Whom to help? Immediacy bias in judgments and decisions about humanitarian aid

Michaela Huber [a,*], Leaf Van Boven [b], A. Peter McGraw [c], Laura Johnson-Graham [b]

[a] Department of Psychology, Zellescher Weg 17, Technische Universität Dresden, 01062 Dresden, Germany
[b] Department of Psychology and Neuroscience, UCB 345, University of Colorado, Boulder, CO 80309, United States
[c] Leeds School of Business and the Department of Psychology and Neuroscience, UCB 419, University of Colorado, Boulder, CO 80309, United States

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ABSTRACT

People exhibit an immediacy bias when making judgments and decisions about humanitarian aid, perceiving as more deserving and donating disproportionately to humanitarian crises that happen to arouse immediate emotion. The immediacy bias produced different serial position effects, contingent on decision timing (Experiment 1). When making allocation decisions directly after viewing to four emotionally evocative films about four different humanitarian crises, participants donated disproportionately more to the final, immediate crisis, in contrast, when making donation decisions sequentially, after viewing each of the four crises, participants donated disproportionately to the immediate crisis. The immediacy bias was associated with "scope neglect," causing people to take action against relatively less deadly crises (Experiments 2 and 3). The immediacy bias emerged even when participants were warned about emotional manipulation (Experiment 3). The immediacy bias diminished over time, as immediate emotions presumably subsided (Experiment 2). Implications for charitable giving, serial position effects, and the influence of emotion on choice are discussed.

Introduction

How do people decide whom to help? Deciding how to allocate limited resources toward mitigating different sources of humanitarian suffering is of both practical and theoretical importance. In the United States, about 300 billion dollars were donated to charitable organizations in 2008—approximately 2.2% of the gross domestic product of the United States (Bond, 2010). Individual donors constitute the vast majority of charitable giving (75%). Understanding how people make charitable allocation decisions therefore has important implications for understanding everyday decision making and for fundraising by charitable organizations.

Decisions about allocating humanitarian aid are important, theoretically, because they epitomize the dynamic, complex, uncertain, sequential, and emotional nature of everyday choice. Deciding whom to help may be particularly difficult and informative because the emotions evoked by humanitarian suffering are often poorly calibrated with the objective deadliness, severity, or "scope" of that suffering (Fetherstonhaugh, Slovic, Johnson, & Friedrich, 1997; Kristof, 2010, March 2). Moreover, people typically have limited charitable budgets that necessitate allocating donations among various sources of human suffering. More generally, then, understanding how people make donation allocation

decisions can inform the broader question of how people allocate resources toward different emotionally evocative alternatives, which could have implications for decisions regarding environmental risks, terrorist threats, and personal health risks, among others.

We hypothesize that people exhibit an *immediacy bias* when making judgments and decisions about humanitarian aid, perceiving as more deserving and allocating disproportionate resources to humanitarian crises that happen to arouse immediate emotions. This immediacy bias emerges even when emotional immediacy is not informative about the suffering's severity, and even when the objective scope of human suffering is independent of or even negatively correlated with emotional immediacy. The immediacy bias implies that people may exhibit different serial position effects, contingent on decision timing. When making allocation decisions directly after learning about a sequence of emotionally evocative crises, people should allocate disproportionate available resources to the final, immediately arousing crisis. In contrast, when making allocations sequentially, directly after learning about each emotionally evocative crisis in a series, people should allocate a disproportionate share of (remaining) resources to each crisis in sequence, each of which arouses immediate emotions. Finally, immediacy effects should be diminished over time, as immediate emotions subside.

Serial position effects

When people are exposed to a sequence of stimuli, their judgments and decisions are inherently comparative, and exhibit two

* Corresponding author.
  E-mail addresses: huber@psychologie.tu-dresden.de (M. Huber), vanboven@colorado.edu (L. Van Boven), peter.mcgraw@colorado.edu (A.P. McGraw), laura.johnson-graham@colorado.edu (L. Johnson-Graham).

kinds of serial position effects (Bruine de Bruin, 2005; Bruine de Bruin & Keren, 2003; Moore, 1999). On the one hand, people sometimes respond disproportionally to final items in sequences, in such varied domains as choosing among paintings, songs, and jelly beans (Li & Epley, 2009), wine preferences among experts evaluating relatively long sequences (Mantonakis, Rodero, Lesschaeve, & Hastie, 2009), blind dates and dorm rooms (Bruine de Bruin & Keren, 2003), and Eurovision Song Contest performances and figure skaters (Bruine de Bruin, 2005). Such recency effects have been attributed to direction-of-comparison tendencies in which each stimulus's unique features is weighed more heavily than the features shared with previously encountered items (Bruine de Bruin, 2005, 2006; Bruine de Bruin & Keren, 2003; Dhar & Sherman, 1996; Hodges, 1997; Houston, Sherman, & Baker, 1989; Mantel & Kardes, 1999; Tversky, 1977), and to people's tendency to be more certain and less regressive in their evaluation of recent items (Li & Epley, 2009).

On the other hand, people sometimes respond disproportionally to initial items in sequences, in such varied domains as choosing among wines (Mantonakis et al., 2009), voting for political candidates (Miller & Krosnick, 1998), and evaluating environmental protection programs (Payne, Schkade, Desvousges, & Aultman, 2000). Such primacy effects have been attributed to people's tendency to attend disproportionately to initial stimuli (Miller & Krosnick, 1998), to memory advantages for initial stimuli (Murdock, 1968), and even to evolutionary advantages of "being first" (Carney & Banaji, 2008).

We suggest that, in addition to these other processes, an immediacy bias in emotional arousal and perception can also produce serial position effects. This immediacy bias in emotion can produce both recency and primacy effects, contingent on decision timing.

Immediacy bias

We hypothesize that people perceive as more severe and choose to allocate disproportionate charitable resources toward humanitarian suffering that happens to be immediately emotionally arousing. This immediacy bias arises from both direct and indirect effects of immediate emotion. Immediate emotions can directly influence behavior, often leading to decisions in "hot" states that people would not make in "cool" states (Loewenstein, 1996; Metcalfe & Mischel, 1999; Read & van Leeuwen, 1998; Van Boven & Loewenstein, 2003; Van Boven, Loewenstein, & Dunning, 2005; Van Boven, Loewenstein, Welch, & Dunning, in press). Immediate emotions evoked by learning about humanitarian suffering may therefore lead people to allocate disproportionate resources toward mitigating that suffering compared with humanitarian suffering that aroused previous emotions or that might arouse future emotions.

Immediate emotion can also indirectly influence judgments and decisions about humanitarian aid through people's perception that immediate emotions are more intense than previous emotions (Van Boven, White, & Huber, 2009). For example, when presented with a series of emotionally evocative pictures, people perceive whichever picture happens to be immediately presented as more intense than pictures that aroused previous, but at the time equally intense, emotions. This immediacy bias in emotion perception occurs for at least two reasons. One is that immediate emotions capture and hold attention (Fox, Russo, Bowles, & Dutton, 2001; Nummenmaa, Hyönä, & Calvo, 2006; Öhman, Flykt, & Esteves, 2001), engendering a perceptual contrast that makes immediate emotions seem more intense than previous emotions. When people were exposed to an immediately emotionally evocative stimulus, they recalled their previous emotional reactions to a similarly evocative stimulus they had seen just a few seconds earlier as less intense than they would have otherwise (Van Boven et al., 2009,

Study 2). Another reason people exhibit an immediacy bias in emotion perception is that information about immediate emotions is more cognitively available than information about previous emotions (Neath, 1993), and the availability of emotional information influences people's perceptions of emotional intensity (Van Boven & White, 2009). When people were reminded that emotional information naturally decays from memory over time, thereby calling to question the validity of informational availability, they exhibited a smaller immediacy bias in emotion perception (Van Boven et al., 2009, Study 4).

The immediacy bias in emotion perception influences other judgments and decisions. Perceptions of terrorist threats, for example, are influenced by the fear evoked by those threats, independent of their objective likelihood (Lerner, Gonzalez, Small, & Fischhoff, 2003; Loewenstein, Weber, Hsee, & Welch, 2001; McGraw, Todorov, & Kunreuther, 2011; Slovic, 1987; Sunstein, 2003). When people learned about two terrorist threats, they perceived the threat that happened to arouse immediate fear as more dangerous and risky compared with the threat that aroused previous fear and anxiety (Van Boven et al., 2009, Study 5).

We hypothesize that the immediacy bias in emotion perception may also lead people to perceive humanitarian suffering that happens to evoke immediate emotion as more severe and deserving of charitable aid compared with humanitarian suffering that happened to have evoked previous emotion. Perceptions of humanitarian suffering—and the charitable aid allocations based on those perceptions—are associated with perceptions of sympathetic emotional intensity (Jenni & Loewenstein, 1997; Kogut & Ritov, 2005a; Kogut & Ritov, 2005b, 2007; Slovic, 2007; Small & Loewenstein, 2003, Small, Loewenstein, & Slovic, 2007). Because the immediacy bias implies that people perceive their immediate emotions as more intense than their previous emotions, and because charitable aid allocations are often based on perceived emotional intensity (Peters, Västfjäll, Gärling, & Slovic, 2006; Schwarz, 2002; Slovic, Finucane, Peters, & MacGregor, 2002), it follows that people should allocate disproportionate charitable resources toward immediately evocative humanitarian suffering.

A key contribution of this hypothesis is that it concerns judgments and decisions about charitable aid to multiple emotionally evocative stimuli, whereas research on emotional factors in judgment and decision making has typically compared highly emotional factors relative to less emotional factors. For example, previous research examined how the weighting of probability differs for highly emotional risks compared with less emotional risks (Loewenstein et al., 2001; Rottenstreich & Hsee, 2001; Slovic, 1987; Slovic et al., 2002), how people value outcomes through emotional versus numerical processing (Hsee & Rottenstreich, 2004; Kahneman, Ritov, & Schkade, 1999; Kahneman, Schkade, & Sunstein, 1998), the intertemporal dynamics of choosing between highly emotional "vices" and less emotional "virtues" (Read, Loewenstein, & Kalyanaraman, 1999; Read & van Leeuwen, 1998), and donations to single, identified, emotionally evocative victims compared with donations of statistical victims (Jenni & Loewenstein, 1997; Kogut & Ritov, 2005a, 2005b, 2007; Small & Loewenstein, 2003; Small, Loewenstein, & Slovic, 2007). The hypothesized immediacy bias, in contrast, concerns evaluations of sequences of multiple emotionally evocative portrayals of humanitarian suffering.

Preliminary support for the hypothesized immediacy bias comes from a pilot study in which undergraduates at the University of Colorado at Boulder ($N = 45$) watched two short films, randomly ordered and separated by 20 min, describing malnutrition and disease in Niger and in Sudan. When judging each crisis's deservingness (1 = *not very deserving, no immediate action is needed*; 7 = *extremely deserving, immediate action is needed*), participants judged the crisis they happened to learn about second, and which presumably aroused their immediate emotions, as more

deserving ($M = 6.47$, $SD = 0.73$) than the crisis they happened to learn about first ($M = 6.07$, $SD = 1.21$), $t(44) = 2.18$, $p = .035$, $d = .34$. Moreover, when participants were told (truthfully) that $3.00 would be donated on their behalf to Doctors Without Borders and (not truthfully) that they could divide the $3.00, in 20¢ increments, between the two crises, most participants (30 of 45, 66.67%, 95% CI [52.01%, 78.70%]) donated more to the second crisis than to the first crisis. Participants thus judged as more deserving and donated disproportionately to the humanitarian suffering that presumably aroused immediate sympathetic emotion, producing a recency effect.

Overview of hypotheses

Our analysis implies that when people are exposed to a series of emotionally evocative descriptions of humanitarian crises, they should perceive as more deserving and donate disproportionately to whichever crisis happens to arouse immediate emotions. The emotional immediacy bias thus implies three predictions about serial position effects based on decision timing. First, when people make an allocation decision after being exposed to a sequence of emotionally evocative humanitarian crises, they should disproportionally allocate resources to the final crisis in the sequence. Second, when people make allocation decisions sequentially—that is, when they make an allocation directly after they have been exposed to each humanitarian crisis in a sequence—they should disproportionally allocate (remaining) resources to the humanitarian crisis they have just learned about, at least until their resources are depleted. Finally, when people make allocation decisions following a delay sufficiently long for emotions to have subsided, emotion induced serial position effects should be diminished. We tested these three predictions in three experiments.

Experiment 1: Post hoc versus sequential allocation decisions

Our analysis of the immediacy bias in decisions about humanitarian aid allocation implies that immediate emotional arousal interacts with decision timing to produce serial position effects. When people make allocation decisions directly following exposure to a sequence of emotionally evocative descriptions of humanitarian crises (post hoc allocations) they should allocate a disproportionate share of available resources to the final crisis in the sequence, which presumably arouses immediate emotions. In contrast, when people make allocation decisions after viewing each film in a series of humanitarian crises (sequential allocations) they should allocate a disproportionate share of (remaining) available resources to each crisis in the sequence, each of which presumably arouses immediate emotions, until they have no more flexibility when allocating to the final crisis in the sequence. This analysis implies that people should exhibit a recency effect when making post hoc allocations, but that they should exhibit a primacy effect when making sequential allocations.

We tested these predictions by asking people to allocate $95 between four humanitarian crises in four African countries. In the post hoc allocation condition, participants viewed four short emotionally evocative films describing four humanitarian crises, and then allocated $95 among those four crises. In the sequential allocation condition, participants knew they had $95 to allocate between four crises, each of which would be described in a short film, but they made those allocation decisions sequentially rather than post hoc. In both conditions, we predicted that participants would allocate a disproportionate share of (remaining) available resources to the crisis they just learned about. For the post hoc condition, this implies that participants should allocate a disproportionate amount to the final crisis in the sequence, replicating the results of the Pilot Study. For the sequential allocation condi-

tion, this implies that participants should allocate a disproportionate amount to each of the first three crises, producing a decreasing linear trend. Stated differently, the immediacy bias implies that when making sequential allocations, people should donate a disproportionate share of a shrinking amount of resources to all but the final crisis in the sequence effect (allocations to the final crisis obviously being determined by allocations to the first three crises). Based on the immediacy bias, we therefore expected that post hoc versus sequential decision timing would moderate the serial position effects.

Method

University undergraduates at the University of Colorado at Boulder ($N = 121$) participated in exchange for course credit. Participants watched a sequence of four film clips depicting humanitarian crises in four African nations. The four films were obtained from Doctors Without Borders, ranged from 2.5 to 3.5 min in duration, and described humanitarian suffering in four countries: postwar disease and hunger in Angola; famine and malnutrition in Niger; AIDS and the lack of antiretroviral drugs in Malawi; and, tuberculosis in Sudan. Participants were randomly assigned to watch the films in one of four predetermined orders. The four different orders had a different position for each film clip so that no film clip was shown at the same position (first, second, third, or fourth in the sequence) more than once. This means that each order had a different film in each position of the sequence. Including film order in the data analyses does not change the pattern of the results and is not further discussed.

Participants were given a list of the four crises (e.g., famine and malnutrition in Niger; AIDS and antiretroviral drugs in Malawi), told that they had $95 to donate to the four crises, and told that they would allocate the $95 among the four crises. This procedure ensured that participants in both conditions were aware of the total amount to be donated, were aware of the number of crises among which they had to allocate that amount, and had at least cursory knowledge of the type of suffering described in each crisis. Participants were told that one person's allocation would be randomly selected and donated to Doctors Without Borders. (In fact, given the donation constraints at Doctors Without Borders, we simply donated $95 on one participant's behalf, without specifying allocation among various crises.)

Participants were randomly assigned to one of two allocation-timing conditions. In the post hoc condition, participants viewed each of the four films, separated by 4 min of completing unemotional and unrelated word search tasks. Participants made their allocation decision directly after viewing the fourth film. In the sequential choice condition, participants made an allocation to the first crisis after viewing the first film, then completed an unemotional word search task for 4 min to keep the break between the film clips at approximately the same length as in the post hoc condition. They then watched the second film, after which they allocated a portion of the (remaining) funds to the second crisis. This process was repeated for the third and fourth film. The key difference between the two conditions was thus that participants allocated $95 to the four crises after viewing all four films in the post hoc condition whereas they allocated a fraction of the remaining resources (starting with $95 and decreasing after each allocation decision) to each of the four crises in sequence. After making their allocation decisions, participants were then thanked and debriefed.

Results

As predicted, participants allocated a disproportionate fraction of available resources to whichever crisis happened to be

experienced immediately, which produced different serial position effects in the post hoc and sequential allocation conditions. When making post hoc allocations, participants allocated a disproportionate fraction of available resources to the crisis that happened to be last (fourth in the sequence, see the solid line in Fig. 1). When making sequential allocations, in contrast, participants allocated a disproportionate fraction of available resources to each of the crises in sequence (see the dashed line in Fig. 1), until the final crisis to which, by necessity, they donated 100% of remaining resources.

To examine the immediacy bias in the post hoc allocation condition, we computed the fraction allocated to each crisis relative to an equal allocation of $95 (that is, $23.75). A focused contrast (weights in parentheses) comparing the fraction of resources allocated to the fourth crisis ($M = 109.14\%$, weight = +3) with the first, second, and third crises ($M_{overall} = 96.13\%$, weights = −1 for each crisis), was significantly positive, $b = 9.26$, $F(1, 52) = 5.02$, $p = .029$, $\eta^2_{partial} = .088$. For the final crisis ($M = 109.14\%$, $SD = 32.58\%$, $M = 25.92, with $23.75 being an equal allocation of $95), participants allocated significantly more than 100% of an equal allocation of resources, $t(52) = 2.04$, $p = .046$, $d = .28$. For the first three crises, $M_{first} = 101.87\%$, $M_{second} = 91.66\%$, $M_{third} = 94.88\%$ (in absolute dollar amounts $24.19, $21.77, and $22.53 respectively), averaged together ($M = 96.13\%$, $SD = 12.09\%$), participants allocated significantly less than 100% of an equal allocation of resources, $t(52) = −2.33$, $p = .024$, $d = .32$.[1]

To examine the immediacy bias in the sequential allocation condition, we computed for each participant the percentage allocated to each crisis of an equal allocation of the resources remaining when the participant viewed the film about that crisis. For the first crisis, this percentage was defined as the amount allocated divided by an equal allocation of $95 ($23.75). For the second crisis, this percentage was defined as the amount allocated to that crisis divided by an equal allocation of the remaining resources, that is, the difference between $95 and the allocation to the first crisis divided by 3. As predicted, averaging across the first three crises, participants allocated significantly more than 100% of an equal distribution of the remaining resources ($M = 104.33\%$, $SD = 15.37\%$), $t(67) = 2.33$, $p = .023$, $d = .28$ (participants obviously allocated 100% of their remaining funds to the final crisis). That percentage was 105.42% for the first crisis ($25.01, with $23.75 being an equal allocation of $95), 104.65% for the second crisis ($24.49, with $23.33 being an equal allocation of the remaining $69.99), and 102.93% for the third crisis ($23.34, with $22.75 being an equal allocation of the remaining $45.50). There were no significant differences between the three allocation fractions, $ts < 1$, ns.

To directly compare allocation patterns between the post hoc and sequential allocation condition, we conducted two sets of contrast analyses of absolute dollar donations (we did not directly compare the post hoc and sequential allocation condition as fractions of available resources donated because those measures were computed differently in the two conditions). First, allocating a disproportionate share of remaining resources to each sequential crisis implies a linear decrease in absolute dollar allocations in the sequential allocation condition. To test this pattern, we conducted a linear contrast (contrast weights in parentheses) testing whether participants donated more to the first crisis (+3), than to the second crisis (+1), than to the third crisis (−1), than to the fourth crisis (−3). The linear effects were significantly different between conditions, $F(1, 119) = 5.67$, $p = .019$, $\eta^2_{partial} = .045$. The linear effect was
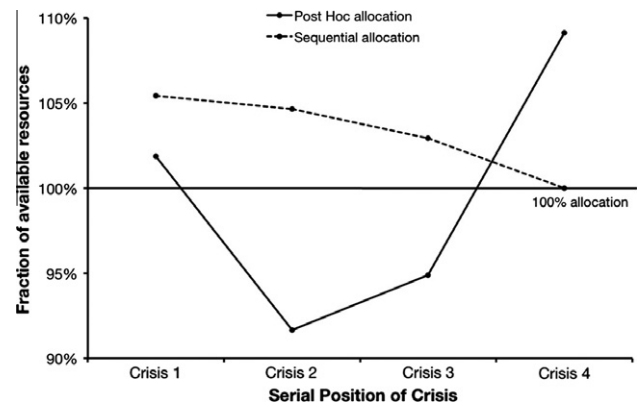

Fig. 1. Participants' charitable allocations (Experiment 1). Allocations are expressed as a fraction of available resources, contingent on being in the sequential allocation or post hoc allocation condition.

significantly positive in the sequential allocation condition, $F(1, 67) = 5.76$, $p = .019$, $\eta^2_{partial} = .079$, reflecting that participants donated more to the crises earlier than later in the sequence. In contrast, the linear effect was not significant in the post hoc condition, $F(1, 52) = 1.22$, ns, $\eta^2_{partial} = .023$.

Second, the recency effect described earlier (weight = +3 for the fourth crisis; weight = −1 for the first, second, and third crisis), was significantly more positive in the post hoc condition than in the sequential allocation condition, $F(1, 119) = 9.34$, $p = .003$, $\eta^2_{partial} = .073$. In fact, whereas the contrast testing recency was significantly positive in the post hoc condition, as described earlier, it was significantly *negative* in the sequential allocation condition, $F(1, 67) = 4.12$, $p = .046$, $\eta^2_{partial} = .058$. This reversal reflects that participants allocated fewer dollars to the final crisis versus the earlier crises when allocating sequentially rather than post hoc.

Discussion

Together, these results indicate that when making both post hoc and sequential decisions, people allocate a disproportionate share of the (remaining) available resources to the crisis that happens to arouse their immediate emotions. This pattern is consistent with our explanation that people perceive their immediate emotional reactions as more intense than their previous emotional reactions (Van Boven et al., 2009). When making post hoc allocations, the immediacy bias leads people to allocate a disproportionate share of resources to the crisis that happened to be last in the sequence. When making sequential allocations, the immediacy bias leads people to allocate a disproportionate share of resources to each crisis in sequence. These results thus indicate that the immediacy bias interacts with decision timing to moderate serial position effects—primacy and recency—in decisions about humanitarian aid allocation.

Experiment 2: Immediate versus delayed letter writing

We next sought to more precisely examine the psychological processes underlying the immediacy bias, with four goals in mind. First, we sought to conceptually replicate the recency effect from the Pilot Study and from the post hoc allocation condition from Experiment 1 with an allocation decision of more personally involving resources. Participants read a summary and viewed a short film about each of two humanitarian crises in two African countries, and were asked to select one crisis about which to write a letter to be sent to their state Senator describing the humanitarian suffering in that country. Writing a letter to one's Senator is more self-involving and involves more personal cost of time and

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[1] Pairwise comparisons revealed a marginally significant difference between allocations to the first and second crisis, $F(1, 52) = 2.86$, $p = .097$; comparisons of the first and third crises, $F(1, 52) = 1.04$, and second and third crises, $F < 1$, ns, did not approach significance. We suspect that the marginally significant difference in allocation to the first and second crises reflects a primacy effect of the kind demonstrated in previous research (Mantonakis et al., 2009; Miller & Krosnick, 1998).

resources compared with spending someone else's money. Because participants made this decision directly after learning about the two crises, as in the Pilot Study and in the post hoc allocation condition of Experiment 1, we expected them to write a letter about whichever crisis they happened to learn about second.

Second, we sought more direct evidence for the role of an immediacy bias in emotion perception by asking people to report, directly after learning about both crises, how intense their emotional reactions were to learning about each crisis. We predicted that participants would perceive their emotional reactions to whichever crisis they happened to learn about second as more intense than their emotional reactions to the crisis they learned about first (Van Boven et al., 2009). We also expected these emotion perceptions to be correlated with participants' letter writing decision.

Third, we sought to examine whether the immediacy bias might contribute to a pattern of "scope neglect" in charitable decisions. We included clear information about mortality rates for each crisis such that one crisis had a noticeably higher mortality rate. Previous research indicates that people often do not incorporate scope information when making charitable decisions (e.g., Loewenstein et al., 2001; McGraw et al., 2011; Slovic, 1987; Sunstein, 2003), so we did not expect the scope information to moderate the immediacy bias. This procedure is important, however, because it speaks to the possibility that people exhibit an immediacy bias partly because immediate emotions influence their inferences about crises' scope. That is, people might infer that the more upsetting crisis—the one that happens to arouse immediate emotions—is deadlier than the less upsetting crisis. Such an inference might reasonably lead people to allocate more resources toward the crisis that arouses immediate emotions, not specifically because that crisis is more emotionally upsetting, but because that crisis is perceived as deadlier. Demonstrating an immediacy bias in the presence of clear scope information would imply that such inferences do not fully explain the immediacy bias in judgments and decisions about humanitarian aid.

Finally, we examined whether the immediacy bias would be reduced over time, after people's immediate emotions subsided. In previous research, we found that people's tendency to perceive as more intense their emotional reactions to whichever stimuli they encountered second rather than first diminished over time, presumably because people's immediate emotions subsided (Van Boven et al., 2009, Study 5). We therefore expected temporal delay to reduce the immediacy bias in people's decisions about which crisis they would write a letter.

Method

University undergraduates at the University of Colorado at Boulder (N = 113) participated in exchange for course credit. Participants first watched a randomly selected film about either post-war disease and hunger in Angola, or about famine and malnutrition in Niger. After viewing the film, participants read a short paragraph summarizing the humanitarian crisis in that location (e.g., "Angolans face a poor health system and cannot move around the country freely" and "Nigerians face difficult access to medical care, food, mounting debts and meager food aid").

We also provided participants with descriptions that included explicit statements about the annual deaths associated with the crisis. Depending on random assignment, participants read either, "each year, approximately 180,000 (1.8% of the actual population) people die because of malnutrition and disease" or "each year, approximately 120,000 (1.2% of the actual population) people die because of malnutrition and disease." We manipulated mortality rates within-participant to facilitate participants' ability to notice and remember the relative deadliness of the two crises (Dunn & Ashton-James, 2008; Hsee & Rottenstreich, 2004; Pham & Avnet,

2009). Most studies of scope neglect use a between-participants design, which is a substantially more liberal test of "neglect," which would seem to require that people both notice and do not use information about scope.

After participants read the paragraph containing the mortality rate information, they completed unrelated, neutral questionnaires for 20 min. Participants then watched a film about whichever crisis they had not learned about earlier. They then read a summary paragraph about that second humanitarian crisis. The summary paragraph included whichever statement of mortality rates participants had not read earlier. The randomly assigned order of mortality rate information across the two crises was thus low (120,000) then high (180,000), or high (180,000) then low (120,000), with mortality rate order crossed with crisis order.

Participants reported how intense their emotional reactions were to learning about each crisis (1 = *not intense at all*, 7 = *very intense*) and how upset they were while viewing each film (1 = *not upset at all*, 7 = *very upset*). They also rated how deserving each crisis was of humanitarian aid (1 = *not very deserving, no immediate action is needed*, 7 = *extremely deserving, immediate action is needed*).

Participants then read that "we are asking students to write a letter to one of their state Senators to draw attention to one of the locations you learned about." To minimize concerns when making their decision about how easily they could recall information (which might be influenced by the order in which they learned about the two crises), participants read, "writers will be able to review the materials we have provided them in this experiment." Participants then selected one of the crises about which to write a letter to their Senator. Finally, participants were asked "*How many people are dying in Angola every year?*" and "*How many people are dying in Niger every year?*" These estimates were used as a manipulation check for the experimental manipulation of mortality.

All participants returned to the lab 1 day later, ostensibly to write the letter to their Senator. For the letter writing decision, based on random assignment, a subset of the sample (n = 58) answered the letter writing decision on the first day and everyone in the sample answered the letter writing decision on the second day. For comparing the letter writing decision from the first day with decisions made on the second day, we adopted a between subjects design, that is, we compared the subset of the sample (n = 58) who made letter writing decisions on the first day with a different group of participants (n = 55) who only answered the letter writing decision on the second day (but not on the first day). We chose this methodology due to concerns that participants would choose on the second day by simply recalling their decision from the first day.[2]

For the judgments of emotional reactions and deservingness, based on random assignment, a subset of the sample (n = 95) answered the judgments on the first day and everyone in the sample answered the judgments on the second day. This methodology allowed us to examine whether (a) participants would exhibit an immediacy bias for judgments and letter writing decisions on the first day of the experiment directly after learning about the second crisis, and (b) whether this immediacy bias would be diminished after a day's delay.

Results

Mortality rate manipulation check
Participants read and understood the mortality rate information. Most participants correctly recalled which crisis was dead-

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[2] We did not ask participants to actually write a letter to their Senator given that we had crafted the mortality information as an experimental manipulation, and we did not want participants to convey false information in their letter.

lier, both directly after learning about the crises (75.53%, 95% CI [66.84%, 84.22%]) and 1 day after learning about the crises (67.00%, 95% CI [57.49%, 76.51%]). A minority of participants incorrectly recalled which crisis was deadlier, both directly after learning about the crises (10.64%, 95% CI [4.41%, 16.87%]) and 1 day after learning about the crises (15.60%, 95% CI [8.26%, 22.94%]). The remaining participants incorrectly recalled equal mortality rates.

Immediate judgments and decisions

As predicted, most participants (68.97%) chose to write a letter to their Senator calling attention to whichever crisis they happened to learn about second, $\chi^2(1, N = 58) = 8.34$, $p = .004$, and this choice was not significantly influenced by the mortality information, $\chi^2(1, N = 58) = 0.32$, *ns* (see Table 1). Also as predicted, participants judged the crisis they happened to learn about second as more deserving ($M = 6.31$, $SD = 0.94$) than the crisis they happened to learn about first ($M = 6.16$, $SD = 1.02$) and this pattern was not significantly influenced by the mortality information (see Table 1). A two (crisis immediacy: first, second) × two (deadlier crisis: first, second) mixed model ANOVA with repeated measures on the first factor revealed a main effect of immediacy, $F(1, 56) = 5.16$, $p = .027$, $\eta^2_{partial} = .084$. This main effect was not qualified by which crisis was deadlier $F < 2$, *ns*. There was also a main effect of which crisis was deadlier, $F(1, 56) = 4.28$, $p = .043$, $\eta^2_{partial} = .071$, such that participants perceived both crises as more deserving ($M = 6.48$, $SD = 0.63$) when the first crisis was described as deadlier compared with when the second crisis was described as deadlier ($M = 5.98$, $SD = 1.14$).[3,4] These results thus conceptually replicate the immediacy bias in aid allocations from Experiment 1, but with a more self-involving behavioral measure of letter writing, and this immediacy bias was not moderated by the relative mortality of the two crises, which participants correctly recalled. These results cast doubt on the possibility that people perceive as more deserving and donate disproportionately to the immediate crisis simply because they estimate that crisis as being more deadly.

Participants' perceptions of emotional intensity closely corresponded with their decisions and deservingness assessments. We averaged participants' judgments about the intensity of their emotional reaction and about how upset they were while watching the films into two indices, one for the first crisis ($r = .85$) and one for the second crisis ($r = .82$). Participants perceived their emotional reactions to the crisis they happened to learn about second as more intense ($M = 5.57$, $SD = 1.14$) than to the crisis they happened to learn about first ($M = 5.27$, $SD = 1.21$, see Table 1), which produced a main effect of crisis immediacy in a two (crisis immediacy: first, second) × two (deadlier crisis: first, second) mixed model ANOVA with repeated measures on the first factor, $F(1, 56) = 9.00$, $p = .004$, $\eta^2_{partial} = .138$. Neither the effect of which crisis was deadlier nor the interaction was significant, both $Fs < 2$, *ns*. Participants thus perceived their emotional reactions to whichever crisis happened to be presented second, and to arouse immediate emotions, as more intense than their reactions to whichever crisis happened to be presented first, conceptually replicating the immediacy bias in emotion perception (Van Boven et al., 2009) and corresponding with participants' letter writing decisions and with their deservingness assessments.

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[3] We also performed all reported analyses with film order as a factor. Film order does not interact with any of these effects and was therefore dropped from the analyses.

[4] For deservingness and emotion judgments, we present the data from the same subset ($n = 58$) as the letter writing decisions. However, the pattern of results remains unchanged if all 95 participants who provided ratings on the first day are included in the analyses.

Table 1
Letter writing decisions, deservingness judgments, and emotional reactions on the first day of the experiment, contingent on which crisis was deadlier and the crises' serial position.

Dependent measure	Serial position	Deadlier crisis		Overall ($n = 58$)
		First crisis ($n = 29$)	Second crisis ($n = 29$)	
Letter decision	First	34.48%	27.59%	31.03%
	Second	65.52%	72.41%	68.97%
Deservingness	First	6.45 (0.74)	5.86 (1.19)	6.16 (1.02)
	Second	6.52 (0.63)	6.10 (1.15)	6.31 (0.94)
Emotional reaction	First	5.48 (0.99)	5.05 (1.38)	5.27 (1.21)
	Second	5.74 (0.75)	5.40 (1.42)	5.57 (1.14)

Note: For letter writing decisions, the percentages of participants who chose to write about the first and the second crisis are displayed as a function of whether the first or the second crisis was more deadly, and overall, across the deadliness of the crises. For deservingness judgments and emotional reactions, the average rating (and its standard deviation in parentheses) of the first and second crisis is displayed as a function of whether the first or the second crisis was more deadly, and overall, across the deadliness of the crises.

Table 2
Immediate (first day of experiment) and delayed (second day of the experiment) letter writing decisions, deservingness judgments, and emotional reactions to the first and second humanitarian crisis that people learned about.

Dependent measure	Serial position	Measurement timing	
		Immediate ($n = 58$)	Delayed ($n = 55$)
Letter decision	First	31.03%	58.18%
	Second	68.97%	41.82%
Deservingness	First	6.16 (1.02)	6.07 (1.15)
	Second	6.31 (0.94)	6.15 (1.04)
Emotional reaction	First	5.27 (1.21)	5.42 (1.48)
	Second	5.57 (1.14)	5.39 (1.45)

Note: For letter writing decisions, the percentages of participants who chose to write about the first and the second crisis are displayed as a function of whether participants made the decision immediately or delayed. For deservingness judgments and emotional reactions, the average rating (and its standard deviation in parentheses) of the first and second crisis is displayed as a function of whether participants made the decision immediately or delayed.

Delayed judgments and decisions

As predicted, a day's delay diminished the immediacy bias in participants' letter writing decisions, in their judgments of deservingness, and in their judgments of emotional intensity (see Table 2). Whereas the majority of participants chose on the first day to write about the second crisis they learned about (68.97%), as reported above, participants did not exhibit a preference 1 day later for writing a letter about the second crisis (41.82%), $\chi^2(1, N = 55) = 1.47$, *ns*. A logistic regression estimating letter writing choices from the timing of the choice (-1 = directly after learning about the two crises, $+1$ = 1 day after learning about the two crises), mortality information (-1 = first crisis deadlier, $+1$ = second crisis deadlier), and the interaction between choice timing and mortality information revealed only an effect for choice timing, Wald $\chi^2(1, N = 113) = 8.29$, $p = .004$.

Participants' deservingness assessments followed a similar pattern (see Table 2). In contrast with directly after learning about the two crises, when making judgments 1 day later, participants did not judge the crisis they happened to learn about second as more deserving ($M = 6.15$, $SD = 1.04$) compared with the crisis they learned about first ($M = 6.07$, $SD = 1.15$). A two (crisis immediacy: first, second) × two (deadlier crisis: first, second) mixed model ANOVA with repeated measures on the first factor revealed no significant difference between the first and second crisis, $F < 1.5$, *ns*. The

diminished immediacy bias from the first to the second day of the experiment resulted in a significant 3-way interaction in a two (crisis immediacy: first, second) × two (deadlier crisis: first, second) × two (time of judgments: immediate, delayed) mixed model ANOVA with repeated measures on the first factor, $F(1, 109) = 4.54$, $p = .035$, $\eta^2_{partial} = .040$.

Consistent with previous research on the immediacy bias in emotion perception, and following the pattern of letter writing decisions, participants' tendency to perceive their previous emotional reactions to the second crisis they learned about diminished 1 day later (see Table 2). We averaged participants' two perceptions of emotional reactions from the previous day about each location into an index for the first crisis ($r = .91$) and for the second crisis ($r = .90$). In contrast with their perceived emotional reactions directly after learning about the two crises, when recalling their emotional reactions 1 day later, participants did not perceive their emotional reactions to the crisis they happened to learn about second as more intense ($M = 5.39$, $SD = 1.45$) compared with their reactions to the crisis they learned about first ($M = 5.42$, $SD = 1.48$). A two (crisis immediacy: first, second) × two (deadlier crisis: first, second) mixed model ANOVA with repeated measures on the first factor revealed no significant difference between the first and second crisis, $F < 1$, ns. The decrease in participants' tendency to perceive their emotional reactions to the second crisis as more intense than their reactions to the first crisis produced a significant 3-way interaction in a two (crisis immediacy: first, second) × two (deadlier crisis: first, second) × two (time of judgment: immediate, delayed) mixed model ANOVA with repeated measures on the first factor, $F(1, 109) = 8.82$, $p = .004$, $\eta^2_{partial} = .075$. Together, the responses on the second day of the experiment demonstrated a reduced immediacy bias in decisions of which crisis to write a letter about, assessments of the crises' deservingness, and perceptions of recalled emotional reactions to the two crises.

Correlation analyses

Analyses across both days further highlight the correspondence between participants' perceived emotional reactions, letter writing decisions, and assessments of deservingness. Regarding letter writing decisions, the partial point biserial correlation between participants' letter writing choices and the difference between their perceived emotional reactions to the first and second crises was significantly positive, $r = .35$, $p < .001$, controlling for mortality information. The point biserial correlations were positive both when mortality rates were higher in the second crisis, $r = .36$, $p = .006$, and when mortality rates were higher in the first crisis, $r = .35$, $p = .009$. Participants thus preferred to write letters about the second crisis when they perceived their emotional reactions to the second crisis as more intense compared with the first crisis.

Regarding assessments of deservingness, the correlation between the difference in assessed deservingness for the second minus the first crisis and the difference in perceived intensity of emotional reactions to the second minus the first crisis was significantly positive, partial $r = .23$, $p = .017$, controlling for mortality information. The correlations between differences in perceived emotional intensity and in assessed deservingness were positive both when mortality rates were higher in the second crisis, $r = .26$, $p = .048$, and when mortality rates were higher in the first crisis, $r = .18$, $p = .178$, although the last correlation was not significant. The correlations between perceptions of emotional intensity and deservingness, computed separately for the first crisis ($r = .56$, $p < .001$, controlling for mortality information) and second crisis ($r = .57$, $p < .001$, controlling for mortality information) were also substantial and positive. Participants thus perceived as more deserving those crises that they perceived as more emotionally arousing.

Discussion

Immediately after participants learned about the second crisis, they had more intense reactions to whichever crisis they happened to view second. Most participants chose to write a letter about the second, more immediately experienced crisis to their state Senator to bring attention to this crisis's humanitarian suffering. We therefore replicated the immediacy bias for post hoc donation decisions (Pilot Study, Experiment 1) with a different—presumably more self-involving and personally costly—behavior.

The deadliness of the crises had no discernible effect on participants' choices, deservingness judgments, or emotion perceptions. Whether 180,000 or 120,000 people die per year did not significantly influence participants' letter writing decisions, assessments of deservingness, or perceived emotional reactions regarding the two crises. In other words, whether 60,000 more people die in the crisis did not make a difference for participants' assessment of these crises. One might wonder whether this null result is because the (experimentally manipulated) mortality difference was not salient or accessible information for participants and therefore, they did not use this information when making judgments and decisions about the locations. As earlier discussed, however, a majority of participants (75.53% on the first day) knew which crisis had higher mortality, even though not everyone got the numbers exactly right.[5] This finding is consistent with other research stating that people generally are not very sensitive to scope information (Fetherstonhaugh et al., 1997; Slovic, 2007). Furthermore, this finding speaks against the alternative explanation that people's allocations are based on an inference that the more upsetting crisis—the one that happens to immediate—is also more objectively deadly. Instead, we find that immediately arousing crises are perceived as arousing more intense emotions, judged as more deserving, and are more likely to trigger action to mitigate the crisis, in this case writing a letter to one's Senator.

The diminished immediacy bias further extends the findings from the Pilot Study and Experiment 1 by highlighting the immediate, transient nature of this effect. As a natural consequence of increasing the temporal distance from the emotionally evocative films about human suffering, the immediate emotional experience subsides, which corresponds to a diminished immediacy bias for deservingness judgments and donation decisions.

Experiment 3: Forewarning emotional manipulation

We sought to examine the robustness of the immediacy bias in our final experiment, testing whether people would exhibit the immediacy bias in charitable donation decisions in a conservative context. We did this by making three changes to the procedures of the first day of Experiment 2. First, we explicitly stated to participants that the order of humanitarian crises they learned about

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[5] Whether or not participants correctly recalled which crisis was deadlier did not significantly moderate their donation decisions. Based on participants' scope estimates, we computed a difference score where we subtracted estimates of the first crisis from estimates of the second crisis and divided this difference by the total number of the two estimates. This measure of perceived scope is higher ($M = 0.12$, $SD = 0.16$) when scope of the second crisis was experimentally manipulated to be higher compared with the condition where scope of the first crisis was higher ($M = -0.09$, $SD = 0.19$; $F(1, 109) = 40.27$, $p < .001$, $\eta^2_{partial} = .270$). When this measure is included in the logistic regression where letter choice is regressed on timing of the choice (-1 = directly after learning about the two crises, $+1$ = one day after learning about the two crises), mortality information (-1 = first crisis deadlier, $+1$ = second crisis deadlier), perceived scope, and the interaction between perceived scope and mortality information, this interaction is not significant, Wald $\chi^2 < 2$, ns, and the main effect of perceived scope is also not significant, Wald $\chi^2 < 1$, ns. The same holds true for letter choices directly after learning about the two crises, for deservingness and emotional reaction ratings (directly after learning about the two crises and one day after learning about the two crises).

was randomly determined, minimizing the possibility that participants infer meaning to order presentation. Second, the mortality information always stated that the first crisis was the deadlier crisis, such that any tendency not to take action to mitigate that crisis would entail some scope neglect, whereas in Experiment 2 scope neglect was implied for only half of the participants.

Finally, we experimentally manipulated whether participants were forewarned that marketers might try to influence their decisions by using emotionally evocative materials, leading participants to neglect other types of information such as the objective severity of the humanitarian crisis. On the one hand, calling attention to marketers' manipulative attempts might warn people that their decisions might be biased (Wilson & Brekke, 1994) and might engender reactance among participants (Brehm, 1966; Friestad & Wright, 1994), thereby reducing the immediacy bias. On the other hand, many researchers suggest that "feeling is for doing" (Zeelenberg, Nelissen, Breugelmans, & Pieters, 2008) so the behavioral effects of immediate emotion may be difficult to undermine in the "heat of the moment" (Loewenstein, 1996; Van Boven et al., 2005, in press). This forewarning manipulation thus afforded a test of the immediacy bias' robustness in the face of forewarning of the bias.

Method

University undergraduates at the University of Colorado at Boulder ($N = 150$) participated in exchange for course credit. The method was similar to the first day of Experiment 2, with three important methodological changes, described below. We focused on judgments and decisions directly after learning about the two crises because we wanted to replicate and test the robustness of immediate rather than delayed responses.

Participants watched two films, separated by a delay of approximately 5 min. One film was about disease and hunger in Angola; the other film was about famine and malnutrition in Niger, as in Experiment 2. Each film was followed by a short paragraph about the crisis.

The films and accompanying material were presented in random order, which was explained to participants before they watched the films: "The order of the films' presentation is randomly determined." We made this explicit statement about random order to rule out the possibility that participants inferred something about the crises' severity based on order of presentation.

The descriptions of the humanitarian crises were such that the first crisis' scope (180,000 annual deaths) was always higher than the second crisis' scope (120,000 annual deaths). Given that the first crisis was always deadlier than the second crisis, unlike Experiment 2, any decision to provide more help to the second crisis entails a decision to help the less deadly crisis.

To examine whether the immediacy bias in charitable decisions might be undermined by people's reluctance to avoid being manipulated and persuaded, we randomly assigned whether participants were forewarned that their emotional reactions might be enlisted to influence their behavior. Before watching the films, participants in the forewarning condition read that "Some marketers . . . believe that presenting emotionally evocative stimuli can lead people to make emotionally based decisions and to ignore other types of information—for example, about the objective severity of the humanitarian crisis or about the effectiveness of charity organizations." Participants in the control condition did not read this statement.

After viewing the films, participants reported their emotional reactions and made a letter writing decision, as in Experiment 2. Participants were then thanked and debriefed.
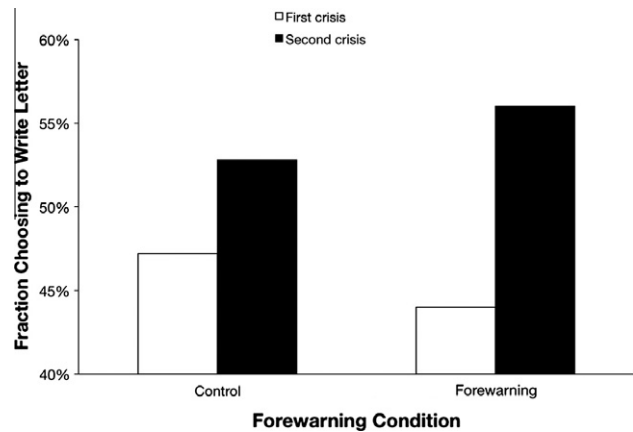

Fig. 2. Participants' letter writing decisions (Experiment 3). The fraction of participants who chose to write about whichever crisis (disease and hunger in Angola, malnutrition in Niger) they happened to learn about second, both when they were and were not forewarned that marketers might try to influence their behavior.

Results and discussion

Most participants correctly recalled that the first crisis was deadlier (66.00%, 95% CI [58.42%, 73.58%]). A minority of participants incorrectly recalled that the second crisis was deadlier (25.30%, 95% CI [18.34%, 32.26%]). The remaining participants incorrectly recalled equal mortality rates.

Replicating the immediacy bias, most participants (57.30%) chose to write a letter to their Senator calling attention to whichever crisis they happened to learn about second, despite the fact that the second crisis was always less deadly than the first crisis (Fig. 2). This preference was reflected by the constant in a logistic regression where letter choice was regressed on the forewarning condition (+1 = forewarning, −1 = control), film order (+1 = Angola second, −1 = Niger second), and their interaction, $\exp(b) = 1.34$, Wald $\chi^2(1, N = 150) = 2.91$, $p = .088$.[6] However, there was no effect of forewarning, $\exp(b) = 1.06$, Wald $\chi^2 < 1$, ns. We thus found no evidence that explicitly warning participants that marketers trying to get them to make "emotionally based decisions" that "ignore other types of information—for example, about the objective severity of the humanitarian crisis" reduced people's tendency to provide more help to the immediately arousing humanitarian crisis.

Also as predicted, participants perceived their emotional reactions to the crisis they happened to learn about second as more intense ($M = 4.91$, $SD = 1.38$) than to the crisis they happened to learn about first ($M = 4.74$, $SD = 1.28$). A two (crisis immediacy: first, second) × two (forewarning condition: forewarning, control) × two (film order: Niger second, Angola second) ANOVA with repeated measures on the first factor revealed a main effect of immediacy, $F(1, 146) = 10.19$, $p = .002$, $\eta^2_{partial} = .065$. The effect of forewarning was not significant, and forewarning did not interact with immediacy, both $Fs < 1$, ns.[7]

Also as in Experiment 2, participants' letter writing choices were closely associated with their emotion perceptions. The partial point biserial correlation between participants' decision to write about the first versus second crisis and the difference between participants' perceived intensity of emotional reactions to the second

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[6] Letter choice was moderated by film order, $\exp(b) = 1.50$, Wald $\chi^2(1, N = 150) = 5.60$, $p = .018$, reflecting a main effect such that participants were more likely to choose Angola (60.06%) than Niger.

[7] Reflecting a similar tendency as with letter choice, immediacy interacted with film order, $F(1, 146) = 9.60$, $p = .002$, $\eta^2_{partial} = .062$, indicating that participants perceived their emotional reactions to the crisis in Angola as more intense ($M = 4.92$, $SD = 1.30$) than their reactions to the crisis in Niger ($M = 4.73$, $SD = 1.29$).

versus the first crisis was significant, $r = .37$, $p < .001$, controlling for forewarning condition and film order. Following their letter writing choices, then, people perceived stronger emotional reactions to whichever crisis they happened to learn about second compared with the crisis they happened learn about first, and these perceptions were closely correlated with their decisions.

The results of Experiment 3 provide further evidence that the immediacy bias in perceived emotional reactions to human suffering contributes to an immediacy bias in the provision of charitable donations. People provided more resources (in this case, deciding to write a letter to their Senator) to the humanitarian crisis they happened to learn about second than to the crisis they happened to learn about first, conceptually replicating the Pilot Study, the post hoc condition of Experiment 1, and the immediate decisions from Experiment 2. Importantly, participants exhibited this tendency even when explicitly told that the order of the films was completely random. And participants exhibited the immediacy bias even when forewarned about making "emotionally based decisions" while ignoring "the objective severity of the humanitarian crisis," and when scope of the first crisis was always higher than the scope of the second crisis. These results thus highlight the robustness of the immediacy bias in charitable donation decisions. The fact that participants exhibited an immediacy bias despite being forewarned about potential emotional influences implies that participants may not view the immediacy bias as an undesirable tendency to be avoided.

General discussion

Understanding how people decide whom to help is an important facet of understanding everyday decision making. And understanding people's emotional reactions to humanitarian suffering is an important facet of understanding how people decide whom to help. The present studies demonstrate that people exhibit an immediacy bias in judgments and decisions about humanitarian aid. That is, people perceive as more deserving and donate disproportionate resources to humanitarian suffering that happens to be immediately emotionally evocative.

This immediacy bias interacts with decision timing in three ways to produce different serial position effects in judgments and decisions about humanitarian aid. First, after learning about several humanitarian crises, participants allocated more monetary resources (Pilot Study, Experiment 1) and they chose to take personal action (writing a letter to a Senator, Experiments 2 and 3) to mitigate the most recent humanitarian suffering they happened to learn about. This immediacy bias in judgments and decisions occurred despite telling participants that the order of the films was completely random and even despite warnings about the fact that marketers will try "to take advantage of such emotional effects" (Experiment 3). Second, when making donation decisions sequentially, participants donated a disproportionate share of (remaining) available resources to each crisis in sequence, at least until the final crisis for which the allocation was predetermined by the remaining resources (Experiment 1). Finally, after a day's delay during which immediate emotions presumably subsided, the tendency to take action toward mitigating the most recent crisis was diminished (Experiment 2). These findings thus demonstrate that an immediacy bias can produce different serial position effects in charitable donation decisions, contingent on decision timing.

We hypothesize that the immediacy bias in judgments and decisions about humanitarian aid allocation is partly attributable to the immediacy bias in emotion perception (Van Boven et al., 2009). That is, because people's assessments of deservingness and their decisions about aid allocation are based on their perceived emotional reactions to human suffering, people's tendency to perceive their immediate emotions as more intense than their previous emotions (and than their future emotions), leads them to perceive as more deserving and causes them to act toward mitigating human suffering that happens to arouse immediate emotion. Two findings provide support for this analysis. First, the recency effect in donation decision was diminished after 1 day, consistent with the idea that immediate emotions have subsided. Second, people's judgments and decisions about humanitarian aid were closely correlated with their perceptions of emotional intensity. These findings both suggest that people's perception of their emotional reactions to immediately evocative humanitarian suffering influences their judgments and decisions about humanitarian aid.

One question that arises when interpreting these results is whether the immediacy bias in judgments and decisions about humanitarian aid is inherently emotional, or whether it might be due to the perceptual salience of emotional stimuli. That is, are people's decisions attributable to the fact that immediate humanitarian crises are emotionally arousing or to the fact that those crises are perceptually salient? Emotion and attention (i.e., perceptual salience) are intricately connected. As reviewed earlier, emotion drives attention, with emotional stimuli attracting and holding attention. The reverse is also true, that is, attention drives emotion. Selective attention toward some neutral stimuli (and away from other stimuli) decreases the perceived emotionality of the non-attended-to stimuli (Raymond, Fenske, & Tavassoli, 2003). And recent research from our lab suggests that more frequently attended-to neutral stimuli take on more emotional significance than less frequently-attended-to stimuli (Van Boven, Westfall, & Huber, 2011). These close connections suggest that although the potential distinction between emotion and attention may be of theoretical interest, empirically differentiating between emotion and attention, particularly with choice as a dependent measure, may be exceedingly difficult.

Previous research has implied other processes underlying serial position effects in decision making. Although these processes are undoubtedly important in some contexts, they do not readily explain the present results. Processes underlying primacy effects—increased attentional resources, memory advantages for the first items, or other advantages for "being first"—do not explain the results of the Pilot Study, the post hoc condition of Experiment 1, or the judgments and decisions on the first day of Experiment 2. Direction-of-comparison effects, which have been used to explain recency effects, cannot explain the sequential choice condition in Experiment 1, and imply negative linear effects in the post hoc choice condition in that experiment because each crisis' unique features are weighed more heavily than features that are shared with previously encountered items (Bruine de Bruin, 2005, 2006; Bruine de Bruin & Keren, 2003; Dhar & Sherman, 1996; Hodges, 1997; Houston et al., 1989; Mantel & Kardes, 1999; Tversky, 1977). We found, instead, that people give disproportionally more to the immediately experienced crisis relative to *all* previous crises (Experiment 1). The immediacy bias in emotion perception thus explains why, in various contexts, people might exhibit both primacy and recency effects, contingent on decision timing.

Finally, regression to the average evaluation of all crises is also an unlikely explanation of our findings (Li & Epley, 2009). A regression explanation would suggest that people are more certain in their evaluation of immediately experienced crises compared with previously experienced crises. In Experiment 2, we asked participants how certain they feel about their judgments ("How uncertain or certain are you of your judgments of the deservingness for monetary aid in Angola [Niger]", "How uncertain or certain are you of your judgments of the intensity of your emotions when viewing the film about Angola [Niger]", "How uncertain or certain are you of your judgments of how upset you felt when viewing the film about Angola [Niger]", 1 = *very uncertain*, 7 = *very certain*). We

did not find any statistical support (all *F*s < 1) for differences in how certain participants were about their judgments as a function of whether their judgment was about the first or the second crisis. Of course, the absence of evidence for differences in confidence is only weak evidence for the absence of differences in confidence. But note that to find a significant difference in participants' certainty judgments of deservingness and emotional reactions based on the observed $\eta^2 = .000384$ and $\eta^2 = .000435$ (respectively), would require samples of approximately 20,000 and 18,000 participants in this study (with power = .8). In addition, a regression account also suggests a linear allocation pattern in the post hoc condition of Experiment 1, consistent with feeling more uncertain about one's evaluations of the crises the more distant the crises were experienced (Li & Epley, 2009), which is not what we find. We found instead that people donated disproportionately to the fourth and final crisis compared with all three previous crises.

Is the immediacy bias in judgments and decisions about humanitarian aid beneficial or costly? On the one hand, acting on immediate emotions can be useful and adaptive. In situations such as the 2010 Haiti earthquake or the 2004 South East Asia Tsunami where several hundred thousand people were affected and where immediate help was urgently needed, strong emotional reactions and the amount of donations that it generated was certainly very useful.

On the other hand, when emotionally evocative disasters occur, people might donate less to more chronic, ongoing crises that tend *not* to evoke immediate emotional reaction. Indeed, sympathetic emotional responses to another person have been shown to increase allocations to that particular person at the expense of the collective good and even at the expense of moral principles such as justice and fairness (Batson, Klein, Highberger, & Shaw, 1995; Batson et al., 1995). More generally, crises that evoke stronger emotions are not necessarily crises that have a greater need for help. This is because a number of other reasons, unrelated to a crisis' severity, can lead to strong emotional reactions (e.g. vivid media coverage, receiving flyers with pictures of children sent by a charitable organization, etc.). We have evidence, furthermore, that people evaluate charitable aid allocations based on emotional reactions less favorably compared with allocations based on information about the scope of crises (Huber & Van Boven, 2010). An important question for future research is therefore whether people would personally prefer to make donation decisions based on immediate emotional reactions, and how to help them make donation decisions in ways that they would prefer to make such decisions.

We take both comfort and concern in observing the importance of immediate emotion in judgments and decisions about humanitarian aid. That sympathetic emotions can drive people to help is cause for optimism, and implies that the rule of narrow self-interest is less than we might fear. Nevertheless, that the effects of immediate emotions are so transient and malleable implies that sympathetic concern might fade too quickly. Such views were well-reflected by Edith H. Falk, the Chair of the Giving USA Foundation, in comments regarding the 2010 Haiti earthquake (Bond, 2010): "Of course, just like with past disasters, once the earthquake news is replaced by other headlines, the need will continue to exist, so we encourage Americans to give thoughtfully and often."

Acknowledgment

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