



Emotional reactivity and self-regulation in relation to compulsive buying

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ABSTRACT

Compulsive buying has received increased research attention in the last decade. This study explores the relationship between compulsive buying and reactive and regulative temperament while controlling for depression and materialism. One hundred and thirty female psychology students filled out the Compulsive Buying Scale, the Behavioral Inhibition/Activation Scales, and the Effortful Control Scale/Self Control Scale, the depression scale of the Patient Health Questionnaire and the Materialistic Values Scale. Compulsive buying was explained by high materialism, high levels of behavioral activation, and low levels of effortful control, even after controlling for depressive symptoms. Given our results, future work is needed to examine behavioral control strategies in the treatment of compulsive buying.

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1. Introduction

Compulsive buying (CB) (oniomania) is characterized by excessive shopping cognitions and buying behavior that leads to distress or impairment (Black, 2007, p. 14), and that does not occur exclusively within hypomanic or manic episodes (McElroy, Keck, Pope, Smith, & Strakowski, 1994). The lifetime prevalence of CB is estimated to be 5.8% in the American (Koran, Faber, Aboujaoude, Large, & Serpe, 2006) and about 7% in the German (Mueller, Mitchell, et al., in press; Neuner, Raab, & Reisch, 2005) general population. Clinical trials suggest that 80–95% of persons seeking treatment for CB are women (Black, 2007). However, the results of population based studies are mixed; some studies confirm the gender effect (Neuner et al., 2005) whereas others don't (Koran et al., 2006; Mueller, Mitchell, et al., in press). It has been posited that CB is an obsessive–compulsive spectrum disorder that can be considered an impulse control disorder (e.g., Dell'Osso, Altamura, Allen, Marazziti, & Hollander, 2006). CB has also been conceptualized as a non-substance addiction (e.g., Brewer & Potenza, 2008).

The inability to exert control seems to be a key element of compulsive buying and distinguishes it from buying or shopping for leisure (Faber, 2004, p. 182). While not included in DSM-IV (American

Psychiatric Association, 1994), compulsive buying disorder was included in DSM-III-R (American Psychiatric Association, 1987) as an Impulse Control Disorder Not Otherwise Specified (Black, 2007). Compulsive buying has been shown to be associated with several other conditions that are characterized by an impaired impulse control, including substance abuse disorders (e.g., Schlosser, Black, Repertinger, & Freet, 1994), binge eating (e.g., Faber, Christenson, de Zwaan, & Mitchell, 1995), affective disorders (e.g., McElroy et al., 1994), and impulse control disorders (Schlosser et al., 1994).

In the present study, we investigated CB from a temperament point of view. Rothbart, Ahadi, and Evans (2000) define temperament as individual differences in reactivity and self-regulation “Reactivity refers to the excitability, responsivity, or arousability of the behavioral and physiological systems of the organism, whereas self-regulation refers to neural and behavioral processes functioning to modulate this underlying reactivity” (Rothbart et al., 2000, p. 123).

Reactive temperament can be conceptualized in terms of two separate neurobiological systems: the Behavioral Inhibition System (BIS) and the Behavioral Activation System (BAS) (Gray, 1982; the Reinforcement Sensitivity Theory (RST)). The BIS is sensitive to stimuli that signal conditioned punishment and with the omission or termination of reward (non-reward), and is involved in behavioral inhibition. The BAS is sensitive to stimuli that signal unconditioned reward and the relief from punishment (non-punishment), and is involved in approach behavior. In the original RST, impulsive behavior can be explained in terms of low BIS reactivity or high BAS reactivity (Avila, 2001). Over the years, RST in-

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cluded a third system: the Fight-Flight System (FFS; Gray, 1987) that responds to unconditioned punishment and unconditioned non-reward and is involved in unconditional defensive aggression (fight) or escape behavior (flight). In 2000, Gray and McNaughton presented a major revision of RST (Corr, 2008). The BAS is now assumed to be responsive to all (un)conditioned positive valenced stimuli. The FFS is renamed the Fight-Flight-Freeze System (FFFS) and is supposed to mediate reactions to all (un)conditioned aversive stimuli. The BIS is now believed to be responsible for the resolution of goal conflict in general (e.g., approach-avoidance conflicts). To the best of our knowledge, no studies have yet investigated the association between CB and BIS/BAS reactivity.

Besides reactive temperament (automatic, bottom-up), also self-regulation (controlled, top-down) can play a role in human behavior. Self-regulation is often synonymously used with terms such as effortful control (Rothbart, 1989) and self-control (Baumeister, Heatherton, & Tice, 1994), and is related to prefrontal cortical functioning (Nigg, 2006). The notion of effortful control includes both behavioral forms of self-control as well as attentional processes (Rothbart, 1989) and is related to the personality trait 'conscientiousness' (Nigg, 2006). Lack of self-regulation, effortful control or self-control is associated with impulsive behaviors (e.g., Baumeister, Heatherton, and Tice, 1994). Several studies (e.g., Faber, 2004; Vohs & Faber, 2007) have found a negative relationship between self-control and CB, suggesting that a lack of self-control increases the probability of CB. Furthermore, several studies (e.g., Mueller, Claes, et al., in press; Van der Linden et al., 2006; Wang & Yang, 2008) showed a negative association between 'conscientiousness' and CB; indicating that the higher the lack of premeditation or deliberation, the higher the score on CB/impulsive buying.

The aim of this study is to investigate the joint – interactive or additive – influence of reactive and regulative temperament on CB. In the first case (interactive), regulative temperament acts as a moderator on the association between reactive temperament and CB. In the second case (additive), reactive temperament and regulative temperament have additive effects on CB. Until now, no study systematically investigated the joint influence of reactive and regulative temperament on CB. We hypothesize that low BIS levels, high BAS levels and low levels of self-regulation would be associated with CB in undergraduate psychology students. Given that there is increasing evidence that vulnerability to psychopathology is associated with extreme levels of reactivity in combination with low levels of effortful control (interactive; Bijttebier, Beck, Claes, & Vandereycken, 2009), we hypothesize that high BAS/low BIS in interaction with low effortful control will increase the risk for CB in our student sample.

2. Methods

2.1. Participants

Our sample consisted of 130 female undergraduate psychology students from a Flemish University in Belgium. The mean age of the female students was 22.3 years ($SD = 3.6$; range 18–34).

2.2. Instruments

CB was assessed by means of the Compulsive Buying Scale (CBS; Faber & O'Guinn, 1992; translated into Dutch with written permission). The CBS consists of seven items representing specific behaviors and feelings associated with CB ($\alpha = 0.76$). Six items (e.g., "Bought myself something in order to make myself feel better") are answered on a 5-point scale ranging from 1 (very often) to 5 (never). One item "If I have any money left at the end of the pay

period, I just have to spend it" is answered on a 5-point scale ranging from 1 (strongly agree) to 5 (strongly disagree). Faber and O'Guinn (1992) developed a scoring system involving a regression equation with item weighting to determine the cut-off score for compulsive buyers. Lower scores indicate a higher level of CB, whereas a cut-off score equal to -1.34 or lower indicates the person has CB. Faber and O'Guinn (1992) showed that a cut-off score of -1.34 was able to correctly discriminate 92.2% of the normal controls and individuals with CB. This cut-off score was situated 2 SD above the mean of CBS score of the normal controls.

Reactive temperament was assessed by means of the Behavioral Inhibition System and Behavioral Activation System Scale (BISBAS Scales; Carver & White, 1994; Dutch translation: Franken, Muris, & Rassin, 2005). The BISBAS scales consist of 24 items to be rated on a four-point scale ranging from 1 (I strongly agree) to 4 (I strongly disagree). The BIS scale assesses worry concerning potential punishments in the future and consists of seven items ($\alpha = 0.81$ in the present study; e.g., "I worry about making mistakes"). The BAS scale assesses enthusiasm in the pursuit of potentially rewarding outcomes and consists of 13 items ($\alpha = 0.73$). The BAS scale has three subscales: Drive ($n = 4$; $\alpha = 0.76$; e.g., "I go out of my way to get things I want"), Fun Seeking ($n = 4$; $\alpha = 0.58$; e.g., "I crave excitement and new sensations") and Reward Responsiveness ($n = 5$; $\alpha = 0.56$; e.g., "When I'm doing well at something, I love to keep at it").

Regulative temperament was measured by means of the 19-item Effortful Control Scale from the Adult Temperament Questionnaire-Short Form (ATQ-SF-EC; Evans & Rothbart, 2007; Dutch translation: Hartman & Rothbart, 2001). Participants reported on the extent to which high or low levels of effortful control generally characterize their interactions with the environment (1 = not at all applicable; 7 = completely applicable) ($\alpha = 0.81$; e.g., "When I am trying to focus my attention, I am easily distracted"; "I hardly ever finish things on time" (Reversed)).

We also used the Brief Self-Control Scale (BSCS; Tangney, Baumeister, & Boone, 2004; Dutch translation: Kuijer, De Ridder, Ouweland, Houx, & Van den Bos, 2008) to assess self-control. The BSCS consists of 13 items ($\alpha = 0.85$) pertaining to control over thoughts, emotion control, impulse control, performance regulation, and habit breaking. For example, "I'm good at resisting temptation." Responses are indicated on a five-point scale, ranging from 1 (not at all like me) to 5 (very much like me).

Given the high correlation between the ATQ-SF-EC and the BSCS ($r = 0.81$; $p < 0.01$), we performed a factor analysis on the items of both scales, and found evidence for a one-factor solution. The first factor had an eigenvalue of 8.37 (all other factors had eigenvalues < 2.5) and explained 26.16% of the variance. Therefore, we decided to create an Effortful Control-composite score ($n = 32$; $\alpha = 0.89$) based on the items of both scales.

To control for depression (often related to CB) we used the Patient Health Questionnaire 9 Depression Screener (Pfizer ©) (PHQ9; Spitzer, Kroenke, & Williams, 1999; Dutch version also provided by Pfizer ©). The PHQ9 is the nine item depression scale of the Patient Health Questionnaire ($\alpha = 0.83$). This easy to use patient questionnaire is a self-administered version of the PRIME-MD diagnostic instrument for common mental disorders. The PHQ9 is the depression module, which scores each of the 9 DSM-IV criteria as "0" (not at all) to "3" (nearly every day). It has been validated for use in Primary Care.

Finally, to control for the tendency to adhere materialistic values (often related to CB in younger people; Dittmar, 2005) we made use of the 11-item Materialistic Values Scale-Short Form (MVS; Richins, 2004; Short version: Dittmar, 2005). A person with highly materialistic values believes that the acquisition of material goods is a central life goal, prime indicator of success, and key to happiness and self-definition (Richins, 2004). The MVS measures

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