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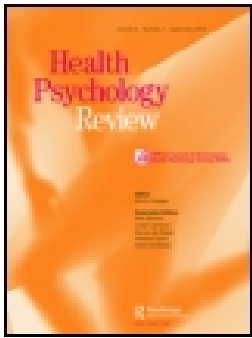
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Non-Conscious Processes and Dual-Process Theories in Health Psychology

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Non-Conscious Processes and Dual-Process Theories in Health Psychology

The rise of dual-process theories of behaviour in health psychology reflects a shift in attention from the predominant social cognitive approach in recognition of the pervasive effects that non-conscious and implicit factors have on health behaviour (Sheeran, Gollwitzer, & Bargh, 2013). Dual-process theories purport that individuals' behaviour is controlled by two processes or 'systems': a deliberative or *reflective* process which represents rational, deliberative, and conscious decision-making influences on action and an implicit or *impulsive* process which represents well-learned, spontaneous, and non-conscious influences (Khaneman(Hagger, 2016; Strack & Deutsch, 2004). The notion that individuals' actions are, at least in part, determined by factors and processes that occur beyond an individual's awareness is not new. Many theories of human behaviour have acknowledged these non-conscious influences. Behaviourism, for example, focuses exclusively on conditioning and the cues that lead to action and do not countenance any deliberation or cognitive input (Bargh & Ferguson, 2000). The rise of the cognitive approach with its information processing metaphor for action as a preeminent paradigm in psychology resulted in a concomitant shift toward the adoption social cognitive theories in to understand social behaviour, and it has come to be the dominant approach in many applied areas including health (Armitage, 2015; Biddle, Hagger, Chatzisarantis, & Lippke, 2007; Conner & Norman, 2015; Fishbein & Ajzen, 2009; Head & Noar, 2014). Nevertheless, within the social cognitive approaches, attitude theorists recognised the importance of non-conscious influences on behaviour, and that an exclusive focus on cognition and deliberation did not provide a comprehensive or realistic account for social behaviour (Aarts & Dijksterhuis, 2000; Bargh, Chaiken, Govender, & Pratto, 1992; Doll & Ajzen, 1992; Fazio, Sanbonmatsu, Powell, & Kardes, 1986). Furthermore, cognitive psychologists, particularly those conducting research and developing theory in the fields of priming, recognised the contribution of non-conscious processes to

action and decision making. Clear recognition the control over mechanisms that occur beyond individuals' awareness is illustrated in the characterisation of people as 'cognitive misers' (Bless & Schwarz, 1999; Petty & Cacioppo, 1986b). Automatic control over mundane actions is hypothesized to 'free up' cognitive space for priority, higher order actions and decision making that is strategic and services survival goals, giving the development of non-conscious control over action an evolutionary function.

It stands to reason, therefore, that social psychologists, whose theories are applied in health behaviour contexts with considerable regularity, developed models of behaviour that attempted to account for both conscious and non-conscious decision making processes. Attitude theories such as the MODE (Fazio, 1990) and Elaboration Likelihood (Petty & Cacioppo, 1986a) models represent the first generation of such theories, and both outlined the potential for non-conscious attitudes and non-conscious pathways in determining behaviour alongside consciously-mediated routes. A new generation of dual-process theories are currently the subject of great attention in the research literature (Bargh & Ferguson, 2000; Gibbons & Gerrard, 2016; Greenwald et al., 2002; Hofmann, Friese, & Wiers, 2011; Sherman et al., 2008; Smith & DeCoster, 2000; Strack & Deutsch, 2004). The theories have attempted to elaborate, in considerable detail, on both processes and to unify research in disciplines such as cognitive science and social neuroscience with theoretical premises from models of social cognition. The renewed interest in dual-process theories owes as much to a recognition that theories of social cognition alone are insufficient as accounts of human action (see Noar & Head, 2014; Schwarzer, 2014; Snichotta, Pesseau, & Araújo-Soares, 2014) as it does to the development of new methods to tap implicit processes (Nosek & Banaji, 2001; Nosek, Greenwald, & Banaji, 2007) and research disciplines that have attempted to unravel the neural correlates of action (Heatherston, 2011; Rebar, Loftus, & Hagger, 2015). Measures such as the implicit association test (Greenwald & Farnham, 2000)

and research using neuroscientific methods to explore brain function and social action (Heatherton & Wagner, 2011) have all contributed the proliferation of research into non-conscious determinants of action and the increased detail and sophistication of dual-process models of behaviour in social contexts.

The new generation of theories make clear reference to separate non-conscious and conscious processes. However, although they tend to be operationalized similarly, they often use different terms when referring to the conscious (e.g., implicit, spontaneous, automatic, impulsive, fast, heuristic) and non-conscious (e.g., deliberative, reflective, reasoned, planned, intentional, slow, systematic) processes, and is at risk of becoming another jangle fallacy in psychology (Block, 1995; Hagger, 2014)! There are also closely related terms and constructs that relate to each processes with implicit beliefs, motives, dispositions, and habits recognised as synonymous with non-conscious processing and while social cognitions, judgements, and intentions reflecting with conscious processing (Gardner, 2015; Hagger, Rebar, Mullan, Lipp, & Chatzisarantis, 2015). This issue notwithstanding, the identification of both processes within single theories is not the main innovation of the new theories. Theorists are now moving away from the relatively mundane recognition that action is controlled by both non-conscious and conscious processes and toward more interesting questions such as the contexts that signal which process predominates and the conditions within individuals that may determine whether action occurs spontaneously or whether deliberative processes take control (Adriaanse, Gollwitzer, De Ridder, de Wit, & Kroese, 2011; Friese, Hofmann, & Wiers, 2011). The result is theories of increased complexity, sophistication, and comprehensiveness. They have provided a framework to guide empirical research to verify or falsify 'risky' propositions about non-conscious and conscious control over action and are 'living' approaches subject to modification and revision as new evidence comes to light (Kok & Ruiter, 2014; Trafimow, 2007; Trafimow, 2009). They also provide a basis for testing

important propositions, such as the extent to which non-conscious processes determine health behaviour in the presence of measures that tap more conscious factors, and the moderating effect of extraneous factors that determine the relative impact of each process.

Researchers seeking to test hypotheses in dual-process theories and effects of non-conscious processes on behaviour have seen health behaviour as fertile ground. A main reason for this focus is that health behaviours are interesting as they often reflect problems with self-regulation (De Ridder & De Wit, 2006; Hagger et al., 2016; Hagger, Wood, Stiff, & Chatzisarantis, 2010) and conflicts between well-learned, habitual, cue- and impulse-driven responses (Hagger et al., 2013) and deliberative, reasoned, and reflective controls (Brandstätter & Frank, 2002). In addition, developing a comprehensive understanding of health behaviours may inform methods and interventions to alter and change behaviours that may enhance health (Abraham, 2015; Wallace, Brown, & Hilton, 2014). Research in the field of non-conscious processes have adopted multiple theoretical paradigms and research methods (e.g., Allom, Mullan, & Hagger, 2016; Houben, Wiers, & Jansen, 2011; Keatley, Clarke, & Hagger, 2012; Perugini, 2005; Priesseu et al., 2014), although all have commonalities in their adoption of an overall dual-process framework. For example, research has focused on the predictive validity of implicit attitudes, beliefs, and motives (Keatley, Clarke, & Hagger, 2013), the effect of health goal and action activation and priming (Fishbach, Friedman, & Kruglanski, 2003; Henderson, Hagger, & Orbell, 2007; Papies, 2016a), and measurement and training of inhibitory control (Allom et al., 2016; Houben & Jansen, 2011).

It is a pleasure to introduce the special section on non-conscious processes in health behaviour. This compendium of three articles nicely encapsulates current theorizing and empirical evidence on dual-process theories and non-conscious influences on health behaviour. Hollands et al. (2016) begin with an overview of theory and research on non-

conscious processes and health behaviour, and put forward a new conceptual framework for understanding how non-conscious processes can be utilized to change health behaviour. Their novel framework conceptualizes the processes linking external stimuli (e.g., cues, events in the environment) with behaviour on a spectrum of awareness of the stimulus, the causal link, and the enactment of behaviour. The conceptualization may help guide research on interventions that may tap into the implicit processes and lead to effective behaviour change that may be independent of moderators that attenuate the effects of explicitly-presented interventions (e.g., literacy, numeracy, executive function). Rebar et al.'s (2016) systematic review of research examining non-conscious processes and their relation to physical activity behaviour demonstrates the intensity with which non-conscious processes have been investigated within a particular behavioural discipline, and indicates the extent to which these factors explain unique variance in actual physical activity behaviour. Their investigation is interesting as it adopts a broad perspective identifying self-reported habits and 'response-latency' tests as measures that capture non-conscious processes. They found that self-reported habit, reflecting an individual's subjective experience of behaviour as automatically controlled, has an independent effect on behaviour and that habit strength is inversely related to the strength of the relation between intention, representing a deliberative process, on behaviour. Effects of implicit measures measured using response latency or priming on health behaviour were less clear and effects were, by comparison, less strong. The final contribution by Papies (2016b) outlines how health psychologists can capitalize on non-conscious processes to change behaviour using implicit health goal priming. Her analysis indicates that non-conscious control over health behaviours does not mean that intervention methods to change health behaviour are redundant. Rather, interventions can capitalize on the non-conscious routes to produce effective interventions that will lead to situated behaviour change. She identifies the key principles that are likely to enhance the effectiveness of goal

priming interventions and illustrates how priming can be incorporated into behavioural interventions.

Together these contributions provide an excellent overview of the role that non-conscious processes may play in predicting, understanding and changing health behaviour. I expect the contributions will move theory and knowledge on non-conscious processes and dual-process models of health behaviour forward by providing novel proposals of the mechanisms involved and the potential to tap into such processes when developing behaviour change interventions. The collection of articles has also identified gaps in knowledge and where researchers need to direct their attempts to develop an evidence base to test theoretical premises in dual-process models and harness non-conscious processes to change behaviour.

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