The Evolution of Compassion

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Humans are selfish. It's so easy to say. Likewise for so many assertions that readily follow. Greed is good. Altruism is an illusion. Cooperation for suckers. Competition is natural, war inevitable. The bad in human nature is stronger than the good.

These kinds of claims originate in how we have thought for millennia about emotion, and in particular, compassion, the concern we feel for another being's welfare. Since Plato, we have portrayed the emotions as the fount of irrationality, baseness, and sin. What would the seven deadly sins be without destructive passions? Or the ten commandments for that matter?

Even the most seemingly beneficial of emotions, compassion, has been treated with downright derision, as a weak and misguided sentiment (see Nussbaum, 2001). Many question whether true compassion exists; underneath the guise of compassion is exploitative self-interest. There are others, like Nietzsche, who portrayed compassion as an unreliable sentiment: it mollifies those who have the resources to give to others, and belittles the recipients of compassion. Compassion is the enemy of equality.

The contemporary science of the evolution of emotion calls these views roundly into question. This tradition, with origins in Darwin's Expression of Emotion in Man and Animals from 1872 and extensions to studies of different cultures and the brain, has led to the view that emotions are rational, functional, and adaptive. And recent studies of

compassion persuasively argue for a different view of human nature than that which identifies self-interest as the sole motive of human behavior. Compassion and benevolence, it is beginning to appear, are an evolved part of human nature, rooted in our biology and brain, and ready to be cultivated for the greater good.

The End of Self-Interest

Humans are selfish: there may be no more widespread assumption in Western European culture. In my seminars I ask my undergraduates to complete the following clause, "Human nature is…" with as many ideas as they can. Typically about 70% of their responses refer to some form of selfishness, competition, or aggression.

These students will find ample and lofty support for these intuitions. At the core of Freud's human nature was the Id, governed by the self-serving pleasure principle and the desire for sex. Learning theory made famous by BF Skinner starts from the assumption that the organism moves towards self-serving rewards and away from punishments. Within evolutionary psychology all human traits ultimately benefit selfish genes. In economics, it is axiomatic that humans are rational pursuers of self-interest.

This view of human nature has many origins: Calvinism and the doctrine of original sin, the industrial revolution, the exponential rise in materialism, and the over-reliance upon market force explanations. It has been wildly overextended in human affairs: friends are "assets" and "good investments," we "spend" quality time with children, dinner parties yield "good returns" and "good dividends," we "profit" from visits to family.

Recent studies in psychology suggest that the pursuit of self-interest may not be the clearest path to the greater good or personal happiness, as so widely assumed. When

researchers study what makes us happy, they find that it is not personal wealth, the strength of the stock market, inflation, or interest rates that cause the ebb and flow in our personal well-being. What makes us happy, what matters in the end, is the quality of our romantic and family bonds, our connection to our friends, and doing things for others.

Other empirical findings lead to a similar conclusion about the limits, and perils, of self-interest. When relationship partners focus on their self-interest, and whether they are getting what they deserve, their relationships suffer. The connection we feel to our family and friends strengthens our immune system and makes us more resistant to disease and less likely to experience depression, anxiety, and antisocial tendencies. And in one study when participants were asked to maximize their personal happiness while enjoying a piece of music, they enjoyed that experience less than individuals who did not prioritize their own pleasure.

The view that we at our very core are selfish is just as subject to theoretical critique. Evolutionist, selfish gene explanations presuppose that our traits ultimately benefit our own genes and those of our biological relatives. This kind of explanation concerns the ultimate causes of our behavior, that is, the distal evolutionary processes that have designed who we are. Our behavior, however, is also guided by proximal causes such as our emotions, values, and beliefs, and these, we shall soon see, can be primarily oriented towards enhancing the welfare of others.

Portrayals of humans as rational pursuers of self-interest have been devastated by the Nobel prize winning work of Daniel Kahneman. This work elegantly shows time and time again that we are not necessarily rational, nor do we always act in self-interested,

utilitarian fashion. People will sacrifice personal gain in the name of fairness. Or consider the traveler who tips in restaurants, although certain not to be seen again.

What then, lies beyond, or alongside, the selfish side to human nature? A biologically based capacity for goodness that emerged in human evolution in the form of compassion and other benevolent emotions, like love, gratitude, and awe.

The Evolution of Compassion

From an evolutionist perspective, nicely articulated by Elliot Sober and Robert Frank, three conditions must be met for compassion to evolve, for the emergence of human action that enhances the welfare of others at the expense of self-interest. A first is what I'll call the *principle of cost-benefit reversal*. One constraint upon giving is the cost of helping. When these costs exceed the benefits of giving, we hold back. For compassion to emerge, there must be some mechanism that overwhelms self-interest, one that puts our own desire, pleasures, and pains on the back burner so to speak, and that prioritizes the needs of others. This process must transform others' gains into one's own and endow the act of helping with intrinsic pleasure.

The evolution of compassion is further enabled by the *principle of contagious cooperation*. Cooperative people are exploited in competitive contexts; nice guys do finish last in certain situations. Kind individuals do better if they were able to evoke goodness in others, and pursue cooperative strategies in more cooperative contexts. To the extent that compassion evokes beneficent responses in others, it should flourish.

In a related vein, compassion is more likely to emerge when people can reliably identify good-natured people – the *principle of reliable identification*. Good-natured people fare better (and are more likely to pass on their genes) when they can find other

good-natured individuals. This hinges on the ability to identify goodness in others, and, by implication, that compassion (and other virtues) will have reliable physical signs detectable by the ordinary eye.

If compassion is the product of evolution and intimately involved in the cooperative tendencies that make up such a striking part of the human experience, then several propositions readily follow. We would expect compassion to be associated with distinct physiological responses in the brain and body. We would expect compassion to be readily communicated. Such a signal of compassion would presumably sooth others in distress, and more generally, serve as a sign of cooperative intent, allowing individuals to enter into interactions with trustworthy, committed individuals. And perhaps most importantly, we would expect the experience of compassion to motivate self-less, altruistic behavior. The evidence lends credence to all three of these claims.

The Biological Basis of Compassion

First consider the recent study of the biological basis of compassion. We should be wired up, so to speak, to respond and help others in need. Recent evidence makes this point convincingly. Pictures of our own babies trigger unique regional activation in the brain that differs from the pictures of other infants than our own. The perceptual regions of the brain are finely attuned to the first objects of our compassion – our offspring. And in other studies, graphic scenarios depicting harm to others activate in similar regions of the brain, suggesting that more general portrayals of harm activate regions of the brain that trigger emotion and action.

In other research, participants were given the chance to help another while their brain activation was recorded. Helping others triggers activity in the anterior cingulate, a

portion of the brain that is activated when people receive rewards and experience pleasure. This is a rather remarkable finding: helping others triggers the pleasure one would associate with the gratification of personal desire.

The brain, then, seems wired up to respond to others' harm. What about other parts of the body? One important candidate is the loose association of glands, organs, and cardiovascular and respiratory systems known as the autonomic nervous system. (ANS). The ANS plays a primary role in providing the appropriate blood flow and respiration patterns to support different kinds of action (e.g., fight or flight). What is the ANS profile of compassion? As it turns out, when young children and adults feel compassion for others, their heart rate goes down from baseline levels, which promotes approach and soothing rather than flight. These studies, taken together, strongly suggest that there is a biological basis of compassion. There is a circuit in the brain triggered by objects of compassion -- infants, harm -- that is old, fast, and associated with feelings of pleasure.

Signs of Compassion

According to the aforementioned analysis, one would likewise expect compassion to have an evolved nonverbal signal. Such a signal would serve many functions. Most importantly, a distinct signal of compassion would soothe others in distress, and allow others to identify and enter into long-term relationships with good-natured individuals. These displays would help us build bonds between strangers and friends, they should be expressed in a medium that makes generosity and kindness rewarding.

Some studies show that there is a particular facial expression of compassion characterized by oblique eyebrows and concerned gaze, which predicts helping behavior.

Another candidate is touch. Recent discoveries regarding touch are remarkable. Non-human primates spend hours a day grooming, even when there are no lice in their physical environment. They use grooming to resolve conflicts and form alliances. Human skin has special receptors that transform patterns of tactile stimulation into indelible sensations as lasting as childhood scents – a mom's caress of a sleepy child's hair, a friend's pat on the back. Touch can trigger the release of oxytocin in the touchee. The handling of rat pups raised in impoverished environments stimulates neural growth and enhanced immune function, and can reverse the effects of deprivation.

To document for the first time whether compassion can be communicated via touch, I put two strangers into a room in which they were separated by a barrier. They could not see one another, but they could reach through a hole in the barrier and touch the other. One person touched the other on the forearm several times, each time trying to convey one of 12 emotions, including love, gratitude and compassion. After each touch, the touchee had to guess the emotion that the toucher was attempting to communicate. Imagine yourself in this experiment: your arm rests on the other side of a partition, you receive a touch upon your forearm, you receive no other cues, either visual or auditor from the person, and your task is to discern which of 12 emotions the person is communicating. Rather remarkably, this study provided the first scientific evidence that we can communicate compassion and gratitude with nonverbal behavior: people could reliably identify these emotions, and love as well, from touches to their forearm.

Compassion as a Source of Altruism

Now let's turn to perhaps the most important question: does compassion promote altruistic behavior? In an important line of research, Daniel Batson has made the

persuasive case for this claim. According to Batson, very often when we encounter a person in need or distress we imagine what their experience is like. This is one of the great developmental milestones – to take the perspective of another, and in fact one of the most human of capacities, and one of the most important parts of moral judgment and the social contract. When we take the other's perspective, we feel an empathic state of concern for that person, and we are motivated to have that person's needs addressed, to enhance that person's welfare, even at our own expense.

In a compelling series of studies, Batson has exposed participants to another person suffering. He then has some participants imagine that person's pain but he gives those participants the opportunity to act in self-serving fashion, for example by leaving the experiment. If one observers altruistic helping behavior in those circumstances, that is when one can take the more self-serving route, one has confidence that compassion has produced fairly selfless helping behavior. Several studies suggest this is so.

A first study allowed participants to escape the aversive arousal of watching someone suffer. Specifically, participants watched another person receive shocks in the context of a memory task, and were asked to take shocks on behalf of the participant, who had experienced a shock trauma as a child. Those participants who felt compassion for the other individual volunteered to take several shocks for that person, even when they were free to leave the experiment.

In another experiment, Batson and colleagues asked whether people feeling compassion would help another person in distress, even when their acts were completely anonymous. In this study female participants exchanged written notes with another person, who quickly expressed feeling lonely and an interest in spending time with the

participant. Those participants feeling compassion volunteered to spend significant time with the other person, even when no one would know of this act. And in other studies, people have been shown to experience uplifted moods when they hear of other individuals who altruistically come to the aid of others suffering.

Taken together, our three strands of evidence suggest the following. Compassion has a biological basis in the brain and body. It can be communicated in the face and with touch. And when experienced, compassion overwhelms selfish concerns, and motivates altruistic behavior.

Cultivating Compassion. For many, compassion is the highest state of human nature, it is an ideal to move towards, and to guide our many interactions. What can be said about cultivating compassion? First, recent neuroscience paints an optimistic picture regarding the prospects of cultivating compassionate individuals, relationships, and communities. Recent studies suggest that the positive emotions are less heritable, that is less determined by our genetic endowment, than the negative emotions. Other studies indicate that the brain structures involved in the positive emotions like compassion are more plastic and subject to changes brought about by environmental input. We might think about compassion as a biologically based skill or virtue that can be cultivated in the appropriate context. What might that context look like? For children, we are learning some answers.

In longitudinal research, researchers have looked at the same children over time, and asked what kinds of family factors influence pro-social behavior and empathy and compassion. Several factors make children more compassionate and likely to offer help to their peers or strangers in distress (Eisenberg, 2002).

Children securely attached to their parents, compared to insecurely attached children, tend to be sympathetic with their peers as early as 3.5 years of age (Saters, Wippman, & Sroufe, 1979). In contrast, abusive parents who resort to physical violence have less empathetic children (Main & George, 1985).

Developmental psychologists have also been interested in parenting style, and disciplinary practices as predictors of empathy and pro-social behavior. The comparison tends to focus on one of two styles. Parents who rely on *induction* engage their children in reasoning when they have done harm, prompting their child to think about the consequences of their actions and how they have harmed others. Parents who rely on *power assertion* simply declare what is right and wrong, and resort more often to physical punishment or strong emotional responses of anger. Parents who resort to induction and reasoning promote children who are more pro-social and likely to help their peers (e.g., Eisenberg & Fabes, 1998; Hoffman, 1983).

Other factors still promote more empathy and helping. Giving children chores makes them more pro-social. Children who have grandparents around, and have strong connections with grandparents tend to be more pro-social. Children who have compassionate and pro-social parents tend to be more altruistic. For example, in the Oliner's studies of Germans who helped rescue Jews during the Nazi holocaust, one of the strongest predictors of this inspiring helping behavior was the individual's recollection that they grew up in a family environment that prioritized compassion and altruism.

A summary awaits.