by the research team who collected and then tallied keywords and phrases relating to laws of the natural world (such as biology causing a person to get sick) and religious/supernatural agents or forces (such

difficulties, financial difficulties, loss of relationship due to problems or estrangement, loss of property, social isolation, loss of job, natural disaster, accident, combat situation, or other.

as God, demons, or karma causing a person to get sick). If responses included both, they were coded as having coexisting explanations for their misfortune. If responses included neither natural or supernatural explanations, they were coded as having other explanations. Responses were also screened for misfortunes related to COVID-19 (e.g., illness or hospitalization with, and death from, COVID-19) through identifying keywords (e.g., "COVID-19", "COVID," "coronavirus," and "corona") in their narrative.

**Causal reasoning: Forced-choice question** Participants verbalized from a list of possibilities the extent to which each explained why their significant misfortune happened, using a 5-point scale, ranging from 0 (*does not explain at all why it happened to me*) to 4 (*completely explains why it happened to me*). Options included: Laws of the natural world (such as biology causing a person to get sick) and religious/supernatural agents or forces (such as God, karma, or evil spirits causing a person to get sick)<sup>7</sup>.

Participants were post-hoc divided into four groups dependent upon the minimum threshold of 1 (*explains a little why it happened to me*) for each option in the reasoning category: natural and supernatural. If participants selected 1 (*explains a little why it happened to me*) or higher for both natural and religious/supernatural agents or forces, then they were coded as employing coexistence explanations. If participants selected 0 (*does not explain at all why it happened to me*) for both categories, they were coded as employing other explanations.

**Posttraumatic Growth Inventory (PTGI)** Posttraumatic growth measures positive change following highly challenging life circumstances. It was measured here using a modified 10-item version of the revised Posttraumatic Growth Inventory (Kaur et al., 2017), which includes two questions each from the following areas of growth: *personal strength, new possibilities, improved relationships, spiritual growth, and appreciation for life*. Instead of the word "crisis" in the instructions and the 6-point Likert response format (e.g., "Indicate for each of the statements below the degree to which this change occurred in your life as a result of your crisis"), our version substituted the phrase "as a result of my misfortune" in the instructions as well as the word "misfortune" in the response choices. The PTGI items were rated on a 6-point scale ranging from 0 (*I did not experience this change as a result of my misfortune*) to 5 (*I experienced this change to a very great degree as a result of my misfortune*). Higher scores on this scale represent a positive transformation of the individual. The areas of growth provide

insight into areas that have changed significantly and areas that may need work or improvement.

## Results

Participants spontaneously generated natural reasoning most frequently as the cause of illness or death (61.22%) as compared to supernatural (7.48%), coexistence explanations (4.08%), and other explanations (27.22%) in the causal reasoning narrative (see Table 1 for percentages by misfortune type; see Table 2 for narrative causal reasoning excerpts). When participants were provided with a list of possibilities in the forced-choice causal reasoning question, almost half employed natural reasoning as the exclusive cause of illness or death (46.94%), coexisting explanations were employed around a third of the time (32.65%), exclusively supernatural explanations (6.8%), and (13.61%) employed other explanations to reason about their misfortune. Subsequent analyses were performed with causal reasoning responses from the forced-choice question.

Table 2: Examples of open-ended causal reasoning narratives by misfortune type.

|                   | Death  | Illness   |
|-------------------|--|---|
| Natural           | "The surgery weakened her immune system, and in turn, she got COVID."  | "Hereditary genes had to do with having the brain tumor."   |
| Supernatural      | "it has something to do with her ancestors and ... it's a form of karma."  | "That...they fulfilled their duty on Earth, or God missed them too much...."  |
| Coexistence       | "It's like God only knows when it's our time to go... misfortune is part of life to a normal thing. I would say part of nature." | "He actually did quit after his emergency hospitalization... Maybe this was a sign from God to help him quit for good." |
| Other explanation | "I think...[her]... death happened because it was an accident."  | "It just happened."   |

A chi-square test of independence revealed no significant association between causal reasoning and type of misfortune (illness or death,  $\chi^2(3, N = 147) = 3.80, p = .28$ ). Preliminary

<sup>7</sup> Ascertaining statistical patterns in the numerical scores for each option was considered to be outside of the scope of the current paper and thus was not included in our analyses.

analyses using chi-square tests of independence found no significant differences in the target of the illness (self or other), ethnicity, or religious and spiritual affiliation. These variables were collapsed in subsequent analyses.

### Causal Reasoning Type and Posttraumatic Growth

We conducted a two-way analysis of variance (ANOVA) to examine the effects of misfortune type and causal reasoning on Posttraumatic Growth Inventory (PTGI) scores. There was no main effect of misfortune type on PTGI scores ( $p = .55$ ). However, there was a main effect of causal reasoning and PTGI scores ( $F(3, 133) = 4.23, p < .01$ ). Participants who explained their misfortune using coexistence reasoning had higher PTGI scores ( $M = 33.02, SD = 11.94$ ) than those who employed supernatural reasoning ( $M = 26.3, SD = 11.62$ ), or natural reasoning ( $M = 23.94, SD = 13.04$ ) and other explanations ( $M = 24.43, SD = 16.71$ ). Tukey multiple comparisons of means revealed a statistically significant difference in PTGI scores between participants who employed natural and coexistence reasoning about their misfortunes ( $p < .01$ ) and other reasoning and coexistence reasoning ( $p < .05$ ). There were no statistically significant differences between the mean scores in the remaining pairs. This finding implies that coexistence reasoning is adaptive in a specific way: by helping people deal with the existential anxiety aroused by natural explanations alone. Figure 1 shows PTGI scores for the four causal reasoning groups for participants who were impacted by illness or death.

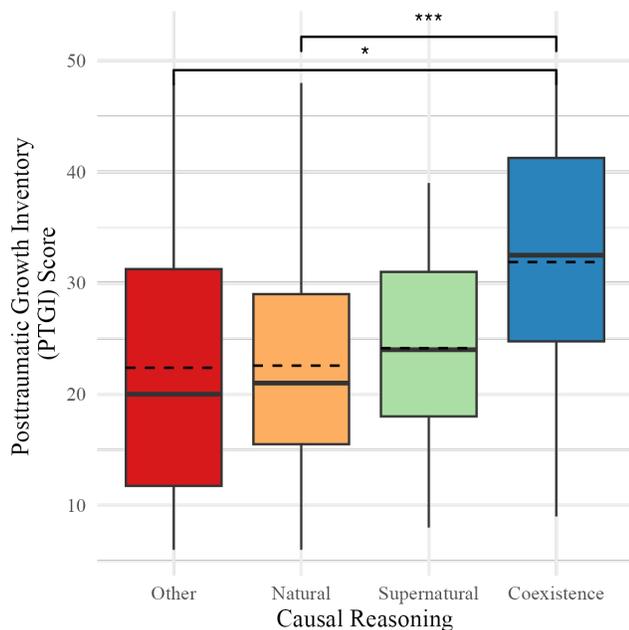


Figure 1: PTGI scores as a function of causal reasoning groups. Solid lines represent medians, and dashed lines represent means.

### Factors of Posttraumatic Growth

We ran chi-square tests of independence on all five factors to ascertain whether there were any differences in the areas of

posttraumatic growth. *Appreciation for life* had the highest posttraumatic growth score ( $M = 6.45, SD = 2.99$ ), followed by *personal strength* ( $M = 6.12, SD = 3.21$ ) and *improved relationships* ( $M = 5.96, SD = 3.35$ ). *New possibilities* ( $M = 4.43, SD = 3.37$ ) and *spiritual growth* ( $M = 4.15, SD = 3.76$ ) were significantly lower in growth score than the other three areas ( $F(4, 700) = 13.93, p < .001$ ; see Figure 2).

The causal reasoning employed in each posttraumatic growth area was not significant, except in the *spiritual growth* area, where coexistence reasoning had a statistically significant higher PTGI mean than the other types of reasoning ( $M = 6.40, SD = 3.67$ ). Thus, participants who employed coexistence reasoning had more *spiritual growth* within the first year following their misfortune.

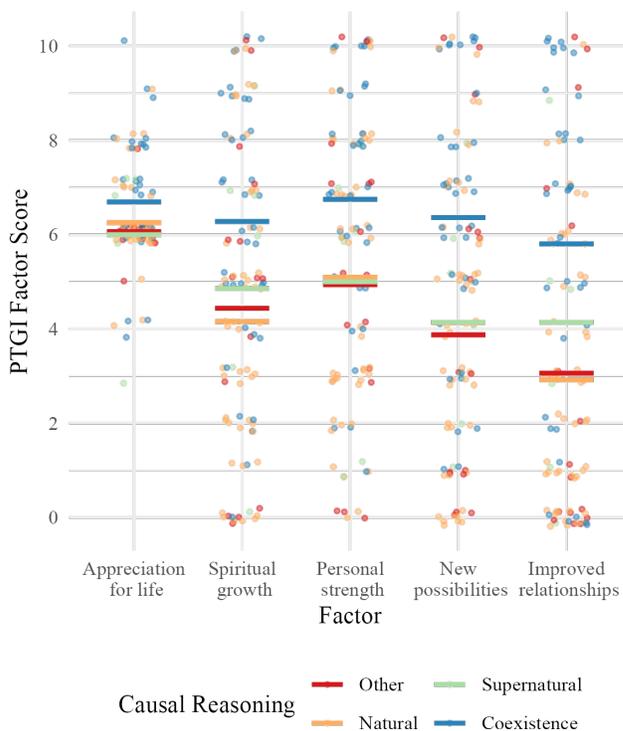


Figure 2: PTGI scores by posttraumatic growth factor and causal reasoning. Solid lines represent means, and dots represent participants.

### Discussion

We investigated associations between causal reasoning about personally consequential misfortune and psychological well-being in Los Angelinos. Four key findings are noteworthy.

First, natural reasoning was the most frequently endorsed explanation for illness and death. This finding is interesting and interpreted in light of the demographics, historical context of our study, and personal experiences of the interviewees. The majority of our participants had at least a college degree level education, and at minimum, a high-school level understanding of biological processes. The study was conducted during the COVID-19 pandemic when the cultural availability of biological theories of illness in the

United States was predominant. These factors may have made natural explanations readily accessible to Los Angelinos. In addition, almost 30% of our participants spontaneously mentioned COVID-19 as a causal factor in their misfortune, making biomedical explanations of viruses especially relevant to explain their suffering during a pandemic. We recommend that this study be replicated to ascertain the frequency of natural explanations in different historical circumstances.

Second, we found that coexistence reasoning was the second most frequently endorsed explanation when part of an explicit range of options presented to participants (i.e., natural and supernatural causes, 32.65%), bolstering previous claims that coexistence reasoning is pervasive across cultures (Legare et al., 2012), including in a modern cosmopolitan U.S. city which includes diverse ethnic-religious groups and amidst a global pandemic.

We note with interest that when part of an open-ended question (i.e., "Why do you think this misfortune happened to you?") coexistence reasoning was seldom spontaneously offered. This replicates previous work that supernatural explanations are given by participants when prompted to consider them (Lupfer, Tolliver, & Jackson, 1996; Wenger, 2001; Woolley, Cornelius, & Lacy 2011; Vaden & Woolley, 2011; Watts et al., 2020; Payir et al., 2021; Payir et al., 2022). This could be due to a fear of stigma and therefore reluctance to endorse supernatural explanations unless explicitly offered as a viable reason by an interviewer. Indeed, the frequency of only supernatural explanations was likewise low (6.8%).

Another possible explanation includes alternative causal pathways, such as people's willingness to endorse any causal explanation as true. If people differ in the extent that they are willing to endorse any causal explanation as true, with some people being more skeptical across the board than others, then people would be more likely to endorse things as causal explanations in the PTGI (e.g., "I experienced this change *as a result* of my misfortune") and also more likely to endorse both natural and supernatural explanations, both in the open-ended and forced-choice measures. This interpretation has implications for future research in accurately ascertaining the prevalence of supernatural and natural explanations in the United States.

Of further interest is the non-significant association between causal reasoning employed (natural, supernatural, coexistence) and the type (and target) of misfortune in both the narrative and forced-response question. This suggests that the type of misfortune and the target of misfortune (self, other) were not primary drivers of the explanatory preferences of our participants. As we pointed out in the introduction, however, future research ought to take into account additional factors (e.g., such as the perceived extent of control, prescribed actions readily culturally available, and subjective suffering) that may impact these relationships before drawing robust conclusions.

Third, we were likewise intrigued by the lack of significant associations between causal reasoning and ethnicity and causal reasoning and religious and spiritual affiliation. These

findings suggest that different kinds of supernatural conceptualizations (e.g., God, karma, and demons) within this bounded geographical area are employed in remarkably similar ways to explain misfortune.

Fourth, and most substantially, our findings also provide quantitative evidence of an association between causal reasoning about illness and death and coping with adversity in the United States amid a global pandemic. Namely, we found that individuals who employed coexistence reasoning to explain their misfortune had higher levels of posttraumatic growth than individuals who employed single frameworks to explain their misfortune, namely, natural or supernatural. These patterns of relationships are highly consistent with the prominent meaning-making model of coping in the psychological literature and provide initial support for what we coin the "epistemological flexibility" hypothesis. These findings also support that coexistence reasoning is adaptive, in a specific way, by helping people deal with existential anxiety aroused by natural explanations alone.

This support is suggestive but not conclusive. The study was cross-sectional and involved retrospective attributions of misfortune within 12 months of the event. We cannot claim that coexistence reasoning causes posttraumatic growth, nor can we ascertain how individuals employed coexistence reasoning before the adverse event. Future longitudinal studies could follow event-related cognitions over periods. Likewise, we did not account for all of the potential psychological or socio-demographic moderators, such as level of social support, prior mental health diagnoses, and perceived level of significant misfortune since the target event. Longitudinal designs are exceptionally well-placed to ascertain the impact of these variables on psychological outcomes.

An open question remains about whether, and to what extent, the relationship between coexistence reasoning and positive psychological outcomes persists across cultures. Results may depend upon the content of culturally predominant supernatural concepts. A preliminary glance at our open-ended data suggests that participants who provided explanations including supernatural causation (supernatural, coexistence) imbued supernatural agents with both positive and negative characteristics: God had a plan, and misfortune was a form of karma. Indeed, many participants endorsed natural explanations as a proximate, neutral cause (e.g., death as God stopping human suffering from a terminal illness).

By contrast, if God or supernatural agents are commonly construed as exclusively negatively involved in misfortune (e.g., causing death as a means of punishment or abandonment) in other contexts—in line with other research on the role of religion in coping—we may find poorer psychological outcomes from supernatural and coexistence reasoning (Exline et al., 2011; Hill & Pargament, 2003). To date, these questions remain unaddressed and worthy of future research.

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