Escaping Affect: How Motivated Emotion Regulation Creates Insensitivity to Mass Suffering

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As the number of people in need of help increases, the degree of compassion people feel for them ironically tends to decrease. This phenomenon is termed the collapse of compassion. Some researchers have suggested that this effect happens because emotions are not triggered by aggregates. We provide evidence for an alternative account. People expect the needs of large groups to be potentially overwhelming, and, as a result, they engage in emotion regulation to prevent themselves from experiencing overwhelming levels of emotion. Because groups are more likely than individuals to elicit emotion regulation, people feel less for groups than for individuals. In Experiment 1, participants displayed the collapse of compassion only when they expected to be asked to donate money to the victims. This suggests that the effect is motivated by self-interest. Experiment 2 showed that the collapse of compassion emerged only for people who were skilled at emotion regulation. In Experiment 3, we manipulated emotion regulation. Participants who were told to down-regulate their emotions showed the collapse of compassion, but participants who were told to experience their emotions did not. We examined the time course of these effects using a dynamic rating to measure affective responses in real time. The time course data suggested that participants regulate emotion toward groups proactively, by preventing themselves from ever experiencing as much emotion toward groups as toward individuals. These findings provide initial evidence that motivated emotion regulation drives insensitivity to mass suffering.

Keywords: prosocial behavior, altruism, morality, emotion regulation, empathy

"One death is a tragedy; one million is a statistic." This famous quote, attributed to Joseph Stalin, has been used to describe our psychological situation in the face of mass suffering. We can easily feel compassion for the suffering of single, identifiable victims (Batson, 1990, 1991). But many observers have noted that when hundreds, thousands, or even millions are suffering in a large-scale crisis, we seem unable to comprehend that suffering on an emotional level (Slovic, 2007).

This grim analysis strikes many people as counterintuitive. If each human life has irreducible value, then compassion should increase proportionally as the number of lives in a crisis situation increases. This intuition that we should—and would—respond more strongly when more people are suffering can be found both in economic theory (Schelling, 1968) and in the intuitive predictions people make about how they themselves would respond (Dunn & Ashton-James, 2008). Yet when psychologists measure actual emotional experience 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 in need of help, people do not tend to display more emotion or give more charity (Slovic, 2007).

Some studies have shown that affect remains flat as the scope of suffering increases. For instance, Fetherstonhaugh, Slovic, Johnson, and Friedrich (1997) proposed a "psychophysical numbing" account of the valuation of human life, in which each additional life at risk in a crisis produces diminishing affective returns (see also Dunn & Ashton-James, 2008). Similarly, Hsee and Rottenstreich (2004) found that four targets of aid elicited no more donation than one target of aid.

Whereas some studies have shown that emotions toward multiple victims are simply no greater than emotions toward single victims, others studies have found that people actually feel *less* emotion toward multiple than single victims. For instance, people show more compassion for one victim than for "statistical victims" (e.g., thousands of starving victims described in statistical terms; Small, Loewenstein, & Slovic, 2007). Even when all victims are identifiable individuals rather than statistical summaries, people have been shown to report less compassion for eight victims than one (Kogut & Ritov, 2005). And perhaps most strikingly, people have been shown to display more compassion toward one victim than just two victims (as cited in Slovic, 2007). Thus, the collapse of compassion describes a general phenomenon of diminished affective sensitivity toward groups of people in need of help. The term has been used in some cases to describe a decrease in compassion as the number of victims grows and in other cases to describe the lack of an increase.

The collapse of compassion is important theoretically because it describes a case in which moral behavior deviates from explicitly held moral principles. This phenomenon 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 also presents a psychological puzzle because the mechanisms underlying the effect are not fully understood. The current research evaluates two alternative explanations for the collapse of compassion. The first argues that emotions are, by their nature, tuned to respond more strongly to individuals than to aggregates. The second explanation argues that the collapse results from motivated attempts to regulate emotions, in an effort to avoid the consequences of feeling compassion for many victims. We elaborate each account below.

Affective Triggers

One prominent explanation for the collapse of compassion appeals to the antecedents of affective processing, suggesting that aggregates never trigger much emotion to begin with. On this account, our affect systems just do not respond as strongly to multiple victims as to single victims. A variety of more specific theories fit under this general "affective triggers" approach to explaining the collapse of compassion.

For instance, Hamilton and Sherman (1996) have argued that individuals and groups are represented differently. Individuals are perceived as more concrete, unitary, coherent, consistent, and entitative than groups (Hamilton & Sherman, 1996). Because of these differences in representation, individuals elicit more attention, elaborative processing, perspective taking, and affect (Hamilton, Sherman, & Maddox, 1999; Kogut & Ritov, 2005; Sherman, Beike, & Ryalls, 1999). From this perspective, the collapse of compassion is due to individual representations triggering affect more effectively than group representations do.

A related but slightly different approach appeals to dual process theories of social cognition. Some authors have cast these modes of processing as "System I," which encompasses experiential, automatic, and affective responses, and "System II," which includes rational, controlled, and analytical responses (Chaiken & Trope, 1999; Kahneman, 2003; Slovic, 2007). Slovic (2007) has argued that System I affect—the visceral emotion that often fig-

ures into moral decision making (Haidt, 2001)—is a very crude measure of the value of human life. This System I affect is not sensitive to numerical gradation (Fetherstonhaugh et al., 1997; Hsee & Rottenstreich, 2004) and is easily biased by seemingly irrelevant factors, such as attention, vividness, novelty, and social proximity (Loewenstein & Small, 2007; Slovic, 2007). If System I affect does not respond as strongly to multiple victims as to single victims, utilizing this affect as a heuristic cue in moral decision making might lead to deviations from normative principles (e.g., Loewenstein, Weber, Hsee, & Welch, 2001; Slovic, Finucane, Peters, & MacGregor, 2002).

In summary, several lines of argument suggest that the collapse of compassion may be driven by the fact that emotions respond primarily to individuals rather than groups. In the same way that the human auditory system is tuned to a specific range of frequencies that we experience as sound and the visual system is tuned to certain wavelengths that we experience as light, the emotion system may be tuned to certain ranges of inputs. Under this explanation, emotions, including compassion, are highly sensitive to individuals but insensitive to groups.

Motivated Emotion Regulation

An alternative way to explain the collapse of compassion is that groups have the potential to elicit strong emotion, but people may be wary about letting that happen. Rather than reflecting a starting point for the triggering of emotional experience, the collapse of compassion might be the end result of people regulating compassion toward multiple victims under certain motivational conditions.

The motivational affordances of helping situations have been studied most extensively in the literature on empathy and altruism (Batson, 1991; Hodges & Klein, 2001). For instance, the arousal: cost–reward model of helping behavior suggests that when people are confronted with a crisis situation with someone in need of help, they feel aversive physiological arousal, which then motivates them to reduce that arousal (Dovidio, Piliavin, Gaertner, Schroeder, & Clark, 1991). If helping is not costly, people will reduce their arousal by helping. But if it is costly, they will reduce their arousal through mechanisms such as diffusing responsibility, subjectively redefining the situation, and escaping the situation altogether (Dovidio et al., 1991).

There are more specific kinds of cost, such as financial cost, that might be associated with the situation of perceiving mass suffering. Shaw, Batson, and Todd's (1994) research on empathy avoidance suggests that when helping is foreseen as being materially costly, people will actively avoid feeling the emotions they know will compel them to help. When the participants thought that helping would involve a large commitment, they chose to hear an appeal for help with low emotional impact, precluding pro-social emotion. This previous research has demonstrated that people are sometimes motivated to avoid feeling empathy, but no research has integrated this general tendency with the finding that people feel less toward many victims than one victim. Our research proposes that when faced with the prospect of mass suffering, people might find their emotions especially costly and take steps to prevent or eliminate them.

In addition to financial cost, there is also the psychological cost of being emotionally overwhelmed. People forecast that

they will feel more intense emotion as the number of victims in a crisis increases, even if this forecast turns out to be inaccurate when compared with actual emotional experience (Dunn & Ashton-James, 2008). If people expect to feel intense emotion toward mass suffering and appraise that they would be unable to cope with it, they might take steps to prevent that experience from ever happening (Lazarus & Folkman, 1984). This worry about being overwhelmed is not unrealistic and has been documented in naturalistic helping situations. Professional caregivers often experience compassion fatigue, or reduced empathic sensitivity to the people they are expected to help (Figley, 1995). One contributing factor is workload: The more people for whom they are responsible, the more caregivers tend to report compassion fatigue (Engelbrecht, van den Berg, & Bester, 2009). Some have argued that this effect might be due to motivated emotion regulation, as caregivers might stifle their compassion to avoid current or anticipated psychological exhaustion (Batson, Ahmad, & Stocks, 2004; Hoffman, 2000; Stotland, Mathews, Sherman, Hansson, & Richardson, 1978). Thus, either the forecast or the actual experience of overwhelming emotion might lead people to prevent themselves from feeling emotions toward multiple suffering victims.

The affective triggers account of the collapse of compassion overlooks motivational variables that have been considered relevant in the empathy literature. We suggest that such motivations may be critically important. For instance, many (though not all) studies reporting the collapse of compassion explicitly ask participants to donate money, creating a possible motivation to reduce costly emotions (e.g., Kogut & Ritov, 2005; Small et al., 2007). Our review of the literature found 22 studies demonstrating the collapse of compassion, 15 of which (68%) asked for a donation. Some participants in the remaining studies may have expected a donation request because the materials depicting victims have often been modeled on charity advertisements, whose purpose is to solicit donations.

If the collapse of compassion tends to emerge under certain motivational conditions—such as when people expect compassion to be overwhelming or helping to be financially costly—then altering those conditions might change how people respond to multiple victims. If the emotion regulation account is correct, the collapse of compassion should also depend on factors related to effective emotion regulation. Although some researchers have argued that people might help others as a kind of negative mood relief (Cialdini et al., 1987; Dickert, Sagara, & Slovic, 2010), no moderating factors related to emotion regulation have been considered in previous research. The emotion regulation explanation suggests that the collapse of compassion may be strongest among individuals who are both motivated to regulate their emotions and skilled at regulating them effectively.

In summary, the motivated emotion regulation account argues that the collapse of compassion will emerge primarily when people are motivated to avoid feeling compassion for multiple victims. And given the strategic nature of this emotion regulation, it should only emerge for people who can skillfully regulate their emotions. Illuminating boundary conditions for when the collapse of compassion emerges would provide strong evidence that it is not a universal constraint on what triggers emotion but rather the end result of a motivated regulation strategy.

Overview of Hypotheses

We tested two main hypotheses in three experiments to distinguish between the affective triggers account and the motivated emotion regulation account of the collapse of compassion. Experiment 1 tested our first hypothesis, that the collapse of compassion would emerge most strongly when there is a clear motivation to avoid feeling compassion for multiple victims. Previous studies of the collapse of compassion have typically included a request to donate money to aid the victims in question (e.g., Kogut & Ritov, 2005; Small et al., 2007). The expectation of being asked to help may serve as a financial motivation to avoid emotions toward many victims. Indeed, Shaw et al. (1994) found that participants who had been told to expect an aid appeal were more likely to avoid emotionally impactful appeals. We thus predicted that participants would be more likely to display the collapse of compassion when they expected an appeal for a donation than when they did not expect such an appeal.

Experiments 2 and 3 tested our second hypothesis: that the collapse of compassion would depend upon emotion regulation. In Experiment 2, we measured individual differences in emotion regulation skill, with the expectation that the collapse of compassion would emerge most strongly for people who can most effectively regulate emotions. In Experiment 3, we directly manipulated emotion regulation processes to examine whether attempts to regulate emotion could cause a collapse of compassion.

Additionally, Experiments 2 and 3 used a continuously movable emotion rating scale that tracked changes in emotion toward single and multiple victims on a second-by-second basis. If emotion regulation does in fact drive the effect, this dynamic measure can help us distinguish between two different process accounts of how regulation might operate. The first regulation account is reactive: People might initially feel more emotion toward multiple victims than toward single victims but then dampen their feelings toward multiple victims. The second regulation account is proactive: People who foresee emotions toward multiple victims as being especially costly might prevent themselves from ever feeling any emotion toward multiple victims. Though in both cases, motivations would lead to the regulation of compassion toward multiple victims, the time course of emotional experience would differ substantially. The dynamic measures in Experiments 2 and 3 allowed us for the first time to capture emotions toward victims in real time. We were therefore able to assess whether participants experienced strong emotion toward multiple victims and then eliminated it or whether they never experienced strong emotions at all.

In summary, we expected the collapse of compassion to be reduced (a) when people are not motivated to avoid compassion; (b) for people who cannot regulate their emotions well; and (c) when people allow themselves to experience their emotions without down-regulating them. If the collapse of compassion is due to groups' inability to trigger emotion, there is little reason to expect these conditions to matter. By contrast, the motivated emotion regulation account would suggest that the motivation and ability to regulate one's emotions are critical for the collapse of compassion to occur.

Preliminary Study

Before turning to the hypotheses described above, we conducted a preliminary study to establish that helping multiple victims is indeed perceived as costlier than helping one victim. The motivated emotion regulation account suggests that people down-regulate compassion toward multiple victims because compassion toward multiple victims is seen as costlier than compassion toward one victim. It was therefore important to check this motivational assumption. Sixty-one participants (44 female, 17 male) were recruited from the introductory psychology research pool and were given course credit for participating. Participants were randomly assigned to read about either one child or eight children from the West Darfur region of Sudan. Participants were seated at computers and given the following information:

> In the West Darfur region of Sudan, there has been a civil war raging for the past five 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 of one child [eight children] from Darfur.

This information was paired with an image of one child in the one-victim condition and with eight separate child images in the eight-victim condition. These images were paired with specific child ages and names. Participants were asked two questions about cost on a 7-point Likert-type scale (from $1 = $ *Not at all* to $7 = $ *Extremely*): "How costly do you think it would be to help the child [children] in Darfur?" and "Did you think that helping the child [children] in Darfur would be expensive?" These two items were highly correlated at $r = .88$ and were thus combined as an index of perceived financial cost. As expected, participants felt that helping multiple victims would be significantly more costly ($M = 4.47$, $SD = 1.71$) than helping one victim ($M = 3.31$, $SD = 1.70$), $F(1, 59) = 7.05$, $p = .01$, $\eta_p^2 = .11$. Having established the credibility of financial cost as a plausible motive for emotion regulation, we designed our next study to explicitly manipulate that financial motive.

Experiment 1

Experiment 1 tested whether removing a source of motivation to regulate would reduce the collapse of compassion. At the beginning of the experiment, participants read about one or eight children in Darfur. Participants were then told that later in the experiment, they would be asked to report either (a) their feelings toward these children or (b) their feelings toward these children and how much money they would be willing to donate. We did not tell participants in the no-donation condition that there would be no donation, because such an instruction might have seemed like a violation of conversational norms and might have inadvertently focused participants on the idea of a donation even as we assured them of its absence. Instead, we relied on the relative difference between a condition in which no donation was mentioned and a condition in which donation was assured. When participants did not expect to be asked to help, we predicted, the collapse of

compassion would not emerge. By contrast, when participants expected that they would be asked to help, those who saw one victim would report more compassionate emotion than those who saw eight victims, replicating past findings. We expected to find a decrease in emotion from single to multiple victims, rather than no increase in emotion from single to multiple victims, because our methods mirrored those of previous studies that found significant decreases. In particular, we modeled our stimuli on those in studies conducted by Kogut and Ritov (2005) and Small et al. (2007), who presented photos of victims with identifying information either singly or in groups.

We also included measures of three alternative explanations for the collapse of compassion: psychological distance, diffusion of responsibility, and perceived efficacy of helping the victims. People might experience less emotion toward multiple victims because they feel a greater psychological distance from these victims; because they feel less responsible for helping; or because they feel that their helping will not matter much. Ruling out these alternative explanations would more firmly support the motivation to avoid financial cost as a critical factor in the collapse of compassion.

Method

Participants. One hundred and twenty college students (84 female, 36 male) from the University of North Carolina at Chapel Hill participated for course credit. Two participants whose responses were more than 2.5 standard deviations (*SD*s) below the mean on the compassion scale were excluded.

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 resulting design was a 2 (number of victims) × 2 (expectation to help) between-subjects design. The critical dependent variable was self-reported emotion toward the children.

Procedure. Participants were seated at individual computer workstations and run in sessions of up to six at a time. After viewing an introductory slide, participants saw the same information about Darfur as presented in the preliminary study. Participants saw either one or eight child images (with names and ages), depending upon victim condition, as in the preliminary study. The images and text were on screen for 1 min.

Participants were then 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." Before viewing the images, participants were reminded, "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] . . . Remember that later in the experiment, you will be asked to rate how you feel toward the child [children] you saw."

Participants then saw the same Darfur information and images for a period of 1 min. They completed a nine-item scale measuring compassion-related feelings and attitudes toward the

target or targets of aid (see the Appendix for items). This was followed by a series of scales measuring alternative explanations for the collapse of compassion. The eight-item Distance scale measured psychological distance from the victims. The two-item Diffusion scale measured diffusion of responsibility for helping the victims. Finally, the two-item Efficacy scale measured perceived efficacy of helping the victims. These scales are located in the Appendix. Participants were lastly asked about their race and gender and additional questions that are not examined here.

Results

Compassion toward victims. The nine items measuring compassion were averaged together (Cronbach's $\alpha = .81$). A two-way between-subjects analysis of variance (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, $F(1, 116) = 1.15$, $p = .29$, $\eta_p^2 = .01$, or number of victims, $F(1, 116) = 0.34$, $p = .56$, $\eta_p^2 = .00$. However, there was a significant interaction between help request and number of victims, $F(1, 116) = 4.61$, $p = .03$, $\eta_p^2 = .04$. The pattern of means for the interaction between compassion, help request, and number of victims is displayed in Figure 1. This interaction suggests that the difference in compassion toward one versus eight victims depended upon whether participants expected to help those victims.

We probed the interaction by first examining the effect of the help request separately in the one-victim and eight-victim groups. In the one-victim condition, there was not a significant effect of help request on compassion, $F(1, 58) = 0.47$, $p = .50$, $\eta_p^2 = .01$. In the eight-victim condition, by contrast, participants reported significantly greater compassion when they would not be asked to help than when they would be asked to help, $F(1, 58) = 6.76$, $p = .01$, $\eta_p^2 = .10$.

We also examined the effect of number of victims separately in the help-request and no-help-request conditions. When help was requested, participants reported numerically greater compassion toward a single victim than toward eight, although this simple effect was not significant, $F(1, 59) = 1.18$, $p = .28$, $\eta_p^2 = .02$. In contrast, when help was not requested, eight victims elicited sig-

Figure 1. Self-reported compassion by help request and number of victims, Study 1. Error bars represent one standard error of the mean.

nificantly more compassion than one victim, $F(1, 57) = 3.87$, $p = .05$, $\eta_p^2 = .06$. By removing the expectation that participants would be asked to donate money, we were able to reverse the typical collapse of compassion pattern.

Psychological distance. Were the compassion findings driven by perceptions of high cost or by other processes? One alternative explanation is that participants felt greater psychological distance from eight victims than from one. The eight-item Distance scale (Cronbach's $\alpha = .83$) measured participants' felt distance from the victims they had seen. There were no significant main effects of help request, $F(1, 116) = 0.01$, $p = .94$, $\eta_p^2 = .00$, or number of victims, $F(1, 116) = 0.00$, $p = .96$, $\eta_p^2 = .00$, and no significant interaction effect, $F(1, 116) = 0.33$, $p = .57$, $\eta_p^2 = .00$. Mean values for the interaction of distance with help request and number of victims are located in Table 1. Psychological distance did not mirror the findings for compassion, suggesting that changes in the compassion ratings were not due to differences in psychological distance.

Diffusion of responsibility. Another potential alternative explanation is diffusion of responsibility. The two items on the Diffusion scale ($r = .48$) measured perceived personal responsibility to help and perceived responsibility of others to help. To compute diffusion of responsibility, we subtracted participants' personal responsibility scores from participants' scores for the responsibility of others, such that a higher score reflected greater diffusion of responsibility. There were no significant main effects of help request, $F(1, 116) = 1.10$, $p = .30$, $\eta_p^2 = .01$, or number of victims, $F(1, 116) = 1.06$, $p = .31$, $\eta_p^2 = .01$, and there was no significant interaction effect, $F(1, 116) = 0.78$, $p = .38$, $\eta_p^2 = .01$. Mean values for the interaction of diffusion of responsibility with help request and number of victims are located in Table 1. Diffusion of responsibility was not affected by the help request or number of victims, suggesting that diffusion of responsibility did not play a prominent role in the findings for compassion.

Efficacy. The final alternative explanation considered was perceived efficacy of helping, measured by the two-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 reported less compassion because this emotion was seen as useless. Yet there were no significant main effects of help request, $F(1, 116) = 1.10$, $p = .30$, $\eta_p^2 = .01$, or number of victims, $F(1, 116) = 0.70$, $p = .70$, $\eta_p^2 = .01$, and there was no significant interaction effect, $F(1, 116) = 0.23$, $p = .63$, $\eta_p^2 = .00$. Mean values for the interaction of efficacy with help request and number of victims are located in Table 1. Perceived efficacy of helping did not change when help was requested or by the number of victims involved, suggesting that it was not the motivation behind the changes in compassion ratings.

Discussion

This study provides initial evidence that the collapse of compassion may be due to an active attempt to eliminate emotions that are seen as costly. When people expected to have to help, they expressed no more compassion toward eight victims than one, as in past research by Fetherstonhaugh et al. (1997); Hsee and Rottenstreich (2004); Friedrich and McGuire (2010); and Dunn and Ashton-James (2008). There was a nonsignificant trend of greater
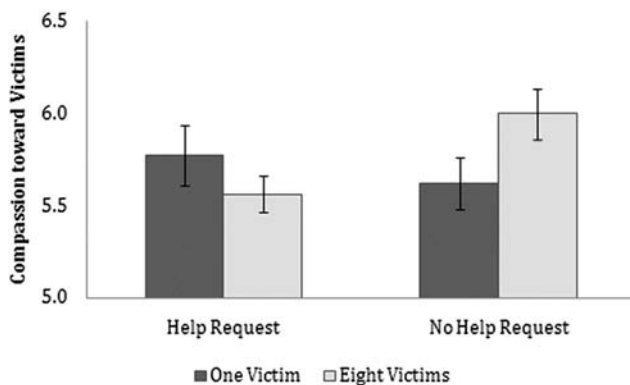
Table 1

Means (and Standard Deviations) for Psychological Distance, Diffusion of Responsibility, and Efficacy of Helping, Study 1

	No help		Help	
Variable	One victim	Eight victims	One victim	Eight victims
Psychological distance	4.68 (0.82)	4.59 (0.85)	4.60 (0.70)	4.68 (0.72)
Diffusion of responsibility	0.67 (1.81)	0.17 (1.23)	0.17 (1.37)	0.13 (1.18)
Efficacy of helping	4.78 (1.23)	4.69 (1.54)	4.63 (1.57)	4.29 (1.36)

emotion toward one victim than eight victims, as in previous research by Kogut and Ritov (2005); Slovic (2007); and Small et al. (2007). Yet when people were not given this expectation of having to help, they showed more emotion toward eight victims than one victim, reversing the collapse of compassion and responding as would be expected by normative models. 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. These results are inconsistent with the affective triggers hypothesis, which predicts no role for motivation to avoid costs. And the effect did not appear to be driven by alternative factors, such as greater psychological distance, diffusion of responsibility, or perceived efficacy of helping. Although we cannot definitively rule out a role for these mechanisms based on null findings, we found no evidence that they were associated with the collapse of compassion. At minimum, there seems to be something additional driving the collapse of compassion, related to self-interested motivations.

Perceived high cost may be one critical impetus behind the collapse of compassion. Of course, there are probably many reasons that could motivate people to regulate their emotions toward multiple victims. Once such a motive is active, the ultimate consequences of emotion regulation attempts may depend on how effectively a person is able to implement a regulation strategy. We examined factors related to regulation effectiveness in Experiment 2.

Experiment 2

Experiment 1 suggested that motivation might play a significant role in the collapse of compassion. Experiment 2 was meant to test our second hypothesis that effective emotion regulation is required for the collapse of compassion to emerge. If differences in emotion toward single versus multiple victims are the end result of a motivated regulation strategy, people who are skilled at regulating their emotions should be more likely to show this effect than people who cannot regulate their emotions well. We therefore measured individual differences in emotion regulation ability.

We also investigated the dynamics of the collapse of compassion over time. Many have suggested that emotion regulation is a process that unfolds over time (Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Koole, 2009; McClure, Botvinick, Yeung, Greene, & Cohen, 2007). 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, we used an online rating scale in Experiment 2 to measure emotion changes over time (Larsen & Fredrickson, 1999).

Establishing the time course can help distinguish further between theoretical accounts of the collapse of compassion. If we are correct that the effect is driven by emotion regulation, then how does this happen? Do people experience aversive emotions and then regulate them, or do they foresee that they are about to experience aversive emotions and take steps to prevent that from happening? This distinction is similar to Gross's (1998) distinction between response-focused regulation (in which people try to manage the behaviors and expressions following from an emotion) versus antecedent-focused regulation (in which people try to manage the processes that give rise to emotions in the first place). Gross's research shows that people engage in both kinds of regulation, but the role that either might play in the collapse of compassion is entirely unknown. And so our question is, when faced with multiple victims, do people regulate emotions reactively or proactively? If people reactively regulate emotions, we would expect to see multiple victims elicit more emotion than a single victim early on, followed by a decline in emotion toward multiple victims (especially among good regulators). By this account, whether experiments find greater emotion toward single victims, multiple victims, or no difference would depend on how quickly emotion is measured.

In contrast, if people proactively regulate, we would expect that good regulators would never show greater emotion toward multiple than single victims. The proactive regulation account assumes that people make an affective forecast that multiple victims might potentially elicit high levels of emotion that are costly (either materially or psychologically), which is consistent with the results of our preliminary study as well as the affective forecasting findings of Dunn and Ashton-James (2008). The affective triggers account also suggests that people never experience as much emotion toward several victims as toward a single victim. However, this account predicts that this should happen for all participants, regardless of regulation skill. If proactive regulation takes place, we should see this pattern only among skilled regulators. By including a dynamic measure of affect, we aimed to catch regulation in the act.

Method

Participants. Sixty college students (49 female, 11 male) from the University of North Carolina at Chapel Hill participated for course credit. Data were excluded from one participant whose

response was more than 2.5 *SDs* below the mean on the online emotion rating.

Design. Participants were randomly assigned to read about one, four, or eight children from Darfur. Time of online emotion rating was treated as a within-subjects factor. The critical dependent variable was the content of the online emotion rating.

Measures. We measured emotion regulation ability using the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The DERS has excellent internal consistency ($\alpha = .93$) and test–retest reliability ($r = .88$; Gratz & Roemer, 2004). The DERS has also demonstrated good construct validity. It correlates substantially with another well-established measure of emotion regulation skill, the Negative Mood Regulation Scale (Gratz & Roemer, 2004). The DERS has been shown to correlate well with physiological measures of emotion regulation (Vasilev, Crowell, Beauchaine, Mead, & Gatzke-Kopp, 2009). Difficulty in regulating emotions is also associated with the tendency to avoid rather than confront unpleasant emotional experiences (Gratz & Roemer, 2004) and with lower levels of mindful acceptance of mental states (Baer, Smith, Hopkins, Krietemeyer, & Torey, 2006). Regulation difficulties assessed by this scale have also been shown to predict a variety of clinical outcomes, such as aggressive behaviors (Berzenski & Yates, 2010; Cohn, Jakupcak, Seibert, Hildebrant, & Zeichner, 2010), depression (Weinberg & Klonsky, 2009), anxiety disorders (Roemer et al., 2009; Tull, Stipelman, Salters-Pedneault, & Gratz, 2009), substance abuse (Fox, Axelrod, Paliwai, Sleeper, & Sinha, 2007; Fox, Hong, & Sinha, 2008), and eating disorders (Buckholdt, Parra, & Jobe-Shields, 2010; Lavender, 2010; Whiteside et al., 2007). We selected this scale for the present experiment because the items focus specifically on how effectively people regulate emotions in upsetting situations. Examples of items from the scale include "When I'm upset, I believe that there is nothing I can do to make myself feel better"; "When I'm upset, I have difficulty focusing on other things"; and "When I'm upset, I have difficulty controlling my behaviors."

Procedure. Participants were seated at individual computer workstations and run in sessions of up to six at a time. 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.

This measure took 10 samples per second and averaged them together to provide a response for each second. After they practiced for 1 min with the scale, participants were told that on the next screen they would see information about the crisis in Darfur, as well as images of one, four, or eight children from Darfur. They were also informed that after they rated their feelings they would be asked how much money they would be willing to donate to help the victims. They received this instruction because Experiment 1 suggested that such an expectation is important in motivating reduced compassion toward multiple victims. Participants then proceeded to the online rating task, as indicated. The images and text were the same as in Experiment 1. Participants also received two reminders: "Begin rating your feelings now!" at the very top of the screen and "Please remember to keep rating your feelings!" underneath the child images. The online emotion rating scale was at the very bottom of the screen. All of this was presented for the course of a minute, before the screen advanced automatically.

Following the online rating task, participants completed the Difficulties in Emotion Regulation Scale. Finally, participants were asked about their race, gender, and other questions that will not be discussed here.

Results

Online emotion rating. The average emotional response was recorded for each second of time, providing 60 data points for each participant. For the current analysis, these 60 data points were aggregated into 10 intervals representing the average emotional response over each consecutive 6-s interval. Because the distributions within some of these 10 intervals were skewed, we used log-transformed values in subsequent analyses.

In the main analysis, time of online emotion rating was entered as a within-subjects factor in a mixed-model generalized linear model. Number of victims was entered as a between-subjects factor. The DERS (Cronbach's $\alpha = .92$) was entered as a continuous covariate (centered at the sample mean), which was allowed to interact with the time and number of victims variables. DERS was not influenced by the number of victims manipulation, $F(2, 57) = 0.69$, $p = .51$, $\eta_p^2 = .02$, so it was appropriate to use the scale as a moderator variable.

There was a significant main effect of time of online emotion rating, $F(9, 486) = 27.62$, $p < .001$, $\eta_p^2 = .34$. On average, participants felt more upset by the end of the online rating than they had at the beginning. In addition, there was a significant main effect of number of victims, $F(2, 54) = 4.46$, $p = .02$, $\eta_p^2 = .14$. Participants felt more upset when they saw fewer victims, replicating the collapse of compassion finding. There was also a marginally significant main effect of DERS, $F(1, 54) = 3.56$, $p = .06$, $\eta_p^2 = .06$. Effective regulators displayed more emotion on average than poor regulators did, not taking into account differentiation by number of victims.

Supporting the idea that emotion regulation is important for the collapse of compassion, there was a significant two-way interaction between number of victims and DERS, $F(2, 54) = 3.87$, $p = .03$, $\eta_p^2 = .13$. We probed this interaction by exploring the effect of number of victims on emotional responses at 1 *SD* above and below the mean of the DERS scale. At 1 *SD* above the mean of the DERS (poor emotion regulators), there was not a significant effect of number of victims on emotion, $F(2, 54) = 1.48$, $p = .24$, $\eta_p^2 = .05$. However, this effect became significant at 1 *SD* below the mean of DERS (skilled emotion regulators), $F(2, 54) = 7.61$, $p =$

.001, $\eta_p^2 = .22$. The collapse of compassion pattern emerged more strongly for good emotion regulators than for poor regulators.

The DERS × number of victims interaction was further qualified by the time of rating, $F(18, 486) = 2.12$, $p = .01$, $\eta_p^2 = .07$. Figures 2a and 2b display emotion over time by number of victims, respectively at 1 *SD* above and below the mean of DERS. To understand how difficulties in emotion regulation moderated the effect of victim number at various points in the online emotion rating, we conducted regression analyses testing the DERS × Number of Victims interaction at each time interval. The interaction was marginally significant at Interval 4 ($p = .07$) and Interval 5 ($p = .06$) and significant ($p < .05$) at Intervals 6, 7, 8, 9, and 10. Thus, good regulators showed the collapse of compassion to a greater extent than poor regulators, but this difference became significant only after 30 s.[1]

Discussion

Experiment 2 found that only people who could effectively regulate their emotions showed the collapse of compassion. These results support the claim that the collapse of compassion is driven by motivated emotion regulation: Those who could not regulate their emotions well did not show the effect.

The pattern of change over time sheds further light on the exact processes of emotion regulation. Emotion toward multiple victims did not initially increase and then decrease, as might be expected if reactive emotion regulation were taking place. Instead of reactively down-regulating emotion toward multiple victims, people seem to have proactively prevented the unfolding of emotion toward multiple victims. This pattern is consistent with research by Gross (1998) suggesting that one effective strategy for regulating emotions is to proactively attempt to control the antecedents of emotional experience.

The time course data do not, by themselves, rule out the affective triggers account, because the gradual differentiation between single and multiple victims might also be expected from that account. However, the affective triggers account provides little reason to predict that individual differences in emotion regulation ability should moderate these effects. Our results showed that the differentiation between single and multiple victims over time occurred only for skilled regulators.

Together, these results provide the first detailed picture of how the collapse of compassion may operate. Our preliminary study demonstrated that participants anticipate helping multiple victims to be more costly than helping a single victim, and research by Dunn and Ashton-James (2008) showed that people expect to experience more intense negative emotion in response to multiple victims. Based on these expectations, the stage is thus set for people who expect to see multiple victims to take steps to proactively avoid emotions. From that point, our data suggest that good emotion regulators do just that, although poor regulators are apparently unable to do so to the same degree.

Experiment 3

The preceding studies provide convergent evidence for the role of motivated emotion regulation in the collapse of compassion, but this evidence for emotion regulation is correlational. We found that emotion regulation ability was necessary for the collapse of compassion,
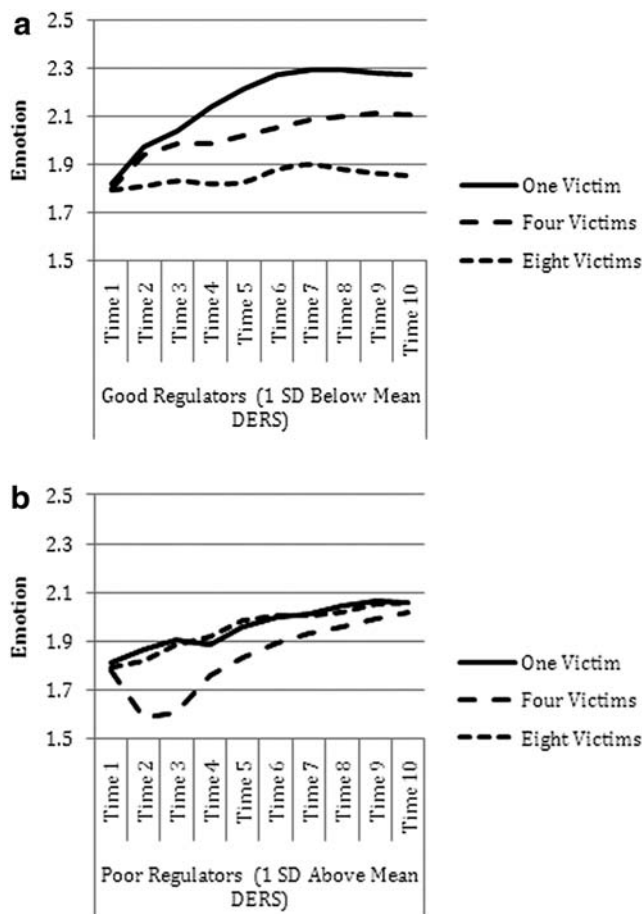

Figure 2. a: Online emotion rating by number of victims for skilled emotion regulators (1 *SD* below the mean of the DERS), Study 2. b: Online emotion rating by number of victims for poor emotion regulators (1 *SD* above the mean of the DERS), Study 2. DERS = Difficulties in Emotion Regulation Scale.

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[1] The DERS contains six subscales targeting more specific features of emotion regulation: Strategies (the perceived ability to regulate emotions), Goal-Directed Behaviors (the perceived ability to engage in goal-directed behaviors while experiencing negative emotions), Impulse Control (the perceived ability to remain in control of behavior while experiencing negative emotions), Non-Acceptance (the perceived tendency to get upset about having negative emotions), Emotional Awareness (the perceived tendency to pay attention to emotional experiences), and Emotional Clarity (the perceived knowledge about emotional experiences).

Although our main hypotheses concerned overall regulation ability, we explored the subscales to shed further light on the specific components of regulation involved. There were significant three-way-interactions for the Strategies and Non-Acceptance subscales ($p < .05$) and a marginally significant three-way interaction for the Goal-Directed Behaviors subscale ($p = .10$). The patterns of means mirrored the three-way interaction pattern displayed by the overall DERS scale. The significant subscales are consistent with the idea that the collapse of compassion is due to a proactive emotion regulation process: The collapse of compassion was especially evident for people who had access to emotion regulation strategies (Strategies) and could enact these strategies effectively (Goal-Directed Behavior) without getting unduly emotional about the process (Non-Acceptance).

but manipulating whether participants engage in emotion regulation would provide evidence that emotion regulation is sufficient to cause the collapse of compassion. In Experiment 3, we instructed participants either to down-regulate or to experience their emotions as they learned about one or eight victims whom they expected to help.

It is important to note that we did not instruct participants to respond differently to multiple victims than to single victims. On the basis of the time course findings of Experiment 2, we expected that participants told not to feel strong emotion and then faced with one victim would feel that they did not need to exert much regulatory effort to eliminate their compassion. Participants told to down-regulate emotion and then faced with eight victims, in contrast, might feel that more effort was required. As a result, we anticipated greater regulation toward eight victims than toward one victim. Such a pattern has precedent in research on the "region-β paradox" (Gilbert, Lieberman, Morewedge, & Wilson, 2004). This refers to the fact that people are more likely to engage in emotion regulation and rationalization when an experience is strongly aversive than when it is mildly aversive. This tendency often leads people to feel worse following an annoyance than an ordeal.

The preliminary study suggested that participants anticipated eight victims to be more burdensome than one victim, and the time course data from Experiment 2 suggested that good regulators managed their emotions proactively. We therefore predicted that participants encouraged to down-regulate their emotions would engage in greater emotion regulation for eight victims than foe one, resulting in the collapse of compassion. That is, we expected participants instructed explicitly to regulate their emotions to show the same pattern that good regulators displayed spontaneously. In contrast, we predicted that the collapse of compassion would be attenuated when participants were encouraged to feel, rather than down-regulate, their emotions.

Method

Participants. One hundred and twelve students (84 female, 28 male) from the University of North Carolina at Chapel Hill participated for course credit. Data were excluded from four participants who arrived late for the session and did not receive full task instructions, one participant who did not move the online affect rating scale at all, and one participant who showed extreme variation on the online affect rating (SD across all time points exceeded 2.4).

Design. Participants were randomly assigned to read about one or eight children from Darfur. Participants were also randomly assigned to read instructions either to down-regulate or to let themselves experience their emotions during the online emotion rating. As in Experiment 2, we recorded emotions using a dynamic online rating scale, treating time as a within-subjects factor. The critical dependent variable was the online rating of how upset participants felt for the victims.

Procedure. Participants were seated at individual computer workstations and completed the study in groups of up to six at a time. We used instructions from previous research to manipulate emotion regulation. In particular, we adapted the reappraisal instructions from Gross's (1998) study of emotion regulation. Before they received the reappraisal instructions, participants were instructed to clear their minds: "Before moving on, we are going to show you a blank screen for about one minute. We would like you

to use this minute to clear your mind of all thoughts, feelings, and memories." Participants then received the same instructions about the online emotion rating as in Experiment 2 and were told that they would be asked to make a donation later in the experiment. After this, participants in the regulation condition were told the following (adapted from Gross, 1998):

> While you are viewing the information and using the scale, please try to adopt a detached and unemotional attitude. In other words, as you view the information, try to think about what you are seeing objectively, in terms of the technical aspects of what you observe. Pay careful attention, but please try to think about what you are seeing in such a way that you don't feel anything at all.

Participants in the experience condition were told the following:

> While you are viewing the information and using the scale, please let yourself experience whatever emotions you feel as you view the information. In other words, as you view the information, try to focus on how you are feeling. Let yourself feel your emotions without trying to get rid of them. Pay careful attention, and please try to think about what you are seeing in such a way that you experience whatever feelings come to you.

Participants then saw a screen containing information about the crisis in Darfur, as well as images of one or eight children from Darfur. This material was presented exactly as in Experiment 2. After the online rating, participants completed the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988), which measured state mood. Finally, participants were asked about their race, gender, and other questions that are not discussed here.

Results

Online emotion rating. As in Experiment 2, the 60 data points from the minute-long online emotion rating were parsed into 10 intervals representing the average emotional response over every consecutive 6 s of time. Because the distributions of some intervals were skewed, we used log-transformed means for subsequent analyses. On the basis of the emotion regulation account, we predicted that participants instructed to regulate their emotions would feel less compassion toward eight victims than one. If multiple victims trigger stronger regulation proactively, the time course should show a pattern similar to Experiment 2, in which the difference between eight victims and one increases over time. We therefore predicted a triple interaction among regulation condition, number of victims, and time.

ANOVA showed that there was a significant main effect of time of online emotion rating, $F(9, 972) = 19.56$, $p < .001$, $\eta_p^2 = .15$. Participants felt more emotion by the end of the online rating than they had at the beginning, replicating the results of Experiment 2. There was also a significant main effect of number of victims, $F(1, 108) = 6.67$, $p = .01$, $\eta_p^2 = .06$. Participants felt more upset about one victim than eight victims, replicating the collapse of compassion finding.

Replicating the effect of time course observed in Experiment 2, there was a significant interaction between time of online emotion rating and number of victims, $F(9, 972) = 2.14$, $p = .02$, $\eta_p^2 = .02$, such that the difference in emotion between one victim and eight victims became stronger over time. But this effect was qualified by the predicted three-way interaction among time of online rating,

number of victims, and regulation instruction, $F(9, 972) = 2.12$, $p = .03$, $\eta_p^2 = .02$. Consistent with the motivated regulation account, this result suggests that regulation instructions influenced the difference in emotion between one and eight victims that emerged over time. Figure 3 displays the results for the four groups.

For participants in the regulation group, there was a significant main effect of number of victims, $F(1, 52) = 4.01$, $p = .05$, $\eta_p^2 = .07$, and a significant main effect of time of online emotion rating, $F(9, 468) = 8.02$, $p < .001$, $\eta_p^2 = .13$. Most important, there was a significant interaction between time of online emotion rating and number of victims, $F(9, 468) = 3.12$, $p = .001$, $\eta_p^2 = .06$. Simple effects analyses revealed a significant increase in emotion over time for the one-victim group, $F(9, 225) = 14.91$, $p < .001$, $\eta_p^2 = .37$, but no increase in emotion over time for the eight-victims group, $F(9, 243) = 0.83$, $p = .59$, $\eta_p^2 = .03$. Participants instructed to avoid strong emotions showed less emotion for eight victims than one by the end of the rating period, and this was driven by the preemption of emotion toward eight victims.

In the experience group, there was a significant main effect of time of online emotion rating, $F(9, 504) = 12.07$, $p < .001$, $\eta_p^2 = .18$, and only a marginally significant main effect of number of victims, $F(1, 56) = 2.75$, $p = .10$, $\eta_p^2 = .05$. There was no significant interaction between time of online emotion rating and number of victims, $F(9, 504) = 0.87$, $p = .55$, $\eta_p^2 = .02$. Instead, the trajectories for one and eight victims in the experience group both increased over time but remained parallel.

In summary of the key findings, the three-way interaction indicated that participants who had been told to down-regulate their emotions showed more emotion toward one victim than eight, and this difference strengthened over time. No such differences emerged among participants told to experience their emotions. These participants showed uniform increases in emotion over time for single and multiple victims.

We further explored the source of the observed effects by examining planned comparisons for the average emotion in the second half of the rating task (Times 6–10), when the largest differences were found. The motivated regulation account would predict that within the regulation group, but not the experience group, there would be greater emotion toward one victim than toward eight victims. As expected, within the regulation group,

participants experienced more emotion toward one victim than toward eight victims, $F(1, 52) = 4.83$, $p = .03$, $\eta_p^2 = .09$. The number of victims made no difference in the experience group, $F(1, 56) = 1.04$, $p = .31$, $\eta_p^2 = .02$. We also examined the effect of regulation instructions separately for single victims and for multiple victims. The motivated regulation account would not predict any difference between regulate and experience groups for one victim, because one victim is not expected to elicit forecasts of strong emotion, and therefore participants may not feel the need to engage in much regulatory effort. As expected, the effect of regulation condition was not significant in the one victim condition, $F(1, 54) = 0.02$, $p = .89$, $\eta_p^2 = .00$. We might expect regulation instructions to have a stronger impact in the eight-victims group. Although the difference was in the expected direction, the effect of regulation instruction was not significant in the eight-victims condition, $F(1, 54) = 1.01$, $p = .32$, $\eta_p^2 = .02$. Nonetheless, our argument is that the combination of a motive to avoid overwhelming emotions and the presence of many victims produces a lack of compassion. To test this specific prediction, we conducted a planned comparison between the regulate/eight-victims group and all other groups. As expected, participants in the regulate/eight-victims cell reported significantly less emotion over the second half of the emotion rating task than did the composite of the other groups, $F(1, 110) = 4.88$, $p = .03$, $\eta_p^2 = .04$. In summary, participants proactively prevented emotion toward multiple victims from unfolding over time, unless they were instructed against regulating their emotion. This translated into the collapse of compassion between single and multiple victims by the end of the online rating for participants in the regulation group.

Supplementary analysis: Affect intensity. Although our main predictions concerned compassion toward the victims, strategic regulation of compassion may have implications for other, more general affective processes. Brown and Payne (2010) found that while attempting to regulate one emotion, participants incidentally experienced other, irrelevant emotions less intensely (see also Mikels, Reuter-Lorenz, Beyer, & Fredrickson, 2008). Given this kind of spillover effect, examining general affect might provide converging evidence for the processes underlying the collapse of compassion. If our regulation account is correct, then participants in the regulate/eight-victims cell should have been engaged in the most intense regulatory efforts. We might therefore expect to see diminished affective responses in that cell.

To test this, we examined affect ratings on the PANAS, looking not only at positive and negative affect but also affect intensity. We analyzed affect ratings using a 2 (Regulation instruction) × 2 (Number of victims) ANOVA. For positive affect, the interaction was not significant, $F(1, 108) = 2.22$, $p = .14$, $\eta_p^2 = .02$, although the regulation group showed a trend toward less positive affect than the experience group, $F(1, 108) = 3.72$, $p = .06$, $\eta_p^2 = .03$. There was no main effect of number of victims, $F(1, 108) = 0.11$, $p = .74$, $\eta_p^2 = .00$. For negative affect, neither the interaction, $F(1, 108) = 0.86$, $p = .36$, $\eta_p^2 = .01$, nor the main effects of regulation instructions, $F(1, 108) = 0.54$, $p = .45$, $\eta_p^2 = .01$, nor number of victims, $F(1, 108) = 0.00$, $p = .99$, $\eta_p^2 = .00$, was significant.

Affective intensity was computed by adding the positive affect and negative affect scores to obtain a measure of extremity. Participants in the experience condition reported higher affect intensity than participants in the regulation condition did, $F(1, 108) = 3.84$, $p = .05$, $\eta_p^2 = .03$. There was also a marginally significant
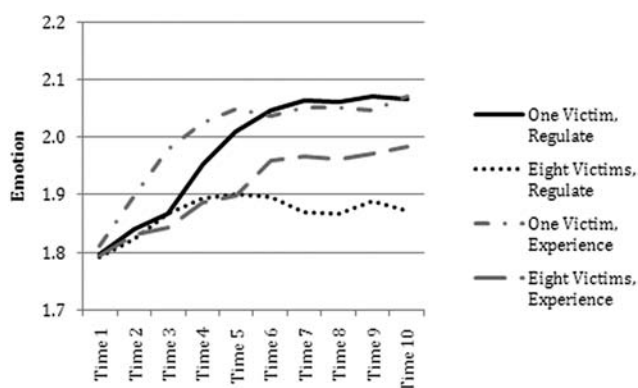

Figure 3. Online emotion rating by number of victims and regulation group, Study 3.

interaction between regulation instruction and number of victims, $F(1, 108) = 2.94$, $p = .09$, $\eta_p^2 = .03$. In the one-victim condition, there was no difference in affect intensity between the regulate group ($M = 4.69$, $SD = 0.69$) and the experience group ($M = 4.73$, $SD = 0.83$), $F(1, 54) = 0.04$, $p = .84$, $\eta_p^2 = .00$. However, when faced with eight victims, participants in the regulation condition showed significantly less intense affect ($M = 4.36$, $SD = 1.02$) than participants in the experience condition did ($M = 4.97$, $SD = 0.95$), $F(1, 54) = 5.45$, $p = .02$, $\eta_p^2 = .09$. It appears that participants who were told to eliminate emotions toward eight victims might have exerted relatively more emotion regulation, as indicated by these carryover effects on affect intensity.

Discussion

The current study found that the collapse of compassion emerged when people were instructed not to feel any emotion, but it was eliminated when they were encouraged to experience their emotions. A critical contribution of this study is that people who were instructed to experience their emotions rather than down-regulate them did not show the collapse of compassion. This finding provides the most conclusive evidence yet for the motivated emotion regulation account. If the collapse of compassion were due to aggregates' inability to trigger emotion, instructions either to down-regulate or to experience emotions should not have had much influence on the online ratings. By contrast, the results suggest that by removing the emotion regulation process, we can reduce the effect. Emotion regulation appears sufficient to cause the collapse of compassion.

Meta-Analysis of Effects From Experiments 1–3

The current studies have shown that the collapse of compassion is not an invariant result of aggregates' inability to trigger emotion. Rather, the collapse of compassion emerges under certain configurations of motivation, regulation skill, and regulation instruction. Across all of our studies, we observed a tendency for less emotion toward multiple victims than single victims when these factors were present. However, in Experiment 1 the difference between one and eight victims was not significant. We conducted a meta-analysis to examine the consistency of results across studies. The meta-analysis aggregated the effect sizes of the difference in emotion between one victim and eight victims, separately for the conditions under which the collapse of compassion is and is not expected to occur on the motivated regulation account. We conducted these as random-effects meta-analyses (Borenstein, Hedges, Higgins, & Rothstein, 2009).

The first analysis aggregated conditions under which the motivated regulation account predicts that the collapse of compassion will emerge: when help is requested (the help request conditions in Experiment 1); for people who can regulate their emotions well (1 SD below the mean of the DERS in Experiment 2, comparing the one-victim and eight-victims groups); and for people who are instructed to down-regulate their emotions (the regulation condition in Experiment 3). Under these aggregated conditions, there was significantly greater emotion toward one victim than toward eight victims (M [weighted mean effect size] $= 0.79$, $Z = 2.08$, $p < .05$).

The second analysis aggregated the conditions under which the motivated regulation account predicts that the collapse of compassion will *not* emerge: when help is not requested (the no-help-request conditions in Experiment 1); for people who cannot regulate their emotions well (1 SD above the mean of the DERS in Experiment 2); and for people who are instructed to experience their emotions (the experience condition in Experiment 3). Under these aggregated conditions, there was not a significant difference in emotion toward one and eight victims ($M = -0.08$, $Z = -0.33$, $p = .74$). In summary, the meta-analyses revealed that across three studies, participants experienced significantly greater emotion toward one than eight victims only under the conditions stipulated by the motivated emotion regulation account. Under those conditions, there was a significant decrease in compassion as the number of victims grew.

General Discussion

Why do people's emotions respond less strongly to many suffering victims than to one? Though most people predict that they should—and would—respond with more compassion as the number of victims in a crisis increases, experienced compassion does not keep pace with the number of victims in a crisis situation. One prominent line of thought suggests that this collapse of compassion is a function of how our affect systems are built (Slovic, 2007). On this view, our emotions are simply not triggered as strongly by aggregates. By this affective triggers account, our affect systems are simply not tuned to respond as strongly to mass suffering as to individual suffering.

Yet the series of studies reported here provides the first support for an alternative account of the collapse of compassion. Rather than reflecting a starting default on emotional experience, the collapse of compassion appears to be the end result of a motivated emotion regulation process. By discovering cases in which the collapse of compassion is eliminated, we have shown that the collapse of compassion is contingent upon certain motivational and regulatory conditions being in place.

Experiment 1 showed that the collapse of compassion was contingent on the expectation of having to help. When people did not expect to have to help, they showed greater compassion toward eight victims than toward one victim, as would be predicted by normative models and intuitive predictions. But when they did expect to have to help, this pattern showed a reversed trend. This reversal was driven by the reduction of compassion toward eight victims, suggesting that expecting to help eight victims was seen as especially costly. By removing one source of motivation to down-regulate emotions, we removed the collapse of compassion. Counter to the idea that people simply never feel much emotion toward aggregates, here we see that this emotional collapse emerges only under specific motivational conditions. This in turn suggests that emotion regulation, and not merely limitations on triggers of emotional experience, may drive the collapse of compassion.

To examine this regulation process more closely, we held the expectation of having to help constant in Experiment 2 and tested whether emotion regulation skill would moderate whether the collapse of compassion emerged over time. We found that only people who could effectively regulate their emotions showed the collapse of compassion. Skilled regulators appear to have success-

fully implemented an emotion regulation strategy to avoid costly emotions. Poor regulators did not show differences in emotion toward single and multiple victims, presumably because they were not able to regulate their emotions effectively. This result adds further weight to the claim that the collapse of compassion is due to the strategic regulation of emotional experience. Finally, Experiment 3 manipulated emotion regulation to provide causal evidence that when people regulated their emotions, they showed greater emotion toward one victim than toward eight victims. Removing emotion regulation reduced the collapse of compassion, providing the most direct evidence that emotion regulation is a key process behind these effects.

Finally, we were able to characterize the time course of the collapse of compassion for the first time. The dynamic measures of emotion in Experiments 2 and 3 allowed us to examine the functional form that emotion regulation might take over time. Reactive regulation would involve greater emotion toward multiple than single victims at first, followed by a dampening of emotion toward multiple victims. However, our participants engaged in a form of proactive regulation in which the trajectory of emotion toward multiple victims remained at a relatively low level, rather than increasing over time as for single victims. Instead of shutting down intense experienced emotion toward multiple victims, people prevented any emotions from unfolding toward multiple victims to begin with. Although the affective triggers account could accommodate this temporal pattern, the pattern emerged only under the specific conditions (good regulators in Experiment 2 and regulation instructions in Experiment 3) predicted by the motivated emotion regulation account.

These studies have provided the first evidence—across multiple measures and methods—that the collapse of compassion might be due to motivated emotion regulation. Slovic (2007) suggested that people "turn off" their affect in the face of mass suffering, and Hoffman (2000) suggested that people might disengage their emotions to avoid empathic overarousal. Yet no empirical evidence has been reported to support or refute the mechanisms underlying the effect. The current studies are the first to illustrate how such a process might operate.

Possibility of Demand Effects

Our studies relied on self-report measures of emotional experience, which leaves open the possibility that the results were influenced by demand effects or social desirability. This possibility is not unique to the current studies but also applies to all prior studies in the collapse of compassion literature, which have relied upon self-reports of emotion. By the demand account, if participants expect helping multiple victims to be more financially costly, they may outwardly express less emotion toward multiple victims as a way of justifying their unwillingness to donate. Yet the current studies suggest two reasons that self-presentation cannot explain the present effects. First, previous research showed that participants thought they should feel more compassion for multiple victims than for a single victim (Dunn & Ashton-James, 2008). If participants perceive this as the normatively appropriate response, then social desirability could just as easily work against the collapse of compassion. Second, it is difficult to see how a demand account can explain the specific patterns we observed. In particular, only skilled emotion regulators showed the collapse of com-

passion in Experiment 2. If faking drove the effects, there is little reason to expect only skilled regulators to do so.

Emotions, Emotion Regulation, and Prosocial Behavior

The findings presented here suggest new ways to think about the relationship among emotions, emotion regulation, and prosocial behavior. First, our studies could motivate a reexamination of the causal relationship between emotions and prosocial behavior. Unlike prior research on empathy and helping behavior that suggests a straightforward causal path from empathy to prosocial outcomes (Batson, 1991), our studies suggest that regulatory behavior is instead pursuing certain emotional outcomes. This coheres with a recent critique suggesting that behaviors pursue emotional outcomes, rather than emotions directly causing behavior (Baumeister, Vohs, DeWall, & Zhang, 2007). Rather than desiring to help based upon how much compassion they felt, people in our studies let themselves feel compassion based on whether or not they desired to help. Compassion (or lack of it) was thus an outcome of behavior, rather than a cause. Although compassion may be important for guiding prosocial behavior, future research should take account of the motivational conditions in which people let themselves feel compassion or steel themselves against it.

Many researchers in the empathy and emotion regulation literatures have shown that being able to successfully regulate emotions is positively associated with a host of adaptive and prosocial outcomes (Eisenberg, 2000, 2009; Gailliot, 2009; Gross, 1998). Yet our studies have shown that emotion regulation skill need not be in the service of prosocial outcomes. In our research, skilled emotion regulation was associated with decreases in emotion toward multiple victims in need of aid. Though previous studies have shown that self-regulation is sometimes required for moral behavior (DeWall, Baumeister, Gailliot, & Maner, 2008), our work highlights that emotion regulation may be used in the service of either prosocial or antisocial goals. Consider moral hypocrisy, or the tendency to believe that it is morally permissible for oneself to commit unfair actions but not morally permissible for others to do the same. Recent research has shown that a cognitive load manipulation reduced moral hypocrisy effects, suggesting that cognitive resources might be necessary for such motivated rationalizations (Valdesolo & DeSteno, 2008). These considerations suggest that emotion regulation ability might be orthogonal to prosocial motivation and might act as a resource to further one's agenda, prosocial or otherwise.

The research presented here has focused on a specific kind of moral context: prosocial emotion and behavior in large-scale crises. However, 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. For instance, most people predict that they would get upset at and avoid a person who makes a racist comment. Yet when actually experiencing this event, people are no more likely to get upset at or avoid someone who makes a racist remark than someone who does not make such a remark (Kawakami, Dunn, Karmali, & Dovidio, 2009). If confronting racism is seen as costly, people might down-regulate their moral emotions in order to avoid such a risky encounter (Smith & Mackie, 2009).

This motivated emotion regulation logic can possibly be applied more broadly across the moral domain. People might prospectively down-regulate their moral emotions not only to avoid costly moral obligations but also to license immoral actions. It is well known that people often rationalize immoral behavior (e.g., Bandura, 1999; Bersoff, 1999; Tsang, 2002). Our research suggests the hypothesis that not only do people rationalize immoral behavior after the fact but that they may prepare for it by numbing themselves to emotions beforehand.

We observed some incidental effects of moral numbing on general, nonmoral affect. This finding suggests the new hypothesis that emotion regulation unrelated to morality might nonetheless have moral implications. Imagine, for example, that a person engages in emotion regulation to manage the pain of a romantic breakup. There is no logical reason we should predict that he is more likely to cheat on his taxes because of this. Yet, if regulating one emotion surreptitiously dulls other emotions, this suggests that our forlorn lover might be more vulnerable to committing immoral acts simply because of a regulation-induced deficit in moral emotion (e.g., guilt) that would otherwise restrain him from it.

These hypotheses await further research, but they illustrate the theoretical power of considering the interaction between emotion regulation and morality. Recent models have highlighted the critical role of emotion in motivating morality (Greene et al., 2001; Haidt, 2001). We suggest, based on the present research, that if emotion typically animates moral judgment and behavior, emotion regulation is likely to play a pervasive role in moderating the emotion–morality link.

Restoring Compassion

If the collapse of compassion is interpreted as resulting from automatic affective responses unchecked by more deliberative analysis, then the most apparent solution would be to encourage more careful deliberation. However, if it is due to regulation pursuing emotional outcomes, this suggests moving away from attempts to bolster controlled cognitive resources. Instead, insofar as deliberate analysis contributes to emotion regulation, eliminating rather than bolstering deliberation might prove an interesting and productive direction.

Another future direction might be to encourage people to trust their intuitive compassion responses (Damasio, 1994). On a trait level, people who exhibit greater reliance on intuitive affect might be less likely to down-regulate their compassion toward multiple victims. And on a state level, priming people to trust their emotions might produce a similar effect (e.g., Uhlmann & Cohen, 2007).

Although our studies cannot establish what aspects of the emotion activation and regulation processes people are aware of, it seems reasonable to assume that people are often aware of at least the outcome of those processes. The more aware people are of these processes, the more control over them they are likely to have. A common theme in discussions of automaticity concerns whether automatic or controlled processes are "better" or "smarter" (Dijksterhuis & Nordgren, 2006; Loftus & Klinger, 1992; Wilson, 2002). The answer probably depends on the particular situation or task. The present research illustrates one domain in which automatic affective reactions favor prosocial outcomes and deliberative regulation interferes.

Conclusion

Why do people feel less compassion for many suffering victims than for one? The current studies suggest that the collapse of compassion is not simply a functional limit on how much emotion people can feel for others. Rather, active self-regulation may be required to stifle the moral impulse toward multiple victims in the service of self-interest. With enough effort and skill, many manage to make statistics of people.

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Appendix

Study 1 Questionnaires

Compassion Scale (1 = *Not at all* to 7 = *Extremely*)

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?

Distance Scale (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?

Diffusion Scale (1 = *Not at all* to 7 = *Extremely*)

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?

Efficacy Scale (1 = *Not at all* to 7 = *Extremely*)

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?