

Thinking and Deciding Rationally About Catastrophic Losses of Human Lives

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A persistent theme of Howard Kunreuther's work has been the need to make rational decisions about the management of catastrophic risks from natural and human-caused disasters. A defining element of a catastrophe is the large magnitude of its harmful consequences. To help society prevent or mitigate damage from catastrophes, immense effort and technological sophistication is often employed to assess and communicate the numerical size and scope of potential or actual losses. This effort assumes that people can understand the resulting numbers and act on them appropriately. However, much behavioral research casts doubt on this assumption. Large numbers are found to lack meaning and to be underweighted in decisions unless they convey affect (feeling). As a result, we respond strongly to individuals in need but often fail to act effectively in the face of mass tragedies from nature or human malevolence. The numbers fail to trigger the emotion or feeling necessary to motivate action.

This paper will call attention to the need to address this problem of insensitivity to mass tragedy by identifying circumstances in which it likely compromises the rationality of our actions and by pointing toward strategies that might lessen or overcome this problem.

Background and Theory: The Importance of Affect

Our understanding of the psychology of human judgment, preference, and choice is continually evolving. Behavioral researchers are coming to recognize that there is an aspect of information processing that was rather neglected until recently. This is the experiential, affect-based side of our mental life, which appears every bit as important as the analytic/deliberative side that has been the focus of much prior research and is the foundation for the discipline of risk analysis. Risk management in the modern world relies upon both forms of thinking. *Risk as feelings* refers to our instinctive and intuitive reactions to danger. *Risk as analysis* brings logic, reason, and deliberation to bear on hazard management. Compared to analysis, reliance on feelings tends to be a quicker, easier, and more efficient way to navigate in a complex, uncertain, and dangerous world. Hence, it is essential to rational behavior. Yet it sometimes misleads us. In such circumstances we need to ensure that reason and analysis also are employed.

Although the visceral emotion of fear certainly plays a role in risk as feelings, I shall focus here on a "faint whisper of emotion" called *affect*. As used here, "affect" refers to specific feelings of "goodness" or "badness" experienced with or without conscious awareness. Positive and negative feelings occur rapidly and automatically—note how quickly you sense the feelings associated with the word "joy" or the word "hate." A large research literature in psychology documents the importance of affect in conveying meaning upon information and motivating behavior (Barrett & Salovey, 2002; Clark & Fiske, 1982; Forgas, 2000; Le Doux, 1996; Mowrer, 1960; Tomkins, 1962, 1963; Zajonc, 1980). Without affect, information lacks meaning and won't

¹ Portions of this paper appeared earlier in Slovic, P. (2007), "If I look at the mass I will never act": Psychic numbing and genocide. *Judgment and Decision Making*, 2, 79-95.

be used in judgment and decision making (Loewenstein, Weber, Hsee, & Welsh, 2001; Slovic, Finucane, Peters, & MacGregor, 2002).

Affect plays a central role in what are known as “dual-process theories” of thinking. As Epstein (1994) has observed: “There is no dearth of evidence in every day life that people apprehend reality in two fundamentally different ways, one variously labeled intuitive, automatic, natural, non-verbal, narrative, and experiential, and the other analytical, deliberative, verbal, and rational” (p.710).

Stanovich and West (2000) labeled these two modes of thinking *System 1* and *System 2*. One of the characteristics of *System 1*, the experiential or intuitive system, is its affective basis. Underlying the role of affect in the experiential system is the importance of images, to which positive or negative feelings become attached. Images in this system include not only visual images, important as these may be, but words, sounds, smells, memories, and products of our imagination.

Kahneman (2003) notes that one of the functions of *System 2* is to monitor the quality of the intuitive impressions formed by *System 1*. Kahneman and Frederick (2002) suggest that this monitoring is typically rather lax and allows many intuitive judgments to be expressed in behavior, including some that are erroneous. This point has important implications that will be discussed later.

There are strong elements of rationality in both systems. The experiential system enabled human beings to survive during their long period of evolution. Long before there was probability theory, risk assessment, and decision analysis, there were intuition, instinct, and gut feeling to tell us whether an animal was safe to approach or the water was safe to drink. As life became more complex and humans gained more control over their environment, analytic tools were invented to “boost” the rationality of experiential thinking.

Evidence for the importance of affect in risk perception comes from studies showing that, whereas risk and benefit tend to be positively correlated in the world, they are negatively correlated in people’s minds and judgments (Fischhoff et al., 1978). The significance of this finding was not realized until a study by Alhakami and Slovic (1994) found that the inverse relationship between perceived risk and perceived benefit of an activity (e.g., using pesticides) was linked to the strength of positive or negative affect associated with that activity as measured by rating the activity on bipolar scales such as *good/bad*, *nice/awful*, etc. This indicates that people judge a risk not only by what they *think* about it but also by how they *feel* about it. If their feelings towards an activity are favorable, they are moved toward judging the risk as low and the benefits as high; if their feelings toward it are unfavorable, they tend to judge the opposite—high risk and low benefit. Finucane, Alhakami, Slovic, & Johnson (2000) called this process of relying on feelings, “the affect heuristic.”

Failures of the Experiential System

The affect heuristic is central to the experiential mode of thinking. However, like other heuristics that provide efficient and generally adaptive responses but occasionally get us into trouble, reliance on affect can also mislead us, as will be shown below. Indeed, if it were always optimal to follow our affective and experiential instincts, there would have been no need for the rational/analytic system of thinking to have evolved and become so prominent in human affairs.

Judgments of Probability, Relative Frequency, and Risk

The *experiential* system of thinking encodes reality in images, metaphors, and narratives to which affective feelings have become attached. To demonstrate this system, Denes-Raj and Epstein (1994) showed that, when offered a chance to win \$1.00 by drawing a red jelly bean

from an urn, individuals often elected to draw from a bowl containing a greater absolute number, but a smaller proportion, of red beans (e.g., 7 in 100) than from a bowl with fewer red beans but a better probability of winning (e.g., 1 in 10). These individuals reported that, although they knew the probabilities were against them, they *felt* they had a better chance when there were more red beans.

We can characterize Epstein's subjects as following a mental strategy of "imaging the numerator" (i.e., the number of red beans) and neglecting the denominator (the number of beans in the bowl). Consistent with the affect heuristic, images of winning beans convey positive affect that motivates choice.

Although the jelly bean experiment may seem frivolous, imaging the numerator brings affect to bear on judgments in ways that can be both non-intuitive and consequential. Slovic, Monahan, and MacGregor (2000) demonstrated this by asking experienced forensic psychologists and psychiatrists to judge the likelihood that a hospitalized mental patient would commit an act of violence within 6 months after being discharged from the facility. An important finding was that clinicians who were given another expert's assessment of a patient's risk of violence framed in terms of relative frequency (e.g., "of every 100 patients similar to Mr. Jones, 10 are estimated to commit an act of violence to others") subsequently labeled Mr. Jones as more dangerous than did clinicians who were shown a statistically "equivalent" risk expressed as a probability (e.g., "Patients similar to Mr. Jones are estimated to have a 10% chance of committing an act of violence to others").

Not surprisingly, when clinicians were told, "20 out of every 100 patients similar to Mr. Jones are estimated to commit an act of violence," 41% refused to discharge the patient. But when another group of clinicians was given the risk as "patients similar to Mr. Jones are estimated to have a 20% chance of committing an act of violence," only 21% refused to discharge the patient. Follow-up studies showed that representations of risk in the form of individual probabilities of 10% or 20% led to relatively benign images of a person, unlikely to harm anyone, whereas the "equivalent" frequentistic representations created frightening images of violence (example: "Some guy going crazy and killing someone"). These affect-laden images likely induced greater perceptions of risk in response to the relative-frequency frames.

Insensitivity to Probability (Probability Neglect)

When the consequences of an action or event carry strong affective meaning, as is the case with a lottery jackpot or a cancer, the probability of such consequences often carries too little weight. As Loewenstein, Weber, Hsee, & Welch (2001) observe, one's images and feelings toward winning the lottery are likely to be similar whether the probability of winning is one in ten million or one in ten thousand. They further note that responses to uncertain situations appear to have an all-or-none characteristic that is sensitive to the *possibility* rather than the *probability* of strong positive or negative consequences, causing very small probabilities to carry great weight. Empirical support for these arguments comes from Rottenstreich and Hsee (2001) who show that, if the potential outcome evokes strong positive or negative affect, its attractiveness or unattractiveness is relatively insensitive to changes in probability as great as from .99 to .01.

Legal scholar Cass Sunstein (2004; p. 122) labels this insensitivity "probability neglect" and argues that this phenomenon causes extreme overreaction to terrorist threats by both public officials and private citizens.

[P]eople are prone to...*probability neglect*, especially when their emotions are intensely engaged. Probability neglect is highly likely in the aftermath of terrorism...when probability neglect is at work, people's attention is focused on the bad outcome itself, and they are inattentive to the fact that is unlikely to occur.

Facing Catastrophic Loss of Life

Despite the rationality of the experiential system, which employs imagery and affect in remarkably accurate and efficient ways, the findings described above hint at its darker, non-rational side. Affect may misguide us in important ways. As noted earlier, perceptions of risk can be confused by positive feelings (e.g., benefits). Risk perceptions and decision-making can also be inappropriate when the presence of strong affect leads us to be insensitive to probabilities.

Also problematic is the difficulty of comprehending the meaning of catastrophic losses of life when relying on *System 1* thinking. Research to be reviewed in the next sections of this paper shows that the statistics of mass murder or genocide, no matter how large the numbers, lack emotion or feeling. As a result, they fail to convey the true meaning of such atrocities and they fail to motivate proper action to intervene in mass crimes against humanity.

Although the central focus of this next discussion is genocide, the psychological factors linking affect, attention, and imagery with insensitivity to large-scale abuses of human beings likely apply as well to potential catastrophic harm resulting from natural disasters or technological mishaps. In particular, the psychological account described here can explain, in part, our failure to respond to the diffuse and seemingly distant threat posed by global warming (see, e.g., Gilbert, 2006) as well as the threat posed by the presence of nuclear weaponry. Similar insensitivity may also underlie our failure to respond adequately to problems of famine, poverty, and disease afflicting millions of people around the world and sometimes even in our backyard (Neville, 2004).

The Problem of Genocide

Since February 2003, hundreds of thousands of people in the Darfur region of western Sudan have been murdered by government-supported militias, and millions have been forced to flee their burned-out villages for the dubious safety of refugee camps. And yet the world looks away. The events in Darfur are the latest in a long line of mass murders since the Second World War that powerful nations and their citizens have responded to with indifference. In a deeply disturbing book titled *A Problem from Hell: America and the Age of Genocide*, journalist Samantha Power documents in meticulous detail many of the numerous genocides that occurred during the past century (Power, 2003, see Table 1). In every instance, American response was inadequate. She concludes “No U.S. president has ever made genocide prevention a priority, and no U.S. president has ever suffered politically for his indifference to its occurrence. It is thus no coincidence that genocide rages on” (Power, 2003; p. xxi).

The U.N. general assembly adopted the Convention on the Prevention and Punishment of the Crime of Genocide in 1948 in the hope that “never again” would there be such odious crimes against humanity as occurred during the Holocaust of World War II. Eventually some 140 states would ratify the Genocide Convention, yet it has never been invoked to prevent a potential attack or halt an ongoing massacre. That genocide continues to “rage on” is documented in a striking compilation by Barbara Harff (2003), who lists 36 serious civil conflicts that involved genocidal violence between 1955 and 2003, with a death toll in the tens of millions.

Darfur has shone a particularly harsh light on the failures to intervene in genocide. As Richard Just (2008) has observed,

“...we are awash in information about Darfur...no genocide has ever been so thoroughly documented while it was taking place...but the genocide continues. We document what we do not stop. The truth does not set anybody free. (p. 36)...how could we have known so much and done so little? (p.38)

One answer to this question, based on human psychology, will be presented below.

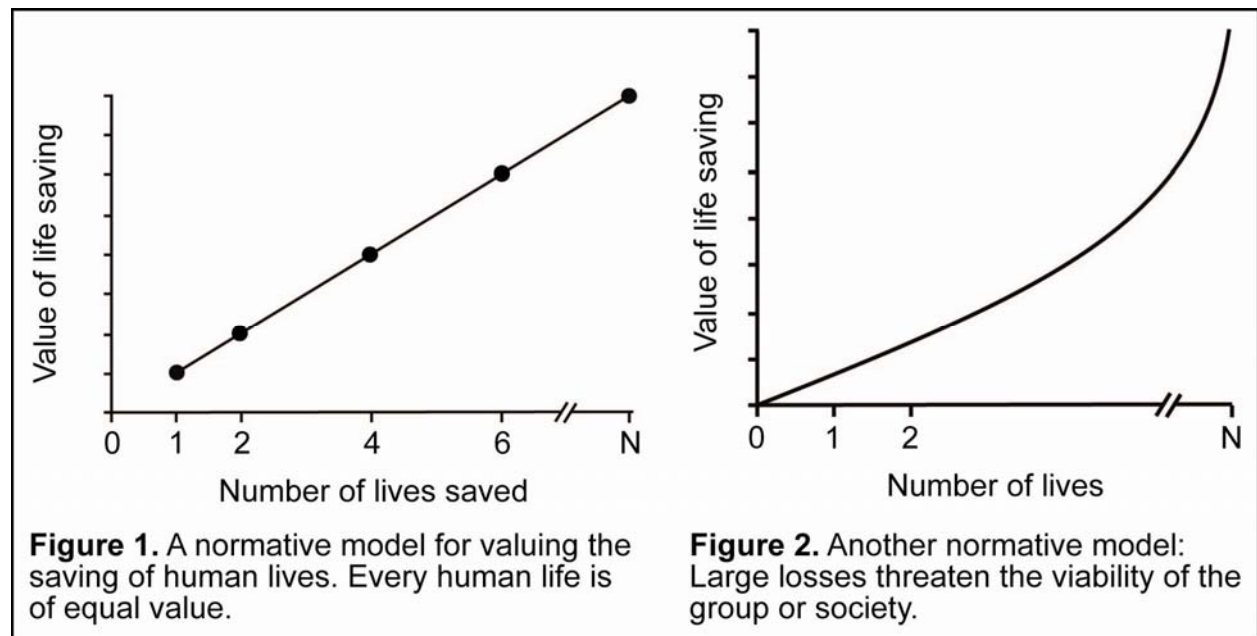
Affect, Analysis, and the Value of Human Lives

As part of a comprehensive study on *Managing Large-Scale Risks in a New Era of Catastrophes*, Howard Kunreuther outlined a strategy based on two guiding principles regarding the role of insurance in motivating mitigating actions to reduce losses from natural disasters (Kunreuther, 2008). In the same vein, I shall present here two normative models for valuing human lives that should serve to motivate action to prevent or halt genocide.

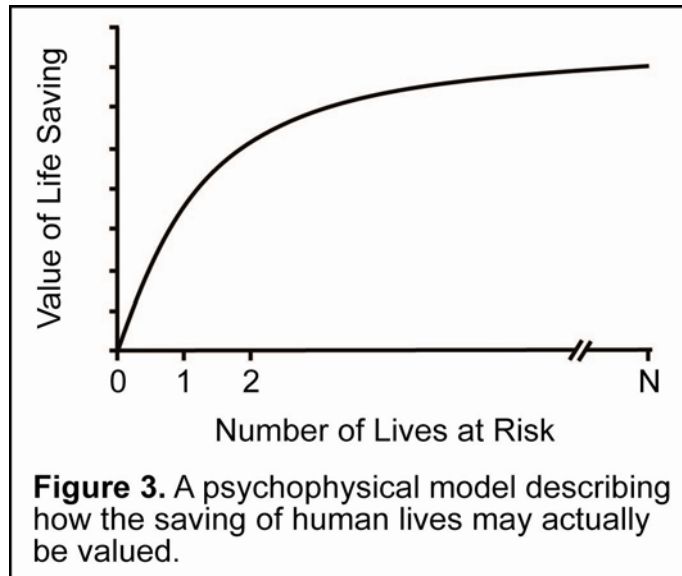
How *should* we value the saving of human lives? A System 2 answer would look to basic principles or fundamental values for guidance. For example, Article 1 of the United Nations Universal Declaration of Human Rights asserts that “All human beings are born free and equal in dignity and rights.” We might infer from this the conclusion that every human life is of equal value. If so, the value of saving N lives is N times the value of saving one life, as represented by the linear function in Figure 1. An argument can also be made for judging large losses of life to be disproportionately more serious because they threaten the social fabric and viability of a group or community, as in genocide (see Figure 2). Debate can be had at the margins over whether governments have a duty to give more weight to the lives of their own people, but something approximating the equality of human lives is still fairly uncontroversial.

How *do* we value human lives? Research provides evidence in support of two descriptive models linked to affect and intuitive, System 1 thinking that reflect values for lifesaving profoundly different from the normative models shown in Figures 1 and 2. Both of these descriptive models demonstrate responses that are insensitive to large losses of human life, consistent with apathy toward genocide.

The psychophysical model. There is considerable evidence that our affective responses and the resulting value we place on saving human lives may follow the same sort of “psychophysical function” that characterizes our diminished sensitivity to a wide range of perceptual and cognitive entities—brightness, loudness, heaviness, and money—as their underlying magnitudes increase.



Our cognitive and perceptual systems seem designed to sensitize us to small changes in our environment, possibly at the expense of making us less able to detect and respond to large changes. As psychophysical research indicates, constant increases in the magnitude of a stimulus typically evoke smaller and smaller changes in response. Applying this principle to the valuing of human life suggests that a form of *psychophysical numbing* may result from our inability to appreciate losses of life as they become larger (see Figure 3). The function in Figure 3 represents a value structure in which the importance of saving one life is great when it is the first, or only, life saved but diminishes marginally as the total number of lives saved increases. Thus, psychologically, the importance of saving one life is diminished against the background of a larger threat—we may not “feel” much difference, nor value the difference, between saving 87 lives and saving 88.



Kahneman and Tversky (1979) have incorporated this psychophysical principle of decreasing sensitivity into prospect theory, a descriptive account of decision making under uncertainty. A major element of prospect theory is the value function, which relates subjective value to actual gains or losses in the manner of Figure 3. When applied to human lives, this function implies that the subjective value of saving a specific number of lives is greater for a smaller tragedy than for a larger one.

Fetherstonhaugh, Slovic, Johnson, and Friedrich (1997) demonstrated this potential for diminished sensitivity to the value of life—i.e., “psychophysical numbing”—in the context of evaluating people’s willingness to fund various lifesaving interventions. In a study involving a hypothetical grant funding agency, respondents were asked to indicate the number of lives a medical research institute would have to save to merit receipt of a \$10 million grant. Nearly two-thirds of the respondents raised their minimum benefit requirements to warrant funding when there was a larger at-risk population, with a median value of 9,000 lives needing to be saved when 15,000 were at risk, compared to a median of 100,000 lives needing to be saved out of 290,000 at risk. By implication, respondents saw saving 9,000 lives in the smaller population as more valuable than saving ten times as many lives in the larger population.

Other studies in the domain of life-saving interventions have documented similar psychophysical numbing or proportional reasoning effects (Baron, 1997; Bartels & Burnett, 2006; Fetherstonhaugh et al., 1997; Friedrich et al., 1999; Jenni & Loewenstein, 1997; Ubel, Baron, & Asch, 2001). For example, Fetherstonhaugh et al. (1997) also found that people were less willing to send aid that would save 4500 lives in Rwandan refugee camps as the size of the camps’ at-risk population increased. Friedrich et al. (1999) found that people required more lives to be saved to justify mandatory antilock brakes on new cars when the alleged size of the at-risk pool (annual braking-related deaths) increased.

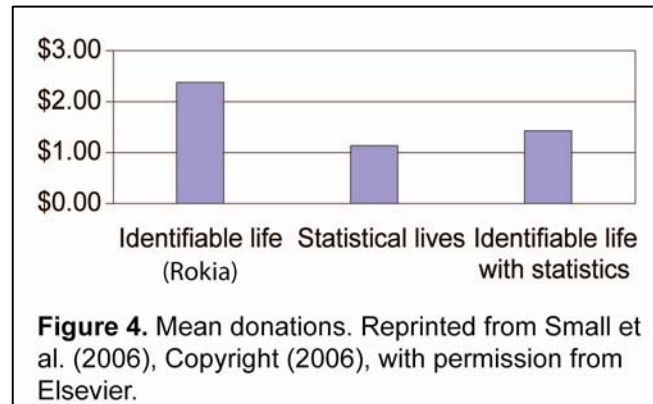
These diverse studies of lifesaving demonstrate that the *proportion* of lives saved often carries more weight than the *number* of lives saved when people evaluate interventions. Thus, extrapolating from Fetherstonhaugh et al., one would expect that, in separate evaluations, there

would be more support for saving 80% of 100 lives at risk than for saving 20% of 1,000 lives at risk. This is consistent with an affective (System 1) account, in which the number of lives saved conveys little affect but the proportion saved carries much feeling: 80% is clearly “good” and 20% is “poor.”

Research on psychophysical numbing is important because it demonstrates that feelings necessary for motivating lifesaving actions are not congruent with the normative models in Figures 1 and 2. The nonlinearity displayed in Figure 3 is consistent with the disregard of incremental loss of life against a background of a large tragedy. However, it does not fully explain apathy toward genocide because it implies that the response to initial loss of life will be strong and maintained, albeit with diminished sensitivity, as the losses increase. Evidence for a second descriptive model, better suited to explain apathy toward genocide, follows.

The collapse of compassion. In recent years, vivid images of natural disasters in South Asia and the American Gulf Coast, and stories of individual victims there brought to us through relentless, courageous, and intimate news coverage certainly unleashed an outpouring of compassion and humanitarian aid from all over the world. Perhaps there is hope that vivid, personalized media coverage of genocide could motivate intervention.

Perhaps. Research demonstrates that people are much more willing to aid identified individuals than unidentified or statistical victims (Kogut & Ritov, 2005a; Schelling, 1968; Small & Loewenstein, 2003, 2005; Jenni & Loewenstein, 1997). But a cautionary note comes from a study by Small, Loewenstein, and Slovic (2007), who gave people leaving a psychological experiment the opportunity to contribute up to \$5 of their earnings to Save the Children. In one condition respondents were asked to donate money to feed an identified victim, a seven-year-old African girl named Rokia. They contributed more than twice the amount given by a second group asked to donate to the same organization working to save millions of Africans (statistical lives) from hunger (see Figure 4). A third group was asked to donate to Rokia, but was also shown the larger statistical problem (millions in need) shown to the second group. Unfortunately, coupling the statistical realities with Rokia’s story significantly *reduced* the contributions to Rokia. It may be that the presence of statistics reduced the attention to Rokia essential for establishing the emotional connection necessary to motivate donations. Alternatively, recognition of the millions not being helped by one’s donation may have produced negative affect that inhibited any response.



A follow-up experiment by Small et al. (2007) provided additional evidence for the importance of feelings. Before being given the opportunity to donate, participants were either primed to feel (“Describe your feelings when you hear the word ‘baby,’” and similar items) or to do simple arithmetic calculations. Priming analytic thinking (calculation) reduced donations to the identifiable victim (Rokia) relative to the feeling prime. Yet the two primes had no distinct effect on statistical victims, which is symptomatic of the difficulty in generating feelings for such victims.

Writer Annie Dillard reads in her newspaper the headline “Head Spinning Numbers Cause Mind to Go Slack.” She struggles to think straight about the great losses that the world ignores: “More than two million children die a year from diarrhea and eight hundred thousand

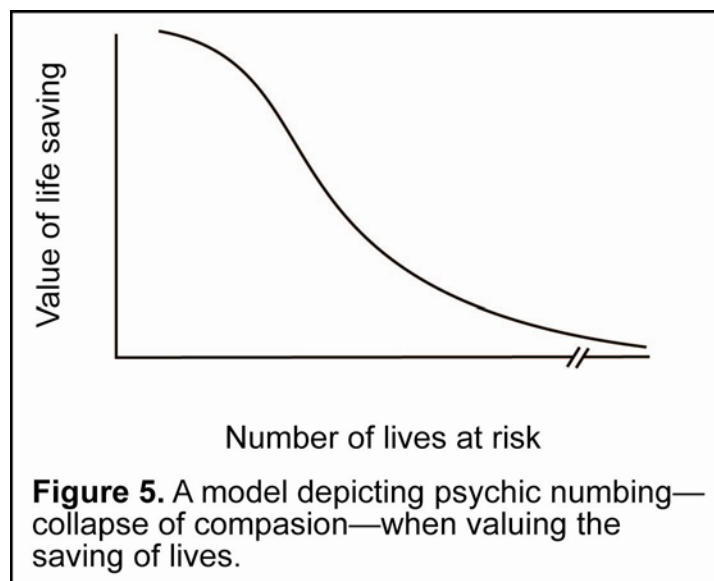
from measles. Do we blink? Stalin starved seven million Ukrainians in one year, Pol Pot killed two million Cambodians . . .” She writes of “compassion fatigue” and asks, “At what number do other individuals blur for me?” (Dillard, 1999, pp. 130–131).

An answer to Dillard’s question is beginning to emerge from behavioral research. Studies by Hamilton and Sherman (1996) and Susskind, Maurer, Thakkar, Hamilton, and Sherman (1999) find that a single individual, unlike a group, is viewed as a psychologically coherent unit. This leads to more extensive processing of information and stronger impressions about individuals than about groups. Consistent with this, Kogut and Ritov (2005a, b) found that people tend to feel more distress and compassion when considering a single victim than when considering a group of 8 victims.

Specifically, Kogut and Ritov asked participants to contribute to a costly life-saving treatment needed by a sick child or a group of eight sick children. The target amount needed to save the child (children) was the same in both conditions. Contributions to the individuals in the group, as individuals, were far greater than were contributions to the entire group. Ratings of distress were also higher in the individual condition. Kogut and Ritov concluded that the greater donations to the single victim most likely stem from the stronger emotions evoked by such victims.

A follow-up study by Västfjäll, Peters, & Slovic (in preparation) found that people felt less compassion and donated less aid toward a pair of victims than to either individual alone. Perhaps the blurring Annie Dillard asks about begins for groups as small as two people.

As unsettling as is the valuation of life-saving portrayed by the psychophysical model, the studies just described suggest an even more disturbing psychological tendency. Our capacity to feel is limited. To the extent that valuation of life-saving depends on feelings driven by attention or imagery, it might follow the function shown in Figure 5, where the emotion or affective feeling is greatest at $N = 1$ but begins to decline at $N = 2$ and collapses at some higher value of N that becomes simply “a statistic.” Whereas Robert J. Lifton (1967) coined the term “psychic numbing” to describe the “turning off” of feeling that enabled rescue workers to function during the horrific aftermath of the Hiroshima bombing, Figure 5 depicts a form of psychic numbing that is not beneficial. Rather, it leads to apathy and inaction, consistent with what is seen repeatedly in response to mass murder and genocide.



The failure of moral intuition. Thoughtful deliberation takes effort. Fortunately evolution has equipped us with sophisticated cognitive and perceptual mechanisms that can guide us through our daily lives efficiently, with minimal need for “deep thinking.” I have referred to these mechanisms as System 1.

Consider, for example, how we deal with risk. Long before we had invented probability theory, risk assessment, and decision analysis, there was intuition, instinct, and gut feeling,

honed by experience, to tell us whether an animal was safe to approach or the water was safe to drink. As life became more complex and humans gained more control over their environment, analytic ways of thinking, known as System 2, evolved to boost the rationality of our experiential reactions. We now look to toxicology and analytic chemistry to tell us whether the water is safe to drink—not only to how it looks or tastes (Slovic et al., 2004).

As with risk, the natural and easy way to deal with moral issues is to rely on our System 1 intuitions: “How bad is it?” Well, how bad does it feel? We can also apply reason and logical analysis to determine right and wrong, as our legal system attempts to do. But moral intuition comes first and usually dominates moral judgment unless we make an effort to use judgment to critique and, if necessary, override our intuitive feelings (Haidt, 2001, 2007).

Unfortunately, intuition fails us in the face of genocide and other disasters that threaten human lives and the environment. As powerful as System 1 is, when infused with vivid experiential stimulation (witness the moral outrage triggered by the photos of abuse at the Abu Ghraib prison in Iraq), it has a darker side. We cannot rely on it. It depends upon attention and feelings that may be hard to arouse and sustain over time for large numbers of victims, not to speak of numbers as small as two. Left to its own devices, System 1 will likely favor individual victims and sensational stories that are closer to home and easier to imagine. Our sizable capacity to care for others may also be overridden by more pressing personal interests. Compassion for others has been characterized by Batson, O’Quin, Fulz, Vanderplas, and Isen (1983) as “a fragile flower, easily crushed by self concern” (p. 718). Faced with genocide and other mass tragedies, we cannot rely on our intuitions alone to guide us to act properly.

Philosophers such as Peter Singer and Peter Unger, employing very different methods than psychologists, have come to much the same conclusions about the unreliability of moral intuitions about life saving (Singer, 2007; Unger, 1996). Unger, after leading his readers through 50 ingenious thought experiments, urges them and us to think harder to overcome the morally questionable appearances promoted by our intuitive responses. These intuitions, he argues, lead us to act in ways that are inconsistent with our true “Values,” that is, the Values we would hold after more careful deliberation: “Folks’ intuitive moral responses to specific cases derive from sources far removed from our Values and, so, they fail to reflect these Values, often even pointing in the opposite direction” (p. 11). Greene (2007) drawing on data from neuroscience comes to similar conclusions about the limitations of moral intuitions.

Conclusion

Research in psychology, neuroscience, and philosophy, supported by common observation and the record of repeated failures to arouse citizens and leaders to halt the scourge of genocide, sends a strong and important message. Our moral intuitions fail us. They seduce us into calmly turning away from massive abuses of human beings, when we should be driven by outrage to act. This is no small weakness in our moral compass. Fortunately, we have evolved a second mechanism to address such problems, based on reason and moral argument (Kahneman, 2003). We must focus now on engaging this mechanism, System 2, by strengthening international legal and political mechanisms that precommit states to respond to genocide.

The United Nations is the institution that was created in part to deal with such issues, but structural problems built into its very charter have made it ineffective. A thorough analysis of the strengths and weaknesses of the United Nations in preventing mass violence is provided by David Hamburg (2008). I shall not discuss the many thoughtful suggestions made by Hamburg, except to say that appreciation of the failure of moral intuition makes development of new institutional arrangements even more urgent and critical. For it may only be laws and institutions

that can keep us on course, forcing us to pursue the hard measures needed to combat genocide when our attention strays and our feelings lull us into complacency.

Elsewhere, I have proposed that international and domestic law should require officials to publicly deliberate and proffer reasons to justify action or inaction in response to genocide (Slovic, 2009). If enforced, a requirement for public justification would likely heighten pressure to act to save lives rather than allowing people to die (Viscusi, 2000).

The stakes are high. Failure to understand how our minds become insensitive to catastrophic losses of human life may condemn us to witness another century of genocide and mass abuses of innocent people as in the previous century. It may also increase the likelihood that we may fail to take appropriate action to reduce the damages from other human and natural disasters.

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