

**Comorbidity of compulsive buying and brand addiction:
An examination of two types of addictive consumption^a**

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Abstract

While compulsive buying and brand addiction are both addictive consumption, little is known about how they jointly impact on consumers. This research demonstrates that compulsive buying and brand addiction are distinct phenomena and may co-occur. Data from this research demonstrates that while compulsive buying has negative impacts, brand addiction does not result in debt and has positive impacts on self-esteem and life happiness.

Compulsive buying is positively related to brand addiction, and brand addiction positively mediates the relationships between compulsive buying and debt avoidance, self-esteem and life happiness. This research introduces a new perspective on theorizing comorbid addiction of compulsive buying and brand addiction by providing evidence that brand addiction may not be pathological, and compulsive buying's negative effects may be weakened or eliminated in the presence of brand addiction. It opens avenues for further research to create broader and more parsimonious theoretical models for responsive marketing approaches to addictive consumption.

Keywords – Brand addiction, compulsive buying, comorbidity, addictive consumption, life happiness, self-esteem, debt, mediation

^a This is the unedited version of the manuscript that has been accepted (11.09.2019) for publication in *Journal of Business Research*. The manuscript will undergo copyediting and typesetting before it is published in its final form. Citation of this paper should refer to its published form that will be first available online.

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Acknowledgement: The collection of data was supported by the research allowance to the corresponding author from the Alliance Manchester Business School where the the corresponding author was previously employed.

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1. Introduction

To cope with daily stress events and bring positive affect, people often resort to compulsive buying. Compulsive buying is defined as repeated and excessive buying of consumer goods not needed. Although compulsive buyers experience short-term gratification and mood improvement, this behavior consequently leads to major debts, negative feedback from family and friends, guilt feelings and psychological stress, which have negative impacts on self-esteem and life happiness (Faber & O'Guinn, 1992; Faber & Vohs, 2004; Mestre-Bach et al., 2017; Mueller et al., 2009; Zhang et al., 2017). Research has found comorbidity of compulsive buying with some addictive behaviors such as alcoholism, excessive (greater than what seems reasonable or appropriate) internet use, gambling disorder, substance use disorders (SUD), among others (Faber et al., 1995; Granero, Fernández-Aranda, Steward, et al., 2016; Kesebir et al., 2012; Mueller et al., 2008; Mueller et al., 2011; Weinstein et al., 2016). Comorbidity is observed when two psychological states or behaviors in an individual coexist or one leads to the development of the other as alternative responses to similar underlying causes (Angold et al., 1999; Faber et al., 1995; Feinstein, 1970; Krahn, 1991; Spitzer, 1994; Valderas et al., 2009). However, there are limited research and inconclusive findings regarding how compulsive buying is related to consumers' association with brands. Some researchers (Kukar-Kinney et al., 2012; Weinstein et al., 2016) suggest that compulsive buyers are more brand conscious and prestige sensitive than non-compulsive buyers. Others (Horváth & van Birgelen, 2015) have found that compulsive buyers often prefer cheaper items and even struggle to name a favorite brand, and engage in more brand switching than non-compulsive buyers. Moreover, while early studies suggest that addiction to brands has similar negative consequences as other forms of pathological (dysfunctional) addiction

(Fournier & Alvarez, 2013), new research evidence suggests that brand addiction may not lead to negative consequences (Cui, Mrad, & Hogg, 2018; Mrad & Cui, 2017). Although both compulsive buying and brand addiction are addictive consumption, marketers and consumer researchers have little reliable information on how the co-occurrence of the two addictions impact on consumers' self-esteem and life happiness. The importance of understanding comorbidity of compulsive buying and other addictive consumption has been recognized in psychiatric literature (e.g., Granero, Fernández-Aranda, Baño, et al., 2016; Koran et al., 2006; Mestre-Bach et al., 2017) and consumer research (e.g., Faber et al., 1995; Faber & Christenson, 1996; Kwak et al., 2004). Researchers have agreed upon the need and importance of examining interrelated addiction as a larger phenomenon and develop broader models to account for comorbid addictive or excessive behaviors (Faber et al., 1995; Hirschman, 1992; Jacobs, 1989; Marlatt et al., 1988; Krahn, 1991; O'Guinn & Faber, 1989). Thus, the present research makes an important contribution to the literature of addictive consumption and consumer-brand relationship by investigating the comorbidity of compulsive buying and brand addition. Specifically, the following questions are examined:

- 1) whether compulsive buying co-exists with brand addiction (i.e., whether some compulsive buyers are also brand addicts);
- 2) whether compulsive buying has an impact on brand addiction;
- 3) whether brand addiction has negative or positive effects as compared to compulsive buying; and
- 4) whether brand addiction mediates the relationship between compulsive buying and debt avoidance, self-esteem and life happiness.

It is speculated that marketing tactics and practices can facilitate and intensify compulsive buying (Kukar-Kinney et al., 2012, 2016). Marketers have the social responsibility to develop

marketing programs and practices that minimize consumer dysfunctional consumption behaviors (Öberseder, Schledgelmilch, Murphy & Gruber, 2014; Robin & Reidenbach, 1987). This requires understanding how compulsive buyers engage with brands.

Understanding how compulsive buying is comorbid with brand addiction and their impacts on consumers' life experience can broaden our knowledge of compulsive buying and brand addiction, and motivate further research to advance theories of addictive consumption. The findings from the present research can provide an important knowledge base for marketers to gain insights into addictive consumption, and develop marketing practices to prevent negative consequences for consumers and enhance consumers' healthy consumption and psychological wellbeing. The present research was set in the context of fashion consumption in the U.S. since previous research reported that apparel products were ranked the first in consumers' compulsive buying in the U.S. (Black, 2007).

The rest of this paper is organized as follows: First, we draw on the extant literature to explore the theoretical basis for comorbidity of compulsive buying and brand addiction. Then, we develop a conceptual framework and its underlying hypotheses. Next, the research methodology and data analysis are reported. Finally, we discuss the research findings, theoretical and managerial implications, limitations, and avenues for future research.

2. Theoretical framework

2.1. Comorbidity of compulsive buying and brand addiction

Compulsive buying refers to a preoccupation with shopping and buying, which is associated with overpowering and repetitive urges to buy, accompanied by instantaneous relief and pleasure but often followed by remorse and guilt due to awareness of the inappropriateness of the spending behavior and its negative consequences (Billieux et al., 2008; Edwards, 1992; Müller et al., 2015; O'Guinn & Faber, 1989). Compulsive buying is

expected to fulfill some positive functions for the concerned individuals such as mood repair (altering negative affect and achieving short-term improvements in mood) and expressing creativity and self-identity (Christenson et al., 1994; Elliott et al., 1996; Faber et al., 1987; Matthews, 2010). Ironically, this positive affect diminishes as a result of the excessive buying behavior and is replaced by re-emerging buying urge (Silbermann et al., 2008), consequently resulting in negative consequences (Faber & O'Guinn, 1992; Faber & Vohs, 2004; Mueller et al., 2009). It is worth noting that in the psychiatric literature, there is an agreement that for some people compulsive buying may not necessarily be pathological (dysfunctional) but an extreme form of consumer shopping behavior associated with attitudes towards money and financial management habits (Demetrovics & Griffiths, 2012; Granero, Fernández-Aranda, Baño, et al. 2016; Granero, Fernández-Aranda, Steward, et al. 2016; Müller et al. 2015; Spinella et al., 2014, 2015). For example, consumers with neuroticism have the tendency towards compulsive buying in fashion consumption (Johnson and Attmann, 2009), and “many compulsive buyers may be responding more to their current situations than reflecting a basic underlying psychological problem” (DeSarbo and Edwards (1996, 253).

Brand addiction refers to the consumer's psychological state “that pertains to a self-brand relationship manifested in daily life and involving positive affectivity and gratification with a particular brand and constant urges for possessing the brand's products/services” (Mrad & Cui, 2017). Brand addiction is characterized by 11 essential attributes: acquisitiveness, dependence, follow-up, hoarding, lack of self-control, obsession, outward influence, persistence within affordability, resistance to substitutes, support and thought occupancy, which are jointly centered on a favorite brand (Mrad & Cui, 2017).

While both compulsive buying and brand addiction are addictive consumption, there are important differences between these two constructs. Research shows that compulsive buyers are typically in denial about the extent of their problems and tend to disguise their purchases

(Faber et al., 1987). In contrast, brand addicts are not in denial of their addiction; instead, they actively tell others about their passion for their addictive brands and are proud of possessing items of the addictive brands (Cui et al., 2018). While compulsive buying provides short-term relief from dysphoric feelings (Faber et al., 1995), brand addiction provides long-term gratifications (Cui et al., 2018). Moreover, they differ in their focal reference point (“focality”): while compulsive buying is focused on the process of buying/shopping and spending, brand addiction is focused on a specific brand and the phenomenon is of research interest in both consumer-brand relationship and addictive consumption (Mrad and Cui, 2017).

The present research investigates both compulsive buying and brand addiction for two important reasons. First, neurophysiological studies (Reimann et al., 2012) show that activating an individual’s brain area known as the insula is responsible for addiction, and close consumer-brand relationships are associated with activating the insula. Activation of the insular regions has been hypothesized to play a critical role in the process of deciding to buy or not to buy a product (Knutson et al., 2007; Preuschoff et al., 2006). Other studies support the view that different types of addiction share a neurobiological mechanism (Fauth-Bühler et al., 2017). Drawing on the above, it is perceivable that there is a common neurophysiological basis underlying compulsive buying and brand addiction, and both have some similar motivations and experiential characteristics although they are distinct from each other in most of their manifestations.

Second, Müller et al. (2015) note that compulsive buyers experience positive reinforcement at the beginning of compulsive buying and increasing negative reinforcement in the long term. Research demonstrates that consumers develop a state of oneness with a brand (called consumer-brand identification) as a result of experiencing brand-self similarity,

brand distinctiveness, brand social benefits, brand warmth and memorable brand experiences (Stokburger-Sauer, Ratneshwar, & Sen, 2012). This suggests that the effect of negative reinforcement may compel compulsive buyers to reduce compulsive buying to avoid negative consequences and turn to paying more attention to the positive experience gained from increasing association with certain brands. Thus, it is likely that repetitive exposure to some brands in compulsive buying process will induce some compulsive buyers to actively evaluate the brands and develop an addiction to certain brands. Such a phenomenon whereby two psychological conditions or behaviors in an individual coexist or one leads to the development of the other as alternative responses to similar underlying causes has been known as comorbidity in the psychological literature (Angold et al., 1999; Faber et al., 1995; Feinstein, 1970; Krahn, 1991; Spitzer, 1994; Valderas et al., 2009). Therefore, the first task of the present research is to explore whether or not comorbidity of compulsive buying and brand addiction occurs in consumers.

2.2. The effects of compulsive buying and brand addiction

Previous research shows that compulsive buyers have the tendency to lose control of their shopping and end up with an extreme level of debt (Black, 1996, 2007; Christenson et al., 1994; O'Guinn & Faber, 1989; Schlosser et al., 1994). However, less is known about compulsive buyers' consciousness of avoiding debt. It is reasonable to assume that people generally do not intend to go into debt. For some people ending in an extreme level of debt may be due to being careless in spending or the reason that the urge of spending is beyond the consciousness of avoiding debt. An individual's debt avoidance tendency manifests in the degree of consciousness of not going into debt resulting from purchasing (Mrad & Cui, 2017). While Kukar-Kinney et al. (2012) suggest that compulsive buyers are more price conscious and sale prone than non-compulsive buyers, Kukar-Kinney et al.'s (2016) study

does not support the assumption that compulsive buyers are influenced by the discount size. From an ethics perspective, it is more meaningful to understand consumers' consciousness of debt avoidance that underpins "their ability to forecast spending and their willingness to pay for exceptional products" (Sussman & Alter, 2012, 800) than involving in debt as a consequence in compulsive buying process. This is particularly relevant to compulsive buyers. Indeed, numerous studies show that compulsive buyers suffer from getting into debts because of lack of self-control of the need for spending more and more to alleviate stress and anxiety (Black, 1996, 2007; Christenson et al., 1994; Faber & O'Guinn, 1992; Faber & Vohs, 2004; Mestre-Bach et al., 2017; O'Guinn & Faber, 1989; Schlosser et al., 1994). Compulsive buyers' lack of impulse control and inability to resist the urge to spend is likely to diminish the consciousness of avoiding getting into debts. Thus, we hypothesize:

H₁: Compulsive buying has a negative impact on debt avoidance.

Contrary to compulsive buying, there is lack of conclusive evidence that brand addicts will necessarily incur debt or go bankrupt. For example, Cui et al.'s (2018) exploratory study suggests that "some brand addicts may get into debt while others may not ... For some brand addicts who are capable financial managers, their brand addiction will not cause any harm, but may prove to be a healthy addictive behavior for their wellbeing" (124). Initial empirical findings in the literature suggest that brand addicts may allocate a certain proportion of their regular income to buy the products of their favorite brands (Mrad & Cui, 2017) and "if necessary waiting until they can next afford to buy the addictive brand either by saving money or by working very hard to earn sufficient money" (Cui et al., 2018, 121). These initial findings suggest that brand addicts are conscious of avoiding getting into debts.

Indeed, recent studies of brand addiction (Cui et al., 2018; Mrad & Cui, 2017) exhibit that brand addicts generally demonstrate feelings of pleasure and relief as a result of not only possessing the addictive brands but also engaging in activities with the addictive brands. Fournier and Alvarez's (2013) attachment-aversion relationship (AA Relationship) model conceptualizes three pairs of "asset (benefit)/liability" constructs, i.e., enticing/annoying-the-self, enabling/disabling-the-self, and enriching/impooverishing-the-self. According to the AA relationship model, brand addicts' involvement in positive affectivity and gratification (Cui et al., 2018; Mrad, 2018; Mrad & Cui, 2017) reflects the highest level of self-relevant benefits (enticing-the-self, enabling-the-self, and enriching-the-self). Hence, it is unlikely for brand addicts to be in a positive psychological state if they are in stressful financial debts situations.

Moreover, Cheema and Soman (2008) demonstrate that partitioning an aggregate quantity of a resource into smaller units reduces the consumed quantity or the rate of consumption of that resources. This is because partitions draw attention to the consumption decision so that the resultant deliberation leads to consumers deciding to stop or postpone consumption. Cheeman and Soman (2008) argue that when the amount of attention consumers pay to the decision increases, the decision is more likely to be made because of rules rather than impulse, hence restraining consumption. According to this partitioning theory, deliberate thinking entails consumers to take into account possible negative consequences such as monetary loss. Drawing on Cheema and Soman's (2008) partitioning theory, we argue that brand addicts' active engagement in activities with addictive brands allows for attention to the decision of purchase, and this deliberation leads to consumers deciding to stop or postpone the purchase if it is foreseeable to lead to debts. Drawing on the above, it is plausible to assume that:

H₂: Brand addiction has a positive impact on debt avoidance.

Rosenberg et al. (1995) propose that psychological well-being is best predicated by global self-esteem, and their study demonstrates that global self-esteem is strongly related to psychological well-being factors such as depression, general anxiety, anxiety-tension, irritability, life satisfaction and happiness. Self-esteem is defined as one's overall sense of worthiness as a person (Baumeister, 1993; Rosenberg, 1979). Studies on compulsive buying demonstrate that excessive consumption of products is negatively linked to self-esteem (Christenson et al., 1994; Elliott, 1994; O'Guinn & Faber, 1989). DeSarbo and Edwards (1996) show that a compulsive buyer engages in shopping and spending activities in order to enhance self-esteem, self-confidence, and the feeling of personal power. However, when such activities make an individual become addicted to shopping, "low self-esteem may not only be an antecedent to addictive buying but also a consequence of the cycle of addiction" (DeSarbo & Edwards, 1996: 236). In other words, "the more extreme the buying compulsion, the lower an individual's self-esteem" (DeSarbo and Edwards, 1996, 236). Hence, in the present research it is hypothesized that compulsive buying has a negative impact on one's self-esteem.

H₃: Compulsive buying has a negative impact on self-esteem.

Contrary to most of the findings about compulsive buying in the literature, Mrad and Cui (2017) report that brand addiction is positively related to appearance esteem, a subdivision of self-esteem (Vamos, 1993), and individuals engage in the excessive consumption of fashion brands' products as a way to achieve their self-esteem through appearance. It is reported that consumers are motivated to purchase products from brands that are congruent with one's self-image or congruent with an image that one wishes to portray (Hanley & Wilhelm, 1992).

There is evidence that actual self-congruence has the most influence on consumers' emotional brand attachment (Japutra et al., 2017; Malär et al., 2011; Huber et al., 2018). "Actual self-congruence reflects the consumer's perception of the fit between the actual self and the brand's personality" (Malär et al., 2011: 34). As consumers are motivated in their thinking and action based on past memories, retrospective experiences of self-congruence with some brands in compulsive buying may trigger continuous cognitive process of selecting those brands and developing attachment to the brands to sustain one's self-esteem. Therefore, it seems plausible that brand addiction has a positive impact on self-esteem.

H4: Brand addiction has a positive impact on self-esteem.

According to Pavot et al. (1991), life happiness is the overall assessment of the individual's life. An established view in research on compulsive buying indicates that compulsive buying leads to low states of life happiness (Manolis & Roberts, 2012). There is ample evidence supporting this view. For example, Christenson et al. (1994) report that compared with normal consumers, compulsive buyers have a higher lifetime prevalence of anxiety, substance use, and eating disorders and are more depressed and anxious, which indicate a negative impact of compulsive buying on life happiness. In contrast, in the literature of consumer-brand relationships, Fournier (1998) points out that the relationship among consumers and their brands are parallel to the relationships among people. Analogically, the true happiness in people's lives as a consequence of their happy relationship with other people can also be mirrored in the relationship that consumers exert with their brands. Mrad and Cui's (2017) study indicates that consumers addicted to particular fashion brands reveal the state of happiness through the consumption or the possession of the brand's products. This is consistent with Richins et al.'s (1992) finding that the possession of goods will

improve the subjective well-being. Since life happiness is a component of subjective well-being (Andrews & Withey, 1976), it is expected that the possession and acquisition of goods of a fashion brand which consumers are addicted to may have a positive impact on their life happiness. As Elliott et al. (1996) suggest, some consumers engage in addiction in order to aid mood repair but they are generally content and able to cope with their lives.

Consequently, it may be the case that when becoming addictive to a brand, a brand addict's experience will have a positive impact on life happiness.

Furthermore, since compulsive buyers have lower self-esteem than other consumers (Faber & O'Guinn, 1992) and gaining social approval is important to them, they are more susceptible to normative interpersonal influence (Bearden et al., 1989). Hence, compulsive buyers are willing to conform to social expectations to enhance self-image in the opinion of others, are novelty seeking (Granero, Fernández-Aranda, baño, et al., 2016) and are prone to attend to brands that are gaining reputation and social status (Kukar-Kinney et al., 2016; Thompson & Prendergast, 2015). As such, a compulsive buyer will develop a close relationship with the brand if the brand can help her/him to regain the feeling of self-esteem through identifying self-identity in a brand. Indeed, Dommer et al.'s (2013) study demonstrates that low self-esteem consumers are more likely to attach to differentiating brands than high self-esteem consumers. Consequently, improved self-esteem is expected to positively impact on life happiness. Drawing on the above theories and analyses, the following is hypothesized:

H₅: Compulsive buying has a negative impact on life happiness.

H₆: Brand addiction has a positive impact on life happiness.

H₇: Self-esteem has a positive impact on life happiness.

2.3. Compulsive buying's impact on brand addiction

Researchers have agreed that different typological groups of compulsive buying may exist and may be motivated by different underlying factors, with different cognitive pathways resulting in manifestations of different behaviors (Black, 2007; DeSarbo & Edwards, 1996; Nataraajan & Goff, 1992; Williams, 2012). For example, non-extreme compulsive buyers may exhibit compulsive-like spending behavior for other reasons (e.g., materialism) other than high levels of anxiety (DeSarbo & Edwards, 1996). Moreover, the short-term benefits of the addictive behavior may have much more powerful influences than long-term negative consequences (Elliott et al., 1996). As Fournier and Alvarez (2013) argue, when engaging in compulsive shopping process, some consumers may become aware of a brand's hedonic, functional, and/or symbolic benefits, which help them to achieve self-related goals and thereby bring a brand closer to the self. The approach/avoidance framework in addiction research suggests that positive expectancies towards the effects of the addictive behavior should result in approach tendencies while negative expectancies should result in avoidance tendencies (Brand et al., 2016). Thus, it may be the case that through the compulsive-buying-like repetitive shopping experience, an individual's positive experience acquired from a certain brand may induce her/him to develop trust in and addictive attachment to the brand.

H₈: Compulsive buying has a positive impact on brand addiction.

2.4. The mediation of brand addiction and self-esteem

It is assumed that compulsive buying has a positive impact on brand addiction (H₈) and negative impacts on debt avoidance (H₁), Self-Esteem (H₃) and Life Happiness (H₅), and brand addiction has a positive impact on debt avoidance (H₂), Self-Esteem (H₄) and Life Happiness (H₆). From a holistic perspective, this set of relationships demonstrate that brand

addiction is a responsive factor that changes within a consumer and functions in an intermediary process that leads from compulsive buying behavior to debt avoidance, self-esteem and life happiness. Theoretically, it can therefore be assumed that brand addiction plays the role of a mediator in the relationships between compulsive buying and debt avoidance (H_1), self-esteem (H_3) and life happiness (H_5). More specifically, drawing on Cheema and Soma's (2008) theory of partition and cognitive intervention, we argue that for some compulsive buyers, cognitive development into brand addiction may entail cognitive elaboration on elements such as brand features, emotional satisfaction and brand comparison and choices. Consequently, such cognitive elaboration and deliberation from brand addiction in the decision process may make the compulsive buyers' decision more rationally "because of rules rather than impulse" (Cheema and Soma, 2008), hence reducing the tendency to go into debts. Hence:

H_9 : The relationship between compulsive buying and debt avoidance in H_1 is mediated by brand addiction.

Drawing on the extant literature, we have suggested earlier that compulsive buying has negative impacts on self-esteem (H_3) and life happiness (H_5), and self-esteem has a positive impact on life happiness (H_7). This means self-esteem is expected to function as a mediator in the relationship between compulsive buying and life happiness. Understanding the mediating role of self-esteem is important. DeSarbo and Edwards (1996) point out that compulsive buying may be considered as a progression in which some individuals may have not yet reached full-blown addiction and may be buying compulsively for reasons other than to fill some deep psychological need. Therefore, "individuals at the middle or lower end of the compulsive buying continuum may not respond to stress in the high levels of anxiety, but

they exhibit compulsive-like spending behavior for other reasons (e.g., boredom, materialism)” (236). Drawing on the above, it may be expected that at the early stage of compulsive buying, its negative impact on self-esteem may not be severe enough, hence, a compulsive buyer’s life happiness may not be affected due to its positive association with self-esteem. When compulsive buying has gone to the extreme, self-esteem may suffer and its positive impact on life happiness may be weakened. In other words, it is one’s self-esteem rather than compulsive buying per se that is of importance to one’s life happiness.

It should be noted that the directions of the effects of compulsive buying (all negative) and brand addiction (all positive) reflect brand addiction’s competitive mediation effects (Zhao et al., 2010). Specifically, when evoked by compulsive buying experience, the psychological state of brand addiction acts like a suppressor (Kraemer et al., 2001) that induces suppression of the compulsive buying’s negative impacts on debt avoidance, self-esteem and life happiness because of brand addiction’s positive impacts on these factors. In this case, an individual may retreat from compulsive buying by engaging in brand addiction, and the brand addictive experience may suppress the negative impact of compulsive buying. Based on the above, the following mediation hypotheses are proposed:

H₁₀: The relationship between compulsive buying and self-esteem in H₃ is mediated by brand addiction.

H₁₁: The relationship between compulsive buying and life happiness in H₅ is mediated by brand addiction.

H₁₂: The relationship between compulsive buying and life happiness in H₅ is mediated by self-esteem.

The above hypotheses are depicted in the theoretical framework in Figure 1.

(Place Figure 1 here)

Methodology

3.1. Sample

The purpose of the present study was to explore the two types of addictive consumption among consumers as the research population, but not for psychiatric diagnosis of the clinical population of disorders. Therefore, the sample was not based on the clinically diagnosed or self-identified compulsive buyers and brand addicts. Instead, a panel sample of 798 U.S. consumers was collected through Qualtrics Online Sample. Participants' ages ranged from 18 to 45, with 9 percent of the participants between 18 and 25, 39 percent between 26 and 35, and 52 percent between 36 and 45. Research reports that compulsive buying develops at the age of 18 (Schlosser et al., 1994) and the mean age of compulsive buyers is around 40 years in the adult U.S. population (Koran et al., 2006). This gives the rationale for the age range of our sample. Based on their study of compulsive buying behavior in the United States, Koran et al. (2006) speculate that the widespread opinion that most compulsive buyers are women may be wrong. Hence, the participants for the present study were balanced in gender with 394 males (49.40%) and 404 females (50.60%). In line with the work published by several previous researchers (e.g., Batra et al., 2012; Escalas & Bettman, 2005) that asked participants to report on "brand I love" in their surveys, participants in the present research were asked to specify a favorite fashion brand name and refer to that brand when answering the survey questions.

3.2. Measures

To test the theoretical model, the constructs' measurement scales were adopted from the literature. Compulsive buying was measured by the scale adopted from Faber and O'Guinn (1992). The scales for Brand Addiction and Debt Avoidance were adopted from Mrad and Cui (2017). Life happiness was measured based on the scale in Diener et al. (1985). Finally, to measure the self-esteem concept, a shortened version of Rosenberg General Self-Esteem Scale (RGSE; Rosenberg, 1965) was employed whereby only the five non-reversed items were adopted. The negative items of the RGSE were not included since they associate with the "self-derogation" aspect often found in drug use, aggression and violence (Alessandri et al., 2015), which is not the interest of the present research. Another reason is that method effects have been found to be associated with negative items that complicate interpretations (Marsh, 1996). The compulsive buying scale was based on the five-point Likert-type scaling (1=strongly agree, 5=strongly disagree). The rest of the scales were based on the seven-point Likert-type scaling (1= strongly disagree, 7=strongly agree).

4. Analysis and findings

4.1. Comorbidity of compulsive buying and brand addiction

To achieve the first aim of exploring whether consumers have the tendency of comorbidity of compulsive buying and brand addiction, the method used in the previous research on comorbidity (Faber et al., 1995; Kesebir et al., 2012) was employed whereby comparisons were conducted on the mean scores of compulsive buying and brand addiction between the groups of compulsive buyers and brand addicts respectively. Diagnosing compulsive buyers was based on Faber and O'Guinn's (1992) algorithm: $\text{Scoring} = -9.69 + (\text{CB1} * 0.33) + (\text{CB2} * 0.34) + (\text{CB3} * 0.50) + (\text{CB4} * 0.47) + (\text{CB5} * 0.33) + (\text{CB6} * 0.38) + (\text{CB7} * 0.31)$.

Responses scoring less than -1.34 were classified as compulsive buyers. This resulted in 158

participants (20% of this sample N=798) diagnosed as compulsive buyers. Identifying brand addicts was based on the classification of brand addiction in Mrad and Cui (2017) and the recommended T-score computation (Streiner & Norman, 2008). The T-scores of brand addiction of the present research's sample are shown in the Table 1. Responses above the T-score mean value of 50 were considered as brand addicts. This resulted in 382 participants (48% of this sample N=798) identified as brand addicts.

(Place Table 1 here)

The mean of the T-scores of brand addiction for the compulsive buyer group (59.05) was higher than the non-compulsive buyer group (47.77). The mean difference (11.28) is significant at the .01 level ($t = 14.21$, $df = 796$, $p = 0.00$). This significant difference suggests that compulsive buyers have higher tendencies to engage in brand addiction than non-compulsive buyers. The mean of compulsive buying scores was -.41 (scoring less than -1.34 is classified as compulsive buyers) for the brand addict group and 1.73 for the non-brand addict group. It should be pointed out that the mean value of compulsive buying for the brand addict group is not less than -1.34 because this group included non-compulsive buyers. However, the mean difference (-2.14) is significant at the .01 level ($t = -13.858$, $df = 796$, $p = 0.00$). This significant difference suggests that brand addicts have higher tendencies to engage in compulsive buying than non-brand addicts. These results demonstrate the existence of comorbidity of compulsive buying and brand addiction in consumers' fashion consumption in the U.S.

4.2. Testing the theoretical model

Structural equation modeling with Mplus 8.2 (Muthén and Muthén 1998-2017) was

employed to test the theoretical model since all the concepts are represented by latent variables (Wu and Zumbo, 2008) and structural equation modeling estimates all the relations especially errors in multiple measures simultaneously (Zhao et al., 2010). A robustness check was performed whereby the sample responses was divided randomly into two halves (e.g. Heller et al. 2009 as cited in Swoboda et al., 201; Zou et al., 2019): a calibration sample to assess the measurement model and a validation sample to confirm the resulting measurement model (DeVellis, 2012; Diamantopoulos and Siguaw, 2000).

First, all the measurement scales were assessed for their validity and reliability through the confirmatory factor analysis (CFA) with the sample data ($n = 399$). The fit of the measurement model was assessed based on the suggested cut-off values: Root mean square error of approximation (RMSEA) ≤ 0.08 (Browne & Cudeck, 1993), the Tucker-Lewis index (TLI) ≥ 0.90 (Tucker & Lewis, 1973); comparative fit index (CFI) ≥ 0.90 (Bentler, 1990); standardized root mean square residual (SRMR) ≤ 0.08 (Byrne, 2001)

The initial estimation results were satisfactory despite significant chi-square statistics: $\chi^2 = 1141.093$ ($p = 0.0$), $df = 424$, RMSEA = 0.065, TLI = 0.90, CFI = 0.91, and SRMR = 0.065. Based on the literature suggestion (Gerbing & Anderson, 1988; Hair et al. 2010), the items that presented factor loadings below the suggested criteria and had high error variances were deleted. The model was reassessed following a reiteration process after removing the third item from life happiness (LH3), the sixth and the seventh item from compulsive buying (CB6 and CB7) and one item from debt avoidance (DA2). After this minor modification, the scales resulted in a satisfactory model fit: $\chi^2 = 753.454$ ($p = 0.0$), $df = 314$, RMSEA = 0.059, TLI = 0.93, CFI = 0.94, and SRMR = 0.056.

The values of composite reliability (CR) of all the measured constructs were higher than the minimum suggested cut-off value of 0.60 (Fornell & Larcker, 1981). The values of average variance extracted (AVE) of the measured constructs were higher than the suggested

cut-off value of 0.5 or higher (Fornell & Larcker, 1981). Thus, the AVE and CR values demonstrate satisfactory convergent validity. The standardized factor loadings for the items and the AVE and CR values are disclosed in Table 2.

(Place Table 2 here)

Finally, the discriminant validity was tested following Fornell and Larcker's (1981) method requiring the square root of the AVE for each of the seven constructs to exceed the corresponding correlations between the examined constructs. Accordingly, the results (shown in Table 3) demonstrate existence of discriminant validity for the constructs. Based on these CFA results, the measurement scales for the constructs were regarded satisfactory for the analysis of the structural model.

(Place Table 3 here)

The next step was to test the theoretical model using structural equations modelling (see Figure 1) on the validation sample data ($n = 399$). The estimation results demonstrated an acceptable goodness-of-fit despite the significant chi-square statistics: $\chi^2 = 856.474$ ($p = 0.000$), $df = 316$, $RMSEA = 0.065$, $CFI = 0.913$, $NNFI = 0.91$, $TLI = 0.90$, and $SRMR = 0.069$. Thus, the structural model results support the hypotheses of the direct effects in H_1 , H_2 , H_3 , H_4 , H_6 , H_7 and H_8 . The results demonstrate that compulsive buying has negative impacts on debt avoidance ($H_1: \beta = -0.61, p < 0.01$), self-esteem ($H_3: \beta = -0.39, p < 0.01$), while brand addiction has positive impacts on debt avoidance ($H_2: \beta = 0.30, p < 0.01$), self-esteem ($H_4: \beta = 0.43, p < 0.01$), and life happiness ($H_6: \beta = 0.19, p < 0.01$). Self-esteem has a positive impact on life happiness ($H_7: \gamma = 0.60, p < 0.01$). Compulsive buying has a positive impact on

brand addiction ($H_8: \gamma = 0.63, p < 0.01$). The direct path from compulsive buying to life happiness was not significant ($H_5: \beta = -0.06, p = 0.47$). This non-significant path should not be regarded as an issue here since there need not be a significant zero-order effect of compulsive buying on life happiness to establish the mediation of brand addiction and self-esteem on this path (Zhao, Lynch & Chen, 2010). These results can be viewed in Table 4.

(Place Table 4 here)

To test for the mediation of brand addiction (H_9 - H_{11}) and self-esteem (H_{12}), the bootstrap method (Preacher & Hayer, 2008; Zhao et al., 2010) was employed via Mplus 8.2 (Muthén & Muthén, 1998-2018) using 5000 bootstrapping resamples with bias-corrected 95% confidence intervals to test the significance of the indirect effect of the mediator. A mediation effect is confirmed when a confidence interval (CI) excludes zero for the indirect effect. The results exhibit support for four mediation indirect effects (H_9 - H_{12} , see Table 5). The findings indicate that the relationship between compulsive buying and debt avoidance is partially mediated by brand addiction (H_9) (95% CI [0.092, 0.315]). In addition, the relationship between compulsive buying and self-esteem is partially mediated by brand addiction (H_{10}) (95% CI [0.174, 0.397]). The results also show that the relationship between compulsive buying and life happiness is fully mediated by brand addiction (H_{11}) (95% CI [0.038, 0.214]) and self-esteem (95% CI [-0.359, -0.138]) given the non-significant direct effect from compulsive buying on life happiness (H_5) as reported earlier.

(Place Table 5 here)

5. Discussion

5.1 Theoretical implications

The present research aimed at identifying how compulsive buying is comorbid with brand addiction and their influences on consumers' wellbeing. The results from our research suggest that compulsive buying can be comorbid with brand addiction in consumers' fashion consumption. The findings demonstrate compulsive buying's negative impact and brand addiction's positive impact on debt avoidance, self-esteem and life happiness, revealing brand addiction's positive impacts on consumers wellbeing as compared with compulsive buying's negative impacts. This suggests that not all addictions are pathological or lead to negative consequences, which supports some views in the extant literature (Martin et al., 2013). The findings can help consumer and brand researchers and clinical psychologists to establish a better understanding of these different forms of addictions as well as detect the possibility of any harmful effects for consumer wellbeing.

This research also reveals that brand addiction functions as a positive mediator in the relations between compulsive buying and debt avoidance, self-esteem and life happiness, pointing to the fact that compulsive buying's negative impacts may be reduced or eliminated in the presence of brand addiction. As such, understanding the comorbidity effects among these two related forms of addiction might help improve treatment programs to avoid or decrease the negative addictive behavior such as compulsive buying (e.g. Faber et al., 1995).

The findings from the present research open an important new field of research in addictive consumption. In studies of comorbidity, it is recognized that similar underlying causes may lead to two (or more) conditions/behaviors coexisting in an individual without explicit ordering, or one leads to the development of the other (Angold et al., 1999; Feinstein, 1970; Krahn, 1991; Spitzer, 1994; Valderas et al., 2009). Since brand addiction demonstrates positive impacts on debt avoidance, self-esteem and life happiness, the findings of comorbidity of compulsive buying with brand addiction extend the general theories about

compulsive buying into its comorbidity with brand addiction that is non-pathological and leads to positive consequences. This lends support for the importance of examining interrelated addictions as a larger phenomenon to understand comorbid addictive behaviors (Faber et al., 1995; Hirschman, 1992; Jacobs, 1989; Krahn, 1991; Marlatt et al., 1988; O'Guinn & Faber, 1989).

It is important to note that in the extant literature, comorbidity of compulsive buying is studied exclusively with other addiction with negative consequences. The present research presents the first evidence that brand addiction may be a non-pathological addiction in terms of debt avoidance, self-esteem and life happiness, and may coexist with compulsive buying as a pathological addictive behavior in some consumers. Moreover, the present research demonstrates differences between compulsive buying and brand addiction in terms of their impacts on consumers. These findings provide important evidence for the value of clarifying the differences between different types of addiction, some of which involve negative consequences while others may not have direct negative consequences (O'Guinn & Faber, 1989). One important implication is that in consumer research, the notion of addiction needs to be broadened to include excessive (e.g., acquiring items that are not needed) but non-pathological (e.g., not leading to dysfunctional consequences) addictions, and investigation of such addictions should be conducted without the presupposition that all addictions are pathological or similar to substance addiction. As researchers argue, "any source which is capable of stimulating an individual, could become addictive" (Alavi et al., 2012: 291), and addictions should be understood beyond the context of substance abuse (Martin et al., 2013).

The results from the structural model analysis demonstrate that compulsive buying has a salient impact on brand addiction, indicating the likelihood that some consumers may switch from compulsive buying to brand addiction. The interpretation of this result may be that the short-term gratifications from compulsive buying (Faber et al., 1995) lead an individual to

seek for long-term gratifications from brand satisfaction experience, which in turn entails the individual into a brand addict. As Krahn (1991) points out, the weakening of one behavioral reinforcer increases the use of other reinforcers. Therefore, despite the negative consequences from compulsive buying (Faber & Christenson, 1996; O'Guinn & Faber, 1989; Faber & O'Guinn, 1992; Hassay & Smith, 1996), the likelihood of brand addiction's co-functioning with compulsive buying opens new questions about what underlying factors may work to turn the individual's tendency of compulsive buying into brand addiction for more positive consumption. In addition, the results support our model that predicts negative impacts from compulsive buying and positive impacts from brand addiction on self-esteem, life happiness and debt avoidance. These findings not only provide support for some positive consequences of brand addiction as suggested in some early studies (e.g., Elliott et al., 1996; Cui et al., 2018; Mrad & Cui, 2017), but also empirically distinguish between compulsive buying and brand addiction although both fall into the category of addictive consumption. The findings of these different impacts on debt avoidance, self-esteem and life happiness have enriched the conceptual meanings of these two important concepts, and offered a valuable clarification of the differences between the two types of the addictive consumption.

The present research has provided evidence that brand addiction functions as a positive mediator in the relationship between compulsive buying and debt avoidance, self-esteem and life happiness. This finding further supports the value of examining comorbid addiction in consumer research. In particular, the use of a consumer sample instead of clinically diagnosed or self-identified sample of compulsive buyers and brand addicts supports the incidence of comorbidity of compulsive buying and brand addiction in general consumers in the U.S. fashion market. Since research on brand addiction is still at its early stage, this finding encourages further research not only on brand addiction but also the joint effects with other addictive consumption behaviors. This new area of research is valuable because the

extant literature reports many negative aspects of compulsive buying, and more is yet to be known about the positive and negative results from brand addiction and how the comorbidity of the two addiction affects consumers' mind and action in response to their life experience and marketing environments.

5.2 Managerial implications

The roles of marketers nowadays reside not only in making profits over the short-term but also offering healthy alternatives for individuals, improving their quality of life and benefiting the society (e.g. Horváth & Adıgüzel, 2018; Horváth & Birgelen, 2015). The prevailing negative connotation of addictive consumption poses a constant challenge to firms' efforts in promoting products and brands without risking marketing ethics problems that undermine consumers' life quality. It may seem ethically questionable to encourage consumers to be addicted to brands based on the prevailing assumption that all addictions result in destructive consequences. The findings from the present study provide evidence of brand addiction's positive impacts on consumers' life happiness, self-esteem and debt avoidance, and the fact that compulsive buying's negative impacts on life happiness, self-esteem and debt avoidance may be reduced in the presence of brand addiction. Marketing practitioners may draw on the findings of the present research to explore approaches to strengthening consumer-brand relationships that may weaken or eliminate some of the negative consequences from consumers' compulsive buying.

Brand addiction manifests in acquisitiveness, dependence, follow-up, hoarding, lack of self-control, obsession, outward influence, persistence within affordability, resistance to substitutes, support and thought occupancy (Mrad & Cui, 2017). Marketing practitioners may design effective approaches to enhancing consumers' positive mindset and actions in these

aspects through the brand's touch points such as advertising, sales campaigns, narratives in new item release and social media platforms, while sending clear messages on avoidance of negative aspects such as overspending. There is evidence in the literature that positive mood states promote variety seeking, and happier consumers spend more on hedonic products (Zhong & Mitchell, 2012). Brands can explore operations such as advertising and direct interaction with consumers to enhance their positive mood gained from brand addiction to strengthen their markets and customer relations.

Consumers' ethical judgements are most often based on their deontological and teleological evaluations (Vitell, 2003). According to Hunt and Vitell (1993), in the deontological evaluation, a consumer makes a comparison of the perceived alternatives with the norms that represent the personal values. In the teleological evaluation, a consumer assesses how much good versus bad will result from the decision, and considers the choice of an alternative the most ethical if the expected consequences bring the greatest balance of good over bad. As brand addicts have the character of persistence within affordability, marketing practitioners may highlight the importance of affordability and debt avoidance and combine them with popular ethical values in multiple channels and platforms of marketing communication. This will motivate brand addicts to take ethical actions such as avoiding overspending while retain their close connection with the brand. Research has found that enhancing the anticipation of guilt will increase a consumer's ethical intentions (Steenhaut & Van Kenhove, 2006). Marketing practitioners may incorporate marketing communications that remind the guilt feeling of destructive consequences from overspending and getting into debts from compulsive buying, to enhance evaluation of negative consumption behavior and develop positive and healthy consumption through close relationship with brands. In this way, brands can protect themselves from criticisms that their marketing practices are

promoting uncontrollable spending. In this respect, efforts in market research are needed to identify 1) what personal and social factors may cause depression and stress in compulsive buyers; 2) what factors motivate those non-pathological compulsive buyers in their shopping behaviors; and 3) what elements management could incorporate in brand promotion and consumer-brand relationship to help the compulsive buyers to achieve mood repair by inducing them from earlier shopping experiences to brand-focused benefits towards avoiding getting into debt, enhancing and sustaining self-esteem and ultimately maintaining long-term life happiness.

5.3. Limitations and directions for future research

The present research surveyed general consumers without pre-selection of compulsive buying and brand addictive behaviors. As a result, the sample size was relatively small for compulsive buyers (N=158). Additional research with larger sample should be encouraged to confirm the findings from the present research. The present research did not examine the causes of the two types of addiction. This limitation has reduced the generalizability of the findings. While this research provides important insights into the two types of addictive consumption, further research is needed to replicate our model in different settings and among different populations, and investigate relevant factors leading to compulsive buying and brand addiction. Since in the present study compulsive buying is found to have an impact on brand addiction, further research may be conducted under the controlled experimental, longitudinal condition to examine whether compulsive buying causally leads to brand addiction, and what psychological and situational factors induce the consumer's behavior if these two addictions can coexist in an individual. Future research can also use experimental design to examine whether brand addiction involves negative consequences when including other factors that lead to compulsive buying. Also, the context of the U.S. in which the

present research was conducted manifests a context limitation. Future researchers are recommended to explore this theoretical model in different countries and with other product types than fashion products.

Studies have reported interrelations between compulsive buying and other forms of compulsive consumption such as binge eating (Faber et al., 1995), gambling (Granero, Fernández-Aranda, Baño, et al., 2016), self-esteem and money attitudes (Hanley & Wilhelm, 1992), among others. Since the present research has demonstrated comorbidity of compulsive buying and brand addiction, further research is needed to extend the understanding of possible causes and their interactive effects when compulsive buying and brand addition co-occur within a consumer's addictive consumption. "By integrating findings across different forms of compulsive consumption, we can create broader and more parsimonious theoretical models" (Faber et al., 1995: 303) for guiding market research and marketing practices.

Unedited manuscript (Mrad, M & Cui, C.)

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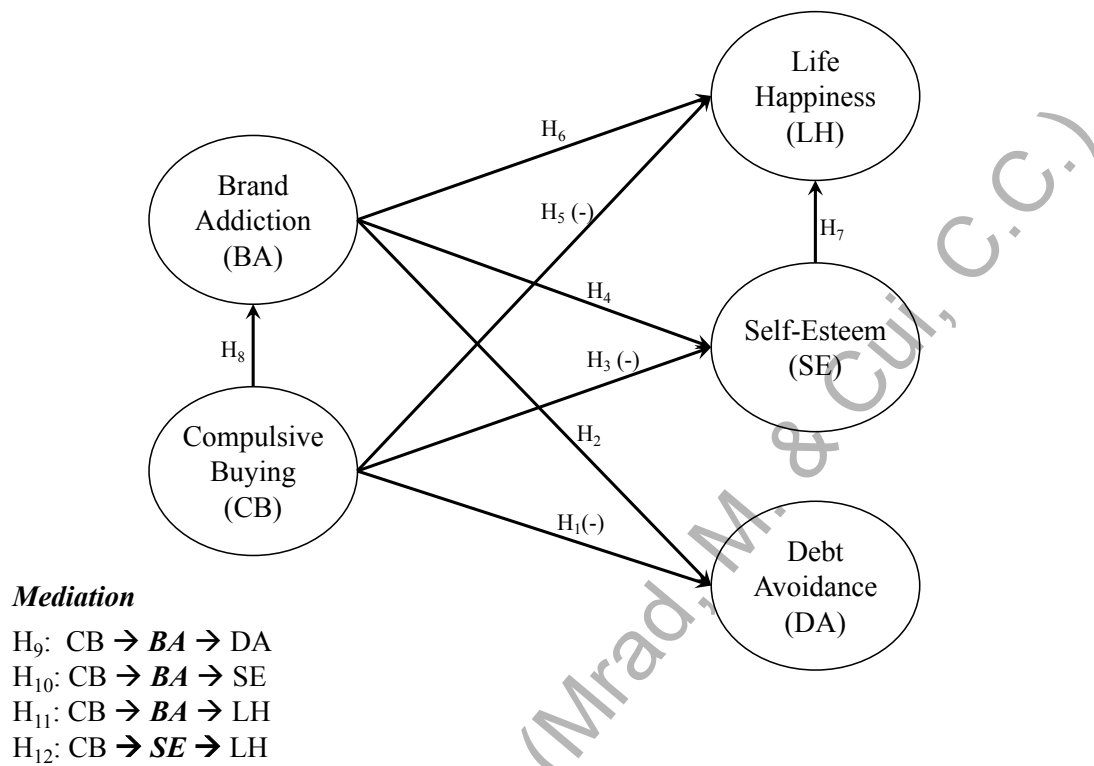


Figure 1 The theoretical framework

Table 1
T-scores of brand addiction

Raw score	T-score	Frequency	Raw score	T-score	Frequency
10	35.39	43	40	55.33	22
11	36.05	11	41	56.00	15
12	36.72	14	42	56.66	29
13	37.38	22	43	57.33	20
14	38.05	25	44	57.99	15
15	38.71	15	45	58.66	15
16	39.38	27	46	59.32	9
17	40.04	15	47	59.99	8
18	40.70	18	48	60.65	7
19	41.37	25	49	61.32	15
20	42.03	14	50	61.98	7
21	42.70	18	51	62.65	7
22	43.36	22	52	63.31	9
23	44.03	14	53	63.98	7
24	44.69	13	54	64.64	9
25	45.36	20	55	65.31	7
26	46.02	15	56	65.97	7
27	46.69	21	57	66.64	12
28	47.35	11	58	67.30	7
29	48.02	19	59	67.97	5
30	48.68	15	60	68.63	9
31	49.35	19	61	69.30	3
32	50.01	8	62	69.96	5
33	50.68	11	63	70.63	4
34	51.34	19	64	71.29	4
35	52.01	15	65	71.95	4
36	52.67	16	67	73.28	1
37	53.34	12	68	73.95	3
38	54.00	16	70	75.28	3
39	54.67	17			

Table 2
Scale items and standardized factor loadings

Constructs	Measurement item	Standardized factor loadings
Brand Addiction AVE = 0.57 CR = 0.93	BA1 I try very hard to get everything from my favourite brand.	0.60
	BA2 I often fail to control myself from purchasing products of my favourite brand.	0.73
	BA3 I often find myself thinking about my favourite brand.	0.84
	BA4 I tend to give up some life activities and duties such as the occupational, academic and familial in order to fulfil some activities related to my favourite brand.	0.69
	BA5 I tend to allocate certain portion of my monthly income to buy the products of my favourite brand.	0.85
	BA6 I usually remember tenderly the previous experience with my favourite brand.	0.76
	BA7 I experience a state of impatience immediately before I can get hold of the products of my favourite brand.	0.82
	BA8 I follow my favourite brand's news all the time.	0.86
	BA9 I usually plan when the next purchase of my favourite brand will be.	0.80
	BA10 I would invest my money in some way to my favorite brand in order to support it.	0.76
Compulsive Buying AVE = 0.55 CR = 0.86	CB1 If I have any money left at the end of the pay period, I just have to spend it.	0.72
	CB2 I felt anxious or nervous on days I didn't go shopping.	0.81
	CB3 I bought things even though I couldn't afford them.	0.79
	CB4 I made only the minimum payments on my credit cards.	0.61
	CB5 I wrote a check when I knew I didn't have enough money in the bank to cover it.	0.77
Debt Avoidance AVE = 0.60 CR = 0.82	DA1 I only spend as much as I can afford.	0.76
	DA3 I will not purchase things I like if I know this will put me into debt.	0.74
	DA4 It is important to live within my means.	0.81
Life Happiness AVE = 0.67 CR = 0.89	LH1 In most ways my life is close to my ideal.	0.95
	LH2 The conditions of my life are excellent.	0.85
	LH4 So far I have gotten the important things I want in life.	0.76
	LH5 If I could live my life over, I would change almost nothing.	0.68
Self-Esteem AVE = 0.62 CR = 0.89	SE1 I feel that I am a person of worth, at least on an equal plane with others.	0.78
	SE2 I take a positive attitude toward myself.	0.86
	SE3 I have a number of good qualities.	0.75
	SE4 I am able to do things as well as most people.	0.67
	SE5 On the whole, I am satisfied with myself.	0.86

Table 3
Discriminant validity

	DA	SE	CP	BA	LH
Debt Avoidance	0.60	0.09	0.18	0.02	0.06
Self-Esteem	0.30	0.62	0.01	0.01	0.38
Compulsive Buying	-0.42	-0.11	0.55	0.47	0.02
Brand Addiction	-0.15	0.09	0.69	0.60	0.07
Life Happiness	0.25	0.62	0.14	0.28	0.67

Notes: Correlations are below the diagonal, squared correlations are above the diagonal, and AVE estimates are presented on the diagonal.

Table 4
Results of the hypotheses testing

H ₁	Compulsive buying → debt avoidance	-0.61**	Supported
H ₂	Brand addiction → debt avoidance	0.30**	Supported
H ₃	Compulsive buying → self-esteem	-0.39**	Supported
H ₄	Brand addiction → self-esteem	0.43**	Supported
H ₅	Compulsive buying → life happiness	-0.06ns	Not supported
H ₆	Brand addiction → life happiness	0.19**	Supported
H ₇	Self-esteem → Life happiness	0.60**	Supported
H ₈	Compulsive buying → brand addiction	0.63**	Supported

** $p < 0.01$

Table 5
Bootstrapping SEM indirect effect estimates

Indirect effect relationship	Indirect effect
H ₉ : Compulsive buying → brand addiction → debt avoidance	0.19** (CI: 0.092, 0.315)
H ₁₀ : Compulsive buying → brand addiction → self-esteem	0.27** (CI: 0.174, 0.397)
H ₁₁ : Compulsive buying → brand addiction → life happiness	0.12** (CI: 0.038, 0.214)
H ₁₂ : Compulsive buying → self-esteem → life happiness	-0.24** (CI: -0.359, -0.138)

All indirect effects are reported in standardized form

** $p < 0.01$.