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## Short Communication

### Level of agency in sub-clinical checking

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#### ABSTRACT

This study examined cognitive representations of routine action, through the assessment of level of agency, in individuals with sub-clinical checking. The level of agency stems from Action Identification Theory [Vallacher, R. R., Wegner, D. M. (1989). Levels of personal agency: Individual variation in action identification. *Journal of Personality and Social Psychology* 57, 660–671], which states that how actions are usually identified (based on instrumental aspects or purpose) reflects the predominant accessibility of internal representation (movements executed vs. goal pursued). Furthermore, this framework proposed that altered action regulation is related to low-level of agency (i.e., action identification at an instrumental level). In the current study, the main result indicated that checking symptoms were related to a low-level of agency, that is, individuals with sub-clinical checking identified habitual actions on the basis of instrumental aspects. This seems to indicate that checkers may act with a lack of goal representations. The results are discussed in terms of the role of low-level of agency in checking phenomena and related cognitive dysfunction.

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## 1. Introduction

Obsessive-Compulsive Disorder (OCD) is characterized by both obsessions and compulsions. Obsessions are recurrent unwanted intrusive thoughts or images, that particularly concern worries about contamination (e.g., becoming contaminated by shaking somebody's hands) or repeated doubts (e.g., concerns about having left a door unlocked). Compulsions refer to urges to perform mental or physical acts in a repeated or stereotyped way, of which repetitive checking (e.g., checking locks, lights and appliances) and repetitive washing (e.g., hand washing, house cleaning) are probably the most common (Rasmussen & Eisen, 1994; Skoog & Skoog, 1999). Though compulsions are usually conceptualized as aimed to prevent feared harmful situations, it seems that they can also be triggered by discomfort associated to particular sensations of incongruity or failure (i.e., uncomfortable sensations of incorrectness, feelings of “things not being just right”, and imperfection; Coles, Frost, Heimberg, & Rhéaume, 2003). Interestingly, repeated actions in compulsive checking are thought to reflect an inability in achieving a ‘sense of task completion’ (Szechtman et al., 2001); and recent studies have related checking symptoms to ‘not just right’ experiences (Coles et al., 2003; Tolin, Brady, & Hannan, 2008), while washing symptoms may be specifically motivated by harm avoidance (Tolin et al., 2008). Thus, washing individuals may wash repeatedly with the abstract purpose to avoid negative outcomes (e.g., avoiding contamination) or to achieve a particular goal (e.g., purifying the head), whereas people with checking proneness may repeat action until they feel that it has been correctly accomplished (i.e., “just right” feelings), regardless of goal attainment.

Consistently, several studies have suggested that checking behaviors may be specifically related to deficits affecting action processing such as action planning (e.g., van den Heuvel et al., 2005) and action monitoring (e.g., Hajcak & Simons,

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2002). More specifically, it has been suggested that the involvement of action planning deficits in checking behaviors is related to a defective use of internal representations to guide the course of action, which may lead checkers to rely on external cues and to repeat an action until they get cues informing them that the action has been completely performed (Purcell, Maruff, Kyrios, & Pantelis, 1998). Similarly, the postulated overactive action monitoring in checking individuals has been interpreted as a conflict between external outcomes of actions and internal representations, which may lead checkers to detect an inconsistent 'error signal' and to correct actions through checking (Pitman, 1987). From this perspective, checkers' unconventional action regulation mechanisms might stem from their defective representation of goal-directed habitual actions. The goal-directedness of any habitual action causes that action to be mentally represented with strong links between a goal and the instrumental features that serve it, and to be monitored according to its internal related goal (Aarts & Dijksterhuis, 2000). Such goal representations allow people to understand why they are doing what they are doing in the course of an action and how far they are from a desired end state; on the other hand, performing habitual actions with unavailable or irrelevant goal representations may simply disorganize the action flow (Vallacher & Wegner, 1989). The present study aimed to further explore the nature of habitual action representation in compulsive checking.

Action representation can be understood in the context of Action Identification Theory (AIT), which proposed a framework for understanding action regulation according to its representation (Vallacher & Wegner, 1985, 1989). This theory proposed that any behavior can be identified within a cognitive hierarchy of meanings, in which the lower-levels represent instrumental features, and the higher-levels relate to the desired goal and outcomes of the action. The particular level at which actions are identified is thought to reflect the accessibility of a particular representation (movements vs. goal). For example, identifying the act of 'locking the door' as 'putting a key in the lock' shows that the instrumental representation is most accessible, whereas identifying this act as 'securing the house' reflects the predominant accessibility of the goal representation. Thus, actions are identified on the basis of a particular level of representation; higher-level action identification is used to perform and monitor well-practiced, routine actions or behaviors, while lower-level identification is used to perform and monitor novel and recently learned actions and behaviors. When an act can be identified at both high and low-levels (as in the case of habitual actions), people adopt higher (more meaningful) levels of action identification over lower-level ones (Vallacher & Wegner, 1987); however, whenever an act becomes complex or has been disrupted, people tend to adopt lower-levels.

Nevertheless, Vallacher and Wegner (1989) identified individual differences in the way people understand what they are doing according to their predominant level of action identification (i.e., level of personal agency). The tendency to identify action at a uniformly high-level, that is, according to its purpose and implications, refers to a high-level of agency; conversely, the tendency to identify action at a uniformly low-level, that is, based on its procedural aspects and motor subcomponent, refers to a low-level of agency. The authors also associated the level of personal agency with distinct modes of action. Because high-level of agency may be related to the ability to easily adopt an appropriate level of identification for different types of actions, high-level agents tend to have an overall greater efficiency in everyday actions (e.g., less disruption, fewer resources needed and better goal completion in everyday behaviors). In contrast, chronic low-level of action identification (i.e., low-level of agency) may be related to more difficulties in adapting representations according to action constraints, leading people to have more disruption of the action flow (e.g., emergence of new courses of action, more attention focused on details of performance, doubts about whether the action has been completed; Vallacher & Wegner, 1989).

Furthermore, Vallacher and Wegner emphasized that the way people understand what they are doing contributes to the way they understand themselves. Indeed, high-level identities allow one to extract intentions behind actions, which can provide meaningful depictions of the self. Conversely, low-level identities have little significance for self-understanding, what can make low-level agents uncertain about what they are really like. Thus, the level of personal agency may be related to some aspects of the sense of self, such that a high-level of agency allows people to extract abstract self-knowledge from actions and thus may give them a coherent and stable understanding of themselves. A low-level of agency, on the other hand, prevents people from doing this and may therefore have a less strong and coherent sense of self.

In sum, the level of agency refers to the preferential level at which actions are generally identified, which reflects the internal representation (goal vs. movements) that is generally activated during an action, and promotes distinct modes of action. One factor that is directly relevant to the present study is the potential for action deregulation of low-level of agency (i.e., predominant identification and accessibility of instrumental features). Indeed, in the absence of goal representations, gestural representations guide actions (Wegner, Vallacher, Macomber, Wood, & Arps, 1984) and chronic low-level identification is thought to promote 'signals of inconsistency and error', particularly during routine actions (Vallacher & Wegner, 1989). Consistently, compulsive checking has been specifically related to abnormal action regulation that may lead individuals to repeat their actions (e.g., overactive action monitoring; Hajcak & Simons, 2002). Furthermore, it has been proposed that doubts about the performance and repetition of action, which characterize checking, maybe related to the focus of 'attention to low-level gestural units of behavior rather than to goal-related higher-level units that are normally used in action flow parsing' (Boyer & Liénard, 2006, p. 1).

In light of this model, we could postulate that checking individuals may identify their habitual actions at a preferential low-level. Conversely, washing patients have been reported to identify habitual action at a high-level as compared to non-OCD controls (Dar & Katz, 2005). In their study, Dar and Katz used an item related to washing symptoms, i.e., the habitual act of washing hands, associated with 22 identities varying in level of abstraction (11 identities representing low-level identification such as 'I run water over my hands' and 11 identities representing high-level identification such as 'I feel cleansed'), for which patients and non-OCD controls had to indicate their degree of agreement with each identity. Their results

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