

ESCAPING AFFECT: HOW MOTIVATED EMOTION REGULATION DRIVES THE
COLLAPSE OF COMPASSION

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ABSTRACT

C. DARYL CAMERON: Escaping Affect: How Motivated Emotion Regulation Drives the Collapse of Compassion
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In crisis situations, people tend to feel more compassion toward one victim than toward multiple victims (e.g., Slovic, 2007). Many have suggested that this collapse of compassion is an invariant feature of our affect systems, that emotions are not triggered as strongly by aggregates. The current studies suggest instead that the collapse of compassion is driven by motivated emotion regulation. People might view their emotion toward mass suffering as overwhelming or costly, and take steps to eliminate it. In the first study, subjects who did not expect to provide aid displayed more compassion toward eight children than toward one child. But when subjects did expect to provide aid, the collapse of compassion emerged, suggesting that it is driven by expected cost. In the second study, the collapse of compassion emerged over time, and only for those who could skillfully regulate their emotions. The implications of these studies are discussed.

TABLE OF CONTENTS

LIST OF TABLES.....	iv
LIST OF FIGURES	v
Chapter	
I. INTRODUCTION.....	1
II. EXPLAINING THE COLLAPSE OF COMPASSION.....	4
III. REGULATION MOTIVES.....	7
IV. REGULATION SIGNS.....	10
V. THE PRESENT RESEARCH.....	13
VI. STUDY 1.....	16
Method.....	17
Results.....	22
Discussion.....	33
VII. STUDY 2.....	35
Method.....	36
Results.....	40
Discussion.....	45
VIII. GENERAL DISCUSSION	48
IX. FUTURE DIRECTIONS AND CONCLUSION	53
REFERENCES	58

LIST OF TABLES

Table

1. Means and Standard Deviations for Other Variables, Study 1 65
2. Means and Standard Deviations for Regulation Skill Variables, Study 2 66

LIST OF FIGURES

Figure

1.	Hypothesized model of the collapse of compassion.....	67
2.	Images of crisis victims	68
3.	Unrelated emotional images, Study 1	69
4.	Compassion by help request and number of victims, Study 1	70
5.	Emotion numbing by help request and number of victims, Study 1.....	71
6.	Regulatory effort by help request and number of victims, Study 1	72
7.	Online emotion rating by number of victims, Study 2	73
8.	Online emotion rating by number of victims and DERS, Study 2	74
9.	Online emotion rating by number of victims and DTS, Study 2	75
10.	Interpersonal sensitivity by number of victims, Study 2	76

CHAPTER 1

INTRODUCTION

Joseph Stalin is famously believed to have said that “one death is a tragedy; one million is a statistic.” Though this oft-cited quotation seems to imply that mass suffering is impossible to comprehend on an emotional level, it also suggests a darker possibility: that the scope of mass suffering licenses the elimination of moral emotions. When faced with tragedy on an unspeakable scale, the safest thing to do might be to turn away, rather than to feel the true weight of emotion. Recent times are certainly no stranger to large-scale tragedies. Hurricanes Katrina and Ike destroyed countless lives, and the country watched as individuals struggled to survive. Media coverage of these tragedies tended to focus on such single identifiable victims, eliciting sympathy and compassion in those watching at home. This approach makes sense from a practical standpoint, given that such emotions are powerful triggers for pro-social behavior (Batson, 1990; Batson, 1991; Eisenberg, 2000). What would happen, though, if people were shown the full scope of such tragedies? Is mass suffering really felt as tragic, or are those numbers just beyond our moral emotional reach?

Most people would probably say that each human life has irreducible value. If so, then surely as the number of lives in a crisis increases, we should feel worse and do more to help. Economic theorists have argued that emotions and helping behavior should track the number of people in need of help; we should respond more strongly when more people are suffering, whatever the context (Schelling, 1968). And common-sense intuitions track this

prediction about how we would and should respond toward such crises (Dunn & Ashton-James, 2008). Yet when psychologists measure actual emotion and helping behavior, a different story emerges. People tend to experience strong emotion in response to one individual in need of aid, and this translates into a strong desire to help. But when there are many individuals, people actually feel *less* emotion and act less charitably. Intuitive predictions aside, people appear to neither feel nor help in proportion to the number of those in need.

A growing number of studies attest to this claim. Kogut and Ritov (2005, Study 3) presented participants with images of either one child or eight children, and asked them to report how much distress they felt and how much money they would donate. Distress and donation were both significantly higher toward one child than eight children. This study suggests that individual victims elicit more intense emotions and greater helping behavior than multiple victims. A recent study by Vastjfall, Peters and Slovic (in preparation; as cited in Slovic, 2007) demonstrates the power of this effect. They split participants into three groups, informing one group about a starving child named Rokia, another group about a starving child named Moussa, and the final group about both children together. Participants were asked how much money they would donate, as well as how positively they felt about the donation. Participants felt less positively about the donation and donated less in the combined condition, relative to the two individual-child conditions. Slovic (2007) concluded from this data that our emotions begin to shut down as soon as we consider more than one individual, with drastic effects on our decisions to help.

This disconnect between emotion and number has been termed “the collapse of compassion” (Slovic, 2007). The collapse of compassion is important theoretically because it

describes a case in which emotion-based moral behavior deviates from logical moral principles. It is important for helping behavior because it means that large-scale tragedies in which the most victims are in need of help will ironically be the least likely to motivate helping. The collapse of compassion presents a psychological puzzle because it is still unclear *why* the collapse occurs. This thesis will explore the psychological reasons for the collapse of compassion.

CHAPTER 2

EXPLAINING THE COLLAPSE OF COMPASSION

It is clear that people's emotions typically respond less to mass suffering than to an individual's suffering, but it is still unclear *why* this is the case, or *how* this is implemented psychologically. In his paper summarizing the extant research on the collapse of compassion, Slovic (2007) seems to suggest two different explanations. On the one hand, he suggests that aggregates do not trigger much emotion, so that the collapse of compassion is due to natural constraints on affective processing. Yet he then speculates that people "turn off" their emotions, which if more than a rhetorical flourish, implies that people actively disengage or dampen their emotions in response to mass suffering.

The affective constraints account assumes that our affect systems are not tuned to respond as strongly to multiple victims as to single victims. Invoking dual-process theories of social cognition, this account suggests that aggregates are represented differently than single victims and do not trigger as much intuitive, automatic affect. For instance, Kogut and Ritov (2005) have argued that individual-level representations are more concrete, focus more attention, and trigger more distress, whereas representations of groups are abstract, less salient, and less emotionally charged (see also Hamilton & Sherman, 1996; Trope & Liberman, 2003). Also, individual-level representations receive more elaborative processing, which encourages perspective-taking and greater empathy (Hamilton, Sherman, & Maddox, 1999; Sherman, Beike, & Ryalls, 1999). Similarly, Dickert and Slovic (2009) have argued

that attention toward a single victim is inhibited by the simultaneous presence of other victims, which dampens overall emotional response. Finally, Loewenstein and Small (2007) have outlined two routes to pro-social behavior – controlled deliberation and intuitive sympathy – and suggested that controlled deliberation usually takes a backseat role to the more powerful decisional influence of affect.

These illustrations of the affective constraints account assume that most moral decisions are driven by gut-level affect (Haidt, 2001). This can prove problematic, given that intuitive affect is insensitive to higher numbers (Fetherstonhaugh, Slovic, Johnson, & Friedrich, 1997; Hsee & Rottenschreith, 2004), yet sensitive to non-moral factors such as attention, vividness, novelty, and social proximity (Loewenstein & Small, 2007). If the affect system does not respond as strongly to multiple victims as to single victims, then utilizing affect as a heuristic cue (e.g. Loewenstein, Weber, Hsee, & Welch, 2001; Slovic, Finucane, Peters, & MacGregor, 2002) in moral decision-making might lead to startling deviations from normative principles.

Even more striking, it is very hard to eliminate these biases, as deliberative attempts to correct these gut reactions backfire (Small, Loewenstein, & Slovic, 2007). For instance, providing people with information *about* the collapse of compassion effect only makes them feel less sympathy toward single victims, rather than increasing sympathy toward multiple victims (Small et al., 2007, Study 2). Priming a deliberative mindset has a similar effect, further suggesting the strength of the constraints on affective processing (Small et al., 2007, Study 4). Although this might seem sub-optimal given modern moral principles, it makes evolutionary sense for our emotions to be tuned to small numbers, given the small-group lifestyle of our ancestors (Penner, Dovidio, Piliavin, & Schroeder, 2005). And the ability to

actually feel the full scope of a mass calamity might be psychologically maladaptive. At first glance, these reasons seamlessly fit together to suggest that the collapse of compassion is due to adaptive constraints on affective processing.

Yet in suggesting that the collapse of compassion might be due to people “turning off” their affect, Slovic (2007, p. 90) seems to tacitly imply a second kind of account that stands in marked contrast to the affective constraints position. This second account suggests that the collapse of compassion is due to the motivated avoidance of emotion toward mass suffering. Some have speculated that when faced with unwanted sympathy and compassion, people might take steps to eliminate their emotions, such as avoiding the situation, distancing themselves from the victims, or by engaging in a generalized numbing of their affect systems (Hodges & Klein, 2001; Hoffman, 2000). Despite such speculations, these processes have not been spelled out in much detail. If the collapse of compassion is driven by the motivated down-regulation of emotion toward multiple victims, then it is important to know the specific motives leading to such regulation, and to find specific ways to infer that this regulation has taken place. Given the dangers of ad hoc explanation in positing emotion regulation and (limits on) emotion experience as opposing accounts for the same outcome (Gross, 1998)—reduced compassion toward multiple victims—it is critical to triangulate my regulation account based upon meaningful motivators of and indicators for emotion regulation.

This thesis will evaluate both explanations for the collapse of compassion. One possibility is that multiple victims simply do not evoke much emotional response. The other possibility is that multiple victims lead people to actively regulate their emotions so as to avoid feeling too much for the many.

CHAPTER 3

REGULATION MOTIVES

One interpretation of the line “If I look at the mass, I will never act” is that feeling proportional levels of affect toward mass suffering is aversive and paralyzing. If people expect to feel overwhelming levels of negative affect toward mass suffering (Dunn & Ashton-James, 2008), they might be motivated to avoid that experience. There are theoretically promising suggestions along these lines in the related field of empathy and helping behavior. Hoffman (2000) has discussed empathic over-arousal, the vicarious experience of overwhelming emotion in response to a single target of aid. Empathic over-arousal is conceptually similar to personal distress, the egoistic complement to empathy (Batson, Fultz, & Schoenrade, 1987; Batson et al., 1983; Eisenberg, 2000). Such over-arousal leads people to actively disengage from the target of aid, decreasing compassion and helping behavior. In short, people might try to get rid of their emotions if they think that they are too much to handle.

Empathic over-arousal suggests that compassion toward multiple victims might be seen as psychologically costly. But it might also be seen as financially costly, and this could motivate people to avoid the triggers of such expensive emotion (Hodges & Klein, 2001). For instance, Shaw, Batson and Todd (1994) have investigated empathy avoidance, “the motive to forestall feeling for another in order to escape the motivational consequences of those feelings” (p. 879). Their studies show that empathy avoidance depends on awareness of an

opportunity to help and perceiving that opportunity as high in cost. They informed participants that they would be asked to help a homeless man at either high (5-6 hours of helping) or low (1 hour) personal cost. Participants were then given the opportunity to choose between hearing one of two appeals from the homeless man, which were described as either high or low in emotional impact. Those who expected that helping would entail high personal cost chose to hear the low-impact appeal. When helping is foreseen as costly, people appear to actively avoid feeling the emotions they know will compel them to help. It is worth noting that these studies have only looked at cost of emotions toward one victim. When faced with the prospect of mass suffering that requires a greater outlay of aid, people might find their emotions especially costly, and take steps to eliminate them. Thus, the belief that helping many victims would be costly or emotionally overwhelming might contribute to the collapse of compassion.

Of course, these motives need not work in isolation from each other. It might be that the collapse of compassion is driven by the joint influence of psychological and financial motives. As an example of how these motives could work together, consider Dovidio and colleagues' (1991) arousal: cost-reward model of helping behavior. This model posits that when people view a crisis situation they experience aversive physiological arousal, which then motivates them to take steps to reduce it. How they reduce this arousal is a function of two kinds of cost: cost of helping (e.g. money or time spent) and cost of not helping (e.g. guilt). Dovidio and colleagues (1991) have argued that if costs for helping are low and costs for not helping are high, then people will step in to help. But if both kinds of cost are high, people might redefine the situation and rationalize away any need to help. They would re-appraise the costs for not helping as low rather than high, avoiding any costs for helping and

relieving their negative arousal. The kinds of situations that elicit the collapse of compassion – such as genocide and natural disasters – fall into this category. The cost of providing aid is substantial given the magnitude of the crisis, and the cost to the victims if they do not receive aid is massive. On this model, these are exactly the kinds of situations where we would expect motivated emotion regulation.

CHAPTER 4

REGULATION SIGNS

Thus far, it appears that mass suffering would provide people with at least two motives to reduce their emotions: aversive negative arousal and financial cost. There are a number of indicators that can be used to infer that such regulation has taken place. Three will be emphasized in the present thesis: self-reported regulatory effort, psychological distance, and emotion numbing. Effort is fairly straightforward: people might simply report engaging in more effortful regulation after they have actually engaged in regulation. Distance and numbing are more complex, and have been previously discussed as mechanisms by which people eliminate overwhelming empathic emotion (Hodges & Klein, 2001; Hoffman, 2000). Here they will be considered as indicators that regulation has taken place.

Psychological distance. If people eliminate their emotions toward multiple victims, then they might feel more psychologically distant from the victims afterward. Psychological distance can be conceived along multiple dimensions – spatial, emotional, and social – and these various dimensions are inter-connected. For instance, Williams and Bargh (2008) primed participants with points on a coordinate plane that were either close together, far apart, or intermediate in distance. Greater spatial distance led participants to express greater emotional distance from their family and hometown. Similarly, construal level theory suggests that spatial distance leads to more abstract processing of social targets, which can lead to emotional distance (Fujita et al., 2006; Henderson, Fujita, Trope, & Liberman, 2006).

This emotional and social distance has furthermore been shown to preclude compassion and aid (Cialdini, Prosser, Evans, & Reicher, 1997; Hoffman, 2000; Jones & Rachlin, 2005; Levine et al., 2005; Small & Simonsohn, 2007). Though distance can reduce compassion, the current study tested the reverse causal path: whether the collapse of compassion would create psychological distance from the victims. When faced with mass suffering they cannot avoid, people might find ways to eliminate their emotions toward suffering victims, which would in turn create greater psychological distance.

Emotion numbing. Aside from effort and distance, emotion numbing is a third potential indicator of emotion regulation. Recent research suggests that emotion regulation is a rather crude instrument, in that regulating emotion toward one target ends up numbing other, unrelated emotion experience. Recent research has investigated affective working memory, the capacity to maintain multiple emotional experiences simultaneously (Mikels, Reuter-Lorenz, Beyer, & Fredrickson, 2008). They had participants maintain affective experience from an initial image for a period of several seconds, before comparing it to the feeling aroused by a new image. Participants were presented with a new distracter image during the retention interval of this affect maintenance task, and told to down-regulate emotion resulting from the new image. This new down-regulation interfered with the maintenance required by the affect maintenance task, leading to worse performance. These results suggest a limited ability to regulate two sources of affect simultaneously: regulating one emotion entails regulating them all. As mentioned above, these findings imply that regulating one emotion interferes with other (and logically unrelated) emotion experiences. One byproduct of down-regulating emotions appears to be a numbing of other kinds of affective experience.

People who are motivated to reduce their emotions toward multiple victims might start down-regulating their emotions. Following Mikels and colleagues (2008), this regulation could be caught in action by presenting unrelated emotional items during the regulation process. If people are regulating, then they may show reduced emotion toward these items. People would be “turning off” their affect more generally, as a side effect of regulating their emotion toward mass suffering. Though emotional numbness has previously been shown to preclude compassion (Bushman & Anderson, 2009; DeWall & Baumeister, 2006), what is being proposed here is slightly different. It is not that the emotional numbness per se is responsible for the collapse of compassion; rather, emotion regulation is responsible for the collapse of compassion, with numbing of other emotion experience as a byproduct.

Summary. Thus far, I have been considering whether the collapse of compassion might be driven by a motivated emotion regulation process. I have proposed two possible motives for engaging in down-regulation toward multiple victims: aversive levels of arousal and high financial cost. And I have considered three possible indicators of this regulation: perceived effort, psychological distance from the victims, and numbing of unrelated emotional experience. The most compelling way to show that the collapse is driven by motivated regulation would be to identify conditions where people are *not* motivated to avoid their emotional experience. If the collapse of compassion disappears when these motives are lacking, then the motivated regulation account will have firmer ground on which to stand.

CHAPTER 5

THE PRESENT RESEARCH

The strongest way to test the motivated regulation claim would be to remove the expectation of having to help. If the motivation to avoid high costs drives the collapse of compassion, then removing the perception of high cost should eliminate or even reverse the effect. After citing the line, “If I look at the mass, I will never act”, Slovic (2007) suggests that emotion is the hidden connector between looking at the mass and action. But if people think they won’t have to act, will they let themselves look at the mass, and feel? It is noteworthy that one recent study that did not ask people to help did not show the collapse of compassion (Dunn & Ashton-James, 2008). Also, in the third condition of Shaw and colleagues (1994), participants who had *not been told* to expect an aid appeal were less likely than other groups to avoid emotionally impactful appeals. Whereas being asked to help might facilitate the collapse of compassion, not being asked might ironically counteract it. This would further justify the claim that the collapse of compassion is a tactical piece of emotion regulation that occurs only when emotions are seen as costly.

If the motivated regulation account is borne out, this would run counter to prior theoretical and methodological assumptions in the collapse of compassion literature. Rather than representing the starting (and stubborn) default on emotional experience, the collapse of compassion would represent the final outcome of an emotion regulation process. The current

thesis aims to synthesize the foregoing strands of research by providing a more process-based explanation of what happens during the collapse of compassion.

The model in Figure 1 presents the hypothesized processes underlying the collapse of compassion. The “collapse of compassion” can be described as the entire process seen in the model. The core of the model is presented in black, moderators are presented in green, and outcomes (aside from the critical outcome, compassion) are presented in gray. When people perceive mass suffering, they should feel a need to eliminate aversive emotional experience. This motivation to avoid negative affect should be moderated by whether people perceive that affect as financially costly. If affect is seen as costly, people should engage emotion regulation strategies. This emotion regulation should lead to lower self-report ratings of compassion toward victims. If affect is not seen as costly, then people should not regulate, precluding the collapse of compassion. Trait interpersonal sensitivity should also influence whether people are motivated to reduce their emotions (Graziano et al., 2007; Reed et al., 2009). As for the kind of emotion regulation engaged, the current investigation provisionally assumes that people would apply some form of conscious, deliberate emotion regulation (e.g., Koole, 2009); the studies are agnostic as to more specific strategies (like re-appraisal or suppression) that people might utilize. Three indicators of emotion regulation – aside from changes in compassion – are regulatory effort, distance, and emotion numbing. Finally, regulation strategies should only translate into the collapse of compassion given adequate time and regulation skill. If time and skill are lacking, regulation strategies will be unable to create the collapse of compassion.

In two studies, I attempted to show that the collapse of compassion is the result of motivated emotion regulation. Across both studies, the goals were to show that motivation

played an essential role in whether the collapse of compassion emerged, and that emotion regulation translated these motives into the collapse of compassion. Study 1 focused on the motivational piece of the model described above: when presented crisis information about either one or eight victims, does the relative amount of compassion felt toward those victims depend on the expectation of having to help? I predicted that the collapse of compassion between one and eight victims would only emerge when people expected to have to help, suggesting that they were motivated to avoid high costs. Study 1 included three indicators of emotion regulation – regulatory effort, psychological distance, and emotion numbing – to bolster the inference that the collapse of compassion was driven by motivated emotion regulation.

Study 2 focused more on the regulation piece of the model, holding the motivational element constant and testing moderators of the regulation process. In this study, all participants expected to help one, four, or eight victims. What was unique was the inclusion of a dynamic measure of affect, something previously unseen in collapse of compassion research. If the collapse of compassion depends on emotion regulation, then stark differences by number of victims might only emerge over time as people use controlled resources to modify their natural emotional reactions (e.g. Greene et al., 2001). Showing this critical moderation by time would usefully avoid the conflation of the outcomes typically reported on retrospective rating scales with the processes involved. Study 2 also included trait measures of emotion regulation ability, also unique given the dearth of individual difference measures in past studies. Showing that the collapse of compassion emerges only over time and only for those who are good emotion regulators would provide evidence in favor of a motivated regulation account.

CHAPTER 6

STUDY 1

Study 1 investigated whether the collapse of compassion results from a motivated emotion regulation process. More specifically, would removing the motivation to regulate reverse the collapse of compassion? At the beginning of the experiment, participants were shown images of and given information about one or eight children in Darfur. This preview was meant to create a first wave of emotion experience. Participants were then told that later in the experiment, they would be asked to report either 1) their feelings toward these children or 2) their feelings toward these children *and* how much money they would be willing to donate. These different expectations were designed to create distinct emotion regulation motives. When participants expected to have to help, I predicted the collapse of compassion pattern: that those who saw one victim would report more compassionate emotion than those who saw eight victims. But when participants did not expect to help, I predicted the reverse: that those who saw eight victims would report more compassionate emotion than those who saw one victim. Put another way, expecting to help would lead people to down-regulate emotion toward eight victims. Rather than reflecting an invariant feature of the affect system, the collapse of compassion would instead be due to the motivated avoidance of perceived high costs.

Study 1 also investigated three possible indicators of emotion regulation: regulatory effort, psychological distance and numbing. I predicted that when participants expected to

donate to eight victims, they would try to eliminate their emotional experience. The simplest indicator of emotion regulation would be for participants to report having exerted effort and regulation. Participants should thus report having exerted more effort and regulation when they expected to help eight victims than when they expected to help one victim.

The distancing account suggests that participants would construe the victims as being at a greater psychological distance, and in particular more emotional distance (Williams & Bargh, 2008). As an indicator of emotion regulation, distance should track the collapse of compassion. Participants who expected to help eight victims would need to show greater distance from these victims than would participants who expected to help one victim.

The numbing account suggests that any emotion regulation process directed toward the images of the children would interfere with immediately subsequent emotional experience. After the preview phase of the experiment – where participants were informed about the Darfur children and told what they would be asked to do later on – they were asked to rate their emotions toward a series of unrelated emotion stimuli. For numbing to be an effective indicator of emotion regulation, these emotional responses would need to track the collapse of compassion. Participants who expected to help eight victims would have to show more numbing than those who expected to help one victim. Study 1 included four classes of images – sympathetic, positive-valence, negative-valence, and neutral – to examine the scope of any numbing effect that might emerge. Numbing toward all classes of emotional images would be especially striking, as it would provide evidence for the claim that the affect system – in general – is being shut down as part of a motivated emotion regulation process.

Method

Participants

One hundred and twenty college students (84 females) from the University of North Carolina at Chapel Hill participated for course credit. Data from an additional 15 participants was collected on the last day of the academic year. Experimenters noted high rates of off-task behavior during this final day, and so these data were excluded from analysis.¹ Also excluded were data from 2 participants whose responses were more than 2.5 standard deviations below the mean on the “Compassion” scale (see below).

Design

Participants were randomly assigned to read about one or eight children from Darfur. Half of these participants were given the expectation that they would have to report a donation amount later in the experiment, whereas the other half were told that they would just be asked to rate their emotions toward the children. The critical dependent variable was self-reported emotion toward the children as measured by the Compassion scale.

Procedures

Participants were seated at individual computer workstations and run in sessions of up to six at a time. After an introductory slide, all participants saw the following: “In the West Darfur region of Sudan, there has been a civil war raging for the past four years. The Sudanese government and allied militias have been in intense conflict with various rebel groups. This conflict has resulted in unchecked violence against civilians, who have been killed, abducted, or driven from their homes. These civilians suffer from malnutrition, unsanitary living conditions, and are at risk for a variety of deadly diseases such as malaria, dysentery, and cholera. Here is a picture [are pictures] of one child [eight children] from Darfur.” Care was taken not to emphasize any statistical facts about the Darfur crisis that

¹ When these participants were included for analysis, the critical interaction between help request and number of victims on compassion was still significant, $F(1, 135) = 3.85, p = .05$.

would undermine emotional response (Small et al., 2007), while presenting a realistic description of the situation. Depending upon victim condition, this textual information was accompanied by either one child image or eight child images. Each image was accompanied by a fictional name and age. Participants in the one victim condition always saw the same child image (“Daoud”). These images were drawn from online sources and can be seen in Figure 1. The image(s) and text were on screen for one minute.

After this point, participants were given the donation manipulation. In the donation condition, they were told the following: “Later in the experiment, you will be asked to rate your emotions toward this child [these children] and report how much money you would be willing to donate. You will now proceed to the next part of the experiment, which involves rating how you feel toward a series of images. Remember that later in the experiment, you will be asked to rate how you feel toward the child [children] you saw and how much you would be willing to donate.” In the no donation condition, they were told the following: “Later in the experiment, you will be asked to rate your emotions toward this child [these children]. You will now proceed to the next part of the experiment, which involves rating how you feel toward a series of images. Remember that later in the experiment, you will be asked to rate how you feel toward the child [children] you saw.”

Participants were then asked to rate their emotional responses toward a series of twelve unrelated images (see Figure 2). The images were presented in random order, and for each image participants were asked to rate the extent to which they felt the following five emotions (on a 7-point Likert-type scale from 1 = Not at all to 7 = Extremely): happiness, amusement, disgust, sadness, and sympathy. There were four categories of images, represented by three images each: positive-valence, negative-valence, sympathetic, and

neutral-valence. Ten of these images were drawn from the International Affect Picture System (IAPS; Lang, Bradley, & Cuthbert, 1999). The other two images (“Sad Dog” and “Sad Child”) were drawn from online sources. The ten images from the IAPS were chosen to be clearly positive or negative in their respective valence. The normed pleasantness ratings for the unpleasant images, on a scale from 1 (very unpleasant) to 9 (very pleasant), were as follows: Roach (2.46), Bomb (2.96), and Ship (2.48). Ratings for pleasant images were: Money (7.91), Puppies (8.34), and Ski (7.57). Ratings for neutral images are: Hammer (4.95), Hydrant (5.24), and Lamp (4.87). And for the one sympathetic image from IAPS: Soldier (2.21).

Participants then saw the same Darfur information and image(s) from earlier for a period of one minute. Participants then completed a nine-item “Compassion” scale (7-point Likert-type from 1 = Not at all to 7 = Extremely) measuring help-related feelings toward the target(s) of aid: 1) How sympathetic do you feel toward the child [children]? 2) How warm do you feel toward the child [children]? 3) How compassionate do you feel toward the child [children]? 4) How touched were you by the child [children]? 5) How urgent do the needs of the child [children] in Darfur seem? 6) To what extent do you feel that it is appropriate to give money to aid the child [children]? 7) How much do you value the welfare of the child [children] whose picture(s) you saw? 8) How important is it to you that this child [these children] whose picture(s) you saw be happy? 9) How important is it to you that this child [these children] whose picture(s) you saw not suffer? Some of these items were drawn from past research (Dunn & Ashton-James, 2008; Small et al., 2007). At this point, participants in the donation condition were then asked the following: “How much money would you be willing to donate toward this child [these children] at this moment? Please type your answer

into the box below, on a scale ranging from \$0 to \$25.” Participants in the no donation condition were not asked this question. Hypothetical donation was chosen rather than actual donation because it has proven effective and psychologically realistic in previous work (Kogut & Ritov, 2005).

Participants then completed an eight-item “Distance” scale (7-point Likert-type scale from 1 = Not at all to 7 = Extremely): 1) How close do you feel to the child [children] in Darfur? (reverse-coded) 2) How distant do you feel from the child [children] in Darfur? 3) To what extent do you feel like you are physically far away from the child [children] in Darfur? 4) How much do you feel like the child [children] in Darfur is [are] all the way across the world? 5) To what extent do you feel personally invested in the child [children] in Darfur? (reverse-coded) 6) To what extent do you feel a social connection to the child [children] in Darfur? (reverse-coded) 7) To what extent do you feel emotionally connected to the child [children] in Darfur? (reverse-coded) 8) How emotionally distant do you feel from the child [children] in Darfur?

Participants completed four questions measuring regulatory effort (7-point Likert-type from 1 = Not at all to 7 = Extremely): 1) Has this experiment been emotionally difficult for you? 2) Did you find that this experiment was tiring? 3) Did you feel like the experiment required a lot of effort to get through? 4) Did you find yourself trying to eliminate your emotions when you read about the situation in Darfur?

This was followed by a series of smaller scales measuring alternative motives for engaging in emotion regulation (all were 7-point Likert-type from 1 = Not at all to 7 = Extremely). Participants completed two questions measuring diffusion of responsibility: 1) How much do you feel it is your moral responsibility to help the child [children] in Darfur?

2) How much do you feel that others are responsible for helping the child [children] in Darfur? Participants completed two questions measuring perceived efficacy: 1) Do you think you would be effective in helping the child [children] in Darfur? 2) Do you think you would make a difference in helping the child [children] in Darfur? Participants completed two items measuring habituation to televised appeals for aid: 1) How often have you seen images of children in appeals for aid on TV? 2) To what extent do you feel accustomed to appeals for aid that use images of children? Participants were then asked a manipulation check question for the donation manipulation: How much did you expect us to ask you to donate money later in the experiment? Finally, participants were asked about their race and gender, and additional questions that will not be examined here.

Upon completing the experiment, participants were debriefed, provided with the opportunity to ask questions or express concerns, and thanked for their time.

Results

Manipulation check. A 2-way analysis of variance (ANOVA) was conducted to examine the effects of help request and number of victims on the item measuring expectation of help request. Subjects expected to help more in the help request condition ($M = 2.80$, $SD = 2.12$) than in the no request condition ($M = 2.25$, $SD = 1.80$), but this difference did not reach significance, $F(1, 120) = 2.31$, $p = .13$, $\eta^2 = .02$. There were no other effects.

Compassion scale. Does the expectation of having to help *create* the collapse of compassion? The 9 items of the compassion scale were averaged together (Cronbach's $\alpha = .81$). A 2-way between-subjects ANOVA was conducted to examine the effects of help request and number of victims on compassion. There were no significant main effects of help request, $F(1, 120) = 1.15$, $p = .29$, $\eta^2 = .01$, or number of victims, $F(1, 120) = .34$, $p = .56$, η^2

= .00. However, there was a significant interaction between help request and number of victims, $F(1, 120) = 4.61, p = .03, \eta^2 = .04$. The pattern of means for compassion by help request and number of victims is displayed in Figure 4. This interaction suggests that the difference in compassion toward one versus eight victims depends upon whether one expects to be asked to help those victims.

This significant interaction was probed using simple effects tests. The first way to probe these simple effects is to examine the effect of number of victims on compassion separately in the help request and no help request conditions. In the no help request condition, eight victims elicited significantly more compassion than one victim, $F(1, 59) = 3.87, p = .05, \eta^2 = .06$. In the help request condition, however, the number of victims had no significant effect on compassion, $F(1, 61) = 1.18, p = .28, \eta^2 = .02$. The second way to probe these simple effects is to examine the effect of help request on compassion separately in the one-victim and eight-victim conditions. In the one-victim condition, there was not a significant effect of help request on compassion, $F(1, 60) = .47, p = .50, \eta^2 = .01$. In the eight-victim condition, by contrast, subjects reported significantly greater compassion when they would not be asked to help than when they would be asked to help, $F(1, 60) = 6.76, p = .01, \eta^2 = .10$.

These analyses suggest that the collapse of compassion depends on the expectation of having to help. The first analysis shows that when participants did not think that they would have to help, they reported greater levels of compassion toward eight victims than toward one victim. But when they thought they would have to help, this pattern flipped and the collapse of compassion emerged (though it did not reach significance). Moreover, the second analysis shows that adding a help request did not impact levels of compassion toward one

victim, but it dramatically reduced levels of compassion toward eight victims. Together, these patterns support the basic hypothesis that the collapse of compassion is motivated by perceived cost.

Subsequent analyses focused on three possible indicators of emotion regulation: numbing of unrelated emotional experience, psychological distance from the victims, and self-reported regulatory effort. Finally, three alternative motivational explanations for the collapse of compassion were examined: diffusion of responsibility, perceived self-efficacy of helping, and habituation to aid appeals.

Emotion numbing. If this collapse of compassion was driven by emotion regulation, then this regulation might have bled over and numbed other emotion experience (Mikels et al., 2008). Emotional numbing would thus serve as an indicator of emotion regulation. Participants reported five different emotions (happiness, amusement, sadness, sympathy, and disgust) toward four different kinds of images (positive, negative, sympathetic, and neutral). Seven analyses were reported in increasing order of specificity: (1) all emotions toward all image types; (2) negative emotions toward all image types; (3) negative emotions toward negative emotional images; (4) negative emotions toward positive emotional images; (5) negative emotions toward sympathetic images; (6) sympathy toward all image types; and (7) sympathy toward sympathetic images. The first analysis asked the most general question of whether motivated emotion regulation would lead to a generalized shut-down of emotion experience. Subsequent analyses asked more targeted questions. Emotion regulation might cause reduction of negative emotions toward all image types, or more modestly, toward just negative, positive, or sympathetic emotional images. This would suggest a bleed-over of emotion regulation onto unrelated emotions. And emotion regulation might cause reduced

sympathy toward all image types, or just toward sympathetic images. This would indicate a bleed-over of emotion regulation onto other instances of the same sympathetic emotion. Importantly, I predicted that these numbing effects would track the collapse of compassion. Subjects who expected to help eight victims would show the least emotional experience toward unrelated images.

The first analysis averaged together all emotional responses toward all image types, as a general index of emotional response (60 items total; Cronbach's $\alpha = .90$). People who expected to help showed reduced overall emotion toward the unrelated images, though this effect was only marginally significant, $F(1, 120) = 3.50, p = .06, \eta^2 = .03$. Number of victims, on the other hand, did not significantly influence emotional response, $F(1, 120) = .23, p = .64, \eta^2 = .02$. Finally, there was a marginally significant interaction between help request and number of victims, $F(1, 120) = 2.83, p = .10, \eta^2 = .02$. Figure 5 displays the pattern of means by help request and number of victims. This interaction was probed by examining the effect of help request on emotional response for participants in the one-victim and eight-victim conditions, respectively. For participants in the eight-victim condition, there was not a significant effect of help request, $F(1, 60) = .02, p = .90, \eta^2 = .00$. But for participants in the one-victim condition, help request did significantly reduce overall emotional response, $F(1, 60) = 6.79, p = .01, \eta^2 = .11$. Contrary to the hypothesis, expecting to help one victim led to numbed emotions toward unrelated images, whereas expecting to help eight victims did not have this effect.

The next analysis focused more specifically on negative emotional responses (average of disgust and sadness) to all images. People who expected to help showed less negative emotion toward all of the unrelated images, $F(1, 120) = 6.15, p = .02, \eta^2 = .05$. There was no

effect of number of victims, $F(1, 120) = .76, p = .38, \eta^2 = .01$, but there was a marginally significant interaction between help request and number of victims, $F(1, 120) = 3.13, p = .08, \eta^2 = .03$. In the eight-victim condition, there was no effect of help request, $F(1, 60) = .25, p = .62, \eta^2 = .00$. But in the one-victim condition, there was such an effect, $F(1, 60) = 9.22, p = .004, \eta^2 = .14$. Expecting to help one victim led to reduced negative emotions toward all image types, but expecting to help eight victims did not. This pattern was similar to that for overall emotion toward all image types.

The third analysis examined negative emotional responses just toward negative emotional images (“Bomb”, “Roach”, and “Ship”). There were no main effects of help request, $F(1, 120) = 1.62, p = .21, \eta^2 = .01$, or number of victims, $F(1, 120) = .60, p = .44, \eta^2 = .01$, nor was there any interaction, $F(1, 120) = 1.05, p = .31, \eta^2 = .01$. Emotion regulation did not numb negative emotion toward specifically negative images. Notably, this finding stood in contrast to the effects for negative emotion toward all image types, suggesting that the latter effect might have been driven by changes in negative emotion toward other types of images.

The fourth analysis thus examined negative emotional responses toward positive emotional images (“Money”, “Puppies”, and “Ski”). People who expected to help showed a marginally significant decrease in negative emotion compared to those who did not expect to help, $F(1, 120) = 2.91, p = .09, \eta^2 = .03$. Number of victims did not significantly influence negative emotion toward positive images, $F(1, 120) = 1.56, p = .21, \eta^2 = .01$, nor was there a significant interaction between help request and number of victims, $F(1, 120) = .58, p = .45, \eta^2 = .01$. Expecting to help caused some decrease in negative emotions toward positive images.

The next analysis looked at negative emotional responses toward the final class of valenced images, sympathetic images (“Soldier”, “Sad Child”, and “Sad Dog”). Expecting to help significantly reduced negative emotion toward sympathetic images $F(1, 120) = 6.10, p = .02, \eta^2 = .05$. There was not any effect of number of victims, $F(1, 120) = .26, p = .61, \eta^2 = .00$, but there was a significant interaction between help request and number of victims, $F(1, 120) = 4.22, p = .04, \eta^2 = .04$. This interaction was probed by examining the effect of help request on negative emotional response for participants in the one-victim and eight-victim conditions, respectively. For participants in the eight-victim condition, there was not a significant effect of help request on negative emotion, $F(1, 60) = .10, p = .76, \eta^2 = .00$. But for participants in the one-victim condition, expecting to help significantly decreased negative emotion toward sympathetic images, $F(1, 60) = 9.36, p = .003, \eta^2 = .14$. In summary, the overall effect for negative emotion toward all image types appears to have been driven primarily by the more specific effect of reduced negative emotion toward sympathetic images.

Moving to a different kind of emotion, the sixth analysis focused on sympathy responses toward all images. There were no main effects of help request, $F(1, 120) = .88, p = .35, \eta^2 = .01$, or number of victims, $F(1, 120) = .07, p = .80, \eta^2 = .00$, nor was there any interaction, $F(1, 120) = .99, p = .32, \eta^2 = .01$. Even if participants down-regulated their sympathy and compassion toward multiple victims, this did not appear to generalize to other instances of the same emotion.

Finally, the last analysis looked at sympathy toward sympathetic images (“Soldier”, “Sad Child”, and “Sad Dog”). There were no main effects of help request, $F(1, 120) = .73, p = .40, \eta^2 = .01$, or number of victims, $F(1, 120) = .20, p = .66, \eta^2 = .00$, nor was there any

interaction, $F(1, 120) = .36, p = .55, \eta^2 = .00$. So even if participants were eliminating their compassion toward multiple victims, it did not carry over and numb sympathy toward sympathy-inducing images. This finding mirrored the pattern of sympathy toward all images.

Thus far, results suggest that expecting to have to help led to a generalized numbing of other emotional experience. Yet more specific analyses revealed a more complex picture. Rather surprisingly, there was not a numbing effect for sympathy, either in general or specific to the sympathetic images. And whereas there was a numbing effect for negative emotions in general, there was not a specific effect of negative emotions toward negative images in particular. Instead, this effect for negative emotions was driven by a reduction of negative emotions toward sympathetic images. Perhaps more importantly, the pattern for overall emotional experience did not fully track the collapse of compassion. The compassion pattern was driven by people reducing compassion specifically when they expected to help eight victims. The overall numbing pattern was driven by people reducing emotions regardless of number of victims. And more specific numbing patterns were driven by people reducing emotions when they expected to help *one* victim. Thus, emotion numbing may play a part in the collapse of compassion, but it cannot explain the full pattern.

Psychological distance. As the first indicator of emotion regulation, emotion numbing did not turn out as expected. The second indicator of emotion regulation was the psychological distance scale (Cronbach's $\alpha = .83$), which measured participants' felt distance from the victims they had seen. Participants who down-regulated their compassion toward multiple victims might have ended up showing more distance from these victims. I predicted that psychological distance would track the collapse of compassion: when participants expected to help, they would show greater distance from eight victims than from one victim.

Contrary to prediction, there were no significant main effects of help request, $F(1, 120) = .01, p = .94, \eta^2 = .00$, or number of victims, $F(1, 120) = .00, p = .96, \eta^2 = .00$, and no significant interaction effect, $F(1, 120) = .33, p = .57, \eta^2 = .00$. Mean values for distance by help request and number of victims are located in Table 1. Distance from the victims did not track the collapse of compassion; so even if participants regulated their emotions, distance was not an effective indicator of this process.

Effort. After emotion numbing and psychological distance, the final indicator of emotion regulation was the 4-item Effort scale (Cronbach's $\alpha = .60$), which measured participants' perceptions of their own effort, regulation, fatigue, and the emotional difficulty of the experiment. To act as an indicator for emotion regulation, effort would have to be the mirror image of the collapse of compassion. Participants would have to display the most effort when they expected to help eight victims.

There were no significant main effects of help request, $F(1, 120) = .93, p = .34, \eta^2 = .01$, or number of victims, $F(1, 120) = .64, p = .42, \eta^2 = .01$. There was, however, a significant interaction effect, $F(1, 120) = .46, p = .04, \eta^2 = .04$. Figure 6 displays the pattern of means by help request and number of victims. Simple effects analyses revealed that whereas there was no significant effect of help request in the one-victim condition, $F(1, 60) = .60, p = .44, \eta^2 = .01$, help request did significantly increase perceptions of effort in the eight-victim condition, $F(1, 60) = 5.62, p = .02, \eta^2 = .09$. Probed the other way, there was not a significant effect of number of victims in the no help request condition, $F(1, 59) = .81, p = .37, \eta^2 = .01$, but number of victims did increase perceptions of effort in the help request condition, $F(1, 61) = 4.72, p = .03, \eta^2 = .07$. In short, perceived regulatory effort was highest

when participants expected to have to help eight victims, further supporting the inference that motivated emotion regulation drives the collapse of compassion.

Further analyses examined the relationship between effort and the collapse of compassion. If effort was a proxy for motivated emotion regulation – if self-reported regulatory effort tracked actual emotion regulation in the face of victims – then it could have been responsible for changes in compassion ratings. Yet a Sobel test revealed that effort did not mediate the effect of help request and number of victims on compassion, $Z = 1.31$, $p = .19$. On the other hand, the impact of help request and number of victims on compassion might have mediated the effect on effort. Participants engaging in motivated emotion regulation might have noticed themselves doing so, inferring the most regulatory effort when they expected to help eight victims. Such an effect could also reflect post hoc justification, with participants having used effort as an excuse for the reduction in compassion toward eight victims in need of help. Yet this Sobel test was not significant, $Z = -1.30$, $p = .19$. The findings for compassion and effort appear to have been independent phenomena. Even so, there was an interesting parallel: participants reported the most regulatory effort when they expected to help eight victims, and the collapse of compassion was driven by participants reducing their emotions toward eight victims they expected to help.

In summary, there were mixed findings across three indicators of emotion regulation. Though expecting to help one victim caused numbing of unrelated emotions, this effect did not track the collapse of compassion. Contrary to prediction, psychological distance from the victims was not influenced by how many victims there were or whether help was requested. Finally, participants reported the most regulatory effort when they expected to help eight victims – a condition which should have been seen as especially costly – and which tracked

the simple effects analysis of the compassion findings. The next set of analyses investigated alternative motivations for engaging in emotion regulation.

Diffusion of responsibility. Were the compassion findings driven by perceptions of high cost, or by other motives? The first alternative considered here was diffusion of responsibility. Participants might have felt less morally responsible for helping eight victims than for helping one victim. But when the expectation to help was lifted – when responsibility did not have to translate into action – they might have felt less morally responsible for helping one victim than for helping eight. This line of argument is very similar to the argument developed for the role of high cost in motivating emotion regulation.

There were 2 items on the Diffusion scale ($r = .48$) measuring perceived personal responsibility to help and perceived responsibility of others to help. To compute diffusion of responsibility, participants' personal responsibility scores were subtracted from their scores for the responsibility of others. A higher score reflected a greater diffusion of responsibility. There were not significant main effects of help request, $F(1, 120) = 1.10, p = .30, \eta^2 = .01$, or number of victims, $F(1, 120) = 1.06, p = .31, \eta^2 = .01$, and there was no significant interaction effect, $F(1, 120) = .78, p = .38, \eta^2 = .01$. Mean values for diffusion of responsibility by help request and number of victims are located in Table 1. Diffusion of responsibility did not change depending upon whether help was expected or the number of victims involved. Compassion, on the other hand, was influenced by these factors, suggesting that diffusion of responsibility did not play a prominent role in the collapse of compassion.

Efficacy. Another alternative motivation was perceived self-efficacy, which was measured by the 2-item Efficacy scale ($r = .60$). One common justification for failing to help is that any help would just be a “drop in the bucket”, and that it would not make a substantive

difference to the lives of those in need. Participants might have down-regulated their emotions because these emotions were seen as useless, leading to the collapse of compassion. Were this the case, there would have to be a similar pattern for efficacy as for the compassion findings. Yet there were not significant main effects of help request, $F(1, 120) = 1.10, p = .30, \eta^2 = .01$, or number of victims, $F(1, 120) = .70, p = .70, \eta^2 = .01$, and there was not a significant interaction effect, $F(1, 120) = .23, p = .63, \eta^2 = .00$. Mean values for efficacy by help request and number of victims are located in Table 1. Perceived self-efficacy did not change when help was requested or by the number of victims involved, suggesting that it was not the motivation behind the collapse of compassion.

Habituation. The last motivational alternative was habituation, or how often and accustomed participants felt to appeals for aid. This was measured by the 2-item Habituation scale ($r = .15$). Participants might be expected to be most habituated to appeals for aid involving multiple children, like the kinds of appeals seen on television advertisements. Assuming that habituation leads people to either feel less or more often engage in motivated emotion regulation, then habituation would have to show the mirror image pattern of the compassion findings: more habituation toward one victim than toward eight victims when help was not expected, and more habituation toward eight victims than one victim when help was expected. Yet there were no significant main effects of help request, $F(1, 120) = .24, p = .62, \eta^2 = .00$, or number of victims, $F(1, 120) = .39, p = .53, \eta^2 = .00$, and there was not a significant interaction effect, $F(1, 120) = 1.19, p = .28, \eta^2 = .01$. Mean values by help request and number of victims are located in Table 1. Habituation to appeals for aid was not impacted by an actual appeal for aid or by changing the number of victims. This suggests that changes in habituation were not responsible for the collapse of compassion. With three

alternative motivational explanations having been dispatched, it now seems safer to say that the collapse of compassion was driven by the perception of high cost.

Discussion

Does the collapse of compassion emerge when people see their emotions as potentially costly? When participants in the current study did not think they would have to help, they did not show the collapse of compassion. Instead, they showed greater compassion toward eight victims than toward one victim. But when they *did* think they would have to help, the collapse of compassion emerged. It appears that the collapse of compassion can be turned on and off, simply by changing whether people expect to have to help. Contrary to previous assumptions, the collapse of compassion might not be due to aggregates' inability to trigger emotion (Slovic, 2007). Rather, it might be due to an active attempt to eliminate emotions that are seen as costly. Moreover, this reversal was due to changes in compassion toward eight victims, rather than by changes in compassion toward one victim, suggesting that compassion toward eight victims was seen as especially costly when help was expected.

This inference is bolstered in light of the finding for regulatory effort. When people expected to have to help eight victims, they reported having exerted the most effortful regulation. These people should have had the highest motivation to reduce their emotions because of the high psychological and financial cost involved. As mentioned, the compassion effect described above was driven by people reducing compassion toward eight victims (but not changing their compassion toward one victim) when they expected to have to help them. If regulation was engaged in this situation, then it comes as no surprise that people who expected to help eight victims reported the most regulation, effort, and fatigue. However, because effort did not mediate compassion, this indicator of regulation is not responsible for

the compassion effect. And because compassion did not mediate effort, the compassion effect is not responsible for self-reported effort, through a process like self-inference or self-justification. Rather, the effects on compassion and on regulatory effort appear to be independent phenomena. Even so, they both highlight the fact that regulation may play a role in the collapse of compassion.

Regulation can also be inferred from its effects on subsequent emotional experience. People who expected to have to help reduced their overall emotional experience toward unrelated images. Even if this numbing indicated regulation, it did not explain the compassion effect. The collapse of compassion was driven by people eliminating emotions toward eight victims they expected to help, whereas the overall effect for emotion numbing was not influenced by the number of victims involved. And although more specific analyses – such as negative emotional responses to sympathy-inducing images – suggested that number of victims did have an influence, it was in the wrong direction, with reduced emotion when subjects expected to help *one* victim. Although these outcomes are theoretically interesting, they fail to fully explain the collapse of compassion.

Finally, and critical for the current investigation, the compassion effect was not driven by diffusion of responsibility, perceived efficacy of helping, or habituation to aid appeals. Perceived high cost, rather than these alternative motives, appears to be the critical impetus behind the collapse of compassion.

CHAPTER 7

STUDY 2

Study 1 has shown that motivated emotion regulation might have a very important role to play in the collapse of compassion. When people expected to help, there was the typical collapse of compassion between one and eight victims. When this expectation was removed, the collapse reversed, as people experienced more compassion toward eight than toward one. Moreover, the finding for regulatory effort provided additional support that regulation is relevant to the collapse of compassion. Study 2 was meant to further bolster the argument that motivated emotion regulation drives the collapse of compassion, by exploring two potential moderators of the regulation process: time course and skill at regulation.

The current study differed from Study 1 in a number of ways. Instead of just measuring emotion toward one and eight victims, Study 2 included a four-victim condition to allow for a finer grain of analysis. The current study also did not manipulate whether participants expected to help. Rather, all participants expected to report a donation amount. Holding this expectation constant allowed for a more detailed investigation of the regulation process involved in the previous study. For instance, emotion regulation is a process that unfolds over time (Greene et al., 2001; Koole, 2009). Yet no studies have examined the time course of affective responses as they relate to the collapse of compassion. To gain more insight into the time course of affective responses, Study 2 used an online rating scale to measure emotion changes over time (Larsen & Fredrickson, 1999). If the collapse of

compassion is driven by motivated emotion regulation, then the difference in emotion by number of victims should become stronger over time, as participants alter the trajectory of their emotions toward multiple victims. I therefore predicted an interaction between number of victims and time of online emotion rating. In a manner of speaking, regulation would be caught in the act.

If the collapse of compassion is the end product of a motivated strategy to avoid high financial and psychological costs, then people who are skilled at regulating their emotions should be especially likely to show this effect. People who cannot regulate their emotions well should not show the effect as strongly. In short, I predicted a three-way interaction between number of victims, time of online emotion rating, and skill at emotion regulation. The collapse of compassion should only emerge over time for people who can regulate their emotions well. Finally, whether or not people engage in motivated emotion regulation might depend upon their trait levels of interpersonal sensitivity (e.g. Graziano et al., 2007; Reed et al., 2009). People who are highly attuned to the plight of others might not engage in motivated emotion regulation, and therefore might not show the collapse of compassion over time.

Method

Participants

Sixty college students (49 females) from the University of North Carolina at Chapel Hill participated for course credit. Data was excluded from one participant whose response was more than 2.5 standard deviations below the mean on the tenth time interval of the online emotion rating.

Design

Participants were randomly assigned to read about one, four, or eight children from Darfur. There was an additional between-subjects factor of regulation ability as assessed by two measures (see below), and a within-subjects factor of time of online emotion rating. The critical dependent variable was the content of the online emotion rating.

Procedures

Participants were seated at individual computer workstations. Participants then read the following: “The purpose of this experiment is to look at emotional reactions over time. You will be asked to record your emotions in real time, moment by moment. You will see an image of and information about a child [children]. This child lives [these children live] in the war-torn and disease-ridden West Darfur region of Sudan.” They were then told about the online emotion rating scale:

“Once you see this child [these children], please use the sliding rating scale at the bottom of the screen to rate how upset you feel for the child [children]. This sliding scale can be moved continuously so that you can report changes in how upset you feel over time. The slide can move from 1 on the left (Not at all upset) to 11 on the right (Extremely upset). You can move the scale using the arrow keys on the keyboard (marked in orange). Please note that each section on the scale corresponds to a specific level of emotion. Any time you notice your feelings change, please move the scale accordingly. Please adjust the sliding scale as often as necessary so that it reflects how you are currently feeling.”

After this, participants were shown a screen with the online rating scale: “Please take a minute to practice using the sliding scale to get acquainted with how it works. Remember to move the scale as often as necessary so that it reflects how you are currently feeling. Let

the experimenter know if you have any questions.” Note that this online emotion rating scale provided a continuous measure of emotion over time. Though the measure was scaled from 1 (Not at all upset) to 11 (Extremely upset), it allowed for continuous responses (to two decimal places) between the whole numbers. This measure automatically took ten samples per second, and averaged them together to provide a response for each second of time.

After having one minute to practice with the scale, participants were told the following: “After this part of the experiment, you will be asked some questions, as well as how much you would be willing to donate toward the child [the children].” Finally, they were given one last set of instructions: “On the next page, you will read information about the West Darfur region of Sudan, and see a picture [pictures] of a child that lives [children that live] in Darfur. As you read this information, immediately begin using the arrow keys on the computer to start rating how upset you feel for the children. Remember to adjust the sliding scale as often as necessary to match how upset you feel, moment to moment.”

Participants then saw a screen containing information about the crisis in Darfur, as well as images of one, four, or eight children from Darfur. In the multiple-victim conditions, these child images were presented simultaneously. These were the same images and text used in Study 1, located in Appendix A. Participants in the one-victim condition all saw the image of “Daoud”, and participants in the four-victim condition all saw images of “Daoud”, “Abakar”, “Rokia”, and “Ibrahim.” Also on screen were two warnings in bright green: “Begin rating your feelings now!” at the very top and “Please remember to keep rating your feelings!” underneath the child image(s). The online emotion rating scale was at the very bottom of the screen. All of this was presented on screen for the course of one minute, before advancing automatically. Participants were then asked the same open-ended hypothetical

donation question from Study 1. Participants then moved on to complete a series of individual difference measures.

Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004; Appendix C). This 36-item scale measures various aspects of general emotion regulation ability. I predicted that participants scoring low on this scale – who were skilled at emotion regulation – would show the collapse of compassion over time. On the other hand, those who scored high on this scale – who were poor emotion regulators – would not show this collapse.

Distress Tolerance Scale (Simons & Gaher, 2005; Appendix D). This 15-item scale measures the more specific ability to tolerate and regulate negative psychological states. As another measure of emotion regulation ability, I predicted a similar pattern: that those who scored high on this scale – who were able to cope with distress well – would show the collapse of compassion over time. In contrast, those scoring low on this scale – who were poor at coping with distress – would not show this collapse.

Interpersonal Reactivity Index (Davis, 1983; Appendix E). Participants received the Empathic Concern and Personal Distress sub-scales (14 items total) of the Interpersonal Reactivity Index. Empathic concern measures the tendency to experience feelings of warmth and compassion for others undergoing negative experiences, and personal distress measures the tendency to experience discomfort and anxiety in response to others' negative experiences. I predicted that only participants who scored low on these measures would show the collapse of compassion over time. People who are highly attuned to others might not engage in motivated emotion regulation to avoid their emotions.

Finally, participants were asked about their race, gender, and other questions that will not be discussed here.

Results

Online emotion rating. If the collapse of compassion was driven by emotion regulation, then the differences in emotion toward one, four, and eight victims should have become stronger over time. Participants made emotion ratings on the sliding scale over the course of one minute. For each second of time the average emotional response was recorded, providing sixty data points for each participant. For the current analysis, these sixty data points were parsed into ten intervals representing the average emotional response over every consecutive six seconds of time (e.g. seconds 1 through 6, seconds 7 through 12, etc.)

To examine whether the collapse of compassion emerged over time, time of online emotion rating was entered as a within-subjects factor in a repeated-measures ANOVA with content of emotion rating as the dependent variable. Number of victims was entered as a between-subjects factor. There was a significant main effect of time of online emotion rating, $F(9, 513) = 39.56, p < .001, \eta^2 = .41$. Across groups, participants felt more emotion by the end of the online rating than they had at the beginning. There was a significant main effect of number of victims, $F(2, 57) = 3.97, p = .02, \eta^2 = .12$. Across time intervals, the number of victims influenced how upset participants felt. Critically, there was a significant interaction between time of online emotion rating and number of victims, $F(18, 513) = 1.87, p = .02, \eta^2 = .06$. This result suggests that the change in emotion over the course of one minute was different depending upon the number of victims. Figure 7 displays this interaction.

There were two ways to probe this interaction. The first way was to look at changes in emotion over time separately for participants in the one-victim, four-victim, and eight-victim conditions. In the one-victim condition, there was a significant main effect of time of online emotion rating, $F(9, 171) = 21.26, p < .001, \eta^2 = .53$, meaning that emotion increased

over the minute interval. Emotion also significantly increased over time in the four-victim condition, though not quite as strongly, $F(9, 189) = 14.26, p < .01, \eta^2 = .40$. And emotion significantly increased over time in the eight-victim condition, though not as strongly as in the other two conditions, $F(9, 153) = 6.96, p < .001, \eta^2 = .29$. Emotion significantly increased over time for all three conditions, but this effect was clearly strongest for the one-victim condition and weakest for the eight-victim condition. Emotions for participants in the eight-victim condition in particular did not keep pace with participants' emotions in the one-victim condition. Rather, they tapered off in a process consistent with emotion regulation.

The other way to probe this interaction was to look at the effect of number of victims on emotion within each of the ten intervals of time. For the first time interval (the average of the first six seconds), there was not a significant main effect of number of victims on emotion, $F(2, 60) = 1.66, p = .20, \eta^2 = .06$. There was no meaningful separation in emotion toward one, four, and eight victims. This is not entirely surprising, given that for all participants, the scale was initially defaulted at the mid-point. Even so, this first interval was the average over six seconds, a moderate amount of time. It was only at the fifth time interval (seconds 25 through 30) that the effect of number of victims on emotion became significant, $F(2, 60) = 3.42, p = .04, \eta^2 = .11$. This suggests that it took nearly half a minute for the collapse of compassion to emerge across victim groups. This effect only became stronger by the tenth and final time interval (seconds 55 through 60), $F(2, 60) = 4.23, p = .02, \eta^2 = .13$. In summary, the collapse of compassion only emerged over time. Because emotion regulation takes time, this finding adds further weight to the claim that motivated emotion regulation drives the collapse of compassion.

Regulation skill. Having successfully established time as the first moderator of the collapse of compassion, the second moderator was regulation skill. Only people who could effectively regulate their emotions should have shown the collapse of compassion over time. The two measures of regulation skill were the Difficulties in Emotion Regulation Scale (Cronbach's $\alpha = .92$) and the Distress Tolerance Scale (Cronbach's $\alpha = .82$). The scales were significantly correlated in the expected direction, $r = -.65, p < .001$. There were not significant effects of victim condition on Difficulties in Emotion Regulation, $F(2, 60) = .69, p = .51, \eta^2 = .02$, or on Distress Tolerance, $F(2, 60) = 1.25, p = .30, \eta^2 = .04$. Means for both scales by number of victims are presented in Table 2. Both scales could therefore be used as moderators, to examine whether only participants who are skilled at regulation showed the collapse of compassion over time. Each scale will be analyzed in turn.

The first measure of emotion regulation skill was the Difficulties in Emotion Regulation Scale. A repeated-measures ANOVA was conducted with time of online emotion rating as a within-subjects factor, number of victims as a between-subjects factor, and difficulties in emotion regulation as a continuous covariate. Critically, the three-way interaction between these variables was significant, $F(18, 486) = 1.68, p = .04, \eta^2 = .06$. This result suggests that regulation skill moderated whether the collapse of compassion emerged over time.

To probe this interaction, the data were divided into those who were high and low in difficulties in emotion regulation. Participants whose average scores fell below the median value of 2.11 were classified as skilled regulators, whereas those whose scores fell above this point were classified as poor regulators. For participants who were poor regulators, the critical interaction between time of online emotion rating and number of victims was not

significant, $F(18, 243) = .31, p = .99, \eta^2 = .02$. Participants who could not regulate their emotions well did not show the collapse of compassion over time. For participants who were skilled regulators, on the other hand, this interaction was significant, $F(18, 243) = 3.38, p < .001, \eta^2 = .20$. Only people who were able to effectively regulate their emotions showed the collapse of compassion over time. Figure 8 displays this interaction between time of online emotion rating, number of victims, and regulation skill.

The other measure of emotion regulation skill was the Distress Tolerance Scale. Distress tolerance was tested as a moderator of the time by victim number interaction. Critically, the three-way interaction between these variables was significant, $F(18, 486) = 2.43, p = .001, \eta^2 = .08$. Distress tolerance moderated whether the collapse of compassion emerged over time.

To probe this interaction, the data were divided into those who were high and low in distress tolerance. All participants whose average scores fell below the median value of 3.60 were classified as low in distress tolerance, whereas those above this point were classified as high in distress tolerance. For participants who were low in distress tolerance, the critical interaction between time of online emotion rating and number of victims was not significant, $F(18, 261) = .86, p = .63, \eta^2 = .06$. Participants who could not effectively cope with distress did not show the collapse of compassion over time. But for participants high in distress tolerance, this interaction was significant, $F(18, 225) = 4.31, p < .001, \eta^2 = .26$. Only people who were able to tolerate and regulate distress showed the collapse of compassion over time. Figure 9 displays this interaction between number of victims, time of online emotion rating, and distress tolerance.

Together, these results suggest that both time and regulation skill were critical moderators of the collapse of compassion. Not only did the collapse of compassion take time to develop, but it also required the ability to skillfully regulate emotions. This finding adds further support to the role of emotion regulation in the collapse of compassion.

Interpersonal sensitivity. If the collapse of compassion was due to a motivated emotion regulation, then some people might refrain from using this strategy. For example, people who were highly sensitive to the plight of others might not have been motivated to reduce their affect toward victims, and thus refrained from initiating the collapse of compassion. To examine this possibility, the 14 items of the Empathic Concern and Personal Distress sub-scales were averaged together (Cronbach's $\alpha = .72$). Before testing whether interpersonal sensitivity could be a moderator of the collapse of compassion, it was important to establish that it was not influenced by the manipulation. Surprisingly, there was a significant effect of number of victims, $F(2, 60) = 5.42, p = .01, \eta^2 = .16$, such that people who read about higher numbers of victims considered themselves to be less interpersonally sensitive. Post hoc analyses using Tukey's HSD revealed significant differences between the one-victim and four-victim conditions, $p = .02$, and between the one-victim and eight-victim conditions, $p = .01$, but not between the four-victim and eight-victim conditions, $p = .97$. Figure 10 displays interpersonal sensitivity by number of victims. It appears that as the number of victims increased, people considered themselves to be less interpersonally sensitive.

If the collapse of compassion was driven by emotion regulation, then people might have recognized this active process as it happened. Either by simple self-perception or as a way to justify their own self-regulation, participants who saw multiple victims might have

inferred that they were less interpersonally sensitive. A mediation analysis was conducted to test whether changes in interpersonal sensitivity were driven by differences in online emotion toward the victims at the tenth time interval. A Sobel test revealed that the influence of number of victims on interpersonal sensitivity was not mediated by online emotion at the tenth time interval, $Z = 1.47$, $p = .14$. Even though number of victims influenced interpersonal sensitivity, this effect was not due to its impact upon emotion toward the victims.

Discussion

If the collapse of compassion is driven by motivated emotion regulation, then its emergence should depend on two key moderators: time and skill at regulation. Study 2 showed that the difference in rated emotion between one, four, and eight victims only emerged over time, and this only for people who could effectively regulate their emotions.

Emotion regulation is a process that unfolds over time. If the expectation to help leads to the collapse of compassion through emotion regulation, then it should take time. The current study showed that it took nearly half a minute for the differences in emotion toward one, four, and eight victims to open up. People who saw one, four, and eight victims all increased their emotions over time; but the rate of increase was much lower for higher numbers of victims. Cast in terms of regulation, it seems that people simply did not let themselves feel as much toward higher numbers of victims. And when looking across victim groups, this translated into the collapse of compassion by the end of the online rating. Critically, an online measure of emotion was required to catch this regulation in action. It might be easy to think that the collapse of compassion is due to fundamental constraints on affective processing if the dynamics of emotional experience are ignored. Past studies have

only utilized static measures; and even if they captured the collapse of compassion, they might have overlooked the critical moderating role of time. They might have captured the end result, but missed the intervening process. As the first exploration of affect dynamics in relation to the collapse of compassion, this study has shown how it can strengthen the argument for motivated emotion regulation.

A skeptic might still question the role of regulation in the finding described above. Maybe people simply did not have a choice in how their emotions toward one, four, or eight victims changed over time. In that case, a qualified affective constraints account – that aggregates don't trigger as much emotion *over time* – would suffice, rather than requiring the turn to motivated emotion regulation. Yet the moderating effect of regulation skill cuts this alternative explanation off at the pass. Using two measures of emotion regulation ability, I found that only people who could effectively regulate their emotions showed the collapse of compassion over time. People who could not regulate their emotions well did not show this effect. If the collapse of compassion was just due to constraints on affective processing, then regulation skill should not have had an influence.

The finding for trait interpersonal sensitivity strengthens this point. Compared to those who only expected to help one victim, people who expected to help multiple victims reported that they were, generally speaking, less interpersonally sensitive. If people were engaging in active emotion regulation, then they might have noticed themselves doing this, which would in turn have had some impact on their self-conceptions. Though the effect on interpersonal sensitivity was not mediated by the collapse of compassion, it is still noteworthy that a self-reported trait measure was sensitive to how many victims were

presented. Tentatively, this finding might add one more piece of support to the idea that the collapse of compassion is due to motivated emotion regulation.

CHAPTER 8

GENERAL DISCUSSION

Why do people's moral emotions respond less strongly to many suffering victims than to one? Though most people predict that they would and should respond with more compassion as the number of victims in a crisis increases, in fact their compassion tends to plummet. One prominent line of thought would suggest that this collapse of compassion is a function of how our affect systems are built (Slovic, 2007). Our emotions are not triggered by aggregates, are numerically imprecise, and are easily habituated. Controlled deliberation is usually ineffective at correcting these emotional biases (Small et al., 2007), which can in turn lead to moral decisions that deviate from normative ideals. And over evolutionary time, it was unlikely for humans to have expanded beyond small-group lifestyles, making affective tuning toward higher numbers unnecessary and possibly maladaptive (Penner et al., 2005). Together, these reasons seem to suggest a seamless account of how the collapse of compassion is due to adaptive constraints on affective processing.

But upon closer examination, this apparent coherence begins to come apart. Most obviously, this line of thought fails to explain why there would be a *decrease* in compassion as numbers increase. This decrease suggests something different from a functional limitation; instead, it suggests that the collapse of compassion might be driven by down-regulation of emotional experience. And if this regulation could be shown to occur when costs are especially high, it would suggest further that this is a strategic process instead of a functional

default. In two studies, the collapse of compassion seems to have been driven by just such a process of motivated emotion regulation. Critically, each study provides multiple pieces of evidence which support a motivated emotion regulation account, and which work against the affective constraints account described above. Though each finding in itself could be challenged by a critic, it is their combined effect that proves especially powerful.

Study 1 showed that the collapse of compassion is contingent on the expectation of having to help. When people did not expect to have to help, they actually did not show the collapse of compassion, but instead showed greater compassion toward higher numbers of victims. But when they did expect to have to help, this pattern flipped and the collapse of compassion emerged. More specifically, this reversal was driven by the reduction of compassion toward eight victims, suggesting that expecting to help eight victims was perceived as especially costly. Theoretically, this finding suggests that, counter to the dominant line of thought on the collapse of compassion, it is not simply a given that people feel greater emotion toward single victims than multiple victims. Rather, the collapse of compassion might be driven by the motivation to avoid high costs. Practically, this finding also suggests the rather counter-intuitive conclusion that an effective way to get rid of the collapse of compassion might be to convince people that they will not have to *act* compassionately.

Additionally, people who expected to help eight children showed the most regulatory effort. More than anyone else, they reported regulation, effort, fatigue, and emotional difficulty. This finding was not driven by the compassion effect, nor did it lead to the compassion effect. Nevertheless, the compassion effect was driven by the reduction of compassion toward eight children when help was expected, the same condition that elicited

the most self-reported regulatory effort. Having to help eight victims appears to be an aversive situation for many people—one that elicits both emotion regulation and its perceived after-effects.

To examine this regulation process more closely, Study 2 held help expectation constant and tested two key moderators of emotion regulation: time and regulation skill. If regulation takes time, and if the collapse of compassion is driven by regulation, then the collapse should develop over time. Using an online measure of affect, Study 2 found that it took nearly half a minute for significant differences in emotion toward one, four, and eight victims to emerge. Whereas previous studies on the collapse of compassion have all utilized static measures of affect, Study 2 was the first to use a dynamic measure in this context. Using this measure caught regulation in action, moving beyond the conflation of outcome with process.

Were that not enough, only people who could effectively regulate their emotions showed the collapse of compassion over time. This finding held up across two distinct measures of emotion regulation ability, and adds further weight to the claim that the collapse of compassion is due to the strategic reduction of emotional experience. Skilled regulators who expected to have to help four or eight children appear to have accessed and successfully implemented an emotion regulation strategy. And if they noticed themselves regulating, that might explain why people who saw four and eight victims reported being less interpersonally sensitive. Eliminating the moral emotions might lead to a corresponding change in one's own moral self-image, either as a simple read-off of behavior, or perhaps as an excuse for it.

Summary. These studies have provided the first evidence – across multiple measures and multiple methods – that the collapse of compassion might be due to motivated emotion

regulation. It only emerges when people expect to have to help, suggesting that motivation is relevant. It is conditional on time and regulation skill, suggesting that regulation is relevant. And finally, people report more regulatory effort and less interpersonal sensitivity when they expect to help higher numbers, suggesting that they might have been aware of engaging in emotion regulation and revised their self-conceptions accordingly. Moreover, by only using hypothetical donations, the current studies have been rather conservative tests; were real money involved, these effects might be even stronger. Slovic (2007) suggested that people “turn off” their affect in the face of mass suffering, and the current studies illustrate just what that process might be.

Broader Implications for the Collapse of Compassion

The extant literature on the collapse of compassion draws upon dual-process theories in social cognition to suggest that both intuitive affect and controlled deliberation can generate compassionate responses, while conceding that affect is rather biased and deliberation rather powerless (Loewenstein & Small, 2007; Slovic, 2007). The typical assumption seems to be that the collapse of compassion is due to biased affect run amok, and that if only deliberation could be made stronger, everything would be fine. But attempts to de-bias affect and bolster deliberative power have had mixed results (Hsee & Rottenschreith, 2004; Small et al., 2007), leading some to speculate that institutional change is the only answer (Slovic, 2007).

Yet by showing that the collapse of compassion is due to an active process of motivated emotion regulation, the current studies have the potential not only to re-frame the theoretical debate over what drives the collapse of compassion, but also the practical debate over how to eliminate it. If active regulation is the culprit, and not biased gut reactions, then

that suggests moving away from paradigms that try to bolster controlled cognitive resources (such as Small et al., 2007). Though previous studies have shown that self-regulation is required for moral behavior (e.g. DeWall, Baumeister, Gailliot, & Maner, 2008), other work has shown that controlled resources are required for motivated immoral behavior (Valdesolo & DeSteno, 2008). If the collapse of compassion is the latter kind of phenomenon, then *eliminating* rather than bolstering cognitive resources might prove an interesting and productive avenue of inquiry. If the reduction of emotion from one to eight victims disappears when subjects are placed under a cognitive load manipulation, then it would suggest that the emotion regulation process in question is at least partially a controlled one.

Yet the possibly controlled nature of this regulation process might be less important than its motivational sensitivity. All it took to create the collapse of compassion were a few words telling people that they would be asked to donate; all it took to reverse this collapse was to remove these few words. It is worth emphasizing that this donation request was only hypothetical. More importantly, this finding opens up intriguing possibilities for other ways to reverse the collapse of compassion. If showing more compassion toward multiple victims requires not expecting to help, then any manipulation that removes that expectation might be effective. For instance, creating a situation conducive to diffusion of responsibility might in fact reverse the collapse of compassion, if it removes any expectation to provide aid. This is of no small importance, given that Slovic (2007), Schelling (1968), and others have described the collapse of compassion as a social dilemma prone to diffusion of responsibility. But if that is the case, then there is a lot of compassion out there not being adequately translated into pro-social action. Perhaps the most intriguing research of all would find ways to translate compassion that is contingent on not expecting to help into actual helping behavior.

CHAPTER 9

FUTURE DIRECTIONS AND CONCLUSION

Causally manipulating regulation. Though the current studies provide convergent evidence for the role of motivated emotion regulation in the collapse of compassion, this evidence is still indirect. Regulation can be inferred from its effects on compassion and from its moderation by cost, time, and regulation skill; but directly manipulating whether participants engage in emotion regulation would provide the strongest evidence. For instance, participants could be told either to let themselves feel emotion toward either one or eight Darfur children, or to prevent themselves from feeling any emotion toward these children. Importantly, participants would not be told to engage in different amounts of emotion regulation depending on number of victims. Any difference in emotion toward one and eight victims, in addition to showing the causal role of regulation, would also reflect participants' spontaneous, motivated modification to the regulation task instructions. If participants who were told to regulate their emotions showed the collapse of compassion, it would provide direct causal evidence that motivated emotion regulation drives the collapse of compassion.

Behavioral measures. Because this thesis did not include any behavioral measures of pro-social behavior, such as actual donation or charitable giving, it has not ruled out one possible alternative explanation. Perhaps people reduce their emotions, not to avoid having to help, but so that they are *able* to help. A number of studies have shown that the ability to regulate emotions well predicts a variety of pro-social outcomes (Eisenberg, 2000;

Eisenberg, Hofer, & Vaughan, 2007). Perhaps the collapse of compassion does not represent a stifling of the moral impulse, but rather adaptive preparation for pro-social action. If this is the case, then people should be primed to help others, even if their emotions indicate otherwise. The most direct way to address this would be to give participants the chance to act compassionately. A more subtle approach could use something like the dot-probe task to assess whether people's attention is captured by morally relevant stimuli. Although this empirical possibility does remain open, it seems doubtful, given that the most likely outcome of reduced compassion is reduced compassionate behavior (e.g., Kogut & Ritov, 2005).

Which motive(s)? Having provided some evidence that the collapse of compassion depends on motivated emotion regulation, there are still unanswered questions as to the motives involved. The current pair of studies hypothesized that the prospect of having to help eight victims would seem especially costly for two reasons: 1) expected overwhelming emotion in response to higher numbers (Hoffman, 2000) and 2) expected financial cost (Shaw et al., 1994). Both motives were hypothesized to feed into the emotion regulation process responsible for the collapse of compassion, but the current studies did not explicitly measure them or afford a way to disentangle them. Future studies might address this by examining people's expectations about financial cost and emotional intensity when asked to help multiple victims. Such forecasts might trigger emotion regulation, explaining the discrepancy between people's predictions about how they would respond to mass suffering and their actual emotional responses (Baumeister, Vohs, DeWall, & Zhang, 2007; Dunn & Ashton-James, 2008; Wilson & Gilbert, 2003).

What kind of regulation? Though regulation appears relevant to the collapse of compassion, it is not clear what *kind* of emotion regulation is taking place. For the current

studies, I have assumed a rather standard definition of emotion regulation as the exercise of conscious, effortful control over the course of an emotional episode (Fridja, 1986; Fridja, 2007; Koole, 2009). Yet this kind of regulation includes more specific strategies like re-appraisal, suppression, and attentional re-direction (Gross, 1998). The apparent success of emotion regulation in the current studies casts doubt on suppression, a notoriously ineffective strategy (Gross & John, 2003). Though re-appraisal has more often been cited as a tool to spark sympathy rather than suppress it (Loewenstein & Small, 2007; Pizarro, 2000), re-appraisal of the Darfur situation could have rationalized the plight of multiple victims as unimportant (but only when help was requested; e.g. Dovidio et al., 1991). Finally, re-directing attention away from targets of aid has been shown to reduce emotion toward them (Dickert & Slovic, 2009). Future research should measure individual differences in these conscious emotion regulation strategies (e.g., Gross & John, 2003), as well as individual differences that predict effective regulation (Barrett, Gross, Conner, & Benevuto, 2001; Eisenberg et al., 1994; Gohm, 2003; Seo & Barrett, 2007; Larsen, 2001; Wranik, Barrett, & Salovey, 2007). It is also worth examining the role of implicit, automatic forms of emotion regulation that might intersect with chronic goals and motives (Bargh & Williams, 2007; Forgas & Ciarrochi, 2002; Koole & Jostmann, 2004; Mauss, Bunge, & Gross, 2007; Rothermund, Voss, & Wentura, 2008).

Moral self-regulation. People did seem to have some awareness of their own emotion regulation in the studies presented here, given their reports on regulatory effort and their own interpersonal sensitivity. Though neither finding was mediated by changes in emotion, it seems like moral emotion regulation and the moral self-concept probably share some interesting relationship. You might think that people who spotted themselves regulating

would affirm their moral self-images by denying regulatory effort and saying that they were more interpersonally sensitive; yet this is not what happened. On a charitable interpretation, these outcomes reflect straightforward inferences from behavior; on a more cynical one, these outcomes reflect attempts to justify that regulation. Previous research on moral self-regulation suggests that the moral self-concept exists in a dynamic homeostasis that shifts flexibly in the service of self-interest (Sachdeva, Iliev, & Medin, 2009; Tensbrunsel, Diekmann, Wade-Benzoni, & Bazerman, 2008; see also Markus & Wurf, 1986). Similarly, Koole (2009) has argued that emotion regulation can be person-oriented, directed at achieving optimal personal functioning through the balancing of conflicting personal and social interests (see also Erber & Erber, 2001). Future research should explore the possible role that regulation of the moral self-concept plays in the findings described here. This approach might prove especially fruitful, because the mechanisms in the current study – the motivated down-regulation of moral emotions under conditions of high cost – could be applicable to other contexts in which these emotions are considered undesirable or counter to self-interest (such as when social or moral outgroups are suffering; e.g., Cohen, Montoya, & Insko, 2006; Harris & Fiske, 2006; Kuntsman & Plant, 2008; Pratto & Glasford, 2008).

Conclusion

What explains the collapse of compassion? The received wisdom suggests that mass suffering simply does not elicit powerful emotions, yet this only seems to re-describe the phenomenon in need of explanation. Though some have speculated instead that people “turn off” their emotions (Hoffman, 2000; Slovic, 2007), these claims do not specify the processes involved. The current studies have provided a clearer window into what these processes entail, and in turn shown that the collapse of compassion is not simply a functional limit on

our emotions. Rather, it appears to be the outcome of a motivated emotion regulation process driven by perceived high costs. Having found a provisional answer to this striking normative failing, we are left with surprisingly good news. Instead of self-regulation being required to enact moral behavior, self-regulation might be required to *stifle* the moral impulse toward multiple victims. Learning how to translate this impulse into action will be the next great challenge for researchers who work on the collapse of compassion.

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Table 1. Means and Standard Deviations for Other Variables, Study 1

	No Help, One Victim	No Help, Eight Victims	Help, One Victim	Help, Eight Victims
Distance	4.68 (<i>SD</i> =.82)	4.59 (<i>SD</i> =.85)	4.60 (<i>SD</i> =.70)	4.68 (<i>SD</i> =.72)
Diff. of Resp.	0.67 (<i>SD</i> =1.81)	0.17 (<i>SD</i> =1.23)	0.17 (<i>SD</i> =1.37)	0.13 (<i>SD</i> =1.18)
Efficacy	4.78 (<i>SD</i> =1.23)	4.69 (<i>SD</i> =1.54)	4.63 (<i>SD</i> =1.57)	4.29 (<i>SD</i> =1.36)
Habituation	5.68 (<i>SD</i> =.72)	5.40 (<i>SD</i> =.86)	5.58 (<i>SD</i> =1.08)	5.66 (<i>SD</i> =.95)

Table 2. Means and Standard Deviations for Regulation Skill Variables, Study 2

	One Victim	Four Victims	Eight Victims
Difficulties in Emotion Regulation	2.26 (<i>SD</i> =.66)	2.13 (<i>SD</i> =.48)	2.06 (<i>SD</i> =.50)
Distress Tolerance	3.50 (<i>SD</i> =.56)	3.70 (<i>SD</i> =.57)	3.42 (<i>SD</i> =.64)

Figure 1. Hypothesized model of the collapse of compassion.

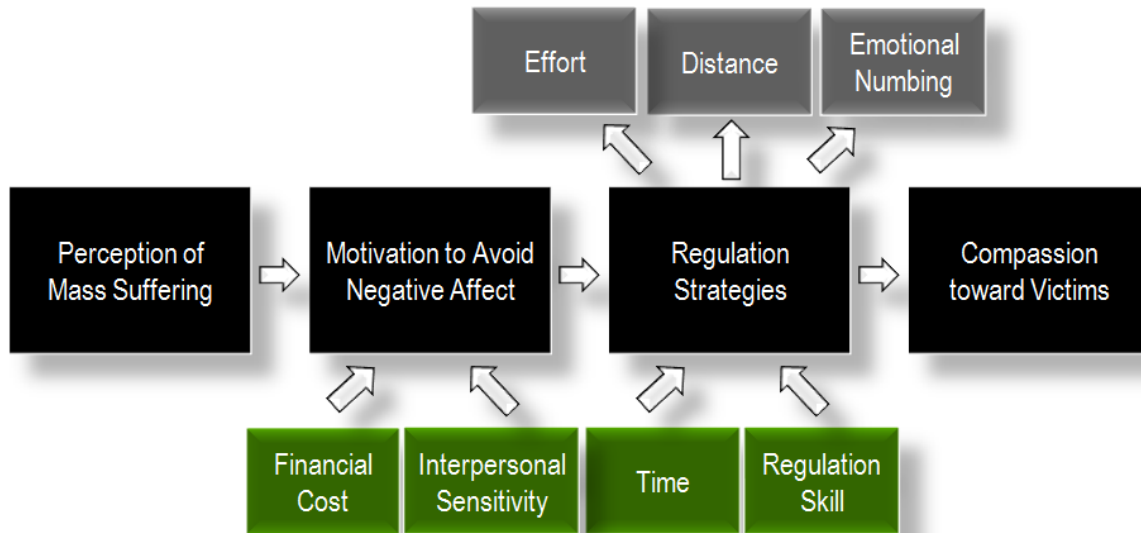


Figure 2. Images of crisis victims.



Yayah - 4 yrs old



Amadi - 1 yr old



Moussa - 4 yrs old



Issat - 4 yrs old



Abakar - 1 yr old



Daoud - 3 yrs old



Rokia -- 5 yrs old

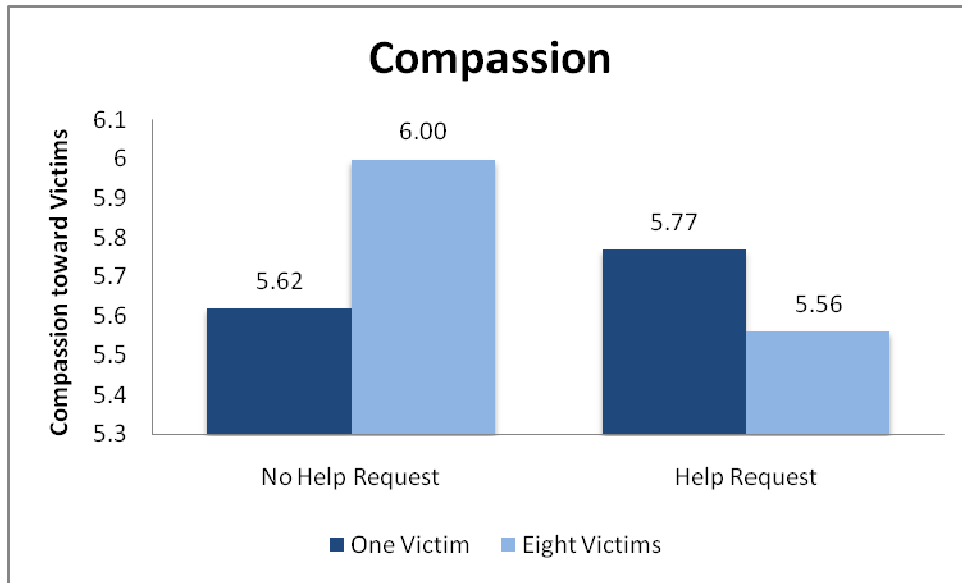


Ibrahim - 7 yrs old

Figure 3. Unrelated emotional images, Study 1.

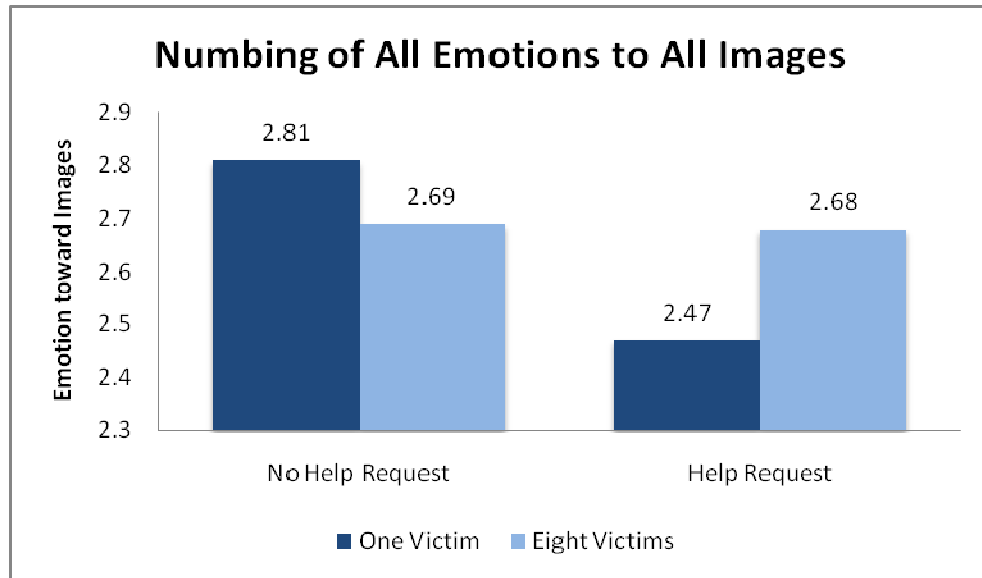


Figure 4. Compassion by help request and number of victims, Study 1.



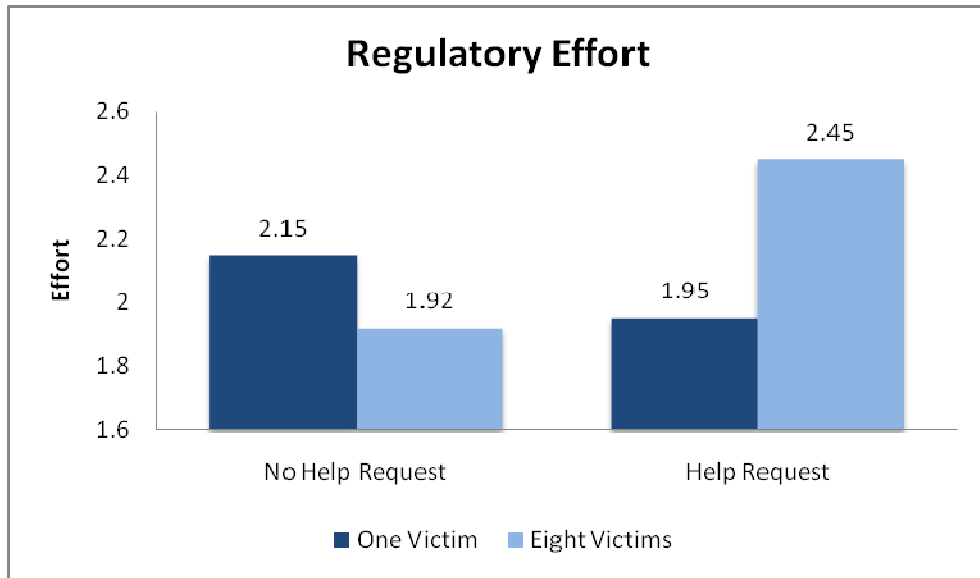
Note. Means are reported on the graph. Standard deviations: .89 (No Help Request, One Victim), .53 (No Help Request, Eight Victims), .78 (Help Request, One Victim), .76 (Help Request, Eight Victims).

Figure 5. Emotion numbing by help request and number of victims, Study 1.



Note. Means are reported on the graph. Standard deviations: .54 (No Help Request, One Victim), .51 (No Help Request, Eight Victims), .47 (Help Request, One Victim), .57 (Help Request, Eight Victims).

Figure 6. Regulatory effort by help request and number of victims, Study 1.



Note. Means are reported on the graph. Standard deviations: 1.13 (No Help Request, One Victim), .77 (No Help Request, Eight Victims), .85 (Help Request, One Victim), .95 (Help Request, Eight Victims).

Figure 7. Online emotion rating by number of victims, Study 2.

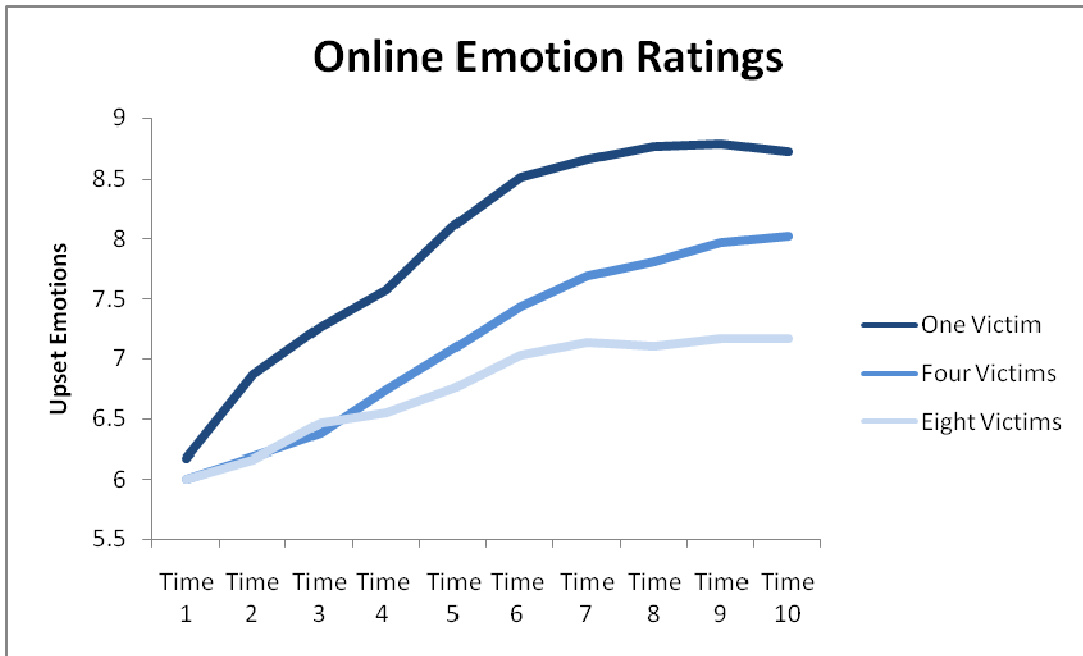
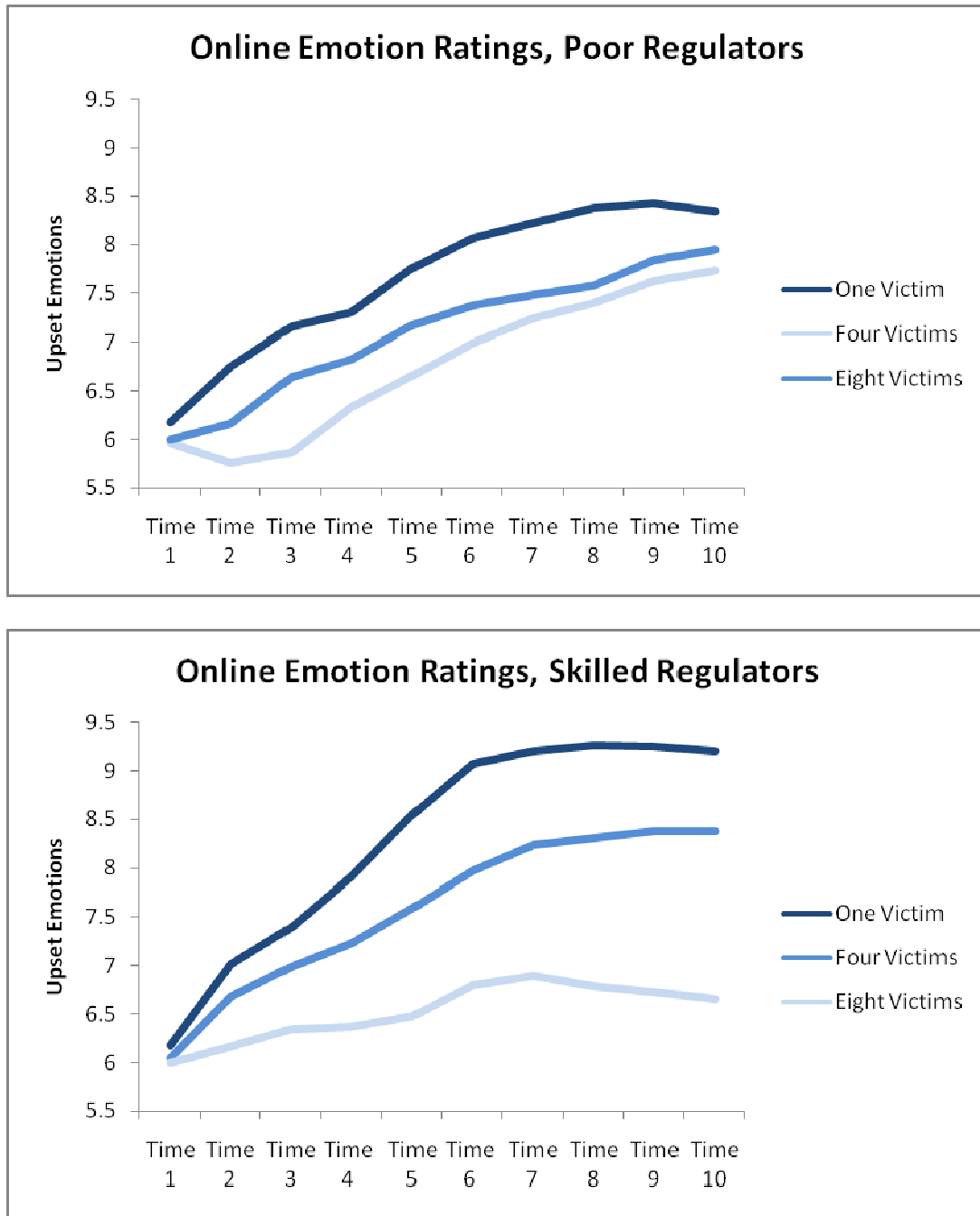
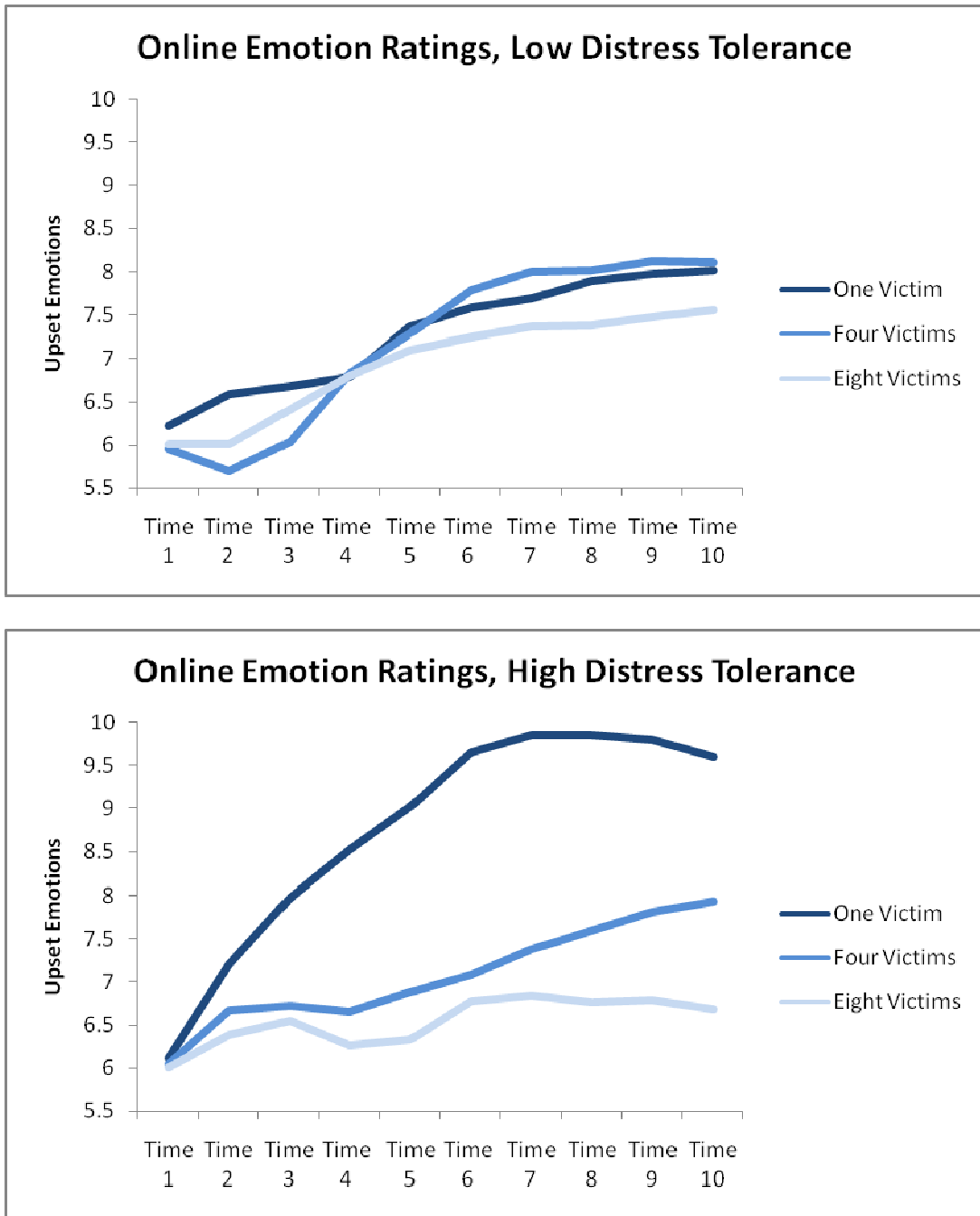


Figure 8. Online emotion rating by number of victims and Difficulties in Emotion Regulation Scale (DERS), Study 2.



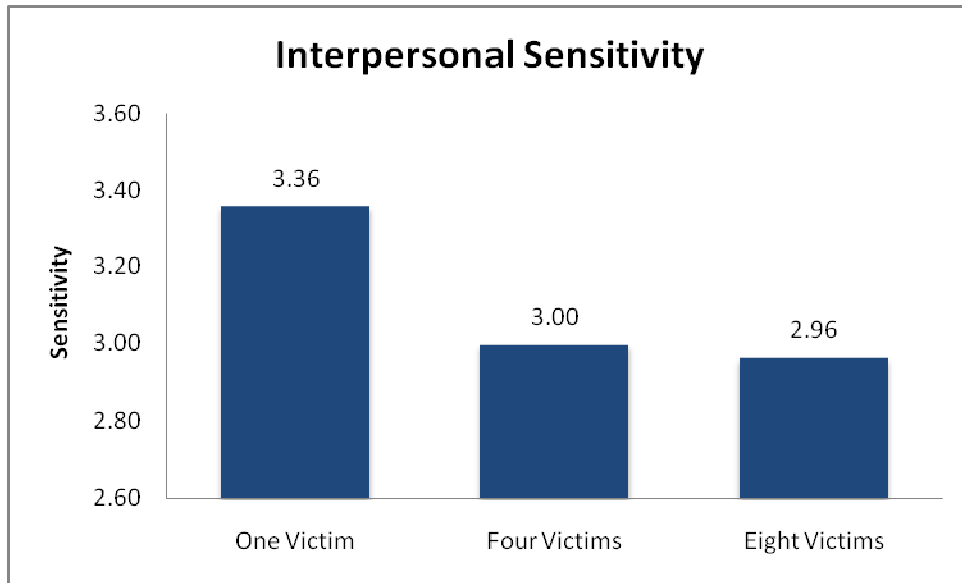
Note. "Poor Regulators" are those that fall above the median value of 2.11 on the DERS; "Skilled Regulators" are those that fall below this median value.

Figure 9. Online emotion rating by number of victims and Distress Tolerance Scale (DTS), Study 2.



Note. “Low Distress Tolerance” represents those that fall below the median value of 3.60 on the DTS; “High Distress Tolerance” represents those that fall above this median value.

Figure 10. Interpersonal sensitivity by number of victims, Study 2.



Note. Means are reported on the graph. Standard deviations: .47 (One Victim), .32 (Four Victims), .46 (Eight Victims).