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## ‘Nudging’ behaviours in healthcare: insights from behavioural economics

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‘Nudging’ Behaviours In Healthcare Management: Insights from Behavioural  
Economics

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# NUDGING BEHAVIOURS IN HEALTHCARE MANAGEMENT

## Abstract

Since the creation of the Behavioural Insight Team (BIT) in 2010, the word “nudge” has become a popular one in social and public policy. According to policy makers and managers, applications of behavioural economics to public sector management results in increased policy efficiency and savings. In the present article, we offer a critical perspective on the topic and discuss how the application of behavioural economics can foster innovative healthcare management. We first review behavioural economics principles, and show how these can be used in healthcare management. Second, we discuss the methodological aspects of applying behavioural economics principles. Finally, we discuss limitations and current issues within the field.

**Keywords:** behavioural economics, psychology, nudge, behavioural insight team, behaviour change

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The UK government announced in February 2014 that the Behavioural Insight Team (BIT) would be privatised, and offer its services not only to the civil service, but also to private companies and foreign governments. The decision has, once again, shed light on one of the most successful – and at times controversial – initiatives of the coalition government. Credited to have generated millions of savings, with innovations such as sending personalised text messages to taxpayers to increase tax collection, the work of the BIT has also been criticised for its lack of transparency, and the potential lack of ethics of some of its procedures. Overall, its promoters have argued that it has not only allowed a reduction of spending (e.g. energy saving campaigns), but has also helped making existing policies becoming more efficient (e.g. improved organ donations campaigns).

The use of behavioural economics to improve public sector management is probably one of the most interesting initiatives of the past decades for two reasons. First, it shows that academic knowledge can have implications for the real world, and benefit practitioners. Second, behavioural economics can help fostering change in a much more progressive way than traditional methods, such as the use of laws and sanctions. From energy consumption to fraud prevention or charity donations, the applications of behavioural economics seem endless, and can be highly beneficial in healthcare management.

The present article discusses the relevance and implications of behavioural economics for healthcare management. First, it introduces some of the core principles of the discipline, and how these carry implications for healthcare management. Second, it discusses the methodological aspects of the use of behavioural science in

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healthcare management, specifically the use of Randomised Controlled Trials.

Finally, it considers the limitations and debates surrounding such practices.

### **Defining Behavioural Economics And Its Relevance For Healthcare**

#### **Management**

Behavioural economics can be defined as the discipline that applies behavioural science principles to the studying of economic reasoning. It is often presented as an attempt to anchor economics within other social and natural sciences, from psychology to neuroscience (Kahneman, 2011; Santos, 2011). Behavioural Economics emerged as a reaction to the assumption, made by traditional economists, that individuals were always rational. Behavioural economists use knowledge from behavioural science to study how individuals make decisions which are often non-rational, and biased by a series of mental shortcuts. For instance, it looks at the role of emotions or social surroundings in the decision making process.

Behavioural economics offers a different perspective on behavioural change. Its philosophy is that people should not be forced to act in certain ways, but rather gently encouraged to act in ways that are better for them or help them stopping bad habits formed over time. This idea of a 'gentle push', or 'nudge', is based on libertarian paternalism, and favours invitations to change behaviours, rather than the introduction of constraints and sanctions to obtain behaviour change. The discipline emerged with the work of Thaler at the University of Chicago, who first suggested using knowledge from behavioural science could induce soft changes in people's behaviours.

Those principles work, according to Thaler, because the mechanisms are subtle, and rely on advances in psychological and behavioural science, rather than relying on older psychological approaches such as sanctions and punishment. In their

2008 book, Thaler and Sunstein suggest that behavioural economics carry many implications for social and public policy, and beyond. Healthcare management appears a prime candidate for the application of behavioural economics principles for two reasons. First, research suggests that traditional persuasion messages used in healthcare have a limited impact (Agha, 2003). Second, the healthcare sector is facing an unprecedented pressure to reform itself and keep its costs down. The use of behavioural economics principles by healthcare management practitioners can contribute to addressing both issues.

### **Behavioural Economics in Practice: How and Why it Works**

Behavioural economics incorporates principles from closely related behavioural disciplines (e.g. social and cognitive psychology, neurosciences), and social sciences (e.g. economics or sociology). It revolves around key principles, which affects individuals' decisions: biases in decision-making, and influences from the social environment.

#### **Individual Biases in Decision-Making**

##### *The power of changing defaults: Opt in vs. Opt-out strategies*

Johnson and Goldstein (2003) first showed the importance of default options in healthcare, by looking at the effect of 'opt in' versus 'opt out' strategies on organ donations. They suggested that countries in which the percentage of organ donations was high were countries in which people had to write or ask to be removed – and opt out – from the donors' list. In other words, countries in which every driver was, by default, included on the donor's list. On the other hand, countries in which individuals had to sign-up to be registered and opt in – that is were considered non-donors by default - had lower levels of organ donations, simply because few people would spontaneously opt-in.

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The psychological mechanism behind this is called *inertia*, and refers to the fact that individuals prefer sticking to existing or standard behaviours, rather than doing something different or involving an effortful choice. This can be explained by the fact that going against a default option requires effort, for instance completing paperwork or simply voicing out a dissonant opinion. Deviating from a default also creates uncertainty around the decision to be taken, as defaults imply norms. Individuals often infer that a choice offered by default is more likely to be a universal choice, and prefer avoiding the potential cost of disagreeing with the norm. Finally, defaults simplify individual thinking, which is something evolutionary psychologists claim individuals have evolved for.

A good example of a successful public campaign involving a default was the 10 / 10 campaign, inviting individuals to reduce their energy consumption by 10% by the end of the year 2010. In the United-States, changing defaults has inspired the government to encourage employers to sign-up employees on employers' retirement plans by default. Healthcare managers can use the power of defaults by making desired behaviours the default option (e.g. getting insurance or medical cover).

### *Hyperbolic Discounting: A Preference for Short Term Rewards*

A second important principle in behavioural economics is that individuals prefer rewards that happen in an immediate future, rather than a distant one. For instance, studies have shown that individuals prefer earning less money immediately, rather than earning more in a distant future (Thaler & Benartzi, 2004). This phenomenon, known as *hyperbolic discounting*, can be explained by two main factors. First, hyperbolic discounting is related to uncertainty avoidance, that is, the fact that individuals do not like uncertainty and try to reduce it whenever possible (Bazerman & Moore, 2012). Second, most individuals experience difficulties

projecting in the future, and therefore undervalue future rewards, as these are deemed less concrete.

This principle has been used to efficiently encourage individuals to save money or adopt healthier long-term eating habits. Research suggests that the best way to encourage individuals to save money is to encourage them to focus on a short-term goal (e.g. saving £100 every month) rather than a long-term one (e.g. saving £ 1200 in a year). Similarly, hyperbolic discounting can be applied to promoting positive behaviours and habits from patients suffering from chronic disease, by keeping a short term focus on good habits, rather than a long-term one..

#### *Loss & risk aversion*

Loss aversion refers to individuals' reluctance to take risks and accept potential losses, unless this can be compensated by potential important rewards. Kahn and Sarin (1988) for instance showed that individuals were prepared to pay twice as much in betting game when they had the opportunity to reduce ambiguity. This illustrates one of the important paradoxes of the human mind: individuals do not mind not having, but they do mind losing.

Loss and risk aversion carry important consequences for healthcare managers and practitioners involved in patient-related decisions. Whenever attempting to change patients' behaviours, healthcare practitioners need to be able to explain the benefits and gains to their patients, and contrast it with the losses, so that these can be tangibly assessed. For example, when helping patients to make a decision about whether to receive or not surgery, practitioners should first explain the advantages and disadvantages of receiving surgery, and make a clear and tangible comparison with the advantages and disadvantages of taking painkillers.

#### *Framing*



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The way choices and options are presented to individuals affect the way they make decisions. Decision-making is perceived as easier when a few options are available, as relative or comparative decisions tend to be easier than absolute ones. Having too many options can however be detrimental to the making of efficient decisions. Redelmeier and Shafir (1995) for instance showed that medical doctors confronted with too many options were more likely to make a non-optimal decision.

Behavioural economics research suggests that irrelevant alternatives can also play an important role in the decision making process, as these help individuals to become aware of their own preferences. Ariely and Jones (2008) for instance investigated how having to choose from two versus three options could lead to radically different decisions. Studying subscriptions preferences for a magazine, they first looked at student preferences when choosing between three options: an all web content for \$59, a subscription to the print edition for \$125, and a combined print and web subscription, also for \$125. Out of these three options, students were more likely to choose the latter option. When, however, only two options were presented – the web-only option for \$59, and the combined press and web option for \$125 – students were more likely to choose the former. According to Ariely and Jones, the second option – print edition for \$125 – helped participants with figuring out their preferences. The consequence of this for healthcare practioners is that choices should always be framed in ways that help patients and staff understanding what their preferences are.

### **The Role of the Social Environment in Decision-Making**

#### *Reciprocity*

Individuals are more likely to change their behaviours if they feel that they owe someone else something. Burger (1986) showed that reciprocity was a powerful

selling technique, partly because it is rooted in human nature. Studies who applied this principle to healthcare issues found that organ donations could be increased significantly after a campaign containing the message: "If you needed an organ, would you take one?". The principle in reciprocity can be routinely used in healthcare to encourage civic behaviours in public space, such as inviting visitors to keep public spaces clean or quiet.

#### *Social Norms and Feedback*

Social norms refer to what individuals perceive as a standard or expected behaviour among the different groups they belong to. Individuals tend to base their behaviours on what they perceive others are doing, and what they think they are expected to do in order to conform to the norm. Individuals are also likely to compare themselves to others in order to estimate how well or bad they are doing comparatively. When not doing better than average, most individuals will be motivated to change their behaviour.

Behavioural economists have used the power of social norms by using peer pressure to influence behaviours. Nolan et al. (2008) for instance showed that providing feedback to households about their energy consumption relative to their neighbours was more effective at reducing energy consumption than a persuasion attempt based on cost-saving arguments. Such principles can easily be implemented by healthcare management practitioners. For instance, at a clinic or hospital level, consumption can be monitored and compared to neighbouring institutions, to encourage staff to do better. Within a clinic or hospital, giving feedback about the relative performance of different departments can also encourage positive change.

Previous research suggests that individuals also react to artificial norms, especially if they can identify with the target group. Goldstein, Cialdini, and

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Griskevicius (2008) showed that creating an artificial norm could increase the recycling of towels in hotels. Similarly, research conducted by the BIT found that telling individuals that 9 out of 10 taxpayers in their local area paid their tax on time resulted in an increase proportion of individuals actually paying doing so. Varying messages to make norms as specific as possible to the situation experienced by individuals is important to ensure efficiency. For instance, the message ‘80% of patients in this clinic arrive on time for their appointment’ is more likely to improve on-time arrivals than a more generic ‘Please arrive on time’. Communicating the proportion of patients who arrive on time for their appointment has also been showed to decrease no-shows by as much as 30%.

Finally, feedback on how individual performance evolves over time can help improving behaviours. For instance, smartphone applications can be used to monitor exercise and healthy diets, and provide real-time feedback on individual performance. Giving feedback can also take the form of using traffic light symbols. In hospitals, the use of traffic-light labels has been shown to decrease the consumption of unhealthy ‘red-light’ meals such as burgers by 20%, while increasing the choice of healthy ‘green-light’ options by 46% (Thorndike, Riis, Sonnenberg, & Levy, 2014).

### **Methodological Aspects of Using Behavioural Economics in Healthcare**

#### **Management: The use of Randomised Controlled Trials**

Another important contribution of behavioural economics to public sector management has been to highlight the importance of running randomised controlled trials (RCTs) in order to evaluate the efficiency of procedures and interventions. RCTs allow managers to test the effect of potential interventions on small population subsets (e.g. 1 or 2 clinic) before implementing larger scale changes (e.g. nationwide). RCTs also allow putting theory and intuition to the test – even established theories

can sometimes be proven wrong empirically. Failure to find significant effects in an RCT is always an interesting result, as it can save time and money.

RCTs have been successfully used to validate the efficiency of controversial policies. For instance, Volpp et al. (2008) showed the benefits of offering financial incentives – such as cash for achieved objectives – to encourage people to lose weight. Hayward et al. (2006) found that running a campaign to support flu vaccination, in addition to offering inoculation to those interested, could lower death at levels of 5 per 100 nursing-home residents.

Finally, RCTs are useful to look at the effect of small changes or variations of an intervention. For instance, as part of its campaign to increase organ donations, the BIT tested three different messages. It found that sending a text message inviting people to register on the donor's list, and mentioning that thousands had already joined, significantly improved the signup rate from 2.3% to 2.9%. However, and contrary to expectations, adding a picture of a crowd decreased the signup rate to 2.2%. The use of a pre-test has, in this case, saved thousands of potential donors.

### **Behavioural Economics in Healthcare Management: Limitations and Criticisms**

Some limitations to the use of behavioural economics in healthcare management should be mentioned. First, behavioural economics principles do not always produce large scale effects, but sometimes only produce small to moderate ones, as suggested by the House of Lord's enquiry on the theory (2011). Second, the efficiency of the core principles described here are not necessarily stable over time. Interventions can show large effect sizes the first few times they are used, and then see lower effect sizes on subsequent applications. As behavioural economics become more widely used, individuals can possibly become more aware of the intended effect and of their own decision biases, which could result in lesser efficacy. Healthcare

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managers should therefore consider behavioural economics with caution, and use RCTs to systematically evaluate and measure the outcomes of potential and actual interventions.

Second, social psychology, one of the main disciplines used by behavioural economists, is undergoing a significant crisis. Many recent replication scandals have triggered intense debates in the field (Stroebe & Strack, 2014), with some authors arguing that some classical studies cannot be replicated. Working in close collaboration with academics can be key to make sure that knowledge on which studies are based is up to date, and to benefit from the latest advances in the field.

Third, the use of behavioural science has led to debates about the ethicality of what is seen by some as a form of soft manipulation of the general public. In this respect, the recent privatisation of the BIT means that its actions will be less susceptible to public scrutiny. This calls for the establishment of safeguards to ensure that behavioural science is only used in the public interest.

### **Conclusion**

The present article discussed how key principles of behavioural economics could benefit healthcare management. From promoting civic behaviours to fostering healthy eating habits or achieving long-term goals, academic research offers numerous examples of successful applications of behavioural economics to everyday life. In addition, the use of RCTs enables a more objective evaluation of the efficiency of policies and measures to be implemented, and can prevent managers from over-relying on intuition. It also allows evidence-based management, making sure that even the smallest variations in policies are tested and evaluated.

For healthcare management practitioners, whether behavioural economics becomes a fad, or transforms the way behaviour change is implemented, depends on

the capacity of managers to understand the added value of rigorous testing and implementation of scientific insights into daily management practices.

That government services will now have to pay for the use of BIT services will be an interesting test. Finally, the BIT initiative has also highlighted the benefits of collaborating with academics. From giving theoretical inputs to helping with RCTs design, academics can help healthcare management practitioners to improve practices using behavioural science.

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Appendix

BOX 1: Using Behavioural Economics to Improve Healthcare Management

- Individuals choices can be influenced by the way decisions are presented and framed
- To achieve successful behaviour change, long-term goals should be broken down in smaller, short-term ones
- Individuals prefer to conform to norms and follow default options over effortful choice: healthcare managers should make the desired behaviour the default
- Randomised controlled trials allow healthcare managers to maximise the efficiency of new policies, while minimising associated costs
- A closer collaboration between academics and healthcare managers can result in a better use of behavioural economics principles