

The Michael Ward Symposium on Resilience and Health

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“Why are some people more resilient to health insult than others?”

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Abstract

Health is a complex construct, which summarises the operation of a large series of complex adaptive systems to which resilience thinking can be applied. It defies precise measurement, but we can identify healthy people and populations through use of a range of widely used, proxy indicators. Modern medical practice, builds from reductionist and linear thinking to arrive at precise causal links between hypothetical risk factors and disease, and between treatments and outcomes. Clinical practice has developed around the operation of the normal distribution curve. People above the 95% confidence interval of treatment expectation, such as Ian Gawler, Lance Armstrong, and Michael Ward delight and surprise us at their resilience and their capacity to adapt to insults which are normally lethal. Perhaps these outliers are telling us something about issues quite unrelated to the treatment and more related the performance of complex systems that are under the influence of modifying factors. We need greater medical understanding of the resilience demonstrated by outliers such as these. A consideration of their stories suggests the possibility that “sense of control might play an important role here.

Talk

1. Thank you Geraldine and thank you to the Menzies Centre for collaborating with Australia 21 in holding this symposium. It offers both organizations the opportunity to recognise a distinguished contributor to our intellectual life and to open up this rapidly evolving field of enquiry. I feel I know a little bit about health having worked both as a clinician and as a public health researcher. But I have come to resilience quite recently as a disciple of Brian Walker and I am still a rather naïve enquirer on this topic. The question that prompts my talk is “Why are some people more resilient to health insults than others?”

2. Resilience thinking is systems thinking. Here we recognize that the world consists of literally billions of discrete complex adaptive systems, each with positive and negative feedback loops and that individual systems interact with systems above and below them. Through these interconnections and interacting feedback loops, the flap of a butterfly's wings in Sydney can conceivably contribute to the force of a tornado in Los Angeles.

And each human body is a complex adaptive system, comprising thousands of sub operating systems within, above and around it.

3. These two quotes from Fritjof Capra's book, "The turning Point" published in 1982, illustrate the contrast between systems thinking and the more conventional Cartesian view of science, within which most medical science is conducted. He wrote in 1982 and I believe it is still true today:

"In biology the Cartesian view of living organisms as machines, constructed from separate parts, still provides the dominant conceptual framework.... the belief that all aspects of living organisms can be understood by reducing them to their smallest constituents, and studying the mechanisms through which these interact, lies at the very basis of most contemporary biological thinking".

"What is needed, is a new paradigm; a new dimension of concepts transcending the Cartesian view. It is likely that the systems view of life will form the conceptual background of this new biology"

4. Health is a very complex construct that in systems terms is a product of a large number of intersecting and interacting complex adaptive systems. The construct is not strictly measurable and we depend upon a series of imperfect proxy indicators, to distinguish healthy from unhealthy individuals and populations.

According to the WHO definition, a completely healthy person is one who is not only free of disease, but who is experiencing complete physical, mental and social wellbeing. Measuring health precisely in these terms is impossible we depend on surrogate indicators like life expectancy and morbidity rates and wellbeing surveys to help us decide who is healthy and who is not.

From the perspective of systems thinking, these proxy indicators are shorthand for the net operation of the vast array of interacting complex adaptive, natural and man-made systems within individual human bodies and within society as a whole.

Each individual body system is itself a hierarchical set of sub-systems Each system operates in an adaptive way through a series of positive and negative feedback loops to maintain the integrity of the owner of the body. Human society is also full of natural and man-made complex adaptive systems, which interact with the body system.

5. By contrast with these systemic constructs, medical researchers still tend to operate in a reductionist Cartesian paradigm, seeking simple causal relationships between risk factors and disease and between treatments and outcomes. The systems are taken as givens and we tend to work with variables which represent tiny parts of the system. At the heart of medical research is the normal "top hat" distribution curve.

Using statistical assumptions based upon the normal distribution curve, we use elegant linear models to assess the probability that a causes b, controlling for c,d and e or that f responds to g controlling for h i and j. Clinical practice is built around evidence derived from these kinds of simple causal studies and we seek certainty about the utility of new treatments by calculating the 95% or 99% probability of the relationship being true. But the normal distribution curve also reminds us that some people will respond much more rapidly or completely to a treatment than others and some will be less responsive. Every now and again, someone comes along who surprises us with a dramatic response that

far exceeds our expectations. These are the people in the very outer tails of the normal distribution curve.

When we come to apply the resilience lens to our understanding of the health and wellbeing of individuals, we enter a field ripe for new exploratory research. It raises the question: Are there key factors operating on the human system that can modulate the system or systems and help to push it or them over the threshold from normal function to disease, or from wellbeing to malaise? Examining the outer tails of the normal distribution curve for people's response to treatment is a good place to start trying to understand what makes some people more resilient than others.

6. I want to change tack now and refer briefly to the now classic Whitehall study of public servants in the United Kingdom which set out to ask the question "why are some people healthy and others not and are there systemic factors that modulate risk factors and the likelihood of developing chronic disease? The studies have produced a rich stream of evidence and showed that those with low sense of job control had 2 ½ times higher incidence of heart disease controlling for all other known risk factors than those with a high sense of Job control and that women with a low sense of control at home had four times higher risk of heart disease than women with a high sense of control at home.

7. All of this brings me to Michael Ward's stunning resilience in the face of grinding health adversity. Those of us who have read his irregular e-mails entitled "Tumor times" have watched in agony and admiration as he has openly and bloody mindedly dealt with cancer, its management and its complications. From the day of his diagnosis he resolutely took control of his own body and also the medical team that was caring for him. His experience as a former spokesperson for the NSW Public Health System gave him insights into its fallibility and he knew his way around the system. He knew how to exercise control over his care. He saw the seriousness of his situation and almost certainly willed his body to make the best of it. And he continues to do so today. Michael unquestionably occupies the outer tail of the normal distribution curve of resilience.

8. We need to know whether people like Michael have common attributes and particularly attributes that those of us who do not possess them, could acquire. I suggest on the basis of what I have said already about Michael and about the Whitehall studies, that a sense of control could perhaps be a key variable that modulates a broad range of human biological systems.

9. This possibility has led me to explore the attributes of four other well-known cancer outliers. Ian Gawler, Michael Milton, Michael Rennie and Lance Armstrong. All like Michael, contracted life threatening cancer at a relatively young age and have each responded to this assault on their person in ways which conventional medical science did not expect. All have displayed stunning single-minded determination to control their management and their lives

All of them tried conventional medical treatment for their condition and looked elsewhere as well, adding meditation, dietary change, and sometimes outlandish alternative remedies in their determined efforts to stave off what seemed like certain death. Of course this is a carefully selected case series, which can do no more than raise possible questions and hypotheses for further testing. The question I am raising here is the possibility that sense of control might turn out to be a very important variable across a whole range of human biological systems including the general ability to recover from insult.

10. There is considerable attention in the literature to the issue of psychological resilience. Psychologically resilient people tend to have high expectations, meaning in their lives, goals, personal agency (which I take to be equivalent to a sense of control) and interpersonal problem-solving skills.

At the other end of the spectrum to resilience is the concept of learned helplessness, which many would claim to be the consequence of much of what takes place in hierarchically ordered health care systems in Australia today.

11. It can be shown that our healthcare system is itself a large number of interacting man-made complex systems, each with feedback loops and thresholds that determine day-to-day functionality. We need to ask which elements of the health system promote, and which inhibit resilience in those who use its services. And we need to explore whether the system promotes a sense of control or whether it promotes learned helplessness. We also need to ask how the system can be adapted in ways that promote personal resilience

12. To conclude:

Our mechanistic and reductionist approach to health and medicine needs to be, heavily peppered, with systems and resilience thinking.

Sense of control is a variable that has been extensively studied and has already been shown to influence disease incidence. I am proposing here that sense of control perhaps also influences resilience or adaptation to disease events in individuals.

I want to finish by raising a question. What might be the down sides of a sense of control? If I am correct that sense of control has a positive influence on a range of systems (and this could be tested empirically in a number of ways) is it always a good thing? Could it also push some systems to undesirable thresholds not only at the individual level but at the health system level?

I do not have answers to these questions but believe that the link between health and resilience demands innovative research approaches that could have significant implications not only for the way we deal with individual patients but also with the way we structure health systems.

Thankyou