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Metacognitions in smoking: Evidence from a cross-cultural validation of the metacognitions about smoking questionnaire in a Turkish sample

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ABSTRACT

Metacognitions about the positive and negative effects of smoking have been associated with cigarette use and nicotine dependence. The aim of the present study was to validate the Turkish version of the Metacognitions about Smoking Questionnaire (MSQ; Nikčević et al., 2015). The sample consisted of 859 self-declared smokers (452 female) aged between 18 and 68 years (mean = 28.3; SD = 7.9). Once the English to Turkish translation of the MSQ was completed, confirmatory factor analyses were conducted based on the four-factor structure of the original measure. Initially results suggested that this model was an inadequate fit of the data obtained. However, by allowing three pairs of items (within factor) to co-vary, a re-specified model was tested that was found to be a satisfactory fit of the data. Internal reliability and predictive validity of the translated scale were observed to be good. The Turkish version of the MSQ exhibited suitable psychometric properties. This study also showed that metacognitions about smoking predict nicotine dependence independently of demographic variables, length of cigarette use, negative affect, and smoking outcome expectancies.

1. Introduction

The metacognitive model of psychopathology developed by Wells and Matthews (1994, 1996) advocates that the escalation and persistence of psychological distress is linked to the presence of metacognitions. Metacognitions refer to the beliefs we hold about our cognitive system and ways that we can control it (Wells, 2000). They can be broadly separated into two domains: (1) positive metacognitions about control strategies that impact on inner events (e.g., "Worry will help me problem-solve" or "If I ruminate I will remember more accurately"); and (2) negative metacognitions concerning the significance, controllability, and danger of inner events (e.g., "Having certain thoughts means I am weak" or "I cannot stop worrying").

According to the metacognitive model, the selection and implementation of coping strategies for controlling cognition is partially determined by positive metacognitions that paradoxically focus attention towards distress congruent information (e.g., environmental threats, negative affect, and symptoms/bodily sensations). This leads to the activation of unhelpful coping strategies (e.g., avoidance, thought suppression, and perseverative thinking) that fail to result in a successful psychological resolution. Over time, the engagement in these maladaptive coping strategies leads to the development of an internal dissonance characterised by negative metacognitions towards the selected coping strategies and internal experiences more generally leading to the escalation of psychological distress. Research spanning almost thirty years has found that metacognitions are associated with, and are an important independent explanatory variable for, a wide array of psychological and behavioural problems (for a review see Wells, 2013). This includes addictive behaviours such as alcohol use (e.g., Clark et al., 2012; Spada et al., 2009; Spada and Wells, 2005, 2006, 2008, 2009, 2010), gambling (e.g. Lindberg et al., 2011; Spada et al., 2015a), and problematic Internet use (Spada et al., 2008).

Five key studies have been undertaken that have investigated the role of metacognitions in nicotine use. In the earliest study, Spada and colleagues (Spada et al., 2007) employed a generic measure of maladaptive metacognitions (the Metacognitions Questionnaire 30; Wells

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and Cartwright-Hatton, 2004) and found evidence that positive beliefs about worry, lack of cognitive confidence, and beliefs about the need to control thoughts were significantly associated with nicotine use, independently of negative emotions. The authors proposed that positive beliefs about worry and beliefs about cognitive confidence represent metacognitive knowledge about a diminished confidence in coping, as well as a need to anticipate problems and to control cognition. They argued that these metacognitions would contribute to nicotine dependence because smoking enhances subjective cognitive confidence: in the short-term some believe that smoking can result in improvements in vigilance, rapid information processing, and verbal recall. The authors also reflected that beliefs about the need to control thoughts could be a marker for attitudes towards intrusive thoughts, such as 'craving' thoughts about smoking. In other words, such thoughts need to be controlled otherwise they will 'take-over' an individual's behaviour and they may not be able to stop thinking about smoking.

In a second study, Nikčević and Spada (2008) investigated the role of metacognitions in high-dependency smokers, low-dependency smokers, and non-smokers using the MCQ-30. They found that high-dependency smokers scored higher than non-smokers on positive beliefs about worry. Furthermore, they observed that, on beliefs about the need to control thoughts, high and low-dependency smokers scored higher than non-smokers. The results were in line with Spada and colleagues' earlier findings (Spada et al., 2007), providing further evidence that generic metacognitions play a role in nicotine dependence.

In view of the findings from the above studies, Nikčević and Spada (2010) undertook a qualitative study involving 12 smokers aimed at investigating whether specific types of metacognitions played a role in explaining smoking initiation and perseveration. Results indicated that participants endorsed both positive and negative metacognitions about smoking. Positive metacognitions reflected the usefulness of smoking in the regulation of emotional and cognitive states. Negative metacognitions concerned the uncontrollability of 'smoking urges' and the negative impact of smoking on self-appraisal. A fourth study undertaken by Nosen and Woody (2014) recruited 176 adult smokers interested in quitting and found that smoking cessation outcomes and metacognitions were likely to have a bidirectional relationship that is strongly related to negative affect.

Following on from these findings, and especially those obtained from Nikčević and Spada's (2010) interviews, Nikčević and colleagues (Nikčević et al., 2015) developed the Metacognitions about Smoking Questionnaire (MSQ). Exploratory and confirmatory factor analyses supported a four-factor solution for the MSQ with the following factors: positive metacognitions about cognitive regulation, positive metacognitions about emotional regulation, negative metacognitions about uncontrollability, and negative metacognitions about cognitive interference. The MSQ was shown to possess convergent and predictive validity, adequate-to-good internal consistency, and temporal stability.

The aim of the current study was to translate the original English version of the MSQ into Turkish and to examine its psychometric properties in a large sample of smokers. The translated MSQ may be of use not only because Turkish is a language spoken by almost by 220 million people around the world (Akalın, 2009), but also because smoking is a considerable health problem in Turkey. Indeed almost 27% of the Turkish population over the age of 15 consumes tobacco products (World Health Organization, 2015), even after reductions brought about by legal restrictions on smoking (Jakab et al., 2014). In addition, approximately 100,000 individuals die yearly of smoking-related diseases in Turkey (Bilici, 2012).

We first ran a series of confirmatory factor analyses of a Turkish version of the MSQ. We then investigated its internal consistency and concurrent validity. When examining concurrent validity, we wanted to examine whether factors of the MSQ would be significantly associated with nicotine dependence when controlling for age, gender, negative affect, the age an individual started smoking, exposure to smoking cessation treatment, and smoking outcome expectancies.

We chose to control for smoking outcome expectancies because they are a related but separate construct from metacognitions about smoking. As postulated by Nikčević and colleagues (2015), there is an overlap between metacognitions about smoking and smoking outcome expectancies. Arguably the positive dimensions of both constructs capture what are essentially motivations for smoking. However, we argue that a nuanced but crucial difference exists between them, even in their 'positive' iterations: i.e., positive smoking outcome expectancies do not explicitly distinguish between cognitive and metacognitive belief domains. Furthermore, whereas negative smoking outcome expectancies mainly measure general negative outcomes arising from smoking, negative metacognitions about smoking tap into the perception of lack of executive control and presumed cognitive interference that result from smoking and perseverative smoking-related thoughts.

From a metacognitive standpoint, high scores on negative metacognitions about smoking are the key marker of the perseveration of psychopathology because they may play a role in propagating negative affect, preventing the discontinuation of maladaptive coping behaviour (Nosen and Woody, 2014; Wells, 2009). Such differences between smoking outcome expectancies and metacognitions are important because (according to the burgeoning evidence that has supported the metacognitive model of psychopathology) the key beliefs of psychopathology are metacognitive rather than cognitive (Wells, 2009). Thus, in this study, we have hypothesized that metacognitions about smoking would be significantly associated with nicotine dependence independently of smoking outcome expectancies.

2. Method

2.1. Participants

The sample consisted of 859 self-declared Turkish smokers (452 female) aged between 18 and 68 years (mean = 28.3; SD = 7.9). The smoking behaviour characteristics of the sample varied widely, with some reporting that they did not smoke daily and others declaring that they smoked up to 75 cigarettes a day (mode = 20). Most participants stated that they started smoking by the age 20, though this ranged from six years of age to 37. With respect to smoking cessation, only 5.1% of the sample reported that they had engaged in treatment to stop smoking.

Just over half the participants were currently employed (55.5%) and most perceived their socio-economic status to be at least 'moderate' (84.3%). Participants tended to live in metropolitan areas of Turkey (84.7%), whilst fewer inhabited urban (12.5%) and rural regions (2.8%). Nearly all participants had been taught at high educational levels: 813 (94.6%) were either current or former higher education students (i.e., associate, bachelor, graduate, or PhD degree levels). In terms of relationship status, most participants were single (75.5%) or married (22.0%).

2.2. Materials

The Turkish Metacognitions about Smoking Questionnaire (MSQ) was translated from the original 20-item English language version (Nikčević et al., 2015) for this study. The original MSQ consisted of four-factors each comprising of five-items that were designed to measure metacognitions specifically pertaining to smoking. The factors were labelled 'Positive Metacognitions about Cognitive Regulation' (PM-CR), 'Positive Metacognitions about Emotional Regulation' (PM-ER), 'Negative Metacognitions about Uncontrollability' (NM-U), and 'Negative Metacognitions about Cognitive Interference' (NM-CI). Endorsement of the metacognitions was indicated on a four-point Likert-type scale. The English version of the MSQ has been shown to possess convergent and predictive validity, adequate-to-good internal consistency, and temporal stability (Nikčević et al., 2015).

To measure nicotine dependency, we used the Turkish version of the