ARTICLE

The peacock's tail of altruism

Wendy Iredale and **Mark Van Vugt** look at the Darwinian psychology of helping and generosity

Could Darwinian sexual selection help us understand altruism towards strangers? We propose that altruism may be used as a 'peacock's tail' to attract females. We argue that altruism is an attractive mate signal to females because brave, heroic displays can signal good gene quality, and because financial help and volunteering signal the willingness to care and invest in the relationship. Finally, we hypothesise that such findings could have positive real-life implications: by harnessing the sex appeal of altruistic behaviour, charities and volunteer organisations could increase prosocial behaviour.

questions

Why might the preference for an altruistic mate be stronger in women than men?

Are there differences in male and female helping behaviour? Could altruism as a mate signal explain these differences?

resources

Iredale, W., Van Vugt, M. & Dunbar, R.I.M. (2008). Showing off in humans: Male generosity as a mating signal. *Evolutionary Psychology, 6*, 386–392.

Miller, G. (2000) *The mating mind: How sexual choice shaped the evolution of human nature*. New York: Doubleday.

Compared with other animals, humans are quite unusual in their altruism towards (genetic) strangers. We regularly donate money in aid of the poor, give blood to help the sick, and even risk our lives to jump after a drowning person whom we have never met. Why do we engage in these seemingly irrational acts? Why do we go out of our way to help complete strangers when it involves a cost to ourselves?

From an evolutionary perspective, helping strangers is somewhat puzzling. Charles Darwin's theory of natural selection assumes that organisms should be concerned about their own welfare rather than that of others. So what advantage does helping strangers give you when it involves a significant cost or risk? More broadly, if individuals are primarily concerned with their own welfare how could any selfless behaviour have evolved? This question puzzled Darwin and other great scientists in biology, philosophy and psychology for many centuries. One hundred and fifty years after Darwin first published *The Origin of the Species* we are still questioning the origins of human altruism, but through empirical research in the behavioural sciences we are getting closer to an answer (Van Vugt & Van Lange, 2006).

Survival of the kindest

Natural selection favours individuals that are relatively better adjusted to their physical and social environment – hence, the fitter individuals are more likely to survive and reproduce. A common misunderstanding about the evolutionary approach is what we mean by survival of the fittest. Although in everyday language 'fittest' generally refers to the strongest, fastest, healthiest, and hardiest individuals, in evolutionary biology it simply concerns the 'ability to pass on genes to the next generation'. This therefore can refer to any feature of an organism as long as it increases their ability to pass on their genes. In highly social species (such as honeybees and humans) there will be positive selection for traits such as honesty, kindness, generosity and altruism. Altruism increases an individual's ability to pass on their genes if it involves helping a close relative – we share 50 per cent of our genes with our biological parents, children, and siblings (kin selection theory: Hamilton, 1964) – or helping those who are likely to reciprocate at a later time (reciprocal altruism theory: Trivers, 1971).

Yet theorists are having a hard time in tweaking these evolutionary theories to explain the kind of helping we see so often in humans, such as giving money to street beggars, donating blood and organs, and providing aid relief to developing countries (Goldberg, 1995; Titmuss, 1970; Van Vugt, 2001). Yet this year's Comic Relief donation of over £65,000,000 shows how important and widespread such generous acts are. What possible fitness advantage is there for a generous act?

Survival of the sexiest

The answer may lie (at least in part) in Darwin's second big insight, the theory of sexual selection. Darwin was intrigued by features of organisms that did not look like they would enhance the survival of those individuals. The classic example is the tail of the peacock. How can such colourful and large plumage evolve if it attracts predators and slows down escape? Perhaps, Darwin argued, such a tail might help the peacock to attract mates. Darwin was quite clear that an organism's ability to pass on their genes

references

Bateson, M., Nettle, D. & Roberts, G. (2006). Cues of being watched enhance cooperation in a real-world setting. *Biology Letters, 2*, 412–414.

Burnham, T.C. & Hare, B. (2007). Engineering human cooperation: Does involuntary neural activation increase public goods contributions? *Human Nature, 18*, 88–108.

Buss, D.M. (1989). Sex differences in human mate preference. *Behavioural and Brain Sciences, 12*, 1–49.

Buss. D. (1994). *The evolution of desire: Strategies of human mating*. New York: Basic Books.

Eagly, A.H. & Crowley, M. (1986). Gender and helping behaviour. *Psychological Bulletin, 100*, 283–308.

Farrelly, D., Lazarus, J. & Roberts, G. (2007). Altruists attract. *Evolutionary Psychology, 5*, 313–329.

Goldberg, T.L. (1995). Altruism towards panhandlers: Who gives? *Human Nature, 6*, 79–89.

Griskevicius, V., Tybur. J. M., Sundie. J. et al. (2007). Blatant benevolence and conspicuous consumption: When romantic motives elicit strategic costly signals. *Journal of Personality and Social Psychology, 93*, 85–102.

Haley, J.J. & Fessler, C.M.T. (2005). Nobody's watching? Subtle cues affect generosity in an anonymous economic game. *Evolution and Human Behaviour, 26*, 245–256.

Hamilton, W.D. (1964). The genetic evolution of social behavior I and II. *Journal of Theoretical Biology, 7*, 1–52.

Hardy, C. & Van Vugt, M. (2006). Nice guys finish first: The competitive altruism hypothesis. *Personality and Social Psychology Bulletin, 32*, 1402–1413.

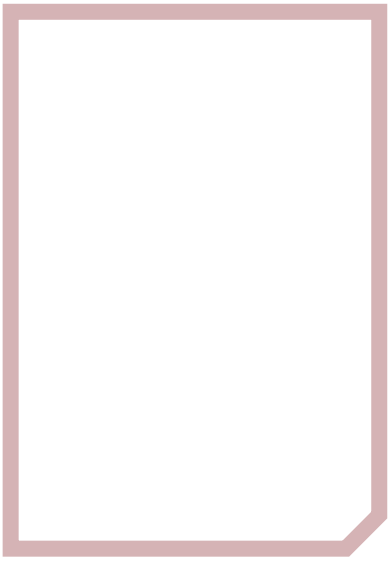
was not just down to the survival of the individual but also to their ability to attract sexual partners for producing offspring. Therefore, evolution should select for traits that increase the attractiveness of the individual to the opposite sex, and the peacock's tail is just one example.

As usual, Darwin was correct. Research shows that peahens actively select for males with large colourful tails (Petrie, 1994). Many other seemingly odd traits in the animal kingdom have now proven to be the result of sexual selection, such as bird song, the lion's mane, even the blue bottom of the Mandrill. Recently psychologists have suggested that sexual selection might have also played a role in shaping various human traits such as facial beauty, facial symmetry, women's breasts, intelligence, language and creativity (Miller, 2000).

So is human altruism a peacock's tail? Evolutionary psychologist Geoffrey Miller (2000) thinks so: 'We have the capacity for moral behaviour and moral judgments today because our ancestors favoured sexual partners who were kind, generous, helpful and fair' (p.292). Is that still the case in modern society? The entrepreneur and Virgin founder Richard Branson fell in love with his now wife Joan Templeman and to impress her gave her one of the Virgin Islands as a present. The core theme of many fictional stories in novels and films is how being generous gives the main character a sexual advantage (see Tessman, 1995, for a review). In Jane Austen's *Pride and Prejudice*, for instance, Elizabeth's affection towards Mr Darcy increases when she hears of his help and generosity towards her family. In the 1988 film *Coming to America*, Eddie Murphy's character impresses the women of his affections when he gives away a wad of $100 bills to two homeless men.

For altruism to be a sexually selected trait it must impress members of the opposite sex. Altruism signals many positive qualities, such as being kind, resourceful and generous, which are important partner qualities (Buss, 1994), and will attract mates. Roberts (1998) argues that because altruism acts as a signal of quality, individuals may compete for the most altruistic partners. Potential mates will obviously be more impressed the costlier the altruistic display (such as being gifted an island in the Caribbean). The costliness gives an indication of how fit the individual is (Zahavi, 1975). In the language of evolutionary biology, altruism has to be an 'honest signal of some underlying quality'. For example, a person who has £100,000 in his bank account can afford to give away £50,000 to charity but a person who only has £50,000 cannot afford to give all of it way. In a similar vein, only a healthy peacock can grow an ornamental tail and the less healthy ones cannot.

It also helps if there is an audience for the display so that the individual can show off their qualities to as large a number of potential mates as possible. Highly public acts of generosity such as giving money to a televised donation fund where big donors receive recognition fit the bill and should therefore elicit 'show off' altruistic displays.



Does who you are with affect whether you donate?

A lot of studies have shown that we are keen to show ourselves off as being altruistic. People are significantly more likely to give to charity if they receive a pin or tag that advertises their participation (Low & Heinen, 1993). Similarly, Hardy and Van Vugt (2006) found in their lab studies that when individuals make a public donation – when others are watching – they give more to the public good than if they had made their donations in private. Even the presence of photographic and computer eyes has been shown to increase generosity and honesty (Bateson et al., 2006; Burnham & Hare, 2007; Haley & Fessler, 2005).

Do men 'show off' altruism to attract women?

What does this mean for helping and generosity? Imagine you are on a first date with someone and whilst having your romantic dinner you are approached by a charity worker asking for donations to a charitable cause. Are you more or less likely to make a donation than when you are eating alone or with a group of ordinary friends? Would men and women act the same?

There is no doubt that the most desired trait in a sexual partner for both sexes is kindness (Buss, 1989). Yet it is also true that men and women value different attributes differently in sexual partners. Research into lonely heart adverts shows that women tend to reveal and enhance information about their physical attractiveness and men pay more attention to these cues. Similarly, women tend to pay more attention to information about a man's wealth, status, and commitment and men tend to emphasis these traits in their adverts (Waynforth & Dunbar, 1995). This difference stems from differences in lifetime reproductive success and parental investment, which is a feature of all mammalian species. Like other mammals,

Howard, J.A., Blumstein, P. & Schwartz, P. (1987). Social or evolutionary Theories? Some observations on preferences in human mating selection. *Journal of Personality and Social Psychology, 53*, 194–200.

Iredale, W., Van Vugt, M. & Dunbar, R.I.M. (2008). Showing off in humans: Male generosity as a mating signal. *Evolutionary Psychology, 6*, 386–392.

Jensen-Campbell, L., Graziano, W.G. & West, S.G. (1995). Dominance, prosocial orientation, and female preferences: Do nice guys really finish last? *Journal of Personality & Social Psychology, 68*, 427–440.

Kelly, S. & Dunbar, R.I.M. (2001).Who dares wins: Heroism versus altruism in women's mate choice. *Human Nature, 12*, 89–105.

Latané, B. (1970). Field studies of altruistic compliance. *Representative Research in Social Psychology, 1*, 49–61.

Low, B.S. & Heinen, J.T. (1993). Population, resources, and environment: Implications of human behavioural ecology for conservation. *Population and Environment, 15*, 7–41.

Miller, G. (2000). *The mating mind: How sexual choice shaped the evolution of human nature*. London: Heinemann.

Mulcahy, N.J. (2002). Altruism towards beggars as a human mating strategy. In L. Barrett, R.I.M. Dunbar & J. Lycett (Eds.) *Human evolutionary psychology*. Basingstoke: Palgrave.

Petrie, M. (1994). Improved growth and survival of offspring of peacocks with more elaborate trains. *Nature, 317*, 290–291.

Phillips, T., Barnard, C. & Ferguson, E. (2008). Do humans prefer altruistic

human females tend to invest more in their offspring than human males, at the very least in terms of gestation and lactation. Furthermore, women are limited in the number of children they can have in a lifetime compared to men; during a nine-month period when a woman produces one child, a male could have mated many times and produced many offspring. These differences change the pay-offs of the mating game, with implications for what men and women are looking for in a partner and what partners then signal. Men pay more attention to looks because they are more concerned with cues of health and fertility; such as hour-glass figure, unblemished skin and lustrous hair. Women are the choosier sex because they invest more and they pay more attention to cues indicating that the man is going to provide resources and stick around. In turn, men who signal these qualities are more attractive as sexual partners. One of the ways in which men can signal their resource quality is by driving around in a Porsche or buying a Picasso. However, this does not give any information about whether they are willing to share these resources with a potential mate. It is therefore probably better for a man to engage in a conspicuous act of generosity, such as buying an expensive gift like a tropical island or founding a charity.

Are men more likely than women to be conspicuously helpful in the presence of a potential mate? An interesting way to test this hypothesis is to examine who donates to a street beggar. If you observe beggars and make a record about who gives most money to them – a lone individual, a same-sex dyad or group, a mixed-sex dyad or group – we would expect that men would donate the most especially in the presence of a female. Tony Goldberg (1995) examined sex differences among individuals giving money to street beggars and found that lone men disproportionately gave to female street beggars; whereas, Bibb Latané (1970) found that the presence of a female companion increased giving to both male and female street beggars. Mulcahy (2002) carried out a similar study and found in interviews afterwards that men in the early stages of their relationship were significantly more likely to give to beggars than men in long-term committed relationships, no doubt to impress their new partner.

In a lab experiment we recently found essentially the same result. Men and women played various economics games for money and they were either not observed or there was an (attractive) same-sex or opposite-sex observer in the same room watching them. After the games had finished they were then asked what percentage of their earnings they would donate to charity. Men donated significantly more in the presence of an attractive woman, but women's donations did not go up in the presence of an attractive man (Iredale et al., 2008).

> "females are attracted to males who display costly altruism"

Similarly, Farrelly et al. (2008) found that during cooperative games, males showed a greater bias towards cooperating with opposite-sex partners than did females.

What about helping acts that involve no money? Men are also more likely to engage in helping that involves physical bravery – heroism – presumably because it signals their physical strength and willingness to take risks. Out of the 6955 people who have received the Carnegie heroism award – awarded to people in the United States and Canada who have risked their lives in saving another's life – only 9 per cent were female (Eagly & Crowley, 1986).

Griskevicius et al. (2007) examined whether public philanthropy, conspicuous displays of consumption and benevolence could be elicited by romantic motives. They found that priming men with mating motives increases conspicuous helping when the act signalled was heroic (e.g. diving into icy water after a stranger falls from a boat in a storm) but not mundane helping (e.g. teaching underprivileged youths to read).

Men are also more likely to help in situations of intergroup competition. Van Vugt et al. (2007) compared sex differences in pubic goods donations. They found that men contributed more to their group if they were competing against another group, whereas female cooperation was unaffected by intergroup competition.

Thus, men show off their qualities as potential sexual mates by engaging in conspicuous helping displays, such as being generous and heroic towards others. Logically men should only show off their generosity if this is a trait that women find attractive in potential mates. Do they?

Do women prefer altruistic males?

If you asked most women what they look for in a man, it is likely that they will use terms such as attractive, interesting, considerate and kind. We know that women have a greater preference towards affectionate and compassionate mates (Howard et al., 1987) and prefer those who talk positively about giving help (Jensen-Campbell et al., 1995). Researchers at Nottingham University recently found that altruism such as 'donates blood regularly' and 'volunteered to help out in a local hospital' were considered attractive traits in a mate, particularly for females (Phillips et al., 2008). Kelly and Dunbar (2001) found that altruistic males are preferred as long-term mates, yet heroes (voluntary risk takers) are preferred over altruists at least for short-term mating purposes (i.e. having consensual sex).

We conducted a study to examine whether females are attracted towards altruistic men. We showed a group of female students at the University of Kent a video of an attractive male actor displaying either costly altruism (donating £30 to a street beggar), not so costly altruism (donating £1 to a street beggar), or no altruism (walking past the street beggar).

mates? Testing a link between sexual selection and altruism towards non-relatives. *British Journal of Psychology, 99*, 555–572.

Roberts, G. (1998). Competitive altruism: From reciprocity to the handicap principle. *Proceedings of the Royal Society of London B, 265*, 427–431.

Tessman. I. (1995). Human altruism as a courtship display. *Oikos, 74*,157–158.

Titmuss, R.M. (1970). *The gift relationship*. London: Allen and Unwin.

Trivers, R. (1971). The evolution of reciprocal altruism. *Quarterly Review of Biology, 46*, 35–57.

Van Vugt, M. (2001). Community identification moderating the impact of financial incentives in a natural social dilemma: A water shortage. *Personality and Social Psychology Bulletin, 27*, 1440–1449.

Van Vugt, M., De Cremer, D. & Janssen, D. (2007). Gender differences in cooperation and competition: The male warrior hypothesis. *Psychological Science, 18*, 19–23.

Van Vugt, M. & Van Lange, P.A.M. (2006). Psychological adaptations for prosocial behavior: The altruism puzzle. In M. Schaller, D. Kenrick & J. Simpson (Eds.) *Evolution and social psychology* (pp.237–261). New York: Psychology Press.

Waynforth, D. & Dunbar, R.I.M. (1995). Conditional mate choice strategies in humans: Evidence from 'lonely hearts' advertisements. *Behaviour, 132*, 755–779.

Zahavi, A. (1975). Mate selection: A selection for a handicap. *Journal of Theoretical Biology, 53*, 205–214.

Manoeuvring to signal resource quality?

We found that females rated the male actor more attractive the greater the costs they incurred. This suggest that females are attracted to males who display costly altruism, presumably because giving £30 to a street beggar is an honest signal of some underlying trait.

What do altruists signal?

Finally, we could ask what it is that males are signalling when they engage in conspicuous helping acts. The literature has put forward two hypotheses: the 'good-genes' hypothesis and the 'caring' hypothesis (Kelly & Dunbar, 2001; Miller, 2000). The good-genes hypothesis suggests that altruism signals underlying genetic qualities, in the same way the peacock's tail is a costly handicap. By being able to survive and carry the handicap, the individual signals something about their underlying genetic quality – not only can they survive but they can help others survive. The caring hypothesis suggests that altruism indicates that the person is willing to invest in the relationship and in possible offspring.

Recently we conducted a study to test why women were attracted to altruistic men. We asked two questions: are there certain types of altruistic acts that are more attractive than others; and do females associate altruism with any important mate qualities such as good genes, resources or relationship commitment? Women from the University of Kent watched a video clip of the same male either donating blood (volunteering), donating money to a beggar (financial altruism), rescuing a stolen bag (heroic altruism), or failing to display any of these behaviours. We asked females to rate the male in the video they saw in terms of sexual attractiveness, and to rank order lonely heart adverts from most likely to least likely to have been written by the male in the video. The lonely heart adverts varied in terms of good gene quality (either the lonely heart advert described the male as a healthy male, good at sports, or as a rather weak generally unwell individual), resource potential (either a male with high earning ambitions or with no interest in becoming rich), and relationship quality (either looking to commit to a relationship or only looking for a bit of fun).

As expected, women rated the male actor significantly more attractive when he displayed altruism. Furthermore, women ranked the male actor rescuing the bag as significantly physically stronger and healthier. This supports the good-gene hypothesis that risky and physically costly altruistic acts signal gene quality. In addition females rated the male who gave money to a beggar as more likely to have high potential resources. This suggests that altruists are most likely to be associated with resources if they show off financial altruism. Finally, women rated the male as more committed to a relationship when he gave blood or donated money than when he rescued the bag. This research thus shows that altruism as a mate signal can work in two ways: brave heroic displays can signal good gene quality, whereas financial help and volunteering signal the willingness to care and invest in the relationship.

Implications

We have shown that altruism is a mating strategy that is most often used by men to attract women. This 'altruism is sexy' hypothesis has implications for charities and volunteer organisations. If it is sexy to donate and help others then perhaps organisations that want to encourage public acts of altruism could use this to increase donations. It may benefit these organisations to emphasise to potential donors that altruism is a quality that is attractive to the opposite sex and they can use attractive female models to encourage altruism much in the same way that car and home improvement adverts use attractive female models sell their goods. In addition, to attract volunteers these organisations could emphasise opportunities to meet members of the opposite sex.

Wendy Iredale
is a postgraduate student at the University of Kent
wi4@kent.ac.uk

Mark Van Vugt
is in the Department of Social and Organisational Psychology, VU University Amsterdam
m.van.vugt@psy.vu.nl