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journal homepage: [www.elsevier.com/locate/jesp](http://www.elsevier.com/locate/jesp)Motivational effects on empathic choices<sup>☆</sup>Amanda M. Ferguson<sup>a,\*</sup>, C. Daryl Cameron<sup>b,c</sup>, Michael Inzlicht<sup>d,e</sup><sup>a</sup> Department of Psychological Clinical Science, University of Toronto, Toronto, ON, Canada<sup>b</sup> Department of Psychology, The Pennsylvania State University, University Park, PA, USA<sup>c</sup> Rock Ethics Institute, The Pennsylvania State University, University Park, PA, USA<sup>d</sup> Department of Psychology, University of Toronto, Toronto, ON, Canada<sup>e</sup> Rotman School of Management, University of Toronto, Toronto, ON, Canada

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## ABSTRACT

Empathy often feels automatic, but variations in empathic responding suggest that, at least some of the time, empathy is affected by one's motivation to empathize in any particular circumstance. Here, we show that people can be motivated to engage in (or avoid) empathy-eliciting situations with strangers, and that these decisions are driven by subjective value-based estimations of the costs (e.g., cognitive effort) and benefits (e.g., social reward) inherent to empathizing. Across seven experiments (overall  $N = 1348$ ), and replicating previous work (Cameron et al., 2019), we found a robust empathy avoidance effect. We also find support for the hypothesis that individuals can be motivated to opt-in to situations requiring empathy that they would otherwise avoid. Participants were more likely to opt into empathy-eliciting situations if 1) they were incentivized monetarily for doing so (Experiments 1a and 1b), and 2) if a more familiar and liked empathy target was available (Experiments 2a and 2b). Framing empathy as explicitly related to one's moral character and reputation did not motivate participants to engage in empathy (Experiment 3a and 3c), though these null results may be due to a weak manipulation. These findings suggest that empathy can be motivated in multiple ways, and is a process driven by context-specific value-based decision making.

## 1. Introduction

Most people have many opportunities throughout the day to empathize with the people around them. For example, your partner might tell you over dinner that he received a promotion, just before your waiter slips and drops a tray of food – do you feel joyful with your partner or embarrassed with your waiter? Both partner and waiter might warrant your empathy, but most of us will feel with our partners before a relative stranger.

Generating empathy for a someone you don't know, and likely will never know, can be challenging. Empathy requires attention and cognitive effort (Schumann, Zaki, & Dweck, 2014; Epley et al., 2004), and engaging those resources at every empathy opportunity throughout the day might be exhausting. But would it feel taxing if your empathy was financially rewarded? Or if the person telling the story was not a stranger, but a friend? What if you believed that those around you would make judgments about your moral character based on your willingness to empathize? Here, we suggest that people can be motivated to engage in (or avoid) empathy-eliciting situations, and that

these decisions are associated with value-based estimations of the costs (e.g., cognitive effort) and benefits (e.g., social reward) inherent to empathizing.

Empathy, or feeling what someone else feels, is considered by many to be an important skill for social life. Despite its benefits, there is good evidence to suggest that empathy is not always automatic across social situations (e.g., Schumann et al., 2014; for review, Zaki, 2014). For example, people often choose to walk past (rather than engage with) homeless people on the street, ostensibly turning empathy down or off without necessarily being intentional about it. Variations in empathic responding suggest that, at least some of the time, empathy is affected by one's motivation to empathize in any particular circumstance (Cameron et al., 2019; Keysers & Gazzola, 2014; Zaki, 2014). One's motives in any particular context likely affects these calculations; but the ways in which this process unfolds in the context of empathy choice and from a subjective-value based decision making perspective has been relatively unexamined (though see Cameron et al., 2019; Sassenrath, Wagner, Keller, & Sassenberg, 2019). People can hold many (sometimes, conflicting) motives, several of which might move them

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toward or away from empathy. An individual who habitually ignores panhandlers on the street might choose to smile and engage with them if she is walking by after having dinner with friends. The context of her evening might have made salient her empathy-consistent goals (e.g., acting morally; bolstering community), and changed her estimations of which choice (e.g., averting her eyes or not) held the highest subjective value.

### 1.1. Motivating empathy

Empathy is a multifaceted process (e.g., see [Bernhardt & Singer, 2012](#); [Davis, Luce, & Kraus, 1994](#); [Decety & Jackson, 2004](#); [Hoffman, 2001](#); [Preston & De Waal, 2002](#)), and is often described in terms of its distinct but overlapping components: An affective component (e.g., *experience sharing* or feeling what someone else feels), a cognitive component (e.g., *perspective taking* or putting yourself in someone else's shoes), and an intentional component (e.g., *compassion* or having the intention to respond kindly to another person's distress; [Decety & Jackson, 2004](#); [Depow, Francis, & Inzlicht, 2020](#)). In the present work, we focus on whether people exert situational control over their experience of empathy, specifically perspective taking (Experiments 1a, 1b, 2a, 2b) and experience sharing (3a, 3b, 3c), though there is significant overlap in these processes and they are likely coactive in many everyday situations ([Depow et al., 2020](#); [Zaki & Ochsner, 2012](#)). For example, recent work on everyday experiences with empathy suggests that people are often (75% of the time) engaging in experience sharing, perspective taking, and compassion at the same time during empathy encounters over the course of the day ([Depow et al., under review](#)).

#### 1.1.1. Increasing benefits

An obvious (and well-studied) phenomenon is that individuals are motivated by monetary reward. Research in cognitive psychology has demonstrated that monetary incentives improve task performance via enhancements in cognitive control ([Locke & Braver, 2008](#); [Padmala & Pessoa, 2011](#); [Pochon et al., 2002](#)), specifically by shifting cognitive resources toward context-related cue information that supports preparatory (or "proactive") performance ([Chiew & Braver, 2013](#); [Locke & Braver, 2008](#)). That is, when money is on the line, people are more likely to notice and respond to cues that might impact their ability to win that money. In the context of empathic behaviors, research has demonstrated that monetary reward can improve performance on an empathic accuracy task, and that gender effects (i.e., women outperforming men) on this task can be eliminated when participants are paid for their performance ([Klein & Hodges, 2016](#)). These results suggest that monetary incentives sufficiently motivate empathic behavior in individuals who might otherwise avoid it.

Social rewards can also motivate empathy. It has been suggested that humans have an innate psychological need for relatedness (e.g., see [Ryan & Deci, 2000](#)). From an attachment theory perspective, this need is fundamentally tied to empathy – parental attachments are, by definition, based in effective and consistent empathy (i.e., a parent has to continually notice when the child is in need and respond according to each perceived need.) Empathy also facilitates social bonding beyond childhood: Partners who perceive their significant other as empathic report higher relationship satisfaction ([Cramer & Jowett, 2010](#)), and one's dispositional empathy predicts their partner's assessment of their healthy and unhealthy relationship behaviors (e.g., good communication, sensitivity, and less possessiveness; [Davis & Oathout, 1987](#)). Similarly, manipulating social norms related to empathy has been demonstrated to shift individuals' self-reported empathy in a particular situation and corresponding empathy behavior (e.g., donations to a homeless shelter; [Nook, Ong, Morelli, Mitchell, & Zaki, 2016](#)), and introducing conditions which reduce the opportunity for impression management reduces self-reported empathic responding ([Sassenrath, 2019](#)).

From an evolutionary perspective, empathizing with close-others

(e.g., kin) might confer survival benefits (e.g., see [Preston & de Waal, 2001](#)). Appropriately attending to the emotions of other group members allows for a reliance on the group for safety, rather than relying only on oneself ([Preston, 2013](#)). An emotional display (e.g., a fear response to a predator) by one member is understood as an important indicator of the group's safety, and action can be taken as a collective despite only one member interacting with the feared stimuli (i.e., the more eyes phenomenon). This expansion of duty allows individual group members to spend more time on other activities that promote reproductive success (e.g., finding food, eating, finding mates, etc.). These social rewards (e.g., relationship satisfaction, group safety) increase motivation toward goals that are already intrinsically motivating (e.g., affiliation; [Ryan & Deci, 2000](#)), and if made salient, the potential for these rewards should motivate empathy behavior.

#### 1.1.2. Reducing costs

Recent work has suggested that individuals view empathizing with strangers as costly ([Cameron et al., 2019](#); see also [Schumann et al., 2014](#)). Inferring information about the feelings of another person (i.e., empathy) entails a level of uncertainty and error – there is less information available to an observer about another person's internal experience than there is about one's own internal experience, and interpreting relevant cues requires directed attention and working memory ([Lin, Keysar, & Epley, 2010](#)). Consequently, the processes of engaging empathy may feel demanding and effortful ([Lin et al., 2010](#)). For example, individuals in a recent study reported that they would need more money (as payment, in a hypothetical discounting paradigm) to complete additional trials of a task requiring empathy than they would for completing a comparable task not requiring empathy ([Cameron et al., 2019](#)). Given the well-described finding that people and other animals avoid effort and that they experience effort as costly ([Hull, 1943](#); [Kool, McGuire, Rosen, & Botvinick, 2010](#); [Walton, Kennerley, Bannerman, Phillips, & Rushworth, 2006](#); [Westbrook, Kester, & Braver, 2013](#); but, see [Inzlicht, Shenhav, & Olivola, 2018](#)), the cognitive costs (and benefits) of empathic engagement are likely to impact one's willingness to empathize.

Across a large series of studies, [Cameron et al. \(2019\)](#) developed a behavioral paradigm (known as the Empathy Selection Task) wherein participants make a series of binary choices between completing an empathy task (wherein the target of empathy is a stranger) or a comparable task that does not require empathy. People consistently preferred to avoid empathy, and they reported experiencing more mental demand, negative affect, and felt less successful when engaging in empathy with a stranger than while completing a comparable task that did not require empathy ([Cameron et al., 2019](#)). The authors further demonstrated that empathy avoidance is associated with participants' perception of effort during the empathy task. Critically, manipulating one aspect of subjective workload, namely participants' perceptions of their own empathic ability (i.e., self-efficacy), eliminated empathy avoidance and reduced other perceived costs like mental demand and aversiveness, and suggests that these cognitive costs may play a causal role in the avoidance of empathy. This finding further aligns with the suggestion that humans have an innate psychological need for competence ([Deci & Ryan, 1985](#)), and that social-contextual events that produce feelings of competence during a particular action can enhance intrinsic motivation for that action. If a certain empathy behavior is intrinsically motivating, feeling like you are doing it well should increase your motivation to engage in that behavior.

### 1.2. Overview of studies

Here, we investigate possible motivators of empathy behavior and test a number of predictions of a value-based choice approach to empathy behavior using the Empathy Selection Task ([Cameron et al., 2019](#)). First, we investigate the role of monetary incentives in motivating one's willingness to engage in empathy (i.e., choosing the

empathy task over the non-empathy task on the Empathy Selection Task; Experiments 1a and 1b). Previous work with the Empathy Selection Task has demonstrated that individuals discount the value of the empathy task and therein report that they require more money to complete extra trials of the empathy task compared to the non-empathy task (Cameron et al., 2019). In the present work, we experimentally manipulate monetary reward to examine the role of extrinsic reward in motivating empathy. We predict that by re-framing empathy choice as in line with participants' self-identified goal of earning money (i.e., as indexed by their status as a worker on Mechanical Turk), and by increasing the rewards associated with empathizing (i.e., via remuneration), we will increase people's estimations of the subjective value of empathizing and therefore increase their willingness to engage in empathy.

Next, we attempt to motivate empathy choice by increasing the salience of social rewards associated with empathizing (e.g., improved relationship functioning), and by targeting people's judgments about the costs inherent to empathizing. People subjectively value engaging in the emotional experiences of some people over other people – for example, by definition, we value the people we love more than strangers, and we might be more willing to empathize with them as a result. Further, if empathy avoidance is due (at least in part) to a lack of self-efficacy while empathizing (as described in Cameron et al., 2019), people should avoid it less if they are more confident that their empathic inferences are correct (i.e., if they feel competent), and this can occur when people have more information about the target of empathy (Preston & de Waal, 2001). To test this prediction, we developed a new version of the Empathy Selection Task wherein people are asked to choose between empathizing with a stranger, empathizing with a loved other, or engaging in a comparable task that does not include empathy (Experiment 2a and 2b). Given that individuals have considerably more social incentive to empathize with a loved other, and presumably have some experience empathizing with that person, we expect that the subjective value of empathizing will be higher than it would otherwise be when the target of empathy is a stranger.

Finally, we evaluate the extent to which (if at all) experimentally increasing the motivation to be a moral actor might influence one's willingness to engage in empathy (Experiments 3a, 3b, and 3c). To this end, some participants are told that the Empathy Selection Task is diagnostic of moral character, and that empathy is often regarded as part of morality. To the extent that people view moral acting as valuable (e.g., via associated social rewards such as affiliation), their subjective valuation of empathic behavior should increase when empathy is described as a component of morality. Thus, we expect that increasing participants' motivation to act morally will increase people's willingness to choose empathy.

## 2. Experiment 1: Motivating empathy with monetary rewards

In Experiment 1a and 1b we investigated the extent to which empathy choice on the Empathy Selection Task can be motivated by monetary reward. Experiment 1a was designed to be a straightforward test of our hypothesis (i.e., that increasing the subjective value of empathizing via increased monetary reward will increase empathy choice). In Experiment 1b, we sought to replicate the results of Experiment 1a while providing a more conservative test of this hypothesis by introducing a learning component to the Empathy Selection Task.

The main dependent variable for all experiments is empathy choice as measured by the Empathy Selection Task (Cameron et al., 2019). The Feel-Self/Feel-Other version of the Empathy Selection Task (used in Study 7 and Study 8 of Cameron et al., 2019) was adapted for Experiments 1a and 1b (please see Fig. 1 for a visualization of trial procedure). In this version of the task, the deck on the right is labeled “FEEL-SELF”, and the deck on the left is labeled “FEEL-OTHER”. Participants are asked to choose between the decks. After choosing, they are shown an

image and one of two possible sets of instructions. If they choose the Feel-Self (i.e., the non-empathy deck), they are asked to focus on the emotional reactions that they are having in response to the image, then indicate whether they feel more positive or negative overall. If they choose the Feel-Other (i.e., the empathy deck), they are asked to focus on the emotional reactions that another person, “Harley”,<sup>1</sup> is having in response to the image. Participants know nothing about this other person except his/her first name (“Harley”) and birthday (October 3), and that he/she is another participant in a study. They are then asked to indicate if Harley feels more positive or negative overall in response to the image. There are 40 trials, and summary scores on the Empathy Selection Task are calculated as the number of trials (out of 40) the participant selected the Feel-Other/empathy deck.

In Experiments 1a and 1b, participants were randomly assigned to one of three between-subject payment conditions. In the first condition, participants received an extra \$0.01 every time they chose the empathy deck (paid for Feel-Other condition). In the second condition, participants received an extra \$0.01 every time they chose the non-empathy deck (paid for Feel-Self condition). Pilot testing of \$0.05, \$0.02, and \$0.01 bonus payments demonstrated no differences between the amounts, so the least expensive option was chosen. Finally, in the third condition, participants did not receive a bonus payment at all (no payment control condition). Workers on Mechanical Turk have reported that their primary motivation as Workers is to make money (Litman, Robinson, & Rosenzweig, 2015), and as such we expect re-framing empathy choice as in line with that goal will increase their subjective valuation of the empathy deck (i.e., by increasing the salience of reward) and choose more of it as a result. Additionally, previous work has demonstrated that participants report requiring more money (hypothetically) to complete an empathy task than they would a non-empathy task (Cameron et al., 2019), indicating that monetary reward might predict empathy choice on the Empathy Selection Task.

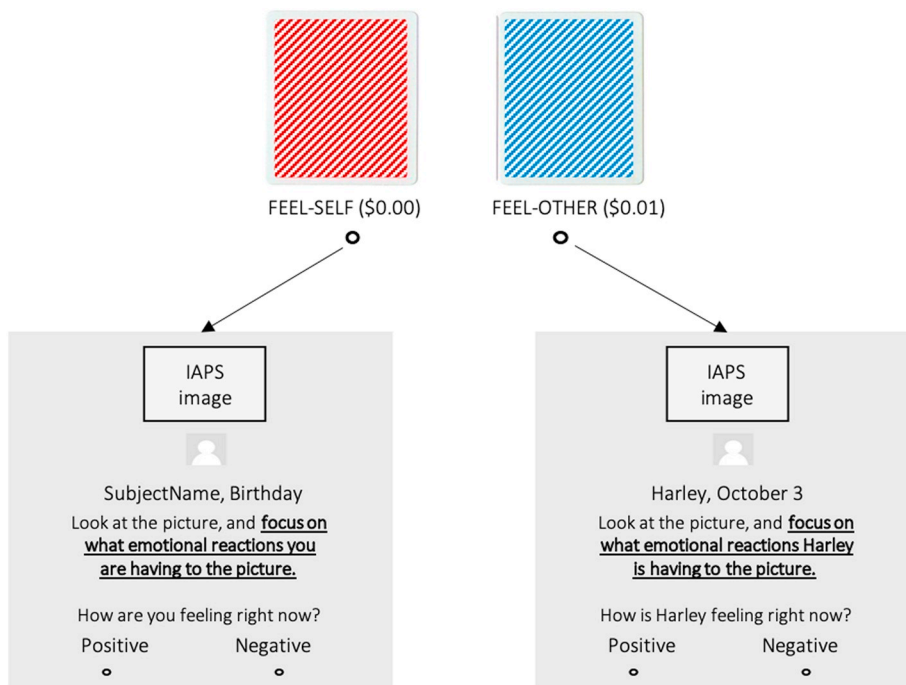
### 2.1. Method

In all experiments we report how we determined our sample size, all data exclusions (if any), all manipulations and all measures in the study (Simmons, Nelson, & Simonsohn, 2012). After signing the consent form, all participants provided their first name, birth month and day (e.g., “Sam, December 1”). These details were then piped back to the participants in the Empathy Selection Task during FEEL-SELF trials. See Fig. 1.

#### 2.1.1. Participants and design

We conducted a series of simulations (using the *simr* package in R; Green, MacLeod, & Alday, 2015) to estimate the number of participants needed in to have at least 80% power to detect differences ( $\alpha = 0.05$ ) in empathy choice by payment condition. In Experiment 1a we assumed a medium effect size based on previous research using monetary reward and based on pilot data suggesting at least a medium effect size. In Experiment 1a, these simulations estimated that with 50 participants per condition we could detect a parameter estimate of  $\beta = 0.42$  or larger with 84% power for the fixed effect of condition in our mixed design. In Experiment 1b, we assumed a medium effect based on the results of Experiment 1a (which suggested a large effect) and in consideration of changes in design to Experiment 1b (i.e., no deck labels, which might produce a smaller effect size than Experiment 1a). As in Experiment 1a, our simulated data suggested that with 50 participants per condition we could detect a parameter estimate of  $\beta = 0.42$  or larger with 84% power for the fixed effect of condition in our mixed design. We recruited 153 participants ( $n = 153$ ; 74 female, 79 male,  $M_{\text{age}} = 36.65$  years,  $SD_{\text{age}} = 12.26$ ) in Experiment 1a and 154

<sup>1</sup> The name “Harley” was chosen because it was rated as approximately gender neutral in the US Social Survey name database.



**Fig. 1.** Visualization of trial procedure in the paid for Feel-Other condition of the Empathy Selection Task in Experiment 1a. In the paid for Feel-Self condition the bonus payment labels are reversed such that “(\$0.01)” appears after FEEL-SELF and “(\$0.00)” appears after FEEL-OTHER. There are no bonus payment labels at all in the no payment condition (i.e., decks are labeled “FEEL-SELF” and “FEEL-OTHER”). See Supplemental Materials for a visualization of Experiment 1b.

participants ( $n = 154$ ; 93 female, 61 male,  $M_{age} = 38.86$  years,  $SD_{age} = 12.93$ ) in Experiment 1b from Amazon's Mechanical Turk (MTurk), an online data collection platform often used in psychological research (Buhrmester, Kwang, & Gosling, 2011; Hauser & Schwarz, 2016).<sup>2</sup>

## 2.2. Materials and procedure

### 2.2.1. Empathy Selection Task

For full instructions please see Supplemental Materials. At the beginning of each trial, participants were shown a pair of card decks. The deck on the left was always red, and the deck on the right was always blue. In Experiment 1a, decks in the paid conditions were labeled with trial type and bonus option (e.g., “FEEL-SELF (\$0.00)”); “FEEL-OTHER (\$0.01)”). The labels in the no payment condition were identical apart from any reference to money (e.g., “FEEL-SELF”; “FEEL-OTHER”). In Experiment 1b, the red deck was labeled always “DECK A” and the blue deck was always labeled “DECK B” across conditions.

Participants were instructed to choose a deck, and after a choice was made they were shown an image from the International Affective Picture System (IAPS; Lang, Bradley, & Cuthbert, 1997). The images were selected to be neutral in arousal, and contained images that fell above and below the average IAPS image valence (range: 4.39–5.70; IAPS images are normed on a scale of 1 = negative valence to 9 = positive valence).<sup>3</sup> If participants chose the FEEL-SELF deck, they were told (emphasis in the original): “Look at the picture, and **focus on the emotional reactions you are having to the picture**. How are you feeling right now?” Participants indicated their current feeling by selecting either “positive” or “negative” before moving on to the next trial. If participants chose the FEEL-OTHER deck, they were told: “Look at the picture, and **focus on the emotional reactions that Harley is having to the picture**. How is Harley feeling right now?” They

indicated whether Harley was feeling positive or negative by selecting the appropriate box on the page. Participants completed 40 trials.

### 2.2.2. Payment manipulation

In both Experiment 1a and 1b, participants were randomly assigned to one of three between-subject conditions: 1) be paid an extra \$0.01 for completing empathy trials (i.e., paid for Feel-Other), 2) be paid an extra \$0.01 for completing non-empathy trials (i.e., paid for Feel-Self), or 3) a no payment condition. In both experiments, bonus payments in the paid conditions were provided on a fixed schedule (i.e., every time a participant chose the bonus deck). Participants in the paid conditions (but not the no payment condition) read:

You will be paid \$2 for completing this HIT. However, each deck is labeled with a different bonus value. This means you can earn up to an additional \$0.40.

In Experiment 1a, the bonus payment options (in the paid for Feel-Other and paid for Feel-Self conditions) were immediately obvious to participants via deck labels (e.g., “FEEL-OTHER (\$0.01)”). In Experiment 1b, the decks were not labeled with bonus payment information (they were simply labeled “DECK A” and “DECK B”), and participants received feedback on every trial about whether or not their selection (i.e., between DECK A and DECK B) resulted in a bonus payment. This manipulation adds a learning component to the task, as participants must notice which deck choice results in a bonus payment and which deck is associated with which task. If a participant does not have a preference between the decks, and/or is not sufficiently motivated by the \$0.01 bonus payment, they may not deem the cognitive cost of learning the task design as worth the effort required to do so. In this way, Experiment 1b provides a more conservative test of our hypothesis.

### 2.2.3. Post-task assessment

In all experiments, the Empathy Selection Task was followed by a post-task assessment that included the following open-ended questions: “What was it like performing the task?”, “How did you choose between the decks?”, “Did you develop a preference for one of the decks? If so please indicate why.”, “Was there any difference between the decks? If so please explain these differences.” These questions were always

<sup>2</sup> A programming error prevented the collection of drop out data for Experiments 1a and 1b.

<sup>3</sup> IAPS image numbers: 1303, 1935, 2383, 2393, 2440, 2441, 2485, 2493, 2514, 2518, 2579, 2595, 2690, 2702, 2749, 2780, 3550.2, 4000, 4003, 4005, 4275, 4571, 5390, 6930, 7002, 7004, 7030, 7035, 7096, 7150, 7160, 7182, 7185, 7235, 7285, 7504, 7550, 7590, 7820, 7830.

followed by questions from the NASA Task Load Index (Hart & Staveland, 1988), which is an assessment of subjective cognitive costs. Participants answered the NASA questions for each deck that appeared in the experiment. Responses were on a 5-point scale (from 1 = very low to 5 = very high). The questions from the NASA Task Load Index are “How mentally demanding was this deck?” “How hard did you have to work to accomplish your level of performance with this deck?” “How insecure, discouraged, irritated, stressed, and annoyed were you by this deck?” “How successful were you in accomplishing what you were asked to do in this deck?” The first two questions assess effort, the third assessed aversiveness, and the fourth measures self-efficacy.

#### 2.2.4. Statistical analysis

Statistical analyses were performed in R (R Development Core Team, 2011). We conducted two primary analyses for each independent experiment. First, we tested whether empathy choice was influenced by the fixed effect of motivation condition by fitting two-level generalized linear models (binomial distribution) using the `glmer()` function within the R package `lme4` (Bates et al., 2015). Second, we tested for empathy avoidance within each condition, and estimates related to empathy choice within condition were obtained from intercept values for two-level generalized linear models (i.e., without predictors in the model). The dependent variable for both analyses was trial by trial responses on the Empathy Selection Task (nested within participant). Participant was the only random factor for all random intercept models.

As a secondary analysis we examined participants' ratings of cognitive effort (i.e., NASA Task Load Index ratings for mental demand, self-efficacy, and aversiveness) during the empathy/Feel-Other or non-empathy/Feel-Self tasks, and the effect of motivation condition on these ratings, by fitting two-level linear models using the `lmer()` function within the R package `lme4` (Bates et al., 2015). We tested each of the NASA Task Load Index subscales (i.e., mental demand, self-efficacy, and aversiveness) as dependent variables in separate models, to determine if each subscale rating was affected by three fixed effects: (i) deck (empathy/Feel-Other or non-empathy/Feel-Self), (ii) motivation condition (Paid for Feel-Other, Paid for Feel-Self, or No Payment/control), and (iii) the interaction between deck and motivation condition.<sup>4</sup>

All multilevel models had unstructured covariance matrices. The `glmer()` function relies on an adaptive Gauss–Hermite likelihood approximation to fit the model to the data, and our models were conducted using the Laplace approximation (Liu & Pierce, 1994). The `glmer()` function determines *p*-values associated with each statistic based on asymptotic Wald tests. Probability values and degrees of freedom associated with each statistic from `lmer()` models were determined using the Satterthwaite approximation, using the package `lmerTest` (Kuznetsova, Brockhoff, & Christensen, 2015). Effect sizes for fixed effects were calculated as semi-partial adjusted  $R^2$  (Edwards, Muller, Wolfinger, Qaqish, & Schabenberger, 2008) for linear mixed models only using the `r2beta()` function from the package `r2glmm` (Jaeger, 2017). For generalized mixed models, effect sizes were calculated marginal  $R^2$  using the `r2()` function from the package `performance` (Lüdtke, Makowski & Waggoner, 2019). Marginal  $R^2$  considers only

<sup>4</sup> We conducted one further secondary analysis, wherein we tested whether participants' perception of cognitive effort (i.e., NASA Task Load Index ratings for mental demand, self-efficacy, and aversiveness) across decks was related to empathy choice on the Empathy Selection Task, and whether this relation varied by motivation condition. To this end, we fit three (one for each NASA subscale) two-level generalized linear models (binomial distribution) using the `glmer()` function, to determine if empathy choices were affected by three fixed effects: (i) an individual difference measure representing each participant's difference between each subscale rating on the empathy task compared to the non-empathy task, (ii) motivation condition (Paid for Feel-Other, Paid for Feel-Self, or No Payment/control), and (iii) the interaction between the individual difference measure and motivation condition. Please see Supplemental Materials for the results of this analysis.

the variance of the fixed effects and indicates how much of the model's variance is explained by the fixed effects part only. Between-subject predictor variables were grand-mean centered. Full analysis code is available on the Open Science Framework (<https://osf.io/qaxgj>).

### 2.3. Results and discussion

#### 2.3.1. Empathy choice

As expected, empathy choice was related to motivation condition in Experiment 1a,  $z = 11.98$ ,  $p < .001$ ,  $R_m^2 = 0.365$ , and Experiment 1b,  $z = 7.81$ ,  $p < .001$ ,  $R_m^2 = 0.127$  (Table 1; Fig. 2). Those in the Paid for Feel-Other condition chose the empathy deck more than those in the Paid for Feel-Self condition (1a:  $z = -12.33$ ,  $p < .001$ ; 1b:  $z = -7.85$ ,  $p < .001$ ), and more than those in the No Payment condition (1a:  $z = -8.65$ ,  $p < .001$ ; 1b:  $z = -5.37$ ,  $p < .001$ ). Those in the No Payment condition chose the empathy deck more than those in the Paid for Feel-Self condition (1a:  $z = -4.03$ ,  $p < .001$ ; 1b:  $z = -2.57$ ,  $p = .010$ ). The empathy avoidance effect demonstrated by Cameron et al. (2019) was replicated in the no payment control condition (1a:  $z = -4.92$ ,  $p < .001$ ; 1b:  $z = -6.24$ ,  $p < .001$ ), as participants in that condition were less likely to choose the empathy/Feel-Other deck than the Feel-Self deck.

#### 2.3.2. NASA scale ratings

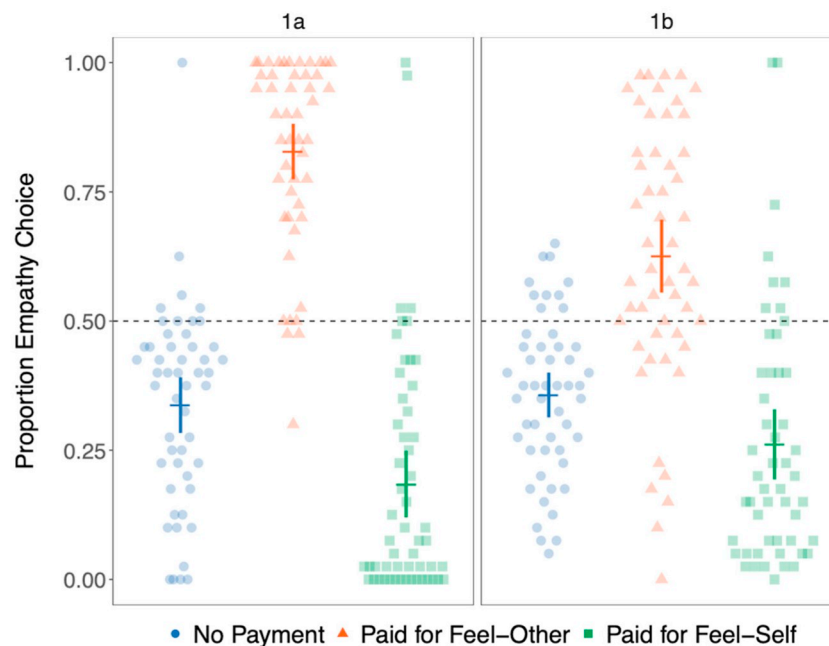
See Table 2 for descriptive statistics, and see Table 3 for related model parameters across experiments. Participants reported that the Feel-Other/empathy deck was more mentally demanding than the Feel-Self/non-empathy deck, in both Experiment 1a,  $t(151) = 4.41$ ,  $p < .001$ , and Experiment 1b,  $t(152) = 5.04$ ,  $p < .001$ . This effect was moderated by condition in Experiment 1a,  $F(2, 150) = 3.71$ ,  $p = .027$ , and marginally moderated by condition in Experiment 1b,  $F(2, 150) = 3.03$ ,  $p = .051$ , such that individuals in the paid for Feel-Self condition did not report a difference between the empathy and non-empathy decks with respect to mental demand (Experiment 1a:  $t(150) = 0.42$ ,  $p = .674$ ,  $R_{adj} = 0.008$ , Experiment 1b:  $t(151) = 1.27$ ,  $p = .206$ ,  $R_{adj} = 0.002$ ). Participants reported feeling less self-efficacy during the Feel-Other/empathy deck than during the Feel-Self/non-empathy deck, in both Experiment 1a,  $t(151) = -6.03$ ,  $p < .001$ , and Experiment 1b,  $t(152) = -4.12$ ,  $p < .001$ . This effect was moderated by condition in Experiment 1a,  $F(2, 150) = 5.62$ ,  $p = .004$ , and Experiment 1b,  $F(2, 151) = 3.17$ ,  $p = .045$ , such that individuals in the paid for Feel-Other condition did not report self-efficacy differences between the empathy and non-empathy decks (Experiment 1a:  $t(150) = -1.59$ ,  $p = .113$ ,  $R_{adj} = 0.007$ ; Experiment 1b:  $t(151) = -0.48$ ,  $p = .634$ ,  $R_{adj} = 0.000$ ). Finally, in Experiment 1a there were no differences with respect to perceived aversiveness of the Feel-Other/empathy and Feel-Self/non-empathy decks,  $t(151) = 1.64$ ,  $p = .102$ , though perceived aversiveness across decks was a marginally moderated by condition,  $F(2, 149.34) = 2.95$ ,  $p = .055$ , such that those in the no payment condition reported significantly higher aversiveness for the Feel-Other/empathy deck than for the Feel-Self/non-empathy deck. In Experiment 1b participants reported that the Feel-Other/empathy deck was more aversive than the Feel-Self/non-empathy deck,  $t(152) = 4.53$ ,  $p < .001$ . This effect was not moderated by condition in Experiment 1b ( $p = .884$ ).

In both Experiment 1a and 1b, the data suggest that increasing reward associated with empathizing (i.e., by increasing the subjective value of empathy) increased people's willingness to engage in empathy. Individuals who were paid an extra \$0.01 per empathy trial were more likely to choose the empathy deck than those in the other conditions. Interestingly, self-efficacy during the empathy and non-empathy decks differed the least for those in the paid for Feel-Other condition. That is, participants who were paid to engage in empathy were more likely to choose empathy and reported feeling more efficacious in their ability to empathize. One possible explanation for this finding is that the paid Feel-Other group “practiced” empathy more (i.e., chose it more,

**Table 1**  
Proportion of empathy choice in each motivation condition in Experiments 1a and 1b, and model parameters for the fixed effect of condition on empathy choice.

| Experiment | Motivation Condition |                      |                      | Fixed effect of Motivation Condition |                         |
|------------|----------------------|----------------------|----------------------|--------------------------------------|-------------------------|
|            | Paid for Feel-Other  | Paid for Feel-Self   | No Payment (control) | B                                    | Marginal R <sup>2</sup> |
|            | Mean                 | Mean                 | Mean                 | B                                    |                         |
|            | [95% CI]             | [95% CI]             | [95% CI]             | (SE)                                 |                         |
| 1a         | 0.83<br>[0.77, 0.88] | 0.18<br>[0.12, 0.25] | 0.34<br>[0.28, 0.39] | 4.78***<br>(0.40)                    | 0.365                   |
| 1b         | 0.63<br>[0.56, 0.70] | 0.26<br>[0.19, 0.33] | 0.36<br>[0.31, 0.40] | 2.05***<br>(0.26)                    | 0.127                   |

\*\*\*  $p < .001$ .



**Fig. 2.** Beeswarm plot of individual participants' proportion of empathy deck choice and condition average in Experiments 1a and 1b. Error bars are 95% confidence intervals.

presumably because of payment), and perhaps developed a sense of momentum during the task, thereby feeling more efficacious with that task. Continuously empathizing with “Harley” may have allowed participants to develop a narrative about him/her, increasing their felt sense of efficacy when completing the empathy trials. This possibility can be empirically examined by analyzing whether self-efficacy increases across trials of the Empathy Selection Task. Since self-efficacy in Experiments 1a and 1b was only measured at one time point (after participants completed the Empathy Selection Task), changes in self-efficacy across trials are not measurable in the set of studies reported here, though future work should investigate this possibility.

Interestingly, while empathy choice in the paid for Feel-Other group was significantly higher than in the other conditions, perception of mental demand associated with the empathy deck remained relatively high in that group, though this effect was not particularly large. That is, while increasing monetary reward for empathizing increased empathy choice, it did not decrease the perceived mental demand associated with empathizing. This is an interesting result from a value-based choice perspective. Across studies, participants' willingness to choose

the empathy task was more sensitive to reward than costs – being rewarded for engaging in empathy was enough to drive empathy choice, despite consistently high cognitive costs. In Experiments 2a and 2b, we continue to investigate the impact of reward on empathy choice behavior by examining the motivating power of implied social reward.

### 3. Experiment 2: Motivating empathy with implied social reward

The results of Experiments 1a and 1b suggest that changing the monetary reward associated with empathizing can increase empathy choice. This makes sense from a value-based choice perspective, as individuals should perceive a higher subjective value associated with empathizing when its costs are sufficiently offset by rewards. In Experiments 2a and 2b, we investigate the role of social rewards (e.g., interpersonal closeness) as they relate to the subjective value of engaging in empathy. As these rewards are most salient when empathizing with a close-other, we created a third condition in the Empathy Selection Task, wherein the participants choose between empathizing with a self-nominated loved-other or completing a comparable task that

does not require empathy. Half of the trials presented this choice (i.e., empathize with a loved-other or not) and half presented a choice between empathizing with a stranger (or not).

Given that individuals tend to have more information about the thoughts and internal experiences of a close other than they do about a distant other (i.e., a stranger), the experience of empathizing with a close-other might be felt as less mentally demanding (i.e., since information about a stranger may be comparatively sparse) and as more intrinsically rewarding (e.g., by facilitating interpersonal relationships and the protection of kin) than empathizing with a stranger (Preston & de Waal, 2001). Similarly, people may feel more confident in their empathizing ability when the empathy target is well known (Preston, 2013). For example, most people have at least some history of engaging in emotional experiences with a loved other (e.g., discussing a bad day at work, watching emotional movies), and likely have some sense of how their loved other might feel in various situations. If empathy is less mentally demanding (e.g., by virtue of abundant information about the target), more likely to be experienced as successful/efficacious (e.g., by virtue of reduced situational uncertainty), and more likely to bring

**Table 2**

| Condition                                     | Experiment 1a           |                   |                   | Experiment 1b     |                   |                   |
|---|-------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|   | Mental Demand           | Self-Efficacy     | Aversiveness      | Mental Demand     | Self-Efficacy     | Aversiveness      |
|   | Mean [95% CI]           | Mean [95% CI]     | Mean [95% CI]     | Mean [95% CI]     | Mean [95% CI]     | Mean [95% CI]     |
| Paid for Feel-Other (E1a n = 48; E1b n = 52)  | Empathy (Feel-Other)    | 2.67 [2.34, 2.99] | 3.75 [3.42, 4.08] | 2.38 [2.08, 2.69] | 4.35 [4.11, 4.59] | 1.71 [1.46, 1.97] |
|   | Non-Empathy (Feel-Self) | 2.22 [1.93, 2.51] | 4.06 [3.76, 4.36] | 2.06 [1.79, 2.32] | 4.42 [4.16, 4.69] | 1.44 [1.23, 1.66] |
| Paid for Feel-Self (E1a n = 54; E1b n = 51)   | Empathy (Feel-Other)    | 2.32 [2.01, 2.64] | 2.98 [2.59, 3.37] | 2.21 [1.91, 2.50] | 3.57 [3.19, 3.94] | 1.92 [1.62, 2.22] |
|   | Non-Empathy (Feel-Self) | 2.27 [1.99, 2.54] | 4.15 [3.93, 4.37] | 2.06 [1.81, 2.31] | 4.22 [3.96, 4.48] | 1.57 [1.33, 1.80] |
| No Payment (control) (E1a n = 51; E1b n = 51) | Empathy (Feel-Other)    | 2.59 [2.24, 2.94] | 3.86 [3.56, 4.17] | 2.52 [2.20, 2.84] | 3.73 [3.37, 4.08] | 1.96 [1.63, 2.29] |
|   | Non-Empathy (Feel-Self) | 2.05 [1.76, 2.34] | 4.37 [4.11, 4.64] | 1.97 [1.71, 2.23] | 4.16 [3.83, 4.48] | 1.65 [1.37, 1.92] |

Note: Scales range from 1 to 5.

**Table 3**

Effects of deck on NASA Task Load Index ratings across experiments.

| Experiment | Deck Effect on NASA Task Load Index Ratings |                            |                 |                            |                   |                            |
|------------|---|----------------------------|-----------------|----------------------------|-------------------|----------------------------|
|            | (Empathy vs. Non-Empathy)                   |                            |                 |                            |                   |                            |
|            | Mental Demand                               |                            | Self-Efficacy   |                            | Aversiveness      |                            |
|            | B   | R <sup>2</sup>             | B               | R <sup>2</sup>             | B                 | R <sup>2</sup>             |
|            | (SE)  | [95% CI]                   | (SE)            | [95% CI]                   | (SE)              | [95% CI]                   |
| 1a         | 0.35<br>(0.08)                              | 0.025<br>[0.070,<br>0.002] | -0.66<br>(0.11) | 0.084<br>[0.151,<br>0.035] | 0.15 +<br>(0.09)  | 0.005<br>[0.033,<br>0.000] |
| 1b         | 0.34<br>(0.07)                              | 0.028<br>[0.075,<br>0.003] | -0.38<br>(0.09) | 0.03<br>[0.079,<br>0.004]  | 0.31<br>(0.07)    | 0.026<br>[0.072,<br>0.003] |
| 3a         | 0.88<br>(0.11)                              | 0.135<br>[0.198,<br>0.081] | -0.56<br>(0.11) | 0.05<br>[0.097,<br>0.017]  | 0.53<br>(0.08)    | 0.038<br>[0.081,<br>0.010] |
| 3b         | 0.76<br>(0.13)                              | 0.055<br>[0.105,<br>0.020] | -0.65<br>(0.14) | 0.041<br>[0.085,<br>0.011] | 0.56<br>(0.15)    | 0.022<br>[0.059,<br>0.003] |
| 3c         | 0.67<br>(0.06)                              | 0.076<br>[0.111,<br>0.047] | -0.48<br>(0.06) | 0.049<br>[0.079,<br>0.026] | 0.54<br>(0.06)    | 0.038<br>[0.065,<br>0.018] |
|            | <i>(Empathy-Loved vs. Empathy-Stranger)</i> |                            |                 |                            |                   |                            |
| 2a         | 0.00 +<br>(0.14)                            | 0.000<br>[0.05,<br>0.000]  | 0.61*<br>(0.19) | 0.057<br>[0.171,<br>0.003] | -0.16 +<br>(0.17) | 0.004<br>[0.066,<br>0.000] |
| 2b         | -0.44<br>(0.09)                             | 0.046<br>[0.118,<br>0.006] | 0.38<br>(0.10)  | 0.035<br>[0.103,<br>0.002] | -0.45<br>(0.11)   | 0.042<br>[0.112,<br>0.004] |

Note: All B values are significant at  $p < .001$  unless noted as \* ( $p < .01$ ) or + (not significant).

about social reward (e.g., by facilitating interpersonal closeness and feelings of safety) we predict that the subjective value of empathizing with a loved-other will be higher than it would with a stranger, and that individuals will therefore be more likely to opt into the former than the latter.

Past work has suggested that people are more likely to have positive sympathetic, compassionate, and tender feelings for distressed others, particularly those who are perceived as vulnerable and needy (e.g., see [Batson, 2011](#); [Preston, 2013](#)), and the perception of another's distress has been demonstrated to motivate caring behavior ([Batson, 2011](#)). Drawing on these findings, we included two further additions to task framing in Experiment 2a: prior to completing the Empathy Selection Task, participants were asked to reflect upon and write about why they love and value their nominated loved other, and to reflect upon and write about an instance wherein their loved other was in distress. These instructions were designed to cultivate a sense of empathic concern in participants in order to 1) make salient the social utility of empathizing with a loved-other and thereby 2) increase its subjective value. Experiment 2b did not include the writing tasks so as to establish whether imagining a loved-other in distress was a necessary component of one's willingness to engage in the empathy task with the loved-other. We expected that individuals would perceive empathizing with a loved-other as higher in subjective value than empathizing with a stranger, and that their willingness to engage in empathy on the Empathy Selection Task would therefore vary as a function of empathy target.

### 3.1. Method

#### 3.1.1. Participants and design

The designs of Experiments 2a and 2b were similar, with the exception of 1) the writing tasks and distress reminders which were not included in Experiment 2b, 2) the number of trials (40 in Experiment 2a, 100 in Experiment 2b), and 3) the blocked design in Experiment 2b.

We conducted a series of simulations (using the *simr* package in R; Green, MacLeod, & Alday, 2015) to estimate the number of participants needed in to have at least 80% power ( $\alpha = 0.05$ ) to detect differences in empathy choice by empathy target. In Experiment 2a we assumed a small effect size in order to obtain conservative estimates of the necessary sample size and because of a lack of comparable studies using the Empathy Selection Task. In Experiment 2a, these simulations estimated that we would need 50 participants to detect a parameter estimate of  $\beta = 0.33$  or larger with 84% power for the fixed effect of empathy target with our completely within-subject design. We enrolled 60 participants on Mechanical Turk. From this initial sample, nine participants dropped out before finishing the Empathy Selection Task, leaving a final sample of 51 participants ( $n = 51$ ; 27 female, 24 male,  $M_{\text{age}} = 33.29$  years,  $SD_{\text{age}} = 10.11$ ).

In Experiment 2b we assumed a small effect size based on the results of Experiment 2a and the difference in design of Experiment 2b (i.e., no writing tasks or distress reminders, more trials per participant). Our simulated data suggested that with 100 participants we could detect a parameter estimate of  $\beta = 0.30$  or larger for the fixed effect of empathy target with 99% power ( $\alpha = 0.05$ ). We recruited one hundred and two participants, but the data from five participants were lost due to technical failures, leaving a final sample of ninety-seven ( $n = 97$ ; 68 female, 29 male,  $M_{\text{age}} = 18.69$  years,  $SD_{\text{age}} = 2.30$ ).

### 3.2. Procedure and materials

#### 3.2.1. Loved-other manipulation

In both Experiments 2a and 2b, participants were asked to reflect on a personal relationship, and provide the first name of one individual with whom they have a very close and positive relationship (i.e., their “loved-other”). In Experiment 2a only, participants then completed two short writing tasks. In the first task, they were asked to list several reasons why their relationship with their loved-other is meaningful, important, and positive. In the second task, participants were asked to reflect on a time when their loved-other was very distressed and in need of help. There was no time limit during the writing tasks and instructions suggested that participants write “a few sentences” for each task. Participants were reminded of their written response to the second task (i.e., the distress-related question) and asked “How concerned are you for [LovedOtherName] right now?” twice throughout the Empathy Selection Task (i.e., after the first 12 and 24 trials) so as to keep salient their loved-other’s hypothetical need and the utility of empathy throughout the task. During these reminders, participants indicated their concern using a 5-point Likert scale (1 = not at all distressed; 5 = a great deal).

#### 3.2.2. Empathy Selection Task

The task was identical to the version used in Experiments 1a and 1b, with the exception of the new Loved-Other deck and deck labels. Additionally, the IAPS images used in Experiments 2a and 2b were less neutral than those in Experiments 1a and 1b. Instead, mid-range positive and negative IAPS images were displayed (negative valence range 3.53–3.95; positive valence range 6.09–6.40; IAPS valence midpoint is 4.5).<sup>5</sup> In Experiments 2a and 2b, the empathy target was a stranger (“Casey”<sup>6</sup>) for half of the trials, and each participant’s nominated loved-other for the other half of trials. See Fig. 3 for visualization of trial

<sup>5</sup> IAPS images used in Experiment 2a are listed here. For the full list of the 100 images used in Experiment 2b please see supplemental materials. 1051, 1220, 1650, 1660, 2110, 2515, 2560, 2630, 2682, 2795, 3022, 4150, 4180, 4220, 4533, 4598, 4635, 4666, 4677, 4683, 5622, 5990, 6010, 6211, 6250.2, 6610, 6940, 7281, 7360, 8041, 8280, 8480, 9090, 9101, 9156, 9190, 9230, 9341, 9373, 9404.

<sup>6</sup> The name “Casey” was chosen because it was rated as approximately gender neutral in the US Social Survey name database.

procedure. Participants provided the first names of their loved-others, and these names were piped into the Empathy Selection Task deck labels such that the empathy deck was labeled as “FEEL-OTHER (Casey)” during the stranger trials, and “FEEL-OTHER ([Loved-Other Name])” during the loved-other trials. The non-empathy deck was always labeled “FEEL-SELF”.

In Experiment 2a, there were 40 trials in total (20 with the stranger as the empathy target, and 20 with the loved-other as the empathy target), and the empathy target (i.e., stranger or loved-other) was randomly selected for each trial. In Experiment 2b, participants completed two blocks of 50 trials of the Empathy Selection Task (100 trials total)<sup>7</sup> – one block wherein the other was a stranger (“Casey”), and one wherein it was the participant’s nominated Loved-Other. Block order was counterbalanced across participants.

#### 3.2.3. Post-task assessment

Immediately following the Empathy Selection Task participants answered the open-ended post-task questions and the NASA Task Load Index (Hart & Staveland, 1988), as described in the previous experiments, for each deck option presented (i.e., three total: the Feel-Self deck, the Feel-Other (Stranger) deck, and the Feel-Other (Loved-Other) deck.)

#### 3.2.4. Statistical analysis

The analytic procedure was identical to that of Experiment 1 except that the designs of Experiments 2a and 2b are entirely within subject.<sup>8</sup>

### 3.3. Results and discussion

#### 3.3.1. Empathy choice

As expected, participants were more likely to choose empathy when the target was the loved-other than when the target was a stranger-other in both Experiment 2a,  $z = 11.53$ ,  $p < .001$ ,  $R_m^2 = 0.071$ , and Experiment 2b,  $z = 9.48$ ,  $p < .001$ ,  $R_m^2 = 0.009$  (Fig. 4; Table 4).<sup>9</sup> In

<sup>7</sup> A programming error resulted in two IAPS images being displayed twice to each participant during Experiment 2b. We analyzed the data after removing the four affected trials (out of 100 total), and the results were qualitatively similar. We therefore did not remove the trials in the final analysis reported here.

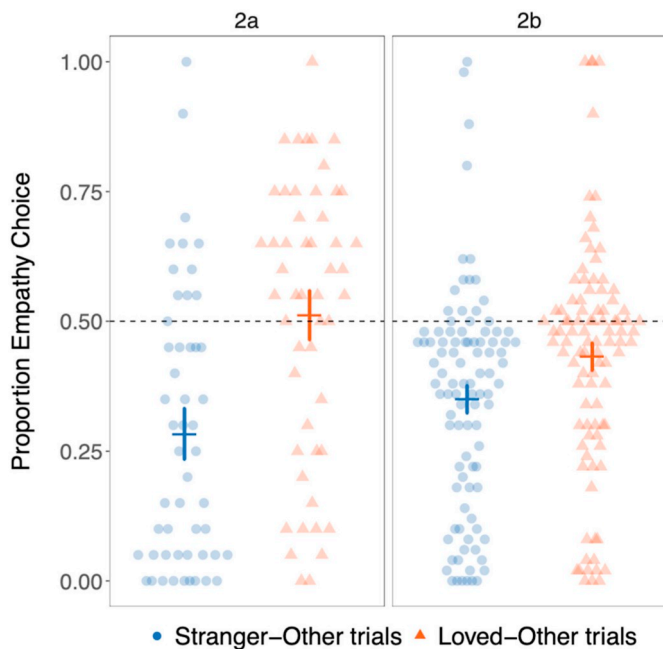
<sup>8</sup> We conducted one further secondary analysis, wherein we tested whether participants’ perception of cognitive effort (i.e., NASA Task Load Index ratings for mental demand, self-efficacy, and aversiveness) across decks was related to empathy choice on the Empathy Selection Task, and whether this relation varied by empathy target. We investigated this hypothesis using 1-1-1 multi-level mediation (Zhang, Zyphur, & Preacher, 2009). Importantly, it is noted that our mediator variables (i.e., mental demand, self-efficacy, and aversiveness) were measured after our outcome variable (i.e., empathy choice on the Empathy Selection Task). As such these analyses should be interpreted with caution. Please see Supplemental Materials for the details of these analyses.

<sup>9</sup> Interestingly, there was an interaction between empathy target and order of block presentation in Experiment 2b, such that individuals who completed the stranger block first were more likely to choose the empathy deck on their second block,  $b = 0.44$ ,  $SE = 0.09$ ,  $z = 4.94$ ,  $p < .001$ . As block order was counterbalanced, a between subject analysis of the first block of trials was conducted. Results of the first block analysis demonstrate no effect of empathy target on empathy choice,  $b = -0.06$ ,  $SE = 0.26$ ,  $z = -0.22$ ,  $p = .825$ , while a between subject analysis of the second block of trials demonstrates an effect of empathy target, such that individuals completing the loved-other block second chose the empathy deck more often than those completing the stranger deck second (loved-other deck  $M = 0.50$  [0.48, 0.52]; stranger-other deck  $M = 0.32$  [0.31, 0.34],  $b = 1.06$ ,  $SE = 0.32$ ,  $z = 3.30$ ,  $p = .001$ ). These order effects present an interesting pattern of results to interpret. It is possible that the relative subjective value of empathizing with one’s loved other on the second block is especially heightened for those who first had to complete a series of trials with a stranger. This is consistent with the finding that empathy deck choice was at chance levels for that group and condition (second block loved-other deck  $M = 0.50$  [0.48, 0.52]).





**Fig. 3.** Visualization of the Empathy Selection Task trial procedure for Experiments 2a and 2b. On half the trials, participants are selecting between feeling their own emotions (i.e., FEEL-SELF) and empathizing with a stranger (i.e., FEEL-OTHER (Casey)), and on the other half they are selecting between feeling their own emotions and empathizing with their nominated loved other (i.e., FEEL-OTHER ([LovedOther])). Participants provide the first name of their loved-other at the beginning of the study, and that name is piped into the [LovedOther] position.



**Fig. 4.** Beeswarm plot of individual participants' proportion of empathy choice by empathy targets (within subject) in Experiment 2a ( $n = 51$ ) and 2b ( $n = 97$ ). Error bars are within subject 95% confidence intervals.

**Table 4**

Proportion of empathy choice across empathy targets and model parameters for the fixed effect of empathy target predicting empathy choice in Experiments 2a and 2b.

| Experiment | Empathy Target       |                      | Fixed effect of Empathy Target |                         |
|------------|----------------------|----------------------|--------------------------------|-------------------------|
|            | Stranger-Other       | Loved-Other          | B                              | Marginal R <sup>2</sup> |
|            | Mean<br>[95% CI]     | Mean<br>[95% CI]     | B<br>(SE)                      |                         |
| 2a         | 0.28<br>[0.26, 0.31] | 0.51<br>[0.48, 0.54] | 1.24***<br>(0.11)              | 0.071                   |
| 2b         | 0.35<br>[0.34, 0.36] | 0.43<br>[0.42, 0.45] | 0.42***<br>(0.04)              | 0.009                   |

\*\*\*  $p < .001$ .

both Experiment 2a and 2b, the empathy avoidance effect reported in Cameron et al. (2019) was replicated in the stranger-other trials (2a:  $z = -5.32, p < .001$ ; 2b:  $z = -6.09, p < .001$ ). In Experiment 2a, the empathy avoidance effect disappeared during the loved-other trials,  $z = 0.02, p = .984$ , such that participants were no more likely to avoid the Feel-Other(Loved) deck than they were the Feel-Self deck. Interestingly, in Experiment 2b empathy avoidance during the loved-other trials is present, though weaker than observed in the stranger-other trials,  $z = -2.46, p = .014$ . This might be due to the large number of trials in Experiment 2b (50 of each empathy target), which may have made more salient the effort costs associated with empathizing, regardless of target.

### 3.3.2. NASA scale ratings

See Table 5 for descriptive statistics, and Table 3 for related model parameters. In Experiment 2a, perception of mental demand did not differ by empathy target, (i.e., stranger or loved-other),  $t(50) = 0, p = 1.000$ , adjusted  $R^2 = 0$ . However, mental demand differed by target in Experiment 2b,  $t(96) = -5.07, p < .001$ , adjusted  $R^2 = 0.046$ , such that participants reported more mental demand when the empathy target was a stranger than when the target was a loved-other. Reports of self-efficacy differed by empathy target in Experiment 2a,  $t(50) = 3.16, p = .003, R_m^2 = 0.057$ , and Experiment 2b,  $t(96) = 3.82, p < .001$ , adjusted  $R^2 = 0.035$ , such that participants reported lower self-efficacy ratings when the empathy target was a stranger than when it was a loved-other. Finally, reports of aversiveness did not differ by empathy target in Experiment 2a,  $t(50) = -0.94, p = .351$ , adjusted  $R^2 = 0.004$ . However, in Experiment 2b, aversiveness ratings differed by target,  $b = -0.45, SE = 0.11, t(96) = -4.10, p < .001$ , adjusted  $R^2 = 0.084$ , such that participants reported higher ratings when the empathy target was a stranger than when it was a loved-other.

The differences between Experiments 2a and 2b with respect to NASA ratings for each empathy deck may be related to differences in design. Importantly, the empathy target was randomly selected on each trial in Experiment 2a (vs a blocked design in Experiment 2b), and participants in Experiment 2b completed considerably more trials of the Empathy Selection Task than participants in Experiment 2a (40 trials in 2a, 100 trials in 2b). It is possible that the blocked design of Experiment 2b highlighted the difference in mental demand in a way that the intermixed trials of Experiment 2a did not. The block order effect observed in Experiment 2b (i.e., an interaction between empathy target and block order predicting empathy choice, such that individuals who completed the stranger block first were more likely to choose the empathy deck on the second [loved-other] block than were those who received the loved-other block first), provides some support for this interpretation. It is also possible that the difference between empathizing with a stranger compared to a loved-other with respect to

**Table 5**  
NASA Task Load Index ratings by deck in Experiments 2a and 2b.

| Trial type (Deck label)                | Experiment 2a     |                   |                   | Experiment 2b     |                   |                   |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|  | Mental Demand     | Self-Efficacy     | Aversiveness      | Mental Demand     | Self-Efficacy     | Aversiveness      |
|  | Mean [95% CI]     | Mean 95% CI]      | Mean [95% CI]     | Mean [95% CI]     | Mean [95% CI]     | Mean [95% CI]     |
| Empathy-Loved (Feel-Other-Loved)       | 2.46 [2.11, 2.82] | 3.86 [3.52, 4.20] | 2.22 [1.85, 2.58] | 2.08 [1.88, 2.29] | 3.93 [3.72, 4.13] | 1.86 [1.66, 2.05] |
| Empathy-Stranger (Feel-Other-Stranger) | 2.46 [2.11, 2.81] | 3.25 [2.89, 3.62] | 2.37 [2.02, 2.73] | 2.52 [2.32, 2.72] | 3.55 [3.34, 3.75] | 2.31 [2.06, 2.56] |
| Non-Empathy (Feel-Self)                | 2.17 [1.86, 2.47] | 4.29 [4.07, 4.52] | 1.90 [1.61, 2.20] | 2.04 [1.85, 2.22] | 4.15 [3.98, 4.33] | 1.91 [1.69, 2.12] |

Note: Experiment 2a  $n = 51$ ; Experiment 2b  $n = 97$ . Scales range from 1 = very low to 5 = very high.

mental demand was too subtle to be measured with only 40 trials. Finally, it may be that the large number of trials in Experiment 2b led to a type of practice effect, wherein participants' self-efficacy across decks increased as they continued practicing each task over the course of the experiment. Nonetheless, given the discrepancy of findings these results should be interpreted with caution.

These results demonstrate that individuals are more likely to opt into situations requiring empathy when the target of that empathy is a loved-other than they are when the target is a stranger. Empathy avoidance was reduced when the empathy target was a loved-other in both Experiment 2a and 2b, and in Experiment 2a participants did not demonstrate a preference between empathizing with a loved-other (i.e., the Feel-Other-Loved deck) and feeling an emotion for themselves (i.e., the Feel-Self deck). Importantly, in both Experiments 2a and 2b, participants reported significantly higher self-efficacy during the loved-other empathy trials than they did during the stranger-other empathy trials. These results are consistent with a value-based model of empathy behavior – as the potential for social reward increases and cognitive costs decrease, participants might be updating their perceived (or subjective) value of engaging empathy on any given trial and their willingness to engage in empathy follows suit.

#### 4. Experiment 3: Motivating empathy by referencing its relation to morality

In Experiments 3a, 3b, and 3c, we sought again to increase the subjective value of empathy by increasing individuals' motivation to be a moral actor. Experiments 3a, 3b, and 3c use the FEEL/DESCRIBE version of the Empathy Selection Task, which is designed to capture people's willingness to engage in emotion sharing (see Cameron et al., 2019). In Experiments 3a and 3b, participants choose from one of two decks, are shown a picture of a person, and then either describe objective physical characteristics of that person (i.e., if they chose the "DESCRIBE" deck), or describe the emotional experience of that person (i.e., if they chose the "FEEL" deck). We expect that framing empathy choice as explicitly related to one's moral character will affect the subjective value of empathizing, which should shape the choice to empathize (or not) on the Empathy Selection Task.

In Experiment 3a we made the moral framing manipulation quite subtle: at the end of reading instructions for the task, participants in the empathy-as-moral condition were asked to proceed "to begin the moral character test" (i.e., the Empathy Selection Task). Participants in the no-frame control condition were not shown those instructions. In Experiment 3b, we attempted to amplify the moral framing manipulation by explicitly drawing a connection between empathy and morality in the instructions provided to participants for the empathy-as-moral condition, described below. We told participants in the empathy-as-moral condition that they would receive feedback about their performance on the "moral character test" (i.e., the Empathy Selection Task), and added a reputational component by giving participants in the empathy-as-moral condition the expectation that they would talk about

their performance with another participant in the study. In Experiment 3c, we sought to replicate Experiment 3b and extend it by adding a third condition wherein participants were told that empathy is immoral (i.e., an empathy-as-immoral condition). In this condition, participants were told that empathy clouds ethical decision-making processes and is associated with unethical action (see Supplemental Materials for full instructions). If individuals are motivated to engage in empathy by their desire to be a moral actor and/or to be perceived as a moral actor, framing empathy choice on the Empathy Selection Task in those terms should amplify those motivational forces and lead to increased empathy choice in the empathy-as-moral framing condition (Experiments 3a, 3b, 3c), and reduced empathy choice in the empathy-as-immoral framing condition (Experiment 3c).

#### 4.1. Method

##### 4.1.1. Participants and design

For Experiments 3a and 3b we assumed a small effect size and aimed for a large sample because of a lack of comparable studies using the Empathy Selection Task. We later conducted a series of simulations (using the *simr* package in R; Green, MacLeod, & Alday, 2015) to estimate the number of participants needed in to have at least 80% power to detect differences ( $\alpha = 0.05$ ) in empathy choice by moral frame condition in Experiment 3a and 3b. These simulations estimated that with 100 participants per condition we could detect a parameter estimate of  $\beta = 0.50$  or larger with 82% power for the fixed effect of moral frame condition in our mixed design. Power simulations for Experiment 3c were based on the results of Experiments 3a and 3b, and estimated that with 150 participants per condition we could detect parameter estimates of  $\beta = 0.35$  or larger with 87% power for the fixed effect of condition in our mixed design.

Three participants in Experiment 3a were removed prior to analysis because they skipped question(s) on the Empathy Selection Task, and two participants were removed prior to analysis because they did not complete the NASA Task Load Index and/or the moral motivation questions, leaving a final sample of two hundred and thirteen ( $n = 213$ ) participants (114 female, 97 male, 1 other, 1 unreported,  $M_{\text{age}} = 36.68$  years,  $SD_{\text{age}} = 11.56$  years). In Experiment 3b, two participants were removed prior to analysis because they skipped question(s) on the Empathy Selection Task, and two participants were removed because their IP addresses matched those of participants in Experiment 3a, leaving a final sample of two hundred and two ( $n = 202$ ) participants (110 female, 91 male, 1 other/prefer not to say  $M_{\text{age}} = 37.51$  years,  $SD_{\text{age}} = 11.75$  years). Experiment 3c was conducted on Mechanical Turk in the summer of 2019, approximately four years after Experiments 3a and 3b were conducted on the same platform. In Experiment 3c, eight participants were removed prior to analysis because they skipped question(s) on the Empathy Selection Task, and a further fifty participants were removed because they explicitly did not follow instructions of the task – that is, participants who 1) did not provide age/gender during DESCRIBE trials (e.g., "sad", "crying"),

2) provided only age/gender during FEEL trials (e.g., “female 2”, “male child”), or 3) provided nonsense answers (e.g., “very feeling”, “aiming”, “feeling a children”) on any trial were removed.<sup>10</sup> Since the instructions for each trial were present on every page (i.e., on every DESCRIBE trial participants were told: “...Please write one sentence describing the age and gender of the person in the image”, and on all FEEL trials participants were told: “...Please write one sentence describing the experiences and feelings of this person”), a failure to provide any information related to age and gender during DESCRIBE trials or provide only age/gender (and not information related to experiences and feelings) during FEEL trials indicates a significant lack of understanding of task instructions and/or significant task disengagement. These exclusions left a sample of four hundred and seventy-seven ( $n = 477$ ) participants (213 female, 264 male,  $M_{\text{age}} = 36.30$  years,  $SD_{\text{age}} = 12.07$  years) in Experiment 3c.<sup>11</sup>

## 4.2. Materials and procedure

### 4.2.1. Moral frame manipulation

Across experiments, participants were randomized into either 1) the empathy-as-moral framing or 2) the no-frame (control) between-subject conditions. In Experiment 3c, there was a third randomly assigned condition: the empathy-as-immoral framing condition. The framing manipulation always preceded the Empathy Selection Task. In Experiment 3a, prior to beginning the Empathy Selection Task, participants in the empathy-as-moral framing condition were asked to indicate when they were finished reading the instructions “and are ready to begin the moral character task.” In the no-frame condition, “moral character task” was not mentioned in the final sentence. In Experiments 3b, we made a number of changes to the instructions to amplify the moral framing manipulation. First, participants in the empathy-as-moral condition were instructed that the task to follow (i.e., the Empathy Selection Task) was a measure of “the goodness of your character and your morality, ethics, and values.” They were further instructed that the task “assesses moral character by examining how you make choices about empathy.” Second, participants were also told that they would receive feedback about their performance, such that they would receive a “moral character score” and an indication of where their score ranks amongst the general population. Third, participants were told that they would be connected with another participant following the completion of the task, and that this participant would be informed of their score. Participants in the no-frame condition did not receive any of these instructions. Finally, we used deck labels (“FEEL” and “DESCRIBE”) in Experiment 3b to make clear which deck were associated with empathy and objectivity. In Experiment 3c, the empathy-as-moral framing manipulation was nearly identical to the manipulation in 3b (though some wording was changed so that instruction length was similar across the two experimental conditions in Experiment 3c). Those in the second experimental condition in Experiment 3c – the empathy-as-immoral condition – were told that empathy has been shown to cloud ethical decision making and is related to immoral action. They were also told that they would receive feedback about their performance (i.e., a “moral character score” and an indication of where their score ranks amongst the general population), and that they would be connected with another participant

<sup>10</sup> There were no participants in Experiments 3a or 3b who met these exclusion criteria.

<sup>11</sup> The considerably large number of participants who failed to follow or comprehend instructions in Experiment 3c might be related to recent concerns about non-English speaking workers and/or bots on MTurk (e.g., see Chmielewski & Kucker, 2020). Experiment 3c was conducted using Turk Prime (Litman, Robinson, & Abberbock, 2017), and was only available to individuals with IP addresses from the USA, with over 500 approved HITS and at least a 98% approval rating. Suspicious IP addresses and geolocations were blocked using features of Turk Prime.

following the completion of the task and that this participant would be informed of their score.

### 4.2.2. Empathy Selection Task

For full instructions provided in each experiment, please see Supplemental Materials. At the beginning of each trial, participants were shown a pair of card decks. In Experiments 3b and 3c, the deck on the left was always red and the deck on the right was always blue. In Experiment 3a, deck color location was counterbalanced across participants. In Experiment 3a, one deck was labeled “DECK 1” and the other was labeled “DECK 2.” In Experiments 3b and 3c, the red deck was labeled “FEEL” and the blue deck was labeled “DESCRIBE”. After a deck choice was made participants were shown a distressed African child. If participants chose the “FEEL” deck (i.e., labeled “DECK 1” in Experiment 3a; “FEEL” in Experiment 3b and 3c), they were told: “Look at the person in the picture, and try to feel what this person is feeling. Empathically focus on the internal experiences and feelings of this person. Please write one sentence describing the experiences and feelings of this person.” If participants chose the “DESCRIBE” deck (i.e., labeled “DECK 2” in Experiment 3a; “DESCRIBE” in Experiment 3b and 3c) they were told: “Look at the person in the picture, and try to notice details about the person. Objectively focus on the external features and appearance of this person. Please write one sentence describing the age and gender of this person.” Participants completed 40 trials in Experiment 3a and 25 trials in Experiment 3b and 3c. See Fig. 5 for visualization of the trial procedure.

### 4.2.3. Post-task assessment

As in previous experiments, participants answered open-ended questions about their experience on the Empathy Selection Task, completed questions from the NASA Task Load Index (Hart & Staveland, 1988), and completed a demographic survey. In Experiment 3a, participants also completed the Interpersonal Reactivity Index (Davis, 1980) and the 22-item version of the Empathy Quotient (Wakabayashi et al., 2006). In Experiments 3b and 3c, participants only completed the Interpersonal Reactivity Index (Davis, 1980).

### 4.2.4. Moral character motivation

In all experiments, participants answered two questions on a five-point Likert scale (1 = not at all, 5 = very much) following the Empathy Selection Task: “To what extent does moral character involve feeling empathy for other people?” “To what extent did you want to show that you had high moral character on the card task you just completed?” In Experiments 3b and 3c, participants answered an additional two questions: “To what extent were you trying to show that you had good ethics and values on the card task you just completed?” and “To what degree did you believe that the card task you just completed was a measure of moral character and values?” Responses to the moral belief questions might be viewed as a sort of manipulation check – if we are successful in framing empathy as in line with moral acting (i.e., in the empathy-as-moral condition) or as opposed to moral acting (i.e., in the empathy-as-immoral condition in Experiment 3c), we should expect responses to these questions to differ by condition.

### 4.2.5. Statistical analysis

We tested whether participants' responses to the moral motivation questions varied by motivation condition by fitting one-level linear regression models using the `lm()` function from the package `stats` (R Core Team version 3.5.0). Effect sizes from these models were calculated as adjusted  $R^2$  using the `r2()` function from the package `performance` (Lüdtke, Makowski & Waggoner, 2019). Next, we fit two-level generalized linear models (binomial distribution) using the `glmer()` function to determine if empathy choices on the Empathy Selection Task were affected by three fixed effects: (i) participants' individual score for each of the moral motivation questions, (ii) motivation condition, and (iii) the interaction between the moral motivation score and

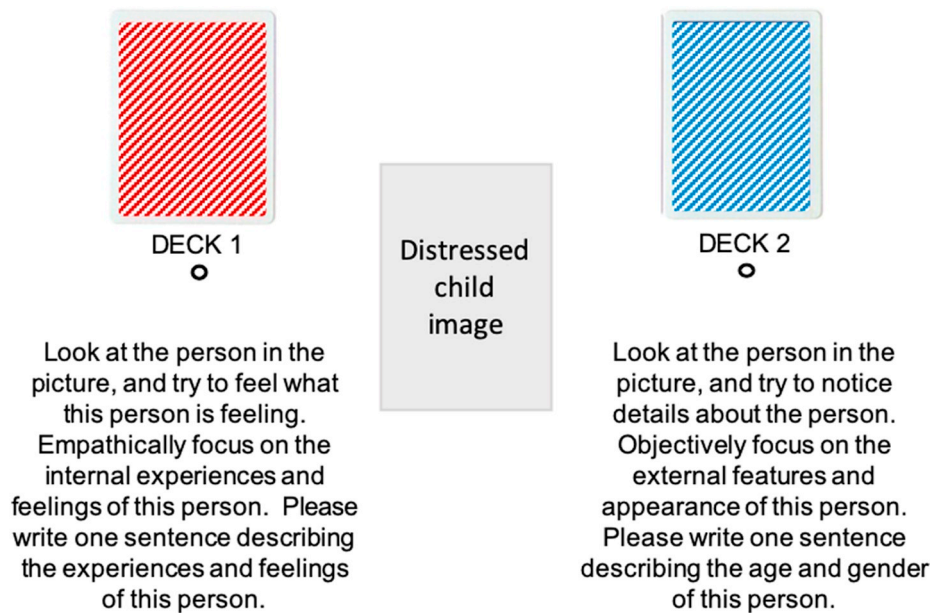


Fig. 5. Trial procedure for the Empathy Selection Task in Experiment 3a. Deck color position was counterbalanced in Experiment 3a. In Experiments 3b and 3c, the red deck was always labeled “FEEL” and the blue deck was always labeled “DESCRIBE”. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

motivation condition. The analytic procedure was otherwise identical to that of Experiment 1a and 1b.

#### 4.3. Results and discussion

##### 4.3.1. Moral beliefs across conditions (manipulation check)

See Table 6 for descriptive statistics related to the moral belief measures. There were no differences between conditions with respect to the moral motivation measure (i.e., “To what extent did you want to show that you had high moral character on the card task you just completed?”) or the belief that moral character involves feeling empathy for others (i.e., “To what extent does moral character involve feeling empathy for other people?”) in any experiment ( $p > .159$ ). The additional moral belief questions asked in Experiments 3b and 3c (i.e., “To what extent were you trying to show that you had good ethics and values on the card task you just completed?” and “To what degree did you believe that the card task you just completed was a measure of moral character and values?”) did not differ by condition in either Experiment 3b or 3c ( $p > .075$ ), though in Experiment 3b the motivation to demonstrate good ethics and values (i.e., “To what extent were you trying to show that you had good ethics and values on the card task you just completed?”) measure was nominally different between conditions as individuals in the empathy-as-moral frame condition reported more of this motivation ( $M = 3.12 [2.87, 3.37]$ ) than those in the no frame condition ( $M = 2.79 [2.53, 3.06]$ ),  $b = 0.33$ ,  $SE = 0.18$ ,  $t(200) = 1.79$ ,  $p = .075$ , adjusted  $R^2 = 0.011$ , though this difference was not statistically significant. The lack of differences across conditions to the moral belief questions suggests that our moral framing manipulation was not strong enough to affect participants' self-reported moral motivation.

##### 4.3.2. Empathy choice

In Experiment 3a, participants were no more likely to choose the empathy deck in the empathy-as-moral frame condition than in the no-frame condition,  $z = 1.17$ ,  $p = .241$ ,  $R_m^2 = 0.003$  (Fig. 6; Table 7). Within each condition, empathy choice was at significantly lower than chance levels (no-frame:  $z = -8.23$ ,  $p < .001$ ; empathy-as-moral frame:  $z = -7.94$ ,  $p < .001$ ). Given that the moral frame manipulation was quite subtle in Experiment 3a (i.e., only one sentence of text asking participants in the empathy-as-moral condition to “begin the moral character test”), the lack of differences between conditions might be somewhat understandable. Interestingly, in Experiment 3b

participants were more likely to choose the empathy deck in the empathy-as-moral frame condition ( $M = 0.40 [0.34, 0.46]$ ) than in the no-frame condition ( $M = 0.29 [0.24, 0.34]$ ),  $z = 2.52$ ,  $p = .012$ ,  $R_m^2 = 0.017$ . Despite differences across conditions in this experiment, within each condition empathy choice was significantly lower than chance levels (no-frame condition:  $z = -7.24$ ,  $p < .001$ ; empathy-as-moral frame:  $z = -3.58$ ,  $p < .001$ ).

Given the discrepancy in findings between Experiments 3a and 3b, with Experiment 3c we sought to replicate and extend Experiment 3b with the addition of the empathy-as-immoral framing condition. In Experiment 3c, empathy choice was not related to moral framing condition,  $z = 0.49$ ,  $p = .625$ ,  $R_m^2 = 0.000$ . The empathy-as-moral framing effect demonstrated in Experiment 3b was not replicated in Experiment 3c, as participants were no more likely to choose the empathy deck in the empathy-as-moral frame condition than in the no-frame condition,  $z = 0.68$ ,  $p = .495$ ,  $R_m^2 = 0.001$ . Within each condition empathy choice was significantly lower than chance levels (no-frame condition:  $z = -4.87$ ,  $p < .001$ ; empathy-as-moral frame:  $z = -3.78$ ,  $p < .001$ ; empathy-as-immoral frame:  $z = -5.24$ ,  $p < .001$ ).

##### 4.3.3. NASA scale ratings

See Table 8 for descriptive statistics, and Table 3 for model parameters. In all experiments, across conditions participants reported that the empathy deck was more mentally demanding than the non-empathy deck (Experiment 3a:  $t(211) = 8.32$ ,  $p < .001$ ; Experiment 3b:  $t(200) = 5.73$ ,  $p < .001$ ; Experiment 3c:  $t(475) = 11.88$ ,  $p < .001$ ). In all experiments, across conditions participants reported feeling less self-efficacy during the empathy deck than during the non-empathy deck (Experiment 3a:  $t(211) = -5.30$ ,  $p < .001$ ; Experiment 3b,  $t(200) = -4.61$ ,  $p < .001$ ; and Experiment 3c:  $t(475) = -8.45$ ,  $p < .001$ ). Finally, in all experiments, across conditions participants reported feeling more aversiveness during the empathy deck than during the non-empathy deck (Experiment 3a:  $t(211) = 4.38$ ,  $p < .001$ ; Experiment 3b:  $t(200) = 3.80$ ,  $p < .001$ ; Experiment 3c:  $t(475) = 9.08$ ,  $p < .001$ ). This effect was moderated by condition in Experiment 3c only,  $F(2, 474) = 3.41$ ,  $p = .034$ , such that this effect was particularly strong in the empathy-as-immoral condition. No other effects reported here were moderated by condition in any experiment ( $p > .190$ ).

##### 4.3.4. Moral motivation and empathy choice

Empathy choice was positively associated with the moral

**Table 6**  
Descriptive statistics for the moral belief measures across conditions in Experiments 3a, 3b, and 3c.

| Moral belief question   | Experiment 3a<br>(n = 102) |   | Experiment 3b<br>(n = 101) |   | Experiment 3c<br>(n = 152) |   | Experiment 3c<br>(n = 164) |   |
|---|----------------------------|---|----------------------------|---|----------------------------|---|----------------------------|---|
|   | Mean [95% CI]              | Empathy-as-moral frame<br>Mean [95% CI] | Mean [95% CI]              | Empathy-as-moral frame<br>Mean [95% CI] | Mean [95% CI]              | Empathy-as-moral frame<br>Mean [95% CI] | Mean [95% CI]              | Empathy-as-moral frame<br>Mean [95% CI] |
| "To what extent did you want to show that you had high moral character on the card task you just completed?"        | 3.06 [2.80, 3.32]          | 3.09 [2.86, 3.32]                       | 2.84 [2.59, 3.10]          | 3.04 [2.81, 3.27]                       | 3.01 [2.79, 3.23]          | 2.99 [2.77, 3.21]                       | 2.98 [2.79, 3.18]          | 2.99 [2.77, 3.21]                       |
| "To what extent does moral character involve feeling empathy for other people?"                                     | 4.18 [4.01, 4.34]          | 4.18 [4.02, 4.34]                       | 4.26 [4.07, 4.45]          | 4.08 [3.91, 4.25]                       | 4.38 [4.25, 4.51]          | 4.24 [4.11, 4.38]                       | 4.29 [4.16, 4.41]          | 4.24 [4.11, 4.38]                       |
| "To what extent were you trying to show that you had good ethics and values on the card task you just completed?"   |                            |   | 2.79 [2.53, 3.06]          | 3.12 [2.87, 3.37]                       | 3.05 [2.84, 3.26]          | 3.00 [2.77, 3.23]                       | 2.99 [2.79, 3.19]          | 3.00 [2.77, 3.23]                       |
| "To what degree did you believe that the card task you just completed was a measure of moral character and values?" |                            |   | 2.71 [2.43, 2.99]          | 2.77 [2.51, 3.03]                       | 2.73 [2.53, 2.93]          | 2.78 [2.58, 2.98]                       | 2.77 [2.56, 2.99]          | 2.78 [2.58, 2.98]                       |

Note: Responses were provided on a five-point Likert scale (1 = not at all, 5 = very much). All differences between conditions are insignificant.

motivation measure (i.e., "To what extent did you want to show that you had high moral character on the card task you just completed?") in all experiments (Experiment 3a:  $z = 2.50, p = .012, R_m^2 = 0.021$ ; Experiment 3b:  $z = 3.56, p < .001, R_m^2 = 0.050$ ; Experiment 3c:  $z = 7.23, p < .001, R_m^2 = 0.062$ ), such that participants who reported more agreement with the moral motivation measure were more likely to choose the empathy deck. This relation was not moderated by motivation condition in any experiment ( $ps > .192$ ). The belief that moral character involves feeling empathy for others (i.e., "To what extent does moral character involve feeling empathy for other people?") was not related to empathy choice in Experiment 3a,  $z = 0.87, p = .385, R_m^2 = 0.006$ , or Experiment 3b,  $z = 1.81, p = .070, R_m^2 = 0.012$ , but it was in Experiment 3c,  $z = 2.10, p = .036, R_m^2 = 0.006$ , such that participants in Experiment 3c who reported more agreement with this measure were more likely to choose the empathy deck. Motivation condition did not moderate any of these effects ( $ps > .546$ ). The additional motivation questions asked in Experiments 3b and 3c (i.e., "To what extent were you trying to show that you had good ethics and values on the card task you just completed?" and "To what degree did you believe that the card task you just completed was a measure of moral character and values?") were positively related to empathy choice in Experiment 3b ( $z = 2.60, p = .009, R_m^2 = 0.034$ , and  $z = 3.32, p < .001, R_m^2 = 0.051$ , respectively) and in Experiment 3c ( $z = 6.61, p < .001, R_m^2 = 0.053$ , and  $z = 6.59, p < .001, R_m^2 = 0.049$ , respectively), such that participants who reported more agreement with those measures were more likely to choose the empathy deck. In Experiment 3c, the relation between the belief that the Empathy Selection Task was a measure of moral character ("To what degree did you believe that the card task you just completed was a measure of moral character and values?") and empathy choice was moderated by condition,  $z = 2.02, p = .043$ , such that the slope of the relation between score on this measure and empathy choice was steepest for those in the empathy-as-moral frame condition.

While differences across conditions with respect to empathy choice were observed in Experiment 3b, they were not observed in 3a or 3c, suggesting that the specific implied social rewards manipulated here (i.e., acting morally and being recognized as a moral actor) are not sufficient to consistently motivate empathy choice (though other social rewards may be), at least with the current manipulation of moral motivation and/or the current task. Given that the conditions did not differ with respect to their ratings on the moral motivation questions (with the exception of one question in Experiment 3b, wherein conditions differed, albeit not significantly, with respect to responses on one of the moral belief questions, i.e., "To what extent were you trying to show that you had good ethics and values on the card task you just completed?"), it is possible that our manipulation was simply too weak to produce meaningful changes in participants' motivation to empathize, which would in turn affect the subjective value of choosing the empathy deck. This is supported by consistent finding that the extent to which participants endorsed moral beliefs related to empathy and the Empathy Selection Task predicted their willingness to choose the empathy deck, despite a lack of choice differences across conditions. That is, while moral beliefs about empathy appear to associate with empathy choice, our manipulation did not consistently affect those beliefs.

### 5. General discussion

While empathy is often experienced as unavoidable and involuntary, it can be context dependent (Zaki, 2014). Individuals choose to engage (or disengage) from situations that might involve empathy for a variety of emotional and situational reasons. Across seven experiments, and replicating previous work (Cameron et al., 2019), we found a robust empathy avoidance effect, as well as support for the hypothesis that individuals can be motivated to opt-in to situations requiring empathy that they would otherwise avoid.

People were more likely to choose empathy when motivated by

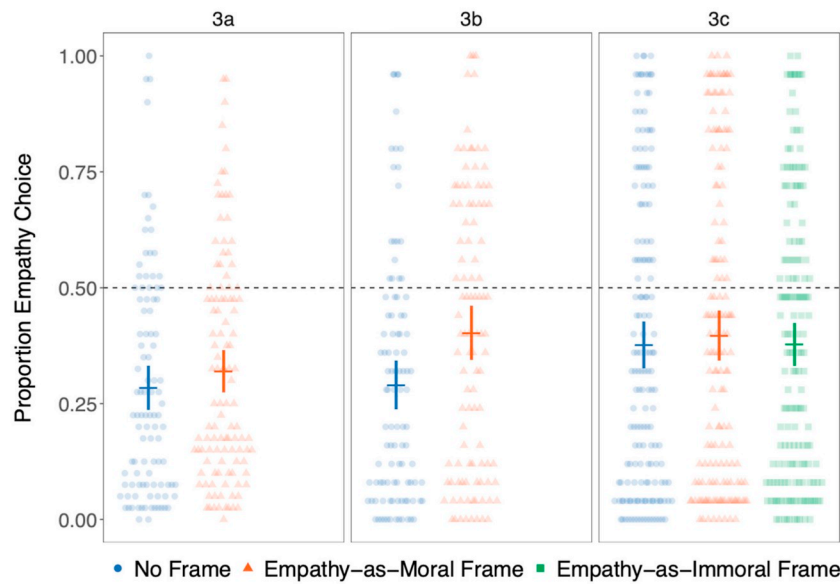


Fig. 6. Beeswarm plot of individual participants' proportion of empathy deck choice and condition average in Experiments 3a ( $n = 213$ ), 3b ( $n = 202$ ), and 3c ( $n = 477$ ). Error bars at 95% confidence intervals.

**Table 7**  
Proportion of empathy choice across conditions and model parameters for the fixed effect of motivation condition in Experiments 3a ( $n = 213$ ), 3b ( $n = 202$ ), and 3c ( $n = 477$ ).

| Experiment | Motivation Condition |                        |                          | Fixed effect of Motivation Condition |                         |
|------------|----------------------|------------------------|--------------------------|--------------------------------------|-------------------------|
|            | No Frame (control)   | Empathy-as-moral Frame | Empathy-as-immoral frame | B                                    | Marginal R <sup>2</sup> |
|            | Mean<br>[95% CI]     | Mean<br>[95% CI]       | Mean<br>[95% CI]         | (SE)                                 |                         |
| 3a         | 0.28<br>[0.23, 0.33] | 0.32<br>[0.27, 0.36]   |                          | 0.24<br>(0.20)                       | 0.003                   |
| 3b         | 0.29<br>[0.24, 0.34] | 0.40<br>[0.34, 0.46]   |                          | 0.67**<br>(0.27)                     | 0.017                   |
| 3c         | 0.38<br>[0.33, 0.43] | 0.40<br>[0.34, 0.45]   | 0.38<br>[0.33, 0.42]     | 0.12<br>(0.24)                       | 0.000                   |

\*\*  $p < .01$ .

monetary reward, and providing a monetary reward for empathizing appeared to increase individuals' sense of self-efficacy for empathizing, which in turn predicted empathy choice (Experiment 1a and 1b). However, it is important to note that the order of variables in our study was such that self-efficacy ratings were provided after the Empathy Selection Task. Another possible explanation for the reported results is that participants who were paid to empathize (i.e., in the paid for Feel-Other condition) were attempting to justify their additional reward by viewing themselves as competent in doing the task. Importantly, regardless of the order of variables, these data are correlational and as such causality cannot be determined. The motivation manipulation effects were present (though weaker) in Experiment 1b, despite the lack of clear deck labels in Experiment 1b and the requirement that participants learn the reward contingency. This suggests that participants' goal of earning money was valued enough to overcome both the cognitive costs of empathizing and (in Experiment 1b) of learning the parameters of the task. Given the modest amount of money that could be earned through the bonus payments (\$0.01 per empathy trial, maximum \$0.40) in Experiments 1a and 1b, these results suggest that

even relatively small external rewards can motivate people to engage in empathy on the Empathy Selection Task. However, participants recruited from Mechanical Turk may be more likely to use their earnings as a primary source of income, and may therefore be more sensitive to reward manipulations (even those as modest as ours) than other populations.

We attempted to manipulate the subjective value of choosing to engage in empathy by increasing the salience of social reward or utility associated with empathy, thereby decreasing participants' estimations of the cognitive costs of empathizing. That is, it is likely that our social reward manipulations were affecting participants' perception of both the rewards and costs associated with choosing empathy (for a similar manipulation of social reward, see Scheffer, Cameron, and Inzlicht, under review). Individuals were more likely to empathize with a self-nominated loved-other than a stranger (Experiment 2a and 2b), and removing cues related to the loved-other during the task (i.e., writing tasks, distress reminders) decreased participants' willingness to choose to empathize with their loved-other (Experiment 2b). Individuals reported more self-efficacy, and less mental demand and aversiveness when empathizing with their loved-other than they did when empathizing with a stranger. However, as in all experiments reported here, participants provided their ratings of self-efficacy, mental demand, and aversiveness after they completed the Empathy Selection Task, and it may be that participants provided those ratings as a way to justify their behavior on the task (rather than truly representing their felt sense of self-efficacy, mental demand, and aversiveness during the task). In previous work by Cameron et al. (2019; studies 9 and 10), an efficacy manipulation suggested that self-efficacy during empathy trials may have a causal connection to empathy choice. However, the data related to self-efficacy, mental demand, and aversiveness in the present work is correlational in nature and does not allow for such causal claims.

Finally, framing empathy as an act associated with one's moral character and reputation did not consistently motivate empathy choice. Simply framing the Empathy Selection Task as a "moral character task" did not affect empathy choice (Experiment 3a), and creating an interpersonal context for the moral framing produced inconsistent results (Experiments 3b and 3c). That is, when participants were told that 1) they would receive feedback on their performance (i.e., their 'moral standing') and 2) that their moral character would be evaluated by another participant, they were motivated to choose the empathy deck in one experiment (Experiment 3b), but this effect was not replicated in

**Table 8**  
NASA Task Load Index ratings across conditions in Experiments 3a, 3b and 3c.

| Motivation Condition   | Trial type             | Experiment 3a     |                        |                   |                        | Experiment 3b     |                        |                   |                        | Experiment 3c     |                        |                   |                        |
|--|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------|------------------------|-------------------|------------------------|
|  |                        | Mental Demand     |                        | Aversiveness      |                        | Mental Demand     |                        | Aversiveness      |                        | Mental Demand     |                        | Aversiveness      |                        |
|  |                        | Mean [95% CI]     | Self-Efficacy [95% CI] | Mean [95% CI]     | Self-Efficacy [95% CI] | Mean [95% CI]     | Self-Efficacy [95% CI] | Mean [95% CI]     | Self-Efficacy [95% CI] | Mean [95% CI]     | Self-Efficacy [95% CI] | Mean [95% CI]     | Self-Efficacy [95% CI] |
| No Frame (control) (E3a n = 102; E3b n = 101; E3c n = 161)     | Empathy (Feel)         | 3.61 [3.37, 3.85] | 3.45 [3.24, 3.66]      | 3.42 [3.17, 3.67] | 3.69 [3.46, 3.92]      | 3.32 [3.08, 3.55] | 3.32 [3.08, 3.55]      | 3.21 [2.94, 3.47] | 3.69 [3.55, 3.87]      | 3.55 [3.37, 3.74] | 3.55 [3.37, 3.74]      | 3.21 [3.00, 3.43] | 3.55 [3.37, 3.74]      |
|  | Non-Empathy (Describe) | 2.71 [2.47, 2.96] | 4.01 [3.83, 4.19]      | 2.90 [2.64, 3.16] | 2.93 [2.71, 3.15]      | 3.97 [3.76, 4.18] | 3.97 [3.76, 4.18]      | 2.64 [2.38, 2.90] | 3.12 [2.93, 3.31]      | 3.93 [3.77, 4.09] | 3.93 [3.77, 4.09]      | 2.86 [2.65, 3.07] | 3.93 [3.77, 4.09]      |
| Empathy-as-Moral Frame (E3a n = 111; E3b n = 101; E3c n = 152) | Empathy (Feel)         | 3.81 [3.61, 4.00] | 3.68 [3.48, 3.89]      | 3.55 [3.30, 3.80] | 3.54 [3.33, 3.76]      | 3.57 [3.33, 3.82] | 3.57 [3.33, 3.82]      | 3.03 [2.76, 3.30] | 3.71 [3.53, 3.90]      | 3.45 [3.26, 3.65] | 3.45 [3.26, 3.65]      | 3.34 [3.12, 3.55] | 3.45 [3.26, 3.65]      |
|  | Non-Empathy (Describe) | 2.88 [2.68, 3.09] | 4.05 [3.88, 4.23]      | 3.00 [2.74, 3.26] | 2.97 [2.76, 3.18]      | 4.03 [3.84, 4.22] | 4.03 [3.84, 4.22]      | 2.64 [2.40, 2.89] | 3.03 [2.83, 3.22]      | 4.08 [3.93, 4.23] | 4.08 [3.93, 4.23]      | 2.79 [2.57, 3.00] | 4.08 [3.93, 4.23]      |
| Empathy-as-Immoral Frame (E3c n = 164)                         | Empathy (Feel)         |                   |                        |                   |                        |                   |                        |                   | 3.71 [3.55, 3.87]      | 3.67 [3.51, 3.83] | 3.67 [3.51, 3.83]      | 3.25 [3.04, 3.46] | 3.67 [3.51, 3.83]      |
|  | Non-Empathy (Describe) |                   |                        |                   |                        |                   |                        |                   | 2.96 [2.77, 3.15]      | 4.11 [3.97, 4.25] | 4.11 [3.97, 4.25]      | 2.53 [2.32, 2.74] | 4.11 [3.97, 4.25]      |

Note: Scales range from 1 = very low to 5 = very high.

a second experiment (Experiment 3c). Framing empathy as related to immoral action did not affect empathy choice (Experiment 3c). These results suggest that framing empathy in terms of its moral utility in this way might represent a boundary condition of motivating empathy choice, at least in the present studies.

While we have defined empathy broadly, it is possible that the results presented here are related to features of particular facets of empathy. Several studies (Experiments 1a through 2b) used a version of the Empathy Selection Task that involves some amount of perspective-taking. In these versions of the task, individuals are instructed to share in the internal experiences of another person (i.e., experience sharing), but it is likely that they are also engaging some aspect of mentalizing or perspective taking (i.e., with either a stranger or a loved-other) as participants are also trying to imagine someone else's affective response to a picture. Nonetheless, we found that individuals would opt-in to an empathy-eliciting situation (broadly defined) that they might otherwise avoid when sufficiently motivated by monetary and social rewards.

Across two types of motivational incentives (e.g., ranging from more extrinsic to more intrinsic), we find that empathy can be motivated, and is not necessarily an uncontrollable process. While it is true that empathy can be elicited unconsciously, arising involuntarily, that does not mean that empathy is unintentional, uncontrollable, and effortless (e.g., see [Melnikoff & Bargh, 2018](#)). The process of empathy may be analogous to language production – people regularly communicate using language without any conscious awareness of the many rules (e.g., syntax) and basic processes (e.g., muscle movement) required to produce meaningful communication. Nonetheless, people only speak when they intend to. It is possible that empathy is processed similarly – the act may be outside of awareness, but people nevertheless choose when to engage it and can be motivated to engage it or not.

### 5.1. Limitations

The experiments presented here use a new behavioral measure of empathy choice, the Empathy Selection Task ([Cameron et al., 2019](#)). While there is considerable data related to its validity (see [Cameron et al., 2019](#)), there is only one published study related to the reliability of the Empathy Selection Task ( $r = 0.68$ ; [Cameron & Inzlicht, 2019](#)). Given that people are often experiencing several conflicting motivational influences, reliability of measurement is especially important in this work. We calculated split-half reliability of the Empathy Selection Task (i.e., the correlation between proportions of empathy choice on the odd and even items) for Experiments 1a, 1b, 2b, and 3a, because these experiments had at least 40 trials of the Empathy Selection Task. The split-half reliability was moderate (Experiment 1a  $r = 0.56$ ) to high (Experiment 3a  $r = 0.80$ ).

Importantly, the empathy behavior measured by the Empathy Selection Task is contrived, and the extent to which this task connects with real-world empathy and/or altruism has yet to be determined. Choosing to reflect on someone else's emotions (or not) during a computer task will necessarily have fewer contextual parameters and consequences for the empathizer to consider. We selected context-free, simple stimuli—such as static images of distressed children and IAPS images—to allow for easily implemented repeated trials and controlled comparisons (e.g., of individualized empathy target in the loved-other paradigm of Experiments 2a and 2b). These depictions are not unlike some examples of everyday empathy opportunities, such as when we engage with strangers online with little information provided. Moreover, the emotion regulation strategy targeted with the Empathy Selection Task, situation selection, is one that is often seen in everyday life (e.g., when people ignore or delete emails related to charitable causes), and has been related to empathy avoidance in prior work (e.g., [Cameron et al., 2019](#); [Pancer, McMullen, Kabatoff, Johnson, & Pond, 1979](#); [Shaw, Batson, & Todd, 1994](#)). Here, we attempted to explore how adding contextual details (i.e., via our motivation manipulation) was related to empathic engagement in these otherwise mundane (and

aversive; Cameron et al., 2019) situations. Of course, a much broader range of motivations exist that might influence empathy behavior that future work should test. Nonetheless, more work is needed to explicitly examine the extent to which (if at all) empathy behavior on the Empathy Selection Task is related to empathy behavior in normal life (e.g., see Yarkoni, 2019).

The Empathy Selection Task paradigms used here likely involve several aspects of empathy, including perspective taking (especially the Feel-Self/Feel-Other paradigm used in Experiments 1a, 1b, 2a, 2b) and experience sharing (especially the Feel/Describe paradigm Experiments 3a, 3b, 3c), and it is possible that motivational cues might affect these processes differently. It is interesting that the paradigm most closely related to experience sharing (i.e., Experiments 3a, 3b, 3c, via direct trial-by-trial instructions to “feel what this person is feeling”) did not demonstrate a motivational effect with our manipulation, though this fact is confounded by a potentially weak manipulation and does not necessarily reflect something about experience sharing per se. It seems likely that processes such as perspective taking and experience sharing are happening at the same time, since to take someone's perspective during an emotional moment might necessitate some element of sharing in that emotion; the extent to which these processes are differentially related to motivational cues is an interesting area for future research.

Finally, it is possible that participants' decision to avoid or approach empathy on the Empathy Selection Task might represent a preference to experience or indulge in their own emotion rather than a preference to avoid empathy. This possibility is especially relevant for the Feel-Self/Feel-Other variant of the task (used in Experiments 1a, 1b, 2a, 2b), wherein participants are asked to forsake the (potentially) pleasurable experience of self-indulgence in emotion (e.g., reflecting on one's own preferences, values, and beliefs) in service of empathizing. In other words, it may be a preference for self-indulgence, rather than an avoidance of empathy, producing the reported results. However, the emotional valence of the images used in Experiments 1a and 1b were quite neutral in valence (e.g., images of a hand towel; a hair dryer), which are less likely to bring up strong emotions and might be less susceptible to pulling participants toward self-indulgence in emotion.

## 5.2. Conclusion

Building on previous work (e.g., Cameron, 2018; Shaw et al., 1994; Zaki, 2014), we demonstrate that empathy is a motivated phenomenon, and that one's motivation in a given situation can cause changes in empathy choice. Using a free-choice measure of empathy regulation—the Empathy Selection Task (Cameron et al., 2019)—we replicated prior work finding that people robustly and strongly preferred to avoid empathizing with strangers (Cameron et al., 2019), and found that changing the subjective value of opting into empathy (e.g., by reducing its cognitive costs; by increasing the salience of its potential social benefits) can motivate people toward it. Our results demonstrate, across a range of motivational measures, how shifts in motivation can lead to changes in how people regulate their own empathic feelings, and in at least some cases, these changes can also affect people's estimation of self-efficacy while empathizing.

## Open practices

All materials and data are available on the Open Science Framework (osf.io/qaxgj).

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jesp.2020.104010>.

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