

**The conflicting effects of self-construal on impulsive buying tendency toward unhealthy food: The moderating role of future time perspective**

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## **ABSTRACT**

This study extends the understanding of if and how consumer impulse buying tendency toward unhealthy food can be explained by the conflicting and interactive mechanisms of individual differences in self-construal and future time perspectives. Based on a survey sample of 439 Vietnamese consumers, this study adopts a structural equation modelling approach for second-order constructs and moderating effects to test hypotheses. The study confirms that interdependent and independent self-construal are structured as second-order individual constructs, and that interdependent self-construal has a negative impact, while an independent self-construal positively affects impulse buying tendency toward unhealthy food. In particular, besides having a direct negative effect on this tendency, future time perspectives have opposite moderating effects on these relationships.

**Keywords:** Self-construal, Future time perspectives, Impulsive buying tendency, Unhealthy food, Vietnam

## **1. Introduction**

Impulsive consumers tend to choose less healthy (Steils, 2021) and more unhealthy food (Verplanken et al., 2005). Unhealthy food is a specific product that is easily bought on impulse because it triggers emotional responses in most people by its attractive looks, colour and pleasant aroma (Stasi et al., 2018; Verhagen & van Dolen, 2011). Increased consumption of unhealthy food (e.g., fast or junk food) causes obesity, overweight, or heart problems among consumers in many countries (Cohen et al., 2015; Steils, 2021) since they are high in fat, salt, and sugar (Veling et al., 2013). Producers and distributors of food use marketing stimuli (e.g., price discounts, product availability/point of purchase, heavy promotion, sensory stimuli), website stimuli (e.g., video vividness and persuasion claims), or situations (e.g., Black Friday or Christmas Day) to stimulate (impulsive) buying behaviour (Bellini et al., 2017; Cohen et al., 2015; de Tomas et al., 2020; Ford et al., 2020). However, impulsive buying behaviours also depend on individual differences in personality, personal values, or self-motivational forces and resources (Amos et al., 2014; Iyer et al., 2019). Thus, addressing impulsive buying tendency toward unhealthy food from an individual difference perspective is essential to propose a potential avenue for altering consumers' unhealthy food consumption behaviour (Steils, 2021; van Beurden et al., 2016; Veling et al., 2013).

Despite a growing interest in research on what triggers impulsive buying of different goods and services (Amos et al., 2014; Iyer et al., 2019), the individual mechanism underlying the impulsive process of consuming unhealthy foods is still unclear (Duarte et al., 2013; Honkanen et al., 2012; Onwezen et al., 2016; Veling et al., 2013). However, research in the food domain has demonstrated increased interest in the role of stable individual traits (Köster, 2009; Machado-Oliveira et al., 2020), self-view (Zhang & Shrum, 2009; Zhang et al., 2010), temporal dilemmas between living for the present and considering future consequences of one's behaviour (Arnocky et al., 2013; Guo et al., 2022; Murphy & Dockray, 2018), or a combination of personality traits, values, and temporal conflicts

(Nystrand et al., 2021; Olsen & Tuu, 2017; Olsen & Tuu, 2021) in explaining unhealthy food-related behaviours. One particular interest is research on whether and how self-construal can offer a valuable framework for explaining psychological conflicts in food choice (Banovic & Barone, 2021; Wang et al., 2020), for example, exploring conflicts if and how individuals view themselves in their social environment, as self-construal or seeing the self with others (Bakir et al., 2020; Cross et al., 2011; Markus & Kitayama, 1991; Ronteltap et al., 2012). The conflicts of present versus future time orientations have recently been regarded as highly relevant in the understanding of food choice (Antunez et al., 2022; Gidlöf et al., 2021; Nystrand et al., 2021; Tortora & Ares, 2018). Thus, this study considers the relationships between self-construal, future time perspective, and impulsive buying tendency toward unhealthy food from a conflicting, social dilemma or dual processing time perspective (Joireman et al., 2001; Khachatryan et al., 2013; Olsen & Tuu, 2021).

Self-construal refers to how people perceive themselves as linked (or not) with other people, which includes independent and interdependent self-construal (Dogan & Ozmen, 2017; Hashimoto & Yamagishi, 2016; Markus & Kitayama, 1991; Xiong et al., 2022). Self-construal is important in explaining different nuances of buying behaviours (Zhang & Shrum, 2009) because the differences in people's perception of their relationships with others (i.e., independent vs. interdependent self-construal; Markus & Kitayama, 2010) lead to differences in the processes of thinking, attitudes, perceptions, emotions and behaviour (Baumeister, 1999; Kim et al., 2007). Previous studies have suggested that self-construal is nurtured by culture (e.g., collectivism and individualism; Fleming et al., 2021). Some studies indicate that collectivist consumers tend to be less engaged in impulsive buying than their individualistic counterparts (Kacen & Lee, 2002). Interdependent and independent self-construal are nurtured by collectivism and individualism, respectively. Thus, consumers with this dominant self-construal tend to think and interact with groups or strengthen existing relationships (Cross et al., 2011), which emphasizes harmonious social values (Millan & Reynolds, 2014). As a

result, this facilitates self-control in consumption situations and decreases impulsive buying tendencies in terms of unhealthy food consumption (Zhang & Shrum, 2009). On the other hand, consumers with this dominant self-construal tend to think about their own internal attributes or characteristics (Spassova & Lee, 2013), a pattern which fosters the achievement of individual interests. Consequently, it weakens self-control and increases impulsive buying tendencies in terms of unhealthy food consumption (Zhang & Shrum, 2009).

Furthermore, the impulse buying tendency towards unhealthy food might be related to consideration of future consequences (Baumann & Odum, 2012) such as diseases, obesity or blood pressure (Dassen et al., 2015; Liang et al., 2021). Thus, the future time perspective can be an important determinant of this buying tendency (Onwezen et al., 2016; Price et al., 2017). In addition, some studies have shown that future time perspectives are related to long-term health behaviours such as improvements in healthy food choices (Antunez et al., 2022; Rojas-Rivas et al., 2020; Tortora & Ares, 2018) because consumers with a future time perspective exert more control on food choices (Baird et al., 2021; Price et al., 2017). Thus, it is reasonable to expect that a future time perspective is negatively related to the impulse buying tendency towards unhealthy food. More interestingly, the social dilemma perspective (Joireman et al., 2004; Joireman et al., 2001) has suggested that a future time perspective can activate collective interests (e.g., interdependence) and hinder individual interests (e.g., independence), leading to the enhancement or dampening of certain behaviours. Thus, a future time perspective is highly relevant since it can exert direct and moderating effects on the impulse buying tendency towards unhealthy food. However, to the authors' knowledge, self-construal and a future time perspective have never been integrated to explain impulsive (unhealthy food) consumption.

Our study further contributes to the controversies in the current literature about how self-construal is measured and structured (see Hofmann et al., 2021 for a review) by using four independence and interdependence scales developed by Hashimoto and Yamagishi (2016) to

comprehend the duality of self-construal. Furthermore, the discussion of the problems of discriminant and convergent validity (Levine et al., 2003), as well as the content validity of self-construal measurement scale fosters us to devote effort to specify the most appropriate measurement model among competing models (two-factor; three-factor, four-factor, two-factor second-order constructs; Adams, 2005; Cross et al., 2011; Hashimoto & Yamagishi, 2013; Hashimoto & Yamagishi, 2016; Levine et al., 2003; Wu et al., 2019) for testing the relationships. Finally, as self-construal and a future time perspective are culture-related and interdependence and independent self-construal might co-exist, Vietnam is relevant as a research context since consumers in Asia often possess a bicultural self-construal (Beckstein et al., 2021; Cross, 1995). Prior studies propose that Vietnamese culture simultaneously shows collectivism and individualism, revealing that Vietnamese people possess both inter- and independent self-construals (e.g., Lam, 2006; Mai et al., 2003). Among Vietnamese consumers, overweight and obesity have become severe problems as consumption of unhealthy food has increased (Olsen & Tuu, 2017). These features make the Vietnamese unhealthy food market an interesting context for this study.

To sum up, this study contributes to the understanding of the psychological mechanism of an impulsive buying tendency of unhealthy food by using a social and temporal dilemmas framework (Joireman et al., 2001; Khachatryan et al., 2013; Olsen & Tuu, 2021). More precisely, we investigate how and why the conflicts in self-construal (Bakir et al., 2020; Cross et al., 2011; Markus & Kitayama, 1991; Ronteltap et al., 2012) and a future time perspective (Antunez et al., 2022; Gidlöf et al., 2021; Nystrand et al., 2021; Tortora & Ares, 2018) can directly and interactively influence this buying tendency. An impulsive buying tendency of unhealthy food is growing as a serious problem for individuals' health and well-being worldwide (Cohen et al., 2015; Steils, 2021; Veling et al., 2013). Research that can provide greater insight into this topic is in demand.

## **2. Theoretical framework**

### *2.1. Impulsive buying tendency toward unhealthy food*

Previous studies have shown that up to 80% of all purchases are made on impulse (Amos et al., 2014). There are various approaches to and definitions of impulsive buying (Iyer et al., 2019). This study defines and measures impulsive buying from an individual difference perspective: as an internal general stable tendency or trait experienced by the consumer to buy spontaneously, unreflectively, without planning, and immediately over time (Rook & Fisher, 1995; Verplanken & Sato, 2011). Impulsivity and impulsive buying tendencies vary across products, services, and context (e.g., Amos et al., 2014; Iyer et al., 2019; Mai et al., 2003; Zhang & Shrum, 2009) Thus, this study frames impulsive buying tendencies toward the context of unhealthy food behaviour (Honkanen et al., 2012).

In their meta-analyses of impulsive buying, Amos et al. (2014) and Iyer et al. (2017) suggest that dispositional variables or individual traits remain the most prominent antecedents of impulsive buying. Individuals buy impulsively for pleasure and hedonic reasons (Olsen & Tuu, 2021) or to (self)regulate their low self-esteem or repair emotional imbalance (Verplanken & Sato, 2011). Lack of self-control is closely associated with impulsive buying (Vohs & Faber, 2007). Even though Dittmar et al. (1996) suggested nearly three decades ago that self-identity (e.g., gender) influences impulse buying decisions, research on the relationships between self-constructs and impulse buying is scant (Iyer et al., 2019). Thus, this study will expand the existing literature investigating possible self-traits as motives for why consumers tend to buy impulsively. As mentioned in the introduction, we further focus on antecedents that can shed light on conflicts in (unhealthy) eating behaviour and suggest that the duality of self-construal (independent versus interdependent) is relevant, theoretically, empirically, and managerially.

### *2.2. Independent and interdependent self-construals as second-order sub-constructs*

. Individuals with independent self-construals define themselves as independent, autonomous, unique, and distinct from the group. Those with interdependent self-construals define themselves in terms of

social relationships, as being a part of a larger group, duties, group harmony, and as valuing connectedness (Cross et al., 2011; Ronteltap et al., 2012; Wu et al., 2019; Zhang & Shrum, 2009). The above discussion of self-construal also implies the two-factor structure of self-construal (Cross et al., 2011; Wu et al., 2019). Furthermore, although self-construal is widely considered a dichotomy (Markus & Kitayama, 1991), prior studies also suggest that interdependent and independent self-construals can coexist in the same individual with varying levels of each (Lam, 2006; Mai et al., 2003), meaning that individuals can simultaneously maintain interdependent and independent self-construals.

However, some studies also indicate that this two-factor structure is limited in providing evidence regarding cultural differences (e.g., Adams, 2005; Hashimoto & Yamagishi, 2013; Levine et al., 2003), and thus argue that it is better to operationalise self-construal as a three-factor construct. For example, interdependent self-construal is divided into ‘harmony seeking’, which emphasises social harmony with others’ needs, desires, and social ties, and ‘rejection avoidance’, which stresses the acceptance of closely related others (Adams, 2005). More recently, Hashimoto and Yamagishi (2016) have developed a new framework to comprehensively explain the duality of interdependent and independent self-construals. This perspective suggests a four-factor structure in which interdependent self-construal includes ‘harmony seeking’ and ‘rejection avoidance,’ while independent self-construal contains ‘distinctiveness of the self’, which considers the self as a unique and distinct entity from others, and ‘self-expression’ which reflects a psychological strategy to establish relationships with those not linked by strong ties.

Furthermore, harmony seeking and rejection avoidance (Adams, 2005; Hashimoto & Yamagishi, 2013), and “distinctiveness of the self” and “self-expression” (Cross et al., 2011; Markus & Kitayama, 2010) share a common theme and are changeable. Hence, independent and interdependent self-construal can be conceptualized as reflective second-order constructs (Hair et al., 2014). This argument is consistent with Gudykunst and Lee (2003) and Hardin et al. (2004) who postulate that self-construal



should have more than two dimensions that can form two sub-constructs which provides a better fit to the data than the original two-factor self-construal. In this sense, interdependent/independent self-construal should be operationalized as a reflective second-order constructs which is specified by ‘harmony seeking’ and ‘rejection avoidance’/ ‘self-expression’ and ‘distinctiveness of the self’. This study opens for the alternative structures of self-construal (i.e., two-factor; three-factor, or four-factor; Adams, 2005; Cross et al., 2011; Dogan & Ozmen, 2017; Hashimoto & Yamagishi, 2013; Hashimoto & Yamagishi, 2016; Levine et al., 2003; Wu et al., 2019) for investigating the most valid model of the construct.

### *2.3. Self-construal and impulsive buying tendency toward unhealthy food*

While self-construal is important to explain food consumption, to our knowledge, only the study by Banovic and Barone (2021) has investigated the role of self-construal as a moderator in the context of healthy eating. Thus, this study explores the conflicting effects of independent and interdependent self-construal on impulsive buying tendency towards unhealthy food. Since self-construal is culturally and individually imposed (Cross et al., 2011), this study will provide new insights into individual differences in the phenomenon of impulsive buying tendency, particularly in an Asian culture (Lam, 2006; Mai et al., 2003; Nguyen et al., 2021).

Previous studies often explain the relationships between self-construal and impulsive buying tendency through the mediating mechanism of social norms (Kacen & Lee, 2002; Mai et al., 2003; Rook & Fisher, 1995; Zhang & Shrum, 2009). People with an interdependent self-construal tend to conform to social or group norms and rely on information from others, while people with an independent self-construal prefer their inner thoughts and follow their emotions (Zhang & Shrum, 2009). For its cultural nature, this study extends to argue for the role of self-construal in impulsive buying tendency in the light of the theory of basic values (Schwartz, 1994). Specifically, people with an independent self-construal, rooted in individualistic cultures, emphasize individual interests such as

pleasure, sensuous gratification for oneself, excitement, novelty, or challenge in life (Schwartz, 1994). In contrast, people with an interdependent self-construal, developed in collective cultures, often emphasize social values such as safety, harmony, stability of self, restraint of actions, inclinations, and impulses likely to upset or harm others (Millan & Reynolds, 2014). Besides that, individuals with an independent self-construal often emphasize their motives, goals, attitudes, inner feelings, and behaviours; thus, they are less likely to activate self-control over a situation and consequently tend to conduct impulsive behaviours (Fujita, 2008; Fujita et al., 2006). In contrast, those with an interdependent self-construal often concentrate on their social interactions and relationships, belonging and fitting to the in-group, and engaging in appropriate behaviour; thus, they are more likely to exert self-control over a situation and subsequently are inclined not to act impulsively (Fujita, 2008). Consequently, independent self-construal can positively link to impulsive buying tendency, while interdependent self-construal can be negatively associated with this tendency.

However, the empirical evidence showing the conflicting effects of independent and interdependent self-construals on impulsive buying tendency is scant (Kacen & Lee, 2002; Mai et al., 2003; Zhang & Shrum, 2009). For example, Kacen and Lee (2002) suggest that individualism (independent self-construal) and collectivism (interdependent self-construal) are the dual traits in predicting impulsive buying tendency. People with an interdependent self-construal show a lower impulsive buying tendency and make less impulsive purchases, while people with an independent self-construal show a higher impulsive buying tendency and make more impulsive purchases (Zhang & Shrum, 2009). In particular, in a bicultural country (Vietnam), Mai et al. (2003) explore that both put high importance on impulse buying; and that people with an independent self-construal have a higher impulsive buying tendency and engage in impulse buying more often than those with an interdependent self-construal.

Concerning food choice, Bagozzi et al. (2000) indicated that people with an independent self-construal often make food-related decisions (e.g., eating alone or buying fast food) based on their internal criteria of personal tastes and predispositions, whereas people with an interdependent self-construal make decisions (e.g., eating with friends or avoiding unhealthy food) that are driven primarily by social factors. People with an independent self-construal are assumed to have a high tendency to magnify positive attributes, while people with an interdependent self-construal tend to focus more on the negative attributes of unhealthy food (Zhang & Mittal, 2007). Consumers with prosocial interests are also found to avoid consuming unhealthy foods for more healthy foods, while those with pro-self interests tend to act in an opposite way (Olsen & Tuu, 2021).

Based on the above discussions, this study extends previous studies by suggesting that independent self-construal as a second-order construct reflected by ‘self-expression’ and ‘distinctiveness of the self’ has a positive association with impulsive buying tendency toward unhealthy food, while the second-order construct of interdependent self-construal, which is structured by ‘harmony seeking’ and ‘rejection avoidance,’ has a negative link. The first two hypotheses are suggested:

**H1.** Independent self-construal has a positive effect on impulse buying tendency toward unhealthy food.

**H2.** Interdependent self-construal has a negative effect on impulse buying tendency toward unhealthy food.

#### *2.4. Future time perspectives as a moderator*

Future time perspectives describe the extent to which people consider and devote their attention toward their future (Price et al., 2017; Zimbardo & Boyd, 1999). The current literature has confirmed the role of future time perspectives in explaining different consumer behaviours and outcomes (Kooij, Kanfer,

Betts, & Rudolph, 2018). In the food domain, the future time perspective has been adopted to explain food choice or health decisions in the form of consideration of future consequences (CFC; Joireman et al., 2012; Strathman et al., 1994), and the findings have validated the important role of CFC as a predictor of those choices (Borisenkov et al., 2022; Guo et al., 2022). For example, CFC fosters health-improved food choices, such as health-associated cookies, attention to unhealthy food warnings, and decreased discretionary salt usage (Antunez et al., 2022; Rojas-Rivas et al., 2020; Tortora & Ares, 2018). These results can be explained by the argument that individuals with a CFC-future are more likely to think about future consequences, and thus exert more control on limiting unhealthy food choices (Baird et al., 2021; Price et al., 2017).

Impulsive individuals tend to be less oriented toward the future (Baumann & Odum, 2012) and make impulsive purchases without careful consideration of their consumption consequences in the future (Liang et al., 2021), including unhealthy eating (Dassen et al., 2015). Individuals who consider future (health) consequences of their food choice often avoid unhealthy behaviours (McKay et al., 2017), leading them to consume less fast or convenience food (e.g., Olsen & Tuu, 2017; van Beek et al., 2013). They also prioritize healthy food more than hedonic individuals living for the present (Joireman et al., 2012). Based on these discussions and findings, this study suggests the following hypothesis:

**H3.** Future time perspectives have a negative effect on impulsive buying tendency toward unhealthy food.

Only a few studies have explored how independents and interdependents react with future outcomes (e.g., Lee et al., 2011; Zhang & Mittal, 2007). Previous studies have suggested that impulsive consumption is linked to individual differences (e.g., self-construal) in suppressing or controlling short-term pleasure at the expense of long-term consequences (Iyer et al., 2019). However, these studies examine how people with independent versus interdependent self-construals react to self-

versus other-focused events situated at different temporal distances. Thus, those studies explain how self-construal relates to the perception of future time intervals influencing intertemporal behaviours. To our knowledge, no study has tested the interaction of self-construal and future time perspectives in impulsive buying tendency. Future time perspectives are highly relevant for understanding social dilemmas between individualism and collectivism (Joireman et al., 2004; Joireman et al., 2001; Milfont & Gouveia, 2006; Olsen & Tuu, 2021). Consequently, this study investigates whether future time perspectives can interact with interdependent and independent self-construals in an opposite way to influence impulsive buying tendency toward unhealthy food.

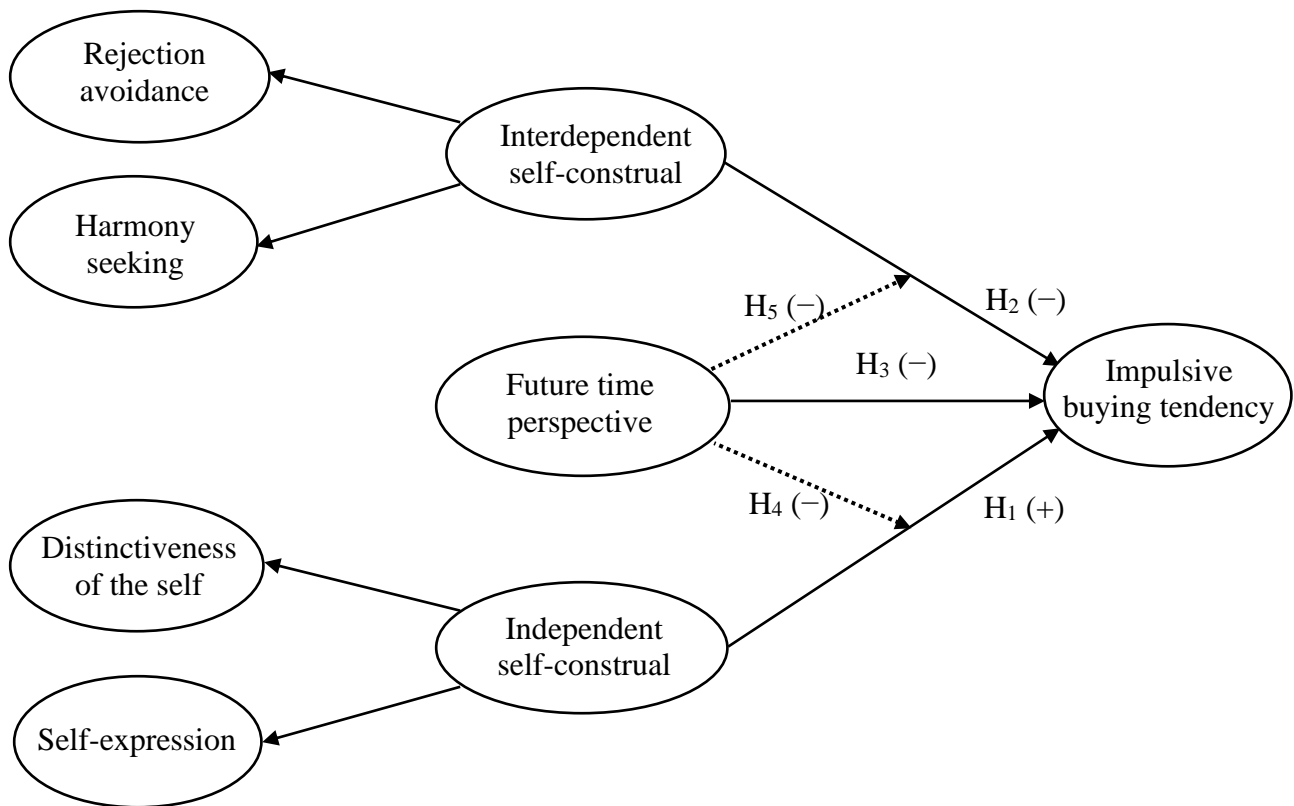
Zhang and Mittal (2007) indicate that independents often prefer an option with extremely positive and negative attributes while interdependents dislike this option. However, these tendencies may be changed under different time fit conditions. Interdependents are more long-term oriented relative to independents in terms of temporal consequences (e.g., caring about obesity caused by consuming snacks) (Lee et al., 2011; Maddux & Yuki, 2006). Interdependents also have more immediate temporal orientations (e.g., believing that obesity will sooner occur) than independents regarding the time distance over which the consequences may occur (Lee et al., 2011; Maddux & Yuki, 2006). The above moderating mechanism is similar to the interactions between future time perspectives and social value orientations (e.g., pro-self vs prosocial) in social dilemmas (Joireman et al., 2004). Consumption of unhealthy food is related to conflict thoughts, feelings, personalities, and values (Dassen et al., 2015; Mooijman et al., 2017; Olsen & Tuu, 2017). Thus, it could contain a social dilemma between collective (e.g., interdependent self-construal) and individual interests (e.g., independent self-construal) and a time conflict between short- and long-term preferences (Joireman et al., 2004; Milfont & Gouveia, 2006). For example, Joireman et al. (2001) found that prosocial individuals who focus on the future express more substantial support for pro-environmental behaviours than do pro-self individuals concentrating on the present. Furthermore, Joireman et al. (2004) indicated that individuals who focus

on the future tend to activate broad prosocial and collective interests (e.g., interdependents) and to hinder broad pro-self and individual interests (e.g., independents) for some specific sustainable behaviours. Because impulsive buying tendency toward unhealthy food is strongly related to an increase in body mass index (Arnocky et al., 2013), causing health consequences in the long term (Dassen et al., 2015; van Beek et al., 2013), future time perspectives could interact with independent and interdependent self-construals in opposite ways in this tendency. Specifically, future time perspectives could enhance the effect of interdependent self-construal and weaken the impact of independent self-construal on impulsive buying tendency toward unhealthy food. Thus:

**H4.** Future time perspectives decrease the positive effect of independent self-construal on impulsive buying tendency toward unhealthy food.

**H5.** Future time perspectives enhance the negative effect of interdependent self-construal on impulsive buying tendency toward unhealthy food.

The theoretical model is shown in Figure 1.



**Figure 1. Proposed theoretical model**

Note:  $\rightarrow$  direct effect;  $\cdots\rightarrow$  moderating effect

### 3. Methods

#### 3.1. Data collection

A self-administrated questionnaire was used to collect data. It was firstly developed in English and then translated to Vietnamese by a language instructor. A back-translation was used to ensure consistency with the original English version. After some minor modifications, the questionnaire was pretested with 30 students to achieve a questionnaire that was comprehensively understandable by all. Before conducting the survey, this study acquired ethical approval from ethics committee of Faculty of Economics, Nha Trang University. We used co-investigators to reach consumers in North, South, and Central Vietnam in order to increase the generality of the collected sample. We followed the survey findings of Statista (2018), and focussed on four groups of consumers (all of whom were over 18 years

old), and whose frequency of eating fast food was from one to three times per week, four to six times per week, seven to nine times per week, and ten times or more per week. We emphasised that participation in the survey was voluntary, and that the data collected would be used for research purposes only. After the respondents verbally agreed to join the survey, an investigator asked them to write their phone numbers and sign their names on a respondent list. They then received a questionnaire, and completed it according to the research investigator's guidelines. Because the population characteristics were unidentified, we did not set quotas for groups, but controlled them to obtain a sample with a normal distribution. A sample of 500 respondents was reached, but 61 cases were eliminated because they ate fast food less than once per week and were missing data. Thus, a total of 439 consumers were used in this study. The typical respondents were female (65.5%), single (57%), and had at least graduated high school (91.4%). Their average age was 26, and ages ranged from 18 to 45. The average monthly income was about USD 320.

### *3.2. Measurements*

This study uses four independence and interdependence scales developed by Hashimoto and Yamagishi (2016) to comprehend the duality of self-construal. These scales integrate the scales most used by previous studies (e.g., Hashimoto & Yamagishi, 2013; Singelis, 1994) and are valid across cultures and countries (Hashimoto, 2019; Hashimoto, 2021; Ishii & Eisen, 2018). According to these scales, each self-construal dimension –harmony seeking, rejection avoidance, self-expression, and distinctiveness of the self – is measured by five items. These measures ask the respondents to describe themselves in the form: “How well does each of the statements describe you? 1 = doesn't describe me at all; 7 = describes me very well”.

Future time perspectives have been operationalized in different ways in the current literature (Shipp et al., 2009; Strathman et al., 1994; Zimbardo & Boyd, 1999). Among them, the scale of consumer consideration of future consequences (Joireman et al., 2012; Strathman et al., 1994) has



received marked interest from scholars for understanding consumers' (un)healthy food choices (e.g., Dassen et al., 2015; Joireman et al., 2012; Milfont & Gouveia, 2006; Olsen & Tuu, 2017; van Beek et al., 2013). Accordingly, this study used seven items on a 7-point Likert-type scale focusing on consumer consideration of the future benefits of food consumption as a trade-off of hedonic or convenient benefits (Joireman et al., 2012; van Beek et al., 2013).

The respondents were also required to rate their impulsive buying tendency on a 7-point Likert-type scale. Nine items developed by Rook and Fisher (1995) were adjusted to the consumer shopping context toward those foods, such as "I often buy those kinds of food spontaneously" (see Appendix A for a more detailed specification of all items of the constructs).

### *3.3. Analytical procedure*

This study performed confirmatory factor analysis (CFA) using AMOS 24.0 software to estimate intercorrelations and factor loadings, including the second-order constructs (Hair et al., 2014). The two-step estimation approach developed by Ping (1995) was used to test the proposed hypotheses. Three nested models were generated to estimate the effect size of future time perspectives' direct and moderating effects. Gender, age, and income were previously observed to significantly relate to the impulsive buying tendency of Vietnamese consumers (Mai et al., 2003); thus, these characteristics were included as controlled variables in those nested models.

## **4. Results**

### *4.1. Reliability and validity*

The results (Table 1) indicate an acceptable fit of the measurement model for all intended constructs ( $\chi^2 = 793.57$ ;  $df = 388$ ,  $p = 0.000$ ;  $RMSEA = 0.049$ ;  $GFI = 0.89$ ;  $CFI = 0.95$ ). All of the factor loadings are bigger than 0.70 and significant (all  $p < 0.001$ ; all  $t$ -value  $> 10.00$ ). The composite reliabilities (all

> 0.70) and the extracted variances (all > 0.55) are much bigger than suggested thresholds, indicating the reliability and validity of all constructs including two second-order constructs (Hair et al., 2014).

**Table 1: Factor loadings, reliabilities, extracted variances, means, and intercorrelations**

Constructs	Factor loadings	t-values	CR	EV	Correlations			Mean
					1	2	3	
1. Interdependent self-construal	0.74–0.78	11.95–12.05	0.73	0.58				5.17
2. Independent self-construal	0.70–0.86	11.27–12.57	0.76	0.61	–0.67			3.21
3. Impulsive buying tendency	0.51–0.88	10.64–20.39	0.80	0.59	–0.55	0.37		3.31
4. Future time perspectives	0.58–0.89	12.94–23.33	0.90	0.58	0.32	–0.07	–0.36	4.60

Note: *EV*: extracted variance; *CR*: composite reliability; fit indices:  $\chi^2 = 793.57$ ;  $df = 388$ ,  $p = 0.000$ ;  $RMSEA = 0.049$ ;  $GFI = 0.89$ ;  $CFI = 0.95$

All correlations have an absolute value lower than 0.70, which are smaller than the square root of average variance extracted (AVE) from each pair of constructs AVEs (0.76), suggesting the discriminant validity of the constructs (Fornell & Larcker, 1981). We also tested common method biases using a common-method factor model (Podsakoff et al., 2003). Accordingly, a common latent factor, whose indicators were the items of the studied constructs, was added into the estimated model. The new model was estimated, and the correlation matrix was examined. Although the results indicate improved fit indices of the common-method factor model ( $\chi^2 = 596.9$ ;  $df = 353$ ,  $p = 0.000$ ;  $RMSEA = 0.040$ ;  $GFI = 0.92$ ;  $CFI = 0.97$ ) compared with those of the basic measurement model ( $\chi^2 = 722.9$ ;  $df = 382$ ,  $p = 0.000$ ;  $RMSEA = 0.045$ ;  $GFI = 0.90$ ;  $CFI = 0.96$ ), the factor loadings of the common method factor were all below 0.35, which did not generate a significant construct. In particular, the intercorrelations are almost the same between these two models (see Appendix B). This result means that common method biases are not problematic with our data.

This study also compared the proposed model suggesting the second-order sub-constructs of independent and interdependent self-construals with competing models including two (Cross et al., 2011), three (Adams, 2005; Hashimoto & Yamagishi, 2013), and four (first-order) factors (Hashimoto & Yamagishi, 2016) as discussed in the theoretical framework. The results show that among the four tested models, the proposed model best fits the data (see Appendix B for more details). Thus, this study confirms that the reflective second-order two-factor sub-constructs of independent and interdependent self-construals are valid and appropriate for examining the suggested hypotheses further.

#### 4.2. Testing hypotheses

The estimated results (Table 2) indicate that the three nested models have good fit indices ( $RMSEA = 0.043\text{--}0.046$ ;  $GFI = 0.88\text{--}0.92$ ;  $CFI = 0.95\text{--}0.96$ ). Since the results are consistent across the three models, the conclusions are based on the full model.

**Table 2: Testing hypotheses**

Effects	SC model		SC-FTP model		Full model	
	Beta	<i>t</i> -value	Beta	<i>t</i> -value	Beta	<i>t</i> -value
<i>Direct effects</i>						
Interdependent self-construal	-0.46	-6.88***	-0.39	-5.83***	-0.34	-5.23***
Independent self-construal	0.19	2.93**	0.21	3.41***	0.21	3.59***
Future time perspectives			-0.21	-4.05***	-0.22	-4.37***
<i>Moderating effects</i>						
Interdependent self-construal × future time perspectives					-0.24	-5.04***
Independent self-construal × future time perspectives					-0.28	-6.11***
<i>Controlled effects</i>						
Gender	0.03	0.69 <sup>ns</sup>	0.03	0.70 <sup>ns</sup>	0.05	1.13 <sup>ns</sup>
Age	0.15	3.19**	0.10	2.18*	0.08	1.90 <sup>ns</sup>

Income	0.05	1.17 <sup>ns</sup>	0.06	1.38 <sup>ns</sup>	0.08	1.79 <sup>ns</sup>
$\chi^2/df$	510.9/283		905.6/473		1004.9/536	
<i>GFI</i>	0.92		0.89		0.88	
<i>CFI</i>	0.96		0.95		0.95	
<i>RMSEA</i>	0.043		0.046		0.045	
$R^2$ (impulsive buying tendency)	$R^2_1 = 0.35$		$R^2_2 = 0.39$		$R^2_3 = 0.44$	
<i>Effect size</i>	-		0.036		0.057	

Note: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ; ns: non-significant.

*Direct effects:* The results support all hypotheses about the direct effects. While interdependent self-construal has a negative effect on impulsive buying tendency toward unhealthy food (H1:  $\beta = -0.34$ ;  $t = -5.23$ ;  $p < 0.001$ ), independent self-construal has a positive effect (H2:  $\beta = 0.21$ ;  $t = 3.59$ ;  $p < 0.001$ ). Future time perspectives have a significant negative effect on this tendency as well (H3:  $\beta = -0.22$ ;  $t = -4.37$ ;  $p < 0.001$ ).

*Moderating effects:* The results also support H4 and H5 that future time perspectives enhance the negative effect of interdependent self-construal on impulsive buying tendency (H4:  $\beta = -0.24$ ;  $t = -5.04$ ;  $p < 0.001$ ) but weaken the positive effect of independent self-construal on impulsive buying tendency (H5:  $\beta = -0.28$ ;  $t = -6.11$ ;  $p < 0.001$ ).

*Effect sizes:* The results (Table 2) show that the self-construal model, only including the direct effects of interdependent and independent self-construals, explains 34.9% of the variance of impulsive buying tendency ( $R^2_1 = 0.349$ ). The addition of future time perspectives into the self-construal model to form the self-construal – future time perspective model increases the explained variance of impulsive buying tendency to 38.5% ( $R^2_2 = 0.385$ ; effect size:  $\Delta R^2 = R^2_2 - R^2_1 = 0.036$ ). Finally, the full model remarkably increases the explained variance of this tendency to 44.2% ( $R^2_3 = 0.442$ ; effect size:  $\Delta R^2 = R^2_3 - R^2_2 = 0.057$ ).

## 5. Discussion

This study confirmed that self-construal (Hashimoto & Yamagishi, 2016; Nguyen et al., 2021), future time perspectives (Antunez et al., 2022; Gidlöf et al., 2021; Nystrand et al., 2021; Tortora & Ares, 2018), and the interaction between those constructs can contribute to an extended understanding of impulse buying tendencies for unhealthy food from social and temporal dilemmas perspective in a bicultural self-construal Asian country, Vietnam. It highlights the conflicting effects of independent versus interdependent self-construal on impulsive buying tendency (Kacen & Lee, 2002; Mai et al., 2003; Zhang & Shrum, 2009) toward unhealthy food while showing that future time perspectives can modify the such impacts. Furthermore, the current study also provides the support of the second-order construct of self-construal (Gudykunst & Lee, 2003; Hardin et al., 2004). Therefore, this study has some important theoretical and practical implications, including a theoretical framework for interventions to foster healthy food choices and limit unhealthy food consumption for sustainable future outcomes in Vietnam and countries with a similar culture (Steils, 2021; van Beek et al., 2013; Wood, 2019; Yang et al., 2017).

### 5.1. Theoretical implications

This study fulfilled a call by prior studies in general psychology (e.g., Lee et al., 2011; Terblanche-Greeff et al., 2018) for primarily exploring the interactions between self-construal and future time perspectives to explain impulsive buying tendency toward unhealthy food. The conduct of the current can be justified from three reasons. Firstly, Individual differences in personality, values and the self are essential to the understanding of food choice in its breadth and depth (Dassen et al., 2015; Köster, 2009), including the fact that food choice is also characterized by conflicts in social (Joireman et al., 2001; Khachatryan et al., 2013; Olsen & Tuu, 2021) and temporal dilemmas (Borisenkov et al., 2022; Nystrand et al., 2021; Olsen & Tuu, 2017; Olsen & Tuu, 2021). However, the mechanism explaining an impulsive buying tendency toward unhealthy food is still not clear. Secondly, while prior studies often

focused on the different reactions of independents and interdependents to temporal outcomes (e.g., Lee et al., 2011; Zhang & Mittal, 2007), this study justifies the theories of time dilemmas (Joireman et al., 2004; Milfont & Gouveia, 2006) and social dilemmas of human values (Millan & Reynolds, 2014; Schwartz, 1994). Thus, it contributes by investigating how independent and interdependent self-construals affect this tendency toward unhealthy food in opposite ways under the moderating role of future time perspectives. Last but not least, by choosing Vietnam as the research context, this study can fully explain the association between self-construal, future time perspective, and the impulsive buying tendency towards unhealthy food.

In particular, this study uses the duality concept of self-construal (Hashimoto & Yamagishi, 2016) to illustrate the conflicting effects of independent versus interdependent self-construals on impulsive buying tendency toward unhealthy food. Generally, the findings help comprehend the role of individual differences in the context of unhealthy food considering a call for more studies on this subject in the domain of food behaviour (Duarte et al., 2013; Honkanen et al., 2012; Onwezen et al., 2016; Veling et al., 2013). In addition, by clarifying the roles of independent versus interdependent self-construals on impulsive buying tendency toward unhealthy food, this study extends our understanding about how and why the conflict in self-view influence this tendency (e.g., Kacen & Lee, 2002; Lam, 2006; Mai et al., 2003; Zhang & Shrum, 2009).

Future time perspectives has an intriguing role in clarifying how temporal dilemmas influence impulsive buying tendency toward unhealthy food. This variable exerting a negative effect of future time perspectives on impulsive buying tendency is previously overlooked, yet is consistent with some suggestion on this tendency (Baumann & Odum, 2012) and unhealthy food consumption (Dassen et al., 2015; McKay et al., 2017; Olsen & Tuu, 2017; Olsen & Tuu, 2021; van Beek et al., 2013). Besides, future time perspectives moderate the association between self-construal and impulsive buying tendency showing a stronger negative effect of an interdependent self-construal and a weaker positive

effect of an independent self-construal on impulsive buying tendency toward unhealthy food for individuals with high future time perspectives. These findings are unique and distinct from those of previous studies (Lee et al., 2011; Maddux & Yuki, 2006) and thus, enhances our understanding of how individuals balance conflicts between pro-self and prosocial interests (Joireman et al., 2004; Milfont & Gouveia, 2006; Olsen & Tuu, 2017; Olsen & Tuu, 2021) to make decisions concerning conflicting decisions or some forms of less acceptable behaviours (e.g., impulsive buying toward unhealthy food).. The discovered role of future time perspectives supports the aspects of self-control and self-regulation as a core mechanism in explaining the relationship between future time perception and behavioural outcomes (Baird et al., 2021).

It is also notable that this study confirms the discriminant four-factor structure of self-construal, as suggested by Hashimoto and Yamagishi (2016). This study is, to our knowledge, the first to provide an empirically parsimonious view of the duality of interdependent and independent self-construals as the reflective second-order constructs. Self-expression and distinctiveness of the self (or harmony seeking and rejection avoidance) are discriminant, changeable, and have the same role reflected by an independent self-construal (or interdependent self-construal). Therefore, instead of focusing on how to identify an individual as, for example, an independent (or an interdependent) based on all features of both self-expression and distinctiveness of the self, capturing one or more salient attributes belonging to one or another facet (e.g., liking a free life or speaking straightforwardly) may be fruitful to predict their impulsive buying tendency.

Finally, the contextual contribution of the present study should be noted. Consumers in different cultures have different chronically accessible self-construal (independent or interdependent) that guides behaviour (e.g., Zhang & Shrum, 2009). As such, a research context where consumers' behaviours with independent self-construal are dominant is more likely to be affected by this view but not the other (i.e., interdependent self-construal). Thus, nomological relationships to behavioural constructs (e.g., impulse

buying) can be dependent on culture. By choosing Vietnam as a research context, a country where consumers ascribe importance to both inter- and independent construal (Beckstein et al., 2021), this study can fully uncover how and why self-construal and a future time perspective influence the impulsive buying tendency towards unhealthy food. Furthermore, the findings from the Vietnamese context can be generalized to other countries with similar cultural characteristics.

### *5.2. Practical implications*

First, given the increasing volume of unhealthy food types available, policymakers should require public policies to limit such food and better control such businesses. For example, requiring unhealthy food businesses to show unhealthy warnings as on products with possible negative health consequences. Individuals could be influenced by family, friends, organizations, businesses, and others situated within their life context. Therefore, taking advantage of these social relationships to share awareness and understanding of unhealthy food issues and communicate welfare losses due to impulsive buying may restrain this tendency.

Besides that, food policymakers should also develop messages according to an individual's salient self-construal to limit consumers' daily consumption of unhealthy food and, subsequently, to generate favourable behavioural changes toward healthier food consumption. Consumers with a salient interdependent self-construal tend to prefer interpersonally oriented messages, while those with a salient independent self-construal emphasize personal consequences (Yang et al., 2017). Therefore, messages may be more effective if they focus on protecting and improving family health for the former, while they should concentrate on sustaining the individual's good health- and body status for the latter, by avoiding or reducing the consumption of unhealthy food.

Also, policymakers should consider in-store customer education with procedural knowledge (e.g., preparation scripts) rather than sensory knowledge (e.g., taste description) as an effective strategy for convincing impulsive consumers to choose healthier food options (Steils, 2021). This approach may



help build a good habit by avoiding the short-term temptations of unhealthy food to better consider the long-term consequences of eating organic fish, vegetables, or fruits. Furthermore, the finding showing a negative association between future time perspectives and impulsive buying tendency is crucial for the industries' focus in understanding customers' future needs to trigger their impulse buying (Liang et al., 2021).

Finally, given that in-store marketing strategies can stimulate impulsive buying toward food (Cohen et al., 2015), marketers and producer / distributors should encourage customers to consume healthy foods as alternatives with attractive, tasty, and hedonic features not lesser than those of unhealthy food. Besides that, they should put such options or healthy food categories beside unhealthy food, for instance at the checkout or along the aisles, to increase the probability of customers choosing healthy products (Bellini et al., 2017). Based on the findings, food industry could also focus their marketing efforts on the consumer segment focusing on the present and independent self-construal to increase impulse temptation to improve their sales.

### 5.3. *Limitations and future research*

First, individualism versus collectivism could be defined and operationalized as core conflicting values (e.g., self-enhancement vs self-transcendence; Schwartz, 1994) in the same way as for example pro environmental values (e.g., egoistic vs. altruistic; Milfont & Gouveia, 2006), or core personalities (extrovert vs. introvert; Miao et al., 2019). Also, future studies should account for the relationships between different conceptualizations of self-construal and investigate how and why these conceptualizations influence the impulsive buying tendency towards unhealthy food. Second, this study focuses on the consideration of *future* consequences and disregards the consideration of *immediate* consequences (Dassen et al., 2015; Joireman et al., 2012; Olsen & Tuu, 2017). Thus, it could be beneficial in future studies to include other pairs of conflicting issues to explore how they can be combined to explain both impulsive buying or other behaviours. Because time perspectives encompass

different views toward the past, present, and future (Baird et al., 2021), this study is not comprehensive as it focuses only on future time perspectives. Extensions to include the interaction of consumer considerations about past, present, and future outcomes and self-construal in impulsive buying may be fruitful in other contexts. Also, a promotion versus prevention orientation is suggested to explain why future-oriented people eat (un)healthy food (Joireman et al., 2012) and to influence consumer retail shopping behaviour in terms of impulsiveness (Bellini et al., 2017). Thus, integrating both orientations into the model to extend our understanding of social dilemmas to explain impulsive buying tendency would be interesting.

Moreover, previous studies indicate that age, time perspective, and self-construal could interact to influence behavioural consequences (e.g., Antunez et al., 2022; Barak et al., 2011). Thus, it should be interesting for future research to explore the variations of the effects of self-construal and CFC on an impulsive buying tendency toward unhealthy food among cohorts of different generations (e.g. Gen X, Gen Y-Millennials and Gen Z). While Vietnam is an Asian country with a bicultural self-construal, and thus it can help produce a radical understanding of self-construal toward an impulsive buying tendency toward unhealthy food, future studies should cover more Eastern and Western countries to provide more general results. Finally, our measures are based on self-reports of different scales in which the carry-over effects and/or social desirability bias (Cerri et al., 2019) could affect the results of our research. This study also uses correlation methods based on cross-sectional data, so the nature of the relationships is problematic. Experimental or longitudinal designs could be used in order to address those issues in future studies.

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## Appendix A.

### Measurements of self-construal, future time perspective, and impulsive buying tendency

#### **Self-construal** (Hashimoto & Yamagishi, 2016)

##### ***Rejection avoidance***

I find myself being concerned about what others think of me

I find myself feeling anxious if people are watching me

I often feel anxious about the nature of my relationships with others and their status as compared to mine

I often behave in a way that will keep others from disliking me

I sometimes get so anxious about what other people might think that I am prevented from doing what I want to do

##### ***Harmony seeking***

I try to respect the feelings of others

I value maintaining harmony with others

I feel happy if I can be helpful to others, even if it doesn't benefit me

I feel good when I cooperate with others

I always try to put myself in other people's shoes when thinking about things

##### ***The distinctiveness of the self***

I want to live my life differently from others

I prefer to be different from others

I want to live my own life free from others' control

If it meant that I had to give up doing things as I like, I wouldn't ask someone for help

I usually make my decisions only by myself

***Self-expression***

I always express my opinions in a straightforward manner

I would rather say explicitly what I think than beat around the bush to avoid hurting someone's feelings

I prefer to be forthright when I talk with people

I always make my position clear

I always try to have my own opinions

**Consideration of future consequences – future** (Joireman et al., 2012; van Beek et al., 2013)

I consider how my health might be in the future and try to influence my health with my day-to-day eating behaviour

Often I engage in particular eating behaviour to achieve outcomes that may not result for many years

I am willing to sacrifice the immediate happiness or wellbeing I derive from my eating behaviour to achieve future outcomes

I think it is important to take warnings about the negative consequences of my eating behaviour seriously, even if the negative consequences will not occur for many years

I think it is more important to perform eating behaviour with favourable distant consequences than eating behaviour with less favourable immediate consequences

My eating behaviour is generally affected by future consequences

When I make a decision relating to the food I eat, I think about how it can affect me in the future

**Impulsive buying tendency** (Rook & Fisher, 1995)

*Regarding shopping for different kinds of unhealthy food, such as snacks, sweet desserts, fried fast food, or the like, ...*

I often buy those kinds of food spontaneously

“Just do it” describes the way I buy those kinds of food

I often buy those kinds of food without thinking

“I see it, and I buy it” describes me when I buy those kinds of food

“Buy now, think about it later” describes me as I buy those kinds of food

Sometimes I feel like buying those kinds of food on the spur of the moment

I buy those kinds of food according to how I feel at that moment

I do not carefully plan most of my purchases for those kinds of food

Sometimes I am a bit reckless about the kinds of food I buy

## Appendix B

### Factor loadings, means, reliabilities, and correlations for the first-order constructs

First-order constructs	Factor loadings	Means	CR	VE	Correlations					
					1	2	3	4	5	6
1. Impulsive buying tendency	0.51–0.88	3.31	0.8	0.59	<b>0.77</b>	<i>-0.44</i>	<i>-0.40</i>	<i>0.38</i>	<i>0.27</i>	<i>-0.40</i>
2. Harmony seeking	0.68–0.81	5.09	0.90	0.66	<i>-0.44</i>	<b>0.81</b>	<i>0.58</i>	<i>-0.32</i>	<i>-0.57</i>	<i>0.29</i>
3. Rejection avoidance	0.71–0.87	5.26	0.87	0.58	<i>-0.40</i>	<i>0.58</i>	<b>0.76</b>	<i>-0.35</i>	<i>-0.41</i>	<i>0.20</i>
4. Distinctiveness of the self	0.69–0.84	3.13	0.88	0.61	<i>0.37</i>	<i>-0.32</i>	<i>-0.32</i>	<b>0.78</b>	<i>0.62</i>	<i>-0.03<sup>ns</sup></i>
5. Self-expression	0.77–0.87	3.29	0.90	0.66	<i>0.27</i>	<i>-0.46</i>	<i>-0.45</i>	<i>0.60</i>	<b>0.81</b>	<i>-0.06<sup>ns</sup></i>
6. Future time perspectives	0.58–0.89	4.60	0.9	0.58	<i>-0.37</i>	<i>0.25</i>	<i>0.20</i>	<i>-0.03<sup>ns</sup></i>	<i>-0.06<sup>ns</sup></i>	<b>0.76</b>

Note: Fit indices:  $\chi^2 = 773.59$ ;  $df = 383$ ,  $p = 0.000$ ;  $RMSEA = 0.048$ ;  $GFI = 0.892$ ;  $CFI = 0.955$ . All factor loadings are significant at  $p < 0.001$  with t-values are from 12.94 to 23.32. CR: composite reliability. AVEs are bolded and on the diagonal. Except for two correlations are not significant at  $p < 0.05$  at note with ns (non-significant at  $p < 0.05$ ), the rest of correlations are significant at  $p < 0.001$ . Correlations for testing common method biases are shown in *italics* above the diagonal.



## Appendix C.

### The results of testing competing models of self-construal

Fit indices	Model 1	Model 2	Model 3	Model 4
$\chi^2$	1458.3	994.9	433.1	435.4
<i>Df</i>	223	222	216	219
$\chi^2/df$	6.54	4.26	2.01	1.99
<i>GFI</i>	0.725	0.816	0.921	0.920
<i>CFI</i>	0.804	0.885	0.966	0.966
<i>RMSEA</i>	0.112	0.086	0.048	0.047
<i>AIC</i>	1564.3	1052.9	553.1	549.3
$R^2$ (impulsive buying tendency)	0.252	0.312	0.276	0.341
<i>Effect size</i>	-	0.060	0.024	0,089

Notes.

- The *effect sizes* were counted by comparing the  $R^2$  of Models 2, 3, and 4 with that of Model 1.
- In Model 1, independent self-construal was measured by ten items of self-expression and distinctiveness of the self. Interdependent self-construal was measured by ten items of harmony seeking and rejection avoidance.
- In Model 2, independent self-construal was kept as in Model 1. Dependent self-construal was treated as a reflective second-order sub-construct including two dimensions, harmony seeking, and rejection avoidance.
- In Model 3, four dimensions – harmony seeking, rejection avoidance, self-expression, and distinctiveness of the self – were independently treated.
- In Model 4, interdependent self-construal as a reflective second-order sub-construct was specified to capture two dimensions, harmony seeking and rejection avoidance. Independent self-construal was similarly identified to include two dimensions, self-expression and distinctiveness of the self.