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Are all facets of impulsivity related to self-reported compulsive buying behavior?

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Abstract

Compulsive buying is defined as uncontrolled and excessive purchases leading to personal and family distress. While compulsive buying is generally considered to be an impulse control disorder, very few studies have explored its relationships with the multidimensional construct of impulsivity. Consequently, the aim of the present study is to investigate the role of the various components of impulsivity in compulsive buying. To this end, 150 volunteer participants from the community were screened using a questionnaire assessing compulsive buying, and the French version of the UPPS Impulsive Behavior Scale. This scale identifies four distinct components associated with impulsive behaviors: urgency, lack of premeditation, lack of perseverance, and sensation seeking. The results showed that (1) compulsive buying is positively correlated with three facets of impulsivity (urgency, lack of perseverance and lack of premeditation), and (2) multiple linear regression analysis revealed urgency to be the only significant predictor of compulsive buying tendencies when gender, age, educational level and depression were controlled for. Those findings are discussed in light of the psychological processes underlying the various components of impulsivity in relation to the occurrence of compulsive buying behaviors.

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Keywords: Compulsive buying; Impulsivity; UPPS; Urgency

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1. Introduction

Buying is a routine part of everyday life. However, in specific situations, a purchase may be unplanned and sudden, initiated on the spot and associated with a strong urge and feelings of pleasure and excitement. This kind of purchasing is generally known as “impulsive buying” (e.g., Rook, 1987). Although most impulsive purchases are unproblematic, and almost everyone has made such purchases, repeated experiences of uncontrolled buying could become problematic. Such dysfunctional behaviors, frequently labeled as “*compulsive buying*”, involve repeated and excessive purchases of consumer goods that may lead to psychological distress and have serious effects on a person’s life, such as major debts, negative feedback from family and friends and guilt feelings (e.g., Christenson et al., 1994). More specifically, individuals suffering from compulsive buying tendencies have been reported to experience repetitive, irresistible, and overpowering urges to purchase goods (frequently useless and/or unused items) as well as uncontrollable needs and growing tensions that can only be relieved by buying (Christenson et al., 1994; Lejoyeux, Adès, Tassain, & Solomon, 1996). A recent epidemiological study (Koran, Faber, Aboujaoude, Large, & Serpe, 2006), conducted by interviewing 2513 adults in a random telephone survey, estimated the prevalence of compulsive buying in the USA at 5.8%. In addition, it has recently been shown that compulsive buying behaviors have increased markedly in developed economies (Neuner, Raab, & Reisch, 2005), which can probably be attributed to the fact that marketing developments (credit cards, Internet shopping, massive advertising via media) facilitate and promote the impulsive purchasing of items.

Several studies have investigated the demographical predictors (gender, age, socioeconomic status) of compulsive buying. It has been shown that women are more prone than men to experience compulsive buying behaviors (e.g., Dittmar, 2005), although several studies found this not to be the case (e.g., Koran et al., 2006). In addition, there are some indications that younger persons may be more susceptible than older ones to compulsive buying tendencies (e.g., Dittmar, 2005), although several studies found no effect of age on problematic buying (e.g., Black, Repertinger, Gaffney, & Gabel, 1998).

Interestingly, several studies have shown that impulsive buying may be promoted by intense emotional contexts, both positive (e.g., Beatty & Ferrell, 1998) and negative (e.g., Miltenberger et al., 2003). However, although marketing-oriented research shows that factors promoting positive mood states (e.g., nice scents, pretty colors or pleasant music) may elicit impulse purchase behaviors (Beatty & Ferrell, 1998), compulsive buying more frequently occurs in contexts of negative affect. Indeed, several authors (Christenson et al., 1994; McElroy, Keck, Pope, & Smith, 1994; Miltenberger et al., 2003) argue that for certain persons, buying things may function as a self-regulatory mechanism aimed at reducing negative feelings (e.g., frustration, loneliness, sadness).

However, very few studies have attempted to investigate the psychological predictors (e.g., personality traits, cognitive and motivational mechanisms) of compulsive buying. Consequently, and despite its prevalence in the general population, the determinants of compulsive buying remain unclear and/or misunderstood. Indeed, the majority of clinical studies on compulsive buying have tried to establish diagnostic criteria (e.g., McElroy et al., 1994) and/or to determine which category of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV, American Psychiatric Association, 1994) this disorder should be included in, rather than investigating the

psychological factors that could explain the change from normal buying to problem buying. In this context, compulsive buying is generally considered as an impulse control disorder (Christenson et al., 1994; Lejoyeux et al., 1996; McElroy et al., 1994), although very few studies have empirically explored its relationships with impulsivity and/or inhibition-related functions. Thus, to the best of our knowledge, only two studies (DeSarbo & Edwards, 1996; Lejoyeux, Tassain, Solomon, & Adès, 1997) have investigated the relationships between compulsive buying and impulsivity scales. In the first, DeSarbo and Edwards (1996) showed that impulsivity, as assessed by the NEO Personality Inventory Impulsiveness Scale (Costa & McCrae, 1992), predicted higher scores on a questionnaire assessing compulsive buying (e.g., frequency of shopping, unplanned purchasing, post-purchase guilt). In the second study, Lejoyeux et al. (1997) found that depressed patients with compulsive buying problems have higher scores on all subscales of the Barratt Impulsivity Scale (Patton, Stanford, & Barratt, 1995) than depressed patients without compulsive buying problems. Thus, it appears that impulsivity-related traits may prove to be important when one focuses on the etiological factors leading to compulsive buying.

Impulsivity is a core construct in the field of clinical psychology and plays a prominent role in the understanding and diagnosis of various psychopathological states. It is now generally agreed that impulsivity is a multifaceted construct that consists of a number of related dimensions (e.g., Evenden, 1999), and numerous studies have recently been conducted to investigate the various facets of impulsivity. Among these studies, Whiteside and Lynam's (2001) study is the only one that has attempted to clarify the assortment of existing impulsivity measures. The central argument of these authors is that, although certain personality traits result in similar overt behavior (i.e., the appearance of acting without forethought), they may have different etiologies. To investigate this hypothesis, Whiteside and Lynam (2001) administered several widely used measures of impulsivity to 437 undergraduate students. A factorial analysis conducted on these impulsivity scales resulted in a four-factor solution, which forms the basis for the creation of a scale called the UPPS Impulsive Behavior Scale. The four dimensions of impulsivity measured by the UPPS are: (1) urgency, defined as the tendency to experience strong reactions, frequently under conditions of negative affect; (2) premeditation, defined as the tendency to think and reflect on the consequences of an act before engaging in that act; (3) perseverance, defined as the ability to remain focused on a task that may be boring and/or difficult; and (4) sensation seeking, considered as a tendency to enjoy and pursue activities that are exciting, and openness to trying new experiences.

Our view is that the various components of impulsivity measured by the UPPS reflect two distinct psychological mechanisms. The first is the sensation seeking dimension, which reflects the motivation to approach rewarding environmental stimuli. The other three dimensions (urgency, lack of premeditation, lack of perseverance) relate to self-control and executive processes, and are close to the impulsivity construct assessed by the Barratt Impulsivity Scale.

A growing number of studies based on Whiteside and Lynam's conception of impulsivity have established relationships between certain facets of impulsivity and specific psychopathological states (e.g., pathological gambling, Whiteside, Lynam, Miller, & Reynolds, 2005) or problematic behaviors (e.g., dependence on mobile phones, Billieux, Van der Linden, d'Acromont, Ceschi, & Zermatten, 2007). Consequently, the goal of the present study was to investigate the relationships between compulsive buying and the various components of the UPPS impulsivity model (Whiteside & Lynam, 2001). In this regard, several *a priori* predictions were formulated concerning the components of impulsivity that contribute to compulsive buying behaviors, namely (1) urgency,

because of the frequent association between negative affect and compulsive buying; (2) lack of premeditation, which could be related to a reduced ability to consider the potential negative outcome (e.g., financial) of purchases; and (3) sensation seeking, as certain acts of impulsive buying may promote pleasure and/or excitement.

2. Method

2.1. Participants and procedure

A total of 150 volunteer participants (76 females and 74 males), aged from 20 to 35 years ($M = 26.81$, $SD = 3.71$), took part in the study. Participants were recruited via advertisements in the University of Geneva (most of them were undergraduate students). Exclusion criteria comprised a reported history of brain injury or a current psychiatric diagnosis. This information was collected along with other demographical data in a short questionnaire completed by the participant. The inclusion criterion was being a native speaker of French. Women and men were comparable with regard to age, although men reported a significantly lower number of years of education (see Table 1). All participants were screened using the French version of the UPPS Impulsive Behavior Scale (Van der Linden et al., 2006), a questionnaire designed to assess compulsive buying behaviors (Lejoyeux et al., 1997), the Trait Anxiety Inventory (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1993), and the Short Happiness–Depression Scale (Joseph, Liney, Harwood, Lewis, & McCollam, 2004).

2.2. Questionnaires

2.2.1. UPPS Impulsive Behavior Scale (UPPS)

The French version of the UPPS (Van der Linden et al., 2006), translated from Whiteside and Lynam (2001), consists of 45 items that evaluate the four different facets of impulsivity, labeled urgency (12 items, e.g., “When I feel bad, I will often do things I later regret in order to make myself feel better now”), (lack of) premeditation (11 items, e.g., “I am a cautious person”), (lack of) perseverance (10 items, e.g., “I concentrate easily”), and sensation seeking (12 items, e.g., “I will try anything once”). Items on the scale are scored from 1 = “I agree strongly” to 4 = “I disagree strongly”.

2.2.2. Questionnaire about Buying Behavior (QABB)

The QABB (Lejoyeux et al., 1997) consists of 19 items representing major basic features of compulsive buying (e.g., urges to shop and buy, negative feedback from family and friends,

Table 1
Demographic characteristics of the sample

	Females ($N = 76$)		Males ($N = 74$)		<i>P</i> -value ^a
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	27.03	3.63	26.59	3.81	ns
Years of education	16.83	1.96	15.92	2.01	<.05

^a Two-tailed Student's *t*-test.

post-purchase guilt). Items on the scales are scored 0 or 1 (questions with “yes” or “no” answers). Almost all studies using the QABB have divided their samples into “compulsive buyers” and “normal buyers” (e.g., Lejoyeux et al., 1997), based on the diagnostic criteria for uncontrolled buying (see McElroy et al., 1994) and on positive answers to certain items of the QABB (e.g., post-purchase guilt, tangible negative consequences of the purchasing behavior). However, in the present study, compulsive buying was conceptualized from a dimensional perspective. Consequently, total scores on the QABB were considered as reflecting compulsive buying tendencies.

2.2.3. The Trait Anxiety Inventory (STAI-T)

The French version of the STAI-T (Spielberger et al., 1993) consists of 20 items designed to assess general trait anxiety in clinical and normal individuals. Items on the scale are scored from 1 = “not at all” to 4 = “very much so”.

2.2.4. The Short Depression–Happiness Scale (SDHS)

The French translation of the SDHS (Joseph et al., 2004) consists of six items assessing happiness or depression. The SDHS was translated from English into French and then back-translated from French into English. Items on the scale are scored from 0 = “never” to 3 = “often”. The total score was computed by summing the responses obtained on the six items. We reversed happiness items such that a high score reflects a tendency to experience depressive thoughts and feelings whereas a low score reveals a general tendency to happiness.

3. Results

Of the 150 participants of the study, only one had a missing value. The reliability coefficients (Cronbach’s alpha) of each questionnaire were calculated separately according to gender (see Table 2). The UPPS, the STAI-T, and the SDHS have good internal validity ($\alpha > .80$), whereas the QABB has acceptable internal validity ($\alpha > .70$). Means, standard deviations and gender comparisons on the various scales used are reported in Table 2. The amount of compulsive buying behaviors reported in the present study is slightly lower than those previously reported in a sample

Table 2

Means, standard deviations, Cronbach’s α , and gender differences related to the questionnaires

	Females ($N = 76$)			Males ($N = 74$)			P -value ^a
	M	SD	α	M	SD	α	
QABB	3.80	2.72	.71	3.76	2.90	.75	ns
UPPS – Urgency	27.76	6.89	.89	26.35	5.62	.82	ns
UPPS – Lack of Premeditation	23.08	5.00	.86	23.50	4.75	.83	ns
UPPS – Lack of Perseverance	18.70	4.86	.85	20.62	4.60	.85	<.05
UPPS – Sensation Seeking	29.18	7.56	.86	32.55	7.09	.84	<.01
SDHS	13.09	4.32	.89	13.53	3.65	.80	ns
STAI-T	41.41	11.56	.95	38.66	8.96	.90	ns

^a Two-tailed Student’s t -test. QABB = Questionnaire about Buying Behavior; SDHS = Short Depression–Happiness Scale; STAI-T = Trait Anxiety Inventory.

Table 3
Pearson correlations between questionnaires (within their 95% CI)

	QABB	URG	PREM	PERS	SS	STAI-T	SDHS	EDU	AGE
QABB		.50^a (.37, .61)	.29^a (.14, .43)	.24^a (.08, .38)	.12 (−.04, .28)	.35^a (.20, .48)	.27^a (.12, .41)	−.10 (−.26, .06)	.09 (−.08, .24)
URG			.36^a (.21, .49)	.33^a (.18, .46)	.12 (−.04, .27)	.62^a (.51, .71)	.46^a (.33, .58)	−.14 (−.29, .02)	−.02 (−.18, .14)
PREM				.49^a (.35, .60)	.34^a (.19, .47)	.10 (−.06, .26)	.06 (−.11, .22)	−.16 (−.31, .01)	.09 (−.07, .24)
PERS					.17^a (.01, .32)	.25^a (.09, .39)	.23^a (.07, .38)	− .26^a (−.40, −.10)	−.07 (−.22, .09)
SS						−.08 (−.23, .09)	−.06 (−.22, .10)	−.01 (−.17, .15)	−.08 (−.24, .08)

Pairwise treatment of missing data. *N* = 150. QABB = Questionnaire about Buying Behavior; URG = UPPS – Urgency; PREM = UPPS – Lack of Premeditation; PERS = UPPS – Lack of Perseverance; SS = UPPS – Sensation Seeking; STAI-T = Trait Anxiety Inventory; SDHS = Short Depression–Happiness Scale; EDU = number of years of education.

^a 0 not included in the 95% confidence interval.

of volunteer women from the community (Lejoyeux, Mathieu, Embouazza, Huet, & Lequen, 2007). However, those authors recruited their sample just before they entered a general store (a context devoted to buying), which could have had an impact on their responses.

No differences were found between genders concerning compulsive buying tendencies ($t = 0.10$, $p = .92$), anxiety symptoms ($t = 1.62$, $p = .11$), depression ($t = 0.67$, $p = .51$) and two components of impulsivity (urgency, $t = 1.37$, $p = .17$; lack of premeditation, $t = -0.53$, $p = .60$). However, men have significantly higher levels of sensation seeking ($t = -2.81$, $p < .01$) and lack of perseverance ($t = 2.49$, $p < .05$) than women.

As Table 3 shows, correlations were computed between compulsive buying behaviors (QABB), the various components of impulsivity (UPPS), anxiety (STAI-T), depression (SDHS), age, and the number of years of education.

Significant correlations appeared between compulsive buying symptoms and three components of impulsivity, namely urgency, lack of premeditation and lack of perseverance. In addition, compulsive buying also correlates with both anxiety and depression. However, buying behaviors are not related to the sensation seeking component of impulsivity, nor to age or years of schooling. Furthermore, it appears that urgency and lack of perseverance positively correlate with both anxiety and depression.

A regression analysis was then performed in order to find out which dimension of impulsivity best predicts compulsive buying tendencies. A regression analysis allows one to highlight the relative importance of each predictor and determine the specific effect of each one because it takes into account the relations between the various predictors entered in the regression. We therefore computed a multiple linear regression using the total score on the QABB as the dependent variable. Nine predictors were entered into the linear regression using the “enter” method: the four dimensions of the UPPS, the total score on the STAI-T, the total score on the SDHS, gender, age, and the number of years of education. However, when we performed the linear regression, some signs of multicollinearity (i.e., a strong link between two predictors of the regression) appeared, probably attributable to the strong correlations between anxiety and both urgency (.62) and depression (.73). According to Allison (1999), the presence of multicollinearity may be confirmed when the *variance inflation factor* (which shows to what extent the variance of the coefficient is inflated by multicollinearity) is over 2.5 and the tolerance score below .40. In our case,

Table 4
Compulsive buying regressed on the UPPS Scale, the SDHS, gender, age and years of education

Scale	<i>B</i>	<i>SE</i>	<i>t</i>	<i>P</i> -value	β
(Intercept)	-4.50	2.52	-1.78	.08	-
<i>Urgency</i>	0.19	0.04	4.76	.00	0.43***
Age	0.08	0.06	1.35	.18	0.10
Lack of Premeditation	0.05	0.05	1.02	.31	0.09
Depression	0.04	0.06	0.74	.46	0.06
Sensation Seeking	0.02	0.03	0.52	.60	0.04
Lack of Perseverance	0.01	0.05	0.24	.81	0.02
Gender	-0.12	0.44	-0.26	.79	-0.02
Education	-0.06	0.11	-0.58	.56	-0.05

Predictors are listed in decreasing order of importance (based on absolute *t*-values).

*** $p < .001$.

the variance inflation factor of the anxiety scale was equal to 2.8 and its tolerance amounted to .36. Thus, to avoid collinearity-related problems, a new linear regression was computed, from which the anxiety scale was removed. Exploration of the residuals suggested that they were normally distributed. The regression emphasized that urgency is the only significant predictor of compulsive buying tendencies. The regression analysis is presented in [Table 4](#).

4. Discussion

The purpose of this study was to identify which components of impulsivity are related to compulsive buying tendencies. The main results of the study can be summarized as follows. Firstly, correlation analyses highlighted the fact that compulsive buying is positively correlated with three facets of impulsivity (urgency, lack of perseverance and lack of premeditation), as well as with both anxiety and depression. Secondly, a multiple linear regression analysis revealed that urgency is the only significant predictor of compulsive buying tendencies when gender, age, educational level and depression are controlled for. Interestingly, group comparisons and regression analyses also showed that there was no gender difference concerning self-reported compulsive buying tendencies.

According to [Whiteside and Lynam \(2001\)](#), urgency is the tendency to experience strong reactions, frequently in a context of negative affect. [Bechara and Van der Linden \(2005\)](#), who examined the specific psychological mechanisms underlying the various components of impulsivity, tentatively suggested that a high level of urgency may be related to a poorer ability to deliberately suppress prepotent (automatized) responses. Thus, based on the strong relationship between high urgency and compulsive buying tendencies, it might be supposed that the capacity to deliberately suppress a dominant response may be a core feature of compulsive-buying-related behaviors. Interestingly, urgency has also been associated with alcohol abuse (e.g., [Whiteside & Lynam, 2003](#)) and tobacco craving ([Billieux, Van der Linden, & Ceschi, 2007](#)). Therefore, it may be hypothesized that, in substance-dependent persons, craving states are associated with increased difficulty resisting strong impulses, which could result in harmful behaviors that relieve negative affect in the short term but have harmful long-term consequences. Similarly, we postulate that persons with elevated urgency will be more likely to buy compulsively when they experience negative affects. Thus, it is possible that compulsive buyers may not be able to refrain from purchasing items, because buying is a way of relieving negative affect in the short term, despite the potential occurrence of harmful consequences (e.g., guilt, negative feedback from acquaintances, financial problems). This explanation is in accordance with the literature highlighting the fact that compulsive buying occurs in response to negative emotion and results in a decrease in the intensity of the negative emotion (e.g., [Miltenberger et al., 2003](#)). Therefore, in accordance with our results emphasizing the fact that negative affects (depression and anxiety) are related to but do not predict compulsive buying, we postulate that this problematic behavior is more ascribable to inhibition difficulties promoted by contexts of negative affect than to negative affect as such.

Interestingly, [Cyders et al. \(2007\)](#) have recently shown that “positive urgency” (defined as the tendency to act rashly while in a positive mood) is a predictor of risky behaviors such as problem gambling or heavy alcohol consumption. Thus, it is possible that persons with an elevated level of positive urgency would have difficulties suppressing prepotent responses when they experience

positive affects. Therefore, given that positive affects have been shown to promote impulsive purchases (Beatty & Ferrell, 1998), it might be supposed that positive urgency may also be a factor that increases the occurrence of compulsive-buying-related behaviors. However, our results indicated that compulsive buying tendencies are related to depressive symptoms rather than to positive moods (as assessed by the SDHS). Thus, although an impulsive buying (defined as an unplanned purchase) may well be promoted by a positive mood (e.g., buying something to celebrate success on an exam), compulsive buying (considered as a problematic behavior) could instead be related to repeated excessive buying in contexts of negative affect.

Positive correlations were also found between compulsive buying and both lack of perseverance and lack of premeditation. According to Bechara and Van der Linden (2005), perseverance may be related to the capacity to inhibit irrelevant thoughts and/or memories, whereas premeditation could be related to the ability to take into account both positive and negative consequences of a decision on the basis of the emotional responses associated with this decision (the somatic marker hypothesis, see Damasio, 1994). From this perspective, we postulate, on one hand, that tendencies to experience intrusive thoughts (reflected by a lack of perseverance) may lead to more frequent purchases (e.g., intrusive thoughts related to potential acquisitions). On the other hand, poorer decision-making abilities (reflected by a lack of premeditation) may be related to “myopia” concerning the potential long-term negative outcomes of a purchase (e.g., financial problems).

It is also important to note that no relationship was found between sensation seeking and compulsive buying. Several authors have argued that sensation seeking may refer to the tendency to exaggerate the impact of rewards and underestimate the impact of punishments (e.g., Zuckerman, 1994). In this context, the absence of any significant correlation between sensation seeking and compulsive buying may be due to the nature of the QABB, which can be considered as a measure of uncontrolled buying behaviors (e.g., urges to buy) and the negative outcomes associated with these behaviors (e.g., financial problems). However, a study conducted with a questionnaire focusing on the hedonic aspects of compulsive buying (e.g., positive affect during purchase, anticipatory pleasure related to buying) would probably have highlighted a relationship between compulsive buying and the sensation seeking component of impulsivity.

We have yet to consider the influence of gender and age, which have frequently been examined in the literature on compulsive buying (e.g., Dittmar, 2005). Our study confirmed recent findings that the prevalence of compulsive buying in males and females is very similar (see Koran et al., 2006, for a study done on a huge sample). In addition, our study did not reveal an influence of age on compulsive buying tendencies. However, this result must be considered with caution because of the small age interval in our sample (20–35 years old).

A possible limitation on this study which needs to be acknowledged is the potential overlap between the content of the QABB and the urgency component of the UPPS. Indeed, two items of the QABB concerning “urges to buy” are relatively close to an item of the urgency dimension of impulsivity related to cravings, even though this item does not directly concern buying behaviors. Nevertheless, we reanalyzed the data without the two problematic items of the QABB and the correlation with compulsive buying remained quite similar (.49 instead of .50). Therefore, we are confident that the correlation we obtained is not an overestimation.

Further studies are required to explore more systematically the assumptions arising from these results. Thus, the relationships between compulsive buying and impulsivity should be investigated by administering specific laboratory tasks targeting the psychological mechanisms that underlie

the various components of impulsivity. Another relevant topic for future research would be to explore in more detail the relationships between impulsive buying and positive affect (e.g., by using a “positive urgency” scale). Indeed, it would be very interesting to investigate whether positive affects (e.g., joy, euphoria), like negative affects, may promote a tendency to purchase items impulsively in people who have difficulties inhibiting prepotent responses.

To conclude, this study emphasized that a multifaceted view of impulsivity can contribute to better understanding of how, for certain persons, buying can change from a common daily living activity to an uncontrolled and problematic behavior.

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