

# Whoever Saves One Life Saves the World: Confronting the Challenge of Pseudoinefficacy

**Daniel Västfjäll**

Decision Research and Cognitive Psychology, Linköping University

**Paul Slovic**

Decision Research, 1201 Oak Street, Suite 200, Eugene, Oregon, 97401 and  
Department of Psychology, University of Oregon, pslovic@uoregon.edu

**Marcus Mayorga**

Decision Research and Department of Psychology, University of Oregon

## **Abstract**

In a great many situations where we are asked to aid persons whose lives are endangered, we are not able to help everyone. What do we then do? In a series of experiments, we first demonstrate that donors, in general, become demotivated by information about children who cannot be helped. We find that negative affect from the children not helped decreases the warm glow associated with aiding the children who can be helped. This demotivation may be a form of “pseudoinefficacy” that is nonrational. We should not be deterred from helping whomever we can because there are others we are not able to help. Second, we show that people react in two ways to such requests. Some feel less good about helping those they can help and they help less. Others feel badly because of those “out of reach” and they become even more motivated to help whomever they can. We discuss the need to better understand these two different reactions and we suggest strategies to reduce the demotivating effects of pseudoinefficacy.

*Key words:* pseudoinefficacy, singularity effect, prosocial behavior, psychic numbing, compassion

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From the movie *Schindler's List*:

Oskar Schindler: I could have got more out. I could have got more. I didn't know. If I'd just . . . I could have got more.

Itzhak Stern: Oskar, there are eleven hundred people who are alive because of you. Look at them.

Oskar Schindler: If I'd made more money . . . I threw away so much money. You have no idea. If I'd just . . .

Itzhak Stern: There will be generations because of what you did.

Oskar Schindler: I didn't do enough!

Itzhak Stern: You did so much.

[Schindler looks at his car]

Oskar Schindler: This car. Goeth would have bought this car. Why did I keep the car? Ten people right there. Ten people. Ten more people.

[removing Nazi pin from lapel]

Oskar Schindler: This pin. Two people. This is gold. Two more people. He would have given me two for it, at least one. One more person . . . and I didn't! And I . . . I didn't!

In a climactic scene toward the end of the movie *Schindler's List*, factory owner Oskar Schindler is given a gift of a ring by the 1,100 Jewish workers whose lives he had saved by sheltering them from the Nazis. On the inner band of the ring is an inscription from the Talmud: "Whoever saves one life saves the world entire." As he slips the ring on his finger, his thoughts turn to other lives he might have saved but did not, and he breaks into tears because "I could

have got more out.” The research to be described in this paper suggests that if Schindler had thought earlier of lives he was not protecting from death, he might not have protected those 1,100 he did save.

What motivates us to help others whose lives are endangered? More specifically, what motivates us to help in certain situations, while in others we turn away? The answer to this question depends on the extent to which we value potential or actual losses of lives. Normatively, the scope or magnitude of a disaster or crisis should be the main carrier of value and motivation to act. But, descriptively, our actions are sometimes insensitive to, or even demotivated by, increasing numbers of people at risk (Slovic, 2007). For example, a single identified victim often evokes stronger feelings and greater willingness to help than an unidentified single victim or a group of victims, identified or not. The preference for helping a single identified victim over a group of victims is known as the *singularity effect* (Kogut & Ritov, 2005b). In other circumstances, decision makers appear to be constructing their life-saving preferences on the basis of contextual information that may not be normatively justifiable. In a study by Jenni and Lowenstein (1997), participants evaluated a program saving 2 lives annually more favorably when those 2 lives were half of a population of 4 at risk, than when they were a much smaller percentage of 1,700 at risk. Slovic, Finucane, Peters, and MacGregor (2002) termed this type of effect *proportion dominance* (see also Bartels, 2006), and argued that affective feelings play a central role in this phenomenon.

In the present article, we examine another contextual factor that may not be normatively justified: information about lives we cannot save may demotivate us from saving those we can.

### **Pseudoinefficacy**

Decisions are strongly motivated by perceived efficacy (Cryder, Loewenstein, & Scheines, 2013, Erlandsson, Björklund, & Bäckström, 2013). Inefficacy, real or perceived, shrivels response, even among those who have the desire and the means to protect and improve lives. It is tragic, indeed, when efficacy goes unrecognized and vital aid that could be provided is withheld due to an illusion of ineffectiveness that we have named *pseudoinefficacy*.

In reviewing what appeared to be unrelated findings from two earlier studies of life-saving decisions, we uncovered a curious connection that motivated the present research. These prior studies asked people to provide clean water to aid people facing death from disease (Fetherstonhaugh, Slovic, Johnson, & Friedrich, 1997) or to provide money to protect a child from

starvation (Small, Loewenstein, & Slovic, 2007). Fetherstonhaugh et al. found that people were less likely to send clean water that could save 4,500 lives in a refugee camp when the number of people in the camp was large (250,000) than when it was small (11,000). Small et al. found that the money donated to a seven-year-old African child facing starvation decreased dramatically when the donor was made aware that the child was one of millions needing food aid.

The findings from these two studies may have broad implications for prosocial or humanitarian behavior in light of the insights of Andreoni (1990), who contended that we help others not only because they need our help but because we anticipate and experience the *warm glow* of good feeling associated with giving aid. Subsequent empirical studies have supported this contention (e.g., Dunn, Aknin, & Norton, 2008). We hypothesize that knowledge of those “out of reach” (more in the large refugee camp and millions of starving people in Africa) may have triggered negative feelings that countered the good feelings anticipated from giving aid, thus demotivating action. A related explanation is that, compared to the large numbers of persons out of reach, the prospective aid created a sense of inefficacy, that is, a “drop-in-the-bucket” effect (Bartels & Burnett, 2011).

Although the results from these studies by Fetherstonhaugh et al. and Small et al. may appear at first glance to reflect inefficacy, this is not really inefficacy, because the donor can actually help some people (from 1 to 4,500). Instead, it is a form of *pseudoinefficacy* that is nonrational. We should not be deterred from helping one person, or 4,500, just because there are others we cannot help.

We propose that the demotivating effects in these studies, all of which involved large numbers of unidentified children who could or could not be helped, are one specific form of pseudoinefficacy. Kahneman (2011) summarizes the extensive research documenting the differential effects of fast vs. slow thinking (see also Greene, 2013). In a related vein, Haidt (2001) argues that moral intuitions (fast thinking) precede and often dominate moral reasoning (slow thinking). We propose that the findings of Fetherstonhaugh et al. (1997) and Small et al. (2007) reflect relatively slow or reasoned pseudoinefficacy that arises from more complex thoughts involving calculations of proportions or drop-in-the-bucket imagery, likely causing feelings of despair or hopelessness.

In the present article we extend these findings to situations involving what we call fast or intuitive pseudoinefficacy. We propose that fast pseudoinefficacy is linked to virtually immediate dampening of warm glow by

negative feelings, perhaps of sadness or unhappiness, in situations with *small numbers* of *identified* people in need and *small numbers unable to be helped*. We describe a series of studies designed to examine fast pseudoinefficacy and clarify the psychological processes that contribute to it.

To test our hypothesis that, even when the numbers of affected individuals are small, awareness of those not helped reduces the warm glow arising from doing good things, we employ a paradigm involving donations to one or more starving children identified by name, age, photo, and so on. We systematically vary the number of children who can be helped and the number who cannot. For instance, in a between-groups design, those in Group 1 are asked: “How good do you feel about donating to help Child A?” Those in Group 2 are asked to help Child A but not Child B, who unfortunately cannot be helped. In this case, we predict that warm glow associated with helping Child A would be lower for Group 2 and would decrease further if more excluded children were highlighted. We also predict that donations of money will decrease as warm glow is diminished.

## Experiments

### Overview

In Study 1, an initial test of pseudoinefficacy was conducted wherein participants rated their feelings and indicated how much money they would donate to either one child (who would be helped for certain) or *one* of two children (1 child cannot be helped, but uncertain which child). In Study 2, we employed two experimental conditions where 1 child is helped and the remaining 5 children cannot be helped. In the uncertain condition participants were not told which child would be helped. In the certain condition participants were explicitly made aware of which children they could and could not help. Study 3 introduced ratings of warm glow. It included more variations of the number of children helped or not helped (always specifying which children could be helped, and which could not be helped). Studies 4a and 4b employed within-subjects designs where participants rated warm glow as a function of the number of children helped. Studies 5a and 5b tested whether including irrelevant neutral visual distractors or affect-inducing non-children pictures would produce dampening of warm glow for helping a child. Studies 6a and 6b extended the previous studies of warm glow to include monetary donations.

### Study 1: Initial demonstration of pseudoinefficacy

This initial study was designed to extend the large-number paradigms used in previous studies (Fetherstonhaugh et al., 1997; Small et al., 2007) by

introducing a paradigm where participants are asked to donate to either a single child or one out of two children.

### **Method and design**

Ninety-four undergraduates (48 males) at Göteborg University, Sweden with a mean age of 27.3 (*SD* 5.1) participated in this study. A procedure devised by Small et al. (2007) was used in which participants, after completing an unrelated survey, received seven Swedish ten-kronor coins, a blank envelope, a questionnaire including the three response measures, and a charity request letter. The experimenter instructed participants to first read the charity request letter carefully, then place their donations (if any) in the envelope. Next, participants were asked to complete the questionnaire and return both the letter and questionnaire in the sealed envelope.

The letter informed the participant of the opportunity to donate any of their just-earned 70 kronors to the organization Save the Children. Participants were randomly allocated to one of the single or uncertain conditions. First, there were two single-child conditions: a description and picture of either a seven-year-old girl, Rokia ( $n = 21$ ) or a nine-year-old boy, Moussa ( $n = 22$ ). Participants were instructed that

Any money that you donate will go to Rokia [Moussa]. Rokia [Moussa] is desperately poor, and faces a threat of severe hunger or even starvation. Her [His] life will be changed for the better as a result of your financial gift. With your support, and the support of other caring sponsors, Save the Children will work with Rokia's [Moussa's] family and other members of the community to help feed her [him], provide her [him] with education, as well as basic medical care and hygiene education.

In the “uncertain” condition ( $n = 51$ ), participants received a similar description but with pictures and stories of both Rokia and Moussa. Participants were instructed that their donations would go to Rokia *or* Moussa.

Three response measures were used:

1. Willingness to donate. Participants could circle any number between 0 and 70 Swedish Crowns (SEK) in 10-crown increments.

2. Affect. Participants rated “how do you feel about donating to Rokia/Moussa/the child?” on a scale ranging from *Negative* (−1) to *Positive* (+5).

3. Perceived probability that the donation would make a real difference (1–5 scale anchored by *Not at all likely* to *Very likely*).

***Results and discussion***

Table 1 shows means comparing the uncertain condition to the average of the two single conditions. Independent t-tests showed that donations were significantly higher in the single conditions,  $t(92) = 2.12, p < .05$ . Similarly, affect ratings were more positive in the single conditions,  $t(92) = 2.46, p < .05$ . The perceived probability did not differ between conditions,  $t(92) = 1.76, p = .08$ .

Table 1  
Willingness to donate, affect, and probability for uncertain and single conditions

	Single child	Uncertain One of two children
	( <i>n</i> = 43)	( <i>n</i> = 51)
Donations (SEK)	26.5	20.2
Affect	3.7	3.1
Probability	2.4	2.1

Although donors may consider their contributions to be a drop in the bucket in some circumstances, such thinking is unlikely to underlie the results of this study, given that half of the two children at risk could be helped. Because the instructions in the uncertain condition explicitly stated that one of the two children would be helped, we believe that participants considered the one child not helped in the uncertain conditions and that this reduced affect and donations.

**Study 2: Comparing uncertain and certain conditions where children are not being helped**

It is possible that results from Study 1 were affected by the uncertainty regarding which child would be helped (Gneezy, List, & Wu, 2006). Previous research has found that uncertainty elicits negative affect (Kurtz, Wilson, & Gilbert, 2007). In Study 2, we controlled for this possibility by directly contrasting an uncertain condition (one of *n* will be helped, but uncertain which

one), and certain condition (this child will be helped for sure; these others will not be helped).

### **Method and design**

One hundred and four undergraduates at Göteborg University, Sweden (65 females) with a mean age of 24.1 participated in Study 2.

We collected ratings of warm glow and affect in a between-groups design where participants either saw one child who could be helped ( $n = 37$ ) or one of two scenarios where one child could be helped and six could not be helped. In the uncertain condition ( $n = 33$ ) participants were not told which one of the seven children could be helped. In the certain condition ( $n = 34$ ), the child who could be helped was identified.

In the single-child condition, an identified child with a photo and a name was presented. Participants were instructed that:

This is a picture of Nayani. Her living conditions are very bad and she needs your help. Without your help Nayani will likely not survive. You can help Nayani by donating money. Below are a number of questions about your thoughts and feelings about helping Nayani.

The certain condition included seven pictures, each depicting a named child. Participants were instructed that:

This is picture of some children. Their living conditions are very bad and they need your help. Without your help these children will likely not survive. You can help one of these children by donating money. The child you can help is located to the left. Her name is Nayani.

The presentation included identifying information about Nayani and a color photo, while photos of the six other children were faded and printed in black and white.

In the uncertain condition participants saw pictures of all seven children (all were named and presented in color) and were instructed that:

This is picture of some children. Their living conditions are very bad and they need your help. Without your help these children will likely not survive. You can help one of these children by donating money. Below are a number of questions about your thoughts and feelings about helping one of the children.



Participants in all conditions rated their feelings using three scales anchored by 0 (*Not at all*) to 7 (*Very much*):

1. Warm glow: “If I donated money, I would experience a warm glow feeling.”
2. Positive affect: “I have positive feelings when I think about Nayani/the child.”
3. Compassion: “I have compassionate feelings for Nayani/the child.”

Participants were then debriefed and thanked for their participation.

### Results and discussion

ANOVAs on the dependent measures yielded significant effects on all scales. Warm-glow, positive affect, and compassion ratings were significantly lower in the certain condition than in the single-child condition. The uncertain condition was not different from the certain condition on any of the three scales (see Table 2).

Table 2

Mean ratings of warm glow, positive affect, and compassion for the three conditions in Study 2

	One child	Uncertain	Certain	<i>F</i>	<i>p</i>
Warm glow	3.3a	2.9a,b	2.5b	4.46	< .02
Positive affect	2.7a	2.2a,b	2.0b	3.28	< .05
Compassion	4.1a	3.4b	3.2b	4.95	< .01

*Note.* Subscripts not shared are significantly different at  $p < .05$ .

Together, these findings show that information about children not helped dampens affect for the child who could be helped. However, affect in the certain condition was not significantly lower than in the uncertain condition, suggesting that participants in both these conditions were demotivated by the children not helped. These findings suggest that the negative feelings associated with awareness of the children not being helped dampens feelings for the child that could be helped.

### **Study 3: Varying numbers of children helped or not helped**

In Study 3, we further extended the certain paradigm to test how variations of the number of children helped or not helped influence warm glow.

#### **Method and design**

Five hundred forty-three U.S. participants from a nation-wide sample (mean age 38, 56% female) completed an online version of the experiment. Study 3 directly examined the effect on warm glow of the number of children helped or not helped. Participants again saw pictures of children. In the first scenario seen by a participant we varied the number helped or not helped in a between-subjects design: 1/0 (helped/not helped), 1/1, 1/6, 2/0, and 2/1 (see Figure 1 for an example of one condition). However, after seeing the initial scenario, participants in each condition saw all other scenarios in mixed orders, thus allowing us to also do an analysis of ratings within-subjects. The instructions read:

In this survey you will be presented with children in need of help. We will ask you to think about “warm glow,” a positive feeling that you may experience when you do something good for someone. Take a moment to think about one situation from your own life when you experienced this feeling. Next we will ask you to consider the warm glow you would expect to feel if you donated to help children in need.

Participants were then shown one of the conditions with a picture and names of the child(ren). For example, in the 1/6 condition they were instructed that

These are seven children in need of aid. The child on the left, Ofelo, is facing starvation and is in immediate need of food. The six children on the right are facing ill health from water-borne diseases and are in immediate need of clean water and medicines. Suppose that you are now given the opportunity to donate money to a trusted aid organization to help Ofelo (the child on the left). Unfortunately, you can only help Ofelo and not the other children, for whom aid may not be available.

The warm-glow scale was an open-ended response anchored by 0 (*No warm glow*) to 100 (*Very strong warm glow*).

*Figure 1.* Example of stimulus materials for one condition.

## Results and discussion

Means for both within- and between-subject comparisons are shown in Table 3. The overall between-subjects ANOVA was significant:  $F(1,540) = 2.39, p < .05$ . As can be seen in Table 3, for both between and within- subjects designs, warm glow associated with helping one child decreased linearly as the number of children not helped increased from zero not helped, to one not helped, and then to six not helped. Two children helped elicited warm glow similar to one child helped. A within-subject ANOVA (collapsing across different orders) also showed a significant condition effect,  $F(1,540) = 35.57, p < .0001$ . Comparing two helped and two helped/one not helped in the between-subjects design, a non-significant increase in warm glow occurred. However, within subjects, two helped/one not helped exhibited a statistically significant decrease in warm glow compared to two helped.

Table 3

Mean warm-glow ratings for both between- and within-subject comparisons (Study 3)

	Helped/Not helped				
	1/0 ( <i>n</i> = 137)	1/1 ( <i>n</i> = 100)	1/6 ( <i>n</i> = 110)	2/0 ( <i>n</i> = 86)	2/1 ( <i>n</i> = 80)
Between-subjects	54.9 <sub>a</sub>	50.8 <sub>b</sub>	47.1 <sub>c</sub>	55.8 <sub>a</sub>	60.4 <sub>a</sub>
Within-subjects ( <i>n</i> = 502)	53.6 <sub>a</sub>	49.6 <sub>b</sub>	45.4 <sub>c</sub>	53.7 <sub>a</sub>	51.4 <sub>b</sub>

*Note.* Means not sharing a subscript are different at  $p < .05$ .  
Table entries are warm-glow ratings on a 0–100 scale.

Study 3 thus replicated the basic pseudoinefficacy effect and, further, showed that warm-glow ratings were sensitive to the number of children not helped. With the increasing number not helped, warm-glow feelings were further dampened. The effects were very similar for both within- and between-subjects comparisons.

### Studies 4a and 4b: Testing robustness of the effect in within-subjects designs

Previous research (Hsee & Zhang, 2010, Kogut & Ritov, 2005a) has documented that in “joint evaluation” participants typically adjust their responses (so that they are the same) when they realize that their judgment is about the same object or stimulus (in this case the warm glow for a single

child). The within-subjects results in Study 3, however, suggest that the pseudoinefficacy effect may resist this type of judgmental correction. In Study 4, we further tested this resistance by assessing warm glow in a within-subjects design with a fixed order of presentation of several different donation opportunities.

Study 4a was conducted as a classroom exercise and Study 4b was a replication using an individualized computer survey in a laboratory setting.

### **Method and design**

#### ***Study 4a***

One hundred and forty-three students in a college classroom at the University of Oregon participated in this study. About two thirds were women. Their mean age was about 20. The number of children who could be helped was systematically varied in the following fixed order: six helped/one not helped, two helped/one not helped, one helped/one not helped, one helped. The general instructions were as follows:

Here are some questions about children in Africa who live in poverty. I will ask you to consider helping these children by donating money to a respected aid organization and then answer a number of questions about your thoughts and feelings.

In particular I would like you to think about warm glow—a positive feeling that you may experience when you do something good for someone. Have you experienced this? Take a moment and think about one situation from your own life when you experienced this feeling.

Next I will ask you to consider the warm glow you expect to feel if you donated to help children in need.

The first rating was for warm glow expected if one donated money to help six children (pictured, with names) but could not donate to a seventh, pictured and named child, as follows:

These are seven children in need of aid. Suppose that you are given the opportunity to donate money to a trusted aid organization to help the six children to the left (Nelson, Sueva, Moussa, Mutaka, Jallo, Maluf). Unfortunately you can only help these six children and not Okeke, for whom aid may not be available. Rate the warm glow you expect to feel

if you donated money to help these six children (Nelson, Sueva, Moussa, Mutaka, Jallo, and Maluf).

Participants rated their warm glow by pressing a button on an audience-voting system (participants were instructed that the response options represented the following intervals on a 0–100 scale of warm glow: 1 = 0–20, 2 = 21–40, 3 = 41–60, 4 = 61–80, 5 = 81–100). Our data-collection method did not track individual answers, so only means are reported for this study.

### ***Study 4b***

Forty-eight University of Oregon undergraduates (mean age 20.5 years; 75% female) participated in a lab study. The methodology was similar to Study 4a, except participants rated the pictures in a computer survey. They responded using the same five-category scale of warm-glow used in Study 4a. Responses were tracked within-subjects, allowing statistical tests to be performed.

### **Results and discussion**

In both Studies 4a and 4b, warm glow decreased as the number of children who could be helped decreased (see Figure 2). A within-subjects ANOVA showed a significant condition effect  $F(1, 46) = 11.80, p < .01$  for Study 4b. Importantly, the critical difference between one child helped/one not helped and one helped showed that the mean warm glow was substantially higher in the one-child condition. In Study 4b, this difference was significant in a Bonferroni post-hoc test ( $p < .01$ ).

*Figure 2.* Mean warm-glow ratings in within-subjects designs (Studies 4a and 4b).

Together, Studies 4a and 4b extended our earlier results in two ways: In contrast to the earlier studies, we kept the number of children not helped constant (one), and varied the number helped. We found that participants experienced less warm glow as the number of children helped decreased, a finding that is consistent with proportion dominance (Fetherstonhaugh et al., 1997). However, the single child helped received the highest warm-glow rating consistent with the singularity effect (Kogut & Ritov, 2005a). Importantly, when the single child was paired with one other child not helped, that child then received the lowest warm-glow rating. It is notable that this effect occurred even with a fixed order where the single child appeared last and, arguably, participants would likely recognize that in both the one helped/one not helped and the one-helped scenarios they may help only one child and thus

need not change their warm-glow ratings. We believe this is a demonstration of the robustness and pervasiveness of dampening of good feelings for the child one can help when paired with one or more children one cannot help.

### **Studies 5a and 5b: Testing an alternative explanation and a possible mechanism**

Studies 5a and 5b had three goals; (1) provide evidence that the children not helped induce negative affect that dampens the positive affect for the child helped, (2) examine whether pseudoinefficacy could be produced by simply introducing distracting stimuli, and (3) examine whether the role of negative affect could be isolated by incidentally manipulate negative affect.

In Study 5a we contrasted the effect on ratings of warm glow of children who cannot be helped with the effect of visual distractors. If the dampening of warm glow observed in the previous studies was due to mere distraction caused by attending to the children not helped, we would also expect to find reduced warm-glow ratings in conditions with visual distractors other than children.

In Study 5b we tested the hypothesis that a responsible mechanism for pseudoinefficacy is negative affect associated with the children not helped. We also compared the effect of children who cannot be helped with the effect of other visual stimuli that induce negative affect. We expected that other sorts of irrelevant pictures that induce negative affect would also reduce warm glow, consistent with our main explanation for the effect.

#### **Study 5a: Visual distractors**

##### ***Method and design***

One hundred and forty-eight undergraduates at Göteborg University, Sweden (mean age 32, 68% female) participated in an online survey. To test the effect on warm glow of visual distractors, we compared a condition ( $n = 54$ ) where one child could be helped and six could not be helped with a condition ( $n = 44$ ) where six shapes were substituted for the six children not helped (see Figure 3). In addition, a single-child condition was included ( $n = 44$ ).

In each of the three conditions, participants were given the same general instructions to think about warm glow as were given in our prior studies and they were asked to rate the warm glow they expected to feel for the single child they could help, using a 0 (*No warm glow*) to 100 (*Very strong warm glow*) response scale.

Participants in the one/six children condition also rated how they felt when they viewed the children not helped (on a -2 to 2 scale from *very*

*bad to very good*). Participants in the shapes condition similarly rated how bad or good they felt when they viewed the shapes on a four-point scale ranging from *Very bad* (−2) to *Very good* (+2).

*Figure 3.* Child and shapes used in the visual distraction experiment in Study 5a.

### ***Results and discussion***

As can be seen in Figure 4, mean warm glow was significantly lower in the one-child-helped/six-children-not-helped condition than in the single-child condition ( $t(96) = 2.35, p < .03$ ), replicating our previous findings. The one child/six shapes condition did not differ from the single-child condition ( $t(96) = 0.91, p = .92$ ), suggesting that visual distraction is not the cause of the observed pseudoinefficacy. Consistent with a negative-affect explanation, participants experienced significantly more negative affect ( $M = -.28$ ) when viewing the children not helped than when viewing the shapes ( $M = .31$ ); ( $t(86) = 3.81, p < .001$ ). Further, the correlation across participants between warm-glow ratings and the valence ratings of the children not helped was positive and significant,  $r = .32, p < .05$ , while the correlation between warm glow and valence ratings of the shapes was  $r = .00, ns$ .

*Figure 4.* Mean warm-glow ratings across the different conditions in the distractor study.

### **Study 5b: Manipulating negative affect**

In Study 5b we sought to determine the role of negative affect in dampening warm glow. The design was similar to Study 5a but, instead of affect-neutral shapes, pictures selected to induce strong negative affect were shown.

### ***Method and design***

One hundred-four undergraduates at Göteborg University, Sweden with a mean age of 23 years (61% female) participated in a web-based survey. To test the effect of negative affect, we compared a condition ( $n = 26$ ) where one child could be helped and six could not with a condition ( $n = 43$ ) in which six negative affect-inducing pictures were substituted for the six children not helped (see Figure 5). The pictures were selected from the International Affective Pictures System (IAPS; Bradley & Lang, 2000). As in Study 5a, a single-child condition was included ( $n = 35$ ). In addition to rating warm glow for the child, participants in the one-plus-six children condition rated how bad or good they felt when viewing the children not helped (−2 to + 2 scale).

Participants in the picture condition also rated how bad or good they felt when they viewed the set of pictures (−2 to +2).

*Figure 5.* Example of stimuli used in Study 5b.

### ***Results and discussion***

Participants rated both the affect experienced while viewing the pictures ( $M = -.53$ ) and the children ( $M = -.54$ ) as negative. As can be seen in Figure 6, mean warm glow was significantly lower in the one-child-helped/six-children-not-helped condition than in the single-child condition ( $t(59) = 2.07, p < .05$ ), replicating the basic pseudoinefficacy effect. Similarly, and critical to our hypothesis, warm glow in the one child/six pictures condition was also significantly lower than in the single-child condition ( $t(76) = 2.27, p < .03$ ), suggesting that irrelevant negative affect intruded upon and decreased the affect from helping the child.

Additionally, the correlation between warm-glow ratings and the valence ratings of the children not helped was positive and significant,  $r = .48, p < .05$ . Consistent with the affect explanation, the correlation between warm-glow and valence ratings of the pictures was similar in magnitude,  $r = .35, p < .05$ . Thus, both sources of negative affect, pictures of children not helped and diverse negative pictures, intruded upon and diminished anticipated warm glow from helping the child in need.

*Figure 6.* Mean warm-glow ratings in the picture study (Study 5b).

### **Studies 6a and 6b: Donations**

In Studies 6a and 6b, we extended our paradigm to include monetary donations as well as ratings of warm glow. Based on previous research, experienced affect tends to be highly correlated with willingness to donate (Dickert, Sagara, & Slovic, 2011; Kogut & Ritov, 2005b). Accordingly, we expected that donation amounts would be affected by the pseudoinefficacy manipulations as were ratings of warm glow.

In these studies the child in need was said to be “facing starvation and is in immediate need of food. Suppose you are given the opportunity to donate money to a trusted aid organization to help (the child)”.



We did not ask our participants in these studies to donate their own money. Study 6a used hypothetical donations. Study 6b used the following procedure, set out in the general instructions:

In this survey you will be presented with children in need of help. You will, among other things, be asked to think about if you would like to donate money to help the child. And, if so, how much. We will ask you to state the amount you think would be appropriate. It is very important that you give an amount that reflects what you would be willing to give, given your current situation and circumstances (e.g., budget constraints, etc.). We will randomly draw from the responses in this study and donate the amount stated. Treat this as a real donation request and respond as if it was your money. Your response can help children in need.

A sample of responses was randomly selected and the donations designated by the respondents were sent to Save the Children.

### **Study 6a**

#### ***Method and design***

Six hundred sixty-two undergraduates from the University of Oregon participated in an online web survey as part of a larger data collection. All participants were shown one child who could be helped and six other children “for whom aid may not be available.” Participants were asked to rate warm glow for the single child on the scale used in the previous studies and to indicate how much they would be willing to donate to help that child. They were asked to imagine that they had \$25 dollars in their wallet and could donate any amount between \$0 and \$25. Pilot testing indicated that, when donations were requested in the condition where six children could not be helped, some respondents expressed very high levels of warm glow and gave large donations, suggesting that these individuals may have motivations for helping that were different from the demotivated respondents in the earlier studies. Therefore, items specifically designed to capture different motivations were created. Specifically, we asked participants to give a response on a four category scale anchored by strongly disagree to strongly agree for motivation item 1, “When thinking about the children in need that I could not help, I felt demotivated from helping [name of child]”; and motivation item 2, “Seeing the children that I could not help made me feel bad and motivated me to help [name of child] in order to feel better.”

Based on their disagreement with item 1 and agreement with item 2, one hundred ninety participants were categorized as motivated by the six children

not helped. Opposite responses to the two items led 203 participants were categorized as demotivated by those not helped. Two hundred sixty-nine participants disagreeing with both items were categorized as “neither.”

### ***Results and discussion***

We found that the motivated group felt significantly stronger warm glow toward the child they could help and were willing to donate more money to that child relative to the demotivated group (post hoc tests at  $p < .05$ ; see Table 4).

Table 4

Mean warm-glow ratings and donations for three motivation groups (Study 6a)

	Demotivated	Neither	Motivated		
	M (SD)	M (SD)	M (SD)	F	p
Warm glow	60.0 <sub>a</sub> (17.8)	66.0 <sub>a,b</sub> (18.0)	72.2 <sub>b</sub> (16.6)	21.22	< .001
Donation	9.45 <sub>a</sub> (9.71)	10.81 <sub>a,b</sub> (8.90)	14.24 <sub>b</sub> (8.60)	16.75	< .01

*Note.* Means not sharing subscripts are significantly different at  $p = .05$ . Warm glow was rated on a 0–100 scale, donations were made on a \$0–\$25 scale.

In summary, the findings in Study 6a suggest that the demotivating effects on warm glow of the six children not helped may not be as strong when combined with a request to donate—at least not for all participants. We documented two opposite behavioral tendencies activated by the presence of children who could not be helped: one group of participants appeared to become demotivated whereas another group of participants remained motivated. In Study 6b, we attempted to replicate, and reverse, this effect using other participants and stimuli.

#### **Study 6b. Reversing pseudoinefficacy**

Study 6a showed that people may become either demotivated or motivated by information about children who cannot be helped. In Study 6b, we tested the prediction that receiving information that the six other children have been *helped* by other donors would dampen or reverse the pseudoinefficacy effect. Specifically, we expected that including a condition with pictures of children who were helped would erase or minimize the pseudoinefficacy effect, as there would be little or no negative affect associated with these pictures.

### ***Method and design***

Three hundred fifty-three participants from the United States (mean age 43.5 years,  $SD = 12.5$ , 50% female) completed an online version of the experiment. We used a between-subjects design where participants saw either a single child plus six children who could not be helped or a single child plus six children who were helped by other donors. The same children's pictures were used in both conditions.

As in Study 6a, participants read about the children and indicated their warm glow (on the 0–100 scale used in previous studies) as well as stating how much money they would be willing to donate to help save the child (\$1–50). Also as in Study 6a, participants were divided into groups based on their responses to the two motivation questions. At the end of the session, participants also rated how the picture of 6 children made them feel on a –2 (*Very bad*) to +2 (*Very good*) scale.

### ***Results and discussion***

A 3 (motivation: demotivated, neither, motivated) x 2 (condition; single child + six not helped, single + six helped by others) between-groups ANOVA was conducted on the warm-glow ratings. The main effect of motivation reached significance,  $F(1, 347) = 4.29, p < .001$ , where the demotivated group felt less warm glow than the motivated group, and the interaction between motivation and condition also reached significance,  $F(2, 347) = 6.01, p = .03$  (see Figure 7). As expected, those in the demotivated group gave low ratings of warm glow in the six children-not- helped condition, whereas the motivated group rated warm glow as very high. For the six helped by others condition, the motivated group expressed lower warm glow ratings, while the demotivated group had higher warm-glow ratings.

*Figure 7.* Warm-glow ratings for the three motivation groups across two conditions (Study 6b).

The pattern for donations (Figure 8) was similar to that of the warm-glow ratings. There was no main effect, but the interaction between motivation and condition reached significance,  $F(2, 347) = 3.14, p = .04$  (see Figure 8). As with the warm-glow ratings, those in the demotivated group donated the lowest amount in the six-children-not-helped condition, while those in the motivated group donated the highest amount. Those in the demotivated group gave much higher donations in the six children helped by others condition, and all three motivation groups gave similar amounts in that condition.

*Figure 8.* Donations for the three motivation groups across two conditions (Study 6b).

Consistent with our expectation that the six-helped-by-others condition induced less negative affect, the mean valence for that condition ( $M=1.61$ ) was significantly more positive than the mean valence ( $M = 0.34$ ) for the children not helped ( $t(349) = 12.19, p < .001$ ).

Taken together, Study 6b replicated the pattern from Study 6a for the six-children-not-helped conditions and, in addition, showed that adding a condition where children are helped by someone else did not negatively influence the demotivated group. This is further evidence that the negative affect associated with the children not being helped dampened warm glow and decreased donations for that group.

### **General discussion**

The studies described above show that donors pay attention not only to relevant information (children who can be helped), but also incorporate feelings from normatively irrelevant information (e.g., children who cannot be helped) when that information is brought to their attention. Irrelevant negative feelings from those not able to be helped appeared to blend with the good feelings for those who can be helped, leading to dampened warm glow and smaller donations. This effect is not a form of inefficacy attributable to "drop-in-the-bucket" (Bartels & Burnett, 2011) reasoning because it occurs even when a substantial proportion of children, though not all, can be helped (e.g., see Table 1 and Figure 2). The fact that one cannot help other children should not influence the decision to help a child who can be helped.

We further demonstrated that fast pseudoinefficacy is an affective phenomenon—positive feelings about the child one can help are dampened by negative feelings associated with children who cannot be helped. In Studies 1–4, we found that affect ratings and feelings of warm glow (associated with the child one can help) were lower when children who could not be helped were made salient. In Study 5a, we demonstrated that the children not helped induced negative affect that reduced the positive warm glow for the child that could be helped. We also found that the pseudoinefficacy effect is not merely due to visual distraction resulting from images of children not helped. Warm-glow ratings of a single child who could be helped were not reduced when that child was accompanied by nonaffective visual distractors. In further support of an affect-based explanation, Study 5b showed that when other, unrelated, pictures that induced negative emotion accompanied the single child, warm-

glow ratings were as low as in the pseudoinefficacy conditions where children not being helped were present. In Study 6b, we showed that a condition with children being helped by others was not associated with negative affect and did not affect warm glow and donations.

However, not all participants were demotivated by the presence of other children. In Studies 6a-b, we found that some participants remained motivated by seeing the children not helped. Dividing our samples into groups based on their self-reported motivations for helping, we found almost opposite effects on warm glow and donations. Participants classified as demotivated felt less warm glow and gave less in the conditions where children not helped were present. Participants classified as motivated felt considerably more warm glow and donated considerably more than the demotivated group in those conditions.

Study 6b showed that the demotivated group was very sensitive to the negative information conveyed by “not being helped.” But, when these pseudoinefficacy participants were told that the other children were “helped by someone else,” they felt greater warm glow and donated much more money, suggesting that these individuals may be particularly prone to allowing extraneous or incidental sources of affect to intrude upon more direct sources of affect.

Affective feelings play a central role as a common currency, allowing decision makers to compare or integrate values for multiple, diverse stimuli (Cabanac, 1992). But sometimes the integration goes awry as in the susceptibility of warm glow to dampening due to extraneous images of little or no relevance to the child who can be helped. This illustrates a peculiar form of affective calculus of the form that Polish poet Zbigniew Herbert called “the arithmetic of compassion” ( see, e.g., Herbert, 2007, p. 286). Pseudoinefficacy joins the list of other phenomena that have documented what can be considered arithmetic errors, as in the expression of feelings associated with increasing numbers of human lives at risk (Slovic, 2007). When only one life is at stake, the value attached to saving or prolonging that life is extreme—this is referred to as *the singularity effect* (Kogut & Ritov, 2005b). But as the number of lives at risk increases, phenomena such as psychophysical numbing and psychic numbing (Slovic, 2007), appear to lead our fast, intuitive, gut reactions on a path much different from one guided by the normal logic of arithmetic.

With the common psychophysical form of numbing, the value attached to saving lives increases monotonically, but at a decreasing rate, as represented by the value function for gains in Prospect Theory (Kahneman & Tversky, 1979). With pseudoinefficacy, this monotonic increase can cease abruptly when

one or more lives appear that are beyond help, as indicated by the results from Studies 4a and 4b shown in Figure 2. There, warm glow increased monotonically with one, two, and then six children helped in the context of one that could not be helped. But the anticipated warm glow from helping a single child, alone, was far greater than the glow of helping one, two, or even six children in the presence of one out of reach, illustrating a version of what Markowitz, Slovic, Västfjäll, and Hodges (2013) have termed *compassion fade*. Note also, in Figure 2, that the strong singularity effect exhibited for the child alone is greatly diminished when that child is accompanied by one child who cannot be helped. Perhaps this is a reverse singularity effect whereby the one out of reach creates a strong negative feeling that subtracts greatly from the warm glow.

In addition to its implied modification of Prospect Theory's value function, the pseudoinefficacy effect may be related to other judgment phenomena such as information integration in impression formation (Anderson, 1962), dilution effects (Nisbett, Zukier, & Lemley, 1981), and evaluability (Hsee, 1998; Hsee & Zhang, 2010). As with pseudoinefficacy, each of these phenomena reflects a tendency to average, sometimes inappropriately, the impressions associated with additional information.

In impression formation, research shows that adding information that is moderately positive to information that is highly positive leads to lower judgments (Anderson, 1981), resulting from averaging values rather than adding them. An example of this from the consumer domain is provided by Yadav (1994), who asked consumers to rate their preference for different sets of furniture. Participants in the individual-item condition read information about a bed that pretest participants had rated as excellent. Those in the bundle condition rated a set consisting of two items: the same highly favorable bed plus a chest that was described as moderately favorable. Participants gave higher preference ratings to the bed alone than those in a separate group gave to a set containing both the bed and the moderately favorable chest (see also Weaver, Garcia, & Schwarz, 2012). Interestingly, Kralik, Xu, Knight, Khan, and Levine (2012) found evidence for similar averaging in nonhuman primates; rhesus monkeys preferred a high-value food item alone to the same item paired with one of positive but lower value.

Similarly, Hsee, Loewenstein, Blount, and Bazerman (1999) asked respondents to state the amount they were willing to pay to purchase each of two sets of dinnerware. Set S contained 24 pieces, all in good condition. Set J contained all of the same pieces plus 8 more, all in good condition, along with 16 other pieces that were broken (40 total). In single (separate) evaluation,

respondents were willing to pay more for set S, though it was the inferior option, apparently devalued by the broken pieces. But in joint (side-by-side) evaluation, respondents were willing to pay more for Set J.

Studies of the dilution effect compare the impact of diagnostic information with that of nondiagnostic information. The former is knowledge that is useful in making a particular judgment, whereas the latter is not relevant to that judgment. Research has shown that when both kinds of information are relevant, people tend to under-rely on diagnostic information (Nisbett et al., 1981; Tetlock, Lerner, & Boettger, 1996). Thus the presence of nondiagnostic information weakens, or dilutes, the impact of diagnostic information, much as the response to children who can be helped is dampened by the presence of children who cannot be helped.

Just as joint evaluation of the dinnerware sets increased evaluability and produced more reasonable price setting in the study by Hsee et al., joint evaluation of life-saving options has been shown to reverse psychophysical numbing (Fetherstonhaugh et al., 1997). However, in Studies 4a and b, we found that pseudoinefficacy effects remained even in within-subject designs where people evaluated options in a joint evaluation mode. A striking example from Studies 4a and b is that warm-glow ratings for helping a single child were higher than in all conditions in which one child could not be helped, even though the single child to be helped was presented last. It can be argued that participants in our within-subjects studies should not be influenced by the children not being helped since the manipulation should be very transparent and salient. The fact that pseudoinefficacy remains in joint evaluation suggests that it is a robust phenomenon.

### **Individual Differences**

Additional research is needed to identify characteristics that lead some people to exhibit pseudoinefficacy and others to behave in an opposite manner. Numeracy, personality traits, and emotion-regulation propensities may hold clues to explaining these differences (Bekkers & Wiepking, 2011).

Mayorga (2013) examined how individual differences in personality, measured with the Big Five personality inventory, as well as individual differences in emotion regulation (measured with the Difficulties in Emotion Regulation (DERS) scale; Gratz & Roemer, 2004) were related to self-reported motivation in a pseudoinefficacy paradigm (single child not helped). Using a student sample, he found that those who reported demotivation displayed higher scores in neuroticism than motivated individuals. Highly neurotic

subjects may experience greater negative emotion from seeing unhelped individuals, leading to greater chance of demotivation (pseudoefficacy) and may exhibit reduced helping behavior for those able to receive aid. Further, participants reporting demotivation also reported greater difficulty in regulating negative emotions. Moreover, the association between pseudoefficacy and the neuroticism personality trait was mediated by emotion-regulation abilities. This supports the hypothesis that it is a failure to effectively cope with the negative affect from unhelped needy individuals, which dampened warm glow and reduced donations. One interpretation is that individuals who remained motivated by the few not helped may experience similar levels of negative affect as individuals who are demotivated, but act to regulate or repair their negative affective state by increasing positive affect and donations for the child(ren) that can be helped. Consistent with this prediction, Manucia, Baumann, and Cialdini (1984) showed that individuals donated more only when they experienced negative affect and they thought that donation would improve how they felt.

Further, the fact that relatively "implicit" and independent measures of personality and emotion regulation abilities can predict who will self-identify as motivated or demotivated suggest that the two motivation questions used in Studies 6a and 6b had some convergent validity.

Our fast pseudoefficacy studies used small numbers (one to six) of identified victims who could not be helped. Future research should examine whether negative affect associated with large numbers of statistical victims who are out of reach demotivate individuals from helping. Individuals exhibiting pseudoefficacy with small numbers would be expected to be demotivated as much or more by the large numbers of persons out of reach. But how would individuals in the motivated group respond? Would they again become motivated to help or would pseudoefficacy, perhaps linked to drop-in-the-bucket thinking, affect them as well?

### **Overcoming pseudoefficacy**

It is typically the case that even our best efforts cannot help everyone in need. Thus it would be unfortunate, indeed, if we let this "incompleteness" deter us from accomplishing what is within our grasp.

But countering, or at least minimizing, pseudoefficacy might not be easy. Kahneman (2011) summarizes a vast amount of research demonstrating that the human mind processes information in two ways: fast and slow. Fast thinking, akin to what Haidt (2001) calls moral intuition when it comes to



saving lives, is like perception. Moral feelings arise quickly and seem veridical, without reflection (Haidt, 2001), much like visual perceptions. But just as the human eye, as accurate as it is, can be deceived by certain patterns creating “visual illusions,” certain forms of contextual information, such as children who cannot be helped, may create “moral illusions.” And just as visual illusions may persist even when we know them to be false, the illusion of pseudoinefficacy may be similarly hard to dispel.

Hsee (1998) showed that joint evaluation helped reduce bias in his dinnerware study. Fetherstonhaugh et al. (1997) found that joint evaluation reduced proportion dominance in life-saving decisions. But Studies 4a and 4b in the present paper found pseudoinefficacy even in joint evaluation. Just like visual cues cannot be easily ignored, perhaps the affective system cannot ignore affective cues even when they are irrelevant.

One strategy used to debias persistent and deadly visual illusions is to remove the deceptive cues. When pilots on visual approach to a landing strip were misled by the pattern of runway lights, causing them to land short of the runway, the pattern of flights was quickly and successfully changed (Palmisano & Gillam, 2005). In light of pseudoinefficacy and drop-in-the-bucket thinking, we can delete or minimize reference to the larger need the donation request addresses. One charity put the statistic, “3 million in need” above the picture of a starving child, likely demotivating many donors.

Perhaps a more promising strategy is one used by Schwarz and Clore (1983) to block the intrusion of irrelevant feelings. Schwarz and Clore found that merely reminding respondents about the true source of their feelings (the weather) eliminated the affect-congruent influence on judgments (global well-being). Following Schwarz, Sanna, Skurnik, and Yoon (2007), perhaps reminding participants that the source of the bad feelings they experience really is the children they *cannot* help, and not the child they can help, would eliminate pseudoinefficacy.

The strategy used by Schwarz and Clore works to alter the immediate feelings associated with fast thinking. Perhaps pseudoinefficacy can be overcome by teaching individuals to be compassionate and helpful through moral arguments (Haidt, 2001). Might a variation of Peter Singer’s (2009) famous “child in the pond” example drive home the irrationality of pseudoinefficacy? Singer asks us to imagine ourselves walking past a shallow pond and seeing a small child playing in it suddenly slip under the water and begin to drown. “Would you, without hesitation, rush into the water to rescue the child”, he asks? “Of course you would”, he answers, and we nod in

agreement. Consider the following addition to the story as a debiasing manipulation: “Now suppose, as you see the child go under, you also see, further away, another child begin to drown—one you cannot reach. Would you then be less motivated to rescue the child within your reach”? “Should you be”?

Perhaps a lesson in efficacy might also combat pseudoinefficacy. Consider the famous starfish story by American author Loren Eiseley (1969):

While wandering a deserted beach at dawn, stagnant in my work, I saw a man in the distance bending and throwing as he walked the endless stretch toward me. As he came near, I could see that he was throwing starfish, abandoned on the sand by the tide, back into the sea. When he was close enough I asked him why he was working so hard at this strange task. He said that the sun would dry the starfish and they would die. I said to him that I thought he was foolish. There were thousands of starfish on miles and miles of beach. One man alone could never make a difference. He smiled as he picked up the next starfish. Hurling it far into the sea he said, “It makes a difference for this one.” I abandoned my writing and spent the morning throwing starfish.

#### **Postscript: Pseudoinefficacy, strategic despair, and humanitarian intervention**

As we write this, Syria is entering the fourth year of the most severe humanitarian crisis since the 1994 genocide in Rwanda. Millions of people are caught in the crossfire of a vicious civil war between rival rebel groups and a government bent on maintaining its power at any cost. A substantial proportion of the population has fled to neighboring countries that are unprepared to accommodate them—one in every four inhabitants of Lebanon, for example, is now a Syrian refugee.

The Obama administration is, in the words of one insider, “constantly reviewing our options” regarding humanitarian intervention, but neither the United States nor the United Nations is taking action. There are, of course, legitimate concerns to weigh against the urgent need to keep millions still in Syria alive until the political dust settles. We could establish a safe zone to provide food, shelter, and medical care, but that would require a military presence that might be construed as a thinly disguised plot to bring down the government. Some would see it as yet another Western attack on a Muslim nation. It would be expensive and some soldiers and aid workers might be killed.

But in the mix of legitimate risks and benefits are considerations that strike us as ingredients of pseudoinefficacy, introducing negative affect that dampens political will, devoid of compelling logic. Among these are questionable analogies to problematic interventions of the past in Somalia, Iraq, and Afghanistan. Writing in the *Washington Post*, columnist Michael Gerson attributes the lack of American leadership to “strategic despair” arising from arguments that any lifesaving actions would be “inadequate, late, or risky” (Gerson, 2014). Risky, yes. But inadequate and late clearly undervalue efficacy, as does the defense for inaction given by an official close to the President who said: “We [the United States] can’t fix Syria.” Perhaps not. But there are millions of people whose lives we can protect. We should not abandon them.

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