

# Introducing the Habit Theory and Application Special Interest Group

**Dr Benjamin Gardner** Many health-relevant behaviours are done

*King's College London, UK* repeatedly and automatically. Putting on a seatbelt, brushing our

**Dr Phillipa Lally** teeth, washing our hands; all are performed largely on 'autopilot'.  
*University College London, UK*

**Sarah Labudek** Reasoned action models, such as the Theory of

*Heidelberg University, Germany* Planned Behaviour (Ajzen, 1991), which portray behaviour as the output of a thoughtful deliberation process, are inadequate for explaining such automatic actions. Many of these actions arise not through reasoned intentions, but via habit.

Habit can be thought of as a cognitive process whereby encountering a context automatically triggers an impulse to enact a behaviour, due to the activation of context-behaviour associations learned through context-consistent repetition (Gardner, 2015). Unless sufficiently opposed by stronger competing impulses, the habit-generated impulse effortlessly translates into action, potentially outside of awareness, volitional control and without – or even in spite of – intention. Habitual behaviour describes action generated by this process (Gardner, 2015). For example, settling into a car seat automatically prompts the strapping of the seatbelt; stumbling bleary-eyed into the bathroom after waking may trigger toothbrushing; and using a toilet prompts us to wash our hands.

Habit develops as an action is repeated in a stable context, which reinforces context-behaviour associations (Lally, van Jaarsveld, Potts & Wardle, 2010). Over time, the association acquires

dominance in memory, such that the learned act becomes the most mentally accessible of all available responses in the associated context (Danner, Aarts & de Vries, 2008), and regulation over action is transferred from conscious deliberative processes to environmental cues. Forming habits is highly adaptive, as it 'locks in' our everyday actions, allowing us to enact them effectively and efficiently while devoting our finite cognitive resources to more cognitively demanding concurrent tasks (Wood, Quinn & Kashy, 2002). Having habits to fall back on allows us to efficiently and effectively perform everyday tasks even when, in the chaos of daily life, we momentarily lack attention, willpower, or motivation (Neal, Wood & Drolet, 2013; Lin, Wood, & Monterosso, 2016). The downside to habits is that, when we find they no longer serve our needs, their automatic, cue-dependent nature renders them difficult to break (Verplanken & Wood, 2006).

Although the formal study of habit has a long history (see James, 1891), advances continue to be made in understanding habit and its application to real-world actions, and many such developments are being made within health psychology (see Verplanken, 2018). Gardner's (2015) review of the role of habit in health behaviour offered a novel definition of habit as a process, rather than as a form of behaviour (see too Fleetwood, in press), which resolved a logical tension inherent in theories that propose that habit determines behaviour (Triandis, 1977); as Maddux (1997) observed, 'habit cannot be both the behavior and the cause of that behavior' (p336). This definition also emphasises the distinction between 'habit' and

'habitual behaviour', which raises the possibility that interventions that appear to break unhealthy habits may disrupt only the translation of habit into behaviour, rather than breaking the underlying cue-response association (Gardner, Rebar & Lally, 2020). Phillips and Gardner (2016) proposed a distinction between two manifestations of the habit process in any one action, showing that people may habitually 'decide' to engage in exercise (i.e. habitual instigation) or may habitually 'do' the exercise (i.e. habitual execution). This distinction appears useful not only for specifying the precise contribution of habit to an action (Hoo, Boote, Wildman, Campbell & Gardner, 2017), but also for understanding and changing behaviours for which health outcomes arise from both the frequency and quality of performance, such as handwashing or toothbrushing (Raison, Corcoran, Burnside & Harris, 2020). Mullan and Novoradovskaya (2018) have sought to reconcile the concept of habit – which has traditionally been investigated in studies of animals performing simple actions such as pressing levers (Adams, 1982; Tolman, 1932) – with the complexity of real-world human health behaviours. They argue that complexity can be distilled into two components: the number of steps involved in enacting an action, and the immediacy with which rewards are delivered. Their review suggested that habit may be a stronger determinant of 'one-step' behaviours that deliver immediate hedonic rewards than of, multi-step, behaviours with more distal benefits, which tend to be driven more by intentions.

Health psychology has also led the way in using habit to promote behaviour change. Lally et al's (2010) seminal study documented the process of real-world habit formation, based on studying the development of automaticity with once-daily repetitions of newly-adopted physical activity or dietary behaviours among 96 participants. Results indicated that habit forms asymptotically, with the rapid gains observed with early repetitions

decelerating until a plateau is reached (see too Fournier et al, 2017). Post-hoc exploration also highlighted a tendency, albeit not statistically significant, for habit to develop more quickly for simpler actions, such as drinking water, relative to complex acts like doing 50 sit-ups. Insights from Lally's study have fed into development of interventions that explicitly position habit formation as an outcome goal, often pairing habit formation with a 'small changes' approach that promotes habitual uptake of simple actions (Fleig et al, 2016; Lally, Chipperfield & Wardle, 2008). Recent work has expanded the scope of habit-based interventions by targeting habitual performance of preparatory actions (e.g., habitually packing a gym bag, to promote exercise; Kaushal, Rhodes, Spence & Meldrum, 2017) – and promoting the formation of habitually triggered 'higher-order' responses that permit greater behavioural flexibility than is usually assumed in traditional habit formation interventions (e.g., filling half of a plate with vegetables; Phillips, Johnson & More, 2019).

The EHPS Habit Theory and Application Special Interest Group (SIG) was formed in 2020 to capitalise and build on momentum in habit research in health psychology. The SIG arose following a two-day pre-conference SYNERGY workshop that we delivered at the 2019 EHPS conference in Dubrovnik. The workshop showcased the developments made in habit theory and application in recent years, and activities focused on agreeing an agenda for habit research in health. (A manuscript reporting this agenda is in preparation.) The workshop brought together researchers from a range of behavioural and theoretical domains, and highlighted both the levels of interest in habit theory within European health psychology and the lack of a structure to unify, formalise and develop the various strands of habit-relevant interests present in the group.

The planned inaugural event for the Habit SIG was to be a discussion meeting run in concert with a one-day seminar at Utrecht University in May

2020, designed to understand habits in their societal context. The seminar was however cancelled due to the coronavirus pandemic. The pandemic, however, strengthened our resolve to develop the SIG and provide a forum for sharing and building on our understanding of the role of habits in understanding and changing health behaviours, because habit change is central to tackling coronavirus. The practical steps that are recommended as a means to limit transmission of coronavirus ultimately involve forming new, hygienic habits (e.g., washing hands frequently and rigorously; wearing face masks) or breaking old unhygienic habits (e.g., making physical contact with others; face-touching; West, Michie, Amlot & Rubin, 2020). Recognising the automaticity of such actions is a vital step in developing effective interventions to encourage hygienic practices and disrupt transmission of coronavirus (West et al., 2020). The imposition of movement restrictions when nations moved into partial or full lockdown entailed a discontinuation of exposure to everyday contexts such as the workplace, and confinement to the home. Such context disruption may at least partly explain decreased engagement in health behaviours habitually performed outside of the home, such as physical activity (Smith et al., 2020). Conversely, anecdotal evidence suggests that many people took up new health behaviours in the home, such as online exercise workouts (see Hammami, Harrabi, Mohr & Krustup, 2020). The much-anticipated 'return to normality' after the pandemic recedes may therefore reactivate dormant unhealthy habits associated with contexts such as the workplace, while discontinuing any newly formed home-based habits, both of which will likely prompt relapse into old, unhealthy patterns. By capturing expertise and interest in habit within the EHPS, the Habit SIG should be well positioned to respond to the coronavirus pandemic and future urgent public health issues.

We officially launched the Habit SIG with a discussion meeting at the EHPS Online Scientific

Meeting in August 2020 about the opportunities and challenges arising from the coronavirus pandemic for the development and application of habit theory ('Habit in the age of Covid: opportunities and obstacles'). Topics covered included: ongoing research projects, including longitudinal surveys tracking the habitual nature of hygiene behaviours and their determinants over the course of the pandemic; developing ideas for new habit-based research projects to help stem the coronavirus and future pandemics, such as the need for initiatives to understand and reduce face-touching, an archetypal automatic behaviour; and how best to disseminate insights from habit theory into practice.

The stated aims of the Habit SIG are to:

- Connect health psychology researchers interested in habitual behaviour and surrounding issues (definition, measurement, theory, application)
- Provide a forum for exchange and debate of new ideas and questions, as well as advertising relevant publications, events and endeavours that others might be interested in
- Be a source of support for other researchers less involved in the habit area to ask questions and receive expert responses

Future events will likely include workshops, training programmes, symposia, roundtables and invited talks. We are currently planning our second event, a webinar that will take place in Spring 2021.

William James (1899) once wrote that "ninety-nine hundredths or, possibly, nine hundred and ninety-nine thousandths of our activity is purely automatic and habitual". Even those actions that we select via a deliberative decision-making process are typically executed via habit-driven processes (Cooper & Shallice, 2000; Gardner, 2015; Phillips & Gardner, 2016). All psychologists interested in understanding or changing behaviour, particularly where that behaviour involves or requires repeated performance, are thus by extension interested in

habit. We invite everyone in the health psychology community with an interest in understanding habit, habitual behaviour, or behaviour more broadly, to join the SIG. We are active on Twitter (@EHPSHabit), and readers can join an email list to receive updates on the SIG activities by visiting [www.ehps.net/special-interest-groups](http://www.ehps.net/special-interest-groups), or emailing the SIG Lead at [habit@ehps.net](mailto:habit@ehps.net)

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**Dr Benjamin Gardner**

Department of Psychology, King's  
College London, UK

**[Benjamin.gardner@kcl.ac.uk](mailto:Benjamin.gardner@kcl.ac.uk)**



**Dr Phillipa Lally**

Research Department of Behavioural  
Science and Health, University  
College London, UK

**[p.lally@ucl.ac.uk](mailto:p.lally@ucl.ac.uk)**



**Sarah Labudek**

Network Aging Research (NAR),  
Heidelberg University, Germany

**[labudek@nar.uni-heidelberg.de](mailto:labudek@nar.uni-heidelberg.de)**