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Myths, magic and medicine

Why do apparently irrational beliefs claim so many strong and vocal adherents? Why, when these beliefs are demonstrably false, is it often impossible to shift the mindsets of the believers? When medicine today is capable of providing such significant health benefits, why is there an increasing support of 'alternative' therapies?1 Glimmers of understanding of how we think are beginning to emerge as a result of insights from new developments in dynamic brain imaging and brain biochemistry.

Understanding our minds

Dynamic imaging has revolutionised our understanding of how our brains work and has spilled over into the serious popular press2 and business publications (that include discussion on the new science of neuroeconomics).3,4

Instead of our brain being able to reason the best way to go, brain scans show that in many circumstances, there are powerful primitive functions of the brain seated in different areas that overwhelm our logical capacities. Thus people often lack self-control, are shortsighted and overreact to the fear of losses. The more advanced parts of the brain, such as the prefrontal cortex, deal with complex and longer-term decision-making and planning, whereas the limbic system presses for immediate satisfaction. This has important implications, for instance, for individuals who increasingly are being required to take personal responsibility for their own pension funds. Sadly many opt for immediate gratification or delay decisions, thereby jeopardising future security.

However, our thinking is not confined to specific parts of the brain but operates via a complex interaction of circuits. These develop and change with time and in response to various stimuli. The prefrontal cortex, the area responsible for our rational thinking, does not fully mature until our early/mid- twenties (which accounts for much of teenage and early 20s lack of judgement). Recent studies have confounded long-held views that the brain cannot develop further by demonstrating growth in areas as a result of concentrated use, such as playing chess or developing new manual skills. This newly understood capacity of the brain is described as 'neuroplasticity' and helps to explain, for example, further evidence that meditation can have a beneficial effect on the body's health as well as the mind's.

Fringe and alternative beliefs

There have, of course, always been vocal and sometimes downright dangerous fringe groups, but they should rarely have been tolerated, let alone lent respectability by health authorities. Take the raging debates we have recently experienced in South Africa, with dissidents and denialists having a field day in challenging the existence of the HIV virus and its ultimate devastating result of full-blown AIDS. Some years ago we experienced the debacle of a toxic solvent optimistically labelled 'virodene' finding support at the highest levels for its outrageous claims of curing HIV/AIDS. Apart from poisoning patients, another casualty of virodene was the exit from office of the then chairman of the Medicines Control Council for daring to disagree with this patent nonsense. More recently the public press and the SAMJ have carried stories about the Rath Foundation and the Treatment Information Group, who slated the pharmaceutical industry and medicine for peddling highly toxic medicines to treat HIV/AIDS while extolling the therapeutic supremacy of their vitamin cocktails. Further dietary fringe activity claiming official support is the diet concocted by nurse Van der Maas based on garlic, lemons, pro-nutro, olive oil and other supplements.

In South Africa it has been estimated that 80% of the population first (and often only) see traditional healers, whose numbers are not known accurately but at over 200 000 vastly outnumber all other health professionals. Plans are advanced to establish a Council for traditional healers. But how does one regulate a system in which diagnoses and therapeutic applications cannot be tested in any meaningful way and largely depend on beliefs? Other belief systems, including homeopathy and chiropractic, are grouped under the 'Allied Health Professions Council'.

In his review of 'magical thinking in complementary and alternative medicine', Stevens5 notes that magical beliefs of many of the 'complementary' or 'alternative' systems are so universal that it has been suggested they derive from a natural propensity to think in certain ways, and that we are dealing with innate principles of cognition. Some of the basic principles involved in this magic, evident in currently popular belief systems, including homeopathy, include: Forces in nature that most peoples seem to believe are separate from and operate independently of any spiritual beings and also separate from those forces identified by science; Power that is energised by a mystical power that exists in varying degrees in all things; and Symbols that are words, thoughts, things, or actions which not only represent other things or actions but can take on the qualities of the things they represent.

Beliefs in magic and the occult have occupied privileged positions in the lives of many leading world political figures. Frances Wheen provides an amusing catalogue of the pervasiveness of such influences on prominent people, history and events in the world.6 He reports on polls that showed that only 11% of Americans accepted the standard secular account of evolution, and that 49% believed in demonic possession, 36% in telepathy and 25% in astrology. It has been calculated that visits to alternative medicine providers exceeded total visits to all primary care physicians in the USA, and other

surveys show increasing use throughout the world.5 Social-psychological explanations for people's continued use of magic in an increasingly scientific and technological age agree that it gives individuals a sense of control, and hence an important increase in self confidence in a confusing and impersonal world.

Beliefs don't die

The difficulty of changing entrenched beliefs that result from our biological programming or early experiences during our development, and that may be demonstrably wrong, is often confusing to scientists or skeptics. The phenomenon of 'Why bad beliefs don't die' is explored by Lester.7 If scientists and doctors understood the biological purpose of beliefs it would assist them in more effectively challenging irrational beliefs and communicating scientific conclusions.

Our brain's first and fundamental purpose is to keep us alive, and a primary tool for ensuring our survival is our senses. These enable us to perceive danger in order to take appropriate action to ensure our safety. However, senses are insufficient for our survival as they provide limited sensory contact with the much wider world. Augmenting, enhancing and extending the range of the danger identification function of our senses are our beliefs. We have a much greater chance of staying alive if our beliefs remind us that dangers exist even when our senses cannot detect them.

Senses and beliefs have evolved as tools for survival and augment each other. Both are necessary and convey important survival information to the brain. Our senses tell us about our perceptual world. Our beliefs inform us about the world outside of the senses such as meanings, reasons and causes. Beliefs are designed to operate independent of sensory data, and their survival value is based on their ability to persist despite contradictory evidence. They are therefore meant to be resilient to change or to evidence disproving the belief. The brain does not need the data and belief to agree. This explains why otherwise intelligent and rational people can believe in things for which there are no credible data and why such beliefs do not change in the face of contradictory evidence.

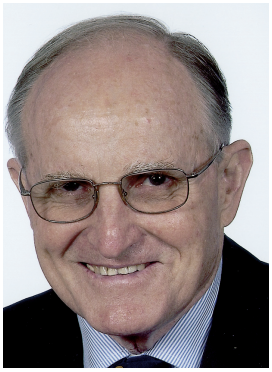
The interlocking system of the brain that creates its view of the nature of the world enables it to experience consistency, control, cohesion and safety in the world. Challenging even a small belief can produce ripple effects that threaten the brain's experience of survival. Thus people are driven to defend even seemingly small and tangential beliefs since changing even one belief can crack an entire system of belief, a fundamental worldview and their brain's experience of survival.

Rational responses

Lester[7] continues by reminding us that because of the survival value of beliefs they will rarely change because of disconfirming evidence. In order to change beliefs it is necessary to address their survival value and not just their data accuracy value, which involves several elements.

- There should be no expectation that beliefs will change as a result of data or that people are stupid because their beliefs don't change. Being critical or demeaning in the face of persistent beliefs should be avoided.
- The implications that changing beliefs for the worldview of the affected individuals should be addressed, and not only the data.
- It should be appreciated how very hard it is for people to have their beliefs challenged. Such a challenge can produce behaviour that is provocative and hostile.
- Rational beliefs will only win by using behaviour that is dignified, tactful and communicates respect and wisdom.

Those with the ability to alter their beliefs in response to data have a unique, precious and powerful ability. This higher brain function goes against some of the most natural and fundamental biological urges. It is a skill that can be frightening, life-changing and capable of producing pain. Challenging beliefs should therefore be done carefully, wisely and with care and compassion.



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