AMERICAN PSYCHOLOGICAL ASSOCIATION

Emotion

ISSN: 1528-3542

2024, Vol. 24, No. 3, 628–647
https://doi.org/10.1037/emo0001288

Empathic Concern Motivates Willingness to Help in the Absence of Interdependence

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Previous research suggests that empathic concern selectively promotes motivation to help those with whom we typically have interdependent relationships, such as friends or siblings, rather than strangers or acquaintances. In a sample of U.S. participants (collected between 2018 and 2020), our studies not only confirmed the finding that empathic concern is directed somewhat more strongly toward interdependent relationship partners, but also showed cross-sectionally (Studies 1a–1b), and when manipulating target distress experimentally (Study 2), that empathic concern predicts higher willingness to help only when people perceive *low* interdependence in their relationship with the target. In Study 3, we manipulated perceived interdependence with an acquaintance via shared fate, and found that empathic concern only predicted helping motivation when we reduced shared fate, but not when we increased shared fate. These results suggest that when people perceive high interdependence in their relationships, shared fate is the driving force behind their desire to help, whereas when people perceive low interdependence with someone in need, empathic concern motivates them to help. A relationship-building perspective on empathic concern provides avenues for testing additional moderators, including those related to target-specific characteristics and culture and ecology.

Keywords: empathy, interdependence, shared fate, cooperation, prosociality

Supplemental materials: https://doi.org/10.1037/emo0001288.supp

Katie Banks, a young woman from your neighborhood whom you have never met, has lost her parents in a terrible car accident. Katie is having a hard time juggling the responsibilities of being a college student and caring for her younger siblings, now that her parents are gone. Could you take a moment to imagine how Katie is feeling after losing her parents and having to take care of her younger siblings?

If you are like the typical participant in experimental research on empathy, you may have experienced tender, concerned, sympathetic feelings toward Katie upon reading about her situation. Moreover, these feelings of *empathic concern* may motivate you to donate your time or money to help Katie out. But what if Katie was your sibling, or your best friend—someone with whom you have a more interdependent relationship? Would empathy be necessary to motivate your helping, or would you simply help because what is best for her is also best for you?

Early studies using scenarios similar to the one described above consistently found that when people experience empathic concern they are more willing to help a person in need (Batson, 2011). This might suggest that empathic concern is the primary driver of helping behavior. Recent research further indicates that people are also rather stingy with empathy, avoiding empathy when it is perceived to be effortful, or when the target is not particularly valued (Cameron et al., 2019; Ferguson et al., 2020). This is consistent with a canonical view of prosociality, which posits that empathic concern selectively directs prosocial behavior toward partners with whom we have interdependent relationships (Cialdini et al., 1997; de Waal, 2008; de Waal & Preston, 2017; Maner et al., 2002; Preston & de Waal, 2002).

However, people often experience empathic concern for non-interdependent others, even strangers (Batson, 2011; McAuliffe et al., 2018, 2020). That some studies report no effect of empathic concern on willingness to help, while others do, might arise from differences in the type of relationship targets employed in a given study. For example, Davis (2015) noted that the effects of empathic concern on helping motivation were weaker when the target was a close or interdependent other. Does motivation to help rely on empathic concern or not, and if so, for what kinds of relationships? We aimed to address this question across four studies, showing that empathic concern motivates willingness to help non-interdependent targets, but is irrelevant for helping partners with whom we have highly interdependent relationships. When people perceive high interdependence in their relationships, perceived shared fate rather than feelings of empathic concern appear to guide motivation to help.

This article was published Online First September 14, 2023.

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We are grateful to the members of the Human Generosity Project (https://www.humangenerosity.org/) for their feedback and suggestions on this project. This study was funded by the Interdisciplinary Cooperation Initiative, ASU President's Office, the Cooperation Science Network, the Charles Koch Foundation, and the John Templeton Foundation. The authors have no conflicts of interest to declare.

Data and analysis code are available here https://osf.io/twhdc/.

Diego Guevara Beltran served as lead for conceptualization, formal analysis, investigation, methodology, project administration, visualization, writing–original draft, and writing–review and editing. Michelle N. Shiota served in a supporting role for formal analysis. Athena Aktipis served as lead for funding acquisition and served in a supporting role for conceptualization. Michelle N. Shiota and Athena Aktipis contributed equally to supervision and writing–review and editing.

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The Conundrum of Empathic Concern and Prosocial Behavior

As an umbrella term, empathy encompasses multiple interrelated cognitive, affective, and behavioral processes, including emotional contagion, affective sharing, ability to accurately identify and understand others' cognitive and affective states, perspective taking, mimicry and coordinated behavior, and prosocial/helping behavior (de Waal & Preston, 2017; Preston & de Waal, 2002; Zaki, 2017; Zaki & Ochsner, 2012). Different researchers define "empathy" as being composed of all, some, or just one of these processes (Hall & Schwartz, 2019). For example, some researchers define empathy strictly as the process of isomorphic affective sharing (e.g., Bloom, 2017), while others who adhere to more traditional (i.e., Rogerian) perspectives see it as a dynamic, unfolding process including causal relationships among cognitive perspective-taking, emotional contagion, and subsequent motivational states (e.g., personal distress, other-oriented concern; Marsh, 2022; Murphy et al., 2022; Rogers, 1975).

The present studies focus on empathic concern and helping behavior—constructs with a rich history of research in psychology both individually and in relation to each other (Batson, 2011). The defining features of empathic concern include (a) an emotional state that is elicited by and congruent with a target's distress (though it need not be exactly isomorphic; Marsh, 2022; Murphy et al., 2022); (b) subsequent feelings of concern for the target; and (c) motivation to improve the welfare of the target in need. Empathic concern is the aspect of empathy referred to by the *empathy-altruism hypothesis*, which posits that people experience an emotional state congruent with the distress of a target, this affective correspondence elicits feelings of concern, and subsequently motivates people to alleviate the distress of the person in need (Batson, 2011).

Research has found consistent support for the empathy-altruism hypothesis, even after attempting to rule out alternative explanations. In an early study, participants who listened to the plight of a person in need were more likely to experience empathic concern, and that concern in turn predicted willingness to help (Coke et al., 1978). Empathic concern motivates people's willingness to help when provided with an easy opportunity to escape helping (Toi & Batson, 1982); when told they would not experience joy for helping (Batson et al., 1991) or would not experience negative emotions if they failed to help (Batson et al., 1989); and when controlling for other negative emotions such as sadness (Dovidio et al., 1990), guilt, and shame (Batson et al., 1988). People may feel more negative affect when they experience empathic concern and help, but only if their help fails to alleviate the target's distress (Batson & Weeks, 1996). Taken together, these studies indicate that empathic concern promotes other-oriented helping, whereby the underlying motivation is to alleviate the need of a target in distress rather than one's own.

The problem, for those seeking to promote more widespread helping/prosocial behavior, is that empathic concern is itself a selective experience. Affective sharing (i.e., simulating a target's emotional experience) is cognitively effortful (Cameron et al., 2019; Ferguson et al., 2020), and when affective sharing activates concern for the target, helping leads to loss of material resources (Batson & Ahmad, 2001; FeldmanHall et al., 2015). Because empathizing can be costly, researchers have argued that it is conditional, meaning that empathy is expected to be modulated by the costs and benefits particular situations afford individuals (Weisz & Cikara, 2021; Zaki, 2014). For example, people modally avoid engaging in affective sharing (i.e., they prefer describing a target's physical attributes over simulating their emotional experience), but are more likely to do so when incentivized with money (Ferguson et al., 2020). When participants in another study were informed about an opportunity to donate money to the targets before engaging in an empathizing task, they tended to avoid empathic concern to a greater extent than when there was no risk of being asked to help (Cameron & Payne, 2011). Taken together, these studies show that people typically avoid or minimize empathic concern, unless the benefits outweigh the costs. So, when *are* people likely to empathize?

Interdependent Targets Elicit Empathic Concern

One strong candidate answer is: People should experience empathic concern when the target's outcomes are intertwined with their own. Fitness interdependence is defined as the extent to which two or more individuals' outcomes covary (Aktipis et al., 2018). Formally, fitness interdependence (Roberts, 2005) is an extension of Hamilton's rule (Hamilton, 1964), wherein individuals are predicted to invest in a partner only to the extent that the well-being of the giver and recipient are positively correlated. In such cases, the benefits of investing in a partner are greater than the costs of helping. Genetic relatedness is one major contributor to interdependence, because the reproductive success of kin indirectly benefits one's own reproductive success. When genetic relatedness is the source of interdependence, higher degrees of relatedness represent more strongly correlated outcomes between individuals. At the proximate (i.e., psychological) level, kinship cues such as length of coresidence during childhood and perceived similarity increase partner valuation, and in turn, willingness to help (Curry et al., 2013; Hackman et al., 2015; Lieberman et al., 2007; Sznycer et al., 2016). At the ultimate (i.e., survival and reproductive success) level, the relational value one places on specific others is expected to track those others' probable influence on one's own fitness (Delton & Robertson, 2016; Delton et al., 2023; Tooby et al., 2008).

Sources of interdependence beyond genetic relatedness can include mutual aid through risk pooling and exchange, affine relationships, alloparenting, and shared group membership. For example, people who share food or labor become mutually dependent for assistance during times of need (Cronk & Aktipis, 2021; Cronk et al., 2019). In such cases, individuals who repeatedly engage in mutual aid come to share a stake in each other's fates, whereby losses for a partner translate into losses for the self (Barclay, 2020). Over time, increasing stakes in one another's fates can lead to intrinsic valuation and feelings of irreplaceability (Tooby & Cosmides, 1996). Correspondingly, people who perceive high shared fate in their relationships value such partners more highly, and are more willing to help them in times of need, and without an expectation of reciprocation (Ayers et al., 2023).

From an evolutionary perspective, empathic concern is thought to be one of the main proximate mechanisms of prosocial/helping behavior in humans and non-human primates, guiding the flow of investment toward interdependent targets (de Waal, 2008; de Waal & Preston, 2017; Preston & de Waal, 2002). Following this line of thinking, studies have shown that empathic concern motivates willingness to help through perceptions of self-other-overlap (IOS; Cialdini et al., 1997; Maner & Gailliot, 2007; Maner et al., 2002). More recent studies have shown that people report higher efficacy and lower effort when simulating the emotions of, and feeling

compassion for, closer targets (Ferguson et al., 2020; Scheffer et al., 2022). This might suggest that empathic concern motivates willingness to help interdependent partners such as kin and friends, but plays a less prominent role in motivating help toward non-interdependent targets. However, there are many instances in which this prediction fails, posing a problem for the view that empathic concern selectively directs investment toward interdependent targets.

Noninterdependent Targets Also Elicit Empathic Concern

A recent study using ecological momentary assessment of empathy found that, while people do have many more *opportunities* to empathize with close others than with strangers, closeness did not predict whether people *actually* empathized given the opportunity to do so (Depow et al., 2021). These findings are in line with McAuliffe et al. (2020), who argued that feeling empathic concern may be the default response to others' distress—including that of strangers. In a meta-analysis on the effects of perspective-taking instructions, they showed that people report comparably high levels of empathic concern whether participants are instructed to empathize or not. This is consistent with a long history of studies showing that when people witness (or take the perspective of) a stranger in distress, they tend to report empathic concern and motivation to help the person in need (Batson & Moran, 1999; Batson, Early, & Salvarani, 1997; Batson, Sager, et al., 1997; Coke et al., 1978). Moreover, McAuliffe et al. (2018) showed that empathic concern predicted whether participants provided emotional support to strangers, and closeness (as measured by the IOS) did not mediate this relationship.

For Whom Does Empathic Concern Motivate Willingness to Help?

As we have seen, some studies suggest that empathic concern motivates willingness to help non-interdependent others (e.g., McAuliffe et al., 2018), while others suggest that empathic concern should only motivate willingness to help interdependent partners (Cialdini et al., 1997; Maner & Gailliot, 2007; Maner et al., 2002). Notably, although we may be somewhat more inclined to empathize with interdependent relationship partners, interdependence has typically been excluded by design in studies designed to investigate the relationship between empathy and helping. Targets in such studies are commonly strangers, like Katie Banks, whom we introduced earlier in this article. Is it possible that the effects of empathic concern on helping motivation will be most pronounced for cases in which targets are in fact *non*-interdependent, relative to targets for whom interdependence has reached a stable level within the relationship? Davis (2015) has raised this same question, observing that differences in the strength of the relationship between empathic concern and willingness to help seen across different studies might reflect differences in the "psychological distance" between empathizers and the target in need, with more distant (but non-adversarial) targets leading to the strongest effects, and closer targets (e.g., friends, family) leading to the smallest effects.

Why might closeness or interdependence attenuate the empathic concern-helping relationship, rather than intensify it? When two individuals' outcomes positively covary, what is good for your partner is more likely to translate into a positive outcome for yourself—high shared fate. People who perceive high shared fate in their relationships value the welfare of such partners more highly, and investment in them is correspondingly higher (Ayers et al., 2023). In interdependent relationships, we expect willingness to help to be accounted for by shared fate. In contrast, we predict that empathic concern will account for willingness to help non-interdependent targets precisely because people do *not* particularly value their welfare based on shared fate. When people feel empathic concern for non-interdependent targets they come to—at least in that moment—value the target's welfare more highly, thus becoming increasingly willing to help (Sznycer et al., 2019). Such a proclivity to deploy empathic concern for non-interdependent targets might appear inconsistent with an individual's self-interest. However, a tendency to feel empathic concern for the plight of non-interdependent targets might prove useful if such acts allow people to *build* interdependence with valuable partners in the future.

Overview of the Present Studies

In Studies 1a and 1b (direct replication), we test cross-sectional associations among perceived interdependence, empathic concern, and willingness to help across different kinds of relationship partners. Addressing the proposal that empathic concern is conditional (i.e., more likely when people value the welfare of others), we replicate the positive association between interdependence and empathic concern. However, these studies also show that empathic concern is a stronger predictor of willingness to help non-interdependent targets than interdependent targets. In Study 2, we experimentally induce empathic concern to test the hypothesis that empathic concern promotes willingness to help non-interdependent targets, but not highly interdependent targets. Finally, in Study 3, we manipulate both empathic concern and perceived interdependence, showing that empathic concern predicts willingness to help an unrelated target in a situation in which we reduce interdependence, but not in a situation in which we increase interdependence.

Studies 1a and 1b

Method

Transparency and Openness

This study was not preregistered. We report sample size considerations, measures, materials, data exclusions, and manipulations. Data and analysis code for all studies are available here https://osf.io/twhdc/. We analyzed data using the *Lavaan* package for R (Rosseel, 2012), the MIXED procedure for SAS V. 9.4, and the PROCESS (V4.1) macro for SPSS V.28. This study was approved by Arizona State University's Institutional Review Board.

Procedure

In a within-subjects design, participants reported their affective empathy, interdependence, and willingness to help 10 targets: stranger, acquaintance, niece, nephew, aunt, uncle, cousin, friend, close friend, and sibling. We randomized the order in which targets, and measures within targets, were presented. Study 1b was a direct replication of Study 1a. Any person residing in the United States over the age of 18 and fluent in English was eligible to participate. Measures and relationship category instructions can be found in S3.1 in the online supplemental materials.

Participants

Study 1a. We recruited 142 U.S. adults from Amazon's Mechanical-Turk during the Spring of 2018. We removed eight responses with a repeated IP address because we suspected them to have been provided by the same person, yielding an effective $N = 134$ (56.7% men; $M_{age} = 33.06$, $SD_{age} = 10.06$). On average, participants took 21 min to complete the study ($SD = 8.77$). Most participants identified as White (41%), followed by Asian (27.6%), Hispanic/Latino (24.6%), Black/African American (4.5%), Native American (0.7%), and other (1.5%). We also flagged 15 potentially inattentive participants who did not provide a response or reported a number instead of the initials of relationship targets (as instructed). We report the primary analyses with the full sample and after removing these 15 participants.

Study 1b. We recruited 185 undergraduates from a public university in the United States during the Spring of 2018. We removed two participants with over 93% missing data, leaving a final sample of 183 (51.4% men, $M_{age} = 20.22$, $SD_{age} = 1.66$). On average, participants took 31.6 min to complete the study ($SD = 8.51$). Most participants identified as White (43.7%), followed by Asian (27.3%), Hispanic/Latino (14.8%), Black/African American (7.7%), Middle Eastern (1.1%), and other (4.9%). We flagged 20 potentially inattentive participants who either did not provide initials for their targets, reported a number instead of target initials, or showed evidence of flatlining responses (i.e., variance in their responses was 1.5 *SD*s below the sample *SD* mean). We report the primary analyses with the full sample and after removing these 20 participants.

Guidelines for appropriate sample size in multilevel models indicate that estimates are expected to be precise and sufficiently powered when Level-2 cluster size is greater than 50, and there are at least five observations per cluster (Maas & Hox, 2005; McNeish & Stapleton, 2016; Scherbaum & Ferreter, 2009). Given that we had an average of nine observations within participants, and a cluster (i.e., sample) size of 134 (Study 1a) and 183 (Study 1b), Studies 1a and 1b meet appropriate sample size recommendations for multilevel models.

Measures

Empathy. Participants answered the Toronto Empathy Questionnaire (Spreng et al., 2009), a measure of affective empathy with ratings on a 5-point Likert scale (1 = *never*, 5 = *always*). The target of empathy for most of the items in the Toronto Empathy Questionnaire is an unspecified "other." It is therefore unclear whether people have distant others (e.g., strangers) or interdependent others (e.g., siblings) in mind when reporting on this measure. Thus, we modified items to be target-specific (e.g., *I can tell when* [target] *is sad even when he/she does not say anything*. Because we modified the scale, and because we were primarily interested in items that assessed empathic concern, we assessed the dimensionality of the Toronto Empathy Questionnaire (see S1.1 in the online supplemental materials). A scree-plot and exploratory factor analyses strongly suggested a two-dimensional structure (Table S1 in the online supplemental materials), with one dimension indexing empathic concern (e.g., *I get a strong urge to help when I see that my [target] is upset*), and the second dimension indexing affective reactivity (e.g., *My [target]'s misfortunes do not disturb me a great deal*). We then ran a multiple-group factor analysis and found that the two-factor structure showed configural and metric invariance (i.e., similar factor loadings and item means are directly comparable) across targets (Table S2 in the online supplemental materials). Finally, we ran a multilevel confirmatory factor analysis and found that the two-factor model held at the within- and between-person levels (Tables S3 and S4 in the online supplemental materials). We created mean scores of empathic reactivity (Study 1a α's = .71–.90; Study 1b α's = .69–.85), and empathic concern (Study 1a α's = .80–.91; Study 1b α's = .88–.96) for each target.

Interdependence Measures. We measured perceived interdependence with the Shared Fate scale (Ayers et al., 2023), a two-factor measure with items rated on a 7-point Likert scale (1 = *do not agree at all*, 7 = *strongly agree*). Three items index perceived shared fate, which measures the extent to which people believe that their outcomes are intertwined with the outcomes of specific partners (e.g., *[target] and I rise and fall together*). This construct shows good convergent validity. People who perceive high shared fate in their relationship are more likely to report that a target's job promotion will have a positive influence on their lives, while the death of a target's parents would have a negative influence on their life (Ayers et al., 2023).

Three items index emotional shared fate, which measures the extent to which people expect to experience affective resonance to the outcomes of specific partners (e.g., *when something good/bad happens to [target] I feel good/bad*). This construct shows good convergent validity. People who report high emotional shared fate in their relationship are more likely to feel "good" at the prospect of a target's job promotion, and more likely to feel "bad" at the prospect of a target's parents passing away (Ayers et al., 2023).

We measured IOS with the Inclusion of Other in the Self scale, a one-item measure that asks participants to indicate which of seven increasingly overlapping circles best represents their relationship with another (Aron et al., 1992). Considering the strong associations among IOS, emotional shared fate, and perceived shared fate (see Table 1), we created target-specific composite measures of interdependence by averaging across these three variables (Study 1a α's = .51–.85; Study 1b α's = .68–.83).

Helping Motivation. We measured willingness to help using an average composite of six need scenarios (Study 1a α's = .80–.93; Study 1b α's = .84–.96). Sample items include: *[target's] house is being fixed, so it isn't livable. How willing would you be to let him/her move into your house for a week?*; *If [target] needed a kidney, how willing would you be to donate a kidney to him/her?* (1 = *not very willing*, 7 = *very willing*; Ayers et al., 2023).

Results

Analyses

We begin by testing the associations among relatedness, IOS, emotional shared fate, perceived shared fate, empathic reactivity, empathic concern, and willingness to help. Because we collected repeated measures data, observations are nonindependent, and averaging across relationship targets could result in spurious or inflated associations (Bakdash & Marusich, 2017). To account for this, we ran correlations with the *Rmcorr* package (Bakdash & Marusich, 2017) for R Studio (V. 2022.07.1), which corrects for nonindependence and provides more accurate correlations for

Table 1
Correlations Among Interdependence, Empathy, and Willingness to Help (Studies 1a and 1b)

Variable	Relatedness	IOS	Emotional SF	Perceived SF	Reactivity	Concern	Help
Relatedness	—	0.13*** [0.08, 0.18]	0.22** [0.17, 0.27]	0.21*** [0.16, 0.26]	0.12*** [0.07, 0.17]	0.07** [0.02, 0.13]	0.34*** [0.29, 0.38]
IOS	0.13*** [0.08, 0.19]	—	0.71*** [0.69, 0.74]	0.74*** [0.72, 0.76]	0.53*** [0.49, 0.57]	0.68*** [0.65, 0.71]	0.63*** [0.59, 0.66]
Emotional shared fate	0.06* [0.004, 0.12]	0.48*** [0.44, 0.52]	—	0.85*** [0.84, 0.87]	0.57*** [0.53, 0.61]	0.70*** [0.68, 0.73]	0.72*** [0.70, 0.75]
Perceived shared fate	0.13*** [0.07, 0.18]	0.59*** [0.55, 0.62]	0.73*** [0.70, 0.75]	—	0.52*** [0.48, 0.56]	0.67*** [0.64, 0.70]	0.65*** [0.62, 0.68]
Empathic reactivity	0.10*** [0.04, 0.15]	0.40*** [0.35, 0.45]	0.33*** [0.28, 0.39]	0.45*** [0.40, 0.49]	—	0.54*** [0.50, 0.58]	0.46*** [0.42, 0.50]
Empathic concern	0.08** [0.03, 0.14]	0.56*** [0.52, 0.60]	0.55*** [0.50, 0.59]	0.60*** [0.56, 0.64]	0.50*** [0.45, 0.54]	—	0.61*** [0.58, 0.65]
Willingness to help	0.20*** [0.15, 0.26]	0.58*** [0.54, 0.62]	0.50*** [0.46, 0.54]	0.59*** [0.56, 0.63]	0.47*** [0.43, 0.52]	0.66*** [0.62, 0.69]	—

Note. Study 1a is shown on the lower diagonal (Obs. = 1,340, $N = 134$), and Study 1b is shown on the upper diagonal (Obs. = 1,830, $N = 183$). Numbers in brackets show 95% CIs. IOS = self-other-overlap, SF = shared fate, Obs. = observations, CI = confidence interval.
* $p < .05$. ** $p < .01$. *** $p < .001$.

repeated measures data. We imputed relatedness coefficients as follows: strangers, acquaintances, friends, and close friends = 0; cousins = 0.13; aunts, nieces, nephews, and uncles = 0.25; and siblings = 0.50.

To test the hypothesis that perceived interdependence would be associated with greater empathy we ran a mixed-effects linear model predicting empathic concern. We included age (mean-centered), sex, relatedness, the cluster-mean of the composite measure of interdependence (i.e., a person's interdependence averaged across all targets) to obtain the between-level effect, and interdependence cluster-mean centered (i.e., a person's interdependence toward a specific partner centered on their cluster mean) to obtain the within-level effect. We included random effects for the intercept of participant identification number (ID), and the slope of Interdependence.

To test whether empathic concern would predict willingness to help when people reported low interdependence in their relationships, but not when they reported high interdependence in their relationships, we first ran a mixed-effects linear model to observe the main effects of covariates on willingness to help. We included age (mean-centered), sex, relatedness, the cluster means of empathic reactivity, empathic concern, and interdependence to obtain the between-person effects, as well as empathic reactivity, empathic concern, and interdependence cluster-mean centered to obtain the within-person effects. We included random effects for the intercept of participant ID, and the slopes of interdependence, empathic reactivity, and empathic concern.

After noting the main effects, we ran an additional mixed-effects linear model in which we added the Empathic Concern × Interdependence, and Empathic Concern × Relatedness interactions. Because empathic concern and interdependence were scored on different scales, we standardized them to ease the interpretation of their relative influence on willingness to help as well as to test for the effect of empathic concern at low (i.e., 1 *SD* below the mean) and high (i.e., 1 *SD* above the mean) interdependence, and at varying levels of relatedness. Across all models, we applied an unrestricted covariance structure for random effects (and their correlations), allowing within-person residual variances for each relationship target to be uniquely estimated (constraining their correlations), and employing maximum-likelihood as the estimation method.

Associations Among Empathy, Interdependence, and Willingness to Help

Self-other-overlap (i.e., IOS), emotional shared fate, perceived shared fate, and empathic concern were strongly positively correlated with willingness to help (Table 1). We observed weak associations between relatedness and other measures of interdependence, as well as relatedness and empathy, due to strangers and acquaintances falling into the same category as friends and close friends (i.e., relatedness = 0). Tables S5 and S6 in the online supplemental materials show descriptive statistics for each target.

Is Perceived Interdependence Associated With Empathic Concern?

We predicted that interdependence would be positively associated with empathic concern. Because measures from Studies 1a and 1b are identical, here we report results with the combined data including

Table 2
Mixed-Effects Linear Model Predicting Empathic Concern (Studies 1a and 1b)

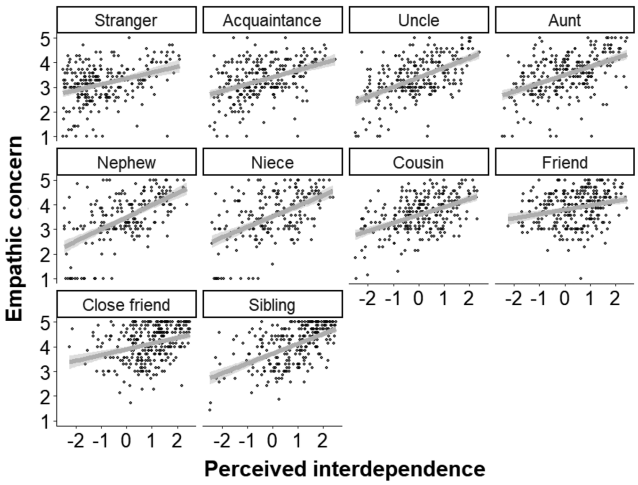
Obs = 2,711	γ	*SE*	*t*	*p*	95% CI	
Intercept	1.89	0.19	9.7	<.0001	1.51	2.28
Study (1b)	0.05	0.06	0.93	.35	−0.06	0.17
Relatedness	−0.17	0.05	−3.07	.002	−0.28	−0.06
Level-2						
Age	0.01	0.004	2.77	.006	0.003	0.02
Sex (women)	0.27	0.05	4.86	<.0001	0.16	0.38
Interdependence	0.29	0.03	9.22	<.0001	0.22	0.35
Level-1						
Interdependence	0.41	0.01	28.77	<.0001	0.38	0.44

Target	Stranger	Acq	Aunt	Uncle	Niece	Neph	Cousin	Friend	C.F.	Sibling
σ^2	0.32	0.26	0.19	0.22	0.34	0.38	0.14	0.17	0.13	0.18

Note. $N = 315$, Intraclass Correlation Coefficient (ICC) = 0.32, $\tau_{intercept} = 0.22$ ($z = 11.19$***), $\tau_{interdependence} = 0.03$ ($z = 6.87$***), $\tau_{intercept.interdependence} = -0.21$ ($z = -2.54$*). Obs. = observations, Acq = acquaintance, Neph = nephew, C.F. = close friend, CI = confidence interval.
* $p < .05$. *** $p < .001$.

study as a covariate. We report separate analyses for each study in S1.3 (Tables S7 and S8 in the online supplemental materials). Relative to an intercepts-only model, predictors improved model fit, Δ-2Log Likelihood, $\chi^2(8) = 2{,}255.4$, $p < .001$, explaining 21.11% of the between-person (i.e., Level-2) variance, and 61.59% of the within-person (i.e., Level-1) variance (Table 2). Relatedness was negatively associated with empathic concern ($\gamma = -0.17$, 95% confidence interval, CI [−0.28, −0.06]). This negative effect is likely due to the fact that people are highly empathetic toward their friends and close friends, targets with whom they do not share any relatedness. As predicted, interdependence was positively associated with empathic concern. For the between-person effect, a one-unit increase in interdependence increased empathic concern by $\gamma = 0.29$ (95% CI [0.23, 0.35]). For the within-person effect, a one-unit increase in interdependence increased empathic concern by $\gamma = 0.41$ (95% CI [0.38, 0.44]) (Figure 1). The effects of Interdependence held after removing inattentive participants, $\gamma_{Level\text{-}2} = 0.28$ (95% CI [0.22, 0.34], $\gamma_{Level\text{-}1} = 0.43$ ([0.40, 0.46]).

Figure 1
Perceived Interdependence Is Associated With Greater Empathic Concern



Note. People who reported greater interdependence toward a particular relationship target reported higher empathic concern toward that same individual.

Does Interdependence Attenuate the Effect of Empathic Concern on Willingness to Help?

We predicted that empathic concern would have a stronger positive effect on willingness to help when people perceived low interdependence in their relationships, compared to when people perceived high interdependence in their relationships. Here we report results with the combined Studies 1a and 1b data, including Study as a covariate, and provide additional analyses for each Study in S1.3.2 (Tables S9 and S10 in the online supplemental materials). Relative to an intercepts-only model, predictors improved model fit, Δ-2LL, $\chi^2(18) = 3{,}115.3$, $p < .001$, explaining 34.56% of the between-person variance, and 65.27% of the within-person variance. Relatedness was positively associated with Willingness to Help ($\gamma = 1.01$, standard error, $SE = 0.09$, 95% CI [0.84, 1.19]). At the between-person level, interdependence ($\gamma = 0.11$, $SE = 0.04$, 95% CI [0.02, 0.20]) and empathic concern ($\gamma = 0.48$, $SE = 0.05$, [0.38, 0.57]), but not empathic reactivity ($\gamma = 0.07$, $SE = 0.04$, [−0.02, 0.16]) were positively associated with willingness to help. At the within-person level, interdependence ($\gamma = 0.44$, $SE = 0.03$, 95% CI [0.38, 0.51]), empathic reactivity ($\gamma = 0.08$, $SE = 0.03$, [0.02, 0.13]), and empathic concern ($\gamma = 0.27$, $SE = 0.04$, [0.19, 0.35]) positively predicted willingness to help.

Next, we added the Relatedness × Empathic Concern (Level-1 and 2), and Interdependence (Level-1) × Empathic Concern (Level-1 and 2) interactions. The Relatedness × Empathic Concern (Level-2) interaction was not significant ($p = .98$), but the Relatedness × Empathic Concern (Level-1), the Interdependence (Level-1) × Empathic Concern (Level-1), and the Interdependence (Level-1) × Empathic Concern (Level-2) interactions were statistically significant (p's < .001). A model in which we retained the three significant interactions (Table 3) improved fit relative to the main effects model, Δ-2LL, $\chi^2(3) = 144.5$ $p < .001$, explaining an

Table 3
Mixed-Effects Linear Model Predicting Willingness to Help (Studies 1a and 1b)

Obs. = 2,612	γ	*SE*	*t*	*p*	95% CI	
Intercept	4.66	0.18	25.65	<.0001	4.30	5.01
Study (1b)	0.31	0.08	3.77	<.001	0.15	0.47
Relatedness	1.38	0.10	13.84	<.0001	1.18	1.57
Level-2						
Age	0.01	0.01	2.34	.02	0.002	0.03
Sex (women)	0.05	0.08	0.59	.56	−0.11	0.21
Interdependence	0.07	0.05	1.60	.11	−0.02	0.16
Empathic reactivity	0.12	0.05	2.57	.01	0.03	0.21
Empathic concern	0.50	0.05	9.92	<.0001	0.44	0.57
Level-1						
Interdependence	0.51	0.03	15.63	<.0001	0.44	0.57
Empathic reactivity	0.11	0.03	3.66	<.001	0.05	0.16
Empathic concern	0.35	0.04	8.63	<.0001	0.27	0.44
Interdependence × Empathic Concern	−0.15	0.01	−10.43	<.0001	−0.18	−0.12
Interdependence × Empathic Concern (Level-2)	−0.12	0.03	−4.93	<.0001	−0.17	−0.07
Relatedness × Empathic Concern (Level-1)	−0.64	0.10	−6.30	<.0001	−0.85	−0.44

Target	Stranger	Acq	Aunt	Uncle	Niece	Neph	Cousin	Friend	C.F.	Sibling
σ^2	2.32	0.74	0.32	0.58	0.27	0.23	0.47	0.30	0.20	0.54

Note. $N = 315$, ICC = 0.25, $\tau_{intercept} = 0.51$ ($z = 11.02$***), $\tau_{interdependence} = 0.13$ ($z = 5.72$***), $\tau_{reactivity} = 0.08$ ($z = 4.54$***), $\tau_{concern} = 0.16$ ($z = 5.82$***), $\tau_{intercept.interdependence} = -0.23$ ($z = -2.34$*), $\tau_{intercept.reactivity} = -0.07$ ($z = -0.67$), $\tau_{interdependence.reactivity} = -0.14$ ($z = -1.11$), $\tau_{intercept.concern} = -0.26$ ($z = -2.76$**), $\tau_{interdependence.concern} = -0.43$ ($z = -4.37$***), $\tau_{reactivity.concern} = -0.55$ ($z = -5.05$***). Obs. = observations, Acq = acquaintance, Neph = nephew, C.F. = close friend, CI = confidence interval.
* $p < .05$. ** $p < .01$. *** $p < .001$.

additional 0.52% of the between-person variance, and an additional 13.83% of the within-person variance.[1]

As predicted, empathic concern (Level-1) had a stronger positive effect on willingness to help when people perceived low (−1 *SD*) interdependence (γ = 0.51, *SE* = 0.04, 95% CI [0.42, 0.59]), than when people perceived high (+1 *SD*) interdependence in their relationships (γ = 0.20, *SE* = 0.04, [0.11, 0.29]; Figure 2a). Similarly, trait-level empathic concern (Level-2) had a stronger positive effect on willingness to help at low (−1 *SD*) interdependence (γ = 0.62, *SE* = 0.06, 95% CI [0.50, 0.75]), than at high (+1 *SD*) interdependence (γ = 0.38, *SE* = 0.05, [0.28, 0.47]). Moreover, empathic concern (Level-1) was positively associated with willingness to help when relatedness = 0 (γ = 0.35, *SE* = 0.04, 95% CI [0.27, 0.43]), when relatedness = 0.13 (γ = 0.27, *SE* = 0.04, [0.20, 0.34]), and when relatedness = 0.25 (γ = 0.19, *SE* = 0.04, [0.12, 0.27]). However, empathic concern (Level-1) was negatively associated with willingness to help when relatedness = 0.50 (γ = −0.29, *SE* = 0.09, 95% CI [−0.47, −0.11]). The Empathic Concern (Level-1) × Relatedness interaction (γ = −0.64, *SE* = 0.10, [−0.85, −0.44]), the Empathic Concern (Level-1) × Interdependence interaction (γ = −0.16, *SE* = 0.01, [−0.19, −0.13]), and the Empathic Concern (Level-2) × Interdependence interaction (γ = −0.13, *SE* = 0.02, [−0.18, −0.08]) held after removing inattentive participants.

Does Level of Need Moderate the Effect of Empathic Concern and Interdependence on Willingness to Help?

We assessed whether the level of need moderated the interaction between empathic concern and perceived interdependence on willingness to help. To test this, we transformed the data to treat willingness to help as a within-subjects variable. We retained three types of help based on their (at face value) level of need: willingness to give water, give $100, and donate a kidney (see S1.3.3 in the online supplemental materials). We found a three-way interaction between type of help, empathic concern, and interdependence, $F(2, 3{,}228) = 14.56$, $p < .001$, such that the observed two-way interaction between empathic concern and interdependence emerged for willingness to give $100 (γ = −0.16, *SE* = 0.02, $p < .001$, 95% CI [−0.20, −0.12]), and donate a kidney (γ = −0.12, *SE* = 0.02, $p < .001$, [−0.16, −0.07]), but not for willingness to give water (γ = −0.03, *SE* = 0.02, $p = .09$, [−0.07, 0.005]; see Figure 2b).

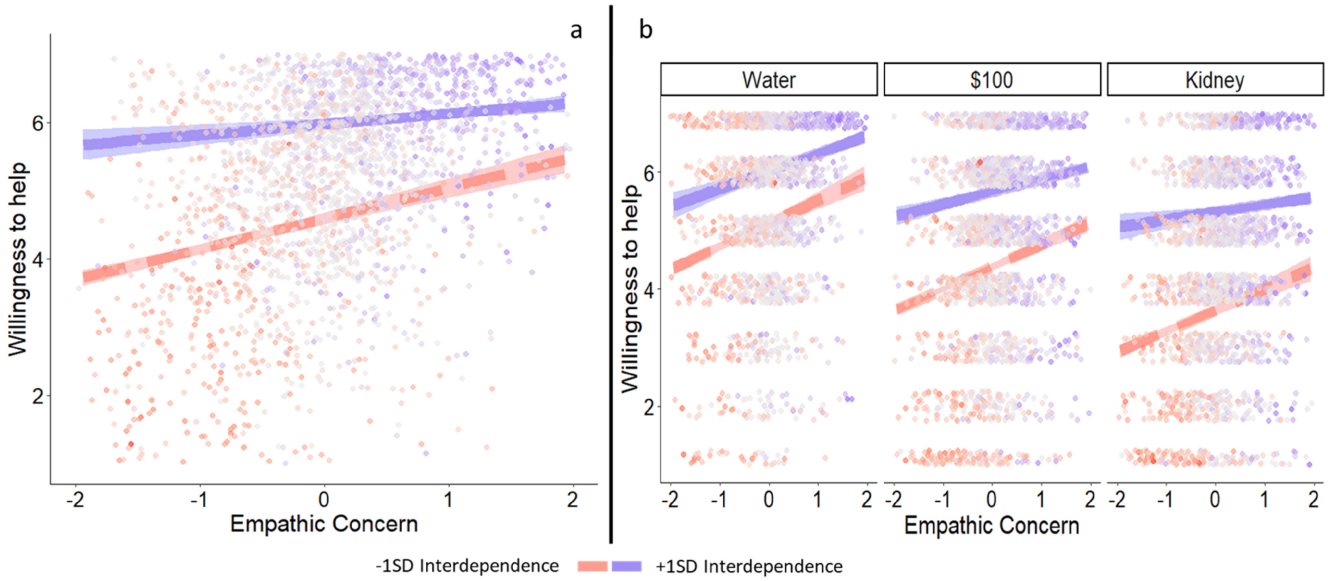
Discussion

Consistent with the prediction that people are more likely to experience empathic concern toward those they value (Batson et al., 1995; Sznycer et al., 2019), we found that people reported greater empathic concern toward relationship partners with whom they perceived greater interdependence. Nonetheless, in contrast to the prediction that perceived interdependence promotes empathy-mediated helping motivation, we found support for the opposing hypothesis—that empathic concern predicts willingness to help more strongly for non-interdependent targets than for highly interdependent partners. This difference cannot be fully explained by a ceiling effect for empathic concern, because there was ample variability in empathic concern toward interdependent relationship partners (see Figure 2).

[1] One of our reviewers wondered whether results would differ if the willingness to donate a kidney item was dropped from the willingness to help composite. Additional analyses showed that the Empathic Concern (Level-1) × Relatedness interaction (γ = −0.70, *SE* = 0.10, 95% CI [−0.90, −0.50]), the Empathic Concern (Level-1) × Interdependence interaction (γ = −0.17, *SE* = 0.01, [−0.20, −0.14]), and the Empathic Concern (Level-2) × Interdependence interaction (γ = −0.15, *SE* = 0.02, [−0.20, −0.10]) held after dropping the willingness to donate a kidney item.

Figure 2

Empathic Concern Is Associated With Willingness to Help Noninterdependent Targets



Note. Panel a: when people report lower perceived interdependence (red/light line) in their relationship with a particular individual, their empathic concern toward that particular individual predicts willingness to help them more strongly than when people report higher perceived interdependence (blue/dark line). Panel b: Empathic concern had a stronger positive effect on willingness to help at low (red/light line), than at high (blue/dark line), interdependence for willingness to give $100 dollars (middle), and for willingness to donate a kidney (right), but empathic concern had a similarly positive effect on willingness to give water (left) for both interdependent and non-interdependent targets. See the online article for the color version of this figure.

We further found that empathic concern predicted willingness to help at lower levels of expected genetic relatedness. Unexpectedly, empathic concern negatively predicted willingness to help siblings. However, this unexpected effect can be attributed to the high and restricted range of willingness to help siblings. In sum, Studies 1a and 1b provide cross-sectional support for the hypothesis that empathic concern predicts willingness to help non-interdependent targets more strongly than is the case for highly interdependent targets.

Study 2

In Studies 1a and 1b, we found that empathic concern was associated with greater helping motivation for non-interdependent targets than for interdependent targets. However, there were some limitations. None of the purported causal predictors were manipulated, making it impossible for us to make causal inferences. Also, while personal distress does not always influence prosocial motivation, it is correlated with empathic concern and should be ruled out as an alternative explanation, because personal distress can motivate people to help when they want to alleviate their own distress rather than the distress of the person in need (Batson et al., 1987; Eisenberg et al., 1988; Kim & Han, 2018). To address these issues, we induced empathy toward an acquaintance or sibling, separately measuring empathic concern and personal distress.

Method

Participants

We recruited 327 undergraduates from a university in the United States during the Fall of 2018 ($M_{age} = 19.02$, $SD_{age} = 1.26$, 53.8% men). All students who were above the age of 18 and fluent in English were eligible to participate. On average, participants took 15.12 min ($SD = 8.37$) to complete the study. A majority of participants identified as White (53.5%), followed by Asian (24.5%), other (11.5%), Black/African American (7%), Native American (1.8%), and Native Hawaiian/Pacific Islander (0.9%). Based on our sample size, and Level-2 effects found in Study 1b, a post hoc power analysis with simulation in R Studio showed that we were adequately powered ($1-\beta = 0.82$) to detect an interaction between empathic concern ($b = 0.35$) and interdependence ($b = 0.08$) on willingness to help as small as $b = -0.15$.

We identified 18 inattentive participants who either did not provide an open response to the perspective-taking manipulation instructions, wrote about more than one target in their response, did not describe their target's situation (as instructed), wrote about a "partner" rather than an acquaintance, or showed evidence of flatlining responses (i.e., variance in their responses was 2 *SD*s below the *SD* mean of the sample). We report the primary analyses with the full sample and after removing these inattentive participants.

Procedures and Measures

The present study followed a 2 (target type: acquaintance | sibling) × 2 (target distress: no distress | distress) between-subjects design. Participants were first asked if they had at least one biological sibling, and if so, they were equally randomized across all four conditions; participants who reported having no biological siblings were randomized between the two acquaintance conditions. We chose siblings and acquaintances as targets for this study to ensure that

we captured the low and high distributions of perceived interdependence and relatedness.

Participants were then instructed to recall and write about either a daily activity or a difficult situation that an acquaintance or sibling had gone through, depending on what condition they were in (see S2.2 in the online supplemental materials). Because people modally feel empathy when presented with a person in need (McAuliffe et al., 2020), we manipulated target distress (i.e., recalling a difficult situation in the target's life) rather than perspective-taking instructions to induce empathy. Moreover, we implemented imagine-other rather than imagine-self perspective-taking instructions because we did not want to inadvertently increase feelings of interdependence by asking participants to imagine how they would feel if they were in the target's situation. When people engage in imagine-self perspective-taking (i.e., *imagine how you would have felt if you were in your acquaintance's situation*) they report greater IOS with the person in need; this is not the case for imagine-other perspective-taking instructions (Myers & Hodges, 2012; but see McAuliffe et al., 2018). Thus, we implemented imagine-other instructions across conditions (i.e., *imagine how your acquaintance would have felt in his/her situation*) to ensure that the target distress manipulation did not spill-over to measures of interdependence.

Participants then reported their empathic concern by rating how *sympathetic, compassionate, concerned, empathic, and tender* (1 = *not at all*, 7 = *extremely*) they felt while thinking about their acquaintance or sibling's situation ($\alpha_{acquaintance} = .91$, $\alpha_{sibling} = .91$). Personal distress was measured by asking participants to rate how *alarmed, grieved, troubled, distressed, upset, disturbed, perturbed, and worried* (1 = *not at all*, 7 = *extremely*; $\alpha_{acquaintance} = .95$, $\alpha_{sibling} = .96$) they felt while thinking about their acquaintance or sibling's situation (Batson et al., 1989; McAuliffe et al., 2018). Last, participants reported their emotional shared fate ($\alpha_{acquaintance} = .72$, $\alpha_{sibling} = .64$), perceived shared fate ($\alpha_{acquaintance} = .84$, $\alpha_{sibling} = .78$), IOS, and willingness to help ($\alpha_{acquaintance} = .79$, $\alpha_{sibling} = .81$) using the same measures as in Studies 1a and 1b. Considering the strong correlations among IOS, emotional shared fate, and perceived shared fate (r's = .57–.77, p's < .001), we again created a composite score of interdependence by averaging these three measures (Table 4).

Results

Manipulation Checks

To assess the effectiveness of the target distress manipulation we ran general linear models with target distress (−0.5 = *no distress*, 0.5 = *distress*) and target type (0 = *acquaintance*, 1 = *sibling*) as predictors of personal distress and empathic concern.

Empathic Concern. Participants reported greater empathic concern, $F(1, 301) = 99.87$, $p < 0.001$, $\eta_p^2 = .25$, in the distress condition ($M = 4.78$, $SD = 1.39$), than in the no distress condition ($M = 3.13$, $SD = 1.50$, $M_{diff} = 1.67$, 95% CI [1.34, 1.99], $d = 1.14$). We also found that participants reported greater empathic concern, $F(1, 303) = 4.62$, $p = .03$, $\eta_p^2 = .01$, toward a sibling ($M = 4.15$, $SD = 1.71$), than toward an acquaintance ($M = 3.78$, $SD = 1.62$, $M_{diff} = 0.35$, 95% CI [0.03, 0.69], $d = 0.22$). But we found no Target Type × Target Distress interaction on empathic concern, $F(1, 301) = 0.45$, $p = .45$.

Personal Distress. Participants reported greater personal distress, $F(1, 299) = 176.23$, $p < 0.001$, $\eta_p^2 = .37$, in the distress condition ($M = 3.79$, $SD = 1.51$) than in the no distress condition ($M = 1.83$, $SD = 1.04$, $M_{diff} = 1.99$, 95% CI [1.70, 2.29], $d = 1.52$). We found no main effect of target type, $F(1, 299) = 0.14$, $p = .71$, nor a Target Type × Target Distress interaction on personal distress, $F(1, 299) = 2.31$, $p = .13$.

Did People Feel More Concern or Distress?. A paired-samples t test shows that participants reported greater empathic concern ($M = 3.89$, $SD = 1.64$) than personal distress ($M = 2.77$, $SD = 1.62$, $t(286) = 15.19$, $p < .001$, 95% CI [0.98, 1.27], $d = 0.90$). However, the target distress manipulation had a stronger effect on personal distress than empathic concern. Taken together, the target distress manipulation effectively induced empathic concern and personal distress, and the target distress manipulation had no impact on IOS, or perceived interdependence, indicating that there were no spill-over effects of the target distress manipulation on measures of interdependence (see S1.4.1 in the online supplemental materials).

Did Interdependence Attenuate the Effect of Empathic Concern on Willingness to Help?

We predicted that empathic concern would motivate willingness to help when people perceived low, but not high, interdependence in their relationships. To test this hypothesis, we ran a second-stage moderated mediation of target distress on willingness to help via empathic concern (mean-centered and standardized) conditional on interdependence (mean-centered and standardized) using the PROCESS (V4.1) macro model 14 for SPSS V.28.

The model predicted willingness to help, $F(4, 292) = 76.58$, $p < .001$, $R^2 = 0.51$. We found no main effect of target distress ($b = -0.15$, $SE = 0.12$, $p = .20$, 95% CI [−0.38, 0.08]), but empathic concern ($b = 0.19$, $SE = 0.06$, $p = .001$, 95% CI [0.07, 0.31]) and perceived interdependence ($b = 0.78$, $SE = 0.05$, $p < .001$, 95% CI [0.67, 0.89]) both predicted greater willingness to help. Consistent with our hypothesis, the Empathic Concern × Interdependence interaction was significant ($b = -0.17$, $SE = 0.05$, $p < .001$, 95% CI [−0.27, −0.08]), such that empathic concern predicted greater willingness to help at 1 *SD* below the mean of interdependence ($b = 0.37$, $SE = 0.08$, $p < .001$, 95% CI [0.21, 0.52]), but not at 1 *SD* above the mean of interdependence ($b = 0.03$, $SE = 0.07$, $p = .72$, 95% CI [−0.12, 0.17]) (Figure 3b). Further, the indirect effect of target distress on willingness to help via empathic concern was conditional on interdependence (index of moderated mediation = −0.17, $SE = 0.04$, 95% CI [−0.25, −0.09]), such that empathic concern mediated the effect of target distress on willingness to help at low, but not high, interdependence (Figure 3a).[2]

The Empathic Concern × Interdependence interaction on willingness to help, and the second-stage moderated mediation of target distress on willingness to help via empathic concern conditional on

[2] One of our reviewers wondered whether results would differ if the willingness to donate a kidney item were dropped from the willingness to help composite. Additional analyses showed that the empathic concern by interdependence interaction on willingness to help ($b = -0.17$, $SE = 0.04$, 95% CI [−0.27, −0.08]), and the second-stage moderated mediation of the empathy condition on willingness to help via empathic concern conditional on interdependence (index of moderated mediation = −0.17, $SE = 0.04$, 95% CI [−0.29, −0.10]) both held after dropping the willingness to donate a kidney item.

Table 4
Descriptive Statistics (Study 2)

	Acquaintance (no distress)			Acquaintance (distress)			Sibling (no distress)			Sibling (distress)		
Target type (target distress)	*M*	*SD*	Range	*M*	*SD*	Range	*M*	*SD*	Range	*M*	*SD*	Range
Empathic concern	3.03	1.46	5.60	4.57	1.38	6.00	3.26	1.55	6.00	5.06	1.36	6.00
Personal distress	1.90	1.05	4.00	3.67	1.46	6.00	1.73	1.03	4.50	3.95	1.58	6.00
Self-other-overlap (IOS)	3.42	1.37	6.00	3.26	1.35	6.00	4.50	1.71	6.00	4.48	1.70	6.00
Emotional shared fate	4.80	1.23	5.25	4.66	1.13	6.00	5.78	0.99	5.00	5.91	0.85	4.25
Perceived shared fate	3.38	1.59	6.00	3.31	1.41	6.00	4.60	1.42	6.00	4.80	1.44	6.00
Interdependence	3.87	1.18	5.53	3.74	1.09	6.00	4.96	1.19	5.47	5.06	1.17	4.42
Willingness to help	5.10	1.20	5.00	5.03	1.12	5.00	6.47	0.85	4.00	6.56	0.66	3.83

interdependence each held after controlling for personal distress and when removing inattentive participants (S1.4.2 in the online supplemental materials). We also probed the three-way interaction between empathic concern, interdependence, and level of need (i.e., type of help: giving water, $100, and donating a kidney), but this three-way interaction was *ns*, $F(2, 603) = 1.23$, $p = .29$ (S1.4.3 in the online supplemental materials).

Did Empathic Concern Predict Willingness to Help Acquaintances More Strongly Than Siblings?

We tested whether empathic concern would predict willingness to help acquaintances (i.e., zero relatedness) more strongly than siblings (i.e., high relatedness). To do so, we ran a second-stage moderated mediation of the target distress condition on willingness to help via empathic concern conditional on target type. This model revealed a negative main effect of target distress ($b = -0.40$, $SE = 0.13$, $p = .002$, 95% CI [−0.66, −0.15]), and a positive main effect of target type (i.e., siblings) on willingness to help ($b = 1.36$, $SE = 0.11$, $p < .001$, 95% CI [1.13, 1.58]). We also found that empathic concern predicted greater willingness to help ($b = 0.40$, $SE = 0.08$, $p < .001$, 95% CI [0.24, 0.56]). However, we did not find a Target Type × Empathic Concern interaction ($b = -0.05$, $SE = 0.11$, $p = .66$, 95% CI [−0.27, 0.17]). In addition, the indirect effect of target distress on willingness to help via empathic concern was not conditional on target type (index of moderated mediation = −0.05, $SE = 0.11$, 95% CI [−0.26, 0.18]), indicating that the mediated effect of target distress on willingness to help via empathic concern was positive for both acquaintances (indirect effect = 0.39, $SE = 0.10$, 95% CI [0.21, 0.59]), and siblings (indirect effect = 0.35, $SE = 0.10$, 95% CI [0.17, 0.56]). Personal distress and inattentive participants did not influence these results (S1.4.4 in the online supplementary materials).[3]

Discussion

We induced empathy by manipulating whether participants thought about a distressed or a non-distressed target (i.e., an acquaintance or a sibling). Results supported the hypothesis that empathic concern motivates willingness to help when people perceive low interdependence in their relationships, but not when they perceive high interdependence in their relationships. This interaction was neither confounded by feelings of personal distress, nor moderated by level of need among types of helping scenarios. Moreover, higher relatedness as the source of interdependence did not attenuate the empathic-concern-help relationship. We think there are two plausible explanations for this. First, we may have lacked the variability to detect this interaction effect (i.e., from measuring a wider range of targets as in Studies 1a and 1b). Second, because genetic relatedness is only one potential source of interdependence (Balliet et al., 2017; Cronk et al., 2019), our model posits that empathic concern should still predict willingness to help kin if people perceive an overall low level of interdependence with kin-targets.

Study 3

The composite measure of interdependence confounds two constructs of interdependence: IOS and shared fate. This is a limitation because previous studies have manipulated perceived similarity/kinship cues to increase feelings of empathic concern (e.g., Batson et al., 1995), and IOS (Batson et al., 1995; Maner et al., 2002), which could confound the effect of empathic concern and interdependence (via perceived similarity/kinship cues) on willingness to help. We expect shared fate to strongly motivate willingness to help an interdependent target in need because when the material outcomes between yourself and a partner positively covary, what is good for them is more likely to also be good for you. This motivation to help will not depend on empathic concern, it will be accounted for by the positive yoking of outcomes people expect from interdependent relationships. In contrast, for people whose outcomes are independent, empathic concern will motivate willingness to help because empathic concern is an internal signal that one should value the welfare of the person in need (Sznycer et al., 2019). To address these issues, in Study 3, we manipulated empathic concern and shared fate, but not relatedness or IOS.

Method

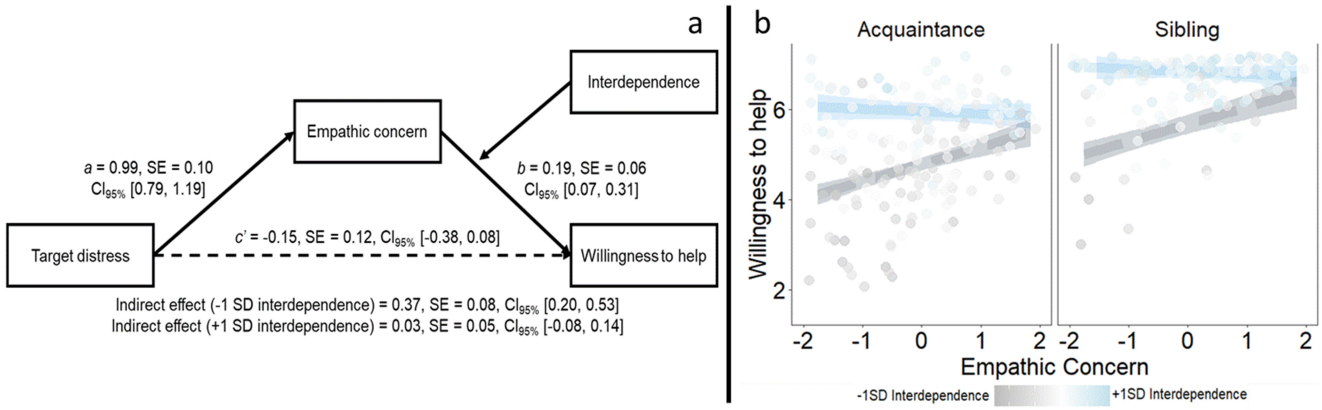
Participants

We recruited 431 undergraduates from a public university in the United States between the Fall of 2019 and the Spring of 2020

[3] One of our reviewers wondered whether results would differ if the willingness to donate a kidney item were dropped from the willingness to help composite. Additional analyses showed that the empathic concern by target type interaction on willingness to help ($b = -0.06$, $SE = 0.11$, 95% CI [−0.29, 0.16]), and the second-stage moderated mediation of the empathy condition on willingness to help via empathic concern conditional on target type (index of moderated mediation = −0.06, $SE = 0.11$, 95% CI [−0.28, 0.16]) did not change after dropping the willingness to donate a kidney item.

Figure 3

Conditional Effect of Target Distress on Willingness to Help via Empathic Concern (Study 2)



Note. Panel a: Taking the perspective of a target in distress (compared to a non-distressed target) induced feelings of empathic concern, leading to greater willingness to help via empathic concern when people perceived low interdependence, but not when they perceived high interdependence in their relationship. Panel b: Empathic concern predicted greater willingness to help when people perceived low (gray/light line), but not high (blue/dark line), interdependence in their relationship with an acquaintance (left) or a sibling (right). See the online article for the color version of this figure.

($M_{age} = 19.13$, $SD_{age} = 1.41$; 56.8% women). On average, participants took 23.82 min ($SD = 9.19$) to complete the study. Most participants identified as White (51.5%), followed by Asian (20.4%), Hispanic/Latino (17.2%), Black/African American (4.2%), other (4.6%), and Native American (1.9%). Based on our sample size and results from Study 2, a post hoc power analysis with simulation showed that we were adequately powered ($1 - \beta = 0.80$) to detect an interaction between empathic concern ($b = 0.19$) and interdependence ($b = 0.78$) on willingness to help as small as $b = -0.082$. We identified eight inattentive participants who showed evidence of flatlining responses (i.e., variance in their responses was 2 *SD*s below the *SD* mean of the sample). We report the primary analyses with the full sample and after removing these inattentive participants.

Procedures and Measures

Employing a 2 (interdependence: independence | interdependence) × 2 (target distress: no distress | distress) between-subjects design, participants read a vignette (modified from Delton, 2010) in which they and an acquaintance had agreed either to gather food individually (independence condition) or cooperatively (interdependence condition). Participants also read that their acquaintance either tripped and carried on with their day (no distress condition) or tripped and severely hurt their ankle (distress condition). As in Study 2, participants in all conditions were then instructed to engage in imagine-other perspective-taking (see S2.3 in the online supplemental materials).

Participants then reported their personal distress ($\alpha = .93$), empathic concern ($\alpha = .91$), emotional shared fate ($\alpha = .73$), perceived shared fate ($\alpha = .88$), and IOS using the same measures as in previous studies. We measured willingness to help by asking participants to indicate what percentage of food acquired they would be willing to give to their acquaintance. Responses were recorded on a slider bar ranging from zero to 100% for each food type (i.e., snapper, shrimp, and lobster). We operationalized willingness to help as the average percentage of food allocated to acquaintances ($\alpha = .94$). We were also interested in exploring whether empathic concern and interdependence facilitated intuitive prosociality –helping motivation that is nondeliberate and impulsive, rather than calculated or a consequence of regulated self-oriented motivation (Zaki & Mitchell, 2013). As an index of intuitive prosociality, we measured the time (i.e., total number of seconds) participants spent responding to the three food-allocation questions (see Table 5 for descriptive statistics).

Results

Manipulation Checks

To assess the effectiveness of the manipulations, we ran general linear models with interdependence (*independence* = 0, *interdependence* = 1) and target distress (*no distress* = −0.5, *distress* = 0.5) on shared fate, personal distress, and empathic concern.

Shared Fate. We found no main effect of target distress, $F(1, 427) = 0.03$, $p = .86$, or a Target Distress × Interdependence interaction on perceived shared fate, $F(1, 427) = 0.79$, $p = .37$. However, we found that participants reported higher perceived shared fate, $F(1, 427) = 13.08$, $p < .001$, $\eta_p^2 = .03$, in the interdependence condition ($M = 4.25$, $SD = 1.77$) than in the independence condition ($M = 3.67$, $SD = 1.64$, $M_{diff} = 0.60$, 95% CI [0.27, 0.93], $d = 0.34$). Participants also reported greater emotional shared fate, $F(1, 427) = 6.48$, $p = .01$, $\eta_p^2 = .01$, in the interdependence condition ($M = 5.13$, $SD = 1.22$) than in the independence condition ($M = 4.85$, $SD = 1.18$, $M_{diff} = 0.30$, 95% CI [0.07, 0.52], $d = 0.23$), but we found no main effect of target distress, $F(1, 427) = 0.04$, $p = .84$, or a Target Distress × Interdependence interaction on emotional shared fate, $F(1, 427) = 3.18$, $p = .07$. A paired-samples *t* test showed that participants reported greater emotional shared fate ($M = 4.98$, $SD = 1.21$) than perceived shared fate, $M = 3.94$, $SD = 1.73$, $t(430) = 19.44$, $p < .001$, 95% CI [0.93, 1.14], $d = 0.93$. However, the interdependence manipulation had a stronger effect on perceived shared fate than on emotional shared fate.

Empathy. Participants reported greater empathic concern, $F(1, 424) = 12.29$, $p = .001$, $\eta_p^2 = .03$, in the distress ($M = 4.99$, $SD = 1.29$) than in the no distress condition ($M = 4.52$, $SD =$

Table 5
Descriptive Statistics (Study 3)

	Independence (no distress)			Independence (distress)			Interdependence (no distress)			Interdependence (distress)		
Interdependence (target distress)	*M*	*SD*	Range	*M*	*SD*	Range	*M*	*SD*	Range	*M*	*SD*	Range
Empathic concern	4.57	1.49	6	4.97	1.32	6	4.46	1.43	5.8	5.02	1.26	5.2
Personal distress	3.14	1.50	6	3.99	1.40	6	3.18	1.52	6	3.79	1.22	5.13
Self-other-overlap (IOS)	3.13	1.34	6	3.18	1.53	6	3.09	1.46	6	3.48	1.69	6
Emotional Shared Fate	4.94	1.22	5.75	4.76	1.16	5.5	5.03	1.24	5.5	5.26	1.19	4.5
Perceived shared fate	3.73	1.66	6	3.61	1.63	6	4.18	1.81	6	4.36	1.72	6
Percentage of food willing to give	40.9	15.5	100	40.3	15.5	100	49.4	10.3	98	51.1	9.6	58.3
Seconds to allocate food willing to give	33.3	13.9	82.6	35.7	15.2	94.6	30.9	10.9	78.2	32.6	13.9	69.1

1.46, $d = 0.34$). But we found no main effect of interdependence, $F(1, 424) = 0.04$, $p = .84$, or a Target Distress × Interdependence interaction on empathic concern, $F(1, 424) = 0.38$, $p = .54$. Participants also reported greater personal distress, $F(1, 412) = 26.69$, $p < .001$, $\eta_p^2 = .06$, in the distress ($M = 3.91$, $SD = 1.33$), than in the no distress condition ($M = 3.16$, $SD = 1.51$, $M_{diff} = 0.73$, 95% CI [0.45, 1.01], $d = 0.52$). We found no main effect of interdependence, $F(1, 412) = 0.33$, $p = .56$, or a Target Distress × Interdependence interaction on personal distress, $F(1, 412) = 0.72$, $p = .39$. A paired-samples t test shows that participants reported greater empathic concern ($M = 4.71$, $SD = 1.40$) than personal distress, $M = 3.51$, $SD = 1.48$, $t(412) = 18.79$, $p < 0.001$, 95% CI [1.08, 1.33], $d = 0.92$. However, the target distress manipulation had a stronger effect on personal distress than on empathic concern.

Although we designed the Interdependence manipulation to specifically induce perceived shared fate, the interdependence manipulation increased both emotional and perceived shared fate. However, as intended, the manipulation did not induce empathic concern, personal distress, or IOS with an acquaintance. Moreover, the target distress manipulation increased empathic concern and personal distress, but not shared fate or IOS (S1.5.1 in the online supplemental materials). Therefore, we can be confident that the effects of empathic concern and interdependence on willingness to help are not confounded with one another, nor with IOS.

Did Interdependence Attenuate the Effect of Empathic Concern on Willingness to Help?

We predicted that empathic concern would predict willingness to help when outcomes between participants and an acquaintance were independent, but not when their outcomes were interdependent. Following our previous analyses, we ran a second-stage moderated mediation to test the effect of target distress on willingness to help via empathic concern (mean-centered and standardized), conditional on interdependence, $F(4, 408) = 29.50$, $p < .001$, $R^2 = 0.22$. We found no main effect of target distress ($b = -0.79$, $SE = 1.23$, $p = .52$, 95% CI [−3.20, 1.62]), but participants were more willing to help in the interdependence condition than in the independence condition ($b = 9.75$, $SE = 1.21$, $p < 0.001$, 95% CI [7.38, 12.13]). As predicted, we also found an Interdependence × Empathic Concern interaction ($b = -4.56$, $SE = 1.21$, $p < 0.001$, 95% CI [−6.94, −2.18]), such that empathic concern predicted greater willingness to help in the independence condition ($b = 6.30$, $SE = 0.82$, $p < 0.001$, 95% CI [4.69, 7.91]), but not in the interdependence condition ($b = 1.73$, $SE = 0.90$, $p = .055$, 95% CI [−0.04, 3.51]; Figure 4b). In addition, the indirect effect of target distress on willingness to help via empathic concern was conditional on interdependence (index of moderated mediation = −1.53, $SE = 0.63$, 95% CI [−2.90, −0.46]). Target distress had a stronger positive indirect effect on willingness to help via empathic concern in the independence condition ($b = 2.11$, $SE = 0.71$, 95% CI [0.82, 3.60]) than in the interdependence condition ($b = 0.58$, $SE = 0.33$, 95% CI [0.06, 1.34]).

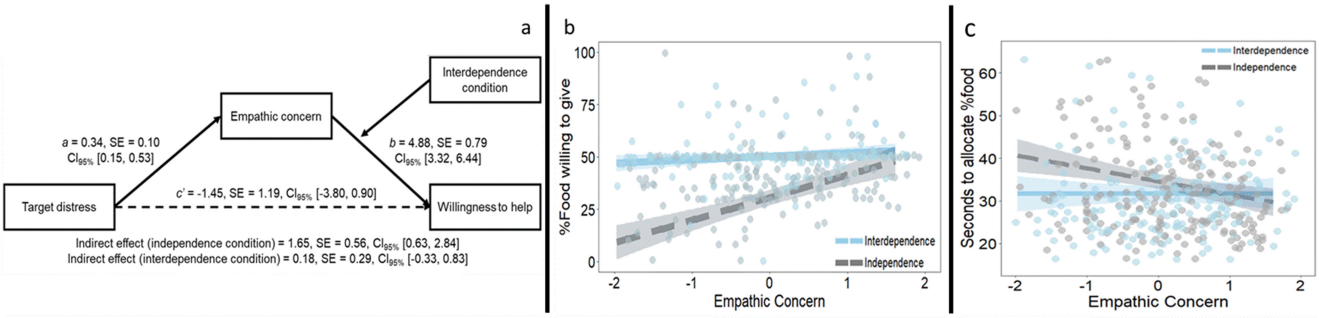
Supplemental analyses show that results did not differ after removing inattentive participants (S1.5.2 in the online supplemental materials). However, we found evidence that personal distress confounded the effect of empathic concern on willingness to help. Personal distress was positively associated with willingness to help ($b = 1.59$, $SE = 0.44$, $p < 0.001$). Moreover, the conditional indirect effects of target distress on willingness to help via empathic concern were smaller after controlling for personal distress, such that target distress had a positive indirect effect on willingness to help via empathic concern in the independence condition, but the indirect effect was no longer statistically significant in the interdependence condition (Figure 4a). Results controlling for personal distress did not differ after removing inattentive participants (S1.5.2 in the online supplemental materials).

Exploratory: Did Interdependence and Empathic Concern Facilitate Intuitive Prosociality?

W tested for a second-stage moderated mediation of target distress on the number of seconds taken to make allocation decisions via empathic concern (mean-centered and standardized), conditional on interdependence, $F(4, 423) = 5.45$, $p < .001$, $R^2 = 0.05$. We found a positive main effect of target distress ($b = 2.86$, $SE = 1.32$, $p = .03$, 95% CI [0.27, 5.45]), a negative main effect of interdependence ($b = -2.69$, $SE = 1.30$, $p = .04$, 95% CI [−5.24, −0.14]), and an Interdependence × Empathic Concern interaction on Seconds ($b = 2.98$, $SE = 1.30$, $p = .02$, 95% CI [0.43, 5.53]). Empathic concern predicted faster responses in the independence condition ($b = -3.25$, $SE = 0.88$, $p < .001$, 95% CI [−4.97, −1.52]), but not in the interdependence condition ($b = -0.27$, $SE = 0.97$, $p = .78$, 95% CI [−2.17, 1.63]) (Figure 4c). The indirect effect of target distress on seconds via empathic concern was conditional on interdependence (index of moderated mediation = 1.00, $SE = 0.49$, 95% CI [0.17, 2.11]), such that empathic concern mediated the effect of target distress on seconds in the independence

Figure 4

Conditional Effect of Target Distress on Willingness to Help via Empathic Concern (Study 3)



Note. Panel a: Taking the perspective of an acquaintance in distress (compared to a non-distressed acquaintance) induced feelings of empathic concern, leading to greater willingness to help via empathic concern in the independence condition, but not in the interdependence condition. Panel b: Empathic concern predicted greater willingness to help in the independence condition (gray/light line), but not in the interdependence condition (blue/dark line). Panel c: Empathic concern predicted faster allocation (i.e., more intuitively prosocial) decisions in the independence condition (gray/light line), but not in the interdependence condition (blue/dark line). See the online article for the color version of this figure.

condition (indirect effect = −1.09, *SE* = 0.43, 95% CI [−2.01, −0.37]), but not in the interdependence condition (indirect effect = −0.09, *SE* = 0.29, 95% CI [−0.70, 0.47]).

Discussion

We induced empathy by manipulating whether participants thought about a distressed or a nondistressed target, and found support for the hypothesis that empathic concern motivates willingness to help when we reduced, but not when we increased, perceived interdependence through a shared fate manipulation. Moreover, exploratory analyses revealed that when people feel empathic concern, they are more likely to make intuitively prosocial decisions, but only when outcomes between oneself and another are independent. In contrast, when outcomes are interdependent, people were more intuitively prosocial regardless of their empathic concern.

The target of empathy in this study was an acquaintance, someone with whom people are not interdependent via genetic relatedness, and the interdependence manipulation did not influence self-other-overlap (as measured by IOS). These results indicate that the effect of empathic concern on willingness to help and intuitive prosociality cannot be attributed to the value people ascribe to others based on kinship cues.

General Discussion

Does helping motivation rely on empathic concern? If so, for what targets? We hypothesized that empathic concern would predict helping motivation for relationships in which people perceive low interdependence, but not for relationships characterized by high perceived interdependence. Across studies, we found that people reported somewhat greater empathic concern for interdependent targets than non-interdependent targets, consistent with prior research. However, we also showed cross-sectionally (Studies 1a and 1b), and when experimentally manipulating a target's distress (Studies 2 and 3), that empathic concern only predicted greater willingness to help when people perceived low interdependence in their relationships, *not* when they perceived high interdependence.

Previous theoretical frameworks posit that the function of empathic concern is to selectively attune and direct investment toward kin, similar, and emotionally close (i.e., interdependent) partners (Cialdini et al., 1997; de Waal, 2008; de Waal & Preston, 2017; Maner et al., 2002; Preston & de Waal, 2002). Two predictions follow from these frameworks: (a) The intensity of empathic concern is calibrated by the extent to which people are positively interdependent and (b) empathic concern motivates helping interdependent partners, but plays a less important role in motivating helping in the absence of interdependence. We found partial support for the first of these predictions, but our findings suggested the *opposite* of the second.

Why Does Empathic Concern Motivate Willingness to Help Noninterdependent Targets?

Rather than existing interdependent relationship partners, in whom one's investment is already high, experiencing empathic concern toward a person with whom one does not yet have an interdependent relationship might allow one to build or enhance relationships with potential cooperative partners. Building cooperative relationships with unrelated and distant partners has been a recurrent feature of human sociality. According to estimates based on extant hunter-gatherer populations, people in ancestral conditions likely lived in groups consisting not only of close kin, but also affines, distant affines, and even acquaintances among larger communities (Dyble et al., 2015; Hill et al., 2011; Marlowe, 2004). Moreover, archaeological evidence indicates that humans were cooperating at larger scales with more distant individuals throughout the Late Pleistocene (Singh & Glowacki, 2022). Agent-based models also show that individuals default to cooperating in one-shot scenarios with strangers because of the (presumed) probability that one may encounter that individual again in the future (Krasnow et al., 2013). This proclivity to cooperate in the present, or offer aid in one-shot scenarios, can create opportunities to develop a relationship down the road with a valuable partner (Delton et al., 2011). Such interactions are thought to have shaped psychological mechanisms for cooperating with a variety of close and distant others, including emotions such as empathic

concern and gratitude (Algoe et al., 2008; Guevara Beltran et al., forthcoming; Sznycer & Lukaszewski, 2019).

From a socio-functional perspective on emotion (Keltner et al., 2006; Shiota et al., 2004), empathic concern may be functionally similar to feelings of gratitude. Gratitude often occurs in the early stages of relationship formation; is elicited when people receive larger-than-expected benefits (Sznycer & Lukaszewski, 2019); increases the value placed on the donor; and promotes reciprocity (Smith et al., 2017). Over time, gratitude engenders closeness (Algoe et al., 2008), and a greater sense of responsibility for the welfare of the donor (Lambert et al., 2010). Similarly, people may stand to gain the most in terms of building a strong social network when deploying empathic concern in the early stages of relationships—especially if empathically-motivated helping is met with gratitude, or if it enhances one's reputation.

Empathetic individuals are more likely to evaluate the loss of a stranger in need similarly to the way they evaluate their own losses, suggesting that when people experience empathic concern, they are more likely to intuitively perceive greater shared fate with others' material losses (Liu et al., 2020). All else being equal, less selectively empathetic individuals may benefit from an ability to foster a variety of positive relationships. Indeed, people with higher trait empathic concern have a greater number of close relationships (Kardos et al., 2017), benefit from greater network centrality (Morelli et al., 2017), and are valued more highly within a network than less empathetic individuals (Morelli et al., 2018). Cultivating an empathetic disposition and a propensity to help others when in need might be especially fruitful among those who experience frequent and unpredictable sources of risk, because those who provide help are more likely to receive help during a future time of need (Guevara Beltran, 2023).

What Mechanisms Mediate Willingness to Help Interdependent Partners?

Interdependence may arise from sources such as genetic relatedness (e.g., siblings), mating (i.e., parenting and grandparenting), marriage (e.g., affine relationships), mutual aid through risk pooling and exchange (e.g., food sharing, labor sharing), alloparenting, and shared group membership (Cronk et al., 2019). There may be multiple mechanisms that mediate willingness to help interdependent targets, depending on the specific source of interdependence. For example, when genetic relatedness is the source, length of coresidence during childhood, observing one's mother intensely care for one's sibling, and perceived similarity predict higher welfare tradeoff ratios (i.e., a target's value). In turn, valuing the welfare of target's mediate willingness to help (Curry et al., 2013; Hackman et al., 2015; Lieberman et al., 2007; Sznycer et al., 2016). We can likewise consider interdependence among members of a risk pooling system, such as systems of central place provisioning among hunter–gatherer groups (Berbesque et al., 2016; Isaac, 1978; Marlowe, 2005), labor sharing among horticulturalist groups (Macfarlan et al., 2013), or labor sharing among ranchers (Cronk et al., 2021). In such circumstances, strong sharing norms (e.g., central place provisioning), norms that dictate that one ought to help a neighbor during times of need (Cronk et al., 2021), or reputation-based concerns (Macfarlan et al., 2013) can mediate willingness to help. However, such norms are predicted to arise from the objective outcome interdependence that people experience from pooling labor and other sources of risk (Cronk & Aktipis, 2021; Cronk et al., 2019).

Regardless of its source, our model posits that empathic concern will become a less prominent predictor of willingness to help as interdependence rises. As shown in these studies, shared fate accounted for willingness to help interdependent partners. Thus, an alternative hypothesis is that shared fate operates as an internal regulatory variable that integrates multiple cues from multiple sources of interdependence to provide an estimate of the extent to which outcomes between oneself and specific others are intertwined (e.g., Balliet et al., 2017; Delton & Robertson, 2016; Delton et al., 2023; Sznycer, 2022). In turn, this estimate of shared fate may mediate willingness to help interdependent targets across different contexts or situations (Columbus et al., 2021; Gerpott et al., 2018). However, outside of whether a target is kin, our measure of shared fate cannot tell us about the source(s) that gave rise to such perceptions of shared fate among participants in this study. Thus, these alternative hypotheses need to be evaluated in future research.

When Should Empathic Concern Predict Willingness to Help Noninterdependent Targets?

Our findings should be interpreted in light of evidence that people are somewhat stingy with empathy overall (Cameron et al., 2019; Ferguson et al., 2020). If empathic concern serves a relationship-building function, we should expect empathic concern and its effects on willingness to help non-interdependent targets to be regulated according to (a) the value of the target in need (i.e., target's potential to generate benefits/impose costs) and (b) the tradeoffs associated with investing in new partners within a given culture or ecology. This relationship-building perspective leads to interesting predictions for future research.

Target-Specific Moderators

Previous studies have demonstrated some of these boundary conditions. For example, empathic concern predicts greater concessions toward a sad negotiation partner, but only when people believe they will interact with that individual in the future (Sinaceur et al., 2015). Similarly, people who do not value your welfare would make poor cooperative partners. Accordingly, empathic concern does not motivate willingness to help strangers who have shown that they do not value the participant's welfare (Sznycer et al., 2019). Moreover, a partner's value is determined by their capacity to generate benefits. Thus, individuals who demonstrate low-capacity cues may either elicit low levels of empathic concern, or empathic concern may not predict one's willingness to help them. Conversely, individuals who show high-capacity cues should elicit greater empathic concern and help when in need. Indeed, in prior research targets described as drunk, substance users, or lazy elicited lower empathic concern and were seen as less deserving of help than industrious people who happen to be down on their luck (Aarøe & Petersen, 2014; Decety et al., 2010; Delton et al., 2018; Jensen & Petersen, 2017; Weiner, 1980).

Additional target-specific moderators that calibrate the value of a target include group membership, threat, and disease. The coalitions to which people belong (or are seen to belong) provide information about their likelihood to cooperate with you (Pietraszewski et al., 2015). While people do experience empathic concern for outgroup members, such feelings of concern often fail to predict willingness to help (Stürmer et al., 2005, 2006). Outgroup (vs. ingroup) targets are also valued more negatively, likely because they are seen as less

probable cooperating partners—perhaps even as competitors (Pietraszewski et al., 2015); and such negative evaluations can inhibit empathic concern and willingness to help (Hein et al., 2010; Xu et al., 2009). Formidable (i.e., physically strong) people are prone to feeling anger and use aggression to get their way during conflicts (Sell et al., 2009, 2017). When angry, people take more and contribute less in cooperative contexts (Fabiansson & Denson, 2012; Polman & Kim, 2013). Thus, formidable and anger-prone people are risky partners and may engender lower empathic concern and willingness to help. Indeed, angry individuals in need do not elicit empathic concern (Sassenrath et al., 2017). Moreover, perceived vulnerability to infection reduces affiliation (Mortensen et al., 2010); and feelings of disgust lower a target's relational value, induce avoidance behaviors, exacerbate prejudice, and inhibit cooperation (Dasgupta et al., 2009; Moretti & di Pellegrino, 2010; Tybur & Lieberman, 2016). Thus, infected individuals may elicit lower empathic concern, or empathic concern may not predict willingness to help non-interdependent targets, especially when in close proximity to the target.

Cultural/Ecological Moderators

Cultural/ecological factors can shape the cost/benefit balance of investing in new relationship partners, and such tradeoffs should moderate the effect of empathic concern on willingness to help non-interdependent targets. For example, empathic concern should have a stronger positive effect on willingness to help non-interdependent targets in areas characterized by high relational mobility. Relational mobility is the extent to which people within a given society have the ability to choose their social ties (Oishi, 2010). Compared to countries that have historically relied on independent modes of subsistence (e.g., herding), relational mobility tends to be lower in countries that primarily relied on interdependent modes of subsistence (e.g., wheat, rice farming; Thomson et al., 2018).

People prefer to have wider social networks in highly relationally mobile societies (Oishi & Kesebir, 2012). The value of investing in additional potential interdependent relationship partners is higher in this sociocultural context, so we would expect empathic concern to be stronger, and a stronger predictor of helping, toward strangers and acquaintances. Notably, the current studies were conducted in the United States where relational mobility is especially high. In contrast, people who reside in areas with low relational mobility prefer to invest in fewer but deeper social ties. Agent-based models show that investing in a few close relationships (vs. many shallow relationships) leads to better payoffs (i.e., returns from investing in partners) when relational mobility is low (i.e., partners move less frequently), and the probability of experiencing serious financial need is high (Oishi & Kesebir, 2012). This happens because individuals might not be able to assist their partners during serious times of need if they maintained many ties that required high levels of investment. For example, as compared to U.S. adults, people in Ghana have fewer friends, and are more likely to emphasize the provisioning of material support during serious hardships as an important characteristic of their relationships. Some even consider having many friendships "foolish" and "irresponsible" (Adams & Plaut, 2003). Because low relational mobility increases the potential costs and reduces the potential benefits of investing in new partners, the effect of empathic concern on willingness to help non-interdependent targets might be weaker in areas characterized by low relational mobility.

Limitations and Future Directions

Are Feelings of Empathic Concern Worth the Trouble in Interdependent Relationships?

Our findings suggest that empathic concern might be unnecessary—perhaps even costly—in guiding helping motivation when people perceive high interdependence in their relationships. Researchers have suggested that due to the cognitive and material costs associated with empathizing (Cameron & Payne, 2011; Cameron et al., 2019; Ferguson et al., 2020), people will avoid, or minimize, engaging in affective sharing. However, when people value the welfare of a person in need, they might likewise preserve effort by avoiding, or minimizing, empathic concern. As a construct, empathic concern involves affective correspondence with the distress of a target, feelings of concern, and motivation to alleviate such distress (Batson, 2011). Perhaps the specific component of empathic concern that is not needed to motivate willingness to help at high levels of interdependence is correspondence with the negative affect of the target. The present research does not allow us to determine whether affective correspondence with the distress of a target is actually unnecessary or inefficient for guiding helping at high levels of interdependence, but our results suggest that this is an interesting direction for further research.

Our Studies Do Not Consider Negative Interdependence

One strength of these studies is that we included a wide range of targets, allowing us to capture greater variation in interdependence than is commonly seen in research on empathic concern. However, our measure of shared fate (Ayers et al., 2023) does not measure perceptions of *negative* interdependence. Interdependence as defined by Aktipis et al. (2018) and Roberts (2005) includes relationships that range from negatively to positively correlated outcomes. Empathic concern often fails to elicit willingness to help adversarial or antagonistic targets (Zaki & Cikara, 2015)—targets that should give rise to perceptions of negative interdependence. Future studies could measure interdependence toward enemies, rivals, or antagonistic groups as well as positively interdependent relationships to confirm that empathic concern does not predict willingness to help negatively interdependent others. If empathic concern does predict willingness to help when people perceive negative interdependence with a target, this would imply that the role of empathic concern in motivating willingness to help is more flexible than previously thought. After all, foes can become friends, and friends can become enemies.

Did Perspective-Taking Instructions Create Demands?

Another strength of this research is that our experimental manipulations allow us to make causal inferences. However, there were also plausible limitations to our approach. The explicit perspective-taking instructions in Studies 2 and 3 may have created demands, leading participants to provide socially desirable responses. Plausible demand effects might include the desire to appear generally prosocial, causing participants to report higher empathic concern and helping for both distant and interdependent targets than they would actually display. While this is likely, it would not account for the specific pattern of results in the present studies. If our perspective-taking instructions created demand to appear prosocial specifically toward non-interdependent targets, this might lead to selectively inflated reports of

empathic concern and helping for acquaintances. However, this seems unlikely relative to the alternative—demand specifically to demonstrate consistency with kinship-based norms, which would lead to selectively inflated reports of empathic concern and helping for siblings. However, the target distress manipulation had a similar positive effect on empathic concern for acquaintances and siblings (Study 2), and we find no evidence that target type per se moderated the effect of the target distress manipulation on willingness to help, $F(1, 311) = 0.59$, $p = .44$ (Study 2). These observations indicate that the target distress manipulation did not create demands to appear more prosocial toward distant versus closer targets (or vice versa), but we cannot rule out the possibility that there was a demand to appear generally more prosocial. In this case, however, we would expect randomization to smooth out biases across conditions.

Are Results Ecologically Valid?

A third strength of this research is that our measure of willingness to help included a wide range of need scenarios. This allowed us to capture greater variation in the kinds of situations that can elicit empathic concern and opportunities for helping across relationship targets. However, whether empathic concern predicts willingness to help non-interdependent targets when helping is considerably costlier or more effortful needs to be evaluated in future studies. For example, people are less willing to exert cognitive effort to benefit dissimilar targets or charities they do not value (Depow et al., 2022). Thus, cost and effort are likely additional important moderators.

People will seldom donate a kidney or find themselves stranded on an island. But most have, or will have, encountered opportunities to offer food, water, shelter, or money to a person in need. Thus, our participants probably had a fair amount of insight into how likely they would be willing to help under these more familiar circumstances. Moreover, previous studies show that self-report measures of prosociality are positively correlated with behavior ($r = .39$; e.g., dictator games, trust games, donations; Böckler et al., 2016, 2018), which suggests that we should expect a moderate correspondence between people's self-reported motivation and behavior, though effect sizes observed in these studies need to be evaluated in future studies using behavioral measures. On this note, we found that empathic concern predicted willingness to help non-interdependent others even for costlier scenarios (i.e., giving $100 and donating a kidney). Moreover, people who have actually donated a kidney to strangers show higher affective correspondence with other's pain—a crucial antecedent to feelings of concern (Brethel-Haurwitz et al., 2018; Marsh et al., 2014). While these studies did not measure empathic concern for the recipient of the kidney, they do lend credibility to our findings that empathic concern can motivate willingness to help non-interdependent others in costly ways.

Do Results Generalize to Other Populations?

Another constraint of this research is that all participants resided in the United States. Compared to most other populations, people in the United States tend to be more individualistic and have higher relational mobility (Kito et al., 2017; Oishi & Kesebir, 2012; Thomson et al., 2018). As noted above, when relational mobility and individualism are high, people are likely to interact with a greater number of novel individuals, and deploying empathic concern to build new relationships might be more fruitful. Future studies might test whether low relational mobility attenuates the effect of empathic concern on willingness to help non-interdependent targets.

Conclusion

We investigated, and found support for, the hypothesis that empathic concern predicts willingness to help when people perceive low—but not high—interdependence in their relationship with a person in need. Our results come in contrast to the view that empathic concern only (or more strongly) predicts willingness to help in the context of highly interdependent relationships, such as when partners are genetically related or emotionally close. Taken together, this research provides a plausible explanation for seemingly contradictory findings regarding the role of empathic concern and helping motivation raised in previous studies, and suggests that an additional function of empathic concern may be to direct attention and investment toward helping others in need with whom one might not yet have an interdependent relationship, but who have the potential to become a valuable cooperative partner in the future.

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Received August 12, 2022
Revision received May 26, 2023
Accepted June 26, 2023 ■

Correction to "Emotional Context and Predictability in Naturalistic Reading Aloud" by Alexander and Buzzell (2023)

In the article "Emotional Context and Predictability in Naturalistic Reading Aloud," by Jessica M. Alexander and George A. Buzzell (*Emotion*, 2024, Vol. 24, No. 3, pp. 617–627, https://doi.org/10.1037/emo0001298), Table 1 as originally reported contained an error with respect to participant demographics. Specifically, participants who had selected multiple categories for race/ethnicity were mistakenly assigned to only the first alphabetical category selected. Updates have been made in the Race/ethnicity section of Table 1, to change the heading "American Indian or Alaska Native" to "Multiple selected," and to the relevant statistics under that heading as well as under the "Hispanic, Latino/a/x, or Spanish origin" and "Asian" headings. No inferential statistics are impacted by this correction, nor does it affect the results or conclusions of the article. All versions of this article have been corrected.

https://doi.org/10.1037/emo0001378