

What works for behaviour change?

Three research articles in this issue tackle behaviour change for health and energy conservation.

Understanding what motivates behaviour change holds the key to addressing several key societal challenges, from sustaining our planet's finite resources and combating climate change to achieving better health and educational outcomes.

How can sustainable human behaviour be promoted? Anthropogenic climate change is a painful reality and legislation is unlikely on its own to achieve policy targets. Adopting sustainable behaviours is necessary. However, that's easier said than done. As *Jachimowicz and colleagues* explain in their Letter, interventions that have targeted people's individual beliefs (so called first-order beliefs) have been surprisingly unsuccessful: letting people know of the environmental impact of their own behaviours has had precious little effect on changing those behaviours. An alternative approach has involved providing descriptive norms: letting people know what others around them do has been shown to be effective in a number of contexts, including energy conservation. However, there is significant variability in how effective the provision of descriptive norms is: *Jachimowicz et al.* analyse a set of 211 randomized controlled trials carried out by Opower (a US-based customer engagement platform for utilities) and find that there is significant variability across US states in how effective the provision of descriptive norms is. Leveraging recent work in social and cultural psychology that has suggested that perceptions of what others in the same community believe (so called second-order beliefs) are better predictors of individual behaviour than first-order beliefs, *Jachimowicz et al.* show that second-order beliefs about community attitudes towards energy conservation predict how successful descriptive norm information is across US states. In an additional experiment that manipulated second-order beliefs, they show that second-order normative beliefs predict energy conservation above first-order

beliefs. This study identifies an important element in combating environmentally damaging behaviours: what we think our community believes about an issue acts as a powerful motivator to act.

Physical activity is one of the main lifestyle factors linked to better health. Data from Public Health England suggest that the rate of many chronic diseases, including type 2 diabetes and cardiovascular disease, could be cut by as much as 40% if people were sufficiently active. And starting early is key: increasing physical activity in children is a public health priority. Previous research has shown that network interventions can be successful in effecting behaviour change through peer pressure. Not all social networks are the same, though. *Proestakis et al.* report the results of a seven-week field experiment aimed at increasing levels of physical activity in 9–11 year olds. They find that boys' and girls' networks are susceptible to different social incentives: compared with a control condition, boys more than doubled their physical activity as a response to incentives that were linked to team behaviour, whereas girls were most responsive to social rewards linked in a directly reciprocal manner to two other friends. The study suggests that network interventions that take into account network-specific characteristics may constitute a powerful tool for behavioural change.

Choudhry et al. tackled flu vaccination rates among elderly individuals in the United States. In a randomized controlled trial involving nearly a quarter of a million Medicare beneficiaries aged 66 or older, they found that a single mailed letter significantly increased vaccination rates. Although the effect was very small, if such a letter was sent to the 35 million Medicare enrollees, it would translate to more than 500,000 additional individuals receiving the flu vaccine. The trial involved, in addition to a control, no letter, condition, four different variants

of the letter, manipulating the perceived authority of the person signing the letter, whether the letter prompted recipients to form a specific implementation intention, and whether individuals were asked to make an active choice between getting vaccinated or not, which were 'enhanced' with language that made the consequences of the decisions salient. These variations in the mailed letter were motivated by prior behavioural economic research, but did not result in significant differences in vaccination rates. The authors do not conclude that manipulating choice architecture is without effect — rather, they argue that aspects of their elderly sample and limitations of the extent to which their intervention could be tied to specific situational information of their participants may affect the effectiveness of different nudges.

What clearly emerges from all three studies is that improving the effectiveness of interventions for behaviour change requires taking into account characteristics of the context and individual, as well as refining our understanding of what best motivates changes in behaviour. 'One size fits all' clearly doesn't work. Long-lasting change is going to come about with behaviour change at the population level. But scaling up, as *Choudhry et al.* show, from small-scale studies in well-defined contexts to national level, has challenges. A specific sustainable energy-use behaviour intervention may work in one context — US states where perceptions of community beliefs in the need to adopt environmentally sustainable behaviours are high — but not another, that is, in states where such beliefs are low. And network interventions can be more successful if they take into account characteristics of the network, as *Proestakis et al.* show. □

Published online: 8 October 2018
<https://doi.org/10.1038/s41562-018-0459-4>