Can the behavioural sciences save humankind from itself?

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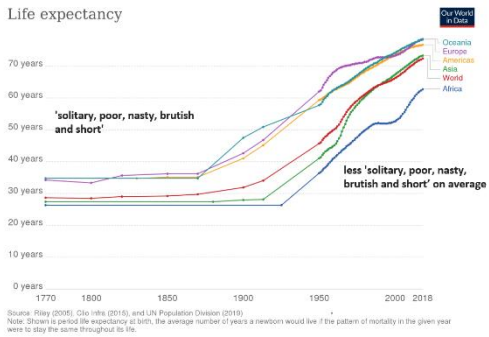
In 1651, Thomas Hobbes wrote in 'Leviathan' that life for the mass of humanity was 'solitary, poor, nasty, brutish and short'.[1] This depiction of the human condition has been true for almost all of the 300,000 years of our existence as a species. But not so much now. Medical and public health sciences, material and chemical sciences, engineering and physical sciences, information and computer sciences, agricultural sciences and so many other advances have led to a more than doubling of life expectancy of humans - now standing at 73 years[2] - with a global population that has surpassed 8 billion.[3]



But we can do so much better; 682 million people (8.5% of the world population) live in extreme poverty,[4] and we are killing ourselves in our tens of millions every year by polluting the air we breathe, smoking tobacco, drinking alcohol, having an unhealthy diet, being sedentary, adopting poor sanitary practices, how we travel and violent aggression.[5]

And what's more, the gains that we have made in recent decades are being put at risk by our own actions and inactions:[6] the way we use energy, the way we mistreat our habitat, our lack of pandemic preparedness, our mismanagement of water and food resources, and our misuse of antibiotics. And technologies such as AI that are starting to deliver huge efficiencies in almost every sphere of activity also potentially pose an existential threat.[7]

So human behaviour is front and centre of the potential downfall of our species on the one hand and our ability to move to the next level of social evolution on the other. This means that the behavioural sciences need to step up and play their role in transforming our society. This talk will explore how far we have come in the behavioural sciences and what a future could look like in which they play a more central part in our lives.

Let me start by explaining what are the 'behavioural sciences'. They include all the scientific disciplines that try to understand and predict behaviour: psychology, psychiatry, sociology, anthropology, economics, political science, neuroscience, behavioural pharmacology, public health science, and more. Each of these disciplines has developed methods to gather and analyse data in order to make generalisations, build models and theories and to use these models and theories to make predictions.

You may have heard talk of 'behavioural economics' and even 'nudge theory' as though they were synonymous with 'behavioural science'. However, they represent a particular approach to the study of behaviour that has been popularised in recent years – an approach that focuses on how our choices can be shaped by the way they are presented to us. As such they are only a small part of the picture.

You may also have heard some experts argue that 'behavioural science' focuses on changing individual behaviour when what is often needed is population-wide, 'systems' change. But that's a false opposition – individuals form part of systems, and understanding the behaviour of people, acting individually or in groups and organisations, is crucial to understanding how systems operate.

Combatting tobacco smoking provides a good case study to illustrate what behavioural sciences can offer, but also how far we have to go for them to be a game changer for humanity. Behavioural science has informed a raft of population-wide and individual-level interventions to combat smoking. Taking just one example, neuroscience and behavioural pharmacology have discovered medicines, for example varenicline and cytisine, that can double a smoker's chances of stopping successfully by tackling cravings and nicotine withdrawal symptoms.[8] Behavioural psychology has also discovered specific 'behaviour change techniques' that can be included in counselling to boost smokers' chances of success still further.[9] With a combination of the medicines and counselling we can more than triple a smoker's chances of success at stopping in any given quit attempt incredibly cheaply.[10]

That all sounds very positive. Unfortunately, this support is only available to a small proportion of smokers in the world and where it is available almost all smokers have to pay for it.[11] And where, as in the UK, it has been provided free of charge, the take up has been low at less than 10% of quit attempts in a given year.[12]

So there is a huge gap between what the behavioural sciences have given us in terms of cheap life-saving treatments for cigarette addiction, and the impact on human welfare. Decades of research in neuroscience, behavioural pharmacology, behavioural psychology and health economics have uncovered important causes of an enormous problem faced by humanity and invented highly cost-effective solutions, but the impact of these has been undermined by failure to *implement* these solutions.

Let's turn to a second case study, where the science is less certain but arguably even more important, and where, again, there has been a failure to apply understanding from the behavioural sciences. This case study concerns the Covid-19 pandemic.

The UK Government set up a sub-group of the Strategic Advisory Group on Emergencies (SAGE) specifically to advise on behavioural issues.[13] I participated in that subgroup, comprising some 30-40 behavioural scientists from many different disciplines. Officials in the Cabinet Office and other Government Departments would ask for advice on key issues, and we would do our best to gather relevant information from the research literature and ongoing studies to answer their questions. Initially, there was little direct evidence to go on but very quickly, data started coming in to help address the challenges the country was facing.

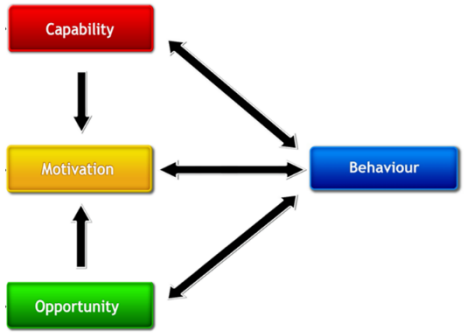
Some important themes emerged from the research. I'll just mention a few. First, it became apparent that, contrary to what many people expected, the population was remarkably resilient and supportive of even very stringent restrictions.[14] Secondly, where people were failing to self-isolate when infected, it was related to a wide range of factors, including what people thought others were doing and how far they could afford it.[14] And thirdly, trust in government played a significant role in people adhering to the restrictions.[15]

Unfortunately, UK government policies often appeared to go against the advice of their behavioural science advisors. The first lockdown was delayed in part out of a misplaced belief that people wouldn't stand for it for very long.[16] The financial and material support to allow people with Covid-19 symptoms to self-isolate was mostly not enough to live on and very hard to get, with the result that only a minority of people with Covid-19 symptoms actually self-isolated.[17] And, of course, we are all too familiar now with the numerous occasions on which prominent members of Government undermined public trust by flouting the restrictions, with evidence showing a decrease in population adherence linked to the ensuing loss of trust.[18]

An important lesson from both the smoking and Covid-19 case studies is that the behavioural sciences can provide us with potentially effective ways of tackling threats to our lives and wellbeing but that there is a vast gulf when it comes to implementation.

And here's the thing – bridging that gulf is itself a behavioural science challenge. Just as we can't assume can will get them to do something by telling them that it is good for them, trying to educate politicians, policymakers, professionals and the public about solutions to behavioural problems is not enough to get those solutions implemented. We need to develop and apply the behavioural sciences to implementing the solutions discovered by behavioural sciences! That, I think, is the major challenge, certainly one of the major challenges, of our time.

As it turns out there is an academic journal called 'Implementation Science' and back in 2011, Professor Susan Michie and I and several colleagues published an article in that journal setting out a model of human behaviour to address that challenge.[19]



It is called the COM-B model, standing for capability, opportunity, motivation and behaviour.[20] It provides a way of understanding human behaviour that is simple yet powerful and a way of bringing together all the various disciplines of behavioural science into a single framework.

The premise of the model is the commonsense idea that for any behaviour to be enacted at a given moment, the person concerned must have the capability to do it, the opportunity to do it and be more motivated to do it than anything else they might be doing at the time.

Capability involves physical strength, skills and abilities as well as the psychological ability to understand what to do, how to do it, and why it's worth it - and to have the mental resilience to see it through.

Opportunity involves having the necessary time, resources, facilities, space and prompts as well as the social networks, support and social norms.

Motivation involves our conscious thoughts of what will be good or bad, right or wrong, or achieve our goals, as well as our feelings of desire – wants and needs, and emotional reactions, instincts and habits.

Capability and opportunity don't just influence behaviour directly; they also influence it by shaping our motivation. For example, having a solid understanding of the most effective way to stop smoking (capability) can lead us to be motivated to try that method. If that method is really easy to access, costs little or nothing and everyone else seems to be doing it (opportunity) – again, we will be more motivated to try it.

We are all different, so when it comes to changing the behaviour of whole populations we need to be thinking about what their capabilities, opportunities and motivations are on average and come up with a population-wide strategy that will work for as many people as possible – or, to reach across communities and reduce inequalities, it is helpful to tailor interventions to specific communities.

We also need to think about who are the powerful people and groups in the system as a whole, how they interact and who needs to do what to achieve our overall goal. And finally we need to go beyond single, one-off interventions to an analysis of how the system evolves over time and in response to new events.[21]

The COM-B model has become popular among policymakers and organisations as a way of deciding on behaviour change strategies. Like any model, it has its limitations but the fact that it is easy to understand by non-experts and helps to think in a structured and systematic way about behavioural challenges has been a major part of its appeal.

So when we are thinking about how to implement behavioural science solutions to the pressing problems facing humankind we can structure our thinking around what has been called a 'behavioural diagnosis': What should we be focusing on in terms of the capabilities, opportunities and motivations of key groups and individuals in the wider system to lead them to do things that will avert disaster or foster wellbeing? We must resist the temptation to assume that they just need motivating, or they just need to understand what will work, or that we just need to make it easier for them.

What does a behavioural diagnosis look like? Here are some examples of questions that can help identify what COM-B target or targets to address when we want to promote a particular behaviour. I have adapted these from a guide I helped to write for Public Health Wales[22]

For capability we can ask how far we need to:

- Raise their awareness of the behaviour?
- Help them understand how to do it?
- Help them understand the benefits of doing it or the costs of not doing it?
- Build up the skills and judgement needed to do it?
- Build their confidence that they can do it?
- Or maybe strengthen their resilience in the face of challenges?

For opportunity, we can ask how far we should:

- Create a sense that it is what people normally do?
- Provide them with social support?
- Populate their environment with prompts and reminders?
- Make sure they have the resources, equipment or facilities they need?
- Or make it quick and easy to do?

And for motivation, we can ask whether to prioritise:

- Getting them to consider it worthwhile?
- Getting them to *feel* a sense of pleasure, satisfaction or relief at the thought of it?
- Showing how it fits with their identity or sense of self and who they are?
- Creating a strong sense of personal commitment to it?
- Making it a more immediate priority for them over other behaviours?

- Or perhaps turning it into a habit or routine?

These questions can apply to changing the behaviour of policymakers, planners and professionals as much as to members of the public – they can help us develop strategies for implementing behavioural solutions to behavioural problems. Typically we will want to focus on a relatively small number of these targets – ones that are particularly relevant for this group of people, this behaviour and this set of circumstances.

I'd like to finish with an example of what can happen when we fail to perform such a diagnosis.

Several decades ago it was discovered that simple screening in primary care for heavy drinking and brief advice from a GP to cut down on alcohol consumption could have a clinically meaningful effect in reducing alcohol intake in their patients. Unfortunately, this screening and advice was being delivered by only a minority of GPs. To address this, the English Department of Health set up a scheme to pay GPs to do it, at a cost of many millions of pounds each year. Unfortunately the payments had little or no impact on screening and brief advice rates but when, after a few years, the payments were removed there was a marked fall in these activities on the part of GPs![23]

If the Department of Health had performed a behavioural diagnosis they may have found that the key barriers to offering alcohol screening and brief advice were: opportunity – lack of time, and it not being normative, and capability – lack of skill and confidence in being able to do it without feeling uncomfortable.

So there we have it. The future of humankind will depend to a large degree on how far we can change the way we behave. There is a science to understanding behaviour and to changing it; and the more we engage with that science the better chance we have of continuing to move forward as a species. But it's not enough to discover effective behavioural interventions, we have to apply the same scientific methods to getting them implemented. I suggest that the COM-B model provides a potentially useful way of making the kind of behavioural diagnosis needed to do that.

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