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# Relational Attributions for One's Own Resilience Predict Compassion for Others

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Existing work on attribution theory distinguishes between external and internal attributions (i.e., "I overcame adversity due to luck" vs. "my own effort"). We introduce the construct of relational resilience attributions (i.e., "due to help from other people") as a critical, but overlooked form of external attribution that predicts compassion toward others. We first document the presence of internal, relational (social external), and situational (nonsocial external) resilience attributions among people who have overcome unemployment, showing the predominance of internal attributions (Study 1). Next, we show that relational attributions uniquely predict compassion toward people struggling to overcome a range of challenges, including losing a loved one (Study 2), quitting smoking (Study 3a), workplace bullying (Study 3b), divorce (Study 4a), and pandemic survival (Study 4b). To examine causality and the malleability of relational attributions, we experimentally induce relational attributions among ex-smokers (Study 5), advanced degree holders (Study 6), and those who completed a fatiguing task (Study 7). We further find that gratitude is one critical link between one's own relational attributions and compassion toward others. Despite the prevailing tendency for people to make internal attributions for their resilience, forming relational attributions is positively associated with greater compassion for others struggling to endure adversity.

*Keywords:* compassion, hot-cold empathy gap, social judgment, attribution theory

*Supplemental materials:* https://doi.org/10.1037/pspi0000438.supp



We often turn to those who have overcome specific life difficulties for their compassion and support. For example, new hires turn to seasoned employees for mentorship as they struggle with their new roles, and members of marginalized communities may appeal for support from policy makers who overcame similar structural barriers. Indeed, a large body of research shows that people who have been through a distressing or challenging event—from physical abuse to experiencing disability—tend to be more sympathetic toward others facing the same life event (e.g., Batson et al., 1996; Christy & Voigt, 1994; Clore & Jeffery, 1972; Hodges et al., 2010).

Yet, other research has shown that overcoming difficult events can reduce compassion for others struggling to cope with a similar event (Koo et al., 2023; Ruttan et al., 2015). This research has focused on a "hot-cold empathy gap," in which people tend to discount the emotional distress associated with difficult events, despite having personally experienced these struggles (Loewenstein, 1996; Nordgren et al., 2006, 2007; Van Boven et al., 2013; see also Feather, 1966, 1968; Lenney & Gold, 1982; Manderlink & Harackiewicz, 1984). The combined experience of not adequately recalling the emotional stress, and the knowledge of "I got through it," creates the perception that the event can be conquered, thereby reducing compassion toward other people struggling with similar circumstances ("Why can't you do it, too?").[1]

How do we reconcile these seemingly conflicting findings? To date, we know little about when prior experience with a difficult life event helps or hurts compassion, defined as "the feeling that arises in

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[1] While people recognize that enduring a distressing life event is challenging, there is a general expectation that people will manage to endure distressing events (e.g., Kim et al., 2010). For example, people recognize that being the target of bullying is an emotionally challenging event, but nonetheless expect individuals to cope in normatively appropriate ways, and not, for example, resort to physical violence. Yet, people often do not meet these normative expectations (e.g., Folkman & Moskowitz, 2004) and are negatively evaluated as a result (Ruttan et al., 2015). As in prior work on the hot–cold empathy gap, compassion toward those who struggle to endure distressing events is the focus of the current investigation (Nordgren et al., 2007; Ruttan et al., 2015).

witnessing another's suffering and that motivates a subsequent desire to help" (Goetz et al., 2010, p. 351). Existing research has only emphasized the difficulty of overcoming empathy gaps (e.g., Van Boven et al., 2003), suggesting that theory-based solutions are important but relatively rare. Therefore, understanding when overcoming adversity inhibits or enhances compassion raises novel insights about how people respond to those in need.

In the current article, we argue that when people have overcome a difficult life event (e.g., quitting smoking, facing a bully, completing graduate school), the attributions that they make for their own resilience is a key determinant of their compassion toward others who are struggling with similar circumstances. We argue that attributing one's own resilience to the help and support of other people is particularly consequential. Traditionally, research on attributions has focused on the distinction between internal and external explanations for events (e.g., Heider, 1958; Kelley, 1967; Weiner & Kukla, 1970), whereby internal attributions connect cause to the properties of the actor (e.g., disposition, attitudes) and external attributions connect cause to environmental factors external to the actor. Take the example of someone who successfully quit smoking. They may attribute their quitting primarily to their own self-control, the use of nicotine patches, or to the encouragement of family members. In this example, willpower would be an example of an internal attribution, whereas the latter two factors would both be considered external attributions. However, recent research would suggest that these two examples of external attributions are not equivalent. Recognizing that one has succeeded, in part, due to the help and support of others may be particularly relevant for encouraging compassion. In particular, prior work has shown that receiving help from other people can generate feelings of gratitude that ultimately lead to more enactments of compassion (i.e., prosocial behavior toward struggling others; Bartlett & DeSteno, 2006). Thus, by treating all attributions outside the self as external, traditional approaches to understanding attributions may mask distinct predictors of compassion.

Integrating these insights, we advance attribution theory by conceptually and empirically differentiating three types of self-reflective resilience attributions. Specifically, we distinguish internal resilience attributions, that is, attributing one's resilience to something internal about the self, from two types of external attributions: relational resilience attributions, that is, the extent to which people attribute positive outcomes from adversity (i.e., resilience) to the actions of other people (or groups of people), and situational resilience attributions, that is, the extent to which people attribute their resilience to nonsocial external factors. We propose that although people tend to make internal attributions, relational attributions are more predictive of how much people feel and behave compassionately toward others struggling to cope with similar life events.

## Relational Attributions for the Self's Resilience and Compassion for Others

Why might attributions broadly be important in predicting compassion toward others? Prior research has linked compassion toward an individual to attributions of that person's suffering (Goetz et al., 2010; Schopler & Matthews, 1965; Weiner, 1980). For example, people feel and behave more compassionately toward others who are perceived to be facing a distressing situation that is driven by external factors (e.g., war and natural disaster). By contrast, attributing that person's distressing situation to internal factors (e.g., lack of effort) elicits anger and contempt, inhibiting help giving (Goetz et al., 2010; Weiner, 1980). This past research examining the link between attributions and compassion generally relies on the researcher to provide information about the "why" behind a target's suffering. For example, in one study, participants read that a fellow student needed to borrow class notes either because the student did not take notes (internal attribution) or the professor did not give a clear lecture (external attribution). People were much more likely to help a peer when provided an external attribution than an internal one (Weiner, 1980; Study 1). Thus, prior studies examining the link between attributions and compassion have explicitly provided participants with information about how to make attributions about others' struggles. Although this research is insightful, attributions about others' circumstances and struggles are often not explicitly conveyed can be difficult to infer.

We propose that when observers are confronted with someone struggling with a challenge that they have personally overcome, a different focus of attribution may be particularly relevant: attributions for their own resilience. Research on egocentric projections suggests that people attempt to understand others' experiences by first consulting their own responses to emotional situations (e.g., Murray et al., 2002; Van Boven & Loewenstein, 2003; see Van Boven et al., 2013, for review). In this context, we argue that people make sense of others' struggles by consulting their own attributions—that is, the reasons they believe they successfully overcome similar events.

### *Attributions for the Self's Success*

Prior research on attribution theory has mainly drawn a distinction between two fundamental kinds of attributions: internal versus external (Goetz et al., 2010; Schmidt & Weiner, 1988; Weiner, 1985).[2] In brief, internal attributions have been used to describe instances in which people attribute life outcomes to a person's "internal" characteristics—for example, their genes, efforts, motivation, mental capacities, dispositions, and so forth. By contrast, external attributions have been used to describe instances in which people attribute outcomes to factors outside of the self—for example, one's environment, natural forces, or pure luck and chance (see Weiner, 1985, for review). A great deal of research has shown that the internal versus external distinction is central to several psychological phenomena, including person perception (e.g., Jones & Davis, 1965), judgments of praise and blame (e.g., Forgas et al., 1990), and motivation (e.g., Weiner & Kukla, 1970). When we are successful (or, more generally, engage in positive behaviors), we tend to make internal attributions, overestimating internal causes of our behavior, and underestimating external causes (Ames et al., 1977; Bradley, 1978; Small & Peterson, 1981; Taylor & Koivumaki, 1976; Wells et al., 1977; Zuckerman, 1979).

Although internal and external attributions are two fundamental dimensions, we posit that further differentiating external attributions into social (relational) and nonsocial (situational) factors is critical for identifying predictors of compassion. While prior work has conceptually collapsed relational and situational attributions into a

[2] Internal and external are frequently also referred to as person or situation causes, respectively (e.g., Heider, 1958; Malle, 2004).

single construct, some empirical findings have provided evidence that relational and situational attributions have unique psychological profiles. For example, Weiner and colleagues focused their study on how various internal (ability, effort) versus external (others, luck) attributions relate to affect in response to personal successes versus failures (Weiner et al., 1979). Whereas attributing performance to others for success (failure) resulted in feelings of gratitude (anger), attributing performance to luck resulted in feelings of surprise (anger). Thus, although "others" and "luck" were both conceived of as external attributions, they elicited differential emotions. This past research is limited in assessing our core claim because the study was not designed to compare relational and situational attributions, drawing on a limited sampling of these attributions, and relying on one short-term laboratory study. Beyond the lab, overcoming distressing life events is socially complex, suggesting that ongoing social support, mentoring, and other forms of relational aids are vital (e.g., Ozbay et al., 2008) and that relational attributions may be particularly relevant.

Indeed, empirical research examining attributions within dyads (e.g., romantic relationships, manager–subordinate relationships) and groups support the distinctiveness of relational attributions, finding that attributions often contain interpersonal elements, like crediting or blaming the relationship with a partner or coworker (Bradbury & Fincham, 1992; Eberly et al., 2011). For example, scholars have found that people frequently make relational attributions about breakdowns in their relationship (e.g., "My coworker and I missed our deadline because we don't communicate well with each other"; Eberly et al., 2011, 2017). While this research has focused on relationships in dyads and groups, it highlights how attributions about relationships directly influence relational outcomes, such as satisfaction and improvement behaviors (e.g., Eberly et al., 2017; Fincham & Bradbury, 1992). However, this literature tells us less about the relational attributions that people might make about themselves (e.g., "I gave a great presentation last month because my boss helped me"). Moreover, this work has focused on consequences for the focal relationship (e.g., attributing work performance to one's relationship with a supervisor increases relational improvement behaviors with that supervisor; Eberly et al., 2017), telling us little about the effects of relational attributions on the treatment of indirect others. Thus, building on the above insights, we use relational attributions to capture situations in which others' actions have shaped the self's positive outcomes, examining how these attributions affect compassion toward struggling third parties (i.e., those uninvolved in the original help provision).

### *Relational Resilience Attributions Predict Compassion via Gratitude*

There is strong theoretical rationale for why perceiving the self's resilience as facilitated by others cultivates compassion. Prior research shows that perceiving others' actions as beneficial is strongly linked to compassion and prosociality because it elicits a generalized sense of gratitude. Gratitude is a positive emotional response that involves uniquely interpersonal appraisals—specifically, gratitude arises when a benefactor's intentional actions are perceived to offer some benefit to the self's well-being or outcomes (e.g., Algoe et al., 2008; McCullough et al., 2001; Ortony et al., 1988). Because relational attributions involve attributing the self's resilience (a positive outcome) to the actions of other people (an interpersonal appraisal), we hypothesize that making relational attributions for resilience is linked to gratitude.

Although gratitude is an emotional response that is triggered by a benefactor, it often extends beyond that specific relationship and influences behavior toward other individuals. Gratitude has been proposed to be a moral affect, such that gratitude results from and stimulates moral behavior (McCullough et al., 2001) toward not only the original benefactor but also third parties (see Ma et al., 2017, for review). Consequently, gratitude drives both direct and indirect types of reciprocity (Chang et al., 2012; Halali et al., 2017; Simpson et al., 2018). In one empirical demonstration, Bartlett and DeSteno (2006) either induced gratitude via assistance from a benefactor or a neutral state and then examined helping behavior toward either the benefactor or a stranger. Relative to the neutral condition, gratitude increased helping toward both the benefactor and stranger. Beyond influencing helping, gratitude has also been consistently linked to forgiveness in the face of others' transgression (e.g., Breen et al., 2010), as it increases empathy and perspective taking of others' struggles (McCullough et al., 2001). These findings are consistent with Algoe's (2012) find–remind–bind theory of gratitude, which suggests that gratitude functions to strengthen social bonds, such that others' kindness increases the tendency for people to find new connections, remind them of the value of existing relationships, and bind and strengthen those social bonds. That is, a person who has been helped may help another person (resulting in finding new connections). Therefore, increasing feelings of gratitude should, in turn, be linked to increased compassion for others struggling to endure these events, ultimately leading to more prosocial acts for these individuals.

Given that relational resilience attributions invoke benefits received from others, we theorize that stronger relational attributions will prompt gratitude, ultimately generating greater compassion for others as well as helping behaviors. We contribute to the existing literature in three primary ways. First, existing research on attributions and compassion has largely assumed that attributions fall into two broad categories: internal and external (see Weiner, 1985, for review). Because coping with distressing life events is often inherently interpersonal (e.g., Thoits, 1986), we propose that external attributions encompass not only situational attributions that are nonsocial in nature (i.e., attributing one's own success to luck) but also relational attributions (i.e., attributing one's own success to the help and advice received from other people). By introducing relational attributions as a distinct construct, we highlight a critical type of attribution that is proposed to be uniquely linked to compassion toward others.

Second, whereas prior research has focused on how making attributions about targets' behaviors influences treatment of the target (e.g., Goetz et al., 2010; Piliavin et al., 1969; Schopler & Matthews, 1965; Weiner, 1980), our research investigates how the attributions that we make about our own experiences influences treatment of others. Indeed, less attention has been paid to the spontaneous causal attributions people form when thinking about their own prior experience, and how these attributions affect people's orientations toward others (see Malle, 2004, 2007, for similar critiques). In everyday life, people are rarely given clear information about what caused another person's behavior—for example, why someone remains unemployed or cannot escape poverty. We argue that the phenomenon studied here (i.e., how self-reflective attributions affect orientations toward others) is an

ecologically valid, yet understudied way in which attributions naturally arise and affect social interaction.

Third, existing research has emphasized the difficulty involved in overcoming empathy gaps. Empathy gaps persist even when people are given prompt and accurate feedback about their existence (e.g., Van Boven et al., 2003). Under what conditions, then, can compassion be ignited among those who have endured the same distressing experiences as struggling others? We posit that it is possible for individuals to engender greater relational attributions for overcoming hardships, and in turn, greater compassion for struggling others, through targeted interventions. By testing the malleability of relational resilience attributions, we offer a novel solution that resolves a fundamental puzzle in the literature: How to mitigate "hot–cold" empathy gaps that have proven resistant to intervention in past research (e.g., Van Boven et al., 2003).

## Research Overview

We begin by assessing whether internal, relational, and situational resilience attributions are indeed separable by exploring participants' naturally occurring attributions for resilience via self-report (Study 1). We also examine whether people predominantly make internal attributions (relative to relational and situational resilience attributions), consistent with the pervasive norms for understanding resilience in Western society and previous findings in the attribution theory literature (e.g., Ames et al., 1977). Then, we demonstrate that people's relational attributions are related to their compassion toward others struggling to cope with similar, distressing events. We test this claim by assessing naturally occurring individual differences in resilience attributions among those who have lost a loved one (Study 2), quit smoking (Study 3a), endured workplace bullying (Study 3b), divorce (Study 4a), and distress from the pandemic (Study 4b). We then experimentally induce relational resilience attributions among ex-smokers (Study 5), among those reflecting on the challenges of obtaining an advanced degree (Study 6), and those experiencing a fatiguing test in a behavioral lab paradigm (Study 7). Further, we explore whether gratitude serves as a mediator to explain why relational resilience attributions relate to compassion for struggling others (Studies 4b, 5, and 7).

All materials, measures, data, and preregistrations completed are available via the Open Science Framework (OSF; https://bit.ly/3nGflGw). For all studies, we have reported all conditions and data exclusions in the text. All studies and exploratory measures not reported in the text are available via our online Supplemental Materials and in our data posted on OSF. For clarity, the studies are presented in the logical order of the claims that they test rather than chronological order in terms of data collection. Specifically, we first (a) examine the prevalence of the three forms of resilience attributions at baseline, then we (b) uncover the relationship between resilience attributions and compassion, and finally (c) explore the potential malleability of resilience attributions. Within this structure, we also ordered by the presentation of evidence, such that some original studies were moved to the supplement and replaced with newer studies to address limitations and because some of the limitations raised in studies presented earlier in the article are addressed in studies presented later. We provide an overview of the evidence obtained in the studies both in the main text and the online Supplemental Materials in the Summary of Evidence and Additional Studies section.

## Study 1

The aim of the first study was to examine people's baseline resilience attributions—that is, to measure their default reasons for successfully overcoming distressing life events. We expected that North American participants would form stronger internal attributions than relational or situational. We further sought to test whether the proposed three resilience attributions (internal, relational, and situational) are indeed three separate factors, and to validate resilience attributions as a unique construct, examining their relationships with related constructs. Specifically, we examined locus of control (LOC), which captures the extent to which people believe that they (vs. external forces) have control over their lives (Rotter, 1966), and self-construal, an individual difference capturing the degree to which elements of the social world are included in the self (Markus & Kitayama, 1991). We also examined communal orientation, an individual difference reflecting the tendency to adhere to communal norms around helping (e.g., Clark et al., 1987), and the personality traits of agreeableness and extraversion given their documented relationships with prosociality (e.g., Graziano et al., 2007; Habashi et al., 2016). In Study 1, we examine resilience attributions among individuals who have overcome unemployment. We preregistered our data collection and scale analysis plan (https://aspredicted.org/STK_9H1).

### Method

#### *Participants and Procedure*

We sought to recruit 400 participants who had previously experienced unemployment. To do so, one thousand seven hundred participants on Prolific Academic first completed a screening survey that asked whether they were currently employed, had been previously unemployed, and whether they were seeking a job when they were unemployed. Those who answered yes to these questions qualified to complete the main study. Based on the results of this prescreening, we contacted 820 participants, which yielded 457 participants completing the full survey. We oversampled in the main survey to account for exclusions based on our qualification criteria. After excluding 55 participants who did not qualify (either because they reported they had never been unemployed or were not looking while unemployed in the main study), we had a final sample of 402 participants (44.8% women; $M_{age}$ = 39.64, $SD$ = 12.04; 4.0% Black, 5.5% Asian, 86.8% White, 1.0% Latinx, and 2.7% other race). Prior research has found that correlations typically stabilize at around $N = 250$; therefore, this sample size would be sufficient to capture stable correlations (Schönbrodt & Perugini, 2013). Moreover, an $N$ of approximately 400 is recommended for factor analyses when low communalities are possible and when factors are not adequately represented by at least four indicators (MacCallum et al., 1999). Participants completed the measures outlined below, in randomized order, and then completed descriptive measures surrounding their experience with unemployment (frequency of job search on a scale from 1 = *never* to 6 = *all of the time*; time since unemployment [open-ended]; number of jobs applied to before finding employment), and demographics (see OSF for survey materials).

#### *Measures*

**Resilience Attributions.** We captured resilience attributions using seven items, which we developed by adapting items used in

more general assessments of attributions (e.g., McFarland & Ross, 1982; Russell, 1982) to the more specific contexts and factors that might facilitate resilience.[3] To complete the measure, participants indicated the degree to which each of seven factors contributed to their ability to successfully overcome the distressing event on a scale from 1 = *not at all* to 7 = *very much so*.

Two items assessed internal attributions, "My own effort and perseverance," "My own ability (e.g., my willpower, interview or job skills"; $r = .76$),[4] two items assessed relational attributions, "Emotional support and help from the people in my life," and "Concrete tips, advice, and help from people in my life (e.g., putting me in contact with potential employers)" ($r = .52$), and three items assessed situational attributions, "Luck and chance," "The situation changed (e.g., the economy improved)," "Faith in a higher power" ($\omega = .44$). Each of the three subscales was averaged to create the resilience attribution scores.

**Locus of Control (LOC; Rotter, 1966).** Participants completed the 13-item forced-choice LOC scale (e.g., "Heredity plays the major role in determining one's personality" or "It is one's experience in life which determine what they're like"). Scores across the items were summed, such that a low score indicated an external LOC, and a high score indicated an internal LOC (KR-20 = .60).

**Self-Construal (Singelis, 1994).** Participants also completed the Self-Construal Scale, for which they rated 30 items, 15 that measured how much people see their self as separate from others (e.g., "I act in the same way no matter who I am with"; $\omega = .82$) and 15 that measure how much people see their self as connected to others (e.g., "It is important for me to maintain harmony within my group"; $\omega = .85$) on a scale from 1 = *does not describe me well* to 7 = *describes me very well*.

**Communal Orientation Scale (Clark et al., 1987; Mills & Clark, 1994).** Participants completed the 14-item measure of communal orientation, an individual difference reflecting the tendency to adhere to communal norms around helping (e.g., "When making a decision, I take other people's needs and feelings into account") on a 7-point scale from 1 = *extremely uncharacteristic* to 7 = *extremely characteristic* ($\omega = .88$). The items were averaged to create a communal orientation index.

**The Big Five Inventory–2 Extra–Short Form (Soto & John, 2017).** Participants completed the three-item extraversion (e.g., "full of energy"; $\omega = .63$) and three-item agreeableness (e.g., "compassionate, has a soft heart"; $\omega = .52$) items from the Big Five Inventory–2 Extra–Short Form on 5-point scales from 1 = *disagree strongly* to 5 = *agree strongly*.

## Results and Discussion

### Resilience Attributions: Three-Factor Structure and Prevalence

We conducted a series of confirmatory factor analyses using R to examine the factor structure of the resilience attributions measure and further distinguish it from similar constructs. To test that resilience attributions reside as three separate factors (internal, relational, and situational), we conducted confirmatory factor analyses using lavaan (Rosseel, 2012) in R with maximum likelihood estimation (Bentler & Dudgeon, 1996; Rosseel, 2012). A one-factor model displayed poorer fit with the data, $\chi^2(14, N = 402) = 208.92$, comparative fit index (CFI) = .62, root-mean-square error of approximation (RMSEA) = .19, standardized root-mean-square residual (SRMR) = .14. In contrast, the expected three-factor model displayed better fit with the data, $\chi^2(11, N = 402) = 20.20$, CFI = .98, RMSEA = .05, SRMR = .04. Supporting the distinctiveness of the three components of resilience attributions, a chi-squared difference test showed that the model fit improved significantly from the one-factor to three-factor model, $\Delta\chi^2(\Delta 3, N = 402) = 188.72$, $p < .001$.

Because the situational attribution items were only moderately correlated, we also conducted the same factor analysis without the "faith in a higher power" item, which was least correlated with the other two situational items and captured a separate construct of religiosity.[5] We find similar results for the shortened scale with the two-item situational factor that excluded the faith item: a one-factor model displayed poorer fit with the data, $\chi^2(12, N = 402) = 174.54$, CFI = .66, RMSEA = .21, SRMR = .14. In contrast, the expected three-factor model displayed better fit with the data, $\chi^2(6, N = 402) = 2.43$, CFI > .99, RMSEA < .001, SRMR = .009. Supporting the distinctiveness of the three components of resilience attributions, a chi-squared difference test showed that the model fit improved significantly from the one-factor to three-factor model, $\Delta\chi^2(\Delta 3, N = 402) = 172.11$, $p < .001$.

Examining the extent to which participants endorsed the three types of resilience attributions, a repeated measures analysis of variance found differences in the extent to which individuals made internal, situational, and relational resilience attributions, $F(2, 802) = 316.90$, $p < .001$, $\eta^2 = .44$. Pairwise tests with Bonferroni correction found that participants made stronger internal attributions ($M = 5.54$, $SD = 1.13$, 95% CI [5.43, 5.65]) than they did relational attributions ($M = 4.36$, $SD = 1.44$, 95% CI [4.21, 4.50]), paired $t(401) = 13.86$, $p < .001$, $d = 0.92$, and situational resilience attributions (three items, $M = 3.53$, $SD = 1.09$, 95% CI [3.42, 3.63] and two items, $M = 4.10$, $SD = 1.23$, 95% CI [3.98, 4.23]), paired $t$s > 16.56, $p$s < .001, $d$s > 1.22. Participants also indicated higher levels of relational than situational attributions, $t$s > 2.99, $p$s < .003, $d$s > 0.19. While prevalence is not a main focus of the subsequent analyses, we do present the results for baseline attributions across studies (where available) in the Summary of Evidence and Additional Studies section.

### Related Constructs

Table 1 presents the means and zero-order correlations between the variables measured in Study 1. As shown in the table, providing convergent validity, relational resilience attributions correlate positively with communal orientation ($r = .26$, $p < .001$), relational

[3] Two additional scale validation studies are available in Supplemental Studies 2 and 3, pp. 24–27.

[4] We present Spearman–Brown correlations that are preferred for two item scales across all studies (Eisinga et al., 2013; Romero et al., 2012). For scales with more than two items, we report McDonald's Omega.

[5] We note that one item ("faith in a higher power") had inconsistent and lower correlations with the other situational items (see online Supplemental Materials) and was sometimes more highly correlated with the relational items—a point to which we return in the discussion. As a result, in our correlational studies, we examine the effects of situational resilience attributions both with and without this item. Please see the online Supplemental Materials for all results when this item is excluded (p. 18). We also report the correlations between each item and compassion (online Supplemental Materials, p. 18).

**Table 1**
*Means, Standard Deviations, and Correlations for the Variables Measured in Study 1*

| Variable | *M* | *SD* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Internal attributions | 5.54 | 1.13 | — | | | | | | | |
| 2. Relational attributions | 4.36 | 1.44 | .12* | — | | | | | | |
| 3. Situational attributions | 3.53 | 1.09 | −.03 | .30*** | — | | | | | |
| 4. Communal orientation | 4.94 | 0.83 | .25*** | .26*** | −.03 | — | | | | |
| 5. Relational self-construal | 4.45 | 0.76 | .14*** | .40*** | .24*** | .41*** | — | | | |
| 6. Independent self-construal | 4.64 | 0.74 | .26*** | .04 | .09 | .08 | <.001 | — | | |
| 7. Locus of control | 5.47 | 2.47 | .25*** | .01 | −.09 | −.11* | <.001 | .31*** | — | |
| 8. Extraversion | 2.66 | 1.02 | .17*** | .05 | .08 | .06 | −.02 | .41*** | .31*** | — |
| 9. Agreeableness | 3.90 | 0.91 | .17*** | .25*** | .05 | .56*** | .44*** | −.01 | −.01 | .06 |

* $p < .05$. *** $p < .001$.



self-construal ($r = .40$, $p < .001$), and agreeableness ($r = .25$, $p < .001$). Relational attributions did not correlate with independent self-construal, LOC, and extraversion ($rs > .01$, $ps > .32$). Additional analyses of discriminant validity found that models that treated the resilience attribution factors as distinct from related constructs were a better fit of the data relative to models that treated these related constructs as integrated with the resilience attribution factors. We report these analyses in the online Supplemental Materials (p. 2).

In Study 1, in the context of overcoming unemployment, we find evidence that internal, relational, and situational attributions are distinct, and vary in prevalence, such that participants formed stronger internal resilience attributions for overcoming unemployment than they did situational or relational resilience attributions. Additionally, we present evidence that resilience attributions are related to, but distinct from similar psychological constructs.

One observed limitation of the measurement of resilience attributions was the lower reliability of the situational subscale. A possible explanation for this low reliability is that the resilience attributions measures are indicators theorized to cause a latent construct, as opposed to measurement where the items are indicators of a latent construct. That is, luck and faith are not indicators of a "situational attribution" latent psychological construct, but are rather, antecedents of a "situational attribution" construct. Because there are many different antecedents that generate situational attributions, there will not necessarily be positive correlations between the scale items (Loehlin, 2004). For instance, some participants might believe in religious faith while others believe in luck but not faith, or still others who believe that the situation simply changed. To test whether these items are nonetheless perceived to match the theoretical construct, we conducted a test of content validity, which provided support for the definitional correspondence and distinctiveness of the items (see Supplemental Study 1, p. 21).

## Study 2

In Study 2, we explored free-response attributions for resilience, examining whether the three theorized types of attributions emerged without the prompting of scale items. Additionally, Study 2 provided an initial test of the relationship between resilience attributions and compassionate responding. Specifically, we used a paradigm in which participants wrote about two difficult life events and then were asked to write messages to individuals who were struggling with similar life events. Coders rated the degree of internal, situational, and relational factors invoked in participants' free-response descriptions, as well as the emotional supportiveness of the messages to others (i.e., compassionate responding).

### Method

#### *Participants*

We sought to recruit a sample of approximately 800 U.S.-based participants on Prolific. We successfully recruited 821 participants who selected yes to the following screener "I have experienced the death of a close loved one, more than a year ago" to ensure a sufficient number of participants had a serious difficult life event to write about ($M_{age} = 36.92$, $SD = 13.94$; 63.1% women). The sample was 84.8% White, 8% Asian/Pacific Islander, 2.8% Black, 0.6% Latinx, and 3.9% other.

#### *Procedure*

Upon beginning the study, participants were told that we were interested in better understanding how individuals cope with suffering at work and overcoming challenging life events. All participants were asked to briefly list three difficult experiences that they had to overcome (e.g., "cancer diagnosis"). We did not specifically tell participants to discuss the death of a close loved one due to ethical concerns that participants might not be comfortable doing so. Instead, we reasoned that our selection on this criterion into the study would ensure that there would be sufficient number of participants with a relatively serious event that they could potentially choose from to discuss.

Two of these listed events were then randomly selected for each participant. We used this procedure to reduce the possibility of participant selection or order effects across described events, such as participants choosing certain topics to write about first. Participants were then asked to describe, in depth, the factors that were most helpful or important to overcoming each challenge. We chose to elicit attributions based on these free responses to capture participants' natural explanations without specific prompts that may influence their thoughts (e.g., Malle et al., 2000). Separately, participants were asked what specific advice they would give to someone else facing a similar situation. Of the potential for 1,642 event descriptions, 1,132 events were described sufficiently for categorization and 1,071 events were fully codable on all variables (for instance, blank text, or text of "I can't" and "nothing" and

"being told" could not be coded). No additional exclusions were made. Research assistants categorized the type of event that participants listed into five groups: death of a loved one ($n = 406$), romantic relationship problems/breakup ($n = 185$), relationship conflict at work ($n = 124$), task difficulty at work ($n = 319$), and caretaking of a loved one ($n = 98$).

We trained four independent and hypothesis-blind research assistants to code participants' descriptions of the factors that enabled them to overcome the distressing events, as well as their messages to others currently facing those events. Specifically, for the distressing events, the coders were given the definitions of the constructs and examples and then rated the degree to which responses captured internal, situational, and relational resilience attributions, on a 5-point Likert scale from 1 = *not mentioned at all* to 5 = *entirely*. For example, writing coded as "entirely" relational included, "Support from close friends, supportive management (for example for allowing grievance days and checking in), support from family" whereas an example of writing that was "not at all" relational included, "nothing helped me overcome it, over time I just accepted it and got on with life" (see online Supplemental Materials, p. 6, for coding manual).

For the advice to others, coders rated participants' advice on a 7-point Likert scale assessing the degree to which each message was emotionally supportive (from 1 = *strongly disagree* to 7 = *strongly agree*).[6] The scale instructions also included examples (for instance, advice coded as 1 included "do not sit and mope in your misery" whereas advice coded as a "7" included, "Listen to your heart, be strong and get all the help you can, you deserve it!")

Coders worked on an initial set of 25 participants' data together to align with their interpretations, and then coded the data independently in sets of 50–100 before coming together to discuss any questions and checking in with the authors on their interpretation as needed. Reliability between coders was calculated with an intraclass correlation coefficient (ICC; two ways, mixed), which indicated that agreement was moderate to excellent for each resilience attribution dimension ($ICC_{internal} = .85$, $ICC_{situational} = .61$, $ICC_{relational} = .91$) and emotional supportiveness (ICC = .65; Cicchetti, 1994). Individual coders' scores were averaged to create a composite for each event.

## Results and Discussion

Because there were multiple events described by the same participant, the data were nested, violating assumptions of linear regression. Therefore, we used a multilevel model to address this concern (see the results in Table 2). There is a positive, significant relationship between relational attributions and compassionate responding. No other resilience attributions relate significantly to emotional supportiveness. We note that the relationship between relational resilience attributions and emotional supportiveness remained significant while controlling for event type, $B = 0.11$, $SE = 0.05$, $p = .031$ (see online Supplemental Materials, p. 7).

The results of Study 2 provide initial support for the relationship between relational resilience attributions and compassion, finding that naturally arising explanations of how people overcame distressing life events predicted a behavioral measure of compassionate responding. At the same time, this study was limited in several ways. We are neither able to say conclusively whether the selection among respondents to choose certain events to describe, or differences in their interpretations of events shaped the results, nor whether the cross-sectional measurement of these descriptions and outcomes shaped the results. Moreover, these coded attributions explained only a modest amount of variance in compassionate responding. This paradigm introduced substantial variance in recalled events, participants' natural descriptions, and in the coding, which may have introduced error in estimating the relationships between variables. We therefore build on these limitations with different paradigms and greater control in later studies.

# Study 3

In Studies 3a and 3b, we examine the correlational relationships between resilience attributions and compassion for others currently struggling to cope with distressing life events. We test our hypotheses among samples of those who have previously endured distressing life events, including those who have quit smoking (Study 3a) and faced workplace bullying (Study 3b).

## Study 3a: Method

### *Participants*

We aimed to recruit 165 American participants who successfully quit cigarette smoking via a Qualtrics panel. The panel service included participants who answered "no" to the question "Do you currently smoke (at least one cigarette per day)?" and "yes" to the question "Have you ever smoked regularly (at least one cigarette per day for at least 30 days consecutively)?" who consented to participate, and passed an attention check asking them to type "psychology" into an open-ended text box. After removing six participants who failed our prespecified criteria (i.e., who spent less than 10 s reading the vignette), we had 166 participants (27.1% men; $M_{age} = 47.23$; 3.0% Black, 2.4% Asian, 84.3% White, 2.4% Latinx, 4.8% other). A G*Power analysis revealed that we would have 95% power to detect a medium effect, which was our estimate at the time this study was run based on related literature (e.g., Bartlett & DeSteno, 2006). The results are robust to the inclusion of the excluded participants.

### *Procedure*

Participants responded to the prompt, "Please indicate the extent to which each of the following factors influenced your quitting smoking" on a scale from 1 = *not at all* to 7 = *very much so*. Two items captured internal resilience attributions (e.g., "my own effort"; $r = .88$), another two items captured relational resilience attributions (e.g., "the help and support of others"; $r = .40$), three items captured situational resilience attributions ("aids to quit smoking (e.g., the patch, nicotine gum, treatment programs)," "luck and chance," and "restrictions on smoking"; $\omega = .52$). Note that these items differ slightly from the relational and situational subscale used in the other studies (see online Supplemental Materials for results at the item level).

[6] Other forms of compassionate responding, such as offering instrumental help, would not be captured in this paradigm or coding scheme. All data are available for supplemental coding via our OSF page.

**Table 2**
*Multilevel Regression Examining Emotional Supportiveness as a Function of Resilience Attributions*

| | | | 95% CI | | | | |
|---|---|---|---|---|---|---|---|
| Fixed effects parameter | Estimate | *SE* | *LL* | *UL* | *df* | *t* | *p* |
| (Intercept) | 4.02 | 0.04 | 3.94 | 4.09 | 750 | 102.46 | <.001 |
| Internal | 0.01 | 0.05 | −0.09 | 0.12 | 1,067 | 0.20 | .84 |
| Relational | 0.10 | 0.05 | 0.002 | 0.21 | 1,068 | 1.99 | .047 |
| Situational | 0.03 | 0.06 | −0.08 | 0.15 | 1,056 | 0.54 | .59 |

*Note*. *SE* = standard error; CI = confidence interval; *LL* = lower limit; *UL* = upper limit; *df* = degree of freedom.

After completing five filler questions that asked about daily habits (e.g., "How many servings of vegetables do you consume on a typical day?") that were used to help mask the hypotheses and exploratory measures,[7] participants completed the key dependent measure. Specifically, participants read a vignette about an individual who struggled to quit smoking because he could not endure the cravings, despite his motivation to quit. The main dependent measure was participants' feelings of compassion (i.e., compassion, sympathy) toward the target on 7-point scales from 1 = *not at all* to 7 = *very much so* (Nordgren et al., 2007; $r = .91$). The mean of these two items provided the compassion score. Participants also completed several control measures related to their experience with smoking: an open-ended measure asking how long ago they quit smoking and the number of attempts to quit on an 11-point scale from 1 to 11. They also completed demographic measures, including gender, age, education, religiosity (1 = *not at all religious*; 7 = *extremely religious*), and race/ethnicity.

## Results

We examined the relationships between resilience attributions and compassion, regressing compassion onto the relational, internal, and situational resilience attribution scores, and found that relational attributions positively predicted compassion, $\beta = 0.25$, $SE = 0.08$, $p = .004$, while internal attributions, $\beta = -.07$, $SE = 0.15$, $p = .361$, and situational attributions, $\beta = -.02$, $SE = 0.10$, $p = .804$, were not significantly related to compassion. We note that, across studies, none of the resilience attributions interact with each other to predict compassion, $\beta$s < 0.21, $SE = 0.08$, $p$s > .117. Further, the significant relationship between relational attributions and compassion held when controlling for age, religiosity, education, gender, and race/ethnicity, $\beta = .21$, $SE = 0.09$, $p = .019$, and the event-based controls (time since quitting, number of attempts), $\beta = .20$, $SE = 0.09$, $p = .026$.

## Study 3b: Method

The goal of this study was to examine whether higher levels of relational resilience attributions (among people who have previously endured workplace bullying) would positively predict compassion for someone struggling to cope with workplace bullying. We preregistered the study design and analysis plan at https://aspredicted.org/kx4h3.pdf.

### *Participants*

We aimed for 250 participants recruited via a panel on Prolific Academic (all participants came from the United Kingdom, the United States, and Canada). We decided to recruit 250 participants in Study 3b to achieve more stable estimates (Schönbrodt & Perugini, 2013).

We recruited participants across two waves of data collection. In the first wave, we recruited participants who had responded "yes" to the question "I've been bullied at work (that is, I've been a victim of emotional, physical, and/or verbal abuse)" in their intake surveys at Prolific (and therefore independently had answered this question, outside of our study). Within that sample, 55 participants had never been bullied, and 39 participants indicated ongoing bullying at work (thus, failing to meet the "previously endured bullying" qualification). Excluding these individuals left us with 156 total participants out of our proposed sample of 250. In order to achieve our preregistered sample size, we conducted a second wave of data collection. Assuming that a similar percentage of the new sample (~36%) would not qualify for the study, we posted for an additional 142 slots on Prolific (a decision that was also preregistered at https://aspredicted.org/tb4ja.pdf). We note that, although this decision was made following initial data collection, we nonetheless wanted to preregister our next wave of data collection to capture our stopping rule in advance. After excluding participants based on our prespecified criteria, we had 258 total participants (67.4% women; 1.6% Black, 3.1% Asian, 86.4% White, 2.3% Latinx, and 6.6% other). The results below are robust to the inclusion of 63 participants who indicated that they were currently experiencing bullying at work (available via OSF).

### *Procedure*

At the beginning of the survey, participants indicated their gender, and whether they had ever been bullied or severely teased at the workplace (yes/no) to ensure accuracy in the Prolific panel as mentioned above. They also indicated for how many months they were bullied at the workplace, to capture bullying length. Participants then completed the resilience attributions scale, responding to the prompt, "Compare yourself now to when you were first going through the workplace bullying. To what extent do you credit any progress toward each of the following factors." The scale entailed two items assessing internal attributions ("my own effort and perseverance," "my own ability [e.g., my willpower]"; $r = .90$), two items assessing relational attributions ("emotional support

[7] Participants also completed exploratory measures that we thought may be related to both resilience attributions and compassion (i.e., guilt and shame over smoking, autonomous vs. controlled motivation for quitting, the permanence and controllability of the factors that shaped quitting, perceived event difficulty) to help further explore these constructs and relationships. These results are available in the online Supplemental Materials (p. 9).

and help from the people in my life," "concrete tips and advice about how to handle the situation from people in my life"; $r = .76$), and three items assessing situational attributions ("luck and chance," "the situation changed; e.g., the bully left the organization; change to workplace bullying policy," "faith in a higher power" $\omega = .39$; $r_{2\text{-items}} = .38$).

To assess compassion, participants read about a person who was being bullied at work, and despite their motivations to handle the situation, started to avoid work and quit unexpectedly. The main dependent measure was again the average of two items assessing participants' feelings of compassion (i.e., compassion, sympathy) toward the bullying victim on 7-point scales from 1 = *not at all* to 7 = *very much so* (Nordgren et al., 2007; Rozin et al., 1999; $r = .94$). Finally, participants indicated the extent of bullying experienced in childhood on a 5-point scale from 1 = *I wasn't bullied at all* to 5 = *Extremely serious*, and provided demographic information (including gender, race, education, religiosity, and political orientation). Political orientation was measured on a scale from 1 = *extremely liberal* and 7 = *extremely conservative*, and religiosity was measured on a scale from 1 = *not at all religious* to 7 = *extremely religious.*

## Results

Providing support for our main hypothesis, participants who held higher levels of relational resilience attributions were significantly more compassionate toward the target, $\beta = .18$, $SE = 0.05$, $p = .005$. Contrary to an initial preregistered prediction, internal resilience attributions were not negatively related to compassion, $\beta = .06$, $SE = 0.06$, $p = .373$, and consistent with our predictions, situational resilience attributions were not related to compassion, $\beta = -.04$, $SE = 0.06$, $p = .501$.[8]

Further, relational attributions remained a significant predictor of compassion after we controlled for political ideology, other demographic characteristics (i.e., religiosity, education, gender, race/ethnicity), as well as bullying length and childhood bullying controls (see Table 3).

This study showed that, among those who were bullied at work, those with stronger relational resilience attributions reported feeling more compassion toward someone struggling to cope with bullying.

**Table 3**
*Regression Analyses in Study 3b*

| Predictor | Model 1 | Model 2 |
|---|---|---|
| Internal attributions | .06 [.06] | .06 [.06] |
| Relational attributions | .18** [.05] | .16* [.05] |
| Situational attributions | −.04 [.06] | −.01 [.07] |
| Bullying length | | .10† [.006] |
| Prior bullying severity | | .04 [.08] |
| Education | | −.02 [.07] |
| Religiosity | | .002 [.05] |
| Political orientation | | −.08 [.05] |
| Race | | −.001 [.23] |
| Gender | | −.12† [.17] |
| $R^2$ | 0.04 | 0.07 |

*Note.* Dependent variable is compassion. Standard errors are reported in parentheses. Gender is coded such that 1 = male, 0 = other. Race is coded such that 1 = White, 0 = non-White.
† $p < .10$. * $p < .05$. ** $p < .01$.

## Study 3: Discussion

Across Studies 3a and 3b, relational attributions uniquely predicted greater compassion for struggling others, whereas internal and situational resilience attributions were unrelated to compassion. Study 3a showed that, among ex-smokers, relational resilience attributions were positively related to compassion toward someone who was struggling to quit smoking. Similarly, Study 3b showed that among those who were bullied at work, participants who formed stronger relational resilience attributions reported feeling more compassion for someone who was struggling at work because of workplace bullying. One observed limitation is again the weak reliability of the situational subscale. This issue is, in part, driven by low correlations with the faith in higher power item. To be consistent with our theorizing and preregistration documents, we present the results of the composite in the main text. However, the results of both the situational attribution composite without this item, as well as the correlations between each item and the compassion measure are available for Studies 3 and 4 in the online Supplemental Materials. We note that the results are comparable with or without this item.

# Study 4

The primary aims of Studies 4a and 4b are to test whether the relationship between relational attributions and compassion (a) holds when accounting for alternative explanations and (b) extends to new contexts to further investigate the generalizability of these findings. Specifically, we measure and control for possible third variables—notably LOC, trait agreeableness, communal orientation, and social value orientation—that might influence both the tendency to form relational resilience attributions and compassion.

## Study 4a

In Study 4a, we examine whether relational attributions predict compassion in the context of divorce. We measured individual differences in LOC (Rotter, 1966) and trait agreeableness, which has been linked to compassion and prosocial behavior (e.g., Graziano et al., 2007; Habashi et al., 2016). Trait agreeableness was also significantly correlated with relational attributions in Study 1, while an internal LOC was related to internal attributions. We preregistered our design and analysis plan at https://aspredicted.org/8j3zx.pdf.

## Method

### *Participants*

We aimed for 250 participants by recruiting from a panel of self-identified divorced individuals registered on Prolific Academic. Anticipating potential attrition across multiple surveys (see below for further details), we oversampled at Time 1 ($N = 360$, yielding $N = 353$ with complete data). Consistent with our preregistration

[8] In our preregistration document for this study, we planned to conduct correlational analyses, which are available in the online Supplemental Materials (p. 11). For additional robustness and consistency with other studies, we present with the regression results analyses in the main text. The correlational results are consistent with the regression results.

document, we stopped data collection 1 week after the Time 2 data collection slots were posted, which yielded 252 total participants ($M_{age}$ = 53.10, $SD_{age}$ = 11.11; 72.2% women; 2.8% Black, 1.6% Asian, 89.7% White, and 4.0% other).[9]

### Procedure

To keep the study length manageable and to maintain data quality, we separated the study into two different sessions. At Time 1, participants completed the individual difference measures (the Big Five measures and LOC; see Measures section). At Time 2 (5 days later), participants who completed surveys at Time 1 were contacted and provided with a link to a second survey. At Time 2, participants first completed descriptive measures surrounding their experience with divorce and the seven-item resilience attributions scale.

Participants then read a vignette about an individual who was struggling with the emotional distress of divorce and did not show up for a presentation at work and then indicated their level of compassion toward the individual. To account for differences in experience with divorce, participants also completed descriptive measures surrounding their experience with divorce (see Measures section). Finally, participants completed the demographic measures as in previous studies.

### Measures

**Ten-Item Personality Inventory.** Participants indicated the extent to which two items for each of the Big Five personality dimensions described them on a scale from 1 = *strongly disagree* to 7 = *strongly agree* (Ten-Item Personality Inventory; Gosling et al., 2003). The Spearman–Brown internal consistency index ranged from .30 for openness to experience to .64 for neuroticism, which is consistent with what has been observed in other studies using this instrument (e.g., Romero et al., 2012).

**Locus of Control.** Participants completed the same 13-item forced-choice LOC scale used previously (Rotter, 1966). Scores across the items were summed, such that a low score indicated high external LOC and a high score indicated high internal LOC (KR-20 = .70).

**Resilience Attributions.** Participants responded to the prompt, "Compare yourself now to when you were first going through the divorce. To what extent do you credit any progress to each of the following factors" by completing the same seven resilience attributions as in previous studies (internal $r$ = .92; relational $r$ = .71; situational $\omega$ = .37; $r_{2\text{-items}}$ = .25).

**Compassion.** Participants again indicated their compassion toward the target using the same two-item measure (compassion, sympathy) as in the previous studies ($r$ = .95).

**Additional Measures.** Participants indicated their relationship satisfaction before the divorce on a scale from 1 = *not at all satisfied* to 7 = *very satisfied* and the extent to which the decision to divorce was driven by one partner versus was a mutual decision (e.g., "How much did you personally desire a divorce?" "How much did your partner desire a divorce?" and "To what extent was your desire for a divorce your partner's mutual?") on 7-point scales from 1 = *not at all* to 7 = *very much so*. Participants also indicated if they had children from the relationship and their ages in an open-ended question.

## Results

The correlations among the key variables are available in Table 4. Consistent with the results of the previous studies, regression analyses revealed that those who held stronger relational resilience attributions were significantly more compassionate toward the target, $\beta = .23$, $SE = 0.05$, $p < .001$. Situational attributions were not related to compassion, $\beta = -.03$, $SE = 0.07$, $p = .614$, nor were internal attributions, $\beta = .10$, $SE = 0.07$, $p = .120$. Relational attributions remained a significant predictor of compassion after we controlled for all Big 5 personality traits, LOC, demographic characteristics (age, education level, gender; see Table 5), and event-based controls (length of time since divorce, mutual desire for a divorce, prior relationship satisfaction), $\beta = .19$, $SE = 0.05$, $p = .001$ (see Supplemental Table S8, p. 11).

We note that in addition to relational attributions, other variables were significantly linked to compassion. Specifically, neuroticism, agreeableness, and openness to experience predicted compassion. Both openness to experience and agreeableness have been linked to compassion and prosociality in past research (e.g., Carlo et al., 2005; Graziano et al., 2007), and those more prone to negative affect (neuroticism) may be more compassionate toward others' struggles with distress (e.g., Lee, 2009). Religiosity also predicted compassion, as did a more liberal political orientation, suggesting the role of ideology in predicting compassion toward others' struggles with distressing life events. Thus, relational resilience attributions are one of many possible predictors of compassion, but the effect remains significant when controlling for these additional predictors.

The results of Study 4a again demonstrate that the link between relational resilience attributions and compassion holds when accounting for potential trait-based third variables. We note that a similar study (Supplemental Study 6, p. 35) replicates the relationship between relational resilience attributions and compassion in the context of divorce. This study is included in the online Supplemental Materials because it does not include the individual difference variables and because of potential redundancy with Study 4a.

## Study 4b

In Study 4b, we examined resilience attributions in a new and important contemporary context: coping with the stress of the pandemic lockdowns. We also measured the theorized mechanism (gratitude) and attended to additional potential alternative accounts: Specifically, we measured communal orientation, which was correlated with relational attributions in Study 1, and social value orientation, which captures the tendency toward focusing more on the self's versus other's outcomes (Van Lange et al., 1997).

We hypothesized that the effect of relational resilience attributions on compassion would be mediated by gratitude and that these relationships would persist when controlling for individual differences in prosociality (communal orientation and social value orientation). We preregistered our design and analysis plan at https://aspredicted.org/gc3fc.pdf.

[9] In our preregistration document, we noted that we would examine the data with and without participants who wrote nonsensical responses to an open-ended question asking participants to indicate what influenced their responding to the target. For the sake of maintaining data quality and keeping the length manageable, we did not include this open-ended question in the survey, so we did not exclude any participants based on this criterion.

**Table 4**
*Correlations Between Resilience Attributions and Other Variables in Study 4a*

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Internal | — | | | | | | | | | | | | |
| 2. Relational | .25*** | — | | | | | | | | | | | |
| 3. Situational | .10 | .28*** | — | | | | | | | | | | |
| 4. Conscientiousness | .20** | .11 | −.01 | — | | | | | | | | | |
| 5. Extraversion | .25*** | .22*** | .11 | .17** | — | | | | | | | | |
| 6. Agreeableness | .21*** | .25*** | .10 | .21*** | .24*** | — | | | | | | | |
| 7. Neuroticism | −.28*** | −.12 | −.004 | −.47*** | −.29*** | −.39*** | — | | | | | | |
| 8. Openness | .16* | .04 | .007 | .11 | .29*** | .18** | −.21*** | — | | | | | |
| 9. Locus of control | .14* | .04 | −.02 | .36*** | .18** | .14* | -.36*** | — | — | | | | |
| 10. Education | .06 | .09 | .03 | .02 | −.10 | −.03 | −.11 | −.009 | .05 | — | | | |
| 11. Religiosity | .08 | .14* | .47*** | .18** | .15* | .21** | −.11 | .03 | .23*** | −.04 | — | | |
| 12. Gender (1 = male; 0 = other) | −.28*** | −.20** | −.06 | .11 | −.17** | −.14* | −.08 | .05 | −.26*** | .002 | −.04 | — | |
| 13. Age | −.02 | −.23*** | −.08 | .12 | .008 | .06 | −.10 | .07 | .19** | −.009 | .07 | −.12* | — |
| 14. Race (1 = White; 0 = non-White) | .006 | −.08 | −.12 | −.07 | .009 | .04 | −.04 | −.06 | −.04 | −.02 | −.17** | .01 | .19** |

*Note*. $N = 247–252$ due to missing data.
* $p < .05$. ** $p < .01$. *** $p < .001$.

## *Method*

**Participants.** We aimed to have at least 250 participants. Anticipating potential attrition at Time 2, we oversampled at Time 1 ($N = 360$). Consistent with our preregistration document, we stopped data collection 1 week after the Time 2 data collection slots were posted, which yielded 308 participants with complete data (40.3% women; $M_{age} = 37.08$, $SD_{age} = 12.76$; 4.9% Black, 12.7% Asian, 68% White, 4.2% Latinx, 10.2% other race).

**Procedure.** To keep the study length manageable and maintain data quality, participants completed the individual difference measures at Time 1 and then were contacted 5 days later to complete the second part of the study. At Time 2, participants first completed the resilience attribution measures. Participants then completed the dependent measure of compassion by first reading a vignette about an individual who was struggling with the pandemic and was turning to substance use, ultimately shirking work because of these struggles. Participants then indicated their compassion toward the target and completed the gratitude measure. Finally, participants completed the same demographic measures as in the previous studies.

**Table 5**
*Regression Analyses in Study 4a*

| Predictor | Model 1 | Model 2 |
|---|---|---|
| Internal attributions | .10 [.07] | .10 [.07] |
| Relational attributions | .23*** [.05] | .19** [.06] |
| Situational attributions | −.03 [.07] | −.12 [.08] |
| Conscientiousness | | .02 [.08] |
| Extraversion | | −.07 [.06] |
| Agreeableness | | .14* [.08] |
| Neuroticism | | .16* [.07] |
| Openness to experience | | .14* [.08] |
| Locus of control | | −.05 [.04] |
| Education | | .03 [.07] |
| Political orientation | | −.18* [.06] |
| Religiosity | | .21** [.05] |
| Race | | .005 [.30] |
| Gender | | −.02 [.20] |
| Age | | −.02 [.008] |
| $R^2$ | 0.07 | 0.18 |

*Note*. Dependent variable is compassion. Standard errors are reported in parentheses. Gender is coded such that 1 = male, 0 = other. Race is coded such that 1 = White, 0 = non-White. Political orientation was measured such that 1 = *extremely liberal* and 7 = *extremely conservative*.
* $p < .05$. ** $p < .01$. *** $p < .001$.

**Measures.**

***Communal Orientation Scale (Clark et al., 1987; Mills & Clark, 1994).*** Participants completed the 14-item measure of communal orientation (e.g., "When making a decision, I take other people's needs and feelings into account") on a 7-point scale from 1 = *extremely uncharacteristic* to 7 = *extremely characteristic* ($\omega = .86$).

***Triple-dominance Measure of Social Values (Van Lange et al., 1997).*** Participants completed nine decomposed games, in which they chose among three options involving the distribution of points between the self and a hypothetical other. For example, participants chose among: Option A: 480 points for the self, 80 points for the other; Option B: 540 points for the self, 280 points for the other; Option C: 480 points for the self, 480 points for the other. Option A captures the competitive choice because it provides a larger difference favoring the self over the other, whereas Option B captures the individualistic choice because the self's own outcomes are larger than in Option A or C, and C captures the prosocial choice because it provides a larger joint outcome than do the other two options. Consistent with prior research, participants were classified as prosocial, competitive, or individualistic if they made at least six choices consistent with one of these social value orientations; participants were unclassified if they did not.

***Resilience attributions.*** Participants again responded to the prompt, "Compare yourself now to when you were first going through the COVID-19 pandemic and quarantines. To what extent do you credit any progress to each of the following factors," and completed the two internal attribution items ($r = .90$), the two relational items ($r = .67$), and the three situational items ($\omega = .36$; $r_{2\text{-items}} = .48$).

***Gratitude.*** Participants completed a three-item measure of gratitude adapted from Bartlett and DeSteno (2006) asking them the extent to which they felt grateful, thankful, and appreciative, on a

scale from 1 = *not at all* to 7 = *very much so* (ω = .97), when thinking about the factors that contributed to their successful enduring of pandemic difficulties.

***Compassion.*** Participants again indicated their compassion toward the target using the same two-item measure (compassion, sympathy) as in the previous studies ($r$ = .89).

### *Results and Discussion*

See Table 6 for the correlations among the key variables. Providing support for our main hypothesis, participants who held higher levels of relational resilience attributions were significantly more compassionate toward the target, β = .24, $SE$ = 0.07, $p$ < .001. Situational attributions were not related to compassion, β = .10, $SE$ = 0.08, $p$ = .093, and internal attributions were negatively related to compassion, β = −.13, $SE$ = 0.07, $p$ = .025.

Importantly, relational resilience attributions remained a significant predictor of compassion after we controlled for communal orientation, social value orientation, and demographic characteristics (political orientation, age, education level, gender, and religiosity; see Table 7). Communal orientation also positively predicted compassion, and an individualistic orientation negatively predicted compassion—findings that are consistent with past research (e.g., Declerck & Bogaert, 2008). Thus, traits related to higher levels of other-orientation also serve as predictors of compassion toward those in distress.

**Mediation Analyses.** We examined the extent to which the positive relationship between relational resilience attributions and compassion could be mediated by feelings of gratitude. First, we observed that relational resilience attributions predicted gratitude, β = .44, $SE$ = 0.05, $p$ < .001, and gratitude predicted compassion, β = .24, $SE$ = 0.06, $p$ < .001. Using PROCESS Model 4 (Preacher et al., 2007), we found that gratitude mediated the relationship between relational attributions and compassion, indirect effect = .09, $SE$ = .04, 95% CI [.02, .16].

Taken together, the results of Studies 4a and 4b provide further support for the relationship between relational resilience attributions and compassion for someone struggling to cope with the same difficult life event. We further document that resilience attributions predict compassion when including individual differences that capture the general tendency to be other-oriented in the analysis. Finally, we find initial evidence that this relationship is mediated by feelings of gratitude. However, given the correlational nature of these data, we avoid drawing causal conclusions here and test this pathway in the subsequent experiments.

## Study 5

The remaining studies provide causal tests of the proposed effect of relational resilience attributions on compassion. In Study 5, we randomly assigned a sample of ex-smokers to think about their success in quitting based on internal or relational factors.[10] We also collected data from those who have never smoked (no experience condition) and from current smokers (current experience condition) to examine whether having ex-smokers reflect on relational factors could elicit levels of compassion comparable to current smokers (who readily have greater access to the affective state of craving and therefore are less subject to the empathy gap; Nordgren et al., 2007). We predicted that adopting relational resilience attributions would increase compassion (similar to compassion levels of current smokers) relative to adopting internal resilience attributions. We again measured gratitude, hypothesized to mediate the effect of the relational resilience attribution manipulation on compassion.

### Method

#### *Participants*

Participants were 431 American adults recruited via Amazon's Mechanical Turk. An analysis in G*Power revealed that we had 99% power to detect a medium-sized main effect across the four groups, which was our estimate at the time this study was run based on related literature (e.g., Bartlett & DeSteno, 2006). We excluded $n$ = 48 participants who did not complete the manipulation as instructed, failed the attention check asking them to write "question" when asked what the study was about, and/or spent fewer than 5 s reading the vignette (as per our decision criteria specified in advance). The data with these participants included are available via OSF. Our final sample included 145 ex-smokers, 76 current smokers, and 162 never smokers (42.0% women; $M_{age}$ = 33.92; 8.1% Black, 8.6% Asian, 80.9% White, 7% other).

#### *Procedure*

Participants first completed a questionnaire indicating their current smoking status (i.e., ex-smoker, never smoker, current smoker). Ex-smokers were randomly assigned to one of two conditions. We adapted an attribution manipulation from McFarland and Ross's (1982) study, whereby participants in the internal resilience attribution condition selected the top two factors that facilitated their quitting, among a list of five internal factors (e.g., willpower, being disciplined). Participants then elaborated on these factors in response to the prompt, "In the space below, please now elaborate on how these 2 reasons facilitated your ability to quit." In the relational resilience attribution condition, participants similarly selected the top two factors that facilitated their quitting, but among a list of five relational factors (e.g., social support, helpful advice from other people), and then completed the same writing task. Participants who never smoked or who currently smoked proceeded to the next stage of the experiment.

Next, all participants read a vignette about a man struggling to quit smoking and completed the same compassion measure as the previous studies ($r$ = .91). Participants who completed the experimental manipulation also indicated how grateful they were currently feeling, using a five-item scale similar to the scale used in Study 4 (e.g., grateful; ω = .97).

To measure whether our manipulation had their intended effect, ex-smokers then completed the resilience attribution items, indicating the degree to which the factors they described in their writing during the manipulation captured internal ("my own efforts toward quitting,"

[10] See our online Supplemental Materials for a pilot conducted prior to the full launch of this study (Supplemental Study 10, pp. 46–47), which also included a situational resilience attribution condition. The situational resilience attribution condition did not significantly differ from the never smoked group and the internal resilience attribution condition, consistent with the studies across the article showing no relationship. We observed participants in the relational attribution condition were significantly more compassionate than those in the never smoked group and marginally more so than in the internal condition. We only collected data for the internal and relational resilience as our comparisons of interest in the experiment.

**Table 6**
*Correlations Between Resilience Attributions and Other Variables in Study 4b*

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Internal attributions | — | | | | | | | | | |
| 2. Relational attributions | .36*** | — | | | | | | | | |
| 3. Situational attributions | .22*** | .35*** | — | | | | | | | |
| 4. Communal orientation | .17** | .32*** | .10 | — | | | | | | |
| 5. Prosocial orientation | −.10 | −.04 | −.003 | .29*** | — | | | | | |
| 6. Individualistic orientation | .06 | .02 | −.01 | −.28*** | −.81** | — | | | | |
| 7. Political orientation | .07 | −.04 | .27*** | −.18** | −.09 | .05 | — | | | |
| 8. Age | .11 | −.007 | .09 | −.06 | .04 | −.05 | .12* | — | | |
| 9. Education | −.04 | .20*** | .13* | .10 | .005 | .03 | .03 | .08 | — | |
| 10. Religiosity | .07 | .14* | .54*** | .11 | .05 | −.06 | .48*** | .05 | .14* | — |
| 11. Gender (1 = male; 0 = other) | −.02 | −.04 | −.07 | −.27*** | −.10 | .13* | .19*** | −.03 | .005 | .04 |

* $p < .05$. ** $p < .01$. *** $p < .001$.

"my ability to quit"), relational ("the help and support of others"), or situational (e.g., "luck and chance") resilience attributions. Participants also completed descriptive measures about their smoking behavior (e.g., frequency, length of smoking, number of attempts to quit smoking; see all measures via our OSF page) and demographics.

## Results

### *Resilience Attributions*

Participants in the relational resilience attribution condition reported that they were significantly more likely to write about relational factors ($M = 5.37$, $SD = 1.76$, 95% CI [4.97, 5.76]) in their essays than were those in the internal condition ($M = 3.85$, $SD = 2.29$, 95% CI [3.29, 4.41]), $t(143) = 4.52$, $p < .001$, $d = 0.75$. Participants in the relational condition were also less likely to report writing about internal factors ($M = 5.82$, $SD = 1.11$, 95% CI [5.94, 6.43]) than were those in the internal condition ($M = 6.18$, $SD = 0.99$, 95% CI [5.94, 6.43]), $t(143) = -2.04$, $p = .044$, $d = 0.34$. Condition did not affect situational attributions, $p = .304$. Taken together, these results suggest that our manipulation had the intended effect.

**Table 7**
*Regression Analyses in Study 4b*

| Predictor | Model 1 | Model 2 |
|---|---|---|
| Internal attributions | −.13* [.07] | −.12* [.07] |
| Relational attributions | .24*** [.07] | .17** [.07] |
| Situational attributions | .10 [.08] | .16* [.09] |
| Communal orientation | | .16** [.11] |
| Social Value Orientation 1 (prosocial) | | −.07 [.31] |
| Social Value Orientation 2 (individualistic) | | −.22* [.35] |
| Political orientation | | −.21*** [.06] |
| Age | | .01 [.007] |
| Education | | −.01 [.08] |
| Religiosity | | .01 [.06] |
| Race | | .11* [.19] |
| Gender | | −.05 [.18] |
| $R^2$ | 0.07 | 0.23 |

*Note.* Dependent variable is compassion. Standard errors are reported in parentheses. Demographic variables are coded as in Study 4a. For the social value orientation measure, participants were classified as prosocial, individualistic, competitive, or unclassified. Social Value Orientation 1 captures 1 = prosocial, 0 = other categories. Social Value Orientation 2 captures 1 = individualistic, 0 = other categories.
* $p < .05$. ** $p < .01$. *** $p < .001$.

### *Compassion*

A one-way analysis of variance revealed a significant effect of our conditions on compassion, $F(3, 379) = 15.74$, $p < .001$, $\eta^2 = .111$. Post hoc Tukey tests revealed that participants in the relational attribution condition were significantly more compassionate toward the struggling smoker ($M = 5.22$, $SD = 1.52$, 95% CI [4.86, 5.57]) than were those in the internal attribution condition ($M = 4.24$, $SD = 1.71$, 95% CI [3.86, 4.63]), $t(143) = 3.67$, $p = .002$, $d = 0.60$, and those in the never smoked group ($M = 3.95$, $SD = 1.67$, 95% CI [3.71, 4.20]), $t(239) = 5.79$, $p < .001$, $d = 0.77$. Notably, relational attributions made ex-smokers indistinguishable from current smokers ($M = 5.09$, $SD = 1.35$, 95% CI [4.73, 5.44]), $t(153) = 0.51$, $p = .957$, $d = 0.09$, suggesting that relational attributions closed the empathy gap (see Figure 1). By contrast, participants in the internal attribution condition exhibited less compassion than current smokers, $t(140) = 3.15$, $p = .009$, $d = 0.55$, but were comparable to never smokers, $t(226) = 1.24$, $p = .599$, $d = 0.17$.

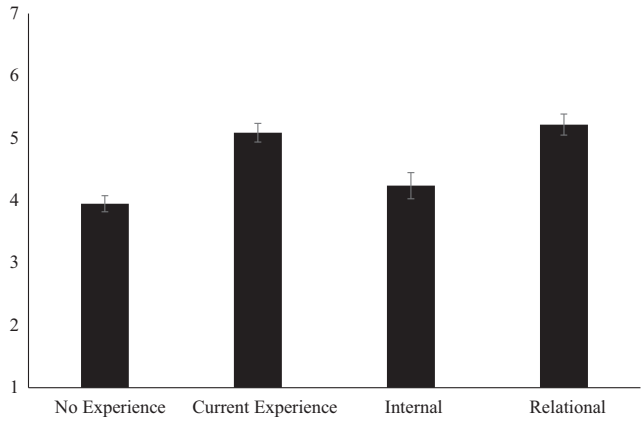
### *Mediation*

Among the ex-smokers, participants in the relational attribution condition felt more gratitude ($M = 5.60$, $SD = 1.44$, 95% CI [5.26, 5.94]) than did participants in the internal attribution condition ($M = 5.03$, $SD = 1.65$, 95% CI [4.66, 5.41]), $t(143) = 2.22$, $p = .028$, $d = 0.37$. Additionally, feelings of gratitude predicted compassion, $\beta = 0.26$, $SE = 0.09$, $p = .002$. We examined the extent to which the effect of relational attributions on compassion was explained by feelings of gratitude using PROCESS Model 4 (Preacher et al., 2007) and found that gratitude indeed mediated the relationship between condition and increased compassion, indirect effect = .13, $SE = .09$, 95% CI [.006, .346]. The direct effect remained, however, suggesting partial mediation.

## Discussion

Taken together, the results of Study 5 provide causal support for our central hypothesis: Participants randomly assigned to focus on the

**Figure 1**
*The Effect of Smoker Group on Compassion in Study 5 (±SE)*




*Note*. *SE* = standard error.

relational factors that allowed them to quit smoking were subsequently more compassionate toward someone struggling to quit. Moreover, feelings of gratitude partially mediated this relationship. These results are consistent with our correlational studies. Importantly, participants in the relational attribution condition were as compassionate as the current smokers were, suggesting that relational resilience attributions can close the empathy gap.

## Study 6

Study 6 exposed participants to different prompts that were intended to evoke internal or relational attributions (between-subjects). We conducted this study in two phases—before and after the manipulation—which allowed us to examine differences in attributions from baseline. At Time 1, all participants were asked to reflect on the factors that facilitated them overcoming the challenges they faced in earning an advanced degree (i.e., the extent of internal, situational, and relational attributions). Then, at Time 2, half of the participants were exposed to an internal attribution manipulation, while the other half were exposed to a relational attribution manipulation. Following the manipulation, participants indicated the degree of compassion they felt toward another individual who was also struggling to complete an advanced degree and completed the same attribution items as in Time 1.

We predicted that at Time 1, the majority of participants would endorse higher levels of internal attributions. However, at Time 2, those exposed to relational attribution condition, would show higher levels of relational attributions than at Time 1, and greater compassion toward the target. In this manner, we are able to observe the degree of change in attributions as a function of the manipulation, and how, in turn, these Time 2 attributions relate to compassion.

### Method

#### *Participants*

We recruited 500 participants from Prolific Academic who indicated having completed an advanced degree in their intake survey for Prolific (outside of our study). A total of 501 adults completed the study (47.7% women; $M_{age} = 40.64$, $SD_{age} = 13.26$; 9.0% Black, 9.0% Asian, 75.8% White, 3.4% Latinx, 2.8% other).

#### *Procedure*

Participants were instructed to think about their most advanced degree when completing the survey. At Time 1, participants were first asked to consider the factors that enabled them to successfully complete graduate school. They completed the seven-item resilience attribution scale used in previous studies, by responding to the prompt: "Different people have different factors that enabled them to successfully complete graduate school, and we want to know which of the following you felt primarily influenced your successful completion of graduate school." Two items again captured internal attributions ($r = .76$), two items captured relational attributions ($r = .67$), and three items capturing situational attributions ($\omega = .52$; $r_{2\text{-item}} = .54$) to assess their perceptions of how they were able to successfully complete graduate school.

For the manipulation, participants were asked to either reflect on how "internal factors such as your willpower, motivation to complete the program, skills and expertise in your program area, and your discipline" or "relational factors, such as social support or encouragement from family, friends, and others, sharing the experience of graduate school with peers, or concrete tips and advice from mentors" shaped their successful completion of graduate school.

To measure compassion, participants then read a scenario in which a motivated graduate student was facing strong feelings of burnout and initiating the process of dropping out. Afterward, they completed the compassion measure (i.e., compassion, sympathy; $r = .93$) as in the previous studies. Participants then completed the attribution measures again to examine shifts from Time 1.

To account for possible extraneous variance in graduate school experiences and also to mask the study's purpose, participants completed a host of measures relevant to their graduate school experience: how many years they were in graduate school (from 1 to 10+), how long ago they were in graduate school (open-ended), which college or university they attended (open-ended), whether or not they had a supervisor (yes/no), and their relationship with that supervisor (from −3 = *very negative* to +3 = *very positive*), the extent to which people got "kicked out" of the program, and the extent to which people "dropped out" of the program, both on scales from 1 = *very frequently* to 5 = *never*, and their perceived performance relative to peers (from −3 = *worse than average* to +3 = *better than average*), and information about their current jobs (whether they are full-time, part-time, or other, and their current job title).

### Results and Discussion

#### *Attributions*

At Time 1, the majority of participants in both conditions provided the highest ratings for internal attributions ($M = 6.02$, $SD = 0.89$, 95% CI [5.94, 6.10]), followed by relational ($M = 4.36$, $SD = 1.46$, 95% CI [4.24, 4.49]), followed by situational attributions ($M = 3.19$, $SD = 1.18$, 95% CI [3.09, 3.30]), all paired $t$s > 16.64, $p$s < .001, $d$s > 0.74, again suggesting that baseline attributions are highly internal in nature. Time 1 attributions did not vary by

experimental condition (all *p*s > .390), indicating that there were no failures of randomization.

Examining the change in attributions as a function of the manipulation, exposure to the relational attribution manipulation significantly increased relational attributions ($M_{T1} = 4.43$, $SD = 1.46$, 95% CI [4.25, 4.61] vs. $M_{T2} = 4.73$, $SD = 1.47$, 95% CI [4.55, 4.91]), paired $t(252) = 5.98$, $p < .001$, $d = 0.38$, decreased situational attributions ($M_{T1} = 3.16$, $SD = 1.11$, 95% CI [3.01, 3.30] versus $M_{T2} = 3.01$, $SD = 1.15$, 95% CI [2.87, 3.16]), $t(252) = 4.56$, $p < .001$, $d = 0.29$, and internal attributions remained unchanged ($M_{T1} = 5.98$, $SD = 0.88$, 95% CI [5.88, 6.09] vs. $M_{T2} = 5.99$, $SD = 0.90$, 95% CI [5.88, 6.10]), $t(252) = 0.07$, $p = .946$, $d = 0.004$. In contrast, exposure to the internal attribution prompt did not increase internal ($M_{T1} = 6.05$, $SD = 0.89$, 95% CI [5.94, 6.16], vs. $M_{T2} = 6.11$, $SD = 0.88$, 95% CI [5.99, 6.22]), $t(246) = 1.95$, $p = .052$, $d = 0.12$, decreased situational ($M_{T1} = 3.23$, $SD = 1.25$, 95% CI [3.09, 3.38] vs. $M_{T2} = 3.08$, $SD = 1.27$, 95% CI [2.93, 3.23]), $t(246)$=4.30, $p < .001$, $d = 0.27$, and relational attributions remained unchanged ($M_{T1} = 4.29$, $SD$ 1.47, 95% CI [4.11, 4.48] vs. $M_{T2} = 4.24$, $SD = 1.48$, 95% [4.06, 4.43]), $t(246) = 1.07$, $p = .288$, $d = 0.07$.

### *Compassion*

Participants in the relational attribution condition reported higher (but nonsignificantly) levels of felt compassion toward the target ($M = 5.49$, $SD = 1.28$, 95% CI [5.32, 5.65]) than did those in the internal attribution condition ($M = 5.26$, $SD = 1.35$, 95% CI [5.10, 5.43]), $F(1, 499) = 3.68$, $p = .056$, $\eta^2 = .007$.[11]

The Time 2 measure of attributions also enabled us to examine whether differential responding to the manipulation shaped compassion. Thus, we examined the path between condition, Time 2 relational attributions, and compassion using Model 4 of PROCESS. The results revealed a significant indirect effect, $b = .11$, $SE = .04$, 95% CI [.05, .18], indicating that there was a significant indirect effect of relational attribution condition on compassion which was driven by increasing Time 2 relational attributions.

## Study 7

Across studies, we have observed that people are more prone to making internal resilience attributions. This tendency, however, raises the question of to what extent, and under what conditions, do people naturally form more relational attributions instead of defaulting to internal attributions? In prior studies, we studied the effects of relational attributions in naturalistic contexts by prompting individuals to recall how they overcame their challenges. Although relying on real-world experiences increases the generalizability of our findings, one downside is that not everyone may have received help from other people, or this help may not be salient. To address this challenge, we developed a new preregistered (https://aspredicted.org/t5zb3.pdf) paradigm in which all individuals received help on a difficult task prior to our manipulation of attributions. We expected people in the baseline to form more relational attributions than they might otherwise by ensuring that all participants received help during a difficult task. As in other studies, we then exposed people to either internal or relational attributions or a control condition.

Study 7 was a two-part study. At Time 1, participants got to know another real Prolific participant in a "getting to know you" task and completed a cognitively demanding task, ostensibly with the help of the other participant. At Time 2, we implemented the resilience attribution manipulation. We then examined compassion and prosocial behavior toward someone who struggled with the same difficult task.

### Method

#### *Participants*

We recruited 650 participants to complete the study at Time 1. Four days later at Time 2, all participants who qualified (that is, were successfully paired with another Prolific participant and completed the study at Time 1), were invited to participate. After excluding participants who did not meet our preregistered criteria ($n = 38$), we were left with 416 participants (54.1% women; $M_{age} = 38.72$, $SD = 12.93$; 7.5% Black, 7.0% Asian, 78.6% White, 2.2% Latino, 1.7% other).

#### *Procedure*

At Time 1, participants were informed that they were going to complete an employee screening procedure, called the Cognitive Ability and Persistence Battery (CAP-B). They were further informed that there were two versions of the CAP-B, an individual and a team version, both of which they would complete. To ensure believability of the paradigm, they first completed a "getting to know you task." To do so, we used SurvConf, which allowed participants to interact with a real Prolific partner in real-time directly within Qualtrics (Brodsky et al., 2022). For 1 min, participants introduced themselves using their initials and played an introductory game, which involved generating words that begin with the letter B. They then completed the CAP-B, which was a fatiguing task which involved retyping extensive text while following a complicated rule (retype the text without using the letter "e," except if the e is followed by another vowel or if another vowel occurs two letters before the "e"; adapted from Hagger et al., 2016). To ensure the task was indeed fatigue inducing, in a separate pretest, participants indicated the extent to which the task was difficult, made them tired, and involved a great deal of effort on 7-point scales (see Supplemental Study 13, pp. 50–52).

At Time 2, we implemented the resilience attribution manipulation. We designed this manipulation based on the tendency for salient situational features to shape attributions (e.g., rendering task difficulty salient makes external attributions more likely; Snyder et al., 1976). We adapted these findings to the current research question by making help from the partner more or less salient. Specifically, participants in the relational resilience attribution condition viewed a refresher of the text that they completed during the CAP-B at Time 1. In particular, they saw what they completed themselves in blue and what their partner completed in red, highlighting the joint nature of the task. They were then informed that being able to collaborate and receiving help from another participant predicts better endurance in the task. In the internal resilience attribution condition, participants only viewed the text

[11] Excluding $n = 25$ participants who did not complete the written manipulation as instructed (e.g., not completing the writing task, offering a nonsense response, or selecting no relevant attributions), there is a significant difference between the relational ($M = 5.57$, $SD = 1.24$) and internal ($M = 5.27$, $SD = 1.36$) conditions, $t(474) = 2.50$, $p = .013$, $d = 0.23$.

that they had completed at Time 1, and they were informed that their own effort and persistence predicts better endurance in the task. In the control condition, participants were informed that the specific topic that they wrote about did not influence performance in the task.[12] Participants were given space to respond to these prompts in open-ended text.

For the key measures, participants read about a previous participant in the study who, despite their motivation to perform well on the challenge, became too fatigued halfway through and was unable to successfully complete the challenge (Ruttan et al., 2015). Participants completed the compassion measure as in previous studies ($r$ = .94) and a five-item gratitude scale (adapted from Bartlett & DeSteno, 2006). The prompt asked participants, "when you think about the factors that enabled you to get through the challenge, to what extent do you feel each of the following." The scale not only included the same items as the three-item scale (grateful; thankful; appreciative) but also blessed and lucky ($\omega$ = .94). We note that the results are robust to the exclusion of the last two items. For the behavioral measure, participants were informed that they received a $0.50 bonus for completing the CAP-B. They were informed that they could share any of their own bonus with the participant who struggled with the challenge (on a sliding scale from sharing 0% to 100% of the bonus). After completing the demographic variables, participants were given another open-ended text space inquiring if they could guess what the study was about or to offer any additional reactions.

## Results and Discussion

### Gratitude

Consistent with our preregistration document, we conducted planned contrasts comparing the relational condition (+1) to the internal and control (−0.5) conditions. Participants in the relational attribution condition experienced significantly higher levels of gratitude than did those in the other conditions, $t(413) = 2.62$, $p = .009$, $d = 0.28$ (see Table 8 for means, standard deviations, and 95% confidence intervals by condition).

### Compassion

An analogous analysis did not find that participants in the relational attribution condition experienced higher levels of compassion than did those in the other conditions, $t(413) = 1.25$, $p = .213$, $d = 0.13$. There was, however, a significant omnibus effect of condition on compassion, $F(2, 413) = 3.57$, $p = .029$, $\eta^2 = .02$, in exploratory analyses, with participants in the relational and control attribution conditions demonstrating more compassion than those in the internal condition, $t$s > 2.24 $p$s < .066, $d$s > 0.27. (see Table 8).

### Mediation Analyses

We again observed that gratitude predicted felt compassion, $\beta$ = 0.28, $SE = 0.05$, $p = .004$, and consistent with previous results, we found a significant indirect effect of the relational attribution (vs. internal and control) condition on compassion via increased feelings of gratitude, indirect effect = 0.15, $SE = 0.06$, 95% CI [0.04, 0.29].

### Behavioral Giving Measure

The giving data were right skewed, containing many zeroes (skewness statistic = 2.80). Given this distribution, we dichotomized the data (where 1 = some or all of bonus shared; 0 = no bonus shared). We then analyzed whether condition predicted whether or not participants shared the bonus and found no direct effect of condition on willingness to donate the bonus to the target, $\chi^2(2, N = 394) = 2.00$, $p = .367$. We also examined behavioral giving as a continuous measure, $F(2, 291) = 1.26$, $p = .284$, and using a Kruskal-Wallis test, $H(2) = 1.77$, $p = .414$, which yielded similar results.

We examine potential indirect effects via increased gratitude and compassion using PROCESS Model 6. First, we observed that behavioral giving was predicted by both gratitude, $\beta = 0.24$, $SE = 0.58$, $p < .001$, and compassion, $\beta = 0.34$, $SE = 0.58$, $p < .001$. We observed significant serial mediation (condition → gratitude → compassion → donations), indirect effect = 0.50, $SE = 0.25$, 95% CI [0.09, 1.07].

In Study 7, we find causal evidence showing that even among individuals who all endured the same stressful event, relational resilience attributions increased gratitude, which, in turn, increased compassion relative to internal resilience attributions and a control condition. However, we again note that because compassion and gratitude were measured at similar time points, additional research is needed to draw stronger causal conclusions about mediation. In terms of the direct effect of compassion, we maintained our preregistered plan to examine the planned contrast, but unexpectedly, the relational and controls were comparable here, with participants in the internal attribution condition demonstrating lower levels of compassion. This is perhaps driven by the paradigm, which was designed to make help provision more salient during task completion.

## Summary of Evidence and Additional Studies

Over the course of this research, we tested three main claims: (a) people naturally default to making internal attributions for their resilience, as compared with relational and situational attributions, (b) individual differences in the relational resilience attributions people form would be related to their compassion toward others struggling to cope with similar, distressing events, and (c) resilience attributions could be experimentally shifted, which would, in turn, affect compassion. Across our studies, we find strong evidence that internal resilience attributions are highest at baseline and that participants' naturally formed relational attributions predict compassion. We found some support for the malleability of relational attributions as well as resultant shifts in gratitude and compassion.

We tested these claims across the studies in this article as well as additional studies that are not reported in the article but are available in our online Supplemental Materials. Table 9 presents the effect

[12] We first piloted this study separately with the manipulation checks only to prevent demand effects during the main study (see Supplemental Study 13, effort task pretest, online Supplemental Materials, p. 50). The results revealed that the internal resilience attribution condition increased participants' internal attributions relative to the other conditions, and the relational attribution condition increased participants' relational attributions relative to the other conditions. Participants in the control condition had higher relational attributions relative to the internal condition, consistent with help giving being more salient in this paradigm than in the other distressing events. There were no significant differences observed in situational attributions.

**Table 8**
*Descriptive Statistics by Condition in Study 7*

| Measure | Internal attribution condition | Relational attribution condition | Control condition |
|---|---|---|---|
| Gratitude | 3.78 (1.78), 95% CI [3.49, 4.07] | 4.35 (1.66), 95% CI [4.06, 4.64] | 3.98 (1.60), 95% CI [3.72, 4.25] |
| Compassion | 3.30 (1.64), 95% CI [3.03, 3.57] | 3.74 (1.69), 95% CI [3.44, 4.04] | 3.75 (1.56), 95% CI [3.49, 4.01] |
| % giving | 27.1% | 35.2% | 31.1% |

*Note*. CI = confidence interval.

sizes obtained across the studies presented in the main text and online Supplemental Materials.

For the first claim we tested (i.e., people naturally default to making internal attributions, as compared with relational and situational attributions), we find support for this prediction in 12 of 13 studies and a range of distressing events. The observed effect sizes ranged from moderate to large. The one exception to this pattern was in Study 2, where people were as likely to report relational factors as they were internal factors when making attributions in response to an open-ended prompt. It is possible that responding to open-ended prompts invoke norms related to expressing gratitude (e.g., Baumeister & Ilko, 1995), but future research is needed to examine this possibility.

Our next claim was that naturally occurring individual differences in the resilience attributions people form would be related to their compassion toward others. We find consistent support for this effect across six out of seven studies that collectively point to a small but robust effect. Across these studies, we rule out alternative explanations (e.g., that these results are driven by traits capturing an other orientation or external LOC). Additionally, in the one study where we did not observe this effect (Supplemental Study 7), the relationship was statistically significant when including demographic and control variables (see online Supplemental Materials, pp. 37–39, for results and for a discussion of potential issues with this paradigm, including a ceiling effect for compassion toward the pregnant target). In general, those who form stronger relational attributions experience higher levels of compassion toward those struggling with similar events.

Our third claim—resilience attributions could be experimentally shifted, which would, in turn, affect compassion—received some support among samples of ex-smokers, graduates of advanced degree programs, and participants in a fatiguing lab task (Studies 5–7).

**Table 9**
*Summary of Hypotheses Tested and Effect Sizes Across Studies*

| | Hypothesis | | | |
|---|---|---|---|---|
| | Internal attributions are higher at baseline | | Relational attributions predict compassion | |
| Study (context) | Internal versus relational | Internal versus situational | Correlational evidence | Experimental evidence |
| Study 1 (unemployment) | $d = 0.92$ | $d = 1.81$ | — | — |
| Study 2 (varied) | $d = -0.08$ | $d = 0.72$ | $\beta = 0.10$ | — |
| Study 3a (quitting smoking) | $d = 1.60$ | $d = 1.76$ | $\beta = 0.20$–$0.25$ | — |
| Study 3b (workplace bullying) | $d = 0.73$ | $d = 1.15$ | $\beta = 0.16$–$0.18$ | — |
| Study 4a (divorce) | $d = 1.05$ | $d = 1.66$ | $\beta = 0.19$–$0.23$ | — |
| Study 4b (pandemic lockdowns) | $d = 0.56$ | $d = 0.92$ | $\beta = 0.17$–$0.24$ | — |
| Study 5 (quitting smoking) | — | — | — | Self-report: $d_{\text{R versus I}} = 0.60$ |
| Study 6 (advanced degrees) | $d = 0.96$ | $d = 1.77$ | — | Self-report: $d_{\text{R versus I}} = 0.17$ |
| Study 7 (lab task) | — | — | — | Self-report: $d_{\text{R versus I and control}} = 0.13$<br>Behavioral: $d_{\text{R versus I and control}} = 0.03$ |
| Supplemental Study 2 (general) | $d = 1.04$ | $d = 1.73$ | — | — |
| Supplemental Study 3 (general) | $d = 0.91$ | $d = 1.60$ | — | — |
| Supplemental Study 4 (unemployment and advanced degrees) | $d$s > 0.83 | $d$s > 1.48 | — | — |
| Supplemental Study 5 (entrepreneurship) | $d = 0.63$ | $d = 0.50$ | — | — |
| Supplemental Study 6 (divorce) | $d = 0.88$ | $d = 1.48$ | $\beta = 0.22$–$0.23$ | |
| Supplemental Study 7 (pregnancy) | $d = 0.53$ | $d = 0.89$ | $\beta = 0.07$–$0.15$ | |
| Supplemental Study 8 (high school) | — | — | — | Behavioral: $d_{\text{R versus I}} = 0.36$; $d_{\text{R versus S}} = 0.57$<br>Self-report: $d_{\text{R versus I}} = 0.11$; $d_{\text{R versus S}} = 0.15$ |
| Supplemental Study 12 (lab task) | — | — | — | Behavioral: $d_{\text{R versus I}} = 0.36$<br>Self-report: $d_{\text{R versus I}} = 0.31$ |
| Supplemental Study 14 (unemployment) | — | — | — | $d_{\text{R versus I}} = 0.02$ |

*Note*. β ranges capture models with and without control variables. I = internal attribution; R = relational attribution; S = situational attribution. Content validation and pilot studies are omitted.

However, in the spirit of open and transparent science, we also found evidence that resilience attributions can be difficult to manipulate. That is, we observed some resistance to reflecting on noninternal resilience attributions. For example, in one study (Supplemental Study 14, p. 52), participants who overcame unemployment completed the manipulation used in Study 5, such that participants reflected on which of five internal or relational factors facilitated their success in finding a job. Among those in the relational resilience attribution condition, 18% of participants were coded to have rejected the experimental prompt (e.g., stating that none of the relational factors applied to them in the open-ended text). We return to this mixed evidence in the General Discussion section.

In terms of the links between the other attributions and compassion, at the correlational level, we typically observed no relationship between either internal or situational attributions and compassion, with a few exceptions. In Study 4b, internal attributions negatively predicted compassion, and situational attributions positively predicted compassion in the model that contained all predictors. Further, when examining the relationships at the item level, luck and fate were positively related to compassion in Study 4b, and faith was positively related to compassion in Study 4a. However, because we did not observe these patterns consistently across other studies, we are reluctant to draw conclusions here. Moreover, the observed means for internal attributions were quite high, and may have hindered our ability to detect these relationships. In terms of the experimental evidence, reflecting on internal attributions generally resulted in lower compassion relative to reflecting on relational attributions. In Study 7, participants in the internal attribution condition were also less compassionate than those in a control condition, suggesting that making internal attributions more salient may inhibit compassion. Future research should explore the conditions under which internal attributions do or do not inhibit compassion.

## General Discussion

While existing research documents that personal experience with a distressing life event can foster compassion for others suffering similar adversity (e.g., Batson et al., 1996), recent research found that sometimes such experience can actually decrease compassion for the struggles of suffering others (Koo et al., 2023; Ruttan et al., 2015). Those who have overcome a distressing life experience sometimes experience an empathy gap whereby they underestimate the difficulty of the event (Loewenstein, 1996; Nordgren et al., 2006, 2007). Therefore, an important remaining question for the compassion literature is, When does experience with suffering help (vs. hurt) compassion for others? Our research finds that individuals' resilience attributions are a critical part of this answer. Specifically, we find that forming relational attributions for one's resilience is linked to increased compassion for others struggling to overcome distressing events.

### Theoretical Contributions

Our research provides a number of theoretical contributions. First, we find evidence that resilience attributions are a means by which the empathy gap can be closed, particularly as ex-smokers in the relational attribution condition in Study 5 demonstrated levels of compassion comparable to current smokers. Therefore, the current article also contributes to the literature on empathy gaps, which has only found evidence of persistence of empathy gaps rather than potential solutions (e.g., Van Boven et al., 2003).

Second, a key contribution to attribution theory is the distinction between relational and situational attributions. Across studies, we typically observe that relational and situational attributions are distinct, and that relational attributions are uniquely linked to compassion. Interestingly, some prior theorizing suggested that reflecting on nonsocial situational factors, such as luck, may facilitate compassion for others' distress, increasing, for example, preferences for wealth distribution (e.g., Frank, 2016). For example, children have been found to allocate resources more equitably when told inequality is due to bad luck versus low effort (Gonzalez et al., 2022). It is possible that reflecting on success as driven by luck versus effort in the abstract may shape preference for equality, but that feeling aided by nonsocial situational factors oneself does not generate sufficient moral affect to shape compassion at the dyadic level. Future research may explore the conditions under which nonsocial situational factors do consistently aid compassion.

These findings also offer an important complement to recent work documenting how people are more able to recall the challenges and difficulties they faced ("headwinds") in achieving success relative to the favorable conditions that aided them ("tailwinds"; Davidai & Gilovich, 2016). People similarly seem to downplay the role social connections have played in their professional successes (DiTomaso, 2013). Our work demonstrates that (a) this tendency to downplay the help one has received negatively affects compassion afforded to those suffering and (b) prompting people to reflect on the help they have received from others can enhance compassion.

### Limitations and Future Directions

We think the strong supportive evidence for the link between individual differences in resilience attributions and compassion, and some mixed experimental evidence, raises interesting questions for future work. For example, it is possible that people form strong narratives or personal stories about what they have learned about themselves from past experiences, particularly those experiences that are distressing in nature (e.g., McAdams, 1993; McLean et al., 2013). Given how core narratives are to relatively stable views of identity, people may form rather entrenched, and therefore, difficult to shift resilience attributions. Attempts to shift or alter these entrenched attributions may elicit psychological reactance (e.g., Brehm, 1966). This proposition is in line with a long tradition in attribution theory documenting the self-protective or self-serving nature of attributions, such that people are prone to render internal attributions for their success and external attributions for their failures (e.g., Mehlman & Snyder, 1985). Overcoming a distressing life event involves a triumph over a fraught situation, and attributing this success to primarily internal factors may serve important self-esteem functions, increasing a motivated tendency to deny these factors. Although these suggestions are post hoc, and should therefore be interpreted with caution, we note that this is consistent with research by Chow and Lowery's (2010) finding that, in achievement contexts, people do not feel grateful for receiving help if they do not also feel personally responsible for that achievement. Indeed, our observed experimental effects were larger in the domain that was less connected to performance and competence (quitting smoking vs. fatiguing tasks that participants were told were

indicative of cognitive performance, finding employment, and school performance). Yet another possibility is that, for real-life events, participants may have truly not experienced sufficient social support and assistance or that the help received may fall short of one's expectations.

We further note that these findings speak to an ongoing debate in attribution theory regarding whether attributions are fundamentally fixed in nature or malleable (e.g., Harvey & Weary, 1984; Martinko et al., 2011). Thus far, scholars tend to favor the fixed trait view, or at least, express pessimism regarding the ability to train or change attributions that are not necessarily consciously controlled (Lord & Smith, 1983; Shiffrin & Schneider, 1977). For example, Martinko et al. (2011) concluded that attributional styles are "stable, trait-like tendencies to make certain types of attributions that affect behavior across situations" (p. 145). The event-specific attributions under study here may fall somewhere in the middle. One possibility is that resilience attributions are difficult to manipulate after the event (i.e., long after one has overcome unemployment) but may be more malleable if various attributional factors are made more salient over the course of overcoming a distressing event. For example, if someone is asked to reflect on how relational factors are facilitating their progress while seeking employment, they may come to form more relational attributions that will impact compassion in the long run. Future research may explore this possibility.

Another set of limitations pertains to sampling. While we suggest that Western cultural narratives contribute to the predominance of resilience attributed to internal—rather than situational or relational—factors, we did not test this across samples from different cultures. It could be that non-Western cultures also default to internal understanding of resilience, or it could be a boundary condition of these findings. Relatedly, although we actively gathered samples of people who experienced real distressing events, the samples were collected online via Prolific or MTurk (with the exception of Supplemental Studies 5 and 8). The use of online convenience samples may inhibit generalizability to the broader population. Moreover, by examining responses to anonymous targets online, we cannot fully capture how these dynamics may play out in live interactions among people in existing relationships. It will be important not only for future research to leverage more representative samples within country but also to do more cross-cultural work to examine whether the same patterns hold in non-Western countries as those we presented here.

In terms of measurement limitations, while we found consistent evidence of three different factors, the scale reliability for the situational resilience attributions subscale tended to be low. We believe this is because the resilience attributions measures are indicators theorized to cause a latent construct, as opposed to measurement where the items measure indicators of a latent construct. In our case, it is not implied that there will necessarily be positive correlations between the scale items (Loehlin, 2004). We provide evidence of content validity in Supplemental Study 1 (p. 21). In general, though, we note that the "faith in a higher power" item tended to be weak, and, at points, was correlated with relational items. This finding is in line with research demonstrating that people tend to anthropomorphize Gods, viewing them as human-like (e.g., Epley et al., 2007). In this sense, participants who are attributing resilience to a higher power may also be viewing their relationship with the higher power as similar to interpersonal relationships (see related work on parasocial relationships; e.g., Gleason, 2013). Given this complexity, religious faith may be best measured separately in future research.

In the current research, we have distinguished between situational factors, which are relatively nonsocial in nature, and relational ones. There may be an additional category of "societal" attributions, which are linked to social–contextual factors, such as living in a safe neighborhood, having access to high-quality educational institutions, and economic security. Having access to these factors has been strongly linked to positive life outcomes across domains (e.g., McIntosh, 1989), and people who recognize that disparate access to these factors may have led to their success may facilitate compassion toward those struggling. In examining this possibility, we reexamined the open-ended data in Study 2 and found that only seven out of 1,134 responses freely listed this societal type of attribution. Given the important role of social–contextual factors in facilitating resilience, future research should examine whether better highlighting how these factors might contribute to success might also facilitate compassion. We suspect that factors that recognize the contributions of self-determining external agents (i.e., social forces that transcend the self) may promote a more compassionate response to the struggle of others.

Related to the issue of societal attributions, our correlational data suggest that compassion for others' distress may be multiply determined and connected to individuals' broader political ideologies and values systems. For example, we observed that communal orientation was positively related to compassion, whereas an individualistic orientation and a more conservative political ideology were generally negatively related to compassion. These findings are consistent with prior research (e.g., Balliet et al., 2008). We do not claim that resilience attributions are the sole predictor or have primacy in shaping compassion for others' distress, but we instead suggest that they serve as one important predictor among others. The strength of uncovering the role of relational attributions in compassion is that these may be relatively more malleable than dispositional values or ideologies.

Next, we examined the impact of relational resilience attributions on compassion among those who overcame the events themselves. We believe the scope of this question is of high practical importance, given that the very conditions under study here characterize many real-world situations. That said, it remains unclear how people with prior experience, but who failed to endure the distress, would respond. One possibility is that failing to endure the event increases compassion by increasing the perceived difficulty of overcoming that event (e.g., Zuckerman, 1979). Consistent with this suggestion, many of our studies included measures of perceived event difficulty (see online Supplemental Material, pp. 19–20), which was consistently associated with more compassion. Thus, people who failed to endure may be more compassionate for reasons outside of those theorized in the current work.

As a methodological point, we also note that, in many situations, distinguishing between unsuccessful and successful prior experience groups presents some complications. First, as discussed in Ruttan et al.'s (2015) study, those who have failed to endure the distressing event often cannot be distinguished from those currently enduring the event; individuals who do not overcome unemployment remain unemployed, and those who fail to quit smoking are still smokers and experience cravings. Future research should nonetheless seek to tease apart the effects of prior experience and

success on evaluations. Moreover, many confounds may separate these two populations (e.g., differential access to support and barriers in overcoming these events). Nonetheless, this question warrants further exploration.

Beyond further understanding the role of relational attributions, additional research is needed to understand the role of internal resilience attributions, particularly whether and how they could be psychologically functional for individuals, explaining why they appear to be so dominant in people's understanding of their own resilience. It is possible that internal attributions may serve self-esteem or self-efficacy functions, but future research should also measure perceptions of psychological resilience, which could be higher among those with stronger internal attributions (e.g., Kelley, 1971). In Study 3b and Supplemental Study 3, we examined this possibility with an exploratory self-efficacy measure in their continued coping with the event (e.g., to not relapse and begin smoking again; see online Supplemental Materials, p. 14). We found mixed evidence that internal resilience attributions are positively related to self-efficacy. Importantly, we found no evidence of a negative relationship between relational resilience attributions and self-efficacy, suggesting that, just as relational resilience attributions may facilitate compassion, they do not seem to come at a cost to self-efficacy.

Additionally, more research is needed to understand what other factors can lead individuals to realize that people cannot overcome their struggles alone. One possibility is that those who had a harder time themselves overcoming events may be more likely to form relational attributions; however, we observed mixed evidence for this link (see online Supplemental Materials, pp. 19–20). Future research may seek to further explore this relationship, examining the conditions under which experiencing struggles coincides with the realization that these challenges require help from others, enhancing compassion. One possibility is that experiencing challenges leads individuals to adopt more of a relational attribution initially and then these attributions become more internal over time, regardless of difficulty level.

Relatedly, the notion that relational attributions may be linked to the acknowledgment that some of life's hardships may not be overcome alone raises the possibility that notions of personal responsibility (or lack thereof) may contribute to the observed effects. In Studies 4a and 4b, we included a personal responsibility item that measured the extent to which participants thought it was the individual's responsibility to overcome their struggles and found that although personal responsibility and compassion were correlated, personal responsibility did not consistently mediate the relationship between relational attributions and compassion. However, additional research is needed to understand the potential role of responsibility judgments (see online Supplemental Materials, pp. 11–14, for additional mediation analyses not presented in the main text). Indeed, in terms of the underlying mechanism, gratitude generally served as a partial mediator with a modest effect size, and the relationship between resilience attributions and compassion is likely multiply determined.

Finally, the current research raises questions around the rising public profile of psychological constructs like self-control and grit. The growing body of work on grit examines how the diligent pursuit of a difficult long-term goal despite obstacles can facilitate lifetime educational attainment and professional success (see Duckworth & Gross, 2014, for review). Although the individual-level performance benefits of grit are clear, the nature of grit inherently invokes an internal resilience attribution—people overcome difficult life events because of their sheer persistence. It is therefore possible that increasing the prevalence of cultural narratives around grit may have the paradoxical consequence of decreasing compassion for those struggling to overcome distressing life events.

## Conclusion

Although the spirit of "pulling oneself up by the bootstraps" is often praised in Western society, it may have unintended consequences. By emphasizing the cultural ideal of independence in resilience rather than recognizing our interdependence, we neglect to acknowledge the outside assistance received from others, inhibiting the impulse to help those arguably most in need—those that are currently struggling with adversity.

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