



## Research report

# A cross-sectional investigation of trait disinhibition and its association with mindfulness and impulsivity

Paul Lattimore\*, Naomi Fisher, Peter Malinowski

School of Natural Sciences and Psychology, Liverpool John Moores University, Tom Reilly Building, Byrom Street, Liverpool, Merseyside L3 3AF, United Kingdom

## ARTICLE INFO

## Article history:

Received 10 September 2010

Received in revised form 12 November 2010

Accepted 6 December 2010

Available online 10 December 2010

## Keywords:

Mindfulness

Disinhibition

Eating

Mood

Impulsivity

## ABSTRACT

Two online surveys were conducted to assess the relationship between trait disinhibition, impulsivity, mindfulness and adverse psychological symptoms. In study 1 adult females ( $n = 196$ ; mean age = 21 yrs) completed the Three-Factor Eating Questionnaire (TEFQ-R21), the Hospital Anxiety and Depression Scale and a measure of dispositional mindfulness. In study 2 adult females ( $n = 190$ ; mean age = 26 yrs) completed the same measures as in study 1 with the addition of the Barratt Impulsivity Scale. In both studies it was predicted that mindfulness would be negatively related to trait disinhibition controlling for adverse psychological symptoms. The second study addressed the additional hypothesis that the relationship between mindfulness and trait disinhibition would be mediated by impulsivity. Regression analyses indicated that mindfulness was negatively related to and explained 11% of variation in trait disinhibition (study 1). This relationship was replicated and extended in study 2 whereby impulsivity mediated the relationship between mindfulness and trait disinhibition. The findings warrant experimental and *in vivo* investigations of the potential causal relationships between mindfulness, impulsivity and eating behaviours.

© 2011 Elsevier Ltd. All rights reserved.

## Introduction

Trait disinhibition is a propensity to be over responsive to external food cues and to eat in response to negative affect. Due to its association with overeating it is considered a behavioural proxy for body weight variation (Bryant, King, & Blundell, 2007; Dykes, Brunner, Martikainen, & Wardle, 2004; Hays et al., 2002). Trait disinhibition also reflects a “tonic readiness to eat” thereby conferring an “enduring and constant vulnerability to be stimulated to eat” (Blundell et al., 2005, p. 621). This is reflected by research highlighting its association with binge eating and dietary relapse (Bryant et al., 2007), and its ability to predict weight regain following weight loss (Cuntz, Leibbrand, Ehrig, Shaw, & Fichter, 2001). This evidence indicates that trait disinhibition is characteristic of a susceptibility to gain weight. Therefore, if the behavioural aspects of trait disinhibition could be modified, this would potentially curb the impact of the trait on eating behaviour and by consequence body weight.

Bryant et al. (2007) have reviewed physiological and psychological factors associated with trait disinhibition and conclude that it plays a “significant mediating role between the ‘person’ and the ‘environment’ . . .” (p. 416). Further evidence is required to identify

the nature of psychological factors that mediate the behavioural expression of the trait. Empirical evidence highlights a positive relation between trait disinhibition and impulsivity (Yeomans, Leitch, & Mobini, 2008) and a negative relation between dispositional mindfulness and impulsivity (Brown & Ryan, 2003). The current investigation examined how mindfulness and impulsivity are associated with trait disinhibition.

Trait disinhibition as measured by the Three-Factor Eating Questionnaire (Cappelleri et al., 2009; Karlsson, Persson, Sjöström, & Sullivan, 2000; Stunkard & Messick, 1985) characterises an habitual behavioural tendency to respond to the hedonic properties of food (Barkeling, King, Naslund, & Blundell, 2007). This notion is supported by evidence that obese individuals who exhibit high trait disinhibition report no relationship between hunger sensation and eating (Barkeling et al., 2007). Furthermore, obese individuals have been shown to have a weak satiety response to fatty meals, a strong preference for high-fat foods when sated and a strong hedonic attraction to palatable foods (Blundell et al., 2005). The apparent habitual responding associated with trait disinhibition is likely to be activated automatically by specific environmental cues. In general, automatic processes occur without intention or awareness and are difficult to terminate once initiated. In contrast, controlled processes can be initiated and terminated at will and people are usually aware of their action (Bargh, 1997). Self-awareness is important in determining whether an implicit motivation is expressed behaviourally and is central to effective

\* Corresponding author.

E-mail address: [p.j.lattimore@ljmu.ac.uk](mailto:p.j.lattimore@ljmu.ac.uk) (P. Lattimore).

self-regulation of motivation (Carver & Scheier, 1981; Deci & Ryan, 1980), specifically the self-regulation of eating behaviour (Baumeister, Heatherton, & Tice, 1994; Heatherton & Baumeister, 1991; Lattimore & Maxwell, 2004).

Awareness directed at psychological and behavioural processes is likely to serve a “de-automatization” function (Bargh, 1997) and therefore facilitate self-regulation. In this respect, the likelihood of habitual behaviour being expressed will depend to some extent upon how aware an individual is of his or her habitual responding and the external or internal cues that drive it. The behavioural expression of trait disinhibition could be characterised as an automatic response driven by cues which the individual may not always be aware, or in control of. This proposition is supported by evidence for an association between the trait disinhibition and personality dispositions such as impulsiveness.

Specific personality dispositions are associated with disinhibition as measured by the TFEQ-51. Research provides evidence for positive associations with novelty seeking and negative associations with self-directedness – an ability to resist external cues (Gendall, Joyce, Sullivan, & Bulik, 1998). In addition the Barratt Impulsivity Scale (BIS-11) (Patton, Stanford, & Barratt, 1995), and behavioural measures of impulsivity (i.e., delayed discounting task) are positively associated with the TFEQ-51 disinhibition scale. The BIS-11 comprises three second order factors: motor impulsiveness, defined as acting without thinking; non-planning impulsiveness (a lack of forethought), and attentional impulsiveness (an inability to focus attention (Barratt, 1985; Patton et al., 1995)). Women with higher scores on the TFEQ-51 disinhibition scale score higher on the BIS-11 total score, motor impulsiveness and non-planning factors (Yeomans et al., 2008). Additionally, women with higher scores on the TFEQ-51 disinhibition scale are more impulsive based on their delayed discounting task performance (Yeomans et al., 2008). This association is independent of level of cognitive restraint which has been widely considered as a predictor of overeating (Polivy, Herman, & Coelho, 2008). These findings are supported by experimental evidence showing that normal weight highly impulsive women eat more in laboratory taste tests compared to their low-impulsive counterparts (Guerrieri et al., 2007) and that impulsivity is a better predictor of relative overeating than cognitive restraint (Jansen et al., 2009).

Jansen's research group have advanced our understanding of the relationship between impulsivity and eating by highlighting how impulsivity may be a more important predictor of overeating, and by consequence overweight, than cognitive restraint. In light of these developments and conceptual associations, investigations into the relationship between impulsivity and trait disinhibition are clearly warranted. The theoretical case for investigation is based on an evolutionary account of overweight in modern society (van den Bos & de Ridder, 2006) which is conceptually aligned with the thrifty genotype hypothesis (for discussion see Bryant et al., 2007). A full account of the evolutionary perspective is beyond the scope of this paper (see review in van den Bos & de Ridder, 2006). Central to the evolutionary account of being overweight is the question of the role of self-control under conditions of certainty and uncertainty in the food environment. A tendency to gratify immediate needs by eating more than is nutritionally required, especially when future food supply is uncertain, would have been potentially adaptive, whereas patience or waiting for better foods would have had limited adaptive benefit. Immediate gratification equates to impulsiveness and delayed gratification equates to self-control (Forzano & Corry, 1998); humans, like animals demonstrate difficulty maintaining self-control especially when the reward value of food is high (Stephens, Kerr, & Fernandez-Juricic, 2004). The foregoing theoretical perspective suggests that in the current environment where humans are exposed to a large variety of foods differing in reward value they will be susceptible to

immediate gratification, and by consequence gain weight, due to inherent traits, such as disinhibition and impulsiveness, that historically may have had adaptive benefit. In this respect consideration of the nature of impulsiveness may shed light on how impulsive behaviour could be moderated.

The conceptualisation of impulsivity advanced by Barratt has had considerable influence in a range of domains (see Stanford et al., 2009 for review) and arguably impulsivity represents a disposition to act without awareness. Indeed this notion is implicit in a widespread definition: “[impulsivity is] a predisposition toward rapid, unplanned reactions to internal or external stimuli without regard to the negative consequences of these reactions to the impulsive individuals or to others” (Stanford et al., 2009, p. 385). We would suggest that if ‘acting without awareness’, as a manifestation of impulsivity, is positively associated with trait disinhibition we should expect that its polar opposite, ‘acting with awareness’, is negatively associated with the same trait. Acting with awareness is a core component of dispositional mindfulness. As various techniques have been put forward to foster mindfulness (Levesque & Brown, 2007), it will be of interest to investigate the potential links between dispositional mindfulness, impulsivity and trait disinhibition. If a tendency to be mindful reduces the likelihood of acting impulsively it would be expected that in turn that acting mindfully would reduce the likelihood of responding automatically to external and internal cues to eat.

Mindfulness is distinct from other forms of dispositional awareness that facilitate self-regulation, as for instance cognitive activity that focuses on the self (Heatherton & Baumeister, 1991), private and public self-awareness (Heatherton, Polivy, Herman, & Baumeister, 1993) and reflection (Trapnell & Campbell, 1999). In contrast to these forms of ‘reflexive awareness’, mindfulness has been described as ‘pre-reflexive’ awareness (Levesque & Brown, 2007) that is characterised by receptive attention to and awareness of present events and experiences (Brown, Ryan, & Creswell, 2007). Mindfulness does not involve evaluation, contemplation, introspection, reflection or rumination. Instead it is characterised by awareness of thoughts, impulses, physical sensations etc., and their accompanying emotions as simply reactions to them, where the mind can be engaged and disengaged by choice (Chambers, Gullone, & Allen, 2009). While reflexive awareness operates *within* experiences mindfulness operates *upon* them. Accordingly, mindfulness has been proposed as a means to “de-automatize” habitual responding to facilitate more effective self-regulation (Levesque & Brown, 2007) and several studies confirm a link between mindfulness and the de-automatization of cognitive functions (Cahn & Polich, 2009; Chambers, Lo, & Allen, 2008; Jha, Krompinger, & Baime, 2007; Lutz, Slagter, Dunne, & Davidson, 2008; Moore & Malinowski, 2009).

Mindfulness is negatively related to impulsivity, depression and anxiety (Brown & Ryan, 2003) and there has been a proliferation of research into its nature and potential use in therapeutic interventions (Brown et al., 2007). Investigation of the nature of mindfulness is clearly positioned in the context of habitual and automatic processes (Levesque & Brown, 2007) whereas its potential as a therapeutic tool has been addressed in varied contexts (Allen, Blashki, & Gullone, 2006), for example: stress reduction and depression (Chiesa & Serretti, 2009; Teasdale et al., 2002), eating disorders (Kristeller, 2007; Nagata, 2009), and weight control (Barnes, Kristeller, Shenbagarajan, Stevens, & Johnson, 2008; Davis, Jakicic, Otto, & Spadaro, 2008; Tapper et al., 2009). Recently a mindfulness based intervention addressed food craving in people attempting weight loss (Alberts, Mulken, Smeets, & Thewissen, 2010) using meditation techniques common to many mindfulness based interventions (Kristeller, 2007). Participants were taught how to use meditation exercises to facilitate awareness of thoughts and bodily sensations related to

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات