





# The impact of neuroticism on compulsive buying behavior: the mediating role of the past-negative time perspective and the moderating role of the consumer's need for uniqueness

Beyza Aksoy<sup>a</sup>, Ayhan Akpınar<sup>b</sup>, and Behçet Yalın Özkara<sup>c</sup>

<sup>a</sup>International Trade and Logistics, KTO Karatay University, Konya, Turkey; <sup>b</sup>Business and Management, KTO Karatay University, Konya, Turkey; <sup>c</sup>Department of Marketing, Eskişehir Osmangazi University, Eskişehir, Turkey

## ABSTRACT

Around 300 million people are affected by consumption-related psychological disorders. Despite the prominence of this problem, which impacts 1 in every 20 people, the number of studies on consumption-related problems in marketing is limited. Furthermore, although marketing scholarship focuses on identifying antecedents of compulsive buying, the potential variables involved in this complex mechanism are still unknown. For this purpose, this study investigated (1) the mediating role of past-negative time perspective (PNTPT) in the effect of neuroticism on compulsive buying behavior (CBB) and (2) the moderating role of consumer's need for uniqueness (CNFU) on the direct or indirect effects of neuroticism on CBB. In the study using data ( $n = 666$ ) from a questionnaire survey, the Hayes PROCESS macro was used to perform mediation and moderated mediation analysis. Results demonstrated that consumers' PNTPT partially mediate the impact of neuroticism on CBB. Moreover, moderated mediation analysis showed that the CNFU moderated the pathway between neuroticism and CBB; that is, the path was weaker in the context of a greater need for uniqueness. The study offers an empirical contribution to the international research on compulsive buying behavior, including mediator and moderator variables. The findings are discussed in theoretical and practical insights to better understand compulsive buying behavior and related constructs.

## Introduction

The consumption culture has become the most vital force shaping social life in modern societies (Roberts & Sepulveda, 1999). However, despite its benefits to consumer welfare/quality of life (Csikszentmihalyi, 2000), it also has many negative consequences. Globally, around 300 million people suffer from the devastating impacts of the dark side of consumption, including excessive consumption, shopping addiction, materialism, and compulsive buying behavior (Koran et al., 2006; Moschis, 2017).

Compulsive buying, which has become one of the driving forces characterizing the consumer society in the last few decades (Otero-López et al., 2021), although not defined as a specific disorder in the DSM-5 (Moulding et al., 2017) usually causes problems in consumers' lives as severe as other negative consumption experiences, such as gambling, drugs, or alcoholism. Compulsive buying may temporarily raise the mood of consumers or increase their self-esteem; however, persistently, it can result in feelings of embarrassment, depression, and regret (McElroy et al., 1995). In

addition, studies have suggested that financial, emotional, and social problems are associated with compulsive buying, such as long-term debt, depression, and marital problems (Christenson et al., 1994; O'Guinn & Faber, 1989).

Studies have shown the rapid increase in health expenditures to overcome psychological diseases caused by consumption disorders (Druss, 2006). It has been reported that its prevalence is approximately 6–7% in developed countries such as the USA and Germany (Koran et al., 2006; Mueller, Mitchell et al., 2010). In addition, consumers from emerging economies such as Brazil, China, and India also suffer from compulsive buying behavior (He et al., 2018; Leite et al., 2013). Whereas most research into consumer behavior investigates consumer choice intended to optimize consumer utility (Wansink, 1994), mainstream literature largely ignores the darker side of consumer behavior (Moschis, 2017). However, the factors that cause negative consumption experiences require greater attention by studying them to promote public health and prevent unnecessary consumption (Shoham & Brenčić, 2003). In

short, the primary motive for this research area has been the opinion that such consumption tendencies have adverse effects on consumers' well-being (Dittmar, 2005). For such reasons, identifying and analyzing variables that affect compulsive buying become engaging for scholarly work.

Previous research is in agreement that personality plays a cardinal role in compulsive buying (Hsiao, 2017; Johnson & Attmann, 2009; Otero-López & Villardefrancos Pol, 2013). The most prevalent framework on the individual trait structure, the five-factor model, posits five personality types: Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness (Costa & McCrae, 1992). Several studies indicated that individuals with neuroticism, who can be anxious, angry, sensitive, and unstable (McCrae & John, 1992) are more prone to compulsive buying (Andreassen et al., 2013; Fayez & Labib, 2016; Mueller, Claes et al., 2010; Otero-López et al., 2021). As neurotic consumers have psychological distress and low self-esteem, they shop to avoid lousy moods and seek mood-restoring experiences (Ali et al., 2021).

On the other hand, besides the possible effects of personality traits, this study includes past negative time perspective (hereafter, PNTP) and consumers' need for uniqueness (hereafter, CNFU) in order to examine whether they play a central trait role between neuroticism and compulsive buying relationship (Mowen & Spears, 1999). Individuals' time perspectives affect their emotional states, judgments, and decisions (Cernas Ortiz & Davis, 2016). PNTP involves dealing with the past with a pessimistic view, remembering it as distressing, and contemplating traumatic events (Leonard et al., 2019). Given the negative association of PNTP with financial security, financial risk tolerance, self-regulation ability (Baird et al., 2020; Leonard et al., 2019), and positive association with neuroticism, depression, anxiety, negative mood, low self-esteem, addictive tendency (Dunkel & Weber, 2010; Stolarski et al., 2014; Zhang & Howell, 2011; Zimbardo & Boyd, 2015) it is reasonable to assume that PNTP can play a mediating role between neuroticism and compulsive buying.

Moreover, we investigate the moderation mechanisms to deepen our understanding of this process. Buying products also serves as an indicator of consumers' social status (Dittmar, 2005), and they use possessions to express their uniqueness and self-identity (Tian et al., 2001). By purchasing, consumers believe they are getting closer to their ideal selves, improving their social image, and expressing themselves better (Horváth & Adigüzel, 2018; Kukar-Kinney et al., 2012). Similarly, some authors emphasized that self-esteem concern is

the fundamental motivation for compulsive buyers (Faber et al., 1995; Fromkin, 1972). CNFU affects consumers' luxury brands choice and fashion orientation (Bertrandias & Goldsmith, 2006; Bian & Forsythe, 2012). Furthermore, compulsive buyers are interested in fashion (Johnson & Attmann, 2009) and their physical appearance (Faber et al., 1995) with a high degree of apparel-product involvement (Yurchisin & Johnson, 2004). Therefore, we propose that CNFU play a moderating role in this process.

This study is relevant and contributes to marketing and, more specifically, the dark side of consumer behavior from several perspectives. First, most of the literature deals with consumer behavior issues that focus on results that maximize firms' profits and ignore the societal benefits. Secondly, this research investigates the effect of neuroticism on compulsive buying with possible mediation and moderation constructs as central traits. Furthermore, few studies have examined the compulsive buying process with the hierarchical model (Johnson & Attmann, 2009; Mowen & Spears, 1999). Finally, research has focused on the dark side of consumer behavior in an emerging economy, as it has been examined primarily in developed countries (Horváth & Adigüzel, 2018). The rest of the study has been organized as follows. First, the following section presents the theoretical background, followed by the research methodology. Finally, discussions, conclusions, and recommendations for future research are presented.

## Conceptual framework

### *Relationship between neuroticism and compulsive buying*

Compulsive buying has been defined as "chronic repetitive purchasing that becomes a primary response to negative events or feelings" (O'Guinn & Faber, 1989). Compulsive buying is a severe repetitive problem that creates personal and social problems (Otero-López et al., 2021). Compulsive consumers generally make this purchase to respond to unhappy events or low-esteem concerns. However, this buying behavior has uncontrollable urges and ends with purchasing products that are not needed or cannot be afforded (Trautmann & Johnson, 2007). Compulsive buying affects the individual, his/her family, and even the community, leading to overindulgence, heavy debt, and bankruptcy (Ebrahimi et al., 2020). Research has shown that %20 of serious debtors fit a compulsive buying profile (Gardarsdóttir & Dittmar, 2012). Hence, while the buying behavior may temporarily boost the mood and self-esteem of an

individual (Faber & Christenson, 1996), it is often pursued by embarrassment and depression (McElroy et al., 1995).

Compulsive buying has been described as a problematic buying behavior driven by consumers' internal needs and external cues (Ali et al., 2021). Studies have shown that low self-esteem, depression, anxiety (Faber et al., 1995; O'Guinn & Faber, 1989), materialism, mood, narcissism (Harnish & Bridges, 2015; Johnson & Attmann, 2009; Moschis, 2017; Moulding et al., 2017) and neuroticism (Otero-López et al., 2021; Otero-López & Villardefrancos, 2013) is associated with compulsive buying. A growing stream of literature has proposed that personality traits may play a critical role in the development of compulsive buying behavior (Ali et al., 2021; Mikołajczak-Degrauwe et al., 2012; Otero-López & Villardefrancos Pol, 2013; Shehzadi et al., 2016). Neuroticism has been defined as the tendency to experience negative emotions, including anger, anxiety, self-awareness, irritability, emotional instability, and depression (Ng, 2015). Empirical evidence of previous research is highly consistent that neuroticism is one of the antecedents of compulsive buying. As highly neurotic consumers have these negative emotions, they show compulsive buying behavior to avoid negative moods (Faber & Christenson, 1996). For instance, Johnson and Attmann (2009) argued that consumers who shop compulsively for clothing have neurotic personality traits. Otero-López et al. (2021) revealed that compulsive buying tendency is higher in young adults with a neurotic personality trait. Similarly, Hsiao (2017) suggested that neuroticism causes mobile application usage among users in a significantly compulsive manner. Similarly, some researchers found that neuroticism was positively associated with internet addiction, work addiction, and compulsive purchasing (Andreassen et al., 2013). Therefore, it is predicted that neuroticism has a positive effect on compulsive buying.

H1: Neuroticism has a significant and positive effect on CBB.

### ***The mediating role of past-negative time perspective***

Lewin (1951) defined time perspective as "...the totality of the individual's views of his psychological future and psychological past existing at a given time." Hoch and Loewenstein (1991) viewed purchasing as a struggle between long-term objectives, such as being provident or not purchasing useless products, and short-term

objectives, such as instant satisfaction or enjoying the purchasing process. In this regard, they stated that the time perspective might constitute a reason for spending behavior and compulsive buying. However, only a few studies have examined the relationship between time perspective and compulsive buying. For instance, Brougham, Jacobs-Lawson, Hershey, and Trujillo (2011a) are one of the first to show a direct relationship between these two mechanisms (high levels of neuroticism and CBB). Similarly, retail therapy studies have shown that consumers in unfavorable circumstances try to change their moods or ease their minds by shopping (Atalay & Meloy, 2011). However, it is necessary to investigate the costs as well as the benefits of these purchases for individuals in different emotional states or traits. From this viewpoint, the time perspective is thought to be a helpful phenomenon in explaining the relationship between neuroticism and CBB.

Past-negative time perspective, which is one of five main time perspectives (past-negative, past positive, present hedonistic, present fatalistic, and future), is defined as "a generally negative, aversive view of the past" (Zimbardo & Boyd, 1999). It is associated with neuroticism, depression, anxiety, unhappiness, fear, problems in social relationships, negative mood, low self-esteem, and addictive tendency (Dunkel & Weber, 2010; Stolarski et al., 2014; Zhang & Howell, 2011; Zimbardo & Boyd, 2015). Besides, people with high levels of neuroticism have less life satisfaction (DeNeve & Cooper, 1998) because of negative evaluations of their past (i.e. PNTP) (Boniwell et al., 2010; Drake et al., 2008).

Previous research has demonstrated chiefly the association between time perspective and personality traits. Studies using the five-factor model of personality have shown that PNTP is positively associated with neuroticism (Dunkel & Weber, 2010; Zhang & Howell, 2011). Neuroticism is known to be associated with negative emotional reactivity. A high level of negative emotional reactivity may increase PNTP biases (i.e. the intensity of negative emotions about the past, such as regret and guilt) (Sobol-Kwapinska, 2016; Stolarski & Cyniak-Cieciura, 2016). Therefore, we assume that neuroticism may affect PNTP.

H2: Neuroticism has a significant and positive effect on PNTP.

Lyubomirsky and Nolen-Hoeksema (1993, 1995) stated that ruminating about negative memories of past events is associated with depression. Previous studies found that past-focused and traumatized individuals may feel sadness associated with this traumatic event. Holman and Silver (1998) argued that trauma may affect individuals' time orientation and that the past time orientation is related to

psychological distress. Meanwhile, Boyd and Zimbardo (2005) concluded that the PNTP is strongly associated with depression, anxiety, unhappiness, and emotional instability (neuroticism). Moreover, Van Beek et al. (2011) revealed that PNTP is closely related to neuroticism and psychiatric problems, such as depression and anxiety, associated with CBB. Those with a PNTP are more likely to be less motivated to strive for future rewards and generally receive little pleasure (Zimbardo & Boyd, 1999). This finding supports the view that having a PNTP can lead to post-purchase guilt, a dimension of the compulsive buying behavior scale. Although the effects of CBB and PNTP on the individuals are pretty similar (DeNeve & Cooper, 1998; DeSarbo & Edwards, 1996; Dunkel & Weber, 2010; Holman & Silver, 1998; Lyubomirsky & Nolen-Hoeksema, 1993, 1995; Stolarski et al., 2014; Zhang & Howell, 2011; Zimbardo & Boyd, 2015), very few studies have examined the relationship between PNTP and CBB. For instance, Unger et al.'s (2018) study, one of the rare studies that directly examine this relationship, found that PNTP significantly explains compulsive buying. Thus, the idea that PNTP can affect the CBB emerges.

H3: PNTP has a significant and positive effect on CBB.

Addressing the common features of neuroticism and CBB in terms of PNTP is vital for understanding the mediation role in the model. The study of Bitsko et al. (2008), which emphasized that the PNTP mediates the relationship between gender and depression level, concluded that a person's negative thinking about their past performs as a more direct predictor than gender in this relationship. The study of Linden et al. (2014), on the other hand, put forward findings that the PNTP mediates the relationship between the level of psychological distress (e.g. depression and anxiety) of a person and the consequences of alcohol use (i.e. the amount of drinking and alcohol-related problems). Another study states that PNTP mediates a low level of self-efficacy, which causes psychological problems such as depression and anxiety (Bandura & Watts, 1996) to increase the tendency toward using substances among adolescents (Shafikhani et al., 2018). Problematic usage habits and addictive behaviors are associated with neuroticism (Andreassen et al., 2013) and psychological problems such as depression and anxiety (Banjanin et al., 2015; Pantic et al., 2017). In addition, previous research on problematic usage habits and addictive behaviors show that PNTP could be a predictor of problematic internet usage (Andreassen et al., 2013) and Facebook assaults (Chittaro & Vianello, 2013).

Time perspective represents a cognitive process that affects people's goals and behaviors. For example, individuals with a present-hedonistic time perspective may be

more motivated to make decisions that satisfy the here and now. In contrast, individuals with a past time perspective can rely on remembering past situations or past feelings they have experienced when making decisions. Past-negative time perspective is an individual difference related to mental health and personality traits (Zimbardo & Boyd, 1999). These variables include unhappiness, shyness, low self-esteem, aggression, and poor impulse control. Overall, the past-negative time perspective appears to be a critical mechanism for adverse outcomes. Considering that compulsive buying behavior is also an impulse control disorder associated with addiction and has a relationship with neuroticism (Andreassen et al., 2013; Billieux et al., 2008; Mowen & Spears, 1999), it is important to investigate the role of the past-negative time perspective in this relationship.

Furthermore, Baird et al. (2020) found a negative relationship between individuals' self-regulatory ability and PNTP. Specifically, people who have negative views about their past are less successful in regulating their behavior. Similarly, individuals who engage in CBB exhibit an impulsive tendency toward consumption, cannot control this behavior, and make purchases to escape from other problems (Faber & O'Guinn, 1988). Such individuals are also essentially known for their failure in regulating their behavior. Departing from the negative relationship between PNTP and self-regulatory ability, we can better explain the lack of "behavior control ability" in the orientation of individuals toward CBB, which neuroticism cannot fully explain, using the PNTP variable. This study will contribute to the literature by examining the mediating role of PNTP in the relationship between neuroticism, anxiety, and the compulsive buying behavior generally exhibited by individuals with this personality trait.

H4: Neuroticism (N) positively affects compulsive buying behavior (CBB), and this effect is mediated by the past-negative time perspective (PNTP).

### ***The moderating role of the consumer's need for uniqueness***

According to the theory of uniqueness of Snyder and Fromkin (1977), individuals' need to know that they are different from other people arises. When they feel quite similar to others in their social environment, which threatens the perception of uniqueness, this need starts competing with other motives. The concept of consumers' need for uniqueness (CNFU) derives from this theory and is defined as "... the trait of pursuing differentness relative to others through the acquisition, utilization, and disposition of consumer goods for the

purpose of developing and enhancing one's self-image and social image" (Tian et al., 2001). Tian et al. (2001) explain the consumers' need for uniqueness with three behavioral dimensions:

- (1) creative choice counter-conformity,
- (2) unpopular choice counter-conformity, and
- (3) avoidance of similarity.

Creative choice consumers prefer products that reveal their uniqueness and that others can accept as good choices. Brands that can offer unique features, privileges, and prestige to their users appeal to this category of consumers (Knight & Young Kim, 2007). The choices made by consumers preferring the unpopular ones have the risk of disapproval from others, unlike the consumers who make a creative choice. These consumers do not stick to existing norms, traditions, or rules and prefer products that no one will prefer for the sake of being different from others (Tian et al., 2001). Finally, consumers who show avoidance of similar behavior are prone to prefer products and brands that are unpopular but distinguish them from others. They want to avoid similarity by, for example, shopping at stores that sell vintage products or combining clothes in different styles (Knight & Young Kim, 2007).

According to Lynn and Harris (1997), people try to meet their need for uniqueness by engaging in unique behaviors to increase their self-esteem (Fromkin, 1972) and reduce negative emotions. Concurring this view, Clark and Goldsmith (2005) concluded a negative relationship between self-esteem and the need for uniqueness. Accordingly, individuals with low self-esteem also have a high level of need for uniqueness. Also, individuals with neurotic personalities have low self-esteem (S. B. Roberts & Kendler, 1999). From this perspective, it would be plausible to assume that neurotic individuals with low self-esteem will have a high level of need for uniqueness. However, previous studies stated that there is a negative relationship between CNFU and neuroticism. Individuals with a high level of need for uniqueness are emotionally more stable (Dollinger, 2003), have higher life satisfaction, and are in a more stable mood than individuals with a low level of need for uniqueness (Schumpe & Erb, 2015). In addition, it was observed that these people (unpopular choice consumers) are more willing to take risks and less concerned about others' views about themselves (Schumpe et al., 2016). J. A. Roberts and Tanner (2000) reported a relationship between CBB and risk-taking behavior, and according to their findings, people who engage in compulsive buying behavior take more risks.

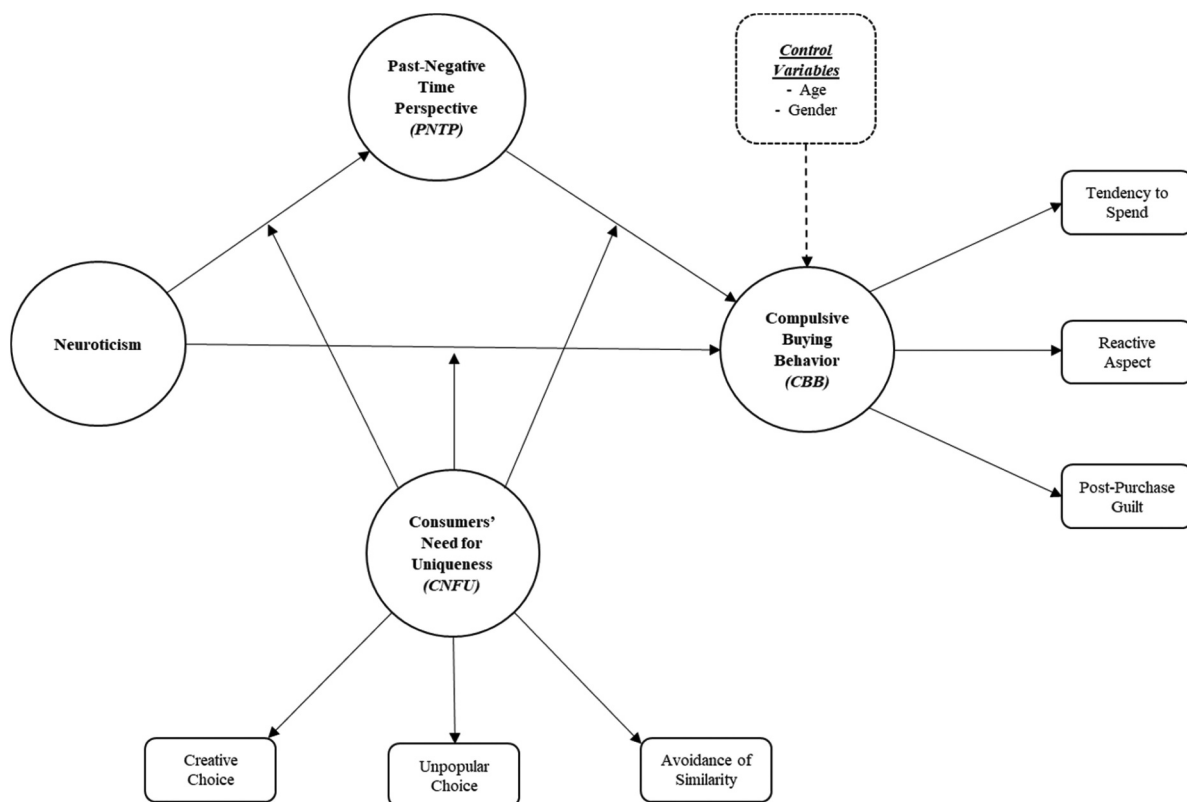


Figure 1. The proposed moderated mediation model.

Moreover, there is a strong link between self-esteem, arousal, stress reduction, and CBB (O'Guinn & Faber, 1989). Compulsive buying, albeit temporarily, increases individuals' self-esteem and raises their mood (Faber & O'Guinn, 1992; McElroy et al., 1995). Compulsive buyers, like neurotics, typically have low self-esteem and assume that social status is highly associated with buying activity. They want to experience short-term pleasure in order to reduce their negative emotions and thoughts of their past (expressed as PNTP) or get out of this emotional state (Faber et al., 1987). Some consumers state that they can avoid these negative emotions and thoughts only by shopping (Elliott, 1994). In addition, power, prestige, social status, and the desire to be accepted by others (creative choice counter-conformity) may consolidate compulsive buying behavior, increasing the likelihood of its recurrence in the future (Mueller & Mitchell, 2011). Considering all these views, it is thought that CNFU can moderate the effects of neuroticism on PNTP and PNTP on CBB.

H5: The consumers' need for uniqueness moderates the effect of neuroticism (N) on past-negative time perspective (PNTP).

H6: The consumers' need for uniqueness moderates the effect of past-negative time perspective (PNTP) on compulsive purchasing behavior (CBB).

In addition to this, neuroticism is positively associated with internet addiction, work addiction, and compulsive buying (Andreassen et al., 2013) and significantly causes compulsive mobile application use (Hsiao, 2017). Yang et al. (2020) concluded that consumers' need for uniqueness is positively associated with the compulsive use of social network sites (SNS). These results reinforce our study's hypothesis (H7) that CNFU can affect the strength of the neuroticism effect on CBB. The proposed model can be seen in Figure 1.

H7: The consumers' need for uniqueness moderates the effect of neuroticism (N) on compulsive purchasing behavior (CBB).

## Research methodology

### Participants

Due to the current pandemic circumstances, data were collected through a web-based survey. According to the findings of previous studies, there is no significant difference between participants' responses in a written survey

**Table 1.** Demographic characteristics of the participants.

	Frequency	Percentage
<i>Gender</i>	666	100,0
Male	83	12,5
Female	583	87,5
<i>Marital Status</i>	666	100,0
Married	410	61,6
Single	256	38,4
<i>Age</i>	666	100,0
17–25	197	29,6
26–30	231	34,7
31–40	195	29,3
41–50	43	6,5
<i>Educational Status</i>	666	100,0
Highschool	129	19,4
Associate Degree	106	15,9
Bachelor's Degree	321	48,2
Postgraduate	91	13,7
<i>Clothing Shopping Frequency</i>	666	100,0
A few times a week	18	2,7
Once a week	31	4,7
Biweekly	49	7,4
Triweekly	50	7,5
Monthly	238	35,7
Several times a year	280	42,0
<i>Clothing Expenditure (monthly)</i>	666	100,0
<1000	608	91,3
1000–2000	40	6,0
2000–5000	18	2,7

and online survey (Greenlaw & Brown-Welty, 2009). Data was collected through Google Forms (GS). GS has been seen as an excellent alternative to MTurk, particularly in survey research (Hulland & Miller, 2018). Participation in the online survey continued in Turkey between February 1, 2020, and March 6, 2020. The first data set, including 727 respondents in total, was formed. The output of 61 respondents who gave the wrong answer to the control question was excluded from the study. As a result, 666 participants were included in the analysis. Before starting the survey, all participants were informed that the survey was entirely voluntary and anonymous and would only be used for scientific purposes. The study was conducted with the approval of the...<sup>1</sup> University Ethics Board. Demographic information about the participants can be seen in Table 1.

### Measures

The online survey has two sections. In the first section, the participants were asked questions about their demographic characteristics. Clothing was considered as a product in the study. As seen in many studies, clothing is one of the most preferred products in compulsive buying (Johnson & Attmann, 2009; Kukar-Kinney et al., 2012; Trautmann & Johnson, 2007). The second section contains four scales, which are personality traits scale (Donnellan et al., 2006), time perspective scale (Zhang et al., 2013), consumers' need for uniqueness

<sup>1</sup>In order to protect the anonymity of the authors, the name of the university is not specified.

scale (Ruvio et al., 2008), and compulsive buying behavior scale (Valence et al., 1988), respectively. All scales used in the current study were translated into Turkish in previous studies and found to have acceptable reliabilities (Kocayörük & Şimşek, 2020; Oflazoğlu & Çelik, 2020; Tatar, 2017; Yüncü & Kesebir, 2014).

### Neuroticism

The 20-item mini IPIP scale, an abbreviated form of the 50-item five-factor personality scale (Goldberg, 1999), was developed by Donnellan et al. (2006). It was generally favored since extending the surveys can become boring for the participants, and their attention may be distracted after a while (Schmidt et al., 2003). The scale consists of five sub-dimensions (extraversion, neuroticism, openness, agreeableness, and conscientiousness). However, for the current study, only the neuroticism scale is used. Participants responded on a 7-point scale ranging from “strongly disagree” (1) to “strongly agree” (7). In the study, the Cronbach’s Alpha for neuroticism was 0,693.

### Past-Negative Time Perspective

The time perspective scale was developed by Zimbardo and Boyd (1999) and originally contained 56-items. The scale used in this study was modified and created by Zhang et al. (2013). The scale consists of five sub-dimensions (past-negative, past-positive, present-fatalism, present-hedonism, future). For the current study, only the past-negative scale is used. Participants responded on a 7-point scale ranging from “strongly disagree” (1) to “strongly agree” (7). In the study, the Cronbach’s Alpha for past-negative time perspective was 0,860.

### Consumers’ Need for Uniqueness

The consumers’ need for uniqueness scale used in this study was developed by Ruvio et al. (2008), the shortened form of the original scale developed by Tian et al. (2001). The scale consists of three sub-dimensions (creative choice, unpopular choice, avoidance of similarity), including 12 items (e.g. When a product I own becomes popular among the general population, I begin to use it less.). Participants responded on a 7-point scale ranging from “strongly disagree” (1) to “strongly agree” (7). In the study, the Cronbach’s Alpha for consumers’ need for uniqueness was 0,880.

### Compulsive Buying Behavior

The compulsive buying scale used in this study was developed by Valence et al. (1988). The scale consists of three sub-dimensions (tendency to spend, reactive aspect, and post-purchase guilt), including 12-items (e.g. When I have money, I cannot help but spend part or the whole of it). Participants responded on a 7-point

scale ranging from “strongly disagree” (1) to “strongly agree” (7). In the study, the Cronbach’s Alpha value for compulsive buying behavior was 0,887.

### Control Variables

Finally, age and gender were added as control variables considering their potential impact on compulsive buying as suggested in the extant literature (Yurchisin & Johnson, 2004).

### Procedure

Firstly, we examined whether the data followed a normal distribution. To confirmation of the normal distribution, skewness and kurtosis values were used. The skewness and kurtosis value between  $\pm 1.0$  is considered excellent for most psychometric purposes (George & Mallery, 2020). The skewness and kurtosis values of neuroticism, PNTP, CBB, and CNFU fell within the acceptable range ( $\pm 1.0$ ). Then, to test common method variance (CMV), we conducted a technique suggested by (Podsakoff et al., 2003). The items were entered in exploratory factor analysis (EFA) using the unrotated solution to principal component analysis. The eight factors are taken together calculated for 72.59% of the variance. Consequently, variables do not load on a single general factor, which suggests that common method variance is not an adequate explanation for the findings of this study (Podsakoff et al., 2003). Kaiser–Meyer–

**Table 2.** Measurement model summary.

Construct	Items	Factor loading	CR	AVE	$\alpha$
Neuroticism (N)	N1	0,853	0,789	0,653	0,693
	N3	0,76			
Past-Negative Time Perspective (PNTP)	PN1	0,886	0,900	0,751	0,860
	PN2	0,914			
	PN3	0,795			
Creative Choice (CC)	CC1	0,711	0,842	0,572	0,828
	CC2	0,799			
	CC3	0,757			
	CC4	0,756			
Unpopular Choice (UP)	UP1	0,667	0,842	0,575	0,805
	UP2	0,831			
	UP3	0,877			
	UP4	0,629			
Avoidance of Similarity (AS)	AS1	0,706	0,902	0,698	0,891
	AS2	0,847			
	AS3	0,889			
	AS4	0,886			
Tendency to Spend (TS)	TS1	0,860	0,779	0,545	0,795
	TS2	0,622			
	TS5	0,712			
Reactive Aspect (RA)	RA1	0,768	0,887	0,664	0,889
	RA2	0,863			
	RA3	0,868			
	RA4	0,754			
Post-Purchase Guilt (PPG)	PPG1	0,725	0,782	0,545	0,730
	PPG2	0,776			
	PPG3	0,712			



Olkin (KMO) and Bartlett’s test were used to test the suitability of the data for the principal component analysis. Bartlett’s test of sphericity was found to be significant ( $\chi^2(351) = 9354.475, p < .000$ ). The Kaiser-Meyer-Olkin measure of sampling adequacy indicated that the strength of the relationships among variables was high (KMO = .86). In explanatory factor analysis, Item-2 and Item-4 from Neuroticism Scale and Item-3 and Item-4 from the tendency to spend dimension of Compulsive Buying Behavior Scale excluded since their factor loadings are below 0.6 (Field, 2018).

We followed the two-step approach suggested by (Anderson & Gerbing, 1988) for our measurement model construction and testing. We first examined the measurement model to test the reliability and validity. Then, we examined the model to test research hypotheses. In Table 2, the standardized item loadings, average variance extracted (AVE), composite reliability (CR), and Cronbach’s Alpha values are given. To establish convergent validity, all AVEs should exceed 0.5, and all CRs should exceed 0.7 (Bagozzi & Yi, 1988). As shown in Table 2, all scores exceeded the accepted criteria. In addition, Cronbach’s alpha value for all constructs was above 0.6, which is an acceptable level (Ursachi et al., 2015).

Lastly, after comparing the correlations between structures and AVE values (Fornell & Larcker, 1981), we tested the discriminative validity with the maximum shared variance (MSV), mean shared variance (ASV), and  $\sqrt{AVE}$  values. For discriminant validity,  $MSV < AVE, ASV < AVE$  and  $\sqrt{AVE} >$  inter-construct correlation is recommended (Hair et al., 2014). As shown in Table 3, all MSV and ASV values are lower than their corresponding AVE values. For each factor, the square root of AVE is significantly greater than its correlation coefficients with other factors, showing good discriminant validity (Gefen et al., 2000).

**(Values in Parentheses Indicate the Square Root of AVE Values)**

The current study conducted data analysis using PROCESS, a macro for SPSS and SAS that operate observed-variable mediation, moderation, and

conditional process analysis (Hayes, 2018). PROCESS uses bias-corrected bootstrapping to generate confidence intervals (Preacher & Hayes, 2008). A bias-corrected bootstrap CI is the most trustworthy test in the conditions when an indirect effect exists, and the focus is on detecting a nonzero effect rather than on interval estimation (Hayes & Scharkow, 2013).

To test the proposed hypotheses, Model 4 and Model 59 were conducted as Hayes (2018) recommended. To examine the mediating role of PNTP between Neuroticism and Compulsive Buying Behavior (H4), we used Model 4 with the 95% confidence interval for indirect effects and 5000 bootstrap samples set up by default (Preacher & Hayes, 2008). An indirect effect is regarded statistically significant when the bias-corrected confidence interval does not include zero (Hayes, 2018).

Further to test moderated mediation effects of CNFU between Neuroticism and PNTP (H5), CNFU between PNTP and CBB (H6), and CNFU between Neuroticism and CBB (H7), we used Model 59 with bias-corrected bootstrap confidence intervals based on 5000 bootstraps resamples. Additionally, we used the Johnson-Neyman technique to calculate the conditional effects and confidence bonds (Hayes, 2018).

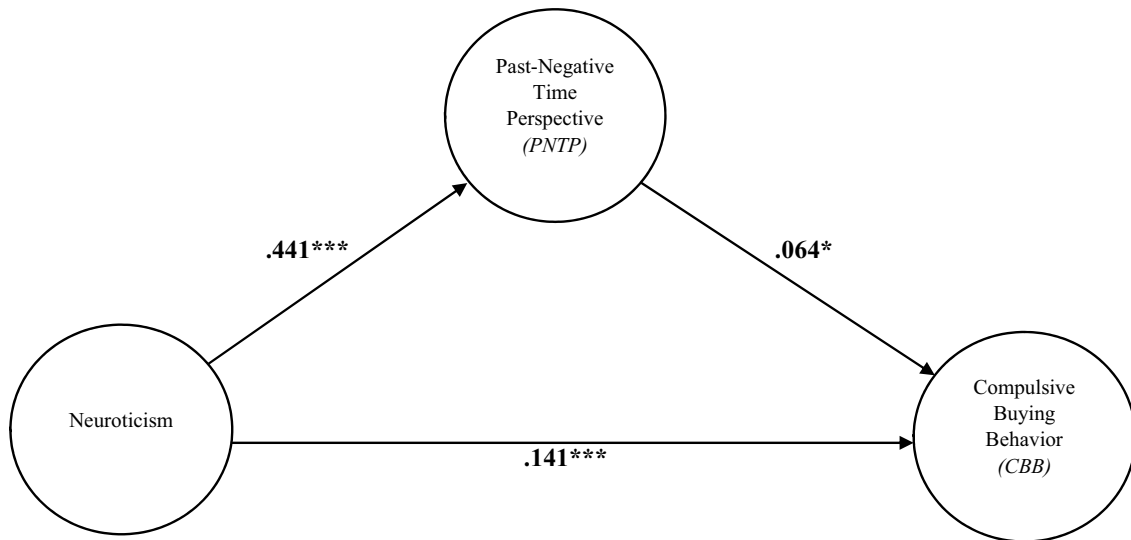
**Results**

The mediation effect was tested using the PROCESS Model 4. Past negative time perspective was a strong predictor of compulsive buying behavior (95% CI: (0.0061, 0.1234)). Results also revealed that the indirect effect of neuroticism on compulsive buying behavior was characterized by significant mediation through past negative time perspectives (95% CI: (0.0006, 0.0570)). Our analysis also conducted the Sobel test, a conventional approach to test the indirect effects (Sobel, 1982). Sobel test result also indicated the significant mediation effect (B = 0.0286, S.E = 0.0134, Z = 2.1330, p = .0329). In brief, our results suggest that PNTP mediated the effect of neuroticism on compulsive buying behavior. Thus hypothesis 4 is supported (see, Figure 2).

**Table 3.** The square root of AVE and factor correlation coefficients (Model validity measures).

	MSV	ASV	N	PNTP	CC	UP	AS	TS	RA	PPG
N	0,213	0,076	(,808)							
PNTP	0,213	0,046	0,462	(,867)						
CC	0,234	0,084	0,047	0,049	(,756)					
UP	0,221	0,061	0,020	0,063	0,470	(,758)				
AS	0,234	0,069	-0,003	0,045	0,484	0,390	(,835)			
TS	0,381	0,134	0,207	0,103	0,223	0,131	0,187	(,738)		
RA	0,247	0,111	0,207	0,150	0,234	0,079	0,148	0,617	(,815)	
PPG	0,247	0,102	0,257	0,264	0,156	0,162	0,197	0,489	0,497	(,738)

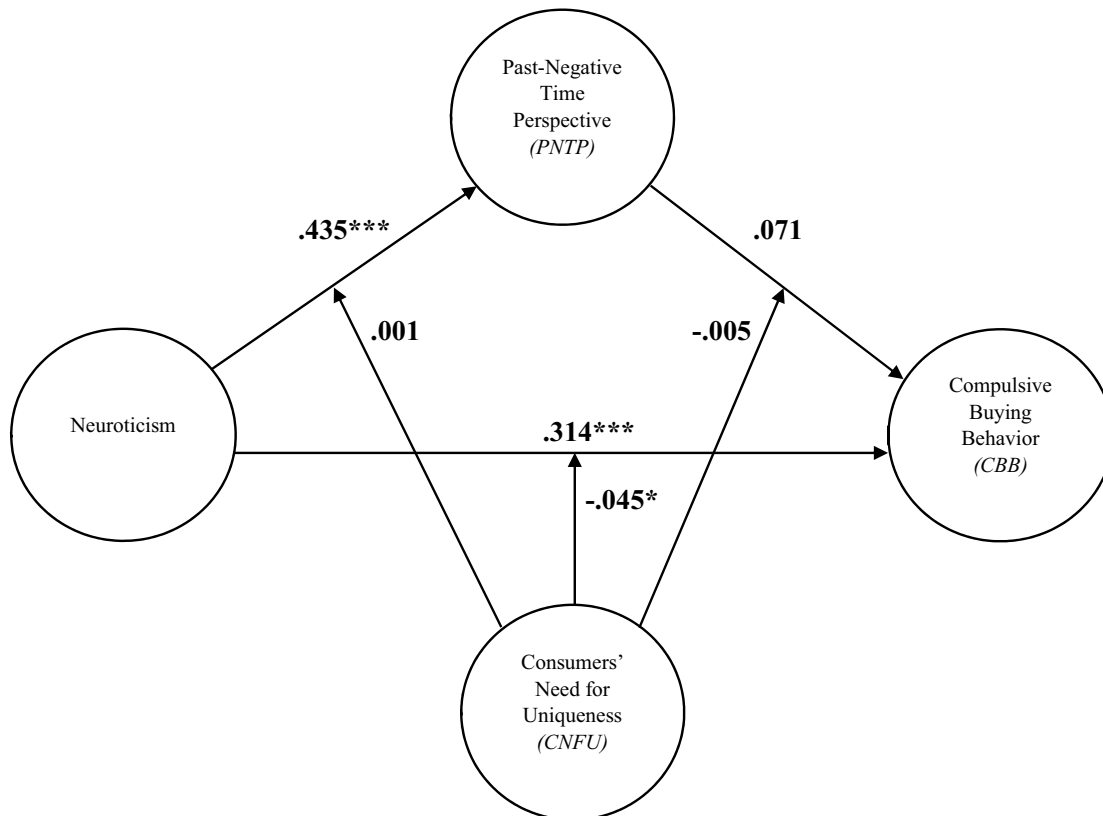
(Values in parentheses indicate square root of AVE values)



**Figure 2.** Results of mediation. (\*p < .05. \*\*p < .01. \*\*\*p < .001)

Moderated mediation effect was tested using the PROCESS Model 59. Results showed that moderated mediation effect of consumers' need for uniqueness between neuroticism and past negative time perspective was not statistically significant. Similarly, the relationship between past negative time perspectives and compulsive buying behavior through consumers'

need for uniqueness was not statistically significant. Thus, hypothesis 5 (B = 0.001, p = .961) and 6 (B = -0.005, p = .839) are not supported. However, the relationship between neuroticism and compulsive buying behavior through consumers' need for uniqueness was statistically significant (%95 CI (-0.086, -0.004). Eventually, hypothesis 7 is



**Figure 3.** Results of moderated mediation. (\*p < .05. \*\*p < .01. \*\*\*p < .001.)

**Table 4.** Hypothesis results.

Independent Variable	Dependent Variable	B	S.E	t	p	95% Confidence interval		Hypothesis
						LLCI	ULCI	
Neuroticism	$CBBR^2 = 0.063$	0.170	0.025	6.691	< 0.001*	0.120	0.220	H1 (S)
Neuroticism	$PNTPR^2 = 0.213$	0.441	0.033	13.421	< 0.001*	0.377	0.506	H2 (S)
Neuroticism/PNTP	$CBBR^2 = 0.070$	0.1410.065	0.0290.030	4.9512.167	< 0.001 *0.031*	0.0850.006	0.1970.123	H4 (S)/H3 (S)
Neuroticism X CNFU	$PNTPR^2 = 0.216$	0.001	0.025	0.049	0.961	-0.049	0.051	H5 (N.S)
PNTP X CNFU Neuroticism X CNFU	$CBBR^2 = 0.134$	-0.005-0.045	0.0230.021	-0.203-2.155	0.8390.032*	-0.051-	0.041-	H6 (N.S)/H7 (S)
						0.086	0.004	

supported, as shown in Table 4 (see, Figure 3). The inclusion of age and gender as control variables did not change the results.

## Discussion and implications

This study makes two main contributions to the literature. First, although several studies (Dollinger, 2003; Schumpe et al., 2016) have addressed the relationship between CNFU and neuroticism in the literature, no study has yet examined the effect of CNFU on CBB. Second, this study is the first to investigate the effects of PNTP and CNFU on the relationship between neuroticism and CBB. In this study, a relationship was established between neuroticism and CBB. In addition, a moderated mediation model was employed to test whether neuroticism can be indirectly affected CBB through a PNTP and whether the CNFU can moderate this mediation relationship. Findings from the studies in the literature examining the relationship between the five-factor personality model and CBB have indicated that individuals with neuroticism display CBB (Andreassen et al., 2013; Billieux et al., 2008; Brougham et al., 2011a; Mowen & Spears, 1999; Otero-López & Villardefrancos Pol, 2013). However, the influence of mediation and moderation mechanisms of neuroticism on CBB has not been elucidated to a large extent.

Firstly, our results show that the effect of neuroticism on CBB is significant; therefore, the PNTP of consumers mediates this relationship. Moreover, the relationship between neuroticism and CBB in the mediation process is moderated by CNFU. Studies on CBB overwhelmingly focused on variables, such as perceived stress (Zheng et al., 2020) low self-esteem (Lejoyeux et al., 2011; Omar et al., 2014; Roberts et al., 2014), depression (Bani-Rshaid & Alghraibeh, 2017), anxiety (Gallagher et al., 2017), materialism (Donnelly et al., 2013; Harnish & Bridges, 2015; Islam et al., 2017; Mueller et al., 2011), and sensation-seeking (Billieux et al., 2008), that can affect CBB. However, this study adopted the big five personality trait model to explain CBB and the mechanism that may cause individuals to perform this behavior. The findings indicate that the studies address the five-factor personality model concerning CBB (Andreassen et al., 2013; Hsiao, 2017; Otero-López &

Villardefrancos Pol, 2013) existence of a positive relationship between neuroticism, one of the five factors in the model, and CBB. Therefore, our study that shows a significant and positive effect of neuroticism on CBB (H1) agrees with previous studies in the literature.

Second, the results of our study indicate that PNTP has a mediating effect on the relationship between neuroticism and CBB (H4). In the literature, the findings of a few studies examining the relationship between time perspectives and CBB (H3) also indicate a significant effect of PNTP on CBB (Unger et al., 2018). The results of our study are in line with Unger et al.'s (2018) findings. In addition, although no study has exclusively examined the relationship between neuroticism and PNTP, PNTP is noted to be associated with indicators of neurotic personalities, such as depression, anxiety, fear, problems in social relationships, negative mood, low self-esteem, and low life satisfaction (DeNeve & Cooper, 1998; Dunkel & Weber, 2010; Stolarski et al., 2014; Zhang & Howell, 2011; Zimbardo & Boyd, 2015). The substantiation of the hypothesis of our study regarding the existence of a relationship between neuroticism and PNTP (H2) and between PNTP and CBB (H3) is consistent with the findings in the literature. The mediating analysis result reveals that the direct relationship between neuroticism and CBB did not disappear ( $B = 0.204$ ,  $SE = 0.039$ ,  $p < .001$ ), and PNTP partially mediated this relationship ( $B = 0.044$ ;  $SE = 0.018$ ;  $Z = 2.389$ ;  $p = .017$ ) (H4). In addition, considering a negative relationship between individuals' self-regulatory ability and PNTP (Baird et al., 2020), we assumed that the lack of "self-control ability" in the tendency of consumers who cannot control their behaviors toward compulsive purchasing (Faber & O'Guinn, 1988) could be explained better through PNTP as neuroticism cannot explain this phenomenon. To the best of our knowledge, this study is the first to consider PNTP concerning neuroticism and CBB. This result indicates that the effects of PNTP as an explanatory mechanism on the relationship between neuroticism and CBB are remarkable.

Third, within the scope of our study, we tested whether the CNFU moderates direct ( $X \rightarrow Y$ ) links between neuroticism and CBB and the indirect ( $X \rightarrow M \rightarrow Y$ ) ones where PNTP performs as mediator.

Results showed that CNFU modifies the path between neuroticism and CBB (H7). However, the results also indicate that it moderates the relationship between neuroticism and CBB negatively. Some studies in the literature have emphasized the existence of a relationship between sensation-seeking and CNFU (Baird, 1981) that drives individuals to compulsive purchasing (Billieux et al., 2008). Individuals who seek a high level of excitement can engage in more impulsive behavior to reach their ideal arousal levels, and they are more likely to engage in risky behaviors (Schumpe & Erb, 2015). However, the correlation between anxiety, a determinant of CBB, and indicator of neurotic personality traits and CNFU (Snyder & Fromkin, 1980) is negative. The effect of neuroticism can explain this situation. Dollinger (2003) found a negative correlation between CNFU and neuroticism and that individuals with a high level of CNFU are emotionally stable. Meanwhile, Schumpe and Erb (2015) revealed that individuals with a high level of CNFU have a more stable mood and higher life satisfaction. These results are in parallel with the negative effect of CNFU that we observed in our study.

Additionally, we examined whether the relationships between neuroticism and PNTP and PNTP and CBB in the indirect link between neuroticism and CBB are moderated by CNFU. In this regard, our two hypotheses were not supported: 1) The CNFU moderates the relationship of neuroticism with past-negative time perspective (H5); and 2) the CNFU moderates the relationship of PNTP with CBB (H6). The likely cause of this situation is the severe effect of neuroticism on individuals. Therefore, notwithstanding the level of individuals' CNFU, neuroticism would cause negative past time perspectives, and their negative emotions and thoughts about the past may not change. Another reason that may lead to this situation is that individuals' PNTP can neutralize the effects of the CNFU.

Lastly, we postulate to summarize a few insights for practical implications. First of all, our results provide a recommendation set for policymakers. The mediating role of the negative time perspective will contribute significant insight for healthcare professionals in preventing and evaluating compulsive buying behavior. Although the neuroticism personality trait cannot be transmuted, the temporal orientations of consumers can be transformed from negative to positive if they strive by methods such as time therapy (Miceli et al., 2021). Additionally, the moderation effect of consumers' need for uniqueness on compulsive buying behavior may help policymakers take precautions to prevent overspending. Secondly, we make some ethical implications for firms. Generally, selling tactics and promotion increase impulsive and compulsive tendencies (Kukar-

Kinney et al., 2012). Notably, consumers in need for uniqueness tend to buy luxury products (Bian & Forsythe, 2012). Therefore, in this context, the importance of salespeople is increasing, and strategies are needed to prevent expenditures that will affect the well-being of consumers (Tarka et al., 2022).

In summary, this study shows that people with a high level of CNFU will be less affected by the negative repercussions of neuroticism and thus engage less in CBB. For this reason, practitioners in this field should focus on strengthening the creative, innovative, and special characters and skills of individuals who experience problematic purchasing behaviors and emotional instability. In addition, this study revealed the impacts that could have been neglected, without moderation analysis, by integrating the CNFU into the model as a moderator. Finally, although the moderated mediation model employed in this study is conceptually more complex, it enjoys more predictive power than the mediation model.

### Limitations and future research directions

Several limitations should be considered when interpreting the results of the present study. First, the majority (87.5% of all) of the participants in our study were women. Second, due to the cross-sectional nature of our research design, we cannot make any causal inferences about the relationships. The causal relationships between the variables can be further confirmed by longitudinal design or experimental studies. Conducting future studies within the framework of these designs is important in terms of obtaining more information about compulsive buying behavior and better explaining the causal relationships between variables. Third, the convenience sampling method was used in our research, which significantly limits the generalizability of the results. Fourth, only the PNTP dimension of the time perspectives was included in the model in the present study, and its mediation relationship was examined. It is thought that examining other dimensions of time perspective for future studies can make significant contributions to the literature. Finally, CNFU does not appear to moderate the effect of neuroticism on PNTP and the effect of PNTP on CBB. This result suggests that there may be alternative intermediary mechanisms. In addition, from the five-factor personality model, only neuroticism was discussed in this study. For future studies, investigating the effects of other personality traits will enrich the literature in this field.

### Conclusion

In summary, this study shows that neuroticism may be an influential factor in compulsive buying behavior. Moreover, the mediation analysis reveals that the past-

negative time perspective may be a possible mechanism underlying this relationship. Besides, moderated mediation analysis reveals that consumers' need for uniqueness buffers the relationship between neuroticism and compulsive buying behavior, and the effect of neuroticism on CBB is weaker in consumers with a high need for uniqueness.

## Acknowledgments

The authors are very grateful to the associate editor and four anonymous reviewers for their most helpful suggestions.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

## References

- Ali, F., Tauni, M. Z., Ali, A., & Ahsan, T. (2021). Do buyer-seller personality similarities impact compulsive buying behaviour? *Journal of Consumer Behaviour*, 20(4), 996–1011. <https://doi.org/10.1002/cb.1949>
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411–423. <https://doi.org/10.1037/0033-2909.103.3.411>
- Andreassen, C. S., Griffiths, M. D., Gjertsen, S. R., Krossbakken, E., Kvam, S., & Pallesen, S. (2013). The relationships between behavioral addictions and the five-factor model of personality. *Journal of Behavioral Addictions*, 2(2), 90–99. <https://doi.org/10.1556/JBA.2.2013.003>
- Atalay, A. S., & Meloy, M. G. (2011). Retail Therapy: A Strategic Effort to Improve Mood. *Psychology & Marketing*, 28, 638–659. <https://doi.org/10.1002/mar.20404>
- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16(1), 74–94. <https://doi.org/10.1007/BF02723327>
- Baird, J. G. (1981). The brighter side of deviance: Implications from a Study of Need for Uniqueness and Sensation-Seeking. *Psychological Reports*, 49(3), 1007–1008. <https://doi.org/10.2466/pr0.1981.49.3.1007>
- Baird, H. M., Webb, T. L., Sirois, F. M., & Gibson-Miller, J. (2020). Understanding the effects of time perspective: A meta-analysis testing a self-regulatory framework. *Psychological Bulletin*, 147(3), 233–267. <https://doi.org/10.1037/bul0000313>
- Bandura, A., & Watts, R. E. (1996). Self-Efficacy in Changing Societies. *Journal of Cognitive Psychotherapy*, 10(4), 313–315. <https://doi.org/10.1891/0889-8391.10.4.313>
- Bani-Rshaid, A. M., & Alghraibeh, A. M. (2017). Relationship between compulsive buying and depressive symptoms among males and females. *Journal of Obsessive-Compulsive and Related Disorders*, 14(July), 47–50. <https://doi.org/10.1016/j.jocrd.2017.05.004>
- Banjanin, N., Banjanin, N., Dimitrijevic, I., & Pantic, I. (2015). Relationship between internet use and depression: Focus on physiological mood oscillations, social networking and online addictive behavior. *Computers in Human Behavior*, 43(February), 308–312. <https://doi.org/10.1016/j.chb.2014.11.013>
- Bertrandias, L., & Goldsmith, R. E. (2006). Some psychological motivations for fashion opinion leadership and fashion opinion seeking. *Journal of Fashion Marketing and Management*, 10(1), 25–40. <https://doi.org/10.1108/13612020610651105>
- Bian, Q., & Forsythe, S. (2012). Purchase intention for luxury brands: A cross cultural comparison. *Journal of Business Research*, 65(10), 1443–1451. <https://doi.org/10.1016/j.jbusres.2011.10.010>
- Billieux, J., Rochat, L., Rebetez, M. M. L., & Van der Linden, M. (2008). Are all facets of impulsivity related to self-reported compulsive buying behavior? *Personality and Individual Differences*, 44(6), 1432–1442. <https://doi.org/10.1016/j.paid.2007.12.011>
- Bitsko, M. J., Stern, M., Dillon, R., Russell, E. C., & Laver, J. (2008). Happiness and time perspective as potential mediators of quality of life and depression in adolescent cancer. *Pediatric Blood & Cancer*, 50(3), 613–619. <https://doi.org/10.1002/pbc.21337>
- Boniwell, I., Osin, E., Alex Linley, P., & Ivanchenko, G. V. (2010). A question of balance: Time perspective and well-being in British and Russian samples. *Journal of Positive Psychology*, 5(1), 24–40. <https://doi.org/10.1080/17439760903271181>
- Boyd, J. N., & Zimbardo, P. G. (2005). Time Perspective, Health, and Risk Taking Strathman, Alan, Joireman, Jeff. *Understanding Behavior in the Context of Time: Theory, Research, and Application*. Lawrence Erlbaum Associates Publishers pp. 85–107. <https://doi.org/10.4324/9781410613516>
- Brougham, R. R., Jacobs-Lawson, J. M., Hershey, D. A., & Trujillo, K. M. (2011a). Who pays your debt? An important question for understanding compulsive buying among American college students. *International Journal of Consumer Studies*, 35(1), 79–85. <https://doi.org/10.1111/j.1470-6431.2010.00923.x>
- Brougham, R. R., Jacobs-Lawson, J. M., Hershey, D. A., & Trujillo, K. M. (2011b). Who pays your debt? An important question for understanding compulsive buying among American college students. *International Journal of Consumer Studies*, 35(1), 79–85. <https://doi.org/10.1111/j.1470-6431.2010.00923.x>
- Cernas Ortiz, D. A., & Davis, M. A. (2016). Future and past negative time perspective influences on job satisfaction and organizational commitment in Mexico and the United States. *Management Research*, 14(4), 317–338. <https://doi.org/10.1108/MRJIAM-04-2016-0665>
- Chittaro, L., & Vianello, A. (2013). Time perspective as a predictor of problematic Internet use: A study of Facebook users. *Personality and Individual Differences*, 55(8), 989–993. <https://doi.org/10.1016/j.paid.2013.08.007>

- Christenson, G. A., Faber, R. J., De Zwaan, M., Raymond, N. C., Specker, S. M., Ekern, M. D., and Mitchell, J. E. (1994). Compulsive buying: Descriptive characteristics and psychiatric comorbidity. *Journal of Clinical Psychiatry*, 55(1), 5–11. PMID: 8294395.
- Clark, R. A., & Goldsmith, R. E. (2005). Market mavens: Psychological influences. *Psychology and Marketing*, 22(4), 289–312. <https://doi.org/10.1002/mar.20060>
- Costa, & McCrae, R. R. (1992). *Neo PI-R professional manual*. Psychological Assessment Resources.
- Csikszentmihalyi, M. (2000). The costs and benefits of consuming. *Journal of Consumer Research*, 27(2), 267–272. <https://doi.org/10.1086/314324>
- DeNeve, K. M., & Cooper, H. (1998). The happy personality: A meta-analysis of 137 personality traits and subjective well-being. *Psychological Bulletin*, 124(2), 197–229. <https://doi.org/10.1037/0033-2909.124.2.197>
- DeSarbo, W. S., & Edwards, E. A. (1996). Typologies of compulsive buying behavior: A Constrained Clusterwise Regression Approach. *Journal of Consumer Psychology*, 5(3), 231–262. [https://doi.org/10.1207/s15327663jcp0503\\_02](https://doi.org/10.1207/s15327663jcp0503_02)
- Dittmar, H. (2005). A new look at “compulsive buying”: Self-discrepancies and materialistic values as predictors of compulsive buying tendency. *Journal of Social and Clinical Psychology*, 24(6), 832–859. <https://doi.org/10.1521/jscp.2005.24.6.832>
- Dollinger, S. J. (2003). Need for uniqueness, need for cognition, and creativity. *Journal of Creative Behavior*, 37(2), 99–116. <https://doi.org/10.1002/j.2162-6057.2003.tb00828.x>
- Donnellan, M. B., Oswald, F. L., Baird, B. M., & Lucas, R. E. (2006). The Mini-IPIP scales: Tiny-yet-effective measures of the Big Five factors of personality. *Psychological Assessment*, 18(2), 192–203. <https://doi.org/10.1037/1040-3590.18.2.192>
- Donnelly, G., Ksendzova, M., & Howell, R. T. (2013). Sadness, identity, and plastic in over-shopping: The interplay of materialism, poor credit management, and emotional buying motives in predicting compulsive buying. *Journal of Economic Psychology*, 39(December), 113–125. <https://doi.org/10.1016/j.joep.2013.07.006>
- Drake, L., Duncan, E., Sutherland, F., Abernethy, C., & Henry, C. (2008). Time perspective and correlates of wellbeing. *Time & Society*, 17(1), 47–61. <https://doi.org/10.1177/0961463X07086304>
- Druss, B. G. (2006). Rising mental health costs: What are we getting for our money? *Health Affairs*, 25(3), 614–622. <https://doi.org/10.1377/hlthaff.25.3.614>
- Dunkel, C. S., & Weber, J. L. (2010). Using three levels of personality to predict time perspective. *Current Psychology*, 29(2), 95–103. <https://doi.org/10.1007/s12144-010-9074-x>
- Ebrahimi, E., Sadeghvaziri, F., & Abyaneh, S. S. (2020). The dark side of consumer–brand relationship: Do ideal self-congruence, brand attachment and personality factors affect negative consumer behaviors? *Iranian Journal of Management Studies*, 13(2), 289–315. <https://doi.org/10.22059/IJMS.2019.287178.673753>
- Elliott, R. (1994). Addictive consumption: Function and fragmentation in postmodernity. *Journal of Consumer Policy*, 17(2), 159–179. <https://doi.org/10.1007/BF01016361>
- Faber, R. J., O’Guinn, T. C., Krych, R., Faber, R. J., O’Guinn, T. C., & Krych, R. (1987). Compulsive consumption. *Advances in Consumer Research*, 14, 132–135. Provo, UT: Melanie Wallendorf and Paul Anderson .
- Faber, R. J., & O’Guinn, T. C. (1988). Compulsive consumption and credit abuse. *Journal of Consumer Policy*, 11(1), 97–109. <https://doi.org/10.1007/BF00411522>
- Faber, R. J., & O’Guinn, T. C. (1992). A clinical screener for compulsive buying. *Journal of Consumer Research*, 19(3), 459. <https://doi.org/10.1086/209315>
- Faber, R. J., Christenson, G. A., de Zwaan, M., & Mitchell, J. (1995). Two forms of compulsive consumption: Comorbidity of compulsive buying and binge eating. *Journal of Consumer Research*, 22(3), 296. <https://doi.org/10.1086/209451>
- Faber, R. J., & Christenson, G. A. (1996). In the mood to buy: Differences in the mood states experienced by compulsive buyers and other consumers. *Psychology and Marketing*, 13(8), 803–819. [https://doi.org/10.1002/\(SICI\)1520-6793\(199612\)13:8<803::AID-MAR6>3.0.CO;2-J](https://doi.org/10.1002/(SICI)1520-6793(199612)13:8<803::AID-MAR6>3.0.CO;2-J)
- Fayez, M., & Labib, A. (2016). Investigating the effect of the “big five” personality dimensions on compulsive buying behavior of Egyptian consumers. *Journal of Business and Retail Management Research*, 10(3), 114–125. [https://jbrmr.com/cdn/issue\\_file/Vol-10\\_Issue-3\\_full.pdf#page=129](https://jbrmr.com/cdn/issue_file/Vol-10_Issue-3_full.pdf#page=129)
- Field, Andy. (2018). Discovering statistics using SPSS (5th ed.). In *Discovering statistics using SPSS (5th (Sage Publications 1004–1007 9781526445780) ed.)*.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(3), 382–388. <https://doi.org/10.2307/3151312>
- Fromkin, H. L. (1972). Feelings of interpersonal undistinctiveness: An unpleasant affective state. *Journal of Research in Personality*, 6(2–3), 178–185. <https://psycnet.apa.org/record/1974-01076-001>.
- Gallagher, C. E., Watt, M. C., Weaver, A. D., & Murphy, K. A. (2017). “I fear, therefore, I shop!” exploring anxiety sensitivity in relation to compulsive buying. *Personality and Individual Differences*, 104 2017 , 37–42. <https://doi.org/10.1016/j.paid.2016.07.023>
- Gardarsdóttir, R. B., & Dittmar, H. (2012). The relationship of materialism to debt and financial well-being: The case of Iceland’s perceived prosperity. *Journal of Economic Psychology*, 33(3), 471–481. <https://doi.org/10.1016/j.joep.2011.12.008>
- Gefen, D., Straub, D., & Boudreau, M.-C. (2000). Structural equation modeling and regression: Guidelines for research practice. *Communications of the Association for Information Systems*, 4 1 1–77 . <https://doi.org/10.17705/1cais.00407>
- George, D., & Mallery, P. (2020) *IBM SPSS Statistics 26 Step by Step 16th (New York: Routledge)9780429056765*. (Sixteenth). doi:<https://doi.org/10.4324/9780429056765>
- Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models. 7 I. Mervielde, I. Deary, F. De Fruyt, & F. Ostendorf (Netherlands: Tilburg University Press.) 7–28 .
- Greenlaw, C., & Brown-Welty, S. (2009). A comparison of web-based and paper-based survey methods. *Evaluation Review*, 33(5), 464–480. <https://doi.org/10.1177/0193841x09340214>

- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). Multivariate data analysis. In *Harlow: Pearson Education limited (Seventh ed.)*. Pearson new international edition 631–634.
- Harnish, R. J., & Bridges, K. R. (2015). Compulsive buying: The role of irrational beliefs, materialism, and narcissism. *Journal of Rational - Emotive and Cognitive - Behavior Therapy*, 33(1), 1–16. <https://doi.org/10.1007/s10942-014-0197-0>
- Hayes, A. F., & Scharkow, M. (2013). The relative trustworthiness of inferential tests of the indirect effect in statistical mediation analysis: Does method really matter? *Psychological Science*, 24(10), 1918–1927. <https://doi.org/10.1177/0956797613480187>
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A Regression-Based Approach* 2nd edition (THE GUILFORD PRESS).
- He, H., Kukar-Kinney, M., & Ridgway, N. M. (2018). Compulsive buying in China: Measurement, prevalence, and online drivers. *Journal of Business Research*, 91 October 2018, 28–39. <https://doi.org/10.1016/j.jbusres.2018.05.023>
- Hoch, S. J., & Loewenstein, G. F. (1991). Time-Inconsistent preferences and consumer self-control. *Journal of Consumer Research*, 17(4), 492. <https://doi.org/10.1086/208573>
- Holman, E. A., & Silver, R. C. (1998). Getting “stuck” in the past: Temporal orientation and coping with trauma. *Journal of Personality and Social Psychology*, 74(5), 1146–1163. <https://doi.org/10.1037/0022-3514.74.5.1146>
- Horváth, C., & Adigüzel, F. (2018). Shopping enjoyment to the extreme: Hedonic shopping motivations and compulsive buying in developed and emerging markets. *Journal of Business Research*, 86 May 2018, 300–310. <https://doi.org/10.1016/j.jbusres.2017.07.013>
- Hsiao, K. L. (2017). Compulsive mobile application usage and technostress: The role of personality traits. *Online Information Review*, 41(2), 272–295. <https://doi.org/10.1108/OIR-03-2016-0091>
- Hulland, J., & Miller, J. (2018). Keep on ‘Turkin’? *Journal of the Academy of Marketing Science*, 46(5), 789–794. <https://doi.org/10.1007/s11747-018-0587-4>
- Islam, T., Wei, J., Sheikh, Z., Hameed, Z., & Azam, R. I. (2017). Determinants of compulsive buying behavior among young adults: The mediating role of materialism. *Journal of Adolescence*, 61(1), 117–130. <https://doi.org/10.1016/j.adolescence.2017.10.004>
- Johnson, T., & Attmann, J. (2009). Compulsive buying in a product specific context: Clothing. *Journal of Fashion Marketing and Management*, 13(3), 394–405 doi:10.1108/13612020910974519.
- Knight, D. K., & Young Kim, E. (2007). Japanese consumers’ need for uniqueness: Effects on brand perceptions and purchase intention. *Journal of Fashion Marketing and Management: An International Journal*, 11(2), 270–280. <https://doi.org/10.1108/13612020710751428>
- Kocayörük, E., & Şimşek, O. F. (2020). The validity and reliability of the Turkish brief version of the Zimbardo time perspective inventory for adolescents. *Düşünen Adam*, 33 1, 40–49 doi:10.14744/DAJPN.2019.00059.
- Koran, L. M., Faber, R. J., Aboujaoude, E., Large, M. D., & Serpe, R. T. (2006). Estimated prevalence of compulsive buying behavior in the United States. *American Journal of Psychiatry*, 163(10), 1806–1812. <https://doi.org/10.1176/ajp.2006.163.10.1806>
- Kukar-Kinney, M., Ridgway, N. M., & Monroe, K. B. (2012). The role of price in the behavior and purchase decisions of compulsive buyers. *Journal of Retailing*, 88(1), 63–71. <https://doi.org/10.1016/j.jretai.2011.02.004>
- Leite, P., Rangé, B., Kukar-Kinney, M., Ridgway, N., Monroe, K., Ribas Junior, R., Fernandez, J. L., Nardi, A. E., & Silva, A. (2013). Cross-cultural adaptation, validation and reliability of the Brazilian version of the Richmond compulsive buying scale. *Revista Brasileira de Psiquiatria*, 35(1), 38–43. <https://doi.org/10.1016/j.rbp.2012.10.004>
- Lejoyeux, M., Richoux-Benhaim, C., Betizeau, A., Lequen, V., & Lohnhardt, H. (2011). Money attitude, self-esteem, and compulsive buying in a population of medical students. *Frontiers in Psychiatry*, 2 13 1–5. <https://doi.org/10.3389/fpsy.2011.00013>
- Leonard, S., Zhang, J. W., & Howell, R. (2019). Spending well: How time perspectives impact consumer values and financial decisions among middle-aged adults. *Research in Human Development*, 16(2), 135–155. <https://doi.org/10.1080/15427609.2019.1670568>
- Lewin, K., & Cartwright, D. (1951). *Field theory in social science: Selected theoretical papers* (New York: Harper & Row.) 346. <https://doi.org/10.1177/000271625127600135>
- Linden, A. N., Lau-Barraco, C., & Hollis, B. F. (2014). Associations between psychological distress and alcohol outcomes as mediated by time perspective orientation among college students. *Mental Health and Substance Use: Dual Diagnosis*, 7(2), 134–143. <https://doi.org/10.1080/17523281.2013.785443>
- Lynn, M., & Harris, J. (1997). The desire for unique consumer products: A new individual differences scale. *Psychology and Marketing*, 14(6), 601–616. [https://doi.org/10.1002/\(SICI\)1520-6793\(199709\)14:6<601::AID-MAR5>3.0.CO;2-B](https://doi.org/10.1002/(SICI)1520-6793(199709)14:6<601::AID-MAR5>3.0.CO;2-B)
- Lyubomirsky, S., & Nolen-Hoeksema, S. (1993). Self-Perpetuating properties of dysphoric rumination. *Journal of Personality and Social Psychology*, 65(2), 339–349. <https://doi.org/10.1037/0022-3514.65.2.339>
- Lyubomirsky, S., & Nolen-Hoeksema, S. (1995). Effects of self-focused rumination on negative thinking and interpersonal problem solving. *Journal of Personality and Social Psychology*, 69(1), 176–190. <https://doi.org/10.1037/0022-3514.69.1.176>
- McCrae, R. R., & John, O. P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality*, 60(2), 175–215. <https://doi.org/10.1111/j.1467-6494.1992.tb00970.x>
- McElroy, S. L., Keck, P. E., & Phillips, K. A. (1995). Kleptomania, compulsive buying, and binge-eating disorder. *Journal of Clinical Psychiatry*, 56(1995), 14–26. <https://pubmed.ncbi.nlm.nih.gov/7713861/>
- Miceli, S., Cardaci, M., Scrima, F., & Caci, B. (2021). Time perspective and Facebook addiction: The moderating role of neuroticism. *Current Psychology*. <https://doi.org/10.1007/s12144-021-01355-w>

- Mikołajczak-Degrauwe, K., Rossi, G., Wauters, B., & Brengman, M. (2012). Can we identify compulsive buyers based on their personality? An application of the personality adjective check list. *Journal of Customer Behaviour*, 11(3), 221–240. <https://doi.org/10.1362/147539212x13469450373038>
- Moschis, G. P. (2017). Research frontiers on the dark side of consumer behaviour: The case of materialism and compulsive buying. *Journal of Marketing Management*, 33(15–16), 1384–1401. <https://doi.org/10.1080/0267257X.2017.1347341>
- Moulding, R., Duong, A., Nedeljkovic, M., & Kyrios, M. (2017). Do you think that money can buy happiness? A review of the role of mood, materialism, self, and cognitions in compulsive buying. *Current Addiction Reports*, 4(3), 254–261. <https://doi.org/10.1007/s40429-017-0154-y>
- Mowen, J. C., & Spears, N. (1999). Understanding compulsive buying among college students: A hierarchical approach. *Journal of Consumer Psychology*, 8(4), 407–430. [https://doi.org/10.1207/s15327663jcp0804\\_03](https://doi.org/10.1207/s15327663jcp0804_03)
- Mueller, A., Mitchell, J. E., Crosby, R. D., Gefeller, O., Faber, R. J., Martin, A., Bleich, S., Glaesmer, H., Exner, C., & de Zwaan, M. (2010). Estimated prevalence of compulsive buying in Germany and its association with sociodemographic characteristics and depressive symptoms. *Psychiatry Research*, 180(2–3), 137–142. <https://doi.org/10.1016/j.psychres.2009.12.001>
- Mueller, A., Claes, L., Mitchell, J. E., Wonderlich, S. A., Crosby, R. D., & de Zwaan, M. (2010). Personality prototypes in individuals with compulsive buying based on the Big Five Model. *Behaviour Research and Therapy*, 48(9), 930–935. <https://doi.org/10.1016/j.brat.2010.05.020>
- Mueller, A., & Mitchell, J. E. (2011). *Compulsive Buying: Clinical Foundations and Treatment* (New York: Routledge). doi:10.4324/9780203840962
- Mueller, A., Mitchell, J. E., Peterson, L. A., Faber, R. J., Steffen, K. J., Crosby, R. D., & Claes, L. (2011). Depression, materialism, and excessive internet use in relation to compulsive buying. *Comprehensive Psychiatry*, 52(4), 420–424. <https://doi.org/10.1016/j.comppsy.2010.09.001>
- Ng, W. (2015). Neuroticism James D. Wright. *International Encyclopedia of the social & behavioral sciences: Second edition* (Elsevier) (pp. 743–748). <https://doi.org/10.1016/B978-0-08-097086-8.25021-6>
- O'Guinn, T. C., & Faber, R. J. (1989). Compulsive buying: A phenomenological exploration. *Journal of Consumer Research*, 16(2), 147. <https://doi.org/10.1086/209204>
- Oflazoğlu, S., & Çelik, Ş. S. (2020). Avatarın Kadar Konuş: Farklı Olma İhtiyacı ve Materyalizm Eğiliminin Genişletilmiş Benlik Üzerindeki Etkisi. *Pazarlama ve Pazarlama Arastirmalari Dergisi*, 1(19), 120–144 <https://dergipark.org.tr/en/pub/ppad/issue/60994/906021>.
- Omar, N. A., Rahim, R. A., Wel, C. A. C., & Alam, S. S. (2014). Compulsive buying and credit card misuse among credit card holders: The roles of self-esteem, materialism, impulsive buying and budget constraint. *Intangible Capital*, 10(1), 52–74. <https://doi.org/10.3926/ic.446>
- Otero-López, J. M., & Villardefrancos Pol, E. (2013). Compulsive buying and the Five Factor Model of personality: A facet analysis. *Personality and Individual Differences*, 55(5), 585–590. <https://doi.org/10.1016/j.paid.2013.05.005>
- Otero-López, J. M., & Villardefrancos, E. (2013). Five-Factor Model personality traits, materialism, and excessive buying: A mediational analysis. *Personality and Individual Differences*, 54(6), 767–772. <https://doi.org/10.1016/j.paid.2012.12.013>
- Otero-López, J. M., Santiago, M. J., & Castro, M. C. (2021). Big five personality traits, coping strategies and compulsive buying in Spanish university students. *International Journal of Environmental Research and Public Health*, 18(2), 1–15. <https://doi.org/10.3390/ijerph18020821>
- Pantic, I., Milanovic, A., Loboda, B., Blachnio, A., Przepiorka, A., Nestic, D., Mazic, S., Dugalic, S., & Ristic, S. (2017). Association between physiological oscillations in self-esteem, narcissism and internet addiction: A cross-sectional study. *Psychiatry Research*, 258(2017), 239–243. <https://doi.org/10.1016/j.psychres.2017.08.044>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40(3), 879–891. <https://doi.org/10.3758/BRM.40.3.879>
- Roberts, J. A., & Sepulveda M, C. J. (1999). Demographics and money attitudes: A test of Yamauchi and Templers (1982) money attitude scale in Mexico. *Personality and Individual Differences*, 27(1), 19–35. [https://doi.org/10.1016/S0191-8869\(98\)00241-4](https://doi.org/10.1016/S0191-8869(98)00241-4)
- Roberts, S. B., & Kendler, K. S. (1999). Neuroticism and self-esteem as indices of the vulnerability to major depression in women. *Psychological Medicine*, 29(5), 1101–1109. <https://doi.org/10.1017/S0033291799008739>
- Roberts, J. A., & Tanner, J. F. (2000). Compulsive buying and risky behavior among adolescents. *Psychological Reports*, 86(3), 763–770. <https://doi.org/10.2466/pr0.2000.86.3.763>
- Roberts, J. A., Manolis, C., & Pullig, C. (2014). Contingent self-esteem, self-presentational concerns, and compulsive buying. *Psychology and Marketing*, 31(2), 147–160. <https://doi.org/10.1002/mar.20683>
- Ruvio, A., Shoham, A., & Brenčić, M. M. (2008). Consumers' need for uniqueness: Short-form scale development and cross-cultural validation. *International Marketing Review*, 25(1), 33–53. <https://doi.org/10.1108/02651330810851872>
- Schmidt, F. L., Le, H., & Ilies, R. (2003). Beyond alpha: An empirical examination of the effects of different sources of measurement error on reliability estimates for measures of individual differences constructs. *Psychological Methods*, 8(2), 206–224. <https://doi.org/10.1037/1082-989X.8.2.206>
- Schumpe, B. M., & Erb, H. P. (2015). Humans and uniqueness. *Science Progress*, 98(1), 1–11. <https://doi.org/10.3184/003685015X14205597448201>
- Schumpe, B. M., Herzberg, P. Y., & Erb, H. P. (2016). Assessing the need for uniqueness: Validation of the German NfU-G scale. *Personality and Individual Differences*, 90(February), 231–237 doi:10.1016/j.paid.2015.11.012.
- Shafikhani, M., Bagherian, F., & Shokri, O. (2018). The mediating role of time perspective in the relationship between general self-efficacy and the tendency toward substance



- abuse in female adolescents. *International Journal of Psychology*, 12(1), 208–231. <https://doi.org/10.24200/ijpb.2018.58149>
- Shehzadi, K., Ahmad-ur-Rehman, M., Mehmood Cheema, A., & Ahkam, A. (2016). Impact of personality traits on compulsive buying behavior: Mediating role of impulsive buying. *Journal of Service Science and Management*, 09(5), 416–432. <https://doi.org/10.4236/jssm.2016.95046>
- Shoham, A., & Brenčić, M. M. (2003). Compulsive buying behavior. *Journal of Consumer Marketing*, 20(2–3), 127–138. <https://doi.org/10.1108/07363760310464596>
- Snyder, C. R., & Fromkin, H. L. (1977). Abnormality as a positive characteristic: The development and validation of a scale measuring need for uniqueness. *Journal of Abnormal Psychology*, 86(5), 518–527. <https://doi.org/10.1037/0021-843X.86.5.518>
- Snyder, C. R., & Fromkin, H. L. (1980). *Uniqueness: The human pursuit of difference*. Plenum Press. <https://doi.org/10.1007/978-1-4684-3659-4>
- Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in Structural Equation Models. *Sociological Methodology*, 13, 290. <https://doi.org/10.2307/270723>
- Sobol-Kwapinska, M. (2016). Calm down - It's only neuroticism. Time perspectives as moderators and mediators of the relationship between neuroticism and well-being. *Personality and Individual Differences*, 94(May), 64–71. <https://doi.org/10.1016/j.paid.2016.01.004>
- Stolarski, M., Matthews, G., Postek, S., Zimbardo, P. G., & Bitner, J. (2014). How we feel is a matter of time: Relationships between time perspectives and mood. *Journal of Happiness Studies*, 15(4), 809–827. <https://doi.org/10.1007/s10902-013-9450-y>
- Stolarski, M., & Cyniak-Cieciura, M. (2016). Balanced and less traumatized: Balanced time perspective mediates the relationship between temperament and severity of PTSD syndrome in motor vehicle accident survivor sample. *Personality and Individual Differences*, 101(October), 456–461. <https://doi.org/10.1016/j.paid.2016.06.055>
- Tarka, P., Harnish, R. J., & Babaev, J. (2022). Hedonism, hedonistic shopping experiences and compulsive buying tendency: A demographics-based model approach. *Journal of Marketing Theory and Practice*, 1–26. <https://doi.org/10.1080/10696679.2022.2026791>
- Tatar, A. (2017). Büyük beş-50 kişilik testinin türkçeye çevirisi ve beş faktör kişilik envanteri kısa formu ile karşılaştırılması. *Anadolu Psikiyatri Dergisi*, 18(1), 51–61. doi:10.5455/apd.220580.
- Tian, K. T., Bearden, W. O., & Hunter, G. L. (2001). Consumers' need for uniqueness: Scale development and validation. *Journal of Consumer Research*, 28(1), 50–66. <https://doi.org/10.1086/321947>
- Trautmann, J., & Johnson, T. W. (2007). Binge eating behaviors, neuroticism, and compulsive clothing buying: Are they related? *Research Journal of Textile and Apparel*, 11(2), 75–84. <https://doi.org/10.1108/RJTA-11-02-2007-B009>
- Unger, A., Lyu, H., & Zimbardo, P. G. (2018). How compulsive buying is influenced by time perspective—cross-cultural evidence from Germany, Ukraine, and China. *International Journal of Mental Health and Addiction*, 16(3), 525–544. <https://doi.org/10.1007/s11469-018-9942-4>
- Ursachi, G., Horodnic, I. A., & Zait, A. (2015). How reliable are measurement scales? External factors with indirect influence on reliability estimators. *Procedia Economics and Finance*, 20(2015), 679–686. [https://doi.org/10.1016/s2212-5671\(15\)00123-9](https://doi.org/10.1016/s2212-5671(15)00123-9)
- Valence, G., d'Astous, A., & Fortier, L. (1988). Compulsive buying: Concept and measurement. *Journal of Consumer Policy*, 11(4), 419–433. <https://doi.org/10.1007/BF00411854>
- Van Beek, W., Berghuis, H., Kerkhof, A., & Beekman, A. (2011). Time perspective, personality and psychopathology: Zimbardo's time perspective inventory in psychiatry. *Time & Society*, 20(3), 364–374. <https://doi.org/10.1177/0961463X10373960>
- Wansink, B. (1994). The Dark Side of Consumer Behavior: Empirical Examinations of Impulsive and Compulsive Consumption. Advances in Consumer Research Volume 21, 1994, Provo, UT. In (Vol. 21) Chris T. Allen and Deborah RoEdder John. Association for Consumer Research, 508. <https://www.acrwebsite.org/volumes/7645/volumes/v21/NA-21>
- Yang, X., Wang, W., & Chen, R. R. (2020). Compulsive social networking site use: Impact of individual needs and peer-related factors. *Proceedings of the 24th Pacific Asia Conference on Information Systems: Information Systems (IS) for the Future, PACIS 2020*.
- Yüncü, Z., & Kesebir, S. (2014). Compulsive buying scale: Validity, reliability and its psychometric characteristics in our society. *Bagimlilik Dergisi*, 15(3), 142–149.
- Yurchisin, J., & Johnson, K. K. P. (2004). Compulsive buying behavior and its relationship to perceived social status associated with buying, materialism, self-esteem, and apparel-product involvement. *Family and Consumer Sciences Research Journal*, 32(3), 291–314. <https://doi.org/10.1177/1077727X03261178>
- Zhang, J. W., & Howell, R. T. (2011). Do time perspectives predict unique variance in life satisfaction beyond personality traits? *Personality and Individual Differences*, 50(8), 1261–1266. <https://doi.org/10.1016/j.paid.2011.02.021>
- Zhang, J. W., Howell, R. T., & Bowerman, T. (2013). Validating a brief measure of the Zimbardo time perspective inventory. *Time & Society*, 22(3), 391–409. <https://doi.org/10.1177/0961463X12441174>
- Zheng, Y., Yang, X., Liu, Q., Chu, X., Huang, Q., & Zhou, Z. (2020). Perceived stress and online compulsive buying among women: A moderated mediation model. *Computers in Human Behavior*, 103(February), 13–20. <https://doi.org/10.1016/j.chb.2019.09.012>
- Zimbardo, P. G., & Boyd, J. N. (1999). Putting time in perspective: A valid, reliable individual-differences metric. *Journal of Personality and Social Psychology*, 77(6), 1271–1288. <https://doi.org/10.1037/0022-3514.77.6.1271>
- Zimbardo, P. G., C. S. \$ A. I. C. <, & Boyd, J. N. C. S. \$ A. I. C. <. (2015). Putting time in perspective: A valid, reliable individual-differences metric. Stolarski, M., Fioulaine, N., van Beek, W. *Time Perspective Theory: Review, Research and Application: Essays in Honor of Philip G. Zimbardo*. Springer, pp. 17–55. [https://doi.org/10.1007/978-3-319-07368-2\\_2](https://doi.org/10.1007/978-3-319-07368-2_2)