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Three studies investigated the impact of consumers' activated or chronic self-construal (interdependent vs. independent) on their impulsive consumption tendencies. A cross-country comparison of per capita beer consumption data (study 1a) and a cross-state comparison within the U.S. of problem alcohol consumption (study 1b) indicated that an independent self-construal is associated with greater beer and problem alcohol consumption. Two additional experiments that manipulated self-construal found that self-construal moderated the effect of peer presence on impulsive consumption tendencies such that peer presence increased impulsive consumption tendencies for independents but not for interdependents (study 2). This moderating effect of peer presence was linked to the greater motivation to suppress impulsive tendencies of interdependents relative to independents (study 3). State impulsivity was shown to mediate the effects noted in study 2 and 3. The results suggest that self-construal is associated with motivation to regulate impulsive consumption tendencies, which in turn influences state impulsivity and subsequent impulsive consumption behavior.

Impulsive consumption is a pervasive phenomenon that may have potentially serious consequences, particularly in the U.S. Impulsive consumption has been estimated to account for over 4 billion dollars of U.S. annual sales (Mogelonsky 1998) and has been linked to the rapid increase in technologies that allow for virtually instant gratification through immediate access to goods and services (e.g., ATM machines, on-line shopping, etc.; cf. Hoch and Loewenstein 1991; Rook 1987; Vohs and Faber 2007). Although all impulsive consumption is not necessarily problematic, impulsive behavior, and impulsive consumption in particular, is often associated with a variety of negative traits (immaturity, poor value system) and outcomes (financial problems, lower self-esteem, post-purchase dissatisfaction; Rook 1987; Rook and Fisher 1995), and some have suggested that impulse buying may at least partially explain the remarkably high debt-to-income ratios in the U.S. (Vohs and Faber 2007).

Hoch and Loewenstein (1991) characterize impulsive consumption (or "time-inconsistent preferences") as a conflict between the desire to consume and the willpower to resist it. Willpower refers to the determination, strength of will, or self-control to resist a particular impulse, and is presumably a function of the motivation and ability to exert such willpower. In a recent set of experiments, Vohs and Faber (2007) focused on the ability aspect of willpower (self-regulation) and its relation to impulsive consumption. They provided convincing evidence that when self-control resources are depleted, people experience greater impulse buying urges and these urges can translate into increased impulsive buying behavior.

In this article, we investigate the motivational component of willpower. Specifically, we look at the possible influence of self-construal—both at the cultural level and individual level—on impulsive consumption. In a multi-country survey of consumers, Kacen and Lee (2002) provided correlational evidence of an interrelation between individualism–collectivism

(independence–interdependence), trait buying impulsivity, and impulse buying behavior. They speculated that members of individualistic societies may exhibit more impulsive consumption than do members of collectivistic societies, not because members of the latter feel less impulse, but because they are more motivated to suppress the impulse than are members of individualistic societies.

Although Kacen and Lee's (2002) results are correlational, and thus vulnerable to alternative explanations, they also have a number of implications. For one, cultures should differ on the extent to which they engage in particular impulsive consumption behaviors. A second is that to the extent that the self is malleable (Mandel 2003; Markus and Kunda 1986) and subject to situational changes (Trafimow, Triandis, and Goto 1991), such situational changes in self-construal should have corresponding influences on impulsivity. Finally, a third implication is that situations that affect the motivation to suppress impulsive consumption tendencies should moderate the relation between self-construal and impulsive consumption tendencies.

Three studies are presented that tested these possibilities and investigated their underlying processes. Studies 1a and 1b present results from two secondary data sets that link cultural orientation with a behavior often associated with impulsive consumption (alcohol consumption). Following that, two experiments (studies 2 and 3) are presented that manipulate self-construal via priming procedures to determine its impact on impulsive consumption tendencies. We also investigate the implications of our findings for previous research on the relation between peer presence and impulsive consumption and the processes that mediate and moderate these effects.

CULTURAL ORIENTATION, SELF-CONSTRUAL, AND IMPULSIVE CONSUMPTION

Self-Construal

Self-construal refers to how people perceive themselves to be linked (or not) with other people (Markus and Kitayama 1991). People with predominantly independent self-construals (independents) see themselves as independent and autonomous, distinct from the group, and tend to place high value on uniqueness, individual accomplishments, and achievement. People with predominantly interdependent self-construals (interdependents) see themselves as a part of a larger group, value connectedness, conformity, and group harmony, and place a high value on safety and security. Numerous studies have confirmed the distinction as well as its effects. For example, independents are more willing to take social risks (Mandel 2003), more promotion- (gain-) focused (Aaker and Lee 2001), and weight attitudes more heavily than subjective norms in behavioral decisions (Ybarra and Trafimow 1998) compared to interdependents.

Although the research that has shown between-country differences in self-construal is consistent and compelling, it is also well documented that individuals actually hold both types of self-construals simultaneously, and perceptions, judgments, and behavior are influenced by which self-construal happens to be activated at any given time (Trafimow et al. 1991). Thus, people in collectivistic (individualistic) societies hold both self-construals, but the interdependent (independent) self-construal is the one that tends to be chronically accessible, activated most often, and thus most likely to guide behavior. Moreover, self-construals can be easily manipulated such that even those with generally independent or interdependent self-construals can be induced to take the opposite perspective. By activating the self-construal of individuals within a culture through priming, researchers have obtained many cross-cultural differences that

had previously been witnessed only in between-nation comparisons (Aaker and Lee 2001; Gardner, Gabriel, and Lee 1999; for a review, see Oyserman and Lee 2008).

Self-Construal and Impulsivity

The most recent conceptualizations of impulsive behavior propose a mechanism in which pleasure-seeking goals that are activated upon exposure to a pleasurable consumption situation (e.g., eating cookies) compete against self-regulatory goals aimed at resisting the temporary urge. Thus, individual differences in impulsivity are explained not only as differences in the pleasures received from hedonic activities, but also as the differential accessibility of pleasure-seeking versus self-regulation goals (Puri 1996; Ramanathan and Menon 2006; Shiv and Fedorikhin 1999). Moreover, research suggests that when situational factors inhibit activation of self-regulatory goals, people are more likely to behave impulsively. For example, Shiv and Fedorikhin (1999) found that when processing resources are sufficiently available, both impulsives and prudents show similar levels of impulse control in choosing between a snack that elicits higher spontaneous affect but more negative cognitions (chocolate cake) and one that elicits lower spontaneous affect but more positive cognitions (fruit salad). However, when processing resources are constrained, impulsives are more likely to choose the more affect-laden product but prudents' choice behaviors are unaffected. Ramanathan and Menon (2006) found that a situational manipulation that caused participants to suppress a desire for a hedonic product (e.g., muffins) caused impulsives to increase their liking but prudents to decrease their liking for the hedonic product over time, presumably because the suppression of hedonic desires inhibits the activation of self-regulatory goals for impulsives but does not affect prudents.

The aspects of interdependent and independent self-construals just reviewed have implications for the nature of the goals that tend to be chronically activated, which in turn has implications for how differences in self-construal may be related to impulsive behavior. For example, those with an interdependent self-construal tend to be more oriented toward goals of social cohesion and conforming to social norms, whereas those with an independent self-construal are more oriented toward goals of expressing individuality and following their attitudes and emotions (Trafimow et al. 1991; Ybarra and Trafimow 1998). If so, given that impulsive consumption is often considered an unplanned and immature behavior that may reflect badly on the group in interdependent societies, then people with an interdependent self-construal should be more likely to activate self-regulation goals and thus suppress the impulsive urge than those with an independent self-construal. Conversely, those with an independent self-construal should be more likely to activate pleasure-seeking goals and thus be more likely to act in a manner consistent with those goals than those with an interdependent self-construal.

There is some research that provides indirect support for this thesis. As noted earlier, people with interdependent self-construals put more weight on subjective norms than on attitudes when forming behavioral intentions, whereas people with independent self-construals put more weight on attitudes than subjective norms (Ybarra and Trafimow 1998). In addition, Rook and Fisher (1995) observed that when people think a particular impulsive buying behavior is inappropriate, there is no relation between trait impulse buying tendencies and impulse buying behavior. Research on self-construal and emotion has shown that consumers with an interdependent self-construal tend to rely less on their inner feelings to form their consumption decisions than do those with an independent self-construal, suggesting that interdependents are less likely to be under the force of their inner impulsive tendencies than are independents

(Markus and Kitayama 1991). Studies have also shown that patience may be linked to self-construal. North Americans (chronic independent self-construal) have been shown to be more impatient (and thus discount the future more) than their East Asian counterparts (chronic interdependent self-construal), suggesting that consumers with an interdependent self-construal tend to postpone instant gratification more often than do those with an independent self-construal (Chen, Ng, and Rao 2005).

The thesis that self-construal affects consumption impulsivity has also received correlational support. From a multi-country survey of consumers in Australia, the U.S., Hong Kong, Singapore, and Malaysia, Kacen and Lee (2002) found that an individualistic (vs. collectivistic) cultural orientation and an independent (vs. interdependent) self-construal are correlated with consumers' impulsive behavior. Specifically, measures of trait buying impulsivity were more strongly related to self-reported impulsive buying behavior for those with an independent self-construal than for those with an interdependent self-construal. Presumably, independents were more likely to act on their attitudes (impulsive tendencies) than on subjective norms, whereas interdependents were likely to suppress their impulsive tendencies and use subjective norms to guide their behavior.

Impulsivity and Alcohol Consumption

Impulsivity has consistently been linked with alcohol consumption, as have disorders for which impulse buying is often a precursor (e.g., compulsive consumption; cf. Ainslie 1975; Hirschman 1992; Rook 1987). Impulsivity has been shown to be inversely correlated with serotonin levels in people with alcohol use disorders (Soloff, Lynch, and Moss 2000) and

positively correlated with drinking behavior in lab studies and self-reported drinking frequency (Acton 2003). Alcohol consumption has also been frequently linked with various traits that are closely linked to impulsivity including need for stimulation (Gerbing, Ahadi, and Patton 1987), low self-esteem (O'Guinn and Faber 1989), sensation-seeking (Grau and Ortet 1999), lack of willpower (Hoch and Loewenstein 1991), and fantasy (O'Guinn and Faber 1989).

Peer Presence and Self-Regulation

We were also interested in investigating the extent to which self-regulatory mechanisms may underlie self-construal effects, particularly with respect to norm(s) and goal activation. One context in which norms and goal activation may differ as a function of self-construal is the effect of peer presence on impulsive consumption. Recall that people with an independent self-construal activated tend to value uniqueness and acting on their inner feelings. If so, given that the presence of others is likely to enhance pre-existing dispositions (Zajonc 1965), then peer presence may increase impulsive consumption tendencies. Recent research has provided support for this proposition. Luo (2005) reported findings showing that the presence of peers increased impulsive consumption tendencies of his predominantly American participants (who are likely to have predominantly independent self-construals).

But consider people who hold predominantly interdependent self-construals. They value connectedness, conformity, and adherence to group norms. If chronic interdependent people tend to suppress their impulsive consumption tendencies more so than independent people do, then peer presence should exert a different effect on impulsive tendencies for interdependents than for independents. However, the nature of this difference is somewhat unclear. Two possibilities

exist. One is that the presence of peers may increase the salience of group norms for those with an interdependent self-construal and activate self-regulatory control mechanisms to a greater degree relative to the absence of peers. In this case, the presence of peers should decrease impulsive consumption tendencies for interdependents relative to no peer presence conditions. Alternatively, because group norms may be automatically activated when an interdependent self-construal is made salient, then calling additional attention to group norms by the presence of peers may have little or no effect. In this case, there should be no effect of peer presence on impulsive consumption tendencies for interdependents. Thus, even though the precise pattern for interdependents is unclear at this point, we expect that self-construal will moderate the effect of peer presence on impulsive consumption tendencies in either situation.

Finally, we were also interested in understanding precisely why self-construal moderates the peer presence effect. As noted, individual differences in impulsive consumption have been linked to differences in the motivation and ability to suppress or control momentary urges to seek short-term pleasure at the expense of long-term consequences. Vohs and Faber (2007) showed that reducing self-regulatory resources increases impulsive consumption tendencies. Kacen and Lee (2002) have speculated on (but not tested) the proposition that the differences in impulsive consumption tendencies observed between independents and interdependents is because interdependents are more motivated to suppress their impulsive urges than are independents. Moreover, we have argued that the interactive effects of self-construal and peer presence on impulsive consumption tendencies occur because peer presence increases the motivation to suppress impulsive tendencies for interdependents but may actually decrease the motivation to suppress for independents. But suppose that people are unable to act on their goals to suppress their impulsive urges. In this case, the interactive effect of peer presence should be reduced or

eliminated and interdependents should respond to the presence of peers in much the same way as independents.

Testing Alternative Mechanisms

Although our experimental designs for studies 2 and 3 allow for relatively confident assessments of causality for the effect of self-construal on impulsivity, it is possible that the self-construal mechanism may affect other variables that might also be associated with impulsive consumption, suggesting other possible mediators of the hypothesized self-construal—beer consumption relation. Two in particular seem the most plausible. The first is risk attitudes. Research suggests that self-construal influences risk-taking, such that independents tend to be more risk-seeking and interdependents more risk-averse, at least when the risks pertain to social situations (Mandel 2003). It is also reasonable to think that beer drinking might be considered a risky behavior, raising the possibility that risk attitudes mediate the self-construal—beer consumption relation. We therefore measured risk attitudes to test this possibility. The second possibility we addressed was that affect might also be a mediator. Some research suggests that independents tend to experience more positive affect than interdependents do, at least in situations when there is a match between the self-construal state and the chronic self-construal state of the culture (Diener and Suh 2003). Because beer drinking may be considered a pleasurable activity, it may therefore hold more interest for independents than for interdependents. To test for this possible mediating effect, we measured affect in one experiment and used life satisfaction as a proxy control in one secondary data study.

Overview of the Studies

In studies 1a and 1b, we use secondary data to test the hypothesis that self-construal is related to impulsive consumption tendencies. In study 1a, we use country-level data to test the hypothesis that an independent self-construal (measured as level of individualism) will be positively correlated with per capita beer consumption. In studies 1b, we use state-level U.S. data to show that individualism is positively correlated with self-reported levels of problem alcohol consumption. In studies 2 and 3, we experimentally manipulate self-construal to replicate these findings investigate their underlying effects. In study 2, we test the hypothesis that self-construal will moderate the effect of peer presence on impulsive consumption tendencies: peer presence is expected to increase impulsive consumption tendencies for independents but either have no effect on or even decrease impulsive consumption tendencies for interdependents, and these effects are expected to be mediated by state (felt) levels of impulsivity. In study 3, we test the hypothesis that motivation to suppress impulsive consumption tendencies can at least partially explain the peer presence effects by manipulating the availability of self-regulatory resources.

STUDIES 1A AND 1B

Method

Study 1a. Per capita beer consumption data (in liters) of 42 countries from 1999 were obtained from Plato Logic (http://www.platologic.co.uk/worldbeer.htm) and served as the criterion variable. Data for the primary predictor variable, country-level individualism, were

obtained from the Geert Hofstede Cultural Dimensions website (Hofstede 2005). These data include updates from the most current studies available. Individualism and collectivism are considered to be cultural-level representations of independent and interdependent self-construals, respectively (Markus and Kitayama 1991; Triandis 1995). Because Hofstede conceives of individualism and collectivism as opposite poles of a continuum, a country that is more individualistic is thus also less collectivistic, and vice versa (Hofstede 2001, 2005).

We also included data that might plausibly be related to either individualism or beer consumption, and thus might render the individualism—beer consumption relation spurious. As Oyserman, Coon, and Kemmelmeier (2002) have noted, countries differ on many cultural dimensions other than individualism. Because many studies have divided countries into groups based on only one variable (individualism) and assumed that differences in the criterion variable are caused by individualism, researchers actually have no way of knowing whether it is that predictor variable, or perhaps some other cultural variable, that influences individualism. To account for this possibility, we included the other cultural orientation variables provided by Hofstede (2005), which are power distance, masculinity, and uncertainty avoidance, to use as statistical controls (long-term orientation was not included because scores were provided for only 18 of the 42 countries in our data set).

We also included other variables that might be related to beer consumption and/or cultural values. These are income (Ornstein and Hanssens 1985), income growth (Triandis 1995), affect (Diener and Suh 2003; Markus and Kitayama 1991), average country temperature (Parker 1997), and religiosity. Data on country-level per capita income were obtained from the United Nations website (United Nations Statistics Division 2006), income growth data (1994-2004) were obtained from the same United Nations dataset (see Briley and Aaker 2006 for additional

details), life satisfaction data (as a proxy for affect) were obtained from World Values Study Group (1994; see also Diener and Suh 2003), temperature data were obtained from Parker (1997), and data on religiosity were obtained from Islamicweb.com (2007), a website that compiles data from various sources pertaining to the percentage of the population of a country that is comprised of Muslims. Muslims make up one of the largest religious groups in the world and also have very strict prohibitions against alcohol consumption.

Study 1b. Data pertaining to problem alcohol consumption published by the Centers for Disease Control and Prevention were used in our analyses (CDC 2003, 2004). These data break out the prevalence of particular alcohol consumption problems by U.S. states. We looked at three measures of problem alcohol consumption: percentage of teens who reported drinking alcohol in the last month, percentage of teens who reported heavy drinking in the last month, and percentage of adults who reported binge drinking (five or more drinks on one occasion) in the last month. These data were then combined with state level scores on individualism provided by Vandello and Cohen (1999), who reported data demonstrating that U.S states vary on the extent to which they are high (Montana, Oregon) or low (Hawaii, Louisiana) on individualism. Data on temperature and per capita income were also obtained to serve as statistical controls.

Results and Discussion

Across both data sets, we expected that level of individualism would be positively correlated with per capita beer consumption and problem alcohol consumption. To test these

hypotheses, we first combined all of the data described previously in each study into two data sets (1a and 1b).

For the country-level analysis, to determine appropriate control variables, we first regressed per capita beer consumption on all eight potential control variables. Only temperature ($\beta = -.32$, $p < .04$) and masculinity ($\beta = .26$, $p < .07$) were significant at $p < .10$ and thus retained as controls. Next, to determine the independent contribution of individualism to the prediction of beer consumption, we regressed beer consumption on individualism, temperature, and masculinity simultaneously. As expected, individualism was a significant predictor of beer consumption in the second step ($\beta = .38$, $p < .01$). Temperature was also a significant predictor ($\beta = -.37$, $p < .02$) but masculinity was not ($\beta = .20$, $p = .11$).

For the state-level analysis, we conducted the same type of regression analyses. In separate analyses, we regressed each of the three criterion variables on the control variables and individualism. In accord with predictions, individualism was positively correlated with teen drinking ($\beta = .83$, $t\ (28) = 5.07$, $p < .002$), teen heavy drinking ($\beta = .44$, $t\ (42) = 3.20$, $p < .003$), and adult binge drinking ($\beta = .42$, $t\ (46) = 3.47$, $p < .001$). In terms of control variables for these regressions, only income ($\beta = .27$, $p < .07$ for teen drinking; $\beta = .37$, $p < .005$ for adult binge drinking) and temperature ($\beta = .50$, $p < .008$ for teen drinking) were significant predictors.

Studies 1a and 1b provide preliminary evidence on the relation between cultural orientation and alcohol and beer consumption tendencies and also rule out several possible alternative explanations for this relation. The relation is shown to hold for both cultural-level (country) and subcultural-level (U.S. states) comparisons and in general the effect sizes are substantial. However, despite the apparent robustness of the relations, the studies have limitations. Although the real-world nature of the data enhances external validity, there are clear

threats to internal validity. The correlational nature of the data makes confident claims of causality problematic, and this is compounded by the fact that the studies used secondary data, thus limiting our ability to at least measure and statistically control for additional alternative explanations. The following two studies address these limitations by experimentally manipulating self-construal and investigating likely mediators and moderators of the effect. In particular, we look at the implications of self-construal on the relation between peer presence and impulsive consumption.

STUDY 2

Method

Participants and Design. Participants were 128 undergraduate business students (66 men, 62 women) from a major southwestern state university above the legal drinking age who participated in return for partial course credit. All participants provided informed consent. The design was a 2 (interdependent vs. independent) × 2 (peer presence vs. no peer presence) between-subjects design.

Procedure. As part of what was billed as two studies, participants completed the Hamilton and Biehal (2005, study 1) priming task, which was intended to activate either an independent or interdependent self-construal. In the priming procedure, participants were asked to take five minutes to write down all of the thoughts they had after being told either "Remember, enjoying your life is what it is really all about" (independent) or "Remember, enjoying relationships with

your family or friends is what it is really all about" (interdependent). As ostensibly part of the second study, participants were given the peer presence instruction. Half of the participants were told to "imagine a group of your close friends has decided to go out to a local bar to celebrate a friend's new job" prior to completing the beer attitude measures, and the other half received no such instructions. Assignment to priming and peer presence conditions was random. Following that, participants indicated their feelings about drinking beer at that moment, and also completed scales that measured state impulsivity, risk attitudes, current affect, their sex, their knowledge of beer, and their beer-drinking experience. Finally, participants were asked their thoughts on the study purpose and then debriefed. No one was correct in guessing the research purpose.

Measures. Participants' attitudes toward beer drinking at that moment were measured with three items using 7-point scales anchored by good/bad, like/dislike, and positive/negative. The three items were sufficiently correlated to form a composite score ($\alpha = .88$). Consumption impulsivity was measured with a 10-item Consumer Impulsivity Scale (Puri 1996; $\alpha = .84$), which has participants rate on a 7-point scale the extent to which various adjectives (e.g., impulsive, spontaneous, restrained) describe themselves, and is considered a measure of trait impulsivity. To capture state impulsivity, we modified the instructions by asking participants to describe how the adjectives described them "at this moment." Risk attitudes were measured with a 12-item scale ($\alpha = .70$; Weber, Blais, and Betz 2002) and affect was measured with a 10-item scale ($\alpha = .76$; Pham et al. 2001). All scales were averaged to form composite indices.

Self-Construal Pretests. We first pretested the self-construal manipulation. Thirty-six participants (20 men, 16 women) from the same participant pool who did not participate in the

main study took the pretest to assure that the self-construal priming procedure worked as intended. Participants completed the priming task described in the previous section, and then completed a 6-item scale (Hamilton and Biehal 2005) in which three of the items measured independent cognitions (e.g., "this task encouraged me to think of myself," $\alpha = .72$) and three measured interdependent cognitions (e.g., "this task encouraged me to think of others I care about," $\alpha = .68$). The three items measuring independent cognitions were averaged, as were the three items measuring interdependent cognitions. The independent composite score minus the interdependent composite score formed the manipulation check measure. An analysis of variance (ANOVA) indicated that the groups differed significantly as expected on the manipulation check measure ($M_{\text{Interdependent prime}} = -1.83$, $M_{\text{Independent prime}} = 0.33$; $F\ (1, 34) = 14.29$, $p < .001$).

Next, we conducted a main effect pilot study to test whether the self-construal manipulation affected impulsive consumption tendencies in the expected ways. Seventy-five undergraduate business students (36 women, 39 men) from a southwestern state university above the legal drinking age participated in return for partial course credit. All participants provided informed consent. The design was a one-factor experiment in which self-construal was manipulated via the priming procedure just described to determine its effect on state impulsiveness, and in turn, the effect of state impulsiveness on immediate beer drinking attitudes. The procedure was the same as the one used in the main study. A one-way ANOVA confirmed our predictions. Independent-primed participants had more positive attitudes ($M = 5.92$, $SD = 1.08$) than did interdependent-primed participants ($M = 5.16$, $SD = 1.72$; $F(1, 73) = 5.26$, $p < .03$). Mediation analysis confirmed that state impulsivity mediated the effect of self-construal on beer drinking attitudes: the effect of self-construal on beer drinking attitudes was significant ($\beta = .38$, $t(73) = 2.29$, $p < .03$), the effect of self-construal on consumption

impulsivity was significant (β = .33, $t(73) = 2.01$, $p = .05$), and adding consumption impulsivity to the regression reduced the effect of self-construal on beer drinking attitudes to nonsignificance (β = .37, $t < 1$) but consumption impulsiveness remained significant (β = .08, $t(72) = 2.67$, $p < .02$).

Results and Discussion

Tests of Hypotheses. We expected that self-construal would moderate the effects of peer presence on impulsive consumption tendencies. To test this possibility, we conducted a full factorial ANOVA on the beer attitude composite score with self-construal and peer presence as the two independent factors. The results of this analysis can be seen in figure 1. There was a main effect of self-construal on beer consumption attitudes ($F(1, 124) = 23.75$, $p < .001$). Participants primed with an independent self-construal perceived consuming beer at that moment to be more attractive ($M = 5.65$, $SD = 1.43$) than did those primed with an interdependent self-construal ($M = 4.53$, $SD = 1.43$). However, this effect was qualified by the expected self-construal × peer presence interaction ($F(1, 124) = 5.71$, $p < .03$). As predicted, peer presence increased immediate beer drinking attitudes for independents ($M = 6.08$ vs. 5.23, difference = 0.85, $t(61) = 2.58$, $p < .001$). However, for interdependents, no effect of peer presence on immediate beer drinking attitudes was observed ($M = 4.41$ vs. 4.65, difference = -.24, $t(65) = -0.78$, $p = .44$). There was no main effect for peer presence ($p > .20$). Sex, beer knowledge, and beer drinking experience did not relate directly to nor did they interact with the focal variables.

Figure 1 about here

Mediating Mechanisms. We also expected that state impulsivity would mediate the effect of self-construal on beer drinking attitudes. Regression analyses were used to test this proposition (Baron and Kenny 1986). In support of predictions, the effect of self-construal on beer consumption attitudes was significant ($\beta = 0.56$, $t(124) = 4.87$, $p < .001$), the effect of self-construal on consumption impulsivity was significant ($\beta = 0.56$, $t(126) = 2.77$, $p < .007$), and when consumption impulsivity was included in the regression, both the effect of self-construal ($\beta = 0.49$, $t(123) = 4.21$, $p < .002$) and consumption impulsivity were significant ($\beta = 0.19$, $t(123) = 2.47$, $p < .03$). A Sobel test (Sobel 1982) indicated that the inclusion of impulsivity in the regression significantly reduced the effect of self-construal on beer consumption attitudes ($Z = 1.92$, $p = .05$). Thus, replicating the pretest, consumption impulsivity partially mediated the effect of self-construal on the beer consumption tendencies.

Based on Muller, Judd, and Yzerbyt (2005), we conducted further analyses to test for a mediated moderation effect. First, when the dependent variable of attitudes toward immediate beer drinking was regressed on self-construal, presence of peers and their interaction, the two-way interaction was significant ($\beta = 0.27$, $t(124) = 2.39$, $p < .02$). Second, when the mediator (state impulsivity score) was regressed on self-construal, presence of peers, and their interaction, the effect of self-construal was positive and approached significance ($\beta = 0.13$, $t(124) = 1.82$, $p = .08$). Lastly, when the beer drinking attitudes were regressed on self-construal, presence of peers, consumption impulsivity, and both two-way interactions, the interaction between the mediator and moderator was significant ($\beta = -0.16$, $t(122) = -2.15$, $p < .05$). This analysis confirms that the moderating effect of self-construal on peer presence is mediated by state consumption impulsivity.

We examined two alternatives to consumption impulsivity as potential mediators: risk attitudes and general affect. Correlational analyses ruled out both constructs as potential mediators. Risk attitudes were not significant predictors of immediate beer consumption attitudes ($r = .15$, $p > .10$), nor was general affect ($r = .16$, $p > .10$).

The results of study 2 establish that self-construal has a causal effect on impulsive consumption tendencies (immediate beer drinking attitudes) and that this effect is mediated by state impulsivity. Perhaps more important, we also showed that these results have implications for the effects of contextual or situational factors on impulsive consumption tendencies. When the beer drinking context included the presence of peers, impulsive consumption tendencies increased for independents but not for interdependents, and this interaction was also shown to be mediated by state impulsivity.

We have argued that the both the general main effect of self-construal on impulsive consumption tendencies and its moderating effect on peer presence is due to the greater motivation to suppress impulsive consumption tendencies on the part of interdependents relative to independents. Study 2 provides indirect support for this notion. We expected that peer presence should activate pleasure seeking goals for independents and thus decrease motivation to suppress impulsive consumption tendencies (and thus increase immediate beer-drinking attitudes). For interdependents, we expected that peer presence should activate conformity (not standing out) goals and thus increase motivation to suppress impulsive consumption tendencies. Study 2 also provides results consistent with this reasoning. However, evidence for a motivational component is at best indirect. In study 3, we attempted to provide a more direct test that differential motivation as a function of self-construal can account for the pattern of peer presence effects noted in study 2. To do so, we manipulated the availability of self-regulatory

resources through a resource depletion manipulation. If interdependents are more motivated to suppress impulsive consumption tendencies when peer presence is made salient than when it is not, then reducing their ability to act on this motivation should reduce the peer presence effect. Thus, peer presence conditions should increase impulsive consumption tendencies for interdependents under resource depletion conditions compared to non-depletion conditions. For independents, who are not motivated to suppress impulsive consumption tendencies (and in fact are more motivated to behave impulsively), resource depletion conditions should have relatively little effect. Thus, under no-depletion conditions, we expect the same two-way interaction noted in study 2. Under resource-depletion conditions, however, we expect this two-way interaction to be eliminated, and thus the pattern of effects as a function of peer presence for interdependents should more closely resemble those of independents.

We also made some changes to address alternative explanations for the effects. First, we changed the peer presence manipulation (discussed presently). As noted earlier, two possible outcomes for the effect of peer presence on impulsive consumption tendencies seemed equally plausible for interdependents: peer presence may increase motivation to suppress impulsive consumption tendencies, or it may have no effect because interdependents may naturally consider peer reactions when forming judgments, and thus reminding them of this would have no effect. In fact, we found no effect of peer presence for interdependents. However, it is possible that our manipulation was not strong enough to produce a difference. Thus, we strengthened the manipulation to provide for a more conservative test of our hypotheses. Second, we also measured participants' sex and their level of separateness-connectedness. Norms for drinking may differ between men and women, and Wang et al. (2000) found that separateness-connectedness mediated the relation between individualism and responses to advertisements.

STUDY 3

Method

Participants and Design. Participants were 223 undergraduate business students (88 men, 135 women) from a major southwestern state university above the legal drinking age who participated in return for partial course credit. All participants provided informed consent. The design was a 2 (interdependent vs. independent) × 2 (peer presence vs. no peer presence) x 2 (thought suppression vs. no thought suppression) between-subjects design.

Procedure and Measures. Participants were told they were taking part in three studies. As part of the first study, participants completed the same self-construal priming task used in study 2. As ostensibly part of a second study, participants were given a thought suppression task (described later) that has been shown to deplete self-regulatory resources. Next, as ostensibly part of a third study, participants were given the same peer presence manipulation used in study 2, but with one change: in no-peer presence conditions, participants were told to "imagine you have decided to go to a local bar by yourself" rather than being given no instructions at all, as was the case in study 2. Assignment to priming, peer presence, and thought suppression conditions was random. Participants then indicated their feelings about drinking beer at that moment, their sex, their beer knowledge and experience, and their level of chronic separateness-connectedness. Finally, participants were asked their thoughts on the study purpose and then debriefed. No one correctly guessed the research purpose.

The thought suppression manipulation was taken from Vohs and Faber (2007; see also Wegner 1989). Participants were asked to spend 5 minutes writing down everything that entered their minds. In thought suppression conditions, they were given explicit instructions not to think about a white bear. They were told that if they did happen to think about a white bear, they should make a checkmark to one side of the page and continue writing. In the no-suppression conditions, participants were told they could think of anything they wanted, including a white bear. Participants' attitudes toward beer drinking at that moment were measured with the same three items used in study 2 ($\alpha = .88$). Chronic self-construal (separateness-connectedness) was measured with a 14-item scale ($\alpha = .74$) developed by Wang et al. (2000).

Results and Discussion

Tests of Hypotheses. We expected a three-way interaction between self-construal, peer presence, and thought suppression such that the interaction between self-construal and peer presence on immediate beer consumption attitudes would be more pronounced under no–thought suppression conditions than under thought suppression conditions. Under no-suppression conditions, we expected to replicate the two-way interaction found in study 2: peer presence conditions should produce more positive immediate beer drinking attitudes for independents but have no effect on or even result in more negative attitudes for interdependents relative to no-peer presence conditions. In contrast, we expected thought suppression conditions to eliminate this interaction.

To test these possibilities, we conducted a full factorial ANOVA on the beer attitude composite score with self-construal, peer presence, and thought suppression as the three

independent factors. The results of this analysis can be seen in figure 2. As expected, the three-way interaction was significant (F (1, 215) = 4.29, $p < .05$). To decompose this interaction, we ran separate ANOVAs on the two thought suppression conditions. In accord with predictions, the two-way interaction between self-construal and peer presence emerged for no-thought suppression conditions (F (1, 108) = 9.56, $p < .05$), replicating the results from study 2. As the left panel of figure 2 shows, for independents, peer presence conditions produced more positive attitudes toward immediate beer drinking (M = 5.56) than did no-peer presence conditions (M = 4.70, difference = 0.86, t(56) = 2.29, $p < .05$). In contrast, for interdependents, peer presence conditions resulted in less positive attitudes toward immediate beer drinking (M = 3.19) compared to no-peer presence conditions (M = 3.98, difference = 2.37, t(57) = -6.43, $p < .0001$). However, as the right panel of figure 2 shows, under thought suppression conditions, this two-way interaction was eliminated ($F < 1$). Peer presence had no effect for either independents or interdependents (both ps > .15). Thus, for interdependents, peer presence had less of an effect on immediate beer-drinking attitudes under resource depletion conditions than under non-depletion conditions (peer presence × thought suppression interaction for interdependents: (F (1, 108) = 4.39, $p < .05$). Additional analyses show that for no-peer presence conditions, the main effect of thought suppression was significant. Those in thought suppression conditions exhibited more positive attitudes toward immediate beer consumption (M = 4.90) than did those in the no-thought suppression conditions (M = 4.34, t (111) = 1.87, p = .06), consistent with the findings of Vohs and Faber (2007) showing that self-regulatory depletion increases impulsive consumption tendencies.

Figure 2 about here

To test plausible alternative explanations, we included sex and separateness-connectedness

in the analyses. The results indicate that sex had a main effect on immediate beer drinking attitudes (F (1,214) = 5.11, p <.05), but its inclusion in the analyses did not alter the predicted interactions nor did it interact with any of the other variables. There was no effect (main or interactive) of separateness-connectedness.

The results of study 3 support our theorizing that the interaction between self-construal and peer presence is due to greater motivation to suppress impulsive tendencies for interdependents under peer presence conditions. Under control (no-thought suppression) conditions, we replicated the basic pattern of the two-way interaction reported in study 2. However, when the ability to suppress these impulsive tendencies was compromised through a resource depletion manipulation, this interaction was eliminated and interdependents resembled independents in their reactions to peer presence. Thus, we showed that the motivation factor for interdependents under peer presence conditions is only effective when sufficient self-control resources are available.

Although the same general two-way interaction between peer presence and self-construal noted in study 2 was replicated in no-thought suppression conditions, the exact patterns deviated slightly. In study 2, we found that that peer presence conditions had no significant effect on impulsive consumption tendencies for interdependents, whereas in this study, we found that peer presence actually reduced impulsive consumption tendencies for interdependents. This may be because we strengthened the manipulation in study 3, or the nonsignificant results of study 2 may have been anomalous. In this regard, it may be worth noting that we have found a similar reduction in impulsive consumption tendencies for interdependents under peer presence conditions in other studies (author cite).

GENERAL DISCUSSION

The results of the studies reported here converge on the conclusion that self-construal does in fact have a causal influence on impulsive consumption. In three laboratory experiments (study 2 pretest, studies 2 and 3), participants whose independent self-construals were activated reported more positive attitudes toward consuming beer at that moment than did those whose interdependent self-construals were activated, and this effect was shown to be mediated by the felt (state) level of impulsivity induced by the self-construal manipulation. We argued that this main effect of self-construal was likely due to greater motivation to suppress impulsive consumption tendencies on the part of interdependents relative to independents. Interdependents tend to be more concerned with fitting in and not embarrassing group members and focusing on social norms, whereas independents tend to focus on uniqueness and standing out and act more on their internal feelings.

Based on this theorizing, we also expected these general processes to have implications for other research on impulsive consumption, particularly the effects of peer presence (Luo 2005). Because the presence of peers may have different effects on interdependents than independents, we expected self-construal to moderate the peer presence—impulsive consumption relation. Consistent with these expectations, we found that the peer presence did increase impulsive consumption tendencies for independents. However, we also found that peer presence had little effect on (study 2) and even reduced (study 3) impulsive consumption tendencies for interdependents. Finally, we found support for our contention that motivation to suppress impulsive consumption tendencies drives the peer presence effects. When we reduced the ability of interdependents to suppress their impulsive consumption tendencies that were heightened

under peer presence conditions, the interactive effect of peer presence was eliminated, and interdependents and independents reacted similarly to the presence of peers.

The research we have reported makes contributions in a number of areas. First, it provides causal evidence of the relation between self-construal and impulsive consumption through the use of priming procedures, confirming correlational findings from previous research (Kacen and Lee 2002). Although in general simply providing convergent evidence between manipulated and measured constructs is not necessarily a substantial contribution, we argue that in the area of cultural differences it is actually very critical. As Oyserman et al. (2002) indicate in their exhaustive review, it is risky to assume that differences on some criterion variable are due specifically to the measured differences in self-construal (at the cultural or individual level) because the differences may be the result of such things as cultural differences in scale usage, socially desirable responding (Lalwani, Shavitt, and Johnson 2006), or other unmeasured cultural differences (e.g., other cultural values). As the review notes, priming self-construal addresses many of these concerns. The research we have reported bolsters previous research that has measured self-construal at the individual level (Kacen and Lee 2002) by providing convergent evidence through both priming (studies 2 and 3) and measurement at the cultural level (use of Hofstede's cultural values, studies 1a and 1b).

A second contribution of this research pertains to the relation between peer presence and impulsive consumption. Previous research has suggested that peer presence increases impulsive consumption tendencies. However, given the cultural differences in impulsive consumption tendencies, we speculated that this relation may differ as a function of self-construal. We provided consistent evidence that the positive relation between impulsive consumption and peer

presence holds for independents but not for interdependents. In fact, peer presence decreased impulsive consumption tendencies in study 3.

A third contribution of our research is a better understanding of the processes underlying the self-construal and peer presence effects. We theorized that the differences in impulsive consumption as a function of self-construal may be due to greater motivation to suppress impulsive consumption tendencies by interdependents compared to independents. We tested this assumption indirectly through the peer presence manipulation. We expected that peer presence would make these differences even more salient (independents less likely to suppress, interdependents more likely), and we provided evidence consistent with these propositions. More directly, we also manipulated self-regulatory resources and showed that when the ability of interdependents to regulate their impulses is constrained, they show effects of peer presence that are similar to independents. In the context of this latter investigation, we also replicated the general findings of Vohs and Faber (2007), which showed that self-regulatory resource depletion increases impulsive consumption tendencies.

Finally, an additional contribution of our research is the blending of laboratory and secondary data, which has several advantages. For one, it provides important convergent validity across multiple methods and multiple levels of measurement. As noted earlier, this is not trivial, particularly in cross-cultural research, which may be especially vulnerable to both measurement and other-variable confounds (Oyserman et al. 2002). Second, it provides an often-missing external validity component to the research. Although arguments about the value of external validity have a long history in consumer research (cf. Calder, Phillips, and Tybout 1982; Lynch 1982), most would agree that external validity can make a useful contribution in some situations. Given the importance of understanding impulsive consumption and other outcomes of problems

with impulse control, it seems important to provide both internal and external validity if effective intervention methods are to be adopted. Third, the combination of the cultural-level data, sub-cultural level data, and priming data allows us to rule out some plausible alternative explanations that might otherwise be difficult to account for with only laboratory data. We discuss this in more detail in the following section.

Our general patterns of findings are consistent with other research on both cultural orientation and impulsive consumption. For example, Western-primed participants exhibit more impatience in delaying consumption gratification than Eastern-primed participants (Chen et al. 2005). In terms of the effects of peer presence, research that shows that the effects of cultural orientation on such things as the persuasiveness of ads (Han and Shavitt 1994) and overall judgments (Torelli 2006) tend to be stronger when the consumption situations are public than when they are private. Our findings are also very consistent with the motivation view of impulsive consumption and closely resemble the results reported by Ramanathan and Menon (2006) and Shiv and Fedorikhin (1999). Ramanathan and Menon showed that the same situational factor can produce different outcomes to the extent that the factor relates to differential motivations and goals for different groups. In their study, when impulsives suppressed a pleasure-seeking goal (an act which violates the chronic goal states of impulsives), their desire for a hedonic product increased. In contrast, when prudents suppressed the same goal (an act that is congruent with the chronic goals states of prudents), their desire for the hedonic product decreased. In the same manner, our research shows that the same situational factor (peer presence) has different effects on independents and interdependents, and we have argued that this is because peer presence activates different goals based on type of self-construal.

Our research is also consistent with the resource view of impulsive consumption (Baumeister, Heatherton, and Tice 1994; Vohs and Faber 2007). In general, people are motivated to regulate their impulsive consumption tendencies, and we show that this motivation may differ as a function of cultural orientation. However, despite this motivation, when self-regulatory resources are taxed, impulsive consumption tendencies may win out. Our results are also consistent with those reported by Shiv and Fedorikhin (1999). They found that when the availability of resources was constrained, impulsives increased their choice of a hedonic product but prudents did not. In a similar manner, we showed that reducing the availability of self-regulatory resources increased impulsive consumption tendencies under peer presence conditions for interdependents but had no effect on independents.

Alternative Explanations and Future Research Directions

Through a series of analyses, we attempted to rule out several possible alternative explanations for the relationship between cultural orientation, self-construal, and beer and problem alcohol consumption, such as income, religion, climate, risk attitudes, sex, separateness/connectedness, and affect. We acknowledge that other alternative explanations are still possible for some specific data patterns in some studies, but these explanations have difficulty in parsimoniously accounting for all of our findings. For example, one possible alternative interpretation is that different social norms associated with alcoholic consumption are responsible for the effect of cultural orientation on beer consumption. This view argues that because alcoholic consumption is strictly controlled in U.S. and can be regarded as a "forbidden fruit," college students may tend to regard beer drinking as socially attractive. In collectivistic

societies, the alcoholic consumption code might not be as strict as that of the U.S., so it is less socially attractive for college students to consume beer. This alternative might help explain the cross-country comparison results, but has difficulty explaining why different states within the U.S. show different levels of beer consumption as a function of self-construal, and this difference is noted not only in the alcoholic consumption of young consumers, but also of adults. In addition, this alternative cannot account for the priming effects found in the subsequent experiments.

Another alternative explanation is related to the regulatory-focus thesis proposed by Aaker and Lee (2001), which posits that self-construal influences regulatory-focus (Higgins 1998): independents tend to be promotion-focused and interdependents tend to be prevention-focused. Thus, it may be that priming self-construal also primes regulatory focus. If so, independents may be drawn to impulse items such as alcohol because they seek pleasures, whereas interdependents shy away from it because they seek to avoid pain (Aaker and Lee 2001), and the presence of peers may heighten this effect. Although this explanation can account for the effects of studies 1a, 1b, and 2, it has difficulty explaining the effects of self-regulatory depletion in study 3.

One may argue that beer consumption in and of itself may not hold much face validity as a measure of impulsive consumption. We acknowledge this, but also note that self-construal influenced various measures of problem alcohol consumption (study 1b) and immediate desire to consume beer (studies 2 and 3). In addition, in other research we have found the same pattern of findings for self-construal and peer presence for the desire to consume a variety of "vice" products (Wertenbroch 1998) such as ice cream and potato chips (author cite).

Finally, although we have argued that motivation to suppress impulses explains the self-construal effects, it is possible that ability to suppress impulses also differs as a function of

cultural orientation. Some research suggests that increased practice at self-control increases the ability of people to control their impulses even under resource depletion conditions (Muraven, Baumeister, and Tice 1999). Thus, the increased "practice" resulting from a greater motivation to suppress impulsive tendencies on the part of interdependents may also increase their ability to suppress impulsive consumption tendencies (Seeley and Gardner 2003). Although this explanation cannot account for the priming results (in which ability should be randomly distributed), it may pertain to some degree to the differences in measured self-construal noted in our studies (1a and 1b) and others.

The research we have presented has some implications for persuasion that might be a useful focus of future research. For example, because an independent self-construal is associated with more positive attitudes toward the consumption of impulse-related products, then advertising that induces an independent self-construal may be more effective than advertising that does not. Conversely, because an interdependent self-construal is associated with less positive attitudes toward impulse-related products, then advertising that is aimed at decreasing impulse-related or vice-related product consumption (e.g., a public service announcement to curtail teen drinking) may be more effective when the advertisement induces an interdependent self-construal than when it does not. Given that previous research has shown that ads themselves can indeed influence self-construal (Hamilton and Biehal 2005), such a strategy seems intuitively plausible.

Our results have important implications for understanding the mechanisms underlying the effect of self-construal on information processing. Self-construal has attracted great attention from consumer researchers and social psychologists who have investigated its effects on attribution (Hong et al. 2000), attitudes (Agrawal and Maheswaran 2005), and risk preference

(Mandel 2003), and different mediators have been proposed. For example, Mandel (2003) found that size of the social network mediates the effect of primed self-construal on risk preference in the context of social decision making, Agrawal and Maheswaran (2005) provided evidence that thoughts related to chronically accessible selves are responsible for the effect of self-construal on brand evaluations, and Zhang, Feick, and Price (2006) found that a confrontation versus compromise style of conflict resolution is responsible for the effect of self-construal on aesthetic shape preferences. In the context of beer consumption, we found that the effect of self-construal is operating through consumption impulsivity. These results suggest that processes underlying self-construal are contextually dependent on the task involved. Future research should specify the conditions under which different mediators might be responsible for the effect of self-construal on information processing.

Although our research has shown that independents tend to have greater impulsive consumption tendencies than interdependents, this certainly does not suggest that all independents are impulsive and all interdependents are not. Clearly, many people within predominantly individualistic cultures are relatively good at resisting various temptations (what we and others have referred to as prudents), and even those who are not as good at resisting (impulsives) are still often successful. Likewise, there are examples of extremely impulsive behaviors by those in predominantly collectivistic cultures (e.g., binge drinking in Japan). Nevertheless, our and others' research suggests that understanding the situational factors that reduce the motivation or ability to suppress impulsive consumption tendencies may help foster intervention methods to reduce impulsive consumption.

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FIGURE 1

STUDY 2: EFFECT OF SELF-CONSTRUAL AND PEER PRESENCE ON ATTITUDES TOWARD IMMEDIATE BEER DRINKING

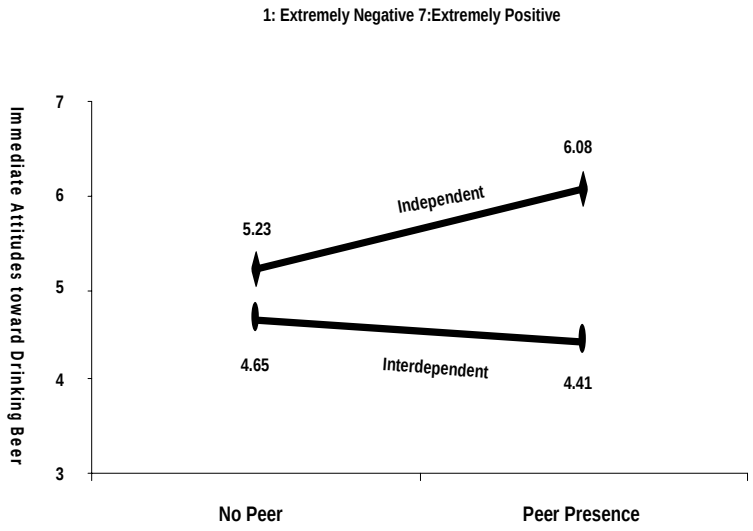

FIGURE 2

STUDY 3: EFFECT OF SELF-CONSTRUAL, PEER PRESENCE AND THOUGHT SUPPRESSION ON ATTITUDES TOWARD IMMEDIATE BEER DRINKING