

Helping in Times of Need Increases Dispositional Empathic Concern Over Time

by

Diego Guevara Beltran

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Graduate Supervisory Committee:

Athena C. Aktipis, Chair
Daniel J. Hruschka
Douglas T. Kenrick
Michelle N. Shiota

ARIZONA STATE UNIVERSITY

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ABSTRACT

Previous work suggests that lower-income individuals are more likely to engage in mutual aid as a means to manage risk, giving rise to a psychology that is other-oriented, including an empathetic disposition and a proclivity to help people in need. While no study has directly investigated whether helping in times of need increases dispositional empathic concern over time, this assumption is deep-seated among social psychologists. Employing a two-year longitudinal survey of US adults ($N = 915$), I show that people who experience more needs report helping others when in need a greater number of times, in turn leading to a small but positive increase in their empathetic disposition. This study also identifies the types of needs that elicit empathic concern (i.e., those that arise from unpredictable sources of risk), and shows why cultivating an empathetic disposition is likely to pay off in the long run: those who provide help are more likely to receive help during future times of need. Moreover, this study identifies the types of targets for whom providing help might cultivate an empathetic disposition: those with whom people are likely to share lower interdependence. While previous theoretical frameworks posit that empathic concern selectively directs investment towards interdependent others, providing help to non-interdependent targets might allow people to build positive interdependence with prospective risk pooling partners. Cultivating an empathetic disposition and building interdependence with prospective risk pooling partners can allow people to manage needs that arise from unpredictable sources of risk.

DEDICATION

To my abuelito, abuelita, and mom who taught me the value of kindness and education; to all teachers, mentors, and colleagues who taught me the value of science and research.

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CHAPTER 1

INTRODUCTION

Challenges come in many shapes and forms, from lacking the money to access basic necessities (e.g., food, water, household supplies), to being injured, falling sick, lacking childcare, and a variety of other stress-inducing events. When a need arises, how do people manage it? Sometimes, people prefer to manage needs through individual efforts. For example, people might take on additional labor to supplement a need to cover basic necessities. At different times, people might rely on one another for assistance, such as when a friend asks for help if they find themselves in need due to an unfortunate circumstance. This is the backbone of social relationships across human cultures, especially among people who are likely to encounter unpredictable sources of risk.

A person that feels empathic concern (e.g., *warm, sympathetic, compassionate* feelings) in response to others' needs is particularly well suited to help when a need arises. Over time, repeated opportunities to help a person in need might increase people's disposition to feel empathic concern. Such a proclivity to empathize with others might allow people to build positive relationships with valuable partners they can later call upon during times of need. Indeed, several studies indicate that lower-income individuals are more empathetic than higher-income individuals (Robinson & Piff, 2017), presumably because of their higher reliance on mutual aid over self-reliance as a strategy to manage risk.

Despite the available evidence suggesting that people who rely on mutual aid (i.e., lower-income individuals) are more empathetic, no study has directly investigated whether helping leads to dispositional increases in empathic concern over time. Thus, the aims of this study are to (1) test this as-of-yet untested assumption, (2) test whether unpredictable sources of risk elicit higher empathic responses than predictable sources of risk, as would be predicted by a need-based transfers framework, and (3) test whether empathic concern is associated with helping non-

interdependent relationship targets, as would be predicted by a relationship-building perspective on empathic concern. I set out to investigate these aims by utilizing data from a two-year longitudinal survey of US adults.

A socio-functional perspective on emotion and cooperation

Building cooperative relationships with interdependent and non-interdependent partners has been a longstanding feature of human sociality. In ancestral conditions, people lived among close and distant kin, affines, and even acquaintances if communities were large enough (Dyble et al., 2015; Hill et al., 2011; Marlowe, 2004). Archeological evidence further supports the existence of large-scale cooperation with even more distant individuals throughout the Late Pleistocene (Singh & Glowacki, 2022). However, cooperating with non-interdependent targets has always been inherently risky due to the potential for free-riding and opportunity costs that may arise from investing in such relationships (Tooby & Cosmides, 1996).

One solution to the free-rider problem is to identify and punish those who defect (Cosmides et al. 2010; Fehr and Gächter 2002; Gächter et al. 2008; Henrich et al. 2006). However, partner choice is another effective strategy (Noë & Hammerstein, 1994, 1995), which involves carefully selecting valuable partners or simply leaving uncooperative ones (Aktipis, 2004, 2011). This iterative process of identifying valuable partners, directing investment towards maintaining valuable relationships, and learning when to terminate or deescalate investment has likely influenced psychological mechanisms for cooperating with different types of relationships, including emotions such as empathic concern, gratitude, pride, and other social emotions that play a crucial role in building and maintaining cooperative relationships (Guevara Beltran et al., forthcoming; Keltner et al., 2006; Keltner & Haidt, 1999; Shiota et al., 2004; Sznycer & Lukaszewski, 2019).

A relationship-building perspective on empathic concern

Empathy is a multidimensional construct that encompasses interrelated cognitive,

affective, and behavioral processes. These include emotional contagion, affective sharing, accurate identification and understanding of others' cognitive and affective states, perspective-taking, compassionate behavior, mimicry, and coordinated behavior (de Waal & Preston, 2017; Preston & de Waal, 2002; Zaki, 2017; Zaki & Ochsner, 2012). Different researchers favor different definitions of empathy, with some defining it as strictly the process of isomorphic affective sharing (i.e., experiencing the same emotion as the target), while others view it as a dynamic process that includes emotional contagion, perspective-taking, and subsequent motivational states such as personal distress and other-oriented concern (Hall & Schwartz, 2019; Bloom, 2017; Marsh, 2022; Murphy et al., 2022; Rogers, 1975).

Though the exact definition of empathy may vary, the defining features of empathic concern include an emotional state that is congruent (but not necessarily isomorphic; Marsh, 2022; Murphy et al., 2022) with the distress of a target, subsequent feelings of concern for the target, and a motivation to improve the target's welfare (Batson, 2011). In an early study of this empathy-altruism hypothesis, participants who listened to the problems of a person in need were more likely to experience empathic concern, and their concern mediated their willingness to help (Coke et al., 1978). Many subsequent studies have shown that empathic concern specifically elicits a motivation to improve the welfare of the person in need, rather than alternative motivational outcomes, such as self-serving helping, regulating one's negative affect, or boosting one's positive affect (Batson, 2011).

Previous theoretical frameworks have emphasized that empathic concern selectively directs investment towards kin, familiar, and emotionally close partners with whom we share positive interdependence (Cialdini et al., 1997; de Waal, 2008; de Waal & Preston, 2017; Maner et al., 2002; Preston & de Waal, 2002). However, one reason empathic concern has a strong impact on willingness to help, is that it momentarily raises the value one places on the welfare of a target one does not particularly value highly (e.g., ingroup strangers) (Sznycer et al., 2019).

Thus, rather than directing investment towards interdependent relationship partners, a relationship-building perspective on empathic concern suggests that the effect of empathic concern on willingness to help is particularly pronounced in non-interdependent relationships, where it serves as a means to build interdependence. Accordingly, I conducted a study in which I showed that empathic concern strongly predicts willingness to help non-interdependent targets, but not highly interdependent targets for whom investment is already high (Guevara Beltran et al., under review). Offering aid in such scenarios might generate opportunities to develop positive relationships with cooperating partners in the future (Delton et al., 2011), explaining why individuals may benefit from defaulting to cooperating with strangers in one-shot scenarios (Krasnow et al., 2013).

Social relationships are crucial for the well-being of social mammals, including humans (Holt-Lunstad et al., 2010, 2015; Snyder-Mackler et al., 2020). And offering help during times of need is a defining feature of friendships across human cultures (Ayers et al., 2023; Hruschka, 2010; Hruschka & Henrich, 2006). However, social relationships that revolve around the provisioning of help during times of need are particularly important for people who live in subsistence economies, people who rely on hazardous work, and those who lack access to alternative risk-management strategies. For people in such conditions, I hypothesize that a less selective empathy system might allow them to build new relationships with prospective risk pooling partners (Guevara Beltran et al., under review). In support of this hypothesis, previous studies show that empathetic individuals perceive a stranger's loss similarly to their own, highlighting the potential for greater shared fate with others' material losses (Liu et al., 2020). Moreover, those with higher dispositional empathic concern tend to have a greater number of mutual support relationships (Kardos et al., 2017), greater network centrality, and are valued more highly within a network than less empathetic individuals (Morelli et al., 2017, 2018).

Helping in times of need allows people to manage risk

We have seen how empathic concern might allow people to build positive relationships with non-interdependent targets. But why would a disposition to feel empathic concern help people manage risk? I hypothesize that a disposition to feel empathic concern might allow people to manage risk if it motivates them to provide help, and in doing so, ensure that others will be available to help during future times of need. Similarly, a disposition to feel empathic concern might allow people to build larger mutual support networks (Kardos et al., 2017; Morelli et al., 2017, 2018), and hence increase the probability that partners will be available to help during a future time of need.

Risk pooling via need-based transfer systems is a strategy to manage unpredictable sources of risk that is implemented by people across all types of subsistence economies, from hunter-gatherers to horticulturalists, pastoralists, and large-scale societies (Cronk, Berbesque, et al., 2019). Need-based transfers describe instances in which people transfer resources for needs that are harder to predict. For these need-based transfers, there is no debt that must be repaid, only a mutual obligation to help. This means that a similar or some kind of help is expected in return only if the helper experiences the same, or a similarly unpredictable, kind of need at a later time and seeks assistance to manage this risk (Aktipis et al., 2016; Aktipis et al., 2011). For predictable sources of risk, people use debt-based systems. Debt-based transfers describe instances in which people transfer a resource, and such transfers create debts that must be repaid to the helper in order for the relationship to continue (Aktipis et al., 2011; Aktipis et al., 2016).

Need-based transfer systems are likely a human universal (Cronk & Aktipis, 2021; Gurven, 2004; Isaac, 1978; Tomasello et al., 2012). And their success in allowing people to manage unpredictable sources of risk is in part due to the fact that, unlike debt-based transfer relationships, need-based transfer relationships do not dissolve when someone is unable to repay the help received (Aktipis et al., 2016; Aktipis et al., 2011; Campenni et al., 2021). These

transfers function as a form of social insurance, similar to market-based insurance policies, where the goal is not to gain a return on investment, but rather to have a safety net in case of an unforeseeable need. The risks for which we purchase insurance are unpredictable, and we only receive help from our risk pool in the event of an unfortunate occurrence. Similarly, in need-based transfer systems, individuals do not expect to receive resources back from those to whom they have transferred resources unless they too experience a similar or unpredictable need (Cronk et al., 2019; Guevara Beltran et al., 2023). Thus, the hope is to never need to request help, as it would only occur during unpredictable and unfortunate circumstances.

Risk-management strategies match their ecology

The use of need-based helping to manage risk varies across societies and depends on factors such as the frequency and severity of risks and the availability of alternative risk management strategies (Cronk et al., 2019; Cronk & Aktipis, 2021). For instance, Ember et al. (2018) found that exposure to natural hazards, famine, and scarcity over a 25-year period was associated with greater inter-household food and labor sharing across 98 societies. Similarly, Martin et al. (2020) showed that people engage in higher rates of alloparental care in 141 non-industrialized societies when they live in harsher environments characterized by volatility and unpredictability in temperature and precipitation. In addition, larger or more severe needs require greater risk-pooling networks, which cannot rely solely on kin relationships due to their limited numbers (Cronk & Aktipis, 2021). For example, forager-horticultural societies such as the Tsimane cooperate extensively with non-kin to manage needs due to their frequent encounters with risk such as food short falls (Jaeggi et al., 2016).

Conversely, need-based transfers become less useful when people do not face regular risks or when they can manage their needs through alternative means. In societies where resources are abundant, people are less likely to rely on need-based helping because they are more likely to have sufficient resources to not need help (Cronk & Aktipis, 2021). Market

integration can also interfere with need-based transfer systems because people can accumulate wealth through alternative labor activities and manage risks via alternative strategies such as risk retention (i.e., absorbing costs with accumulated resources) and risk reduction (e.g., diversifying their sources of income) (Cronk & Aktipis, 2021). For example, Baka hunter-gatherers began selling their meat and saving money when markets were introduced, reducing their dependence on meat sharing, especially in camps close to merchants (Kitanishi, 2006). Similarly, among the Ju/'hoansi, gift-giving to distant or unrelated individuals decreased by 23% between 1974 and 2018, while Maasai pastoralists reported fewer cattle transfers as they diversified their income sources over a 10-year period (Wiessner & Huang, 2022; Baird & Gray, 2014). Moreover, cross-cultural evidence shows that people tend to adopt independent labor activities (e.g., animal husbandry, food storage) over food sharing as such activities become available, leading to reduced reliance on risk-pooling systems related to food production and distribution (Ringen et al., 2019).

However, the relationship between market integration and need-based transfers is complex. In mixed economies, wealth accumulation can facilitate need-based giving, allowing people who give more to build social capital and status within their community (Gurven et al., 2015; Ready & Power, 2018). Although accumulating wealth can increase people's need-based giving, giving that is motivated by status enhancement, rather than improving the recipient's welfare, may not reliably evoke empathic concern. For example, higher-income individuals in the US tend to engage in public acts of helping for reputation purposes, and research shows that such acts of helping are often driven by pride, rather than concern for the recipient's welfare (Kraus & Callaghan, 2016).

Unpredictable sources of risk elicit empathic concern and need-based helping

I hypothesize that needs that arise from unpredictable sources of risk should elicit higher empathic concern and willingness to help than needs that arise from predictable sources of risk.

This may happen for two related reasons. One, need-based transfers (i.e., helping without expecting repayment) are reserved exclusively for people in genuine need, and needs that arise from predictable sources of risk raise concerns regarding the genuineness of the person's need (e.g., asking for help when not truly in need, exploiting the pool for preventable types of needs) (Cronk & Aktipis, 2021). Two, predictable needs elicit attributions of responsibility, meaning that people believe that a person should have been able to prepare ahead of time to mitigate their need, and thus at fault for their predicament (Heider, 1958; Heider & Weiner, 2002; Weiner et al., 1979). Indeed, attributions of responsibility mediate the association between predictable needs and lower need-based helping (Guevara Beltran et al., 2023). Moreover, when participants see the other person as responsible for being in need, this inhibits empathic concern, and the person in need is seen as less deserving of help (Aarøe & Petersen, 2014; Decety et al., 2010; Delton et al., 2018; Jensen & Petersen, 2017; Weiner, 1980).

Is dispositional empathy malleable?

Several lines of evidence provide good reason to believe that the proclivity to empathize remains malleable well into adulthood. One such line of evidence comes from the relationship between lay beliefs of the malleability of empathy and the level of effort people put into engaging in empathy. People who believe that empathy is a malleable (vs. a fixed) trait will exert greater effort to engage in perspective-taking and affective sharing (i.e., simulating a target's emotional state) even when doing so is challenging (Schumann et al., 2014). Moreover, a meta-analysis of randomized controlled trials of empathy-training interventions shows a positive effect on the ability to understand others' cognitive and affective states, affective sharing, and empathic accuracy ($g = 0.51-0.63$) (Teding van Berkhout & Malouff, 2016). Such interventions are effective across diverse populations, including children with behavioral and emotional problems, college students, adults with Asperger syndrome, and even sex offenders (Weisz & Zaki, 2017).

People do not always feel empathic concern for others, and even when they do, they may

not always act on it. This suggests that there are selective pressures that have shaped emotional systems to regulate empathy, depending on the context and the potential costs or benefits associated with it (Weisz & Cikara, 2020). This regulation of empathy is highly context dependent. Some situations allow for strategic control over empathic responses, such as choosing whether to enter or avoid a situation that may elicit empathic concern, or trying to minimize feelings of concern once they have been activated (Cameron et al., 2019; Cameron & Payne, 2011; Ferguson et al., 2020; Weisz & Cikara, 2020; Zaki, 2014). Conversely, certain situations may limit individuals' ability to minimize or escape from empathy. For instance, health professionals encounter frequent opportunities to empathize and assist those in need. Consequently, they may be highly motivated to improve their empathic abilities. This motivation might account for the fact that empathy-training interventions are more effective on health professionals than other populations (Teding van Berkhout & Malouff, 2016). Similarly, those who rely on need-based transfers to manage risk are likely to encounter numerous opportunities to empathize and help those in need. As a result, they may also be motivated to cultivate empathy as a means to recruit help from prospective risk pooling partners.

Is dispositional empathy influenced by risk management strategies?

The available evidence only offers indirect support for the proposed link between helping in times of need and dispositional empathy. Furthermore, this indirect link is largely derived from studies conducted on participants from the United States. It should be noted that while the US is wealthier than non-industrialized and developing societies, there is a significant wealth disparity within the country. As a result, individuals with lower incomes are more vulnerable to risks because they lack the resources to cover unexpected expenses. Additionally, these individuals struggle to save money, making it difficult to engage in risk retention strategies. However, like hunter-gatherers who pool calories to reduce variance in daily food consumption, lower-income households in the US (and the UK) use cash transfers and other forms of exchange with family

and friends to increase their monthly incomes and reduce variance in their month-to-month income (Morduch & Schneider, 2017; Morduch & Siwicki, 2017; Stack, 1997; Young, 2022).

This reliance on mutual aid to manage risk is believed to influence individuals' psychology, including their tendency to feel empathic concern and help others when in need (Robinson & Piff, 2017). Lower-income individuals show greater empathy for others' pain and also experience higher compassion for others' distress compared to higher-income individuals (Stellar et al., 2012; Varnum et al., 2015, 2016). Moreover, lower-income individuals exhibit a higher prosocial value orientation (i.e., they seek to maximize joint outcomes in cooperative contexts), and give more in trust games (Piff et al., 2010).

In a task in which participants were given the choice to take resources from another to redistribute them among members of their group, lower-income individuals were less likely to take from the target because they were more likely to feel compassion for the target than higher income-individuals (Babcock et al., 2017; Côté et al., 2013). Another line of research shows that people who have experienced a greater number of lifetime adversities experience higher empathic concern for others' distress, perceive higher self-efficacy (i.e., they believe their actions will be effective in improving the target's welfare), and are more likely to actually offer help (Lim & DeSteno, 2016, 2020). In addition, the effects of engaging one's empathy might be cumulative over time: age is positively associated with dispositional empathic concern and prosociality for lower-income individuals, but not among higher-income individuals (Li & Siu, 2021).

Aims

Although previous studies have demonstrated that lower-income individuals are more likely to engage in mutual aid and display greater empathic concern for people in need, it remains unclear whether helping others in need leads to changes in people's disposition to feel empathic concern. Therefore, the primary aim of this study is to test whether less wealthy individuals or people who experience more needs report helping others in times of need more often, and

whether this leads to increases in their disposition to feel empathic concern over time. In addition, I test whether changes in people's disposition to feel empathic concern depend on the intensity of empathic concern people feel while helping, or on the extent to which their help is reciprocated.

Moreover, if people are deploying their feelings of empathic concern when helping others as a strategy to manage unpredictable sources of risk, we should see that (1) people who experience a greater number of needs will give and receive help more often, and report higher empathic responses when providing help, (2) providing help for unpredictable sources of risk will elicit higher empathic responses than providing help for predictable sources of risk, and (3) unpredictable sources of risk might elicit higher empathic responses for people who experience a greater number of needs.

Lastly, people who experience needs more often might experience higher empathic responses when helping more distant, compared to closer, relationship targets. While previous theoretical frameworks have emphasized that empathic concern selectively directs investment towards interdependent partners, such as friends and kin (Cialdini et al., 1997; de Waal, 2008; de Waal & Preston, 2017; Maner et al., 2002; Preston & de Waal, 2002), a relationship-building perspective on empathic concern predicts that the effect of empathic concern on helping are more pronounced when helping more distant targets, where it serves as a means to build interdependence with prospective risk pooling partners.

CHAPTER 2

METHOD

Participants

I recruited a nationally representative sample of US adults through Prolific.co, an online recruitment platform ($N = 915$, $M_{age} = 46.19$, $SD_{age} = 15.74$, 51% women; 74.5% White, 12% Black/African American, 6.4% Asian/Pacific Islander, 4.3% Hispanic/Latino, 0.4% Native American, 2.3% “other”). Data comes from a larger longitudinal study about social behavior during the COVID-19 pandemic (Guevara Beltran & Ayers et al., under review). Participants for this longitudinal study were asked to participate every 30 days between September 2020-August 2021; and every 60 days from October 2021-August 2022, for a total of 18 waves of data collection. People over the age of 18 and fluent in English were eligible to participate.

Measures

Table 1 shows the relevant measures, their labels, scoring, and the time points in which they were collected. As a measure of wealth, participants reported their income, savings, and assets. Participants also reported how often they experienced six different needs over the past twelve months: Lacking the money or access to get basic needs (e.g., rent, utilities), Lacking the money or access to get food or water, Lacking the money or access to get household supplies (e.g., medical, cleaning), Being sick or injured, Needing help with child or dependent care, and Needing emotional support. For these same six needs, participants reported how often they provided help, and how often they received help, over the past 30 days.

If participants reported providing help, they were subsequently asked to report the target of help (i.e., acquaintance, friend, family member, other), and how much empathic concern and personal distress they felt during that particular situation. In addition, if participants reported providing help to a family member, they were asked to report the type of family relationship in an open-ended format. Participants also reported their dispositional empathic concern with the

empathic concern sub-scale of the Interpersonal Reactivity Index (Davis, 1983).

Empathy is generally a socially desirable trait, and thus people can sometimes inflate how empathetic they actually tend to be (Sassenrath, 2020). Moreover, self-enhancement is more pronounced in higher-income individuals than lower-income individuals (Varnum, 2015), and higher-income people sometimes self-report higher trait empathy than lower-income people even though their neural responses to others' pain indicate otherwise (Varnum et al., 2015). Thus, I also measured self-deceptive enhancement with the Balanced Inventory of Desirable Responding (BIDR-16) (Hart et al., 2015) to rule out the possibility of this variable confounding results.

Table 1*Measures*

Variable	Label/sample item	Scoring	Time
Income	<i>What was your combined household income in the previous year before taxes?</i>	1 = Under \$15,000, 5 = \$50,001 - \$75,000, 9 = Over \$200,000	1, 6, 12, 15, 18
Savings	<i>Approximately, what is the total amount of money that you have in all of your checking(s) and saving(s) accounts?</i>	1 = \$0 - \$500, 5 = \$45,000 - \$70,000, 9 = Over \$200,000	1, 6, 12, 15, 18
Assets	<i>Approximately, what is the total net worth of all of your assets combined (including your primary residence, other real estates, business, vehicles, stocks, trusts)?</i>	1 = \$0 - \$500, 5 = \$45,000 - \$70,000, 9 = Over \$200,000	1, 6, 12, 15, 18
Experience with needs	<i>In the past 12 months, how many times did you experience each of the following challenges?</i>	0 = 0 times, 1 = 1-2 times, 2 = 3-5 times, 3 = 6-10 times, 4 = More than 10 times	1, 12
Predictability of needs	<i>Below are some common reasons people need help from each other. Does this reason for helping arise at regular, predictable times, or does it arise at unpredictable times?</i>	1 = Very unpredictable, 3 = Neither predictable nor unpredictable, 5 = Very predictable	1
Help given	<i>In the past 30 days, how many times have you helped people that you know (e.g., family, friends, neighbors), excluding members of your own household, because of the following reasons? Do not include money that you donated to charity, or times you were volunteering.</i>	1 = 0 times, 2 = 1-2 times, 3 = 3-4 times, 4 = 5-6 times, 5 = more than 6 times	1-13, 15, 18
Help received	<i>In the past 30 days, how many times have you received help from people that you know (e.g., family, friends, neighbors), excluding members of your own household, because of the following reasons? Do not include goods received from charities or aid received from volunteers you don't know.</i>	1 = 0 times, 2 = 1-2 times, 3 = 3-4 times, 4 = 5-6 times, 5 = more than 6 times	1-13, 15, 18
Person helped	<i>What is your relationship with the person that you most recently helped?</i>	Acquaintance, friend, family member, other	3-13, 15, 18
Empathic concern 1	<i>To what extent did you feel concerned during this particular time that you helped someone that you know?</i>	1 = Not at all, 7 = Extremely	1-13, 15, 18
Empathic concern 2	<i>To what extent did you feel compassionate during this particular time that you helped someone that you know?</i>	1 = Not at all, 7 = Extremely	1-13, 15, 18
Personal distress 1	<i>To what extent did you feel troubled during this particular time that you helped someone that you know? (1=Not at all, 7=Extremely)</i>	1 = Not at all, 7 = Extremely	1-13, 15, 18
Personal distress 2	<i>To what extent did you feel distressed during this particular time that you helped someone that you know? (1=Not at all, 7=Extremely)</i>	1 = Not at all, 7 = Extremely	1-13, 15, 18
Dispositional concern (IRI)	<i>I often have tender, concerned feelings for people less fortunate than me (6 items)</i>	1 = Does not describe me well, 5 = Describes me well	1, 12, 15, 18
BIDR-16	<i>I am a completely rational person (8 items)</i>	1 = Not true, 7 = Very true	1, 12, 15, 18

CHAPTER 3

RESULTS

Does helping in times of need increase dispositional empathy?

I hypothesized that less wealthy individuals and people who experience needs more often would help others a greater number of times. In turn, helping others will increase dispositional empathic concern over time. Moreover, I predicted that people who experience higher empathic concern during particular events in which they provide help would show a greater increase in their dispositional empathic concern over time compared to people who experienced lower empathic concern during events in which they provided help. I ran analyses with the *Lavaan* package (Rosseel, 2012) for RStudio 2022.12.0, as well as the Mixed and Glimmix Procedures for SAS V9.4.

Data manipulation

Wealth (at Time 1) was treated as a latent variable made up of Income ($M = 4.82$, $SD = 2.11$), Savings ($M = 3.40$, $SD = 2.38$), and Assets ($M = 5.64$, $SD = 2.99$). Experience with needs was operationalized as a sum score of the total number of needs participants experienced over the past year at Time 1 ($M = 4.04$, $SD = 4.27$, $Min = 0$, $Max = 24$), and Time 12 ($M = 2.88$, $SD = 3.32$, $Min = 0$, $Max = 19$). Help given and Help received were operationalized as sum scores for Times 1-11 ($M = 42.72$, $SD = 40.59$, $Min = 0$, $Max = 197.5$), and for Times 12, 13, and 15 ($M = 10.67$, $SD = 11.77$, $Min = 0$, $Max = 57$). To create these, I transformed Help given and Help received to reflect the mean of each response level such that $0 = 0$ times, $1 = 1.5$ times, $2 = 3.5$ times, $3 = 5.5$ times, and $4 = 7$ times, and created a sum score of Help given and Help received within each time point (Figure 1).

For state-level Empathic concern and Personal distress, I computed average composites per time point (Figure 2). I then created averages of Empathic concern ($M_{Time1-11} = 5.35$, $SD_{Time1-11} = 1.19$; $M_{Time12, 13, 15} = 5.38$, $SD_{Time12, 13, 15} = 1.07$) and Personal distress ($M_{Time1-11} = 2.78$, $SD_{Time1-11}$

$= 1.35$; $M_{Time12, 13, 15} = 2.92$, $SD_{Time12, 13, 15} = 1.46$).

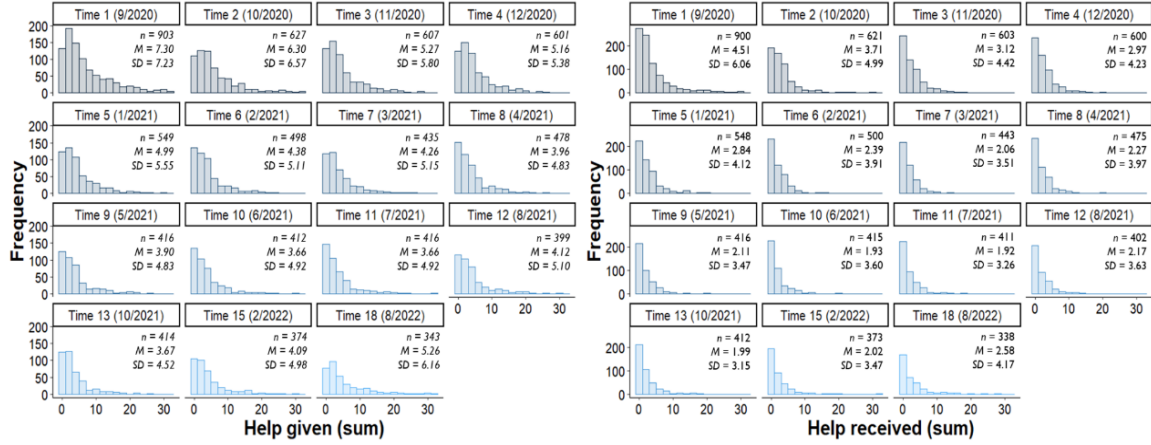


Figure 1. The number of times people gave and received help.

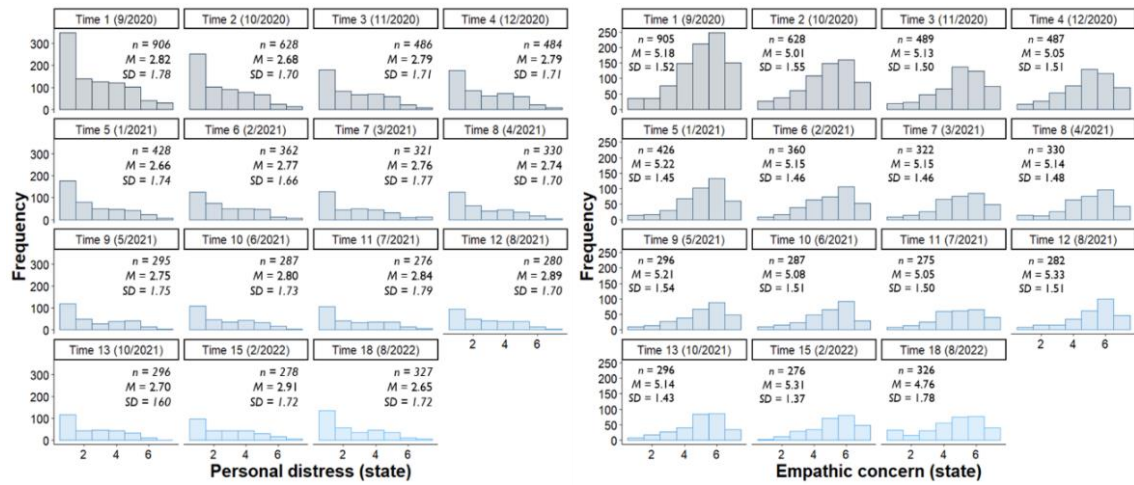


Figure 2. State-level personal distress and empathic concern. Participants reported their personal distress (left), and empathic concern (right) when providing help (1 = not at all, 7 = extremely).

Dispositional empathic concern (Times 1, 12, 18) was treated as a latent variable made up of six items (e.g., *I often have tender, concerned feelings for people less fortunate than me*) (Figure 3a-3c). Lastly, Self-enhancement at Time 12 ($M = 4.39$, $SD = 1.16$; $\alpha = 0.83$) and Time 18 ($M = 4.43$, $SD = 1.09$; $\alpha = 0.79$) reflect an average of eight items within each time point (e.g., *I*

am a completely rational person).

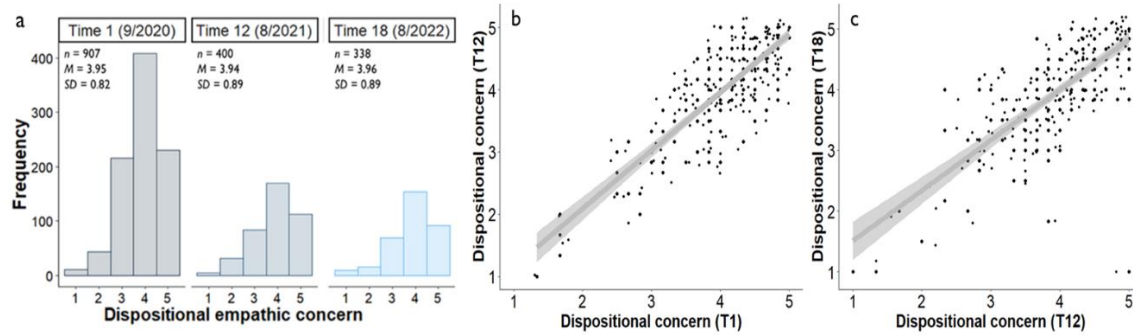


Figure 3. *Dispositional empathic concern (Interpersonal Reactivity Index).* Panel a shows descriptives, Panel b shows a scatter plot of dispositional empathic concern at Time 1 with Time 12, and Panel c shows a scatter plot of dispositional empathic concern at Time 12 with Time 18.

Analyses

I first ran an SEM in which Help given (Time 1-11) predicted Dispositional concern at Time 12 (controlling for Dispositional concern at Time 1), Help given (Time 12, 13, 15), and Help received (Time 12, 13, 15). Help received (Time 1-11) predicted Help given (Time 12, 13, 15), and Help received (Time 12, 13, 15), and Help given (Time 12, 13, 15) predicted Dispositional concern at Time 18 (controlling for Dispositional concern at Time 12) (Figure 4).

In the second model (Figure 5; Table 2), I introduce Wealth, and Experience with needs to test for indirect effects of Wealth and Experience with needs on Dispositional concern via Help given. I also test whether Help received, and state-level Empathic concern and Personal distress predict Dispositional empathic concern, and whether state-level Empathic concern interacts with Help given on Dispositional concern. Lastly, I allow Self-enhancement to predict Dispositional concern to control for this variable. After listwise deletion for missing data across all time points, the sample size was 181. Experience with needs, Help given, and Help received had larger variances than other measures, leading to convergence issues. To account for this, I mean-centered and standardized these three measures in both models.

Helping in times of need predicted higher dispositional empathic concern over time

The first SEM fitted the data well ($\chi^2(202) = 499.62, p < 0.001, TLI = 0.89, CFI = 0.88, RMSEA = 0.09, CI_{90\%} [0.08, 0.10], SRMR = 0.06$). As shown in Figure 4, there was a small positive effect of Help given (Time 1-11) on Dispositional concern at Time 12, but Help given (Time 12, 13, 15) did not predict Dispositional concern at Time 18.

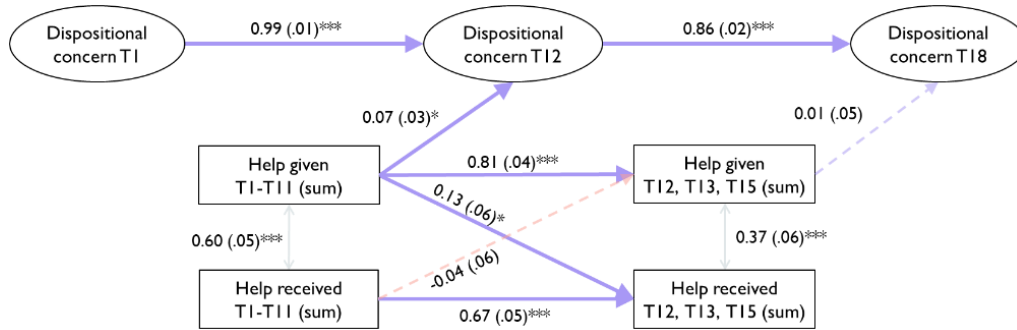


Figure 4. Help given predicts dispositional empathic concern over time. Rectangles represent observed variables, ovals represent latent measures. Shaded-gray lines show covariances, shaded-red/blue dotted lines show non-statistically significant regression paths, and blue solid lines show statistically significant regression paths. Numbers in parentheses show standard errors. All values show standardized coefficients. Giving help (T1-T11) had a small positive effect on Dispositional concern at Time 12. Help given (T12, T13, T15) did not predict Dispositional concern (Time 18).

Experiences with needs predict higher empathic concern over time via giving help

The second SEM (Table 2) fitted the data well ($\chi^2(497) = 926.26, p < 0.001, TLI = 0.89, CFI = 0.88, RMSEA = 0.07, CI_{90\%} [0.06, 0.08], SRMR = 0.08$). Figure 5 shows there were positive effects of Experience with needs (T1) on Help given (T1-T11), and of Help given (T1-T11) on Dispositional concern at Time 12. As predicted, I found a positive indirect effect of Experience with needs (T1) on Dispositional concern (T12) via Help given (T1-T11) ($b = 0.04, SE = 0.02, p = 0.01, CI_{95\%} [0.01, 0.08]$).

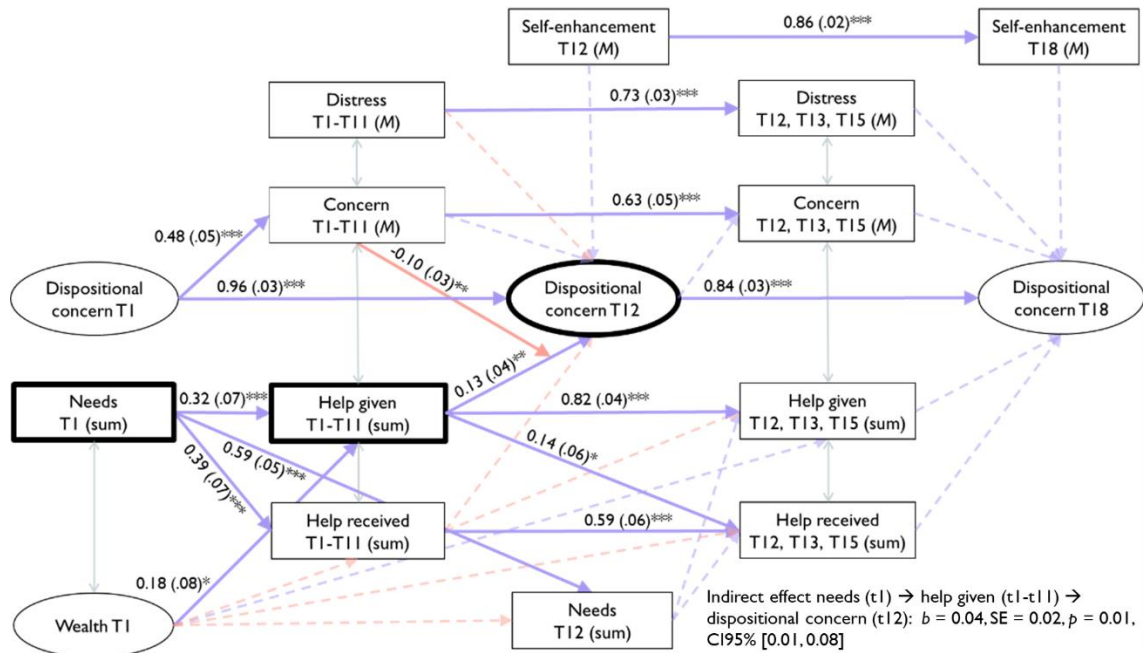


Figure 5. Experiencing needs predicts dispositional empathic concern via giving help.

Rectangles represent observed variables, ovals represent latent measures. Gray lines show covariances, red/blue dotted lines show non-statistically significant regressions, and red/blue solid lines show statistically significant regressions. Numbers in parentheses show standard errors. All values show standardized coefficients. Measures in bold highlight the indirect effect of Needs (T1) on Dispositional concern (Time 12) via Help given (T1-T11). Needs (T12) and Help given (T12, T13, T15) did not predict Dispositional concern at Time 18 (Table 2).

In contrast to my predictions, Wealth (T1) had a positive effect on Help given (T1-T11), but there was no indirect effect of Wealth (T1) on Dispositional concern (T12) via Help given (T1-T11) ($b = 0.02, SE = 0.01, p = 0.08, CI_{95\%} [-0.003, 0.05]$). Moreover, neither Help received (T1-T11), state-level Empathic concern, nor state-level Personal distress predicted Dispositional concern (T12). Self-enhancement was not associated with Dispositional concern at Time 12, indicating that self-enhancement could not account for the findings, and no measure predicted Dispositional concern at Time 18 (Table 2).

Table 2*SEM predicting dispositional empathic concern over time*

Regression paths		<i>b</i>	<i>SE</i>	<i>p</i>	95% CI	
Dispositional concern (T12)	Dispositional concern (T1)	0.958	0.031	< 0.001	0.898	1.018
	Wealth (T1)	-0.046	0.043	0.282	-0.13	0.038
	Needs (T1)	0.025	0.04	0.522	-0.052	0.103
	Help given (T1-T11)	0.133	0.045	0.003	0.044	0.222
	Help received (T1-T11)	-0.083	0.046	0.069	-0.173	0.007
	State concern (T1-T11)	0.053	0.049	0.284	-0.044	0.149
	State distress (T1-T11)	-0.021	0.041	0.599	-0.101	0.058
	Self enhancement (T12)	0.017	0.034	0.627	-0.05	0.084
	State concern × help (T1-T11)	-0.104	0.034	0.002	-0.17	-0.038
Dispositional concern (T18)	Dispositional concern (T12)	0.841	0.035	< 0.001	0.773	0.909
	Wealth (T1)	0.031	0.056	0.581	-0.078	0.139
	Needs (T12)	-0.025	0.052	0.628	-0.128	0.077
	Help given (T12-13, 15)	0	0.056	0.996	-0.11	0.11
	Help received (T12-13, 15)	0.013	0.06	0.832	-0.104	0.13
	State concern (T12-13, 15)	0.053	0.057	0.346	-0.058	0.165
	State distress (T12-13, 15)	0.022	0.053	0.677	-0.081	0.125
	Self enhancement (T18)	0.072	0.047	0.124	-0.02	0.164
Help given (T1-T11)	Wealth (T1)	0.183	0.083	0.029	0.019	0.346
	Needs (T1)	0.326	0.074	< 0.001	0.181	0.47
Help received (T1-T11)	Wealth (T1)	-0.031	0.081	0.702	-0.19	0.128
	Needs (T1)	0.396	0.069	< 0.001	0.26	0.531
State concern (T1-T11)	Dispositional concern (T1)	0.477	0.056	< 0.001	0.368	0.586
Help given (T12-13, 15)	Wealth (T1)	-0.03	0.056	0.586	-0.14	0.079
	Needs (T12)	0.04	0.05	0.421	-0.058	0.139
	Help given (T1-T11)	0.822	0.046	< 0.001	0.731	0.912
	Help received (T1-T11)	-0.076	0.061	0.212	-0.195	0.043
Help received (T12-13, 15)	Wealth (T1)	-0.003	0.057	0.965	-0.115	0.11
	Needs (T12)	0.217	0.052	< 0.001	0.116	0.319
	Help given (T1-T11)	0.146	0.061	0.017	0.026	0.266
	Help received (T1-T11)	0.587	0.057	< 0.001	0.475	0.698
State concern (T12-13, 15)	Dispositional concern (T12)	0.051	0.061	0.399	-0.068	0.17
	State concern (T1-T11)	0.63	0.052	< 0.001	0.529	0.731
State distress (T12-13, 15)	State distress (T1-T11)	0.735	0.033	< 0.001	0.67	0.799
Needs (T12)	Needs (T1)	0.59	0.053	< 0.001	0.486	0.694
	Wealth (T1)	-0.091	0.069	0.186	-0.226	0.044
Self enhancement (T18)	Self enhancement (T12)	0.863	0.019	< 0.001	0.826	0.9
Covariances		<i>b</i>	<i>SE</i>	<i>p</i>	95% CI	
Help given (T1-T11)	Help received (T1-T11)	0.58	0.05	< 0.001	0.477	0.673

Help given (T12-13, 15)	Help received (T12-13, 15)	0.37	0.064	< 0.001	0.239	0.491
State concern (T1-T11)	State distress (T1-T11)	0.50	0.057	< 0.001	0.39	0.613
State concern (T12-13, 15)	State distress (T12-13, 15)	0.45	0.059	< 0.001	0.338	0.569
Wealth (T1)	Needs (T1)	-0.36	0.072	< 0.001	-0.506	-0.223
Help given (T1-T11)	State concern (T1-T11)	0.08	0.054	0.154	-0.029	0.183
Help given (T12-13, 15)	State concern (T12-13, 15)	0.00	0.062	0.998	-0.121	0.121
Factor loadings		<i>b</i>	<i>SE</i>	<i>p</i>	95% CI	
Wealth (T1)	Income	0.715	0.047	< 0.001	0.623	0.807
	Assets	0.84	0.04	< 0.001	0.762	0.918
	Savings	0.757	0.044	< 0.001	0.671	0.844
Dispositional concern (T1)	IRI1	0.777	0.032	< 0.001	0.714	0.84
	IRI2	0.643	0.046	< 0.001	0.553	0.733
	IRI3	0.695	0.041	< 0.001	0.615	0.775
	IRI4	0.441	0.062	< 0.001	0.319	0.563
	IRI5	0.812	0.028	< 0.001	0.757	0.867
	IRI6	0.799	0.03	< 0.001	0.741	0.857
Dispositional concern (T12)	IRI1	0.781	0.031	< 0.001	0.72	0.841
	IRI2	0.705	0.039	< 0.001	0.628	0.782
	IRI3	0.769	0.032	< 0.001	0.706	0.833
	IRI4	0.41	0.064	< 0.001	0.285	0.534
	IRI5	0.851	0.023	< 0.001	0.806	0.895
	IRI6	0.864	0.021	< 0.001	0.823	0.906
Dispositional concern (T18)	IRI1	0.882	0.02	< 0.001	0.843	0.922
	IRI2	0.741	0.036	< 0.001	0.67	0.812
	IRI3	0.791	0.031	< 0.001	0.73	0.851
	IRI4	0.624	0.048	< 0.001	0.53	0.718
	IRI5	0.805	0.029	< 0.001	0.748	0.862
	IRI6	0.856	0.023	< 0.001	0.81	0.901

Note. All values show standardized coefficients.

Did changes in dispositional concern depend on the intensity of state-level empathy?

I predicted that people who experienced higher empathic concern when helping others would show higher increases in their dispositional empathic concern. Although there was an Empathic concern (T1-T11) × Help given (T1-T11) interaction on Dispositional concern (T12) (Table 2), Help given predicted higher Dispositional concern for people who reported low (-1SD) State concern ($b = 0.20$, $SE = 0.08$, $p = 0.02$, $CI_{95\%} [0.03, 0.37]$), but not for people who reported high (+1SD) State concern ($b = -0.06$, $SE = 0.06$, $p = 0.37$, $CI_{95\%} [-0.19, 0.07]$) (Figure 6).

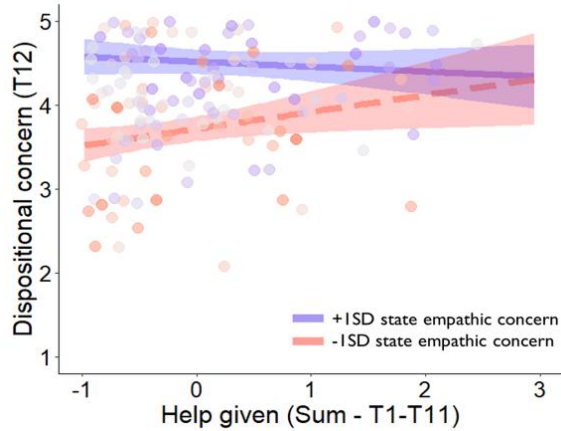


Figure 6. *Helping increases dispositional concern for those who report lower state concern.* Giving help increased dispositional empathic concern for people who experienced low (-1SD) state-level empathic concern (red line) but not those who experienced high (+1SD) empathic concern (blue line).

Does level of wealth reduce need-based helping?

I predicted that wealthier people would report fewer instances of helping than less wealthy individuals because wealthier people may have a lower need to rely on mutual aid to manage risk. However, the previous set of analyses (see Table 2; Figure 5) indicated that wealthier people gave more, not less, help. Given these unexpected findings, I set out to test whether level of wealth moderates the effect of experiencing needs on giving help. Given the prediction that wealthier people would experience lower need to rely on mutual aid, I would have expected wealth to attenuate the positive effect of experiencing needs on giving help. However, since both experiencing needs and wealth positively predicted giving help (Table 2; Figure 5), these results suggests that wealthier people who experience needs gave more help than less wealthy people.

Analyses

To test this possibility, I ran a mixed-effects linear model with Wealth and Experience

with needs predicting Help given. Wealth was operationalized as an average composite of participants' annual Income, Savings, and Assets ($\alpha_{\text{Time 1}} = 0.77$). Although Wealth was measured at times 1, 6, 12, and 18, I only used Wealth measured at Time 1 in the following analyses because Wealth was highly correlated across time (r 's = 0.91 to 0.93, p 's < 0.001). Experience with needs was measured at Time 1 and Time 12, but I will only use the Experiences with needs sum composite at Time 1 in the following analyses because these measures were highly correlated ($r = 0.68$, $p < 0.001$), and there are more observations at Time 1 than time 12 due to attrition.

I applied an unrestricted covariance structure with maximum likelihood as the estimation method. I included a random effect for the participant ID, and a repeated statement for time point nested within participants (i.e., within-subjects residual variances were uniquely estimated for each time point within participants but were not allowed to correlate). After reporting the main effects, I probed for a Wealth \times Experience with needs interaction on Help given. Both predictors were cluster-mean centered (i.e., average composite for a given individual across time points) and standardized.

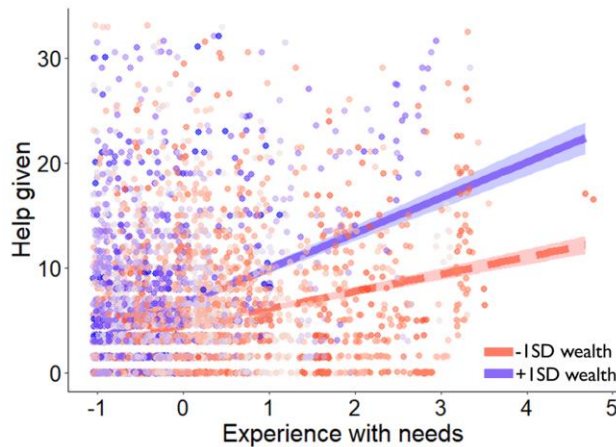
Wealthier people who experienced more needs gave more help than less wealthy people

Wealth ($b = 1.54$, $SE = 0.20$, $p < 0.001$, $CI_{95\%} [1.14, 1.93]$) and Experience with needs ($b = 2.49$, $SE = 0.20$, $p < 0.001$, $CI_{95\%} [2.08, 2.89]$) were associated with more Help given. I then included the Wealth \times Experience with needs interaction ($b = 1.14$, $SE = 0.19$, $p < 0.001$, $CI_{95\%} [0.77, 1.52]$), and found that Experience with needs had a higher positive effect on Help given for wealthier (+1SD) people ($b = 4.08$, $SE = 0.33$, $p < 0.001$, $CI_{95\%} [3.42, 4.74]$), compared to less wealthy (-1SD) people ($b = 1.78$, $SE = 0.23$, $p < 0.001$, $CI_{95\%} [1.32, 2.24]$) (Figure 7). This model (Table 3) improved fit relative to an intercepts-only model ($\Delta-2LL$, $\chi^2(3) = 7652.8$, $p < 0.001$), accounting for 0.42% of the within-person variance, and 19.98% of the between-person variance (ICC = 0.74).

Table 3*Mixed-effects linear model predicting help given*

Obs. = 6141 (<i>n</i> = 752)	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% CI	
Intercept	6.41	0.19	32.98	<0.001	6.03	6.78
Wealth (Level-2)	1.55	0.19	7.90	<0.001	1.16	1.93
Experience with needs (Level-2)	2.93	0.21	13.60	<0.001	2.51	3.35
Wealth × needs (Level-2)	1.15	0.19	5.97	<0.001	0.77	1.52

Note. $\tau_{\text{intercept}} = 22.75$ ($z = 14.92^{***}$), $\sigma_{\text{Time 1}} = 22.26$ ($z = 14.80^{***}$), $\sigma_{\text{Time 2}} = 19.53$ ($z = 14.58^{***}$), $\sigma_{\text{Time 3}} = 13.32$ ($z = 14.13^{***}$), $\sigma_{\text{Time 4}} = 9.79$ ($z = 13.72^{***}$), $\sigma_{\text{Time 5}} = 11.54$ ($z = 13.49^{***}$), $\sigma_{\text{Time 6}} = 6.09$ ($z = 11.97^{***}$), $\sigma_{\text{Time 7}} = 8.66$ ($z = 12.02^{***}$), $\sigma_{\text{Time 8}} = 7.08$ ($z = 12.12^{***}$), $\sigma_{\text{Time 9}} = 7.02$ ($z = 11.45^{***}$), $\sigma_{\text{Time 10}} = 7.12$ ($z = 11.51^{***}$), $\sigma_{\text{Time 11}} = 7.60$ ($z = 11.39^{***}$), $\sigma_{\text{Time 12}} = 11.02$ ($z = 11.64^{***}$), $\sigma_{\text{Time 13}} = 9.71$ ($z = 11.55^{***}$), $\sigma_{\text{Time 15}} = 10.01$ ($z = 11.27^{***}$), $\sigma_{\text{Time 18}} = 22.39$ ($z = 11.25^{***}$).

**Figure 7.** *Wealthier people who experience needs give more help than less wealthy people.*

People who experienced more needs gave more help if they were wealthier (+1SD) (blue line), compared to people who were less wealthy (-1SD) (red line).

Do unpredictable sources of risk elicit empathic responses?

I hypothesized that unpredictable needs elicit higher empathic responses than predictable

needs. I also predicted that wealthier people (who have greater ability to engage in risk retention), and people who experience fewer needs (and therefore have less of a need to engage in risk transfers) would report lower empathy for unpredictable needs than less wealthy people or people who experience more needs.

Data manipulation

Because the Predictability of needs was only measured at Time 1, I imputed the reported Predictability of a need at Time 1 on the corresponding need for which people provided help in the following time points. For example, if a participant reported that Emotional support was very predictable (i.e., = 5), I imputed a 5 if the Reason for providing help on a future time point was Emotional support. As in the previous analysis, I again used Wealth and Experience with needs at Time 1. State-level Empathic concern and Personal distress were each operationalized as the average of two items (see Table 1) assessing the extent to which people felt concerned and distressed during the most recent time they provided help to another person (Figure 3).

Analyses

To test whether the Predictability of needs is associated with state-level empathy, I ran mixed-effects linear models predicting Empathic concern and Personal distress with Wealth, Experience with needs, and Predictability of needs as covariates (see Table 4 for correlations and descriptive statistics). Wealth and Experience with needs are observed at Level-2 (i.e., between-subjects), and are therefore mean-centered. The Reason for providing help varied across time, and hence, each participant received multiple observations on this measure over time. To obtain the between-person effect of Predictability of needs, I computed cluster mean scores (i.e., a person's average Predictability of needs across time points). To obtain the within-person effect, I computed cluster mean-centered scores (i.e., a person's Predictability of need at a given time point centered on their cluster mean). Across models, I applied an unrestricted covariance structure with maximum likelihood as the estimation method. I included random effects for the

participant ID, and the slope of Predictability of needs (i.e., the slope was allowed to vary between subjects, and to correlate with the random intercept), as well as a repeated statement for time point nested within participants (i.e., within-subjects residual variances were uniquely estimated for each time point within participants but were not allowed to correlate). After reporting the main effects, I probed for a Wealth \times Predictability of needs, and an Experience with needs \times Predictability of needs interaction on Empathic concern and Personal distress. All predictors were standardized.

Table 4

Correlations among Wealth, Needs, Predictability, and Empathy across time points

	Wealth	Needs	Predictability	Distress	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Wealth (time 1)	-	-	-	-	4.61	2.10	1	9
Experience with needs (time 1)	-0.25*** [-0.27, -0.23]	-	-	-	4.04	4.26	0	24
Predictability of the need (time 1)	-0.02 [-0.05, 0.01]	0.05*** [0.03, 0.08]	-	-	2.52	1.19	1	5
Personal distress	-0.01 [-0.04, 0.02]	0.17*** [0.14, 0.19]	-0.06*** [-0.09, -0.03]	-	2.77	1.72	1	7
Empathic concern	0.05*** [0.02, 0.08]	0.09*** [0.07, 0.12]	-0.08*** [-0.11, -0.06]	0.42*** [0.39, 0.44]	5.13	1.51	1	7

Unpredictable needs elicit greater empathic responses

Empathic concern. Participants' Wealth ($b = 0.09$, $SE = 0.04$, $p = 0.04$, $CI_{95\%}$ [0.004, 0.19]), and Experience with needs ($b = 0.18$, $SE = 0.05$, $p < 0.001$, $CI_{95\%}$ [0.08, 0.27]) were associated with higher Empathic concern. The Predictability of needs was not associated with Empathic concern at Level-2 ($b = -0.07$, $SE = 0.04$, $p = 0.11$, $CI_{95\%}$ [-0.16, 0.01]), but more Predictable needs at Level-1 were associated with lower Empathic concern ($b = -0.11$, $SE = 0.02$, $p < 0.001$, $CI_{95\%}$ [-0.16, -0.06]).

I then tested whether Wealth or Experience with needs moderated the effect of

Predictability of needs on Empathic concern. Neither Wealth ($b = 0.02$, $SE = 0.03$, $p = 0.51$, $CI_{95\%} [-0.04, 0.07]$), nor Experience with needs ($b = -0.01$, $SE = 0.03$, $p = 0.59$, $CI_{95\%} [-0.07, 0.04]$) moderated the effect of Predictability of needs on Empathic concern at the within-person level. I also did not find a Wealth \times Predictability of needs interaction at the between-person level ($b = -0.06$, $SE = 0.04$, $p = 0.15$, $CI_{95\%} [-0.15, 0.02]$). However, there was an Experience with needs \times Predictability of needs interaction at the between-person level ($b = -0.10$, $SE = 0.05$, $p = 0.028$, $CI_{95\%} [-0.20, -0.01]$), such that (a) people who Experienced more needs reported higher Empathic concern, and (b) Predictable needs were associated with lower Empathic concern for people who Experienced more (+1SD) needs ($b = -0.18$, $SE = 0.06$, $p = 0.007$, $CI_{95\%} [-0.31, -0.05]$), but not for people who Experienced fewer (-1SD) needs ($b = 0.03$, $SE = 0.06$, $p = 0.65$, $CI_{95\%} [-0.09, 0.15]$). In other words, *Unpredictable* needs elicited higher Empathic concern only for people who Experienced more needs (Figure 7). This model (Table 5) improved fit relative to an intercepts-only model ($\Delta-2LL$, $\chi^2(8) = 5820.4$, $p < 0.001$), accounting for 14.89% of the within-person variance, and 8.21% of the between-person variance ($ICC = 0.47$).

Table 5

Mixed-effects linear model predicting empathic concern

Obs. = 4361 ($n = 668$)	b	SE	t	p	95% CI	
Intercept	5.07	0.04	115.26	<0.001	4.98	5.16
Wealth	0.10	0.05	2.22	0.027	0.01	0.20
Experience with needs	0.20	0.05	3.99	<0.001	0.10	0.30
Predictability (Level-2)	-0.08	0.04	-1.72	0.085	-0.16	0.01
Predictability (Level-1)	-0.11	0.03	-4.26	<0.001	-0.16	-0.06
Wealth \times predictability (Level-2)	-0.07	0.05	-1.47	0.141	-0.16	0.02
Needs \times predictability (Level-2)	-0.10	0.05	-2.20	0.028	-0.20	-0.01

Note. $\tau_{intercept} = 0.99$ ($z = 14.27^{***}$), $\tau_{predictability} = 0.08$ ($z = 5.0^{***}$), $\tau_{intercept,predictability} = 0.09$ ($z = 0.80$), $\sigma_{Time 1} = 1.30$ ($z = 12.41^{***}$), $\sigma_{Time 2} = 1.27$ ($z = 10.99^{***}$), $\sigma_{Time 3} = 0.97$ ($z = 11.30^{***}$), $\sigma_{Time 4} = 1.02$ ($z = 11.5^{***}$), $\sigma_{Time 5} = 1.03$ ($z = 11.08^{***}$), $\sigma_{Time 6} = 0.87$ ($z = 10.20^{***}$), $\sigma_{Time 7} = 0.93$ ($z = 9.67^{***}$), $\sigma_{Time 8} =$

0.97 ($z = 9.89^{***}$), $\sigma_{\text{Time } 9} = 1.05$ ($z = 9.49^{***}$), $\sigma_{\text{Time } 10} = 0.83$ ($z = 9.21^{***}$), $\sigma_{\text{Time } 11} = 1.03$ ($z = 8.96^{***}$), $\sigma_{\text{Time } 12} = 1.25$ ($z = 9.57^{***}$), $\sigma_{\text{Time } 13} = 0.92$ ($z = 9.23^{***}$), $\sigma_{\text{Time } 15} = 1.08$ ($z = 9.05^{***}$), $\sigma_{\text{Time } 18} = 1.18$ ($z = 8.75^{***}$).

Personal distress. Wealth ($b = 0.03$, $SE = 0.05$, $p = 0.58$, $CI_{95\%} [-0.07, 0.13]$), and Predictability of needs at the between-person level ($b = -0.08$, $SE = 0.05$, $p = 0.08$, $CI_{95\%} [-0.18, 0.01]$) were not associated with Personal distress. Experience with needs was associated with greater Personal distress ($b = 0.37$, $SE = 0.05$, $p < 0.001$, $CI_{95\%} [0.26, 0.47]$), and Predictability of needs at the within-person level was associated with lower Distress ($b = -0.10$, $SE = 0.03$, $p < 0.001$, $CI_{95\%} [-0.16, -0.04]$).

Because Wealth was not associated with Personal distress, I removed Wealth from the following model and tested whether Experience with needs moderated the effect of Predictability of needs on Personal distress. Experience with needs did not moderate the effect of Predictability of needs on Personal distress at the between-person level ($b = -0.02$, $SE = 0.04$, $p = 0.68$, $CI_{95\%} [-0.11, 0.07]$). However, there was an Experience with needs \times Predictability of needs interaction at the within-person level ($b = -0.06$, $SE = 0.03$, $p = 0.044$, $CI_{95\%} [-0.11, -0.002]$). The interaction indicated that (a) people who Experienced more needs reported higher Personal distress, and (b) the Predictability of needs was associated with lower Personal distress for people who Experienced more (i.e., +1SD) needs ($b = -0.15$, $SE = 0.04$, $p < 0.001$, $CI_{95\%} [-0.23, -0.07]$), but not for people who Experienced fewer (i.e., -1SD) needs ($b = -0.04$, $SE = 0.04$, $p = 0.30$, $CI_{95\%} [-0.11, 0.03]$) (Figure 8). This model (Table 6) improved fit relative to an intercepts-only model ($\Delta-2LL$, $\chi^2(8) = 3099.3$, $p < 0.001$), accounting for 8.26% of the within-person variance, and 6.59% of the between-person variance ($ICC = 0.42$).

Table 6*Mixed-effects linear model predicting personal distress*

Obs. = 5199 (n = 799)	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% CI	
Intercept	2.81	0.04	64.03	<0.001	2.72	2.90
Experience with needs	0.36	0.05	7.76	<0.001	0.27	0.45
Predictability (Level-2)	-0.08	0.04	-1.90	0.058	-0.17	0.003
Predictability (Level-1)	-0.10	0.03	-3.62	<0.001	-0.15	-0.04
Needs × predictability (Level-2)	-0.02	0.04	-0.41	0.684	-0.11	0.07
Needs × predictability (Level-1)	-0.06	0.03	-2.03	0.044	-0.11	-0.002

Note. $\tau_{\text{intercept}} = 1.14$ ($z = 15.52^{***}$), $\tau_{\text{predictability}} = 0.10$ ($z = 5.0^{***}$), $\tau_{\text{intercept,predictability}} = 0.02$ ($z = 0.26$), $\sigma_{\text{Time 1}} = 1.77$ ($z = 13.74^{***}$), $\sigma_{\text{Time 2}} = 1.73$ ($z = 12.27^{***}$), $\sigma_{\text{Time 3}} = 1.55$ ($z = 12.76^{***}$), $\sigma_{\text{Time 4}} = 1.74$ ($z = 13.09^{***}$), $\sigma_{\text{Time 5}} = 1.83$ ($z = 12.62^{***}$), $\sigma_{\text{Time 6}} = 1.14$ ($z = 10.98^{***}$), $\sigma_{\text{Time 7}} = 1.73$ ($z = 11.0^{***}$), $\sigma_{\text{Time 8}} = 1.42$ ($z = 10.8^{***}$), $\sigma_{\text{Time 9}} = 1.33$ ($z = 10.22^{***}$), $\sigma_{\text{Time 10}} = 1.59$ ($z = 10.34^{***}$), $\sigma_{\text{Time 11}} = 1.38$ ($z = 9.96^{***}$), $\sigma_{\text{Time 12}} = 1.29$ ($z = 9.89^{***}$), $\sigma_{\text{Time 13}} = 1.34$ ($z = 10.45^{***}$), $\sigma_{\text{Time 15}} = 1.38$ ($z = 9.87^{***}$), $\sigma_{\text{Time 18}} = 1.63$ ($z = 9.86^{***}$).

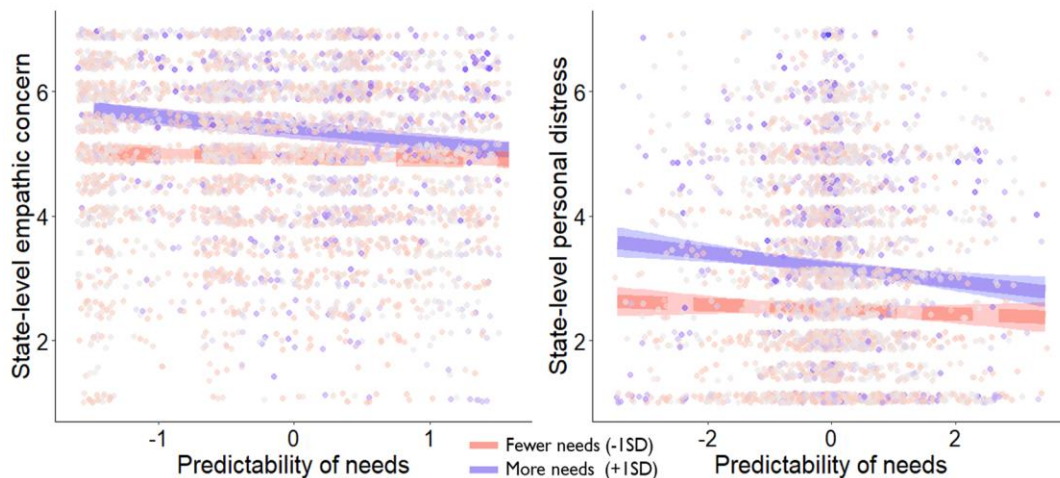


Figure 8. *Unpredictable needs elicit higher empathic responses.* Unpredictable needs were associated with higher empathic concern (left) and personal distress (right) for people who experienced a greater (+1SD) number of needs (blue line), but not for people who experienced fewer (-1SD) needs (red line).

Does Experience with Needs Predict Empathizing and Helping Distant Targets?

I predicted that, if people who rely on need-based helping to manage unpredictable sources of risk deploy feelings of empathic concern as a means to build interdependence, then those who experience needs more often would report higher empathic concern when helping more distant targets than people who experience fewer needs. In addition, because previous analyses showed wealthier people who experienced more needs gave more help than less wealthy people (Table 3; Figure 7), I also explored whether wealth moderated an effect of experience with needs on helping distant targets.

Analyses

Empathic concern. To test the hypothesis that Experience with needs predicts higher Empathic concern towards distant targets, I ran a mixed-effects linear regression predicting Empathic concern with Experience with needs (T1), Person helped, and an Experience with needs (T1) \times Person helped interaction. As in previous analyses, I applied an unrestricted covariance structure with maximum likelihood as the estimation method, included random effects for the participant ID, and a repeated statement for time point nested within participants (i.e., within-subjects residual variances were uniquely estimated for each time point within participants, but were not allowed to correlate). Figure 9 shows the mean Empathic concern for each Target.

Person helped. To test whether Wealth and Experience with needs predicted helping Distant targets, I recoded Person helped as a binary outcome variable where 2 = Distant targets (i.e., Others/Acquaintances), and 1 = Closer targets (i.e., Affines, Kin, Parent/Grandparents, Friends, Siblings, Children/Grandchildren, and Romantic partners). I then ran a binomial generalized linear mixed model predicting the type of Person helped with Wealth and Experience with needs (cluster-mean centered), and their interaction as covariates. I included a random effect for the participant ID, applying an unrestricted covariance structure using maximum likelihood with Laplace approximation as the estimation method, and a logit link-function.

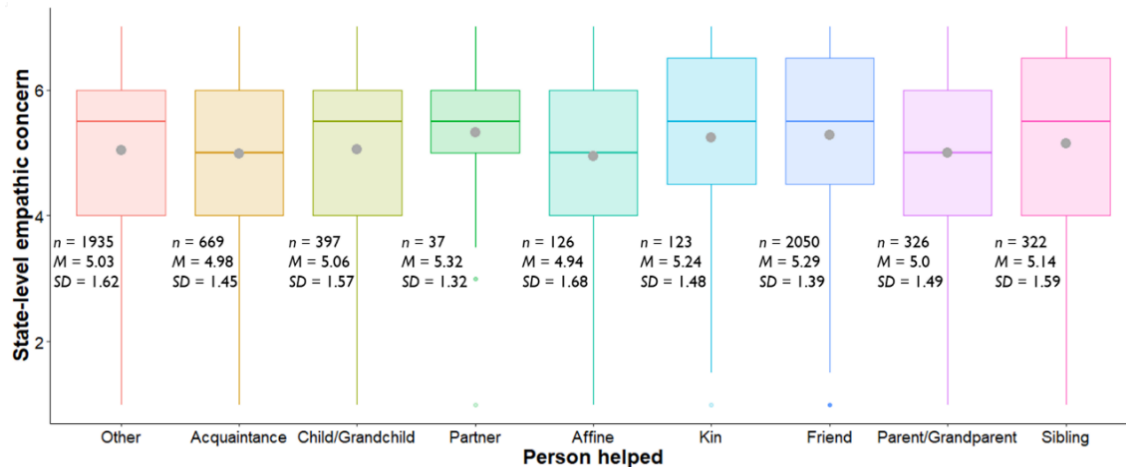


Figure 9. State-level empathic concern by relationship target. Affines included parents-in-law, siblings-in-law, and stepchildren. Kin included cousins, nieces, nephews, aunts, and uncles.

Romantic partners, friends, and siblings elicited the highest levels of empathic concern

A model in which only Person helped was included as a covariate shows that Romantic partners ($b = 5.51$, $SE = 0.21$) elicited higher Empathic concern than Acquaintances ($b = -0.61$, $SE = 0.21$, $p = 0.003$, $CI_{95\%} [-1.03, -0.20]$), Affines ($b = -0.49$, $SE = 0.24$, $p = 0.04$, $CI_{95\%} [-0.96, -0.03]$), Children/grandchildren ($b = -0.54$, $SE = 0.21$, $p = 0.01$, $CI_{95\%} [-0.96, -0.12]$), Kin ($b = -0.49$, $SE = 0.23$, $p = 0.03$, $CI_{95\%} [-0.95, -0.03]$), Parents/grandparents ($b = -0.61$, $SE = 0.22$, $p = 0.005$, $CI_{95\%} [-1.04, -0.19]$), and Other (unspecified) targets ($b = -0.45$, $SE = 0.20$, $p = 0.03$, $CI_{95\%} [-0.86, -0.05]$). But people reported similarly high Empathic concern for Romantic partners as they did for Friends ($b = -0.35$, $SE = 0.21$, $p = 0.09$, $CI_{95\%} [-0.76, 0.05]$), and Siblings ($b = -0.40$, $SE = 0.22$, $p = 0.06$, $CI_{95\%} [-0.83, 0.02]$).

Needs predicted higher concern for “others,” acquaintances, and children/grandchildren

In the following model, I included Experience with needs (T1), Person helped, and the Experience with needs (T1) × Person helped interaction as covariates, treating “Others” as the reference group (Table 6). There was an Experience with needs (T1) × Person helped interaction ($F(8, 4181) = 3.25$, $p = 0.001$), such that Experience with needs (T1) predicted higher Empathic

concern for “Others,” Acquaintances, and Children/grandchildren, but not for Affines, Friends, Kin, Parents/grandparents, or Siblings (see Figure 10). This model (Table 7) improved fit relative to an intercepts-only model (Δ -2LL, $\chi^2(17) = 2016.6$, $p < 0.001$), accounting for 26.6% of the within-person variance, and 14.53% of the between-person variance (ICC = 0.42).

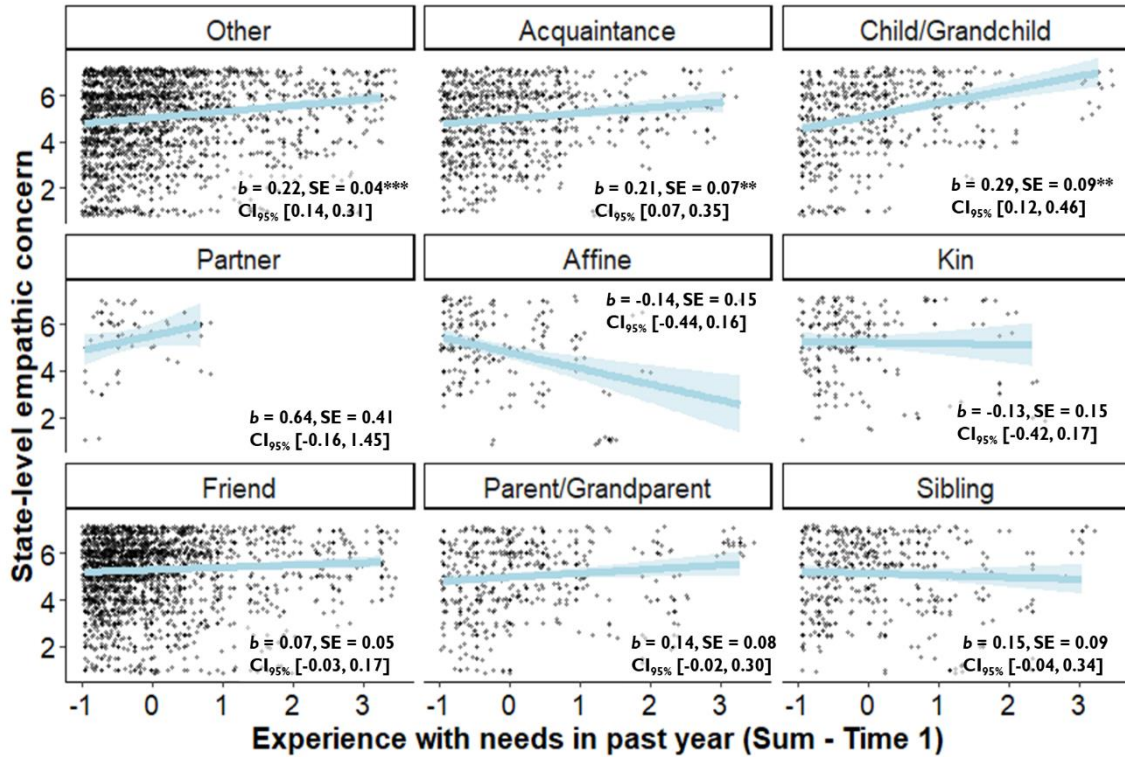


Figure 10. Experience with needs on empathic concern by relationship target. Experience with needs predicted higher Empathic concern for “Others,” Acquaintances, and Children/grandchildren. The plot shows the fitted line of Experience with needs on Empathic concern using the raw data. Regression coefficients of Needs on Empathic concern reflect estimates derived from the mixed-linear model reported in Table 6.

Table 7*Mixed-effects linear model predicting empathic concern by needs and target*

Obs. = 5932 (n = 906)	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	95% CI	
Intercept (Other)	5.054	0.044	114.99	<.0001	4.968	5.140
Acquaintance	-0.156	0.058	-2.70	0.007	-0.269	-0.043
Affine	-0.108	0.129	-0.84	0.400	-0.361	0.144
Child/Grandchild	-0.082	0.074	-1.11	0.269	-0.228	0.064
Friend	0.094	0.041	2.27	0.024	0.013	0.175
Kin	-0.073	0.123	-0.59	0.554	-0.313	0.168
Parent/Grandparent	-0.162	0.079	-2.05	0.041	-0.318	-0.007
Partner	0.615	0.249	2.47	0.014	0.127	1.104
Sibling	0.047	0.082	0.58	0.563	-0.113	0.207
Needs (T1)	0.227	0.045	5.07	<.0001	0.139	0.314
Needs (T1) × Acquaintance	-0.016	0.067	-0.24	0.808	-0.148	0.115
Needs (T1) × Affine	-0.370	0.151	-2.45	0.015	-0.667	-0.073
Needs (T1) × Child/grandchild	0.065	0.084	0.77	0.439	-0.100	0.231
Needs (T1) × Friend	-0.159	0.046	-3.46	0.001	-0.248	-0.069
Needs (T1) × Kin	-0.355	0.150	-2.37	0.018	-0.649	-0.061
Needs (T1) × Parent/grandparent	-0.088	0.078	-1.13	0.260	-0.242	0.065
Needs (T1) × Partner	0.417	0.412	1.01	0.312	-0.391	1.226
Needs (T1) × Sibling	-0.077	0.093	-0.83	0.407	-0.260	0.105

Note. Relationship target coefficients reflect the difference in Empathic concern for a particular target compared to Empathic concern for “Others,” and the Needs coefficients reflect the difference in the effect of Needs for a particular target compared to the effect of Needs on “Others.” $\tau_{\text{intercept}} = 1.05$ ($z = 16.27^{***}$), $\sigma_{\text{Time 1}} = 1.41$ ($z = 17.40^{***}$), $\sigma_{\text{Time 2}} = 1.32$ ($z = 15.24^{***}$), $\sigma_{\text{Time 3}} = 1.10$ ($z = 13.38^{***}$), $\sigma_{\text{Time 4}} = 1.26$ ($z = 13.79^{***}$), $\sigma_{\text{Time 5}} = 1.21$ ($z = 12.86^{***}$), $\sigma_{\text{Time 6}} = 1.07$ ($z = 11.94^{***}$), $\sigma_{\text{Time 7}} = 1.05$ ($z = 11.27^{***}$), $\sigma_{\text{Time 8}} = 0.95$ ($z = 11.17^{***}$), $\sigma_{\text{Time 9}} = 1.26$ ($z = 10.98^{***}$), $\sigma_{\text{Time 10}} = 0.97$ ($z = 10.58^{***}$), $\sigma_{\text{Time 11}} = 1.24$ ($z = 10.66^{***}$), $\sigma_{\text{Time 12}} = 1.36$ ($z = 10.77^{***}$), $\sigma_{\text{Time 13}} = 1.04$ ($z = 10.66^{***}$), $\sigma_{\text{Time 15}} = 1.17$ ($z = 10.53^{***}$), $\sigma_{\text{Time 18}} = 1.87$ ($z = 11.49^{***}$).

Wealthier people who experienced more needs were more likely to help distant targets

Experience with needs was positively associated with helping Distant targets ($b = 0.37$, $SE = 0.08$, $p < 0.001$, $CI_{95\%} [0.21, 0.53]$). Specifically, a one-unit increase in Experience with

needs was associated with a 45% increase in the probability that participants reported helping a Distant target (OR = 1.45, CI_{95%} [1.23, 1.70]). Wealth was not directly associated with helping Distant targets ($b = 0.12$, SE = 0.07, $p = 0.10$, CI_{95%} [-0.02, 0.26]). However, I found a Wealth \times Experience with needs interaction ($b = 0.17$, SE = 0.07, $p = 0.01$, CI_{95%} [0.03, 0.32]), such that Experience with needs predicted a 72% increase in the probability of helping a Distant target for Wealthier (+1SD) people (OR = 1.72, CI_{95%} [1.34, 2.22]), but only a 21% increase in the probability of helping a Distant target for less Wealthy (-1SD) people (OR = 1.21, CI_{95%} [1.02, 1.44]). This model improved fit relative to an intercepts-only model (Δ -2LL, $\chi^2(3) = 2180.94$, $p < 0.001$), accounting for 16.94% of the within-person variance, and 2.2% of the between-person variance (ICC = 0.47).

CHAPTER 4

DISCUSSION

Employing a two-year longitudinal survey of US adults, I set out to investigate three interrelated aims: (1) whether helping in times of need leads to increases in dispositional empathic concern over time, (2) whether unpredictable sources of risk elicit higher empathic responses than predictable sources of risk as would be predicted by a need-based transfers framework (Aktipis 2011; 2016; Cronk et al., 2019), and (3) test whether people who rely on need-based helping to manage risks deploy feelings of empathic concern towards more distant targets as a means to build interdependence with potential future cooperating partners (Guevara Beltran et al., under review).

Experiencing needs predicted higher dispositional concern via giving help

Results showed support for the prediction that people who help others in times of need experience a positive increase in their disposition to feel empathic concern. Accordingly, I found a small positive indirect effect, such that having more frequent experiences of need led to increases in dispositional concern one year later through providing help. This indirect effect has been a foundational, yet untested, assumption of several lines of research showing that, at least in the United States, lower-income individuals are more empathetic and show a higher proclivity to helping others when in need than higher-income individuals (Babcock et al., 2017; Côté et al., 2013; Li & Siu, 2021; Lim & DeSteno, 2016, 2020; Piff et al., 2010; Piff et al. 2012; Stellar et al., 2012; Varnum et al., 2015, 2016). In this study I showed that this assumption does indeed hold among people who experience more needs, but not necessarily among lower-income individuals.

The studies described above are part of a broader conversation on how social class shapes social cognition (Kraus et al. 2012). According to this perspective, lower social class individuals are thought to foster an other-oriented psychology that is motivated by a lower ability to exert control over their outcomes, a desire to satisfy communal goals, and the need to manage

challenges through mutual support. In contrast, higher social class individuals are thought to foster a self-oriented psychology that is motivated by a need for self-reliance, satisfying individual goals, and a preference towards managing challenges through individual efforts (Kraus et al. 2012). Much of this literature has focused on the role that the perceived controllability of one's outcomes plays in shaping this self-oriented over an other-oriented psychology (Kraus et al. 2012; Piff et al. 2012; Robinson and Piff 2017).

The perceived controllability of one's outcomes is akin to, and should be associated with, risk management strategies as defined by Dorfman (2007) and Cronk et al. (2019). That is, people with access to wealth can rely on alternative strategies to manage their risk, such as risk retention (i.e., absorbing the cost of needs through accumulated resources), and risk reduction (i.e., diversifying sources of income). Without the ability to engage in these alternative strategies, less wealthy individuals are instead more likely to rely on mutual support to manage risk (Cronk & Aktipis, 2021; Morduch & Schneider, 2017; Morduch & Siwicky, 2017; Stack, 1997; Young, 2022). Although wealthier people did report experiencing fewer needs than less wealthy individuals, it is telling that wealthier people gave more help than less wealthy individuals.

The present study cannot provide an exact reason for this pattern of findings. However, one interpretation supported by the data is that wealthier individuals who experience needs are also motivated to provide help, especially if they encounter unpredictable sources of risk. People who rely on need-based transfer systems to manage risk tend to follow these two rules: only ask for help when genuinely in need, and give help if genuinely able to (Aktipis et al., 2011; 2016). When considering these two rules, we can see the fact that, all else being equal, wealthier people have a greater ability to give help. After all, wealthy people are not entirely protected from unpredictable sources of risk: wealth was only moderately negatively correlated with experiencing needs ($r = -0.36$ to -0.25 , $p < 0.001$), wealthier people who experienced more needs gave more help than less wealthy individuals, and unpredictable sources of risk elicited higher

levels of empathic concern than predictable needs regardless of wealth. Thus, in contrast to the previous literature on social class, results from this study suggest that experiencing needs, rather than lower wealth, is the primary driving force behind lower-income individuals' higher need-based helping and empathetic disposition. In addition, results indicate that higher levels of wealth can enhance, rather than inhibit, people's ability to engage in need-based helping among those who experience more needs.

People who felt lower empathic concern showed increases in their empathetic disposition

When I set out to investigate whether helping in times of need leads to increases in dispositional empathic concern, I reasoned that such changes would be more pronounced for those who engaged their empathy more intensely. However, I found the opposite of this prediction: only people who reported lower levels of empathic concern when helping others showed an increase in their dispositional empathic concern. These results suggest that experiencing even low levels of empathic concern may lead to increases in dispositional empathic concern over time. Alternatively, results may also suggest that it is the least empathetic individuals who stand to gain the most dispositional concern from engaging their empathy through helping others. However, since state-level empathic concern and dispositional empathic concern were moderately positively correlated ($r = 0.50, p < 0.001$), I cannot rule out the possibility of a ceiling effect (see Figure 6). Similarly, neither state-level empathic concern nor giving help predicted dispositional empathic concern at year two, suggesting that after an initial increase, there was a cap on the extent to which people's empathetic dispositions could grow.

Unpredictable risks elicit empathy when people experience more needs

The second aim of this study was to implement a need-based transfers framework (Aktipis 2011; 2016; Cronk et al., 2019) to explain when others' needs will elicit empathic concern, and why, over time, helping in times of need might cultivate an empathetic disposition. Need-based transfer systems are likely a human universal (Cronk & Aktipis, 2021; Gurven, 2004;

Isaac, 1978; Tomasello et al., 2012). The reason we see need-based transfer systems reliably emerging across all human societies, including among participants in the present study, can be attributed to the fact that such systems allow people to manage unpredictable sources of risk (Cronk et al., 2019).

Results provided clear support for the hypothesis that unpredictable sources of risk elicit higher empathic concern than predictable sources of risk. In addition, we saw that people who experienced more needs reported higher empathic concern when providing help for unpredictable sources of risk than people who experienced fewer needs. Such a disposition to feel empathic concern and help others during unpredictable times of need might allow people to manage their own risks by ensuring that others will be available to help them during a future time of need. Indeed, although part of the success of need-based transfers is due to the fact that need-based transfer relationships do not dissolve if a partner fails to repay a particular instance of help (Aktipis et al., 2016; Aktipis et al., 2011; Campenni et al., 2021), giving and receiving help were highly positively correlated ($r = 0.37$ to 0.58 , $p < 0.001$). Moreover, people who gave more help during the first year received more help during the following year ($b = 0.14$, $p = 0.02$). And, experiencing needs had a positive indirect effect on help received during the second year through giving more help during the preceding year ($b = 0.05$, $SE = 0.02$, $p = 0.03$, $CI_{95\%} [0.003, 0.09]$; Figure 5), providing further support for the prediction that experiencing needs motivates people to rely on need-based helping to manage risk.

Taken together, these findings add to the previous literature on social class and empathy by providing greater specificity on the types of needs that will elicit empathic concern, and therefore, providing a framework that explains when helping has the potential to cultivate an empathetic disposition. Moreover, rather than relying on perceptions of need, and preference towards a communal (over a self-oriented) psychology, the present study adds to previous research by showing that actual experiences of need predict helping, and in turn, receiving help

when one needs it. Thus, ensuring that others will be available to help during a future time of need can explain why cultivating an empathetic disposition might pay off in the long run for people who experience many or frequent unpredictable sources of risk.

Does empathic concern help people build interdependence?

The third aim of this study was to test whether people who experience more needs report higher empathic concern when helping distant targets than people who experience fewer needs. While previous theoretical frameworks have emphasized that empathic concern selectively directs investment towards people with whom we share positive interdependence (Cialdini et al., 1997; de Waal, 2008; de Waal & Preston, 2017; Maner et al., 2002; Preston & de Waal, 2002), the prediction that empathic concern has a stronger effect on willingness to help non-interdependent targets (compared to interdependent targets) follows from a relationship-building perspective on empathic concern (Guevara Beltran et al., under review). Such acts of empathy-motivated helping are predicted to serve as a means to build interdependence with potential future cooperating partners. This perspective could explain why empathetic people are motivated to help a variety of non-interdependent targets (Guevara Beltran et al., under review).

Previous studies show that people experience the highest levels of interdependence with friends, romantic partners, and close kin such as siblings (Ayers et al. 2022; Guevara Beltran et al., under review). Accordingly, people reported the highest levels of empathic concern when helping romantic partners, friends, and siblings. Moreover, consistent with a relationship-building perspective on empathic concern, people who experienced more needs (compared to those who experienced fewer needs) reported higher empathic concern when helping acquaintances, and unspecified others, but not when helping people with whom they (are expected to) share some level of positive interdependence: romantic partners, affines (i.e., parents-in-law, siblings-in-law, and stepchildren), family members (i.e., cousins, aunts, uncles, nieces, and nephews), friends, parents/grandparents, and siblings. In addition, I found that people who experienced more needs

were more likely to help distant targets (i.e., others, acquaintances) than people who experienced fewer needs. And the effect of experiencing needs on helping distant targets was especially pronounced among wealthier people, compared to less wealthy participants, indicating that wealth enables people who encounter frequent needs to invest in risk pooling partners.

Previous work shows that empathetic individuals have larger mutual support networks (Kardos et al., 2017), and greater centrality within such networks (Morelli et al., 2017, 2018). The present study is consistent with, and provides a plausible mechanism for, these previous studies. People who experience more needs are more empathetic towards distant targets, and people who experience more needs are also more likely to invest in building relationships with prospective risk pooling partners by providing help to distant targets when in need.

The one exception to the pattern of results described above is that people who experienced more needs also reported higher empathic concern when helping their children/grandchildren than people who experienced fewer needs. Given that the human-life history is characterized by intergenerational transfers of resources throughout the lifespan, especially from parents and grandparents to children and grandchildren (Gurven 2004; Gurven et al. 2012; Hooper et al. 2015), helping children/grandchildren likely reflects a special case of high levels of unidirectional provisioning. Although this perspective cannot fully account for the finding that people who experienced more needs felt higher empathic concern for their children/grandchildren than people who experienced fewer needs, one plausible explanation is that parents and their children share a similar environment. And, thus, children of parents who experience more needs also experience more needs themselves, thereby eliciting higher empathic concern from their parents when faced with such needs.

Taken together, these results provide preliminary support for a relationship-building perspective on empathic concern. In addition, these results add to the larger conversation on social class and empathy by identifying a blind spot. Namely, that previous studies have focused

on empathy towards more distant targets, primarily ingroup strangers (Babcock et al., 2017; Côté et al., 2013; Li & Siu, 2021; Lim & DeSteno, 2016, 2020; Piff et al., 2010; Piff et al. 2012; Stellar et al., 2012; Varnum et al., 2015, 2016). This study indicates that wealthier people and those who experience fewer needs are not necessarily less empathetic overall. Rather, they are less empathetic only towards more distant individuals. This finding suggests that helping distant targets (and one's children) when in need, might cultivate an empathetic disposition, in turn accounting for the differences in empathic concern between less wealthy and wealthier individuals found in previous studies. Moreover, in contrast to previous studies on social class and prosociality, this study shows that wealth enables people who experience needs (i.e., those who are likely to rely on need-based helping to manage risk) to help distant targets when in need.

Implications of collecting data during the COVID-19 pandemic

The present study took place from September 2020 to August 2022 during a unique historical period, the time of the COVID-19 pandemic. Some factors unique to this time point might have influenced participants' psychology, including their inclinations to empathize and help people when in need. Times of crises such as the COVID-19 pandemic leave people vulnerable to various sources of risk, from falling sick to experiencing serious economic downturns. This higher prevalence of need during the pandemic is somewhat reflected in this study, people reported experiencing more needs during the preceding year on September 2020 ($M = 4.04$, $SD = 4.27$), than on August 2021 ($M = 2.88$, $SD = 3.32$). However, a paired-samples t -test shows that this difference was small when considering people who participated at both Time 1 and Time 12 ($t(395) = 1.99$, $p = 0.048$, $M_{diff} = 0.27$, $CI_{95\%} [0.003, 0.54]$, $d = 0.10$), which means that I cannot rule out the possibility that some of the difference in experience with needs from Time 1 to Time 12 reflected in the entire sample is due to participant characteristics, rather than the time period.

Although it is not clear whether participants in this sample experienced substantially

more needs during the earlier periods of the pandemic, a growth-curve model clearly shows that people were giving more help during September 2020 ($b = 7.96$, $SE = 0.23$) than during August 2022 ($b = 6.02$, $SE = 0.22$). There was a decrease in helping over time at baseline ($b = -0.53$, $SE = 0.04$, $CI_{95\%} [-0.61, -0.46]$), and a Time \times Time interaction ($b = 0.027$, $SE = 0.002$, $CI_{95\%} [0.02, 0.03]$) indicates the decrease was stronger during the earlier periods of data collection than during the later periods of data collection (Time 15: $b = -0.15$, $SE = 0.01$, $CI_{95\%} [-0.18, -0.13]$).

As indicated by the data above, the COVID-19 pandemic left people vulnerable to a number of risks, in turn generating numerous opportunities to help people in need, a phenomenon that reliably arises in times of crises dubbed ‘catastrophe compassion’ (Zaki, 2020). Moreover, a recent study I conducted showed that the pandemic led to an increase in people’s perceived interdependence with their neighbors and with all of humanity, and those who perceived high interdependence with others showed higher and more stable inclinations to help others during the first six months of the pandemic (Guevara Beltran & Ayers et al., under review). Having numerous opportunities to provide help and increasing perceptions of interdependence during the first months of the pandemic could account for the fact that people gave more help during the earlier periods of data collection than during the later periods of data collection.

These findings are also in line with cross-cultural evidence showing that people increase their reliance on need-based helping during times in which they encounter a greater number of unpredictable sources of risk (Cronk & Aktipis, 2021; Ember et al., 2018; Martin et al., 2020; Morduch & Schneider, 2017; Morduch & Siwicki, 2017; Stack, 1997; Young, 2022). In addition, that people had more opportunities to help others during the first eleven months of data collection might also account for the finding that helping only predicted dispositional concern at year one, but not at year two, perhaps because the negative effects of the pandemic were not as pronounced after September 2021.

This speculation raises another interesting issue, how people come to learn about the type

of ecology that they live in. I have focused on the direct experience with needs as the primary source of information that people gather to determine whether (or to what extent) they should invest in risk pooling partners by means of cultivating and empathetic disposition and helping others. However, requests for help might also indicate that one lives in an ecology characterized by numerous and unpredictable sources of risk. If so, requests for help might serve as a cue to the likelihood of experiencing a future need, and therefore push people to invest in risk pooling partners even if one does not experience needs frequently. This proposition is somewhat supported by the data, giving help during the first year strongly predicted giving help during the following year. This result might simply reflect a prosocial disposition, but it might also indicate that people who frequent numerous opportunities to provide help come to see their environment as riskier, and therefore believe that they are more likely to experience a need in the future. This interpretation would be consistent with the social insurance function of need-based transfer systems. One continues to invest in their social insurance (i.e., help risk pooling partners) not because one experiences a need and expects repayment, but to be prepared (i.e., have partners who are willing to help) in the event of an unforeseeable need arising.

Is the finding that helping in times of need increases dispositional empathic concern unique to the COVID-19 pandemic? Catastrophe compassion is not unique to the COVID-19 pandemic (Zaki, 2020). And, when taken together, results might indicate that contexts characterized by numerous and unpredictable sources of risk are precisely the kinds of ecologies that can give rise to not only need-based transfer systems (Cronk & Aktipis, 2021; Ember et al., 2018; Martin et al., 2020), but also increasing perceptions of interdependence, and the development of an empathetic disposition among those who rely on need-based helping to manage risk.

However, there were some challenges that were unique to the COVID-19 pandemic. One such challenge was that social distancing (Pantell & Shields-Zeeman, 2020) led to a surge in

feelings of loneliness and isolation (Ayers et al., 2022). When experiencing loneliness or isolation people often seek to affiliate with others as a means to rectify their perceived loss of belongingness (Williams, 2009). Thus, heightened affiliation motivations resulting from prolonged periods of social distancing could account for people's higher inclination to empathize and help others in need, as such inclinations would presumably allow people to achieve their affiliation goals. If so, the finding that helping leads to increases in dispositional empathic concern might not generalize to contexts or ecologies characterized by numerous and unpredictable sources of risk, but only to those in which people seek to help as a means to satisfy affiliation goals.

Limitations and Future Directions

The current study has some strengths worth mentioning, including the longitudinal nature of the data, the representativeness of the sample, and the fact that actual experiences of need, help given, help received, and state-level empathic responses were measured. In addition, I controlled for self-enhancement, indicating that social desirability could not account for the finding that helping in times of need predicted increases in dispositional empathic concern. However, there were also some limitations, which I address in detail below.

There were fewer time points from year one to year two than from baseline to year one

One limitation of this study is that participants were only recruited every 60 days after year one. Although there were equal intervals of time from baseline to year one, and from year one to year two when it comes to measures of dispositional empathic concern, this means that there were fewer recorded instances of help given from year one to year two compared to from baseline to year one. Lacking these measures of help given could explain why giving help did not predict dispositional empathic concern at year two. However, it is also plausible that, after an initial increase, there was a cap in the extent to which dispositional concern could grow. Future studies should aim to recruit participants an equal number of times across data collection waves,

as well as employ different scales of dispositional empathic concern that allow to capture greater variation in this construct. This would enable researchers to differentiate between ceiling effects, and a growth cap in people's dispositional empathic concern.

Experience with needs and state-level empathic concern were measured retrospectively

Another limitation of the present study is that participants were asked to report the extent to which they felt empathic concern during a previous instance of giving help. This is a limitation because it prohibits testing whether state-level empathic concern predicts specific instances of help, or whether state-level empathic concern predicts the amount of help given. Future studies could employ momentary-ecological assessments of empathy and help given (e.g., Depow et al. 2021) to enable researchers to analyze the extent to which state-level empathic concern predicts specific instances and amounts of help given. Such approaches would also allow researchers to treat empathic concern within a given time point as a state-level measure, and as a dispositional measure when looked at over time, allowing for the potential to identify whether feedback loops exist between state-level and dispositional empathic concern. And, at the same time, bypass potential issues related to ceiling effects that come with dispositional measures of empathic concern such as the Interpersonal Reactivity Index.

The predictability of needs was only measured at baseline

Although one strength of this study is that I measured the predictability of specific needs, a third limitation is that the predictability of needs was only measured at baseline. This a limitation for two reasons. One, this prohibits testing whether the predictability of specific needs for which people provided help predict such instances of help, as well as the extent to which the predictability of needs for which people provided help predict the level of empathy people felt during those instances of giving help. Two, imputing the values of the predictability of needs reported at baseline on following time points effectively reduced the variance at the within-person level. This means that the within-person and between-person variance of the predictability of

needs were more similar to one another than they would have been if the predictability of needs would have been measured on every time point. This is a limitation because there is likely variability in the extent to which the same kinds of needs (e.g., needing money for rent, food/water) arise from predictable or unpredictable sources of risk from time to time. Thus, the effect of predictability of needs on empathic responses reported in the present study might under or overestimate the true effect in the population.

There were a small number of observations for helping partners, affines, and family members

Another limitation worth discussing is the fact that there were relatively few recorded instances of helping romantic partners ($n = 37$), affines ($n = 126$), and family members ($n = 123$). That so few people helped romantic partners likely stems from asking participants to only report instances of helping people outside their household. Moreover, participants were not asked to report the type of person helped at Times 1 and 2. This means that the “other” category included both true “other” responses, as well as all instances of help given/empathy reported at Times 1 and 2. Lastly, as shown in Figure 9, although there was ample variability in empathic concern across relationship targets, there was a restricted range of experience with needs for romantic partners, affines, and family members. These are limitations because the true effects of experience with needs on empathic concern for these relationship targets might take on different shapes should they be properly categorized, and if there was a full range in experience with needs for these targets. These shortcomings, however, could be overcome in future studies by measuring experiences of need, and empathic concern towards specific relationship targets.

Conclusion

This study set out to demonstrate how implementing a need-based transfers framework and a relationship-building perspective on empathic concern can account for the associations among experience with needs, empathic concern, giving help, and dispositional empathic concern

observed in previous research. Overall, this study adds to a larger conversation on social class and social cognition by showing that people who experience more needs can increase their dispositional empathic concern by providing help to others during times of need. This study also identifies the types of needs that elicit empathic concern (i.e., those arising from unpredictable sources of risk), and provides a framework to explain why cultivating an empathetic disposition might pay off in the long run for people who experience needs: those who provide help are more likely to receive help when in need, allowing people to manage unpredictable sources of risk. Moreover, this study adds to the existing literature by not only specifying the types of needs that elicit empathic concern, but also specifying the types of relationship targets for whom providing help might cultivate an empathetic disposition (i.e., those with whom we share less interdependence).

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