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Metacognition as a mediator of the relationship between emotion and smoking dependence

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Abstract

This study investigated the role of metacognition as a mediator of the relationship between emotion and smoking dependence. A sample of 104 smokers completed the following questionnaires: Hospital Anxiety and Depression Scale (HADS), Metacognitions Questionnaire 30 (MCQ-30), and Fagerström Test of Nicotine Dependence (FTND). Three dimensions of metacognition (positive beliefs about worry, negative beliefs about worry concerning uncontrollability and danger, and beliefs about cognitive confidence) were found to be positively and significantly correlated with smoking dependence. A positive and significant correlation was also observed between anxiety and depression on the one hand, and smoking dependence on the other. Structural equation modeling was used to test a mediational model in which emotion predicted metacognition which in turn predicted smoking dependence. The results supported the hypothesis that the relationship between emotion and smoking dependence is partially mediated by metacognition, suggesting that metacognitive theory may be relevant to understanding smoking dependence. The implications of these findings are discussed.

Keywords: Anxiety; Depression; Emotion; Metacognition; Nicotine dependence; Smoking dependence

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1. Introduction

Many researchers argue that emotion regulation is a key motive for smoking (Khantzian, 1997; Wills & Shiffman, 1985). Indeed smokers often attribute their smoking to its alleged anxiolytic and sedative properties (Frith, 1971; Spielberger, 1986) as well as reliably reporting that they smoke more when they are angry, anxious, sad, or stressed (Russell, Peto, & Patel, 1974; Shiffman, 1993). Research has abundantly documented the link between emotion and smoking (Breslau, 1995; Breslau, Novak, & Kessler, 2004; Brown, Lewinsohn, Seeley, & Wagner, 1996; Dierker, Avenevoli, Stolar, & Merikangas, 2002) as well as demonstrated that smoking abstinence leads to transient increases in negative affect (Gilbert, 1995; Hughes & Hatsukami, 1986; Ward, Swan, & Jack, 2001). The role of both general and nicotine-withdrawal-related emotion regulation is thus central to theoretical conceptualisations of smoking dependence (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004; Khantzian, 1997; Piasecki et al., 2000; Solomon & Corbit, 1974; Ward et al., 2001; Wills & Shiffman, 1985).

Metacognition is a multifaceted concept. It comprises knowledge, processes and strategies that appraise, monitor or control cognition (Flavell, 1979; Moses & Baird, 1999; Wells, 2000). The great majority of theorists, however, would agree in drawing a distinction between two basic aspects of metacognition (Brown, 1987; Flavell, 1979; Wells, 2000; Yussen, 1985): metacognitive knowledge and metacognitive regulation. Metacognitive knowledge refers to the information individuals have about their own cognition and about learning strategies and task factors that impact on it (Wells, 2000). Metacognitive regulation refers to a broad spectrum of executive functions, such as monitoring, planning, checking, attention and detection of errors in performance (Wells, 2000). The central aim of this study is to investigate the role metacognitive knowledge plays in the relationship between emotion and smoking dependence.

The emergence of cognitive theories of psychopathology (e.g., Beck, 1976) has led to a growing interest in the characteristics of cognition and its regulation. The Self-Regulatory Executive Function (S-REF: Wells & Matthews, 1994) theory was the first to conceptualise multiple metacognitive factors as control components of information processing that affect the development and persistence of psychological disorders. This generic theory has influenced the development of recent disorder-specific models and treatment protocols of general anxiety disorder, social phobia, obsessions, PTSD, and depression (Papageorgiou & Wells, 2003; Wells, 2000; Wells & Sembi, 2004). According to the S-REF theory psychological disorders are maintained by maladaptive coping strategies, such as perseverative thinking (e.g. worry and rumination), threat monitoring, avoidance and thought suppression, that fail to modify dysfunctional self-beliefs and increase the accessibility of negative information about the self (Wells, 2000). This array of factors constitutes a cognitive-attentional syndrome (CAS; Wells, 2000). The CAS is derived from the individual's metacognitive knowledge, which is activated in problematic situations and drives processing (Matthews & Wells, 2004). Metacognitive knowledge refers to the beliefs and theories that individuals hold about their own cognitions and emotional states. These may include beliefs concerning the significance of particular types of thoughts, and beliefs about other cognitive phenomena (such as memory and judgement). A basic principle of the S-REF theory is that these beliefs and experiences (metacognitions) contribute to persistent and maladaptive forms of coping. Although smoking may appear, in the short-term, as an adaptive coping strategy for regulating nicotine withdrawal-related emotion it is maladaptive because longer-term it engenders dependence and associated negative affect. Therefore it is likely that the relationship between emotion and smoking dependence is mediated (at least partially) by metacognitions.

The role of metacognitive knowledge has been explored using the Metacognitions Questionnaire (Cartwright-Hatton & Wells, 1997; Wells & Cartwright-Hatton, 2004), which was developed to assess