



Experimentally induced states of mind determine abstinent smokers' level of craving in reaction to smoking-cues



Arie Dijkstra*, Karin Menninga

University of Groningen, Grote Kruisstraat 2/1, 9712 TS Groningen, The Netherlands

ARTICLE INFO

Article history:

Received 9 February 2015
Received in revised form 15 June 2015
Accepted 15 June 2015
Available online 17 June 2015

Keywords:

Smoking
Cue-reactivity
States of mind
Self-affirmation
Positive outcome expectations
Self-efficacy

ABSTRACT

Introduction: The present study aims to contribute to our knowledge on the causes of variations in experienced craving of (ex)smokers. The general idea is tested that when (ex)smokers are exposed to a smoking-cue, their level of craving is determined by the momentary *state of mind* through which the smoking-cue is interpreted.

Methods: A cue-reactivity paradigm in temporary abstinent smokers is applied to trigger craving responses under different experimentally induced states of mind. Craving is assessed with a three-item self-report measure. In study 1 (N = 120) a self-affirmation procedure is applied right before abstinent smokers were exposed to their own smoking paraphernalia. In study 2 (N = 140) abstinent smokers received bogus feedback inducing a high or low self-efficacy and strong or weak positive outcome expectations.

Results: Study 1 showed a significant interaction: When involvement was high, self-affirmation increased the level of craving but when involvement was low self-affirmation lowered craving. Study 2 also showed a significant interaction: Only when the positive outcome expectation of smoking were high, self-efficacy lowered the level of craving. All analyses were controlled for the number of cigarettes smoked a day and number of past quit attempts.

Conclusions: The present studies provide experimental evidence that levels of craving can be determined by momentary *states of mind*. This theoretical perspective can be integrated in existing conditioning and social cognitive learning perspectives on craving and substance use.

© 2015 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Craving for the substance plays an important role in the maintenance of drug use, such as cigarette smoking. Several studies show that craving levels during the early phases of quitting are predictive of later relapse (Baer & Lichtenstein, 1988; Brandon, Tiffany, & Baker, 1987; Dijkstra & Borland, 2003; Killen & Fortmann, 1997; Shiffman et al., 1997). In addition, cue-induced craving has been shown to be related to smoking and relapse (Carpenter et al., 2009; Ferguson & Shiffman, 2009; Waters et al., 2004). Because craving is defined as a motivational state (Marlatt & Gordon, 1985; Baker, Morse, & Sherman, 1986) that can be a cause of relapse, understanding the determinants of craving is an important step in controlling relapse in smoking cessation. Especially the observation of the moment to moment variance in craving of smokers and ex-smokers (Shiffman, 2009) is puzzling and needs further explanation.

1.1. Cue-reactivity

An important research paradigm for studying craving is that of cue-reactivity. In this paradigm, smokers or ex-smokers are exposed to smoking-cues to assess their reactions (Balter, Good, & Barrett, 2015; Carter & Tiffany, 1999; Ferguson & Shiffman, 2009), and several sources of (variance in) craving have been identified: To start with, levels of craving are related to different (presentations of) smoking-cues, for example, one's own cigarettes, a confrontation with another person smoking one's favorite brand, or reading a script about being upset and wanting to smoke badly (Carter & Tiffany, 1999; Niaura et al., 1998). In addition, physiological factors influence the level of craving, for example, individuals' heaviness of smoking (Carpenter et al., 2009; Sayette, Martin, Wertz, Shiffman, & Perrott, 2001), and nicotine replacement therapy (Waters et al., 2004). Furthermore, affect has been shown to be related to craving (for a review Heckman et al., 2013). In more recent years, cognitive factors have been shown to influence levels of craving. For example, several studies show that *expectations* of different kinds influence craving: Expectations about receiving actual nicotine replacement or not (Schlagintweit, Good, & Barrett, 2014), about whether a nicotine patch will be effective (Fucito & Juliano,

* Corresponding author.

E-mail addresses: arie.dijkstra@rug.nl (A. Dijkstra), k.m.menninga@pl.hanze.nl (K. Menninga).

2007), expectations about the effects of nicotine (Harrell & Juliano, 2012), and expectations about being allowed to smoke or not during cue-exposure (Dols, Willems, van den Hout, & Bittoun, 2000; Dols, van den Hout, Kindt, & Willems, 2002; Field & Duka, 2001). Also, cognitively primed self-schemas (Shadel & Cervone, 2006), and antismoking advertisements (Kang, Cappella, Strasser, & Lerman, 2009; Lee, Cappella, Lerman, & Strasser, 2013) have been shown to determine levels of craving. Overall, several sources of the variance in craving have been mapped.

The main theoretical framework to understand the variance in craving has been the classical conditioning (or learned association) paradigm: Situational cues that have been repeatedly paired with smoking in the past elicit craving (Ferguson & Shiffman, 2009). In addition, social cognitive theories have been applied to understand the occurrence and variance of craving (Brandon, Herzog, Irvin, & Gwaltney, 2004; Marlatt & Gordon, 1985; Niaura, 2000). These models define a sequence of psychological and physiological events after exposure to the cue, including the activation of positive outcome expectations of smoking. In essence, the social cognitive theories follow the conditioning paradigm but provide the “black box” with more “content”, instead of only describing it in terms of automated, unconscious or associated relations. In these models the strength – and thus the variance – of the craving primarily depends on: 1) the strength of the conditioned link between the specific cue and past smoking; 2) the strength of the positive outcome expectations that are activated. In the present study we try to understand the variance in craving through another psychological model that is less focused on conditioning but more on the psychological meaning given to the smoking-cue, in the concept of the *state of mind*. This theoretical perspective can be integrated with the above perspectives, further shifting the focus from the stimuli to the psychological processes that interpret the stimuli.

1.2. States of mind

We introduce a general higher level psychological framework of understanding the effects of smoking-cues on craving: The level of craving depends on the activated *state of mind* through which smoking-cues are perceived (not necessarily an affective state). The state of mind may be caused by the smoking-cue itself, or by other stimuli, independent of the smoking-cue. The state of mind may be related to smoking (feeling confident to be able to abstain) or general (feeling good about oneself). States of mind are conceptualized as interpretative frameworks: The activated state of mind directs attention and guides the interpretation of incoming information (Erdley & D'Agostino, 1988; Kunda, 1999; Markus, 1977). According to Sedikides and Skowronski (1991), stimuli – i.e., the smoking-cue – can be encoded as instances of the cognitive structure that is the most highly active in memory. In mindset priming this is demonstrated in a “carry-over” effect in which an experimentally activated state of mind determines the processing of subsequently presented stimuli or tasks (Bargh & Chartrand, 2000).

Thus, when trying to explain the effects of smoking-cues on craving, we must take into account how the smoking-cues are perceived: different states of mind may give different meanings to the smoking-cues. Within this framework we conducted two studies. The first study tried to demonstrate that the smoking-cue itself brings about a self-regulatory cognitive reaction that determines the level of craving that can be changed by inducing a state of mind that is unrelated to smoking. The second study tested whether states of mind can interact, in predicted ways.

The first study is conducted on the basis of the premise that the smoking-cue itself induces a state of mind. When studying states of mind it is essential to know what the starting point or the baseline is; how do abstinent smokers perceive a smoking-cue when we do not induce a specific state of mind? When an ex-smoker is exposed to a

smoking-cue, contrasting thoughts, feelings, and goals may be activated. This state can be conceptualized as a motivational conflict (Baumeister & Vohs, 2007) or a self-control conflict (Myrseth & Fishbach, 2009), and it needs resolution. This state not only concerns one's smoking behavior, but also the person's self-image; it can be regarded as a self-threat (Steele, 1988; Steele & Liu, 1983). According to the self-affirmation theory, from an evolutionary point of view it is inadequate and non-adaptive to have contradicting psychological states. When the conflict state concerns the violation (i.e., smoking or wanting to smoke) of an important value (i.e., health), the awareness of this contradiction is conceptualized as a self-threat that is experienced as feeling ashamed, dissatisfied and angry with oneself (Dijkstra & Buunk, 2008). The core of the self-affirmation theory is that people try to get rid of the self-threat: By defensively lowering the craving or its psychological causes, in reaction to a smoking cue, the self-threat may be averted. From the perspective of the self-control conflict (Myrseth & Fishbach, 2009), this defensive action can be seen as a conflict resolution that leads to lower temptations (Myrseth, Fishbach, & Trope, 2009) or as self-regulation in function of sticking to a goal (Baumeister & Vohs, 2007). This reasoning is also consistent with Niaura's (2000) Dynamic Regulatory Model of Drug Relapse, in which initial responses to a smoking-cue may activate cognitive coping reactions that feed back. The present study might reveal that people's spontaneous levels of craving may already result from self-regulative actions, mobilized by a conflict or self-threat. In addition, this study will try to demonstrate this defensive self-regulation by inducing a general state of mind (i.e., unrelated to smoking) that can prevent defensive self-regulation.

The second study is designed to test the notion that states of mind interact with each other. To make a next step in understanding the effects of states of mind, and further approach the complex and seemingly fuzzy reality, two states of mind will be induced to see whether they show synergistic effects. The social cognitive perspective of smoking and relapse may help define relevant states of mind that might determine how smoking-cues are perceived. In this perspective, two constructs are relevant: Positive outcome expectations of smoking and self-efficacy expectations to be able to refrain from smoking (Marlatt & Gordon, 1985; Niaura, 2000). Positive outcome expectations of smoking refer to smokers' anticipated positive effects of smoking (Doran, Schweitzer, & Meyers, 2011; Ikard, Green, & Horn, 1969; Niaura, Goldstein, Ward, & Abrams, 1989; Tate & Stanton, 1990; Urban & Demetrovics, 2010; Wetter et al., 1994). According to Marlatt and Gordon (1985), positive outcome expectations are at the basis of craving: “...craving is a motivational state associated with a strong desire for an expected positive outcome” (pp. 138). Therefore, it is safe to predict that when smokers anticipate strong positive outcomes of smoking at the moment that they are exposed to smoking-cues, they will experience stronger craving.

Besides positive outcome expectations, self-efficacy expectations play a role in smoking and relapse. In the framework of craving to smoke, self-efficacy expectations concern the perceived personal ability to be able to not give in to the craving. Self-efficacy has been shown to be related to relapse in many studies (Gwaltney, Metrik, Shiffman, & Kahler, 2009). In addition, self-efficacy can be expected to lower craving when it strengthens the individual's expectation to refrain from smoking in a specific situation (Dols et al., 2000, 2002). In further support of this notion, empirical studies show a negative relation between self-efficacy and craving (Dijkstra & Borland, 2003; Shadel & Cervone, 2006). It is expected that when smokers have a high self-efficacy at the moment that they are exposed to smoking-cues, they will experience less craving.

Thus, positive outcome expectations and self-efficacy expectations both provide different but related interpretative frameworks. They refer to appraisals of different aspects of the smoking-cue. It is tested here whether these appraisals get mixed, to form a new synergistic appraisal of the smoking-cue that influences craving.

Download English Version:

<https://daneshyari.com/en/article/900765>

Download Persian Version:

<https://daneshyari.com/article/900765>

[Daneshyari.com](https://daneshyari.com)