

BRINGING GANDHI TO SCIENCE AND MEDICINE

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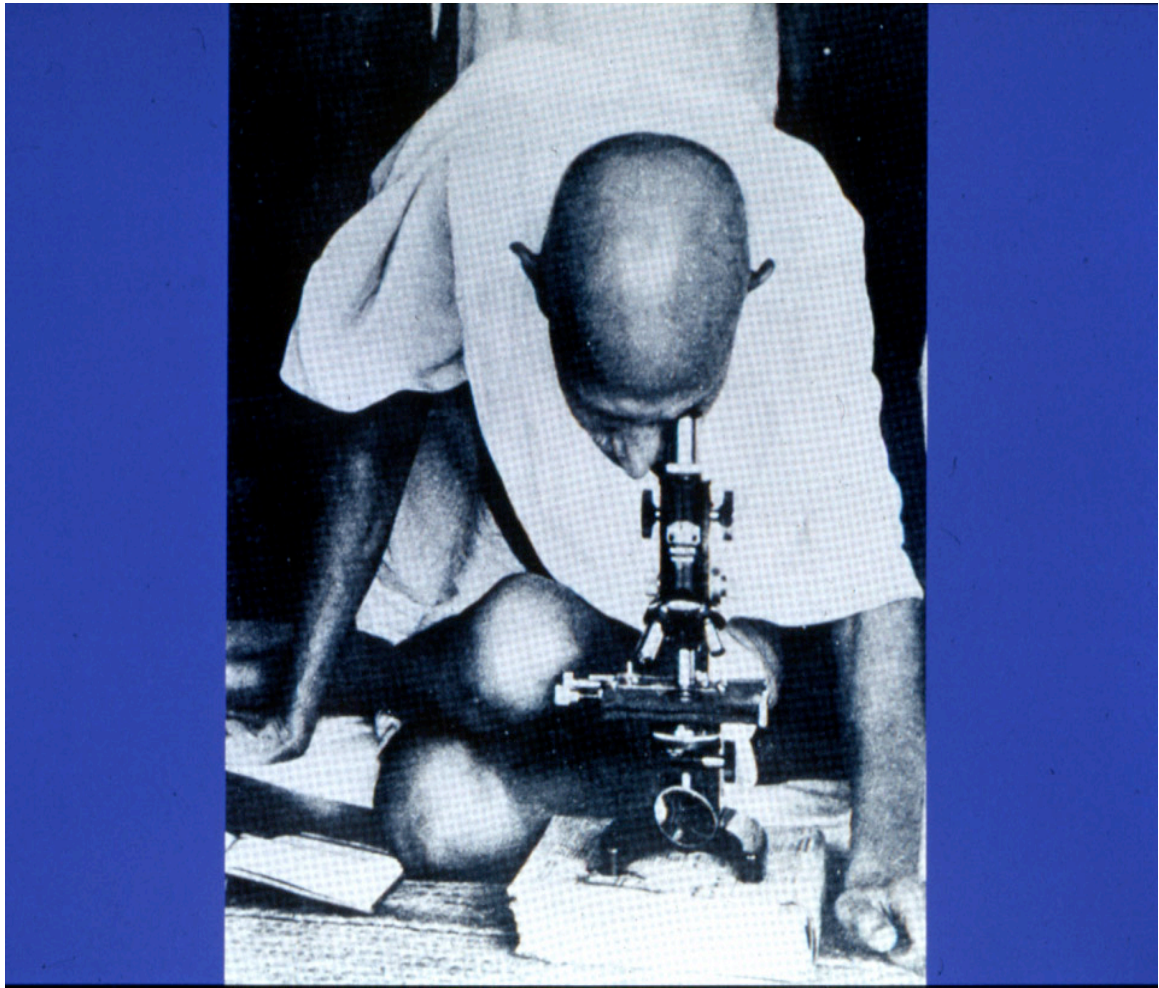


Figure 1. Gandhi meets Science!

Abstract

There have been recent attempts to link morality to science and medicine, and in this article I explore this linkage by considering it in the context of Gandhian principles. *Bringing Gandhi to Science and Medicine* is viewed within a framework of the moral responsibilities of scientists and doctors, not only to be ethical and truthful in their behaviour but also to show kindness and concern for others, be they fellow scientists, the less-well endowed/the less-well served in society, or future generations who are yet to be born.

'Generations to come will scarce believe that such a one as Gandhi ever in flesh and blood walked upon this earth' – are the famous words uttered by Einstein after the death of Gandhi. Other links between these two great icons of the 20th century have been summarised by several writers, including Anand (2006) and Sorkhabi (2005). As Sorkhabi has noted, in spite of his admiration for Gandhi, Einstein was nevertheless critical of some of Gandhi's views, such as his pacifist view of Hitler or his shunning of machinery as a means of income generation and economic progress.

While Einstein helped to create a revolution in our understanding of the natural world, Gandhi helped to create a revolution in how human nature can be changed by peaceful means for the benefit of others, and he did this in a way that displayed great leadership and creativity (Gardner, 1993, 1995). The legacies of both visionaries live on in the minds and actions of many individuals in the 21st century, but there does not yet appear to have been a systematic attempt to track the general linkages between scientific endeavour on the one hand, and Gandhian principles on the other. Scientists and doctors often face moral dilemmas, and these have been well documented (e.g. Walker, 2007; Sahakian and Morein-Zamir, 2009), with calls for greater awareness of such moral issues.

Einstein gained the Nobel Prize for Physics. Another 20th century Nobel Laureate (for Peace) was Albert Schweitzer, a medically-qualified doctor who echoed the admiration for Gandhi that was shown by Einstein. Schweitzer noted – 'But even if one doubts whether Gandhi's method is right in itself and whether the way he has carried out his experiment can give satisfaction, one must nevertheless recognise his extraordinary service in having opened up the problem of activity and pointed to the profound truth that only activity in an ethical spirit can really accomplish anything (Schweitzer, 1936, p. 234).

The purpose of this chapter is to briefly look at connections and commonalities between behaviour of scientists and doctors and the ideals that Gandhi espoused. Space precludes me from covering in greater detail the topics I have selected, or to cover other topics, but I hope to give you a flavour of some of the key facts and concepts.

Bringing Gandhi to Science

On a Friday afternoon on February 12, 2010 a research biologist, with a PhD from Harvard, stood up at a department meeting and coldly shot dead three of her colleagues at the University of Alabama at Huntsville, including Gopi Podila, an Indian-born American who received his first degree from Nagarjuna University in India (Wadman, 2010). How could someone so intelligent do something so violent in such a nonviolent setting as an academic place of learning, and to someone who was so undeserving of such a fate?

What these macabre events tell us is that, in the jargon of Psychology, the attributes of human nature are dissociable – that high intelligence or a high-valued profession can,

albeit on very rare occasions, go hand-in-hand with extreme negative feelings, be they anger, jealousy, greed, revenge, etc. What I would like to explore is the idea that the vagaries of human nature may be evident in the behaviour of scientists, in more subtle and much less dramatic ways than those described above, but that they are very real nonetheless.

Gandhi's autobiography was subtitled, 'The Story of my Experiments with Truth'. In the first few pages of his autobiography he noted – 'Far be it for me to claim any degree of perfection for these experiments. I claim for them nothing more than does a scientist who, though he conducts his experiments with the utmost accuracy, forethought and minuteness, never claims any finality about his conclusions, but keeps an open mind regarding them' (Gandhi, 1927, p. 15). Enshrined in the life of Gandhi are three simple but key principles, which Gandhi in part incorporated within his religious convictions – Truth, Love and Self-Denial / Self-Sacrifice. Another key principle that Gandhi espoused was that the end rarely justifies the means. For him, means were invariably more important than ends. Can basic concepts such as these be applied to everyday scientific behaviour?

In the goal-driven and competitive environment of many academic settings, it is easy to forego moral principles, such as the key Gandhian principles of truth and compassion. At its extreme, the negation of truth and the distortion of means to justify ends can be seen in scientific fraud (Catano and Turk, 2007; Blume, 2009). More subtly, researchers may often be over-zealous in 'borrowing' ideas and data from fellow researchers and incorporating them into their own ideas, especially if a high prize awaits them. The most celebrated example of this is one of the most important scientific events of the 20th century, the discovery of the structure of DNA by Watson and Crick. In this case, the key item was an X-ray crystallograph developed by Rosalind Franklin and which provided convincing evidence for the helical structure of DNA. Watson and Crick subsequently gained the Nobel Prize for their work, and Franklin did not share in the prize (Maddox, 2003; Tobin, 2003). It seems that Watson and Crick did not obtain Franklin's approval for using information from the X-ray crystallograph. Did the end justify the means in this case?

In current times of intense competition for funds and of competitive rankings of universities, there is perhaps more pressure to think of goals and targets, rather than the means used to attain these goals and targets, and thus a temptation to forego acceptable moral standards in the process. Having an 'ethical compass' and key values is critical in order to survive the challenges of modern science environments (Gardner, 2007). In extreme cases, some senior academics may develop a Hubris syndrome (Owen, 2007) where power, over-confidence and arrogance appear to take hold and result in immoral behaviour. This has been observed in higher education. In his popular book, *On Bullshit*, Frankfurt (2005) has argued that in academia deceptive misrepresentations and half-truths may be as prevalent as lies, and can occur in situations such as those where individuals are

reluctant to admit to partial or total ignorance of a topic. Complete openness and transparency are important safeguards to prevent 'bullshit' taking hold in such interactions. Transparency also applies in sharing and releasing data to colleagues and to 'citizen-scientists', who are ever more abundant in the age of the internet (cf. Horton, 2010).

So much for the negatives...what about the reverse side of the coin, where scientists suffer and make self-sacrifices for the sake of truth and for the sake of the betterment of their fellow human beings? History is replete with brave and pioneering scientists, such as Marie Curie who won the Nobel Prize for her work on radiation, but who was to die as the result of radiation poisoning. There is broad agreement as to what are core ethical values. Researching from an international perspective, Kidder (1994) delineated the following virtues - Love, Truth, Fairness/Justice, Freedom, Unity, Tolerance, Responsibility, and Respect for Life. In Great Britain, there are the seven Nolan principles of public life, named after Lord Nolan who was entrusted in 1994 by the Prime Minister, John Major, to examine standards in public life. The seven Nolan principles are – Selflessness, Integrity, Objectivity, Accountability, Openness, Honesty and Leadership. I would argue that the minutiae of behaviour amongst scientists should be governed by these same virtues and principles – whether to respond to or ignore an email from a colleague or student, whether to give obedience or favour to someone because of his/her position or his/her friendship with you rather than the evidence of his/her achievements ('cult of personality' *versus* 'meritocracy'), etc.

Gandhian values and principles have been evident in some outstanding scientists, such as Joseph Rotblat – a nuclear physicist who played a part in developing the atomic bomb. He was subsequently a tireless campaigner for peace, and together with his colleagues he was awarded the Nobel Peace Prize in 2005. Rotblat emphasised the moral responsibilities of scientists to work for peaceful applications of science (Underwood, 2009). Rotblat was an outstanding physicist, and his colleague from the Pugwash group – Robert Hinde – was an outstanding zoologist who has provided scientific insights into morality across a number of domains (Hinde, 2007). We need more scientists like Rotblat and Hinde who will carry the Gandhian torch of nonviolence, one that is illuminated with the energy and brilliance of scientific genius.

The 'cult of personality' is unfortunately present in a number of countries – countries with royalty have such a cult, but it is also present in countries such as India, where it seems to have even imbued the vocabulary. India needs to more actively encourage what Mashelkar (2005) has aptly called 'creative irreverence'. It seems that Indian academia in particular, and Indian society in general, is still imbued by the cult of personality - be it Gandhi (are we promoting the cult with this book – Gandhi himself was opposed to the concept of 'Gandhism!'), the Nehru dynasty, a sadhu, a film star, a senior medical consultant, or a senior university professor. Whether this is a relic of the caste system or the

British Raj, or due to other factors, I do not know, but it seems that in India it is often who the person is that matters, with meritocracy often taking a back seat. India even seems to have a vocabulary to support this irrationality - most countries have 'VIP', but India also has 'VVIP' and bara-sahib! India appears not only to have the world's biggest bureaucracy, but also the world's biggest 'bara-sahibocracy'.

Bringing Gandhi to Medicine

It is not our patient who is dependent on us, but we who are dependent on him. By serving him, we are not obliging him; rather, by giving us the privilege to serve him, he is obliging us.

Quote from Gandhi that is inscribed in the Outpatient Suite at the All India Medical Institute, New Delhi

'I genuinely thought he was a great doctor, very intelligent. I went to see him with different things, and he always had time to talk. You would expect to be kept waiting but you accepted it because you knew he would spend time with you. There was a year-long wait to get onto his list: he was the most popular doctor in Hyde He would come around at the drop of a hat. He was a marvellous GP'. Comments like these from patients would speak well of any doctor, but this doctor was special. His name was Harold Shipman, and he murdered hundreds of his patients. He was not alone amongst doctors who have murdered, but probably the most notorious (Davis, 2010). The case of Harold Shipman had major reverberations on how medicine is governed and practised in the United Kingdom, and it also forced an examination of how doctors think and behave, both in routine and challenging settings (Baker and Hurwitz, 2009).

In his commentary on professionalism in medicine, Hafferty (2006) has proposed that "medicine is a moral community, the practice of medicine a moral undertaking, and professionalism a moral commitment" (p. 2152). There is now a goal-driven and competitive environment in many health-care settings, where medicine is now big business and India itself is generating money from 'health tourism', whereby overseas patients gain treatment in India at a fraction of the price that they would pay in the west. One of Gandhi's key principles was that the end rarely justifies the means – independence and freedom from British rule was a worthy prize, but in his view that laudable end did not justify the means, which in this case was the partition of India and the violence that followed. Where health care is a business, and where private medicine is a major player, then moral dilemmas will inevitably arise. Treatment A may be as effective or even more effective than treatment B, but treatment B will generate more profit for the doctor. Which one should he recommend to

the patient? Can he be completely impartial and honest in his description of the two treatments? Does the end (transplant organ for a patient) justify the means – paying for an organ that is donated by a poverty-stricken individual? For that individual, does the end (securing money that will bring his family out of dire poverty) justify the means (going through a dangerous operation which may have lasting side-effects)? These are of course very simple and rather crude scenarios, but more subtle and more complex ones can also arise. One example relates to the concept of personal gain/self-enhancement around the time of a clinical decision. For Gandhi, self-denial – whether it be fasting or renouncing material wealth – was key to self-discipline and to the search for truth. Medicolegal cases, which generally have to be resolved within an adversarial system, are prime settings for financial gain to influence clinical judgment. But take the more subtle scenario of clinical prognosis, something that is always subject to a degree of error. In 2009, leading medical experts in Britain were asked to make a prognosis about the likely survival of the Libyan national, Abdelbaset Al Megrahi, who was convicted of the Lockerbie bombing, when an American airliner exploded over Scotland in 1988 with the loss of 270 people. Al Megrahi was suffering from prostate cancer, and when asked to give a prognosis in late 2009, some medical experts agreed that Al Megrahi had only months to live. If, as it seems (Daily Mail, September 6, 2009), these experts were paid handsomely by the Libyan government for their advice, did this financial incentive cloud their clinical judgment? Or take a common academic setting – you spend years writing a single-author book, you benefit handsomely from royalty payments and this helps you send your children to a good school....can you dissociate so much personal effort and financial self-interest when the question is asked of you, 'Is this book any good?'

Opportunities for morally laudable professional activity may more conveniently arise around or after retirement, and health-care professionals in the developed world should be encouraged to grasp such opportunities (Ausman, 2007; Cheatham, 2007). There are many doctors who have left secure and comfortable homelands, travelled to destitute peoples in far-off lands, only to succumb to diseases rife in those lands (e.g. the case of Dr Ursula Schmitz (Yusufzai, 2010). Cermak (2002) has suggested that academic departments of psychology should be committed to helping the communities in which they are located. The basic concept is - rather than counting on what others can do for you, make your life count for others (Cheatham, 2007).

Conclusions

Science and medicine are not immune to error, whether it be human cognitive fallibility or human emotional/moral fallibility. While much effort is often put into rectifying cognitive fallibility (e.g. peer review, clinical governance, audit, ratings of publications, awards for

achievements, etc), relatively little effort seems to have been put into rectifying emotional/moral fallibility. How can we change this situation? Firstly, there should be greater recognition and awareness by individuals, funding bodies, employers and government that a problem exists. Secondly, some attempts need to be made to measure the problem, both at the level of prevalence and at the level of the individual. Thirdly, various schemes should be piloted to see if particular interventions may influence the behaviour of those who practise science and medicine. If the presence of behaviours such as bullying, arrogance, being less than truthful and transparent, and greed significantly diminished the likelihood of securing a grant, having a paper considered for publication by a high-impact journal, getting a job, being paid a salary advance, or setting up a clinical practice, would that make individuals think twice before they behaved in such a way? Fourthly, should we require professionals in these fields, and perhaps also other fields such as law or politics, to take a form of Hippocratic Oath, a key principle of which is 'do no harm'. Such an oath could be taken when they graduated, when they started a new job, or every five years in an existing job. Perhaps in front of witnesses (who might include both colleagues and family members) - they could promise to uphold key moral principles. In his acceptance speech on gaining the Nobel Prize, Joseph Rotblat (1995) made this very proposal – 'The time has come to formulate guidelines for the ethical conduct of scientists, perhaps in the form of a voluntary Hippocratic Oath. This would be particularly valuable for young scientists when they embark on a scientific career'. This idea was later supported by Sir David King, the UK chief scientific officer and the Nobel Laureate Sir John Sulston, and was in fact put into practice in 2008 by the University of Toronto for some graduating students.

Finally, on a lighter note, although Gandhi was opposed to being seen as a saint or having a legacy, he might have chuckled at two ways in which he has influenced cognitive neuroscience. Firstly, at the fact that the spelling of his name, often in the west mis-spelt as 'Ghandi', has been the subject of a scientific study, yielding insights into mechanisms underlying spelling (Campbell and Coltheart, 1984). Secondly, at the thought that certain cells in the brain have been named after him – mirror neurons, which act like a mirror and respond when an action is performed and also when that same action is observed, appear to underlie feelings of empathy and have been named 'Gandhi neurons' by an Indian-born American neuroscientist (Ramachandran, 2008)!

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