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Hurting to Helping:
Regret as a Potential Motivator of Helping Behavior

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Science in Experimental Psychology

by

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This thesis is approved for recommendation to the Graduate Council.

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Abstract

Previous research has suggested that emotions can influence people's motivation to engage in prosocial behaviors. Even negatively-valenced emotions, like sadness, guilt, and shame, have been shown to motivate prosocial behaviors. Exploratory analyses of a previous study indicated that regret may also motivate increased prosocial intentions, but no research has been published to experimentally test whether feelings of regret may motivate prosocial behaviors. Therefore, the present research seeks to experimentally manipulate participants' current emotional state to empirically examine whether regret motivates greater helping behavior than other, similar negative emotions that have already been demonstrated to motivate prosocial behaviors in humans. These studies will also use two separate samples to examine potential age differences in the effects of regret on prosocial behavior. Study 1 indicated that there were no differences in prosocial behavior between emotion conditions but there was a marginal difference between the undergraduate and Prolific samples. Study 2 replicated these results and further suggests that prosocial behavior may be motivated by altruism rather than egotism.

Keywords: altruism, regret, guilt, sadness, prosocial behavior

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Hurting to Helping: Regret as a Potential Motivator of Helping Behavior

The Functional Theory of Emotions (Keltner & Gross, 1999) posits that all emotions have a function, and typically that function is believed to be adaptive. In many cases, the adaptive functions of emotions also lead to prosocial behaviors. Prosocial behaviors are behaviors that are intended to benefit another person, but may not necessarily come only from a place of altruism (Barón et al., 2018). What might perhaps be a more concrete example of what prosocial behaviors look like would be actions taken specifically to help another person other than oneself, such as volunteering one's time and expertise, sharing one's resources, or even something as small as working together with other individuals to achieve a common goal. Interestingly, many emotions have been found to motivate helping behaviors, and not all of these emotions are positively-valenced. Specifically, sadness, guilt, and shame have all been shown to motivate helping, but theorists believe that these emotions motivate helping for different reasons.

Negative State Relief Model

The Negative State Relief model (Cialdini & Kenrick, 1976) takes a slightly pessimistic perspective on the altruism that experiencing negative emotions, like sadness, appears to motivate. Specifically, the Negative State Relief model posits that what most people consider to be altruism is merely a form of hedonism, in that adults experiencing sadness—or any other form of negative mood, for that matter—may only engage in prosocial behaviors for the sake of self-gratification (Cialdini & Kenrick, 1976). In other words, according to the Negative State Relief model, people who feel sad tend to help another person if they believe that the act of helping will benefit them in some way, even if that benefit is only as small as feeling better about themselves due to the rewarding nature of engaging in prosocial behaviors. While much of the research on the Negative State Relief model examines the effects of feelings of sadness specifically,

experiencing any negatively-valenced emotion could potentially have the same effects. For example, service employees' negative daily interactions with customers have been shown to not only predict increased negative mood the next morning, but also predict an increased likelihood for the person experiencing a negative mood to engage in greater helping behaviors toward their coworkers as well as their customers (Yue et al., 2017). These effects of negative mood on helping behaviors do appear to be related to experience, however, because younger children show far less altruism than adults in studies done on prosocial behaviors motivated by negative mood (Cialdini & Kenrick, 1976). In other words, children have not yet learned that helping others might relieve the negative emotions they are experiencing, so Negative State Relief effects are not observed as frequently in children as in adults.

Sadness and Prosocial Behavior

That being said, sadness is one of the better researched negatively-valenced emotions that has been associated with prosocial behaviors. Sadness is one of the seven basic or universal emotions believed to be experienced by everyone around the world, and it is characterized by a sense of loss or lack, although the exact nature of the loss or lack that causes feelings of sadness may vary among cultures (Eckman, 1999). Regardless of its cause, sadness is believed to be a signal that help is needed, so it must come as little surprise that viewing someone else who is feeling sadness has also been found to motivate prosocial behaviors (Eckman, 1999). It has been found previously that identifying and empathizing with sadness in others can motivate people to engage in prosocial lying—the so-called "little white lies" people tell to make others feel better about a bad situation—especially in situations where the person identifying another person's sadness is skilled at perspective-taking (Xu et al., 2019). This tendency to engage in prosocial lying is specifically believed to be done in an effort to show benevolence toward the person

experiencing sadness, so as to offer that sad person comfort in whatever small measure the prosocial lies might provide (Xu et al., 2019).

Experiencing sadness for oneself also has been shown to make people more willing to spend more time and donate more money to help other people, when compared to a neutral control condition and an angry condition (Yang et al., 2017). Furthermore, people experiencing sadness were far more likely to engage in helping behaviors when they believed that the person or people they were helping needed help due to uncontrollable circumstances, rather than a problem that would be fully under that other person's control to resolve (Yang et al., 2017). These examples indicate that experiencing sadness certainly does signal a need for help, and people who experience sadness, either directly or empathetically, are also more likely to actually help other people in a number of different ways.

Self-Conscious Moral Emotions

Sadness is a basic emotion, but guilt and shame are part of a category of emotions known as self-conscious moral emotions (SCMEs). SCMEs are defined as emotions associated with the interests and welfare of society as a whole, which are experienced only after self-reflection (Haidt, 2003). So, in contrast to basic emotions like sadness, SCMEs are not necessarily experienced by everyone and they do not occur automatically but rather involve a cognitive component of self-reflection based on societal and cultural norms. SCMEs are also thought to differ from basic emotions in that they are typically elicited by problems or triumphs that do not directly affect the self, and that they typically have prosocial action tendencies (Haidt, 2003). So, while we may feel sad if something bad happens to us personally, we would instead feel guilty or ashamed, perhaps, if something bad happened to another person or to society as a whole because of us. It is worth noting, however, that there are varying degrees to which different

SCMEs elicit prosocial behaviors, and some certainly do a better job at it than others (Haidt, 2003).

Guilt and Prosocial Behavior

Guilt, for example, is a negatively-valenced self-conscious emotion that has been shown to motivate prosocial behaviors. Guilt is a sense of unease or repentance that people experience when they recognize that someone else has been harmed by their own actions or failure to act (Tangney et al., 2007). In other words, guilt is experienced when a person realizes that they have *done* something bad that has hurt another person. Guilt is a distinctly interpersonal emotion, experienced when harm comes to another as a result of one's own decisions and actions (Zeelenberg & Breugelmans, 2008). Guilt is also considered to be a relatively adaptive emotion. The experience of guilt is said to motivate reparative actions, so as to undo the consequences of whatever actions (or lack thereof) have caused one to experience that guilt (Tangeney et al., 2007). Additionally, guilt is considered adaptive because it tends to generate other-focused sympathy and more constructive reactions to anger from other people, such as engaging in nonhostile discussions with the wrongdoer in order to resolve the situation (Tangeney et al., 2007).

Interestingly, the reparative actions motivated by feelings of guilt do not necessarily have to consist of directly undoing a transgression, but instead often consist of doing something to make up for a transgression. For example, in a study with children, the participants in the experimental condition were told that they took the last sparkly ball to play with and because of that, another child called Emma wasn't able to play with it and was sad now, so rather than offering the sparkly ball to Emma, they instead gave her a greater share of the stickers that were meant to be their reward for participating at the study when given an opportunity to do so

(Donohue & Tully, 2019). Some of these child participants even indicated specifically that they gave Emma extra stickers to make up for making her sad by taking the last sparkly ball (Donohue & Tully, 2019). In a similar study with adults, participants in the guilt condition were given the option of eating an apple-flavored jelly bean or a vomit-flavored jelly bean after being told that someone else would have to eat the opposite flavor (Cryder et al., 2012). Participants choosing to eat the apple-flavored jelly bean themselves and giving the vomit-flavored jelly bean to someone else was meant to induce feelings of guilt. The participants in the guilt condition then rated their guilt higher than those in the control condition and were also far more likely to give a significantly greater share of $5 to the other person in a dictator task completed at the end of the experiment (Cryder et al., 2012).

These effects of feelings of guilt on reparative actions can be observed not only in situations where an actual transgression has occurred—or, at least, the participants *believe* an actual transgression has occurred—but also in hypothetical situations that would elicit guilt. For example, when adult participants were instructed to imagine that they were managers of a property with garden-level housing that they had recently sold to several different people without choosing to do anything to make those housing units flood-proof even under advice from an architect to do so (Ghorbani et al., 2013). In this same scenario, a flood hits the area one year after selling the housing units and most of the units are flooded, as the architect predicted, but lawyers are not in agreement as to whether the manager must pay compensation for the damages to the tenants because the manager chose not to flood-proof the housing units (Ghorbani et al., 2013). The participants were then asked how much they would compensate the following types of tenants in this hypothetical scenario: their parents, a relative other than their parents, close friends, a retiree looking for a low-maintenance investment, a middle-class couple expecting

their first child, a stranger they met at a social event, and a total stranger they know nothing about (Ghorbani et al., 2013). The closer the participant felt to the hypothetical tenant, the more guilt and shame they were likely to feel, and the more guilt participants felt, the more money they indicated they would give to the tenant as compensation (Ghorbani, et al., 2013).

Shame and Prosocial Behavior

It is worth noting, however, that native English-speakers often confuse guilt with shame, because there are very few meaningful nuances between the way the two terms are used in the English language (Haidt, 2003). Shame, in contrast to guilt, is an overall negative self-evaluation when one has committed a moral transgression, either through breaking a rule or a standard of behavior (Bonavia & Brox-Ponce, 2018). So unlike guilt which involves a feeling that the *action* is bad, shame involves a feeling that the action one did means the *actor* is bad. Although the two emotions are often experienced in similar ways, researchers have identified a few factors that distinguish shame from guilt. For example, shame is typically elicited when one commits a moral transgression witnessed or judged by one's social betters, whereas guilt is typically elicited when one has committed a moral transgression against someone in their community (Haidt, 2003). Additionally, shame is considered a "public" emotion, in the sense that it is believed that one can only experience shame when there are witnesses to the shameful action, but witnesses are not a requirement to experience guilt (Tangeny et al., 2007). Finally, shame focuses specifically on one's evaluations of *oneself*, whereas guilt focuses only on one's *actions* (Tangeny et al., 2007).

A further distinction between guilt and shame is that the experience of guilt predicts prosocial behaviors, while the experience of shame moderately predicts antisocial behaviors (Barón et al., 2018). This pattern was observed in children rather than adults, but the evidence

does suggest that the experience of guilt is a stronger motivator of prosocial behavior than that of shame, and experiencing guilt does indeed seem to consistently predict prosocial behaviors (Barón et al., 2018).

This distinction could, perhaps, be explained by different types of shame experiences, which seem to motivate different levels of prosocial behaviors. Specifically, endogenous shame—shame relevant to the situation at hand—does predict prosocial behavior, while exogenous shame—shame not relevant to the situation at hand—does not predict prosocial behavior (de Hooge et al., 2008). So, in simpler terms, if someone feels shame that is relevant to a situation where they would be required to decide to help someone, those feelings of shame will likely motivate them to actually help because this type of shame acts as a commitment device (de Hooge et al., 2008). An example of endogenous shame would be if after doing poorly on a presentation at a conference an unknown colleague asked to switch seats at dinner that night. In this case, the person feeling ashamed would be more likely to engage in prosocial norms and switch seats in order to alleviate the shame when the situation cannot be avoided (de Hooge et al., 2008). On the other hand, if someone feels shame for something that is irrelevant to a situation where they might need to help someone, those feelings of shame are unlikely to motivate them to actually help, because in general shame is considered an avoidance-motive emotion (de Hooge et al., 2008). An example of exogenous shame would be if after doing poorly on a presentation at a conference someone asked to switch seats on the airplane ride home, the person feeling ashamed would not be likely to be motivated by their feelings of shame when making their decision as to whether or not to switch seats, because they are no longer at the conference or surrounded by colleagues (de Hooge et al., 2008). While this endogenous versus exogenous distinction has not been explored in other SCMEs, it would not be far-fetched to

assume that it may very well apply to other SCMEs, particularly emotions like regret where one makes a negative assessment of one's current self based on one's past actions.

Regret and Prosocial Behavior

The primary emotion of interest in the current thesis is regret, and specifically its role in motivating prosocial behavior. Regret has been defined as a comparison-based emotion of self-blame that comes from the realization one's present condition could be better if one had only made a different decision in the past (Zeelenberg & Pieter, 2007). In other words, regret is a counterfactual emotion that involves feeling negative about one's current situation in favor of the "what ifs" of what one's situation might have been had one acted differently at some point in the past. In general, because regret is an emotion that feels negative while one is experiencing it, most people would probably consider it to be a "bad" emotion. However, prior research has found that in fact people tend to value regret over other related negative emotions, which is to say in other words that people like regret more than they like other negative emotions and feeling more regret than other people may make people feel better about themselves, possibly because of the possibilities for self-improvement that come along with feelings of regret (Saffrey et al., 2008).

Similarly to guilt, regret has also been shown to motivate reparative actions, which are believed to alleviate feelings of regret. These reparative actions may look different from the reparative actions taken in response to feelings of guilt, however. Primarily, reparative actions in response to experiences of regret tend to take the form of finding silver linings to the regretful experience, or in other words taking a significant, beneficial life lesson from the regretted experience (Zeelenberg & Pieters, 2007). An example of this might be if someone who regrets doing poorly on an interview for a job decides that this poor performance might not be such a

bad thing after all because now they are better prepared for the next interview they may have. Finding silver linings or making meaning as a means of taking reparative action against experiences of regret may take a couple of different forms. One form may look like extending self-compassion to oneself when experiencing regret (Zhang & Chen, 2016). In fact, when real-life anonymous confessions to regrettable events were examined and coded by researchers, the confessions in which the person expressed more self-compassion also had a significantly greater self- and observer-rated level of self-improvement as a result of the regretful event (Zhang & Chen, 2016).

People may also find silver linings to their regrettable experiences in feeling that just by experiencing the regret, they have learned from their mistakes and will know not to make that mistake again in the future (Zeelenberg & Pieters, 2007). Interestingly, it has been shown that people do benefit from seeking out silver linings. Experiencing regret appears to cause ego-depletion, making subsequent self-regulation tasks far more difficult for the person experiencing regret (Gao et al., 2014). However, finding significance or benefits in the regretted event appears to alleviate the effects of ego-depletion, thus improving people's performance on self-regulation tasks after finding those silver linings (Gao et al., 2014). In other words, simply finding benefits and life lessons in regretted events may actually serve as a form of reparative action for the individual experiencing feelings of regret, even if the regretted event itself cannot necessarily be undone.

The bulk of the literature regarding actual behaviors motivated by regret can be found in the developmental psychology and business management fields. With regards to the developmental literature on regret and prosocial behavior, much of it focuses on decision-making tasks to determine how early feelings of regret emerge in children and how early feelings of

regret may motivate adaptive behaviors in children. One study found that both feelings of regret and adaptive behaviors motivated by regret emerge around the same time, at roughly 6 or 7 years of age (O'Connor et al., 2014). Furthermore, these 6- and 7-year olds who experienced regret were more likely to make adaptive decisions than their counterparts who did not experience regret, even when controlling for age and verbal ability, which indicates that regret allows for children to learn quickly from negative outcomes of their own decisions (O'Connor et al., 2014). In a different developmental study done on adolescents and early adults, it was found that while regret tends to affect people's willingness to modify their future choices on gambling tasks, this effect is far stronger in early adults than it is in adolescents (Habib et al., 2012). These findings indicate that how people experience regret and what effects those experiences have on people's behavior continue to develop long past the time that feelings of regret first appear in early childhood.

Within the business management literature, regret is examined mostly in the form of gambling tasks and resource allocation. In one set of studies, regret was induced in two separate ways across the studies, either via an autobiographical recall task in which participants were asked to recall their greatest life regret or via an imagined regret scenario, after which point participants engaged in a social bargaining game, either the ultimatum game or the 10-coin-give-some game (Martinez et al., 2009). In both regret-induction conditions, participants who experienced regret also made more prosocial decisions in both types of social bargaining games, whereas participants who experienced disappointment instead of regret made less prosocial decisions (Martinez et al., 2009). The findings of this set of studies appear to support the Negative State Relief model, given that the authors posit that these participants were attempting to relieve their own negative feelings about the outcomes of the social bargaining games.

Interestingly, a separate set of studies also found that observing someone *else's* regret about a decision can motivate people to change their behaviors (van der Schalk et al., 2015). Specifically, participants who observed an exemplar expressing regret over making a fair decision in a resource allocation task were less likely to make a fair decision when it was their turn to engage in the task (van der Schalk et al., 2015). Meanwhile participants who observed an exemplar expressing regret over making an *unfair* decision in the resource allocation task were more likely to make *fair* decisions when it was their turn to engage in the task (van der Schalk et al., 2015). The authors posited that these effects occurred specifically because of social appraisal effects, which calls to mind the mechanism by which SCMEs typically motivate prosocial behaviors.

While, as mentioned before, regret and guilt do have many similarities, they are considered to be distinct emotions, just as guilt and shame are distinct emotions. It is not uncommon for researchers to treat regret and guilt as the same emotion, and often people will use the two terms interchangeably. However, the primary distinction between the experiences of regret and guilt comes in the form of what type of harm elicits each emotion. *Interpersonal* harm tends to elicit both regret and guilt; however *intrapersonal* harm tends only to elicit regret (Zeelenberg & Breugelmans, 2008).

While there is clearly substantial evidence to indicate that the experience of emotions, and even negative emotions, can influence people to behave more prosocially, there has yet to be published evidence that this is true for the experience of regret, specifically. However, in a previous study, I found a correlation between the experience of regret and prosocial intentions, above and beyond experiences of any of several other emotions, including guilt, shame, and sadness (Findley, 2020). Participants in this study were instructed to recall their most regretful,

guilty, or shameful life experience, or the last time they went out to eat (Findley, 2020). It is worth noting that these data were collected prior to the start of the COVID-19 pandemic. Following this induction of whichever emotion participants were randomly assigned to, they were then asked to rate how strongly they felt a number of emotions, including regret, guilt, and shame, in that moment and then were presented with a number of scenarios where they might have an opportunity to behave prosocially were those situations to happen in real life, and they indicated how likely they felt they would be to engage in prosocial behaviors in that moment (Findley, 2020).

There was no effect of recalled autobiographical emotional experiences on reported likelihood of prosocial behavior. However, when likelihood of prosocial behavior was regressed on the strength of feeling regret, guilt, shame, and sadness, a more intense experience of regret—but not any of the other negative emotions—predicted greater intentions of engaging in hypothetical prosocial behaviors (Findley, 2020). While this study did not provide strong enough evidence to conclude that feeling regret does truly make people behave in a more prosocial manner, it does suggest that there is a link between regret and prosociality that has yet to be explored in the existing literature. Thus, this thesis will focus on two studies conducted to answer the question of whether experiencing regret motivates people to behave more prosocially toward others, specifically in the form of engaging in helping behaviors, in order to examine this gap in the current literature on regret.

The Present Research

While it is clear from the existing literature that negative emotions can and do motivate prosocial behaviors, it is unclear why this may be the case when it comes to regret in my previous study. On the one hand, it could be argued that regret is merely a negative emotion and,

like sadness, could motivate people to behave more prosocially because such behaviors may alleviate those negative feelings that come along with the experience of regret, per the Negative State Relief model. On the other hand, regret, while not consistently considered a SCME like guilt or shame by researchers, shares many similarities with traditional SCMEs and it is possible that perhaps the prosocial motivation regret generated in my previous study could be because of the prosocial action tendencies that SCMEs are characterized by. The aim of this thesis will be to determine two things: Whether regret motivates prosocial *behaviors* rather than merely intentions, and whether it does so in a manner more similar to the Negative State Relief model or to SCMEs.

By recalling a relevant life experience, participants will be induced to feel regret, guilt, sadness, or a neutral control, and then they will be presented with the option to help the researcher. This help will come in the form of the participant donating their time by repeatedly clicking a button on the survey to indicate how much money the researcher should donate to one of two charitable organizations at the end of the study, up to $1.00 per participant. One of the charity options will be specifically interpersonal as well, considering that guilt is an interpersonal emotion and may motivate participants in that condition to show a disproportionate desire to help others directly. Additionally, this methodology will be used to examine both a standard undergraduate sample of participants, as well as an adult sample. This will be done in order to examine whether older individuals with more life experience perhaps have more intense regretful experiences and if the intensity of their feelings of regret may strengthen the effects of experiencing regret on helping behaviors. Given the developmental literature that indicates people's experiences of regret change with age, it seems likely that there will be differences between the two sample populations. Furthermore, Study 2 is a replication and extension of

Study 1 and includes measures of hypothesized processes by which the emotion effects may happen, including empathy and personal distress (Batson et al., 1981) and centrality of event to self (Berntsen & Rubin, 2006).

Study 1. First, recalling an experience of negative affect was predicted to motivate higher amounts prosocial behavior (via donation clicks) than the control condition. Second, regret was predicted to be the negative emotion that motivates the highest amounts of prosocial behavior (via donation clicks) when compared to all other conditions. Third, because of the interpersonal nature of guilt, participants in the guilt condition were predicted to select the person-relevant (interpersonal) charity more often than participants in any other emotion condition. Finally, middle-adult participants (the Prolific sample) were expected to be more influenced by recollecting the experience of regret, but not guilt or sadness, than the young-adult participants (the student sample).

Study 2. In the second study, it was predicted that all results from Study 1 would be replicated. It was also predicted that overall empathy intensity would predict increased prosocial behavior (via donation clicks) and overall distress intensity would also predict increased prosocial behavior (via donation clicks). It was also predicted that the Prolific sample would have higher centrality of event to self ratings than the student sample for the memories they reported, specifically in the regret condition. It was also predicted that participants who report higher levels of political liberalism would engage in higher amounts of prosocial behavior (via donation clicks) than participants who report higher levels of political conservatism.

Study 1

Method

Participants

Participants for Study 1 consisted of 246 General Psychology students recruited online from the undergraduate participant pool using Sona Systems, and 232 middle-adult participants recruited from the survey site Prolific, resulting in a cumulative sample of 478 participants before exclusions. In the student sample, 9 participants were excluded for missing survey responses or not answering the emotion condition prompt, and in the Prolific sample 1 participant was excluded for not answering the emotion condition prompt, resulting in a total combined sample of 468 participants. This sample size was decided due to a power analysis done for my 2020 study which indicated that 100 participants per emotion experience condition ought to be sufficient to observe the effects of the manipulation at 95% confidence. The overall sample consisted of 49% females, 49% males, and .002% who identified as a gender outside the gender binary. The majority of participants in the overall sample identified themselves as White/Caucasian (82%), and the remainder of the sample identified themselves as Black/African-American (11%), Hispanic/Latinx (7%), Native American/American Indian (1%), Other (1%), or Asian (.01%). The age of participants in the combined sample ranged from 18 to 73 years, with an average age of 29.17 years old. The students were compensated for their time with partial credit toward a research requirement for participating in the study, and the Prolific sample was compensated with a payment of $2.38 per person for their participation.

Materials and Procedure

Study 1 was conducted entirely online via a Qualtrics survey, for which sample size, materials, and the analysis plan were preregistered. Student participants accessed the informed consent, and upon agreeing to the informed consent, they were redirected to a second survey to

be allowed to participate in the study, so that no participants' names were connected to their survey responses. Prolific participants input only their Prolific ID in lieu of a typed signature on the informed consent, so their form was part of the same survey as the rest of the study. The study used four randomly-assigned between-subjects conditions.

To begin, participants were randomly presented with one of four prompts asking them to write about their most intense memory of something they have done that makes them feel either regret, guilt or sadness, or a control condition which prompted participants to write about the TV show they have most recently watched. Participants were also asked to rate on a sliding scale from 0 to 100 how positive or negative that memory made them feel, with lower numbers indicating more negative mood and higher numbers indicating more positive mood.

After writing about whichever prompt they were assigned, participants were then informed that the researchers would be making a charitable donation to two charities: Feeding America and the National Park Foundation. These charities were specifically selected so that participants would have a person-relevant option (interpersonal option) and an environment-relevant option that affects everyone in the world, including the participants themselves (intrapersonal option). Participants were told that each time they click a button, the researchers would donate a further 1 cent, up to a maximum value of $1, per the methodology from Beike et al. (2009). Participants were allowed to select one of the two charities to have the researchers make a donation to on their behalf, and were then asked to click a button labeled "Donate 1 cent" either until the total, which was displayed on the screen for the participant to see, reached $1.00, or until the participant decided that they no longer wished to continue clicking and clicked another button labeled "I'm done donating."

After the donation task, participants were presented with a battery of fifteen positive and negative emotions: regret, guilt, shame, embarrassment, sadness, disappointment, anger, disgust, hate, joy, elation, pride, excitement, fear, and anxiety. Participants were asked to rate on a Likert-type scale from 1 to 7 how much the memory they wrote about makes them feel each emotion, such that 1 indicates *very little*, and 7 indicates *very much*. Participants were again asked to rate on a sliding scale from 0 to 100 how positive or negative that memory made them feel, with lower numbers indicating more negative mood and higher numbers indicating more positive mood. This was intended to determine whether there was an overall mood change after the donation measure. Participants were also asked to indicate whether the memory they recalled was interpersonal or intrapersonal, and whether feel they have complete closure on the memory they disclosed, on a scale from 1 to 7 with 1 indicating *Strongly disagree* and with 7 indicating *Strongly agree*.

At this point, participants were given a series of demographic questions to answer. They were asked to report their gender (with the options "Male," "Female," and "Other"). They were also asked their age and race. Finally they were asked whether English is their first language. This final question is important largely because different languages and cultures have different comprehensions of what emotions mean and feel like, so it is useful to know whether the participants are native English-speakers, presumably with an English-speaker's comprehension of regret, guilt, and sadness.

Finally, participants underwent a mood-boosting exercise to reduce any potential ill effects of being asked to dwell on negative emotions for the duration of the study. All participants were given a prompt that instructed them to write about a memory of something they have done that makes them feel proud, regardless of what emotion condition they were

randomly-assigned to at the beginning of the study. Following the mood-boosting exercise, participants were given a debriefing as to the purpose and predictions of the study, and then dismissed.

Results

All planned analyses were conducted using the IBM SPSS Statistics 27 software program. The exploratory SEM analyses were conducted using R statistical software with functions from the lavaaan and psych packages.

Planned Analyses

Battery of Emotions. A 2x4 between-subjects ANOVA was conducted to compare the effect of emotion condition and sample on regret intensity in the control, regret, guilt, and sadness conditions among the undergraduate and Prolific samples. There was a significant main effect of emotion condition on regret intensity between the four emotion conditions ($F(3, 456) = 125.54$, $p < .001$). Post-hoc comparisons using the Tukey HSD test indicated that mean regret intensity for the control condition was significantly lower than mean regret intensity for the regret, guilt, and sadness conditions. Mean regret intensity for the sadness condition was also significantly lower than mean regret intensity for the regret and guilt conditions. However, mean regret intensity was not significantly different between the regret and guilt conditions (see Table 1 for mean comparisons). There was also a significant main effect of sample on regret intensity ($F(1, 456) = 8.77$, $p < .003$). Mean regret intensity for the undergraduate sample ($M = 3.97$, $SE = .110$) was significantly lower than mean regret intensity for the Prolific sample ($M = 4.43$, $SE = .110$). There was also a significant interaction between emotion condition and sample ($F(3, 456) = 2.71$, $p < .044$). Post-hoc comparisons indicate that mean regret intensity for undergraduates in the sadness condition ($M = 3.56$, $SE = .221$) was significantly lower than mean regret intensity

for the Prolific sample in the sadness condition (M = 4.78, SE = .219). There appeared to be no significant differences between undergraduates in the control condition (M = 1.67, SE = .225) and the Prolific sample in the control condition (M = 1.87, SE = .214). There appeared to be no significant differences between undergraduates in the regret condition (M = 5.63, SE = .215) and the Prolific sample in the regret condition (M = 5.74, SE = .221). There appeared to be no significant differences between undergraduates in the guilt condition (M = 5.00, SE = .215) and the Prolific sample in the guilt condition (M = 5.32, SE = .223). Taken together, these data indicate that when participants were induced to recall memories of an affectively-neutral stimulus (eg. a TV show) or a sad event, they experienced significantly less intense feelings of regret than when participants were induced to recall memories of a regretful or guilty event. However, there appear to be no significant differences in the experience of regret intensity when participants were induced to recall a guilty experience rather than a regretful experience, and these effects are slightly amplified in the Prolific sample as compared to the undergraduate sample. These findings mostly support the hypothesis, however regret and guilt conditions were expected to differ in regret intensity from each other.

A 2x4 between-subjects ANOVA was conducted to compare the effect of emotion condition and sample on guilt intensity in the control, regret, guilt, and sadness conditions among the undergraduate and Prolific samples. There was a significant main effect of emotion condition on guilt intensity between the four emotion conditions ($F(3, 456) = 109.30$, $p < .001$). Post-hoc comparisons using the Tukey HSD test indicated that mean guilt intensity for the control condition was significantly lower than the mean guilt intensity in the regret, guilt, and sadness conditions. Mean guilt intensity in the sadness condition was also significantly lower than the mean guilt intensity in the regret and guilt conditions. However, there was no

significant difference in mean guilt intensity between the regret and guilt conditions (see Table 2 for mean comparisons). There was also a significant main effect of sample on guilt intensity ($F(1, 456) = 4.23$, $p < .04$). Mean guilt intensity for the undergraduate sample ($M = 3.59$, $SE = .116$) was lower than mean guilt intensity for the Prolific sample ($M = 3.93$, $SE = .116$). Taken together, these data indicate that when participants were induced to recall memories of an affectively-neutral stimulus (eg. a TV show) or a sad event, they experienced significantly less intense feelings of guilt than when participants were induced to recall memories of a regretful or guilty event. However, there appeared to be no significant differences in the experience of guilt intensity when participants were induced to recall a guilty experience rather than a regretful experience, and these effects are slightly amplified in the Prolific sample as compared to the undergraduate sample. These findings mostly supported the hypothesis, however regret and guilt conditions were expected to differ in guilt intensity.

A 2x4 between-subjects ANOVA was conducted to compare the effect of emotion condition and sample on sadness intensity in the control, regret, guilt, and sadness conditions among the undergraduate and Prolific samples. There was a significant main effect of emotion condition on sadness intensity between the four emotion conditions ($F(3, 456) = 1$, $p < .001$). Post-hoc comparisons using the Tukey HSD test indicated that mean sadness intensity for the control condition was significantly lower than mean sadness intensity for the regret, guilt, and sadness conditions. Mean sadness intensity for the sadness condition was significantly greater than mean sadness intensity for the regret and guilt conditions. However, mean sadness intensity for the regret and guilt conditions was not significantly different (see Table 3 for mean comparisons). There was also a significant main effect of sample on mean sadness intensity ($F(1, 456) = 5.37$, $p < .021$). Mean sadness intensity in the undergraduate sample ($M = 4.24$, SE

= .110) was significantly lower than mean sadness intensity in the Prolific sample (M = 4.60, SE = .110). Taken together, these data indicate that when participants were induced to recall memories of an affectively-neutral stimulus (eg. a TV show) they experienced significantly less intense feelings of sadness than when participants were induced to recall memories of a regretful, sad, or guilty event, and participants who were induced to recall memories of a sad event experienced significantly more intense feelings of sadness. However, there appear to be no significant differences in the experience of sadness intensity when participants were induced to recall a guilty experience rather than a regretful experience, and these effects were slightly amplified in the Prolific sample as compared to the undergraduate sample. These findings mostly supported the hypothesis, except that regret and guilt conditions were expected to differ in sadness intensity.

Further 2x4 between-subjects ANOVAs were conducted for all of the other emotions on the battery of emotions but are not included here for the sake of brevity. Those analyses are available upon request, but the general trend remained that the control condition was significantly different from the emotion conditions, and regret and guilt tended to not be significantly different from one another. See Figure 1 for a graphical representation of regret, guilt, and sadness intensity.

Charity Selection. A chi-square test of independence was conducted to examine the relationship between emotion condition and charity selection. The relationship between these variables was not significant, X^2 (3, 469) = 6.68, p = .083. Charity selection did not differ by emotion condition, which did not support the hypothesis.

Helping Behavior. A 2x4 between-subjects ANOVA was conducted to compare the effect of emotion condition and sample on prosocial behavior (via number of donation clicks) in

the control, regret, guilt, and sadness emotion conditions. There was no significant main effect of emotion condition on prosocial behavior ($F(3, 465) = .542$, $p < .654$). There were no differences in prosocial behavior between the control, regret, guilt, and sadness conditions (Figure 2). These findings were not consistent with the hypothesis.

Sample Comparison. A 2 x 4 between-subjects ANOVA was conducted to compare the effects of emotion condition (control, regret, guilt, or sadness) and sample (undergraduate or Prolific) on prosocial behavior (via number of donation clicks). There was a marginal main effect of sample ($F(1, 469) = 3.53$, $p < .061$). These data suggest that adults over the age of 30 may be more likely to engage in prosocial behavior than college-aged adults (Figure 3). This finding was consistent with the hypothesis.

Emotions Regression. A multiple regression was conducted to examine whether regret, guilt, and sadness intensity predict prosocial behavior (via number of donation clicks). See Tables 4 and 5 for statistics. It was found that regret, guilt, and sadness intensity did not account for a significant amount of the variance in the amount of prosocial behavior measured in number of donation clicks ($F(3, 461) = .710$, $p < .547$, $R^2 = .005$, R^2Adjusted = -.002).

Exploratory Analyses

SEM. A structural equation model was conducted in R using the lavaan package to test whether prosocial behavior mediates a change in overall affect from time 1 to time 2, per the Negative State Relief model. The path model used for this analysis is represented in Figure 4. The regret, guilt, and sadness conditions were each transformed into dummy-coded variables for the purposes of this analysis. The determination of model fit was decided based on a comparison of fit indices in this model with the suggested cutoff values frequently cited in the literature for CFI, RMSEA, and SRMR indices (Steiger, 2016) and χ^2 is reported solely in compliance with

traditional conventions. The model was determined to have "good" model fit based on these standards (χ^2 (6) = 14.12, $p < .028$, CFI = .988, RMSEA = .056, SRMR = .022). Because fit was determined to be good, no further revisions based on modification indices were completed.

With model fit determined to be acceptable, it is appropriate to interpret the model as-is. Results of the regression analyses indicated that there was no significant indirect effect of prosocial behavior on change in overall affect from time 1 to time 2. Specifically, there was a non-significant relationship between overall affect at time 1 and prosocial behavior (β = -.061, $p < .201$). There was also a non-significant relationship between prosocial behavior and overall affect at time 2 (β = .039, $p < .107$). There was, however, a significant effect of the three negative emotion conditions on overall affect at time 1, such that recalling a memory of regret (β = -.410, $p < .001$), guilt (β = -.390, $p < .001$), and sadness (β = -.409, $p < .001$) all contributed to decreased overall affect at time 1. There was also a significant direct effect of overall affect at time 1 on overall affect at time 2 (β = .864, $p < .001$). Taken together, these results suggest that recalling a memory of a negative affective experience does significantly decrease one's overall affect, and one's initial overall affect before the donation task significantly predicts one's overall affect after the donation task, but the donation task itself does not cause a significant change in overall affect at time 2, contrary to the Negative State Relief hypothesis.

Discussion

For Study 1, recalling a regretful experience activated feelings of regret, recalling a guilty experience activated feelings of guilt, and recalling a sad experience activated feelings of sadness, as hypothesized. Also as hypothesized, older adults engaged in more prosocial behavior than younger adults when recalling a regretful experience. However, recalling regret also activated feelings of guilt, and recalling guilt also activated feelings of regret. There was also no

effect of emotion condition on charity choice, contrary to hypotheses. Also contrary to hypotheses, there was no difference in prosocial behavior between emotion conditions, but there was a sample difference in prosocial behavior such that the older adults engaged in more prosocial behavior than the younger adults.

Given these results, it appears that contrary to what the prior literature indicates, negative emotions may not be a consistent motivator of prosocial behavior. There also appears to be an age difference to the effects of emotional experiences on prosocial behavior. Because these results contradict the prior literature, it is necessary to test whether they can be replicated, which will be the primary purpose of Study 2. The replication study will also be extended with the addition of new measures to begin exploring what factors may be driving the age difference in prosocial behavior, if it is not negative affect. Centrality of event is defined as the degree to which people see a stressful life event as central to their identity (Berntsen & Rubin, 2006). Centrality of event to self could explain the age difference, given that the Prolific sample (all above age 30) would have more life experience than the typical 18-20-year-old undergraduate student and, by extension, more likelihood that their memories for regretful experiences would have a stronger effect on their current life and their future decisions. To explain the lack of difference in prosocial behavior among the emotion conditions, it may be useful to examine the difference between altruism and egotism as motivation for prosocial behavior. Negative state relief theory works on the basis that all helping behavior should be motivated from a place of egotism, because one is helping only to make *oneself* feel better rather than necessarily acting only for the sake of helping another person. However, other theory argues that prosocial behavior instead comes from a place of altruism and empathy, rather than the more pessimistic view that models like negative state relief take (Batson et al., 1981). In order to examine this

difference, it is necessary to include measures of empathy, which would relate to the altruism hypothesis, and of personal distress, which would relate to the Negative State Relief hypothesis, in Study 2. Finally, some research suggests that someone's political ideology may make people more or less likely to engage in the specific donation behavior that this study uses, such that people who are more politically liberal tend to be more likely to donate to charity on the whole than people who are politically conservative, so a measure of political ideation will also be added to the demographic questions to be used as a covariate with the emotion condition and sample measures (Jost et al., 2009). Because the undergraduate sample was based solely in Arkansas and tends to be more politically conservative, but the Prolific sample came from all over the world, just so long as the participant was originally from the United States, there may have been a confounding effect of political ideology on the sample and adding these measures may help to parse the sample difference in prosocial behavior.

Study 2

Method

Participants

Participants for Study 2 consisted of 256 General Psychology students recruited online from the undergraduate participant pool using Sona Systems, and 271 middle-adult participants recruited from the survey site Prolific, resulting in a cumulative sample of 528 participants before exclusions. In the student sample, 11 participants were excluded for missing survey responses or not answering the emotion condition prompt, and in the Prolific sample 30 participants were excluded for missing survey responses or not answering the emotion condition prompt, resulting in a total combined sample of 487 participants. This sample size was decided due to a power analysis done for my 2020 study which indicated that 100 participants per

emotion experience condition ought to be sufficient to observe the effects of the manipulation at 95% confidence. The overall sample consisted of 63% females, 34% males, and .01% who identified as a gender outside the gender binary. The majority of participants in the overall sample identified themselves as White/Caucasian (84%), and the remainder of the sample identified themselves as Hispanic/Latinx (10%), Asian (5%), Black/African-American (5%), Native American/American Indian (1%), or Other (1%). The age of participants in the combined sample ranged from 17 to 72 years, with an average age of 31.60 years old. The students were compensated for their time with partial credit toward a research requirement for participating in the study, and the Prolific sample was compensated with a payment of $2.55 per person for their participation.

Materials and Procedure

The procedure was nearly identical to that of Study 1 in an effort to replicate the results. The only additions were four extra emotions added to the existing 15 in the battery of emotions presented after the donation task ("Compassion," "Empathy," "Distress," and "Upset"), a Centrality of Event to Self scale presented after the question about the level of closure participants have on the memory they disclosed, and three more questions were added to the demographic questions about participants' political ideology. The four new emotion items were taken from an existing scale to assess whether altruistic behaviors are motivated through empathic concern or personal distress (Batson, et al., 1981). The Centrality of Event to Self scale was taken from Berntsen & Rubin (2006). The scale included items such as "I feel that this event has become a part of my identity" and "I feel that this event has become a central part of my life story" which participants rated on a scale from 1 to 5, with 1 indicating *Totally disagree* and 5 indicating *Totally agree*. The items assessing political ideology assessed general political

ideology, economic political ideology, and social political ideology (Jost et al., 2009). Items were phrased as "In general (or economically or socially) on a scale from 1 to 7, would you describe yourself as a liberal or a conservative?" Participants rated themselves on a scale from 1 to 7, where 1 indicated *Very liberal* and 7 indicated *Very conservative*.

Results

All planned analyses were conducted using the IBM SPSS Statistics 27 software program. The exploratory SEM analyses were conducted using R statistical software with functions from the lavaaan and psych packages.

Planned Analyses

Political Ideology. The responses to each of the three questions about political ideology were averaged together for each participant to create a mean political ideology score ($\alpha = .939$). A Pearson's correlation was conducted to examine whether political ideology is associated with prosocial behavior (via donation clicks). The Pearson's correlation revealed that there was a weak negative association between political ideology and prosocial behavior ($r = -.140$, $n = 478$, $p < .002$). This suggests that political conservatism had a small negative effect on prosocial behavior. Although this measure was intended to be used as a covariate, it did not change any of the reported results below, so it will not be further reported.

Battery of Emotions. A 2x4 between-subjects ANOVA was conducted to compare the effect of emotion condition and sample on regret intensity in the control, regret, guilt, and sadness conditions among the undergraduate and Prolific samples. There was a significant main effect of emotion condition on regret intensity between the four emotion conditions ($F(3, 471) = 184.67$, $p < .001$). Post-hoc comparisons using the Tukey HSD test indicate that mean regret intensity for the control condition was significantly lower than in the regret, guilt, and sadness

conditions. Mean regret intensity in the sadness condition was significantly lower than sadness intensity in the regret and guilt conditions. However, the mean regret intensity for the regret and guilt conditions were not significantly different from each other (see Table 6 for mean comparisons). There was also a significant main effect of the sample on regret intensity ($F(1, 471) = 6.45$, $p < .011$). Mean regret intensity for the undergraduate sample ($M = 4.05$, $SE = .100$) was significantly lower than mean regret intensity for the Prolific sample ($M = 4.42$, $SE = .101$). There was also a significant interaction between emotion condition and sample ($F(3, 471) = 4.96$, $p < .002$). Post-hoc comparisons indicated that mean regret intensity for undergraduates in the control condition did not significantly differ from mean regret intensity for the Prolific sample in the control condition. Mean regret intensity for undergraduates in the regret condition did not significantly differ from mean regret intensity for the Prolific sample in the regret conditions. Mean regret intensity for undergraduates in the guilt condition was significantly lower than mean regret intensity for the Prolific sample in the guilt condition. Mean regret intensity for undergraduates in the sadness condition was significantly lower than mean regret intensity for participants in the Prolific sample in the sadness condition (see Table 7 for mean comparisons). Taken together, these data indicate that when participants were induced to recall memories of an affectively-neutral stimulus (eg. a TV show) or a sad event, they experienced significantly less intense feelings of regret than when participants were induced to recall memories of a regretful or guilty event. However, there appeared to be no significant differences in the experience of regret intensity when people were induced to recall a guilty experience rather than a regretful experience. There were, however, sample differences in regret intensity in the guilt and sadness conditions, such that adults over 30 felt more intense regret than the typical undergraduate student. These findings support the hypotheses.

A 2x4 between-subjects ANOVA was conducted to compare the effect of emotion condition and sample on guilt intensity in the control, regret, guilt, and sadness conditions among the undergraduate and Prolific samples. There was a significant main effect of condition on guilt intensity ($F(3, 471) = 164.72$, $p < .001$). Post-hoc comparisons using the Tukey HSD test indicated that mean guilt intensity for the control condition was significantly lower than mean guilt intensity for the regret, guilt, and sadness conditions. Mean guilt intensity for the sadness condition was significantly lower than mean guilt intensity for the regret and guilt conditions. Mean guilt intensity for the regret condition was also significantly lower than mean guilt intensity in the guilt condition (see Table 8 for mean comparisons). There was no significant main effect of sample on guilt intensity ($F(1, 471) = .276$, $p < .600$). There was a significant interaction of sample by emotion condition ($F(3, 471) = 3.37$, $p < .019$). Post-hoc comparisons indicated that mean guilt intensity for undergraduates in the control condition did not significantly differ from guilt intensity of the Prolific sample in the control condition. Mean guilt intensity for undergraduates in the regret condition did not significantly differ from the mean guilt intensity for the Prolific sample in the regret condition. Mean guilt intensity for undergraduates in the guilt condition was not significantly different from mean guilt intensity of the Prolific sample in the guilt condition. Mean guilt intensity for undergraduates in the sadness condition was not significantly different from mean guilt intensity for the Prolific sample in the sadness condition. However, undergraduates and the Prolific sample in the control condition differed from undergraduates and the Prolific sample in the regret, guilt, and sadness conditions (see Table 9 for mean comparisons). Taken together, these data indicate that when participants were induced to recall memories of an affectively-neutral stimulus (eg. a TV show) or a sad event or a regretful event, they experienced significantly less intense feelings of guilt than when

participants were induced to recall memories of a guilty event. These findings mostly support the hypotheses, except that this time recalling guilt did not also activate regret as it did in Study 1.

A 2x4 between-subjects ANOVA was conducted to compare the effects of emotion condition and sample on sadness intensity in the control, regret, guilt, and sadness conditions among the undergraduate and Prolific samples. There was a significant main effect of condition on sadness intensity ($F(3, 471) = 154.86$, $p < .001$). Post-hot comparisons using the Tukey HSD test indicated that mean sadness intensity for the control condition was significantly lower than the mean sadness intensity for the regret, guilt, and sadness conditions. Mean sadness intensity for the sadness condition was significantly higher than mean sadness intensity for the regret and guilt conditions. However, mean sadness intensity for the regret condition and guilt condition were not significantly different from each other (see Table 10 for mean comparisons). There was no significant main effect of sample on sadness intensity ($F(1, 471) = 3.76$, $p < .053$). There was a significant interaction between sample and condition ($F(3, 471) = 6.92$, $p < .001$). Taken together, these data indicate that when participants were induced to recall memories of an affectively-neutral event (eg. a TV show), they experienced significantly less sadness intensity than when they were induced to recall a regretful or guilty experience, and all three of those experiences produced less sadness intensity than when participants were induced to recall a sad experience. There were no differences in sadness intensity when people were induced to recall a regretful experience rather than a guilty experience and vice versa. These findings supported the hypothesis.

Further 2x4 between-subjects ANOVAs were conducted for all of the other emotions on the battery of emotions but are not included here for the sake of brevity. Those analyses are

available upon request, but the general trend remained that the control condition was significantly different from the emotion conditions, and regret and guilt tended to not be significantly different from one another. See Figure 5 for a graphical representation of regret, guilt, and sadness intensity.

Empathy and Distress. Scores for compassion and empathy intensity were averaged together to create a single overall compassion score for each participant ($\alpha = .91$). A 2x4 between-subjects ANOVA was conducted to compare the effects of emotion condition and sample on intensity of overall empathy in the control, regret, guilt, and sadness conditions among the undergraduate and Prolific samples. There was a significant main effect of emotion condition on average overall empathy intensity ($F(3, 467) = 7.07$, $p < .001$). Post-hoc comparisons using the Tukey HSD test indicated that overall empathy intensity in the regret condition was significantly lower than the overall empathy intensity in the control, guilt, and sadness conditions (see Table 11 for mean comparisons). Average overall empathy was significantly different between the regret condition and the sadness condition, but not significantly different between the regret condition and the guilt condition. There was no significant main effect of sample on average overall empathy ($F(1, 467) = .165$, $p < .684$). There was no significant interaction between the condition and the sample on average overall empathy ($F(3, 467) = 1.23$, $p < .274$). Taken together, these results indicate that when participants were induced to recall an affectively-neutral event (eg. A TV show) they experienced significantly more empathy from people induced to recall a regretful event, but did not experience significantly different empathy from people who were induced to recall a guilty or sad event. People who were induced to recall a sad event experienced significantly more empathy from people who were induced to recall a regretful experience, but did not experience significantly

different levels of empathy than people who were induced to recall a guilty experience. People who were induced to recall a regretful event did not experience significantly different levels of empathy than people who were induced to recall a guilty event (Figure 6). These findings supported the hypothesis.

Scores for distress intensity and upset intensity were averaged together to create a single overall distress intensity score for each participant ($\alpha = .89$). A 2x4 between-subjects ANOVA was conducted to compare the effects of emotion condition and sample on overall distress intensity in the control, regret, guilt, and sadness conditions among the undergraduate and Prolific samples. There was a significant main effect of emotion condition on overall distress intensity ($F(3, 465) = 95.31$, $p < .001$). Post-hoc comparisons using the Tukey HSD test indicated that overall distress intensity in the control condition was significantly lower than overall distress intensity in the regret, guilt, and sadness conditions. Overall distress intensity in the sadness condition was significantly higher than overall distress intensity in the regret and guilt conditions. There was no significant difference in overall distress intensity between the regret and guilt conditions (see Table 12 for mean comparisons). There was no significant main effect of sample on overall distress intensity ($F(1, 465) = .970$, $p < .325$). There was no significant interaction between sample and emotion condition on overall distress intensity ($F(3, 465) = .863$, $p < .460$). Taken together, these data indicate that when participants were induced to recall an affectively-neutral experience (eg. A TV show) they experienced significantly less overall distress than when participants were induced to recall a regretful, guilty, or sad experience. People who were induced to recall a sad memory experienced significantly more overall distress than people who were induced to recall a regretful or guilty experience. People who were induced to recall a regretful experience did not experience significantly different

overall distress than people who were induced to recall a guilty experience (Figure 7). These findings did not support the hypothesis, but actually went in the opposite direction from the hypothesis.

Centrality of Event to Self. A 2x4 between-subjects ANOVA was conducted to examine the effects of emotion condition and sample on centrality of event to self scale ratings in the control, regret, guilt, and shame conditions for the undergraduate and Prolific samples. All item responses in the centrality of event to self scale were averaged for each participant to form an overall score ($\alpha = .94$), and this average score is what was included in the ANOVA. There was a significant main effect of sample ($F(3, 465) = 6.28$, $p < .013$). There was a significant main effect of condition ($F(3, 465) = 59.30$, $p < .001$). There was a significant interaction between sample and condition ($F(3, 465) = 3.43$, $p < .017$). Post-hoc comparisons using the Tukey HSD tst indicated that overall centrality of event to self ratings for the control condition was significantly lower than overall centrality of event to self ratings for the regret, guilt, and sadness conditions. Overall centrality of event to self ratings for the guilt condition was significantly lower than overall centrality of event to self ratings for the regret and sadness conditions. The regret condition and sadness condition did not significantly differ from each other on overall centrality of event to self ratings (see Table 13 for mean comparisons). There were significant differences in the centrality of event to self ratings only in the regret condition between the undergraduate sample ($M = 2.74$, $SE = .136$) and the Prolific sample ($M = 3.37$, $SE = .138$). Taken together, these data suggest that when participants were induced to recall an affectively-neutral experience (eg. A TV show) or a guilty experience, they experienced significantly less feelings that the experience was central to their sense of self than when people were induced to recall a regretful or sad experience. These data also suggest that adults over the

age of 30 (the Prolific sample) experienced significantly more feelings that the experience of regret and sadness were more central to their current sense of self than the average college-aged adult (Figure 8). These data partially supported the hypothesis in that regret was not the only emotion where centrality of event to self significantly differed by sample.

Charity Selection. A chi-square test of independence was conducted to examine the relationship between emotion condition and charity selection. The relationship between these variables was not significant, X^2 (3, 487) = 1.45, p = .694. Charity selection did not differ by emotion condition. These data supported the replication hypothesis.

Helping Behavior. A 2x4 between-subjects ANOVA was conducted to examine the effect of emotion condition and sample on prosocial behavior (via number of donation clicks) in the control, regret, guilt, and sadness emotion conditions among the undergraduate and Prolific samples. There was no significant main effect of emotion condition on prosocial behavior (F(3, 485) = .254, p < .859). There was a significant main effect of sample on prosocial behavior F(1, 481) = 19.92, p < .001). The undergraduate sample (M = 22.15, SE = 2.33) engaged in significantly less prosocial behavior than the Prolific sample (M = 36.91, SE = 2.35). There was no significant interaction between emotion condition and sample (F(3, 418) = 1.41, p < .239). Taken together, these data indicate that there were no differences in prosocial behavior between the control, regret, guilt, and sadness conditions, but regardless of emotion condition people over age 30 (the Prolific sample) were more likely to engage in prosocial behavior than the typical undergraduate student (Figure 9). These findings supported the replication hypotheses.

Emotion Regression. A multiple regression was conducted to examine whether regret, guilt, sadness, overall empathy, and overall distress predict prosocial behavior (via number of donation clicks). See Tables 14 and 15 for statistics. Regret, guilt, sadness, overall empathy,

and overall distress intensities explained a significant amount of the variance in the amount of prosocial behavior measured in number of donation clicks ($F(5, 465) = 2.99$, $p < .011$, $R^2 = .031$, R^2Adjusted = .021). The analysis shows that regret intensity did significantly predict the amount of prosocial behavior measured in donation clicks ($\beta = .183$, $t(462) = 2.27$, $p < .024$), as did overall empathy intensity ($\beta = .126$, $t(462) = 2.70$, $p < .007$), as well as overall distress intensity ($\beta = -.143$, $t(462) = -2.05$, $p < .041$). However, guilt intensity ($\beta = -.104$, $t(462) = -1.34$, $p < .181$) and sadness intensity ($\beta = .031$, $t(462) = .422$, $p < .673$) did not significantly predict the amount of prosocial behavior measured in donation clicks. Taken together, these data suggest that the more intense feelings of regret or compassion participants felt, the more likely they were to engage in prosocial behaviors, while the more intense feelings of distress participants felt, the less likely they were to engage in prosocial behaviors. These findings supported the replication hypothesis.

Exploratory Analyses

Study 1 and Study 2 Comparison. A 2x2x4 between-subjects ANOVA was conducted to examine the effects emotion condition and sample on prosocial behavior (via donation clicks) in the control, regret, guilt, and sadness conditions for the undergraduate and Prolific samples in study 1 and study 2. There was a significant main effect of only the sample ($F(1, 942) = 18.43$, $p < .001$). Prosocial behavior was overall higher in the Prolific sample ($M = 36.46$, $SE = 1.73$) than in the undergraduate sample ($M = 26.02$, $SE = 1.71$) regardless of emotion condition or study. Taken together, these results indicate that only the sample had a significant effect on prosocial behavior, such that the older Prolific sample consistently engaged in more prosocial behavior than the younger undergraduate sample (Figure 10).

SEM. A structural equation model was conducted in R using the lavaan package to test whether prosocial behavior mediates a change in overall affect from time 1 to time 2, per the Negative State Relief model. The path model used for this analysis is represented in Figure 11. Regret, guilt, and sadness were dummy-coded into three separate variables for the purposes of this analysis. The determination of model fit was decided based on a comparison of fit indices in this model with the suggested cutoff values frequently cited in the literature for CFI, RMSEA, and SRMR indices (Steiger, 2016) and χ^2 is reported solely in compliance with traditional conventions. The model was determined to have "good" model fit based on these standards (χ^2 (6) = 6.63, $p < .356$, CFI = .999, RMSEA = .015, SRMR = .015). Because fit was determined to be good, no further revisions based on modification indices were completed.

With model fit determined to be acceptable, it is appropriate to interpret the model as-is. Results of the regression analyses indicated that there was a significant indirect effect of prosocial behavior on change in overall affect from time 1 to time 2. Specifically, there was a significant relationship between overall affect at time 1 and prosocial behavior (β = -.092, $p <$ .048). There was also a significant relationship between prosocial behavior and overall affect at time 2 (β = .083, $p < .001$). There was also a significant effect of the three negative emotion conditions on overall affect at time 1, such that recalling a memory of regret (β = -.427, $p <$ .001), guilt (β = -.452, $p < .001$), and sadness (β = -.409, $p < .001$) all contributed to decreased overall affect at time 1. There was also a significant direct effect of overall affect at time 1 on overall affect at time 2 (β = .870, $p < .001$). Taken together, these results suggest that recalling a memory of a negative affective experience did significantly decrease participants' overall affect, and participants' initial overall affect before the donation task significantly predicted their overall affect after the donation task, and the donation task itself caused a small but significant

change in overall affect at time 2, in support of the Negative State Relief hypothesis but contrary to findings from Study 1.

Discussion

For Study 2, recalling regret activated feelings of regret, recalling guilt activated feelings of guilt, and recalling sadness activated feelings of sadness, as hypothesized. Also as hypothesized, recalling regret also activated feelings of guilt, but unlike in Study 1, recalling guilt did not also activate feelings of regret. There was also no effect of emotion condition on charity choice, as hypothesized. There was no difference in prosocial behavior between emotion conditions, but there was a sample difference in prosocial behavior such that the older adults engaged in more prosocial behavior than the younger adults, as hypothesized. As hypothesized, overall empathy intensity significantly predicted increased prosocial behavior, but contrary to the hypothesis overall distress intensity significantly predicted decreased prosocial behavior. As hypothesized, older adults had higher centrality of event to self scores than younger adults, specifically in the regret condition but not any of the other emotion conditions. Contrary to the hypothesis, political ideology did not affect any of the outcome variables beyond the effects of emotion condition and sample.

General Discussion

Taking all these results together, it appears that the experience of negative affect in general is not the primary motivator for prosocial behavior, at least not in the form of donating one's time through a paradigm like what was used for the purposes of these two studies. Instead, the three factors that appear to increase the amount of prosocial behavior these participants engaged in were the sample, overall empathy intensity, and centrality of event to self. Participants' overall distress appeared to decrease the amount of prosocial behavior they were

willing to engage in, contrary to what the prior literature on Negative State Relief and self-conscious moral emotions suggests.

To first address the issue of overall distress and where it fits within the pre-existing literature, according to the Negative State Relief model one might expect that increased feelings of personal distress should motivate more prosocial behavior, in an effort to alleviate one's own distress through doing good deeds (Cialdini & Kenrick, 1976). Negative State Relief theory takes a particularly negative view on the reasons why people may choose to behave prosocially, positing that people are willing to help others if there is something in it for them as well. In this perspective, any helping behavior comes from a place of egoism—*I* feel uncomfortable seeing this other person suffering, so in order to make *me* feel better, I have to fix their problems first—rather than from a place of altruism—This person is suffering and I want to do what I can to make them feel better. Taking the opposing stance, Batson et al. (1981) found evidence suggesting that perhaps the Negative State Relief model may not be entirely accurate and that instead people are more likely to help others when they experience more compassion, regardless of whether it is easier to help the other person or to simply avoid the other person, while people are less likely to help other people when they experience more personal distress, so long as avoiding the person entirely is easy for them to do. The results of Study 2 provide support to Batson et al.'s (1981) findings, as these results followed the same pattern.

Given that participants were aware from the beginning of the donation task that they were free to end the task at any time, escape from helping and from the reminders on each donation page that they were to be helping the researchers by clicking and the charity of their choice with the subsequent donation should have been relatively easy, even if escaping from their negative emotions would not be so easy. And if one assumes that Batson et al.'s (1981) findings can

apply to helping tasks and not just to the experience of emotion, it would stand to reason that these data may have shown a greater effect of emotion condition on prosocial behavior if participants had been required to donate a certain amount of their time (through clicking) before they were permitted to end the task, rather than giving them an opportunity to end the task immediately without donating any time. So given the ease of escape from the task and the people the task was meant to help, it was found that increased feelings of distress led to decreased donation clicks before participants ended the task. On the other hand, also in support of Batson et al.'s (1981) findings, increased feelings of compassion led to increased donation clicks before participants ended the task. And these findings taken together imply that prosocial behavior was motivated through altruistic intentions, rather than egoistical ones, which may explain why these studies did not show an effect of emotion condition on prosocial behavior.

Both of the hypothesized mechanisms by which emotion ought to have motivated prosocial behavior were, in nature, egoistical rather than altruistic. The Negative State Relief model implies that people engage in helping behaviors in order to make themselves feel better (an egoistical motivation) and the definition of SCMEs suggests that people only experience moral emotions when we self-reflect on how our own actions affect others which, in many cases, ties to how we believe our actions will make others think of us and how that will affect our reputation (which is also an egoistical motivation). So given that participants may have been feeling personally distressed and predisposed to think egoistically about their negative emotions because they were asked to think about how their negative emotional memories made the participants themselves feel, rather than how those events may have made others feel, it follows that there would not be an effect of emotion condition on prosocial behavior when it is likely that

participants were attempting to avoid or escape their own distress, rather than feeling sufficient compassion to be motivated to help others instead.

As for why there was an effect of sample on prosocial behavior, one may suggest a few potential explanations, but two stand out as the most likely under these circumstances. First, there may have been an observed an effect of age and life experience, although age was confounded by sample since everyone in the Prolific samples were over the age of 30 while all participants in the student samples were under the age of 30. The findings from the centrality of event to self scale support this explanation. It was hypothesized that the Prolific sample would have higher centrality of event to self scale ratings than the undergraduate sample due to greater life experience (the Prolific sample has been alive longer and has had more opportunities to have more significant life experiences than the average 18-20 year-old college freshman) and the data did follow the predicted pattern. This was especially the case with the regret emotion condition, which is relevant because of the nature of regret.

The existing literature on regret suggests that one of regret's primary actions is to motivate reparative action, and in many cases that reparative action comes in the form of avoiding making the same mistakes in the future (Zeelenberg & Pieters, 2007). Along the same lines, the centrality of event to self scale is designed to examine how much an event shapes a person's decisions moving forward and how much that event shapes their view of themselves (Berntsen & Reuben, 2006). Thus, when participants in the regret condition had increased centrality of event to self scores (as was the case in the Prolific sample when compared to the student sample) that motivation to engage in reparative action may have also motivated more prosocial behavior which would potentially explain why the Prolific sample spent more time on

the donation task than the student sample did, especially within the regret condition in Study 1, although the distribution across emotion conditions was a bit more even in Study 2.

On the other hand, the observed sample difference could instead be a difference in motivation. Prolific participants take studies as a job and typically participate in many studies in any given day, so it may simply be that the psychological cost of clicking a button repeatedly and donating their time might be less than the psychological cost of the same behaviors for undergraduate students who complete studies only in order to complete a course requirement. This explanation feels less compelling, however, in light of the fact that for both samples participants were given the same compensation regardless of how long they spent on the donation task, so the Prolific sample was paid the same amount regardless of how much time they spent making donation clicks. This means that it was more cost effective for Prolific participants to do the bare minimum on the donation task, rather than spending their time clicking through dozens of screens that would not change their compensation at the end of the study. Given that the Prolific sample was more likely to continue clicking through the donation task far longer than the student sample did, despite this making no difference in their compensation at the end of the study, this appears to lend more support to the altruism explanation. The Prolific sample may have simply been overall more altruistically-motivated than the student sample, because they continued the donation task longer than the student sample did without receiving anything in return. It is worth noting here that no large changes in overall affect ratings from time one to time two were observed (per the exploratory SEM analyses) which suggests that participants did not receive the predicted mood-boosting benefit of the donation task and, again, lends itself to the altruism explanation.

To address the issue of the charity selection hypothesis finding no support, despite the relatively well-documented literature on the interpersonal nature of guilt, the choice of charities in these studies may have confounded our ability to parse a difference in charity selection. While the researcher spent a significant amount of time researching charities in order to find politically-neutral organizations, it is entirely possible that they were not affectively-neutral organizations. It was intended to find organizations that one could explain as relating only to other people or to both oneself and others and that should not be morally objectionable regardless of one's political ideology. However, the researcher did not take into account the fact that feeding hungry people might produce a stronger emotional response than funding national parks. Given that the majority of participants, regardless of study or condition, chose Feeding America, it seems that this charity may have been more compelling to participants in general than the National Park Foundation. Unfortunately, these studies did not measure people's particular feelings about the charities, so these data cannot definitively explain why these results followed this pattern.

Limitations

It may have been possible to determine the causes of the results that were observed in these two studies with the addition of further measures. First, other researchers who used the same undergraduate sample, especially the same one that was used for Study 2, have indicated that this sample was particularly inattentive. In other studies, this student sample has done particularly poorly with attention checks, which suggests that they were likely just clicking buttons and trying to get through the study as quickly as possible. Overall affect scores were lower for the samples used in Study 2, which may support this particular assessment, although these studies had no explicit attention check we could use to affirm the inattentiveness

explanation. There was also no pilot test of the charity options to assess whether they were truly as neutral as intended when it seems that perhaps a pilot study should have been done, or at least allowed participants to explain their thoughts as to why they selected the charity they did. The donation task may have also been too easy for participants to escape from without consequences, which may have eliminated the differences in prosocial behavior we may have otherwise observed between conditions.

Future Directions

For future studies, one may consider using a different helping task to see whether a different task will generate different results across emotion conditions in the predicted pattern. Perhaps an in-person task where the participant must face another human being face-to-face in order to escape the helping task would lead to greater amounts of prosocial behavior. The anonymity and lack of consequences to the donation task used in these studies may have been the culprit of the lack of differences across conditions when the observed prosocial behavior appeared to be motivated by altruism rather than egotism.

One may also examine the relationship between regret and guilt more deeply in future research. While there is a paper (Zeelenberg & Breugelmans, 2007) that suggests regret and guilt are two completely different emotions in both feeling and function, these studies and my 2020 studies indicate that this may not actually be the case. Participants in the regret and guilt emotion conditions did not feel significantly different from each other (except for in the guilt condition in Study 2) and they did not behave significantly differently from each other, which seems to suggest that either the experience of these emotions may not be functionally different or that participants do not have the introspective capacity to parse apart the difference between

regret and guilt for themselves, and so they experience the emotions in essentially the same way despite the theoretical nuances that distinguish the two emotions from one another.

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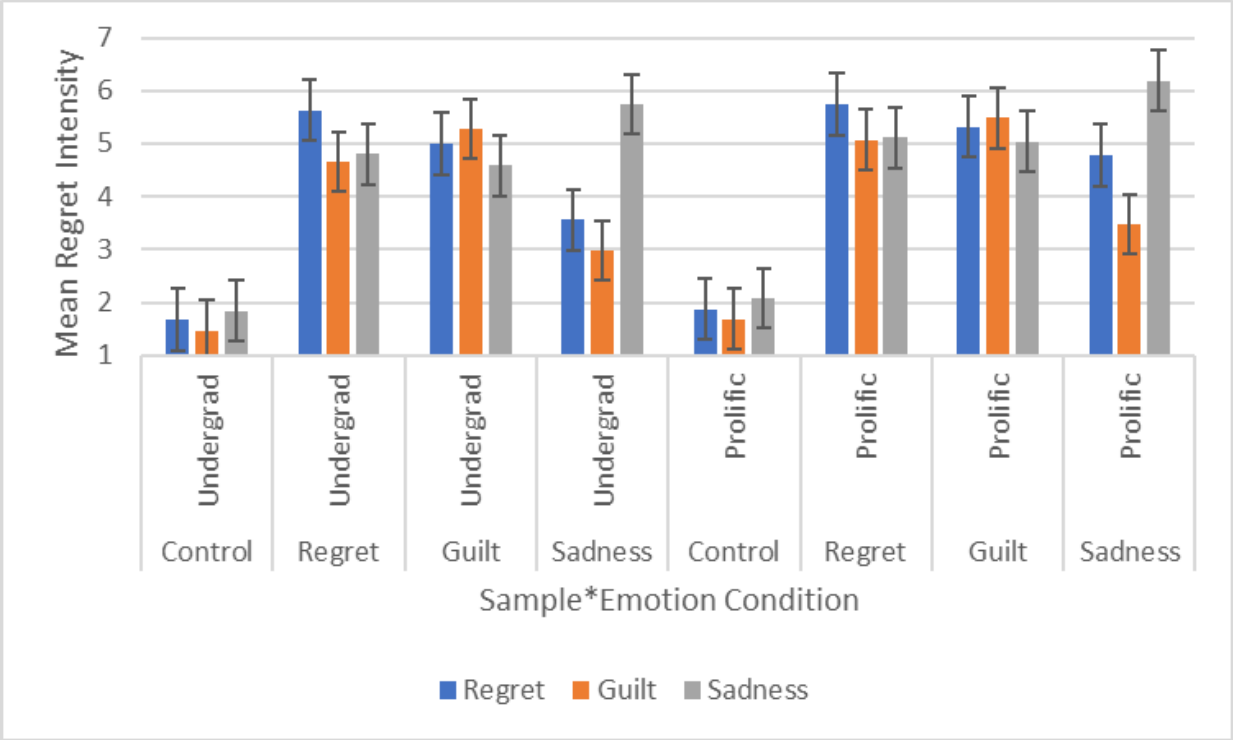
Appendix A. Results Figures

Figure 1

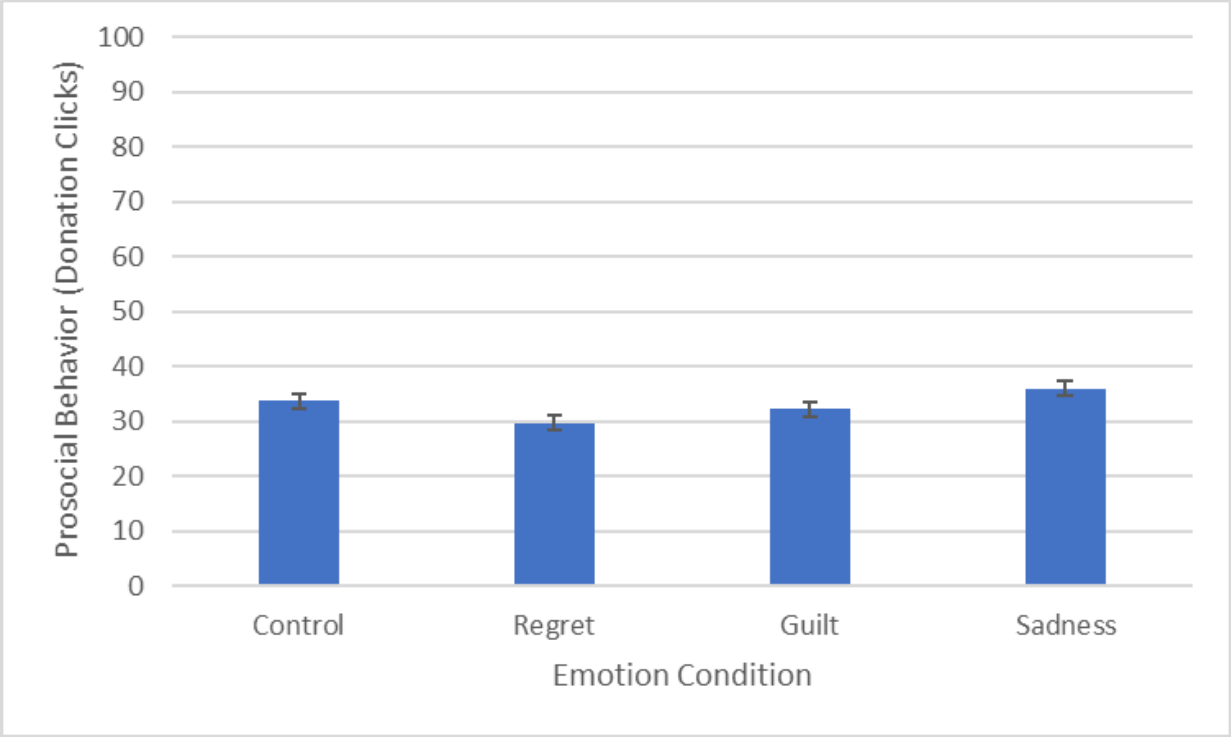
Study 1 Effect of Emotion Condition and Sample on Regret, Guilt, and Sadness Intensity



Note. Regret, guilt, and sadness intensity are measured on a Likert-type scale from 1 to 7, where 1 is the least intense and 7 is the most intense.

Figure 2

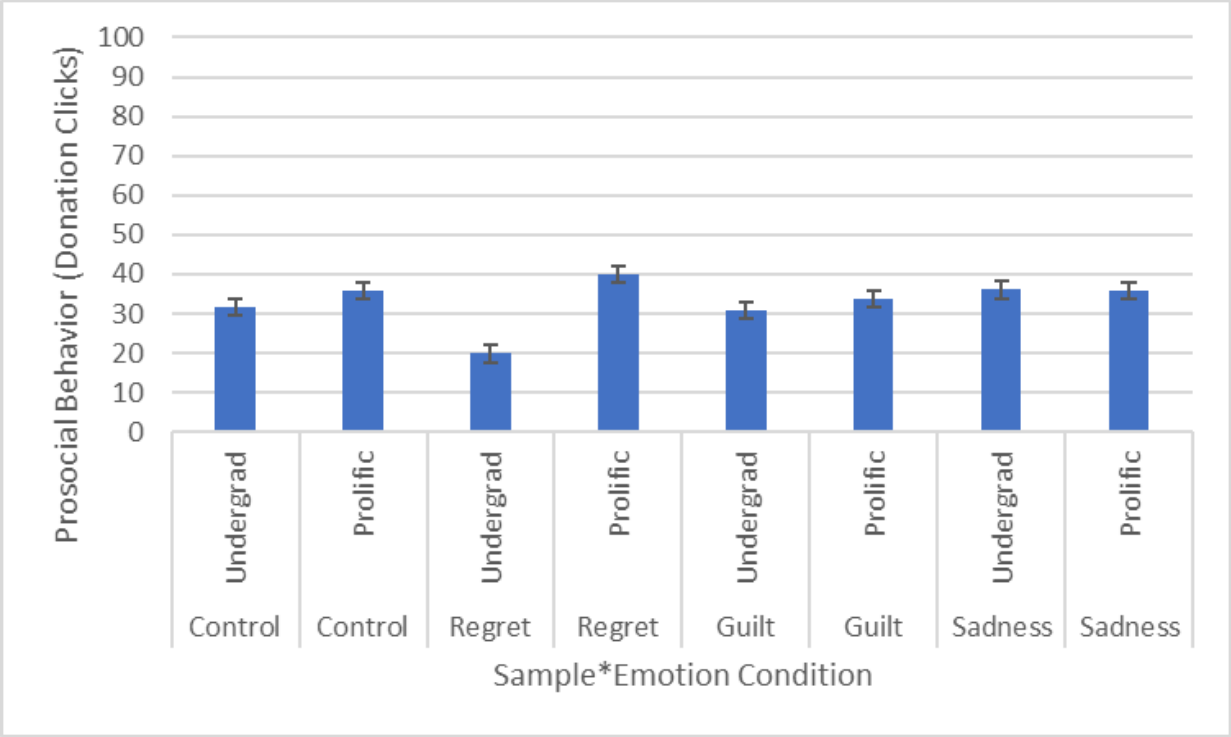
Study 1 Effect of Emotion Condition on Prosocial Behavior



Note. Prosocial behavior is measured in units of total number of clicks, where each click is equivalent to one cent, up to a total possible number of one-cent clicks of $1.00.

Figure 3

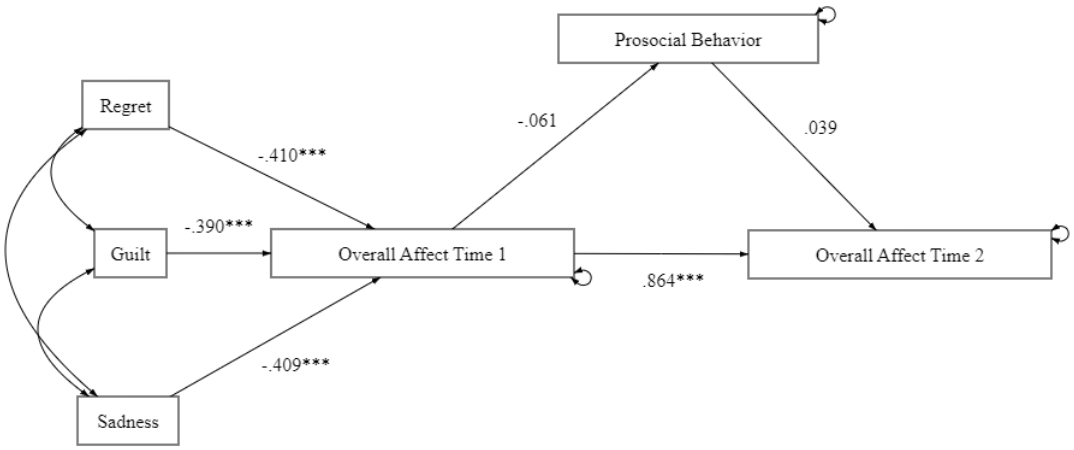
Study 1 Effect of Sample on Prosocial Behavior



Note. Prosocial behavior is measured in units of total number of clicks, where each click is equivalent to one cent, up to a total possible number of one-cent clicks of $1.00.

Figure 4

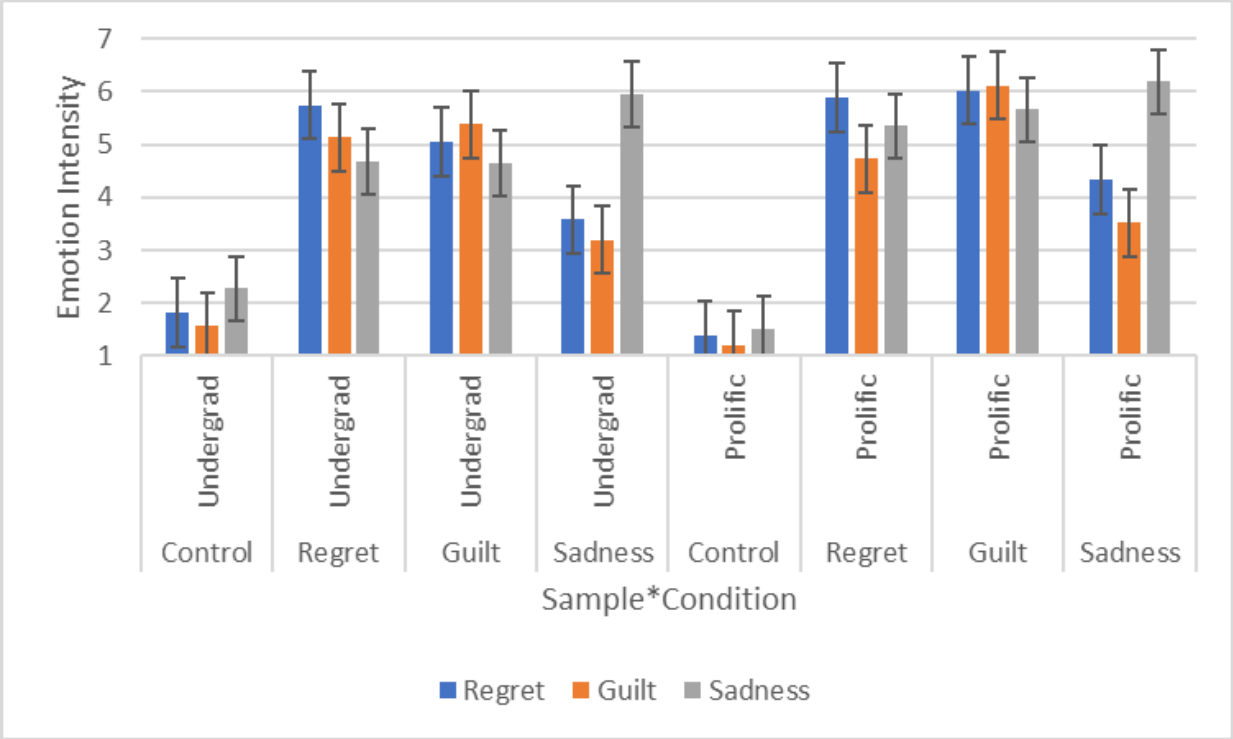
Study 1 Path Model for SEM



Note. *** $p < .001$. Overall affect at time 1 and time 2 measured from a range of 0 to 100 where smaller number indicate more negative affect and higher numbers indicate more positive affect. Prosocial behavior is measured in units of total number of clicks, where each click is equivalent to one cent, up to a total possible number of one-cent clicks of $1.00.

Figure 5

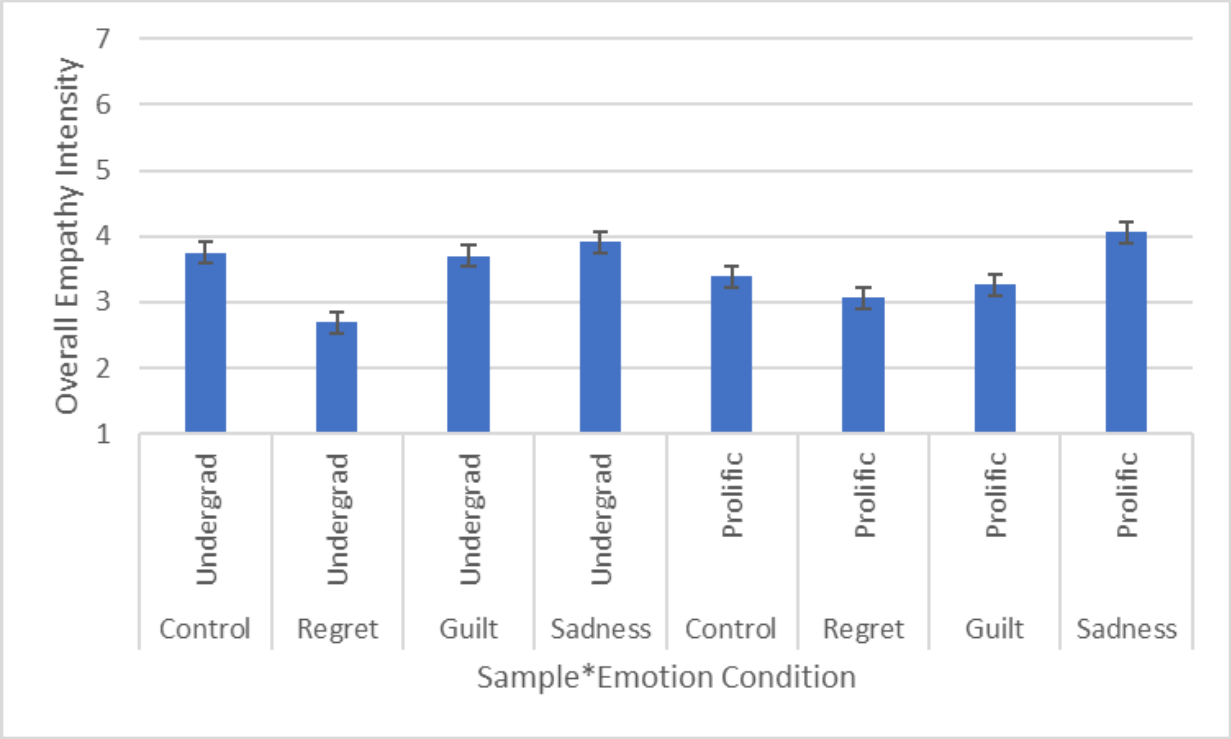
Study 2 Effect of Emotion Condition and Sample on Regret, Guilt, and Sadness Intensity



Note. Regret, guilt, and sadness intensity are measured on a Likert-type scale from 1 to 7, where 1 is the least intense and 7 is the most intense.

Figure 6

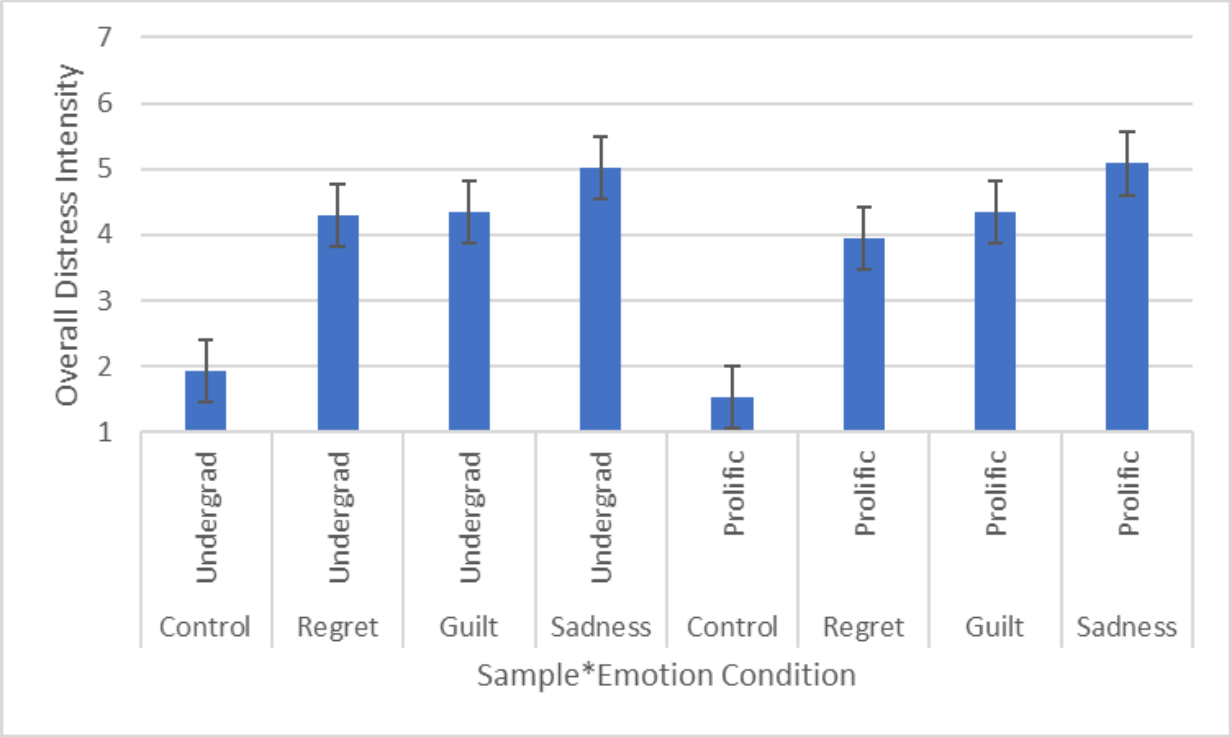
Study 2 Effect of Emotion Condition and Sample on Overall Empathy Intensity



Note. Overall empathy intensity is measured on a Likert-type scale from 1 to 7, where 1 is the least intense and 7 is the most intense.

Figure 7

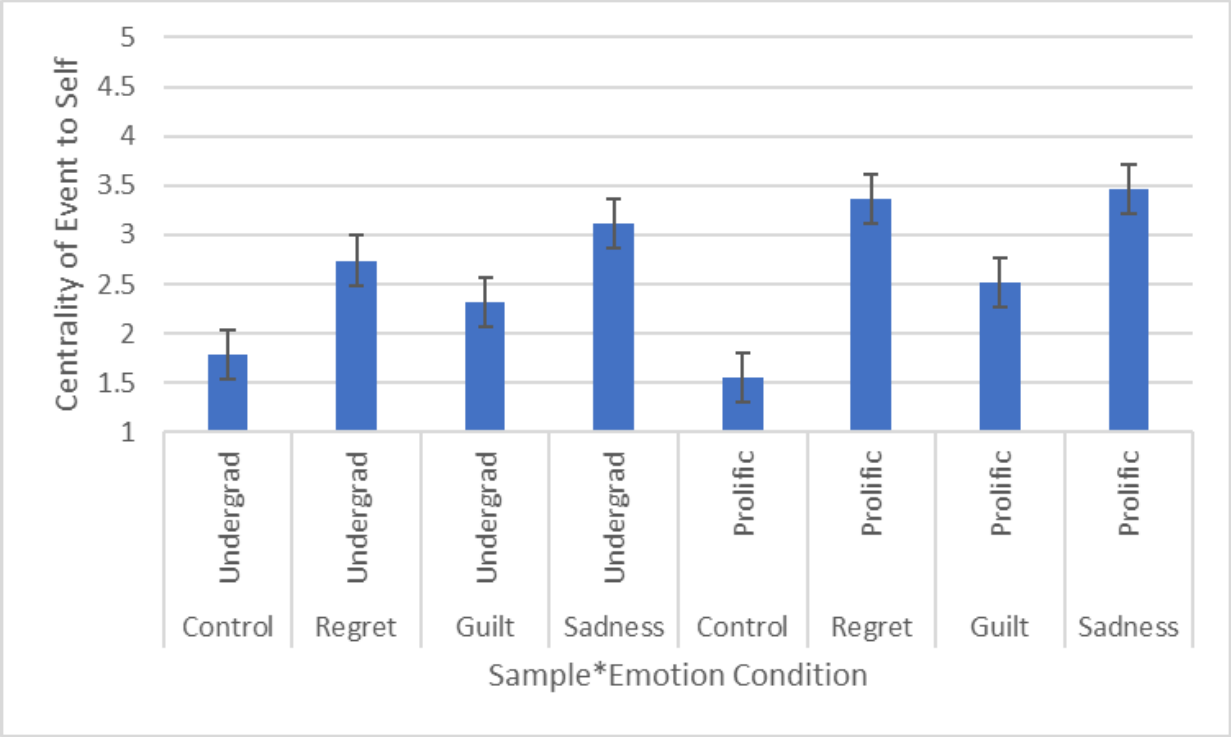
Study 2 Effects of Emotion Condition and Sample on Overall Distress Intensity



Note. Overall distress intensity is measured on a Likert-type scale from 1 to 7, where 1 is the least intense and 7 is the most intense.

Figure 8

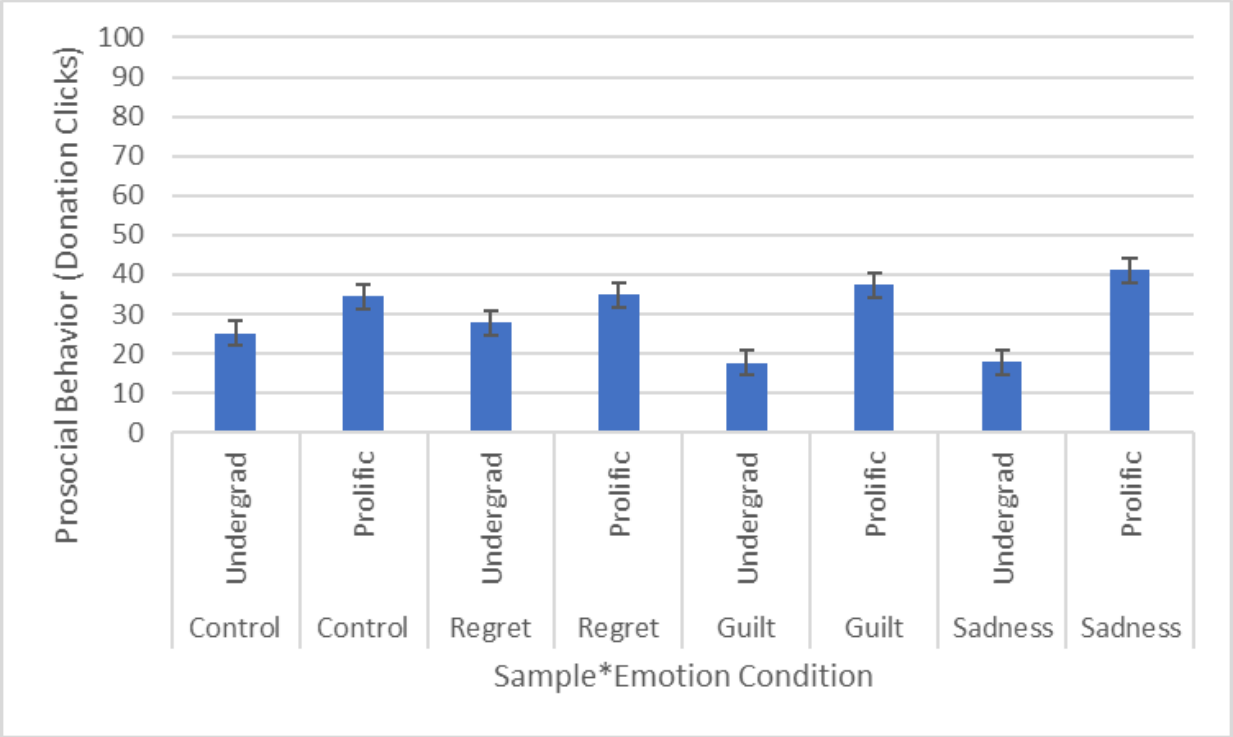
Study 2 Effects of Emotion Condition and Sample on Centrality of Event to Self



Note. Centrality of event to self is measured on a Likert-type scale from 1 to 5, where 1 is Strongly Disagree and 5 is Strongly Agree.

Figure 9

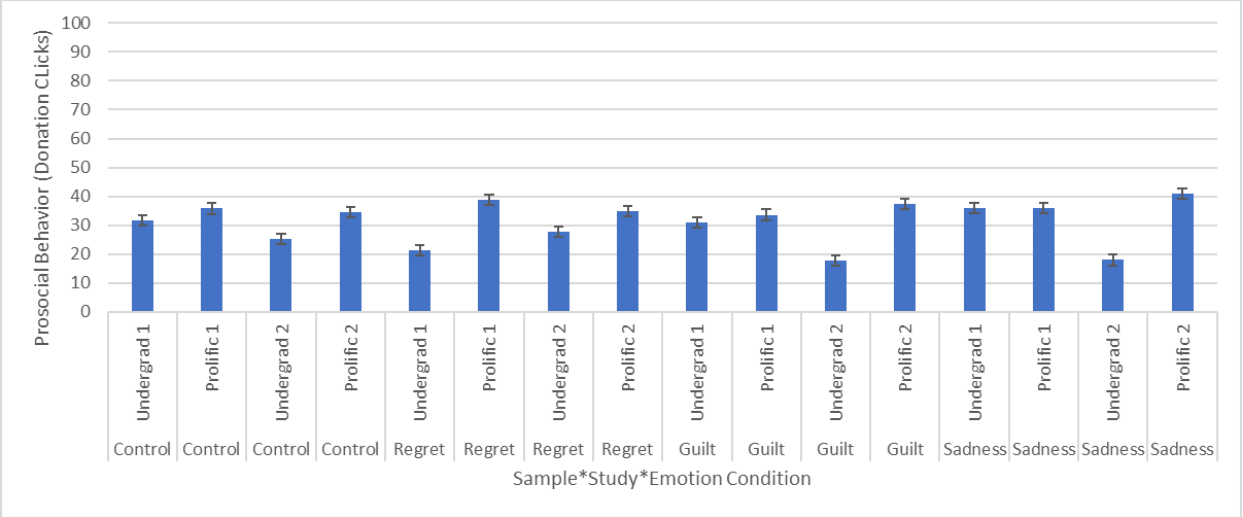
Study 2 Effects of Emotion Condition and Sample on Prosocial Behavior



Note. Prosocial behavior is measured in units of total number of clicks, where each click is equivalent to one cent, up to a total possible number of one-cent clicks of $1.00.

Figure 10

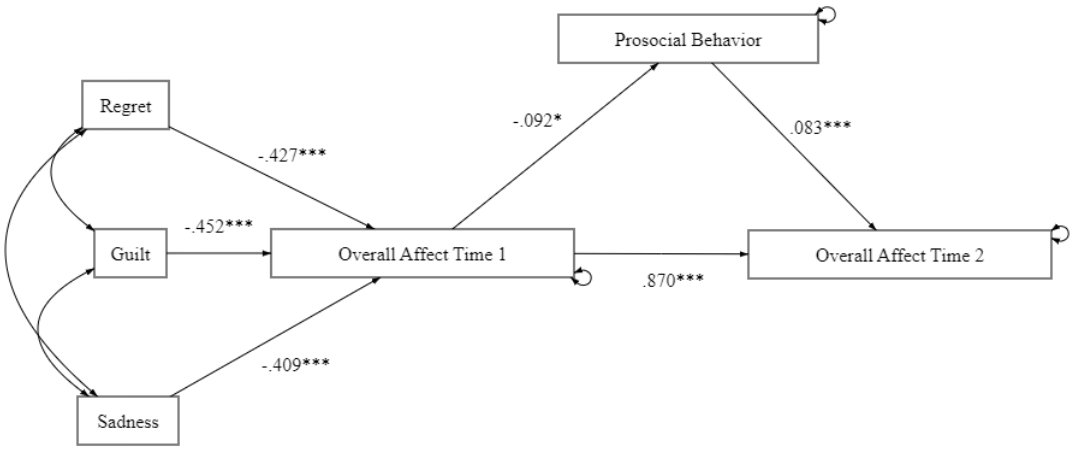
Study 1 and Study 2 Comparison of Emotion Condition and Sample on Prosocial Behavior



Note. Prosocial behavior is measured in units of total number of clicks, where each click is equivalent to one cent, up to a total possible number of one-cent clicks of $1.00.

Figure 11

Study 2 Path Model for SEM



Note. * $p < .05$, *** $p < .001$. Overall affect at time 1 and time 2 measured from a range of 0 to 100 where smaller number indicate more negative affect and higher numbers indicate more positive affect. Prosocial behavior is measured in units of total number of clicks, where each click is equivalent to one cent, up to a total possible number of one-cent clicks of $1.00.

Appendix B. Results Tables

Table 1

Mean Comparisons for Regret Intensity in Study 1

Emotion Condition	*M*	*SD*
Control	1.78	1.32
Regret	5.68	1.54
Guilt	5.16	1.76
Sadness	4.17	2.06

Note. Regret intensity is measured on a Likert-type scale from 1 to 7, where 1 is the least intense and 7 is the most intense.

Table 2

Mean Comparisons for Guilt Intensity in Study 1

Emotion Condition	*M*	*SD*
Control	1.59	1.13
Regret	4.85	2.04
Guilt	5.37	1.56
Sadness	3.23	2.15

Note. Guilt intensity is measured on a Likert-type scale from 1 to 7, where 1 is the least intense and 7 is the most intense.

Table 3

Mean Comparisons for Sadness Intensity in Study 1

Emotion Condition	*M*	*SD*
Control	1.97	1.46
Regret	4.95	1.90
Guilt	4.80	1.93
Sadness	5.97	1.32

Note. Sadness intensity is measured on a Likert-type scale from 1 to 7, where 1 is the least intense and 7 is the most intense.

Table 4

Descriptive Statistics and Correlations for Study 1 Variables

Variable	*n*	*M*	*SD*	1	2	3	4
1. Prosocial Behavior	470	32.78	38.68	__	-.031	.004	.018
2. Regret	465	4.20	2.26	-.031	__	.754**	.624**
3. Guilt	465	3.77	2.30	.004	.754**	__	.538**
4. Sadness	465	4.42	2.23	.018	.624**	.538**	__

Note. ** $p < .01$ (two-tailed). Prosocial behavior is measured in units of total number of clicks, where each click is equivalent to one cent, up to a total possible number of one-cent clicks of $1.00. Regret, guilt, and sadness intensity are measured on a Likert-type scale from 1 to 7, where 1 is the least intense and 7 is the most intense.

Table 5

Study 1 Multiple Regression of Emotion Intensity on Prosocial Behavior

Effect	Estimate	*SE*	95% CI		*p*
			LL	*UL*	
Regret	-1.85	1.32	-4.44	.747	.162
Guilt	.937	1.20	-1.42	3.29	.435
Sadness	.957	1.04	-1.09	3.00	.358

Note. Prosocial behavior is measured in units of total number of clicks, where each click is equivalent to one cent, up to a total possible number of one-cent clicks of $1.00. CI = confidence interval, LL = lower limit, UL = upper limit.

Table 6

Mean Comparisons for Regret Intensity in Study 2

Emotion Condition	*M*	*SD*
Control	1.60	1.24
Regret	5.82	1.29
Guilt	5.53	1.46
Sadness	3.96	2.15

Note. Regret intensity is measured on a Likert-type scale from 1 to 7, where 1 is the least intense and 7 is the most intense.

Table 7

Mean Comparisons for Regret Intensity Across Samples in Study 2

Sample	Emotion Condition	*M*	*SD*
Undergraduate	Control	1.82	1.30
Prolific	Control	1.39	1.24
Undergraduate	Regret	5.75	1.15
Prolific	Regret	5.89	1.41
Undergraduate	Guilt	5.06	1.57
Prolific	Guilt	6.03	1.14
Undergraduate	Sadness	3.58	2.00
Prolific	Sadness	4.34	2.25

Note. Regret intensity is measured on a Likert-type scale from 1 to 7, where 1 is the least intense and 7 is the most intense.

Table 8

Mean Comparisons for Guilt Intensity in Study 2

Emotion Condition	*M*	*SD*
Control	1.39	.952
Regret	4.94	1.93
Guilt	5.74	1.38
Sadness	3.36	2.10

Note. Guilt intensity is measured on a Likert-type scale from 1 to 7, where 1 is the least intense and 7 is the most intense.

Table 9

Mean Comparisons for Guilt Intensity Across Samples in Study 2

Sample	Emotion Condition	*M*	*SD*
Undergraduate	Control	1.57	1.11
Prolific	Control	1.21	.733
Undergraduate	Regret	5.14	1.88
Prolific	Regret	4.74	1.98
Undergraduate	Guilt	5.39	1.52
Prolific	Guilt	6.12	1.11
Undergraduate	Sadness	3.19	1.94
Prolific	Sadness	3.53	2.25

Note. Guilt intensity is measured on a Likert-type scale from 1 to 7, where 1 is the least intense and 7 is the most intense.

Table 10

Mean Comparisons for Sadness Intensity in Study 2

Emotion Condition	*M*	*SD*
Control	1.89	1.43
Regret	5.02	1.89
Guilt	5.13	1.89
Sadness	6.07	1.32

Note. Guilt intensity is measured on a Likert-type scale from 1 to 7, where 1 is the least intense and 7 is the most intense.

Table 11

Mean Comparisons for Overall Empathy Intensity in Study 2

Emotion Condition	*M*	*SE*
Control	3.57	.169
Regret	2.87	.175
Guilt	3.48	.172
Sadness	3.98	.168

Note. Overall empathy intensity is measured on a Likert-type scale from 1 to 7, where 1 is the least intense and 7 is the most intense.

Table 12

Mean Comparisons for Overall Distress Intensity in Study 2

Emotion Condition	*M*	*SE*
Control	1.74	.147
Regret	4.12	.150
Guilt	4.27	.146
Sadness	5.05	.145

Note. Overall distress intensity is measured on a Likert-type scale from 1 to 7, where 1 is the least intense and 7 is the most intense.

Table 13

Mean Comparisons for Overall Centrality of Event to Self in Study 2

Emotion Condition	*M*	*SE*
Control	1.67	.097
Regret	3.06	.097
Guilt	2.42	.094
Sadness	3.30	.093

Note. Centrality of event to self is measured on a Likert-type scale from 1 to 5, where 1 is Strongly Disagree and 5 is Strongly Agree.

Table 14

Descriptive Statistics and Correlations for Study 2 Variables

Variable	*N*	*M*	*SD*	1	2	3	4	5	6
1. Prosocial Behavior	489	29.43	37.221	__	.035	-.020	-.007	.122**	-.061
2. Regret	479	4.20	2.30	.035	__	.791**	.593**	-.023	.523**
3. Guilt	479	3.84	2.34	-.020	.791**	__	.551**	-.012	.517**
4. Sadness	479	4.53	2.29	-.007	.593**	.551**	__	.103*	.746**
5. Overall Empathy	475	3.49	1.90	.122**	-.023	-.012	.103*	__	.123**
6. Overall Distress	475	3.80	2.02	-.061	.523**	.517**	.746**	.123**	__

Note. * $p < .05$, ** $p < .01$ (two-tailed). Prosocial behavior is measured in units of total number of clicks, where each click is equivalent to one cent, up to a total possible number of one-cent clicks of $1.00. Regret, guilt, and sadness intensity are measured on a Likert-type scale from 1 to 7, where 1 is the least intense and 7 is the most intense. Overall empathy and distress intensity are measured on a Likert-type scale from 1 to 5, where 1 is strongly disagree and 5 is strongly agree.

Table 15

Study 2 Multiple Regression of Emotion Intensity on Prosocial Behavior

Effect	Estimate	*SE*	95% CI		*p*
			LL	UL	
Regret	2.97	1.31	.394	5.54	.024
Guilt	-1.65	1.23	-4.07	.770	.181
Sadness	.512	1.21	-1.87	2.89	.673
Overall Empathy	2.49	.920	.677	4.29	.007
Overall Distress	-2.65	1.30	-5.21	-.108	.041

Note. Prosocial behavior is measured in units of total number of clicks, where each click is equivalent to one cent, up to a total possible number of one-cent clicks of $1.00. Regret, guilt, and sadness intensity are measured on a Likert-type scale from 1 to 7, where 1 is the least intense and 7 is the most intense. Overall empathy and distress intensity are measured on a Likert-type scale from 1 to 5, where 1 is strongly disagree and 5 is strongly agree. CI = confidence interval, LL = lower limit, UL = upper limit.