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purposeful profitable partnerships

The white paper

The science of Doing Good

Plus

**Contemporary research into
Altruism and psychological health**

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'The Science of Doing Good'

Introduction

For the purposes of this report altruism can be defined as the “disinterested and selfless concern for the well-being of others” (Oxford Dictionary). At its core, altruism is a sense of motivation to provide something of value, such as one’s time, expertise, money or personal possessions, to any party other than one’s self.

It is important to note that altruism is distinct from both duty and obligation, and ‘pure’ altruism has no expectations of benefit or recompense. Throughout the report the terms altruism and volunteering time can be used interchangeably with the modern term “DoGooding®”.¹ The first part of this report aims to investigate our contemporary understanding of the neuroscience underlying acts of altruism.

Adding context to the neuro-science finding is a review of contemporary research into the psychology of altruism, which generally correlates to the changes in brain chemistry. Importantly, however, research also indicates that most Australians are not aware of the pleasure they can derive from acts of altruism. This raises the concern that people are less inclined to altruism than they would be if they knew how happy it could make them. Cavill + Co is committed to increasing altruism in Australian society, and present this review of recent research as a resource to encourage such an increase.

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Altruism and the brain

The 'Helper's High' or 'Giving High' is a notion that has long pervaded in the societal conscience to describe the unmatched feelings of well-being which stem from knowing that our actions have helped someone else. It is only of recent times that science has provided the tools to understand how this natural 'high' relates to chemical reactions occurring in the brain.

Research by the National Institute of Neurological Disorders and Stroke in Bethesda, Maryland, has given a valuable insight into the neural basis for unselfish acts. Modern neuro-imaging techniques have enabled researchers to identify the brain regions that are activated when people perform an altruistic act – and they have found considerable similarity with known sources of pleasure such as sex, drugs, money and even maternal love.

fMRI research into altruism responses

The use of functional Magnetic Resonance Imaging (fMRI) has become one of the most widespread tools to measure brain activity. fMRI analyses the reaction of the brain to different stimuli and generates images that very precisely localize the areas of the brain activated by these stimuli. Several studies using fMRI have provided a good understanding in the regions of the brain related to altruistic actions, empathy and prosocial behaviors (Moll et al, 2006; Lockwood et al 2016; Majdandžić J et al 2016).

Moll et al. conducted a behavioral study that used fMRI to analyse the activation of brain areas of participants who had to support (economical cost for participant) or oppose (economical reward for participant) charitable organisations.

The authors of the study presented volunteers with various charitable organisations before asking them to either to accept or decline a donation proposed by the computer (Moll, Krueger et al. 2006). The simulation used only real organisations, linked to “a wide range of societal causes, including abortion, children rights, death penalty, euthanasia, gender equality, nuclear power, and war”.

Proposed donations came under the following headings:

- Costly to participant*
 - to benefit charity**
 - to not benefit charity
- Non-costly to participant
 - to benefit charity
 - to not benefit charity
- Pure reward to participant
 - No effect on charity

* Participants were to receive \$128 for their participation. The costly to participant proposal deducted money from this figure.

** Altruistic category.

Over the course of the study, the team discovered that when participants acted altruistically by donating to organisations at a personal cost to themselves, they activated an area of the brain known as the mesolimbic–striatal reward system. The same brain regions were activated when participants received a monetary reward (pure reward). However, altruistic behavior engaged further brain areas: the subgenual area and areas of the anterior prefrontal cortex, indicating that these regions play an important role in altruism. (Moll et al, 2006).).

The first area described in the study by Moll et al., the mesolimbic system, is responsible for regulating reward reinforcement and has been recognized for its central role in motivated behaviours, various types of reward and, more recently, in cognitive processes (Alcaro, Huber et al. 2007, (Harbaugh, Mayr et al. 2007; Tankersley, Stowe et al. 2007). The mesolimbic system is a dopaminergic system which means that activation of the region results in the release of dopamine, often referred to as the ‘pleasure neurotransmitter’.

“The dopamine junctions represent a synaptic way station ... where sensory inputs are translated into the hedonic messages we experience as pleasure, euphoria or ‘yumminess’ (Wise 1980)

The mesolimbic system has also been found to be activated by food, sex, drugs and money (Moll, Krueger et al. 2006). The reinforcing nature of the dopaminergic mesolimbic system suggest that the 'Helper's High' associated with acts of altruism will reinforce future altruistic behaviours.

Acts of altruism were also found to activate the subgenual area and the anterior prefrontal cortex which, as highlighted above were not activated by the monetary reward. The subgenual area plays a key role in the release of oxytocin, known colloquially as the "bonding" hormone due to its role promoting human bonding, for example oxytocin is responsible for maternal-offspring bonding and released during and after sex (Borrow and Cameron 2012) or even in processes leading to close friendship, enhancing the social connection with partners and peers.

Further support for the role of oxytocin in altruism comes from studies which report that those individuals with a higher number of oxytocin receptors were found to be significantly more generous in pro-social games (Israel, Lerer et al. 2009).

In addition to this, a recent study demonstrated that during a trust exercise, subjects administered oxytocin "show no change in their trusting behaviour (even) after they learned that their trust had been breached several times, while subjects receiving a placebo decrease their trust" (Baumgartner, Heinrichs et al. 2008).

In other words, oxytocin helps to establish a neuronal environment in which we are able to more readily feel connected to and trust the people around us, providing the ideal setting for altruism to occur. Additional studies have demonstrated that oxytocin release occurs in response to an empathic response from an individual and this in turn leads to a subsequent increase in an individual's generosity or tendency towards altruism (Zak, Stanton et al. 2007; Barraza and Zak 2009).

Main Points

- Acts of altruism ('Do Gooding®') release the neurotransmitters dopamine and oxytocin.
- Dopamine (the "pleasure" hormone) activates brain regions associated with motivation/reward, the same regions activated by food, sex, money and drugs (Moll, Krueger et al. 2006; Harbaugh, Mayr et al. 2007; Tankersley, Stowe et al. 2007).
- Oxytocin (the "bonding" hormone) increases generosity (Barraza and Zak 2009) and is responsible for providing a feeling of social attachment to the acts of altruism.
- It is the joint activity of these two neurotransmitters in the striatum area of the brain that results in the Helper's High, often associated with acts of altruism ('Do Gooding®') (Moll, Krueger et al. 2006), leaving the instigator feeling more content, rewarded and more socially connected.

Altruism and psychological health

Psychological research correlates with the neuroscience findings to suggest altruism plays a key role in shaping the psychological wellbeing of volunteers. It is not clear whether we feel good because we are altruistic or whether we are altruistic because we feel good, although most indications are that these two factors co-exist in a mutually beneficial cycle of altruism and happiness.

- Dulin and Hill found that altruistic activity was a significant predictor of positive affect in "the stable disposition to experience positive emotions". In other words 'DoGooding®' is associated with increased happiness and contentment (Dulin and Hill 2003).
- Schwartz et al. (Schwartz, Meisenhelder et al. 2003) found that giving help was more significantly associated with better mental health than receiving help, even after adjusting for variables like age, gender, stressful life events, income, general health, religious coping and asking God for healing.

- “Helping others is associated with higher levels of mental health, above and beyond the benefits of receiving help and other known psycho-spiritual, stress, and demographic factors.” (Schwartz, Meisenhelder et al. 2003)
- Recalling previous pro-social spending (spending money on someone else) made participants significantly happier than recalling a previous personal spend (spending money on themselves). And increased pro-social spending in the near future (Aknin, Dunn et al. 2012).
 - [You can see the author talking about the work here.](#)
- Several studies in adults aged 65 and above have highlighted the positive effects of volunteering for people in this age group due to:
 - 1) the personal sense of accomplishment that an individual gains from his or her volunteer activities (Herzog, Franks et al. 1998).
 - 2) a sense of purpose, as formal volunteering moderates the loss of a sense of purpose among those who had lost major role identities, such as wage-earner or parent (Greenfield and Marks 2004).
 - 3) lower levels of depression than non-volunteers (in individuals over 65) (Musick and Wilson 2003)
- Engagement in community service is strongly correlated with life satisfaction (Harlow and Cantor 1996).

Altruism and physical health

In addition to the effects of altruism on psychological health, altruism has also been shown to play a key role in determining physical health.

- Volunteering in elderly females relates to better psychological functioning and a lower mortality risk, even after adjusting for prior health, social supports and exercise (Shmotkin, Blumstein et al. 2003).
- Musick et al. (Musick, Herzog et al. 1999) reported that for a lower mortality risk volunteering must be kept manageable, under 40 hours for a single organisation, to be beneficial and avoid being overwhelmed.

- Oman et al. (Oman, Thoresen et al. 1999) found that the reduction in mortality associated with volunteering was greater than the reductions associated with physical mobility, exercising, and religious observation.
- Volunteering for at least 100 hours in a year slows the decline in self-reported health and functioning and improves mortality rates for volunteers (Luoh and Herzog 2002; Lum and Lightfoot 2005).
- Morrow-Howell et al. (Morrow-Howell, Hinterlong et al. 2003) found, in a study of more than 1500 adults, that volunteering predicted significantly less functional disability 3 – 5 years later.
- Volunteering is significantly associated with higher levels of physical activity (Oman, Thoresen et al. 1999; Shmotkin, Blumstein et al. 2003; Harris and Thoresen 2005) and lower levels of smoking (Oman, Thoresen et al. 1999) than non-volunteers.
- Volunteers report greater life satisfaction and better physical health than non-volunteers (Van Willigen 2000).
 - Plus their life satisfaction and physical health improves at a greater rate as a result of volunteering (Van Willigen 2000).
- Older adults receive greater health benefits from volunteering than younger adults (Van Willigen 2000; Skaff, Jolliffe et al. 2005).
- People who report higher levels of happiness, life-satisfaction, self-esteem, a sense of control over life, and physical health, as well as lower levels of depression, are more likely to volunteer (Thoits and Hewitt 2001).
- People suffering from chronic pain experienced declines in pain intensity and decreased levels of disability and depression when they began to serve as peer volunteers for others also suffering from chronic pain (Arnstein, Vidal et al. 2002).
- People with post-coronary artery disease who volunteered following their heart attacks reported reduced despair and depression (factors that have been linked to increased likelihood of mortality in these patients) (Sullivan and Sullivan 1997).
 - They also reported a greater sense of purpose in life (Sullivan and Sullivan 1997).

Altruism and happiness

The link between pro-social behaviour and one's wellbeing, or happiness, dates back as far as ancient Greece. Aristotle argued that the goal of life was to achieve *eudaemonia*, a contented state of being happy and healthy and prosperous, from the successful performance of their moral duties.

More recently popular opinion, self-help gurus and community organisations have all actively endorsed the notion that 'DoGooding®' is a potent source of an individual's sense of wellbeing. Whilst these claims have at times outpaced available evidence, there is a growing body of literature that shows support for the hedonic benefits of generosity.

- The act of donating one's money activates the ventral striatum, the brain's pleasure centre, suggesting that making charitable donations is inherently rewarding (Moll, Krueger et al. 2006; Harbaugh, Mayr et al. 2007; Tankersley, Stowe et al. 2007).
- Engagement in community service is strongly correlated with life satisfaction (Harlow and Cantor 1996).
- Meier and Stutzer demonstrated that volunteering increases life satisfaction, using the German Socioeconomic Panel, a longitudinal study of German households (Meier and Stutzer 2008).
 - Higher levels of volunteer work were associated with higher levels of overall life satisfaction. (This research was undertaken shortly after the fall of the Berlin wall but prior to German reunification, a time when volunteering opportunities dropped dramatically in Eastern Germany.)
 - Happiness of East Germans can be compared to a control group who experienced no change in their volunteer status. Using this design, the authors were able to conclude that helping others increases well-being (Meier and Stutzer 2008).
- Research by Field et al suggests that there is a causal link between giving and happiness. They asked a volunteer group of retired senior citizens to give infants a massage three times a week for three weeks, and these seniors experienced less anxiety and depression, as well as improved health and a reduction in stress-related hormones (Field, Hernandez-Reif et al. 1998).

- Altruistic financial behaviour, such as gift giving and charitable donations, promotes happiness (Dunn, Aknin et al. 2008).
 - Researchers asked a nationally representative sample of Americans to rate their general happiness and provide monthly estimates of personal and pro-social spending. Specifically, participants were asked to report their annual household income and general happiness level and to estimate how much they spent in a typical month on (1) bills/expenses, (2) gifts for themselves, (3) gifts for others, and (4) donations to charity.
 - Individuals who devoted more money to pro-social spending reported greater happiness, whereas personal spending was unrelated to happiness, even when controlling for income.
 - This study also provided evidence that pro-social spending promotes more happiness than spending money on oneself (Dunn, Aknin et al. 2008).

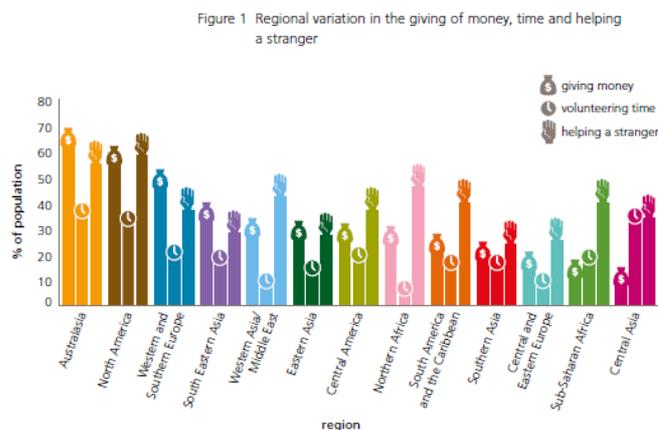
However it has also been shown that the relationship between happiness and altruism goes both ways:

- Wang and Graddy report that happy people are more emotionally capable to help others and have more optimistic personalities, both of which foster altruistic behaviour (Wang and Graddy 2008).
- Konow and Earley found that happier people give more because they are fuelled by their positive emotions (Konow and Earley 2007).

Altruism and the World

In 2010 The Charities Aid Foundation released The World Giving Index, based primarily on data from Gallup's WorldView World Poll. The following key findings were taken directly from The World Giving Index 2016 (The Charities Aid Foundation 2016). [The full report can be accessed here.](#)

- **Helping strangers is the main way that the world gives**
 - Overall, 20% of the world's population had volunteered time in the month prior to interview, 30% of the world's population had given money to charity, and 45% had helped a stranger.
 - Australia and New Zealand are, jointly, the most 'giving' countries in the world. Both boast a World Giving Index score (the average of their scores on 'giving money', 'giving time', and 'helping a stranger') of 57%. Eight other countries from three regions also have a World Giving Index score of over 50%.



- **When giving is thought of as more than just money, a new order of global generosity emerges**
 - The ranking of the countries in the World Giving Index underlines that the countries whose citizens 'give' the most are not necessarily the countries that might have been expected. Based on an average of their giving of money, volunteering and helping strangers, around half of the 20 most charitable

countries might be seen as traditional economic 'powerhouses', but around half (countries such as Guinea, Guyana and Turkmenistan) almost certainly would not.

- **Happy nations are more likely to give than wealthy nations**

- The link between the giving of money and happiness is stronger (a coefficient of 0.69) than the link between the giving of money and the GDP of a nation (0.58). It would be reasonable to conclude that giving is more an emotional act than a rational one.

Figure 2 Correlation between GDP and % of population giving money

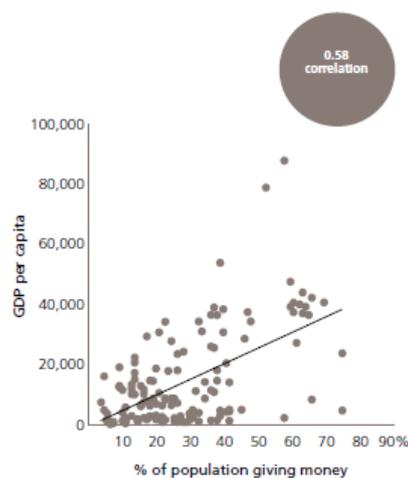
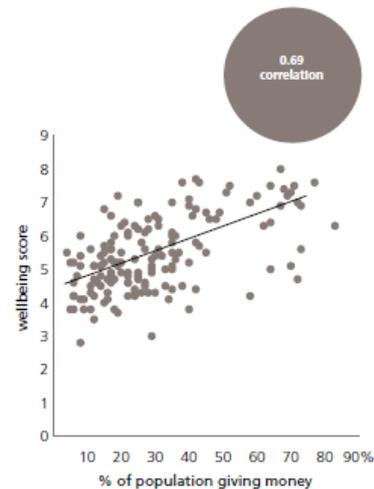


Figure 3 Correlation between wellbeing score and % of population giving money



- **Globally, the older we get the more we give money to charity**

- The demographic trends unearthed from this data are compelling. The data shows that globally, the older we are, the more we tend to give (although this trend is reversed in some specific emerging and developing countries).
- However, in most regions, we are least likely to help a stranger when over 50. Global patterns in volunteering vary greatly by region and by country. For example, volunteering soars in North America through the life stages; 34% of North Americans aged 15-24 had volunteered in the previous month, but more than double that proportion (76%) of those aged over 50 had done so. In terms of gender, women are marginally more likely to give money than men (30% versus 29%). Men, however, are marginally more likely to volunteer, and to help a stranger.

Summary

The main findings of the report are summarised here using the preferred terminology of Cavill + Co.

- ‘Do Gooding®’ activates the same brain regions and results in the same hormonal release as sex and drugs (Moll, Krueger et al. 2006; Harbaugh, Mayr et al. 2007; Tankersley, Stowe et al. 2007).
- ‘DoGooding®’ results in the release of the ‘pleasure neurotransmitter’ dopamine and the ‘love hormone’ oxytocin that leave you feeling more content and socially connected. This is known as the ‘Helper’s High’.
- Oxytocin (‘love hormone’) released by DoGooding® results in increased generosity so ‘DoGooding’ is self perpetuating (Zak, Stanton et al. 2007).
- ‘DoGooding®’ is associated with increased happiness (Dulin and Hill 2003; Meier and Stutzer 2008) and increased life satisfaction (Harlow and Cantor 1996; Dunn, Aknin et al. 2008; Meier and Stutzer 2008).
- ‘DoGooding®’ in the form of spending money on others makes you happier (Field, Hernandez-Reif et al. 1998; Dunn, Aknin et al. 2008; Aknin, Dunn et al. 2012).
- Happier people are more likely to ‘Do Good’ (Konow and Earley 2007; Wang and Graddy 2008).
 - Doing good in turn makes people happier (Field, Hernandez-Reif et al. 1998; Dunn, Aknin et al. 2008; Aknin, Dunn et al. 2012)!
- Simply recalling early acts of ‘DoGooding®’ can increase future acts of ‘Do Gooding’ (Aknin, Dunn et al. 2012).
- Happy nations are more likely to ‘Do Good’ than wealthy nations (The Charities Aid Foundation 2010).
- Elderly ‘Do Gooders’ have lower mortality risks, regardless of exercise, prior health and religion (Musick, Herzog et al. 1999; Oman, Thoresen et al. 1999; Luoh and Herzog 2002; Shmotkin, Blumstein et al. 2003; Lum and Lightfoot 2005).

- ‘Do Gooders’ are more physically active (Oman, Thoresen et al. 1999; Shmotkin, Blumstein et al. 2003; Harris and Thoresen 2005).
- ‘Do Gooders’ have more life satisfaction, a greater sense of purpose and better physical health (Sullivan and Sullivan 1997; Van Willigen 2000; Thoits and Hewitt 2001).
 - Life satisfaction and physical health improve at a greater rate as a result of ‘DoGooding’ (Van Willigen 2000).

If you would like more information on Cavill + Co’s DoGooding® campaign go to

www.cavill.com.au/do-gooding

View Hailey’s video animation showing why doing good is good for you, demonstrating the various things that produce a hormone or brain response including altruism.

www.cavill.com.au/do-gooding

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