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## Power-Distance Belief and Impulsive Buying

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## Abstract

The authors propose that power-distance belief (accepting and expecting power disparity) influences impulsive buying beyond other related cultural dimensions like individualism-collectivism. This research supports an associative account for linking PDB and impulsive buying, a manifestation of self control such that those with higher PDB display less impulsive buying. Further, this effect manifests for vice products but not for virtue products. The authors also find the restraint to resist temptations can occur automatically for those with repeated practice (i.e., chronically high PDB). Taken together, these results imply that products should be differentially positioned as vice or virtue products based on consumers' power-distance beliefs.

Power-distance belief (PDB hereafter) has been defined as the degree of power disparity the people in a culture expect and accept (Hofstede 1984, 2001; Oyserman 2006). Can such a belief impact consumers' impulsive buying? If yes, then how and why? Impulsive buying is a pervasive and growing phenomenon among consumers (Baumeister 2002; Vohs and Faber 2007). About 62% of supermarket sales and 80% of luxury-good sales in the United States are impulsive (Abrahams 1997; Agins 2004). Rook (1987) suggests that impulsive buying is a distinctive feature of American consumers' lifestyles. Such an assumption may be due to the fact that virtually all empirical work on this topic is based on American consumers (see Baumeister 2002 for a review). Yet, cultural orientation may play a vital role in impulsive buying.

According to Oyserman (2006, p. 353), PDB "involves the extent to which a society accepts and views as inevitable or functional human inequality in power, wealth, or prestige." According to Hofstede (2001, p. 83), it is the extent to which people "accept and expect that power is distributed unequally." The current focus of marketing scholars has been on the individualism/collectivism dimension at the cultural level and on independent/interdependent self-construal at the individual level (Aaker and Lee 2001). Yet, as Oyserman (2006) points out, PDB was the first cultural factor identified by Hofstede (1984). We extend the conceptual domain of cross-cultural consumer research to include PDB and also develop measures and manipulations of PDB that can be readily used by consumer-behavior researchers.

PDB does not measure or represent the extent to which one does or does not have power (Oyserman 2006). The central difference between high- and low-PDB cultures does not lie in actual power disparity *per se*, but in people's attitudes toward power disparity.

While inequality exists within any culture, cultures vary in the degree to which disparity is accepted (Hofstede 1984). Thus, a relatively low-PDB culture such as the United States can have a high degree of inequality in its institutions. To clarify, we do not examine the actual degree of power that a person has but the extent to which the person, irrespective of actual power, expects and accepts power disparity.

Theoretically, we propose an associative mechanism to suggest that high PDB is associated with the greater self control in the face of socially proscribed temptation. This associative account, as described later, is consistent with the idea that activating PDB activates the concept of self control among individuals. We postulate the effect to occur not only among those who are from high-PDB cultures and may have stronger control-resource muscles (Muraven, Baumeister, and Tice 1999), but also among those in whom high PDB has been activated through priming. Once self control is activated through the salience of high PDB, an individual is less likely to engage in impulsive behavior. Consequently, faced with opportunities for impulsive buying, individuals with low PDB tend to engage in more impulsive buying than those with high PDB.

A total of six studies are reported. Results from the first three studies (1A, 1B, 1C) provide both correlational and experimental evidence collected at the country level and the individual level to establish the impact of PDB on impulsive buying. The next three studies (2, 3, and 4) examine the underlying process for this link.

### **IMPULSIVE BUYING**

Early research did not distinguish between impulsive buying and unplanned buying (West 1951) with both defined as the difference between actual purchases and previously planned purchases. However, not all unplanned purchases are impulsive (Kollat and

Willett 1967; Stern 1962). Rather, impulsive buying is relatively more spontaneous and unreflective (Rook 1987; Rook and Fisher 1995; Inman, Winer, and Ferraro 2009) than unplanned buying which includes all purchases that were not previously planned (Stern 1962). We focus primarily on impulsive buying but also examine unplanned purchases (i.e., healthy snacks) to clarify the effect of PDB on impulsive buying.

Current empirical research supports a perspective based on consumer self control for understanding impulsive buying. Vohs and Faber (2007) propose that consumers with more self-control resources are more likely to resist impulsive buying. All consumers have some control resources, but utilizing these resources reduces their availability, thereby reducing self-control in the task at hand (Baumeister 2002). Further, practicing self control can strengthen one's self-control muscle and increase one's general capacity for self control in the long run (Muraven, Baumeister, and Tice 1999).

A second view of consumer self control relies on an associative mechanism such that consumers are less likely to consume impulsively if self-control associations are activated through mechanisms such as priming. For instance, through a scrambled sentence task of different affect-related words, Giner-Sorolla (2001) found that when affective words associated with self control were primed, participants were less likely to consume hedonic food. Martijn et al. (2007) primed individuals with a persistent person exemplar (i.e., Olympic medalist who encountered setbacks but did not give up). According to the authors, this prime, designed to elicit self-control associations, increased self-control related performance (measured in a hand-grip task) relative to those with a neutral prime. Along the same lines, we reason that high PDB is closely associated with self control.

When PDB is salient, self-control associations are activated, influencing self-control related behaviors, manifested as less impulsive buying.

### **POWER-DISTANCE BELIEF AND IMPULSIVE BUYING**

Situated cultural-process theory states that even in the absence of actual experience of a particular culture, people can learn the associations between cultural values and expected behavior (Hong et al. 2003; Oyserman and Lee 2007). People learn cultural values such as PDB and related concepts such as self control through various mechanisms, developing a semantic network of culture and associated concepts (Oyserman and Lee 2007). Thus, irrespective of whether a person resides amidst a high- or low-PDB culture, he or she experiences situations that enable the person to learn the associations between PDB and corresponding concepts and thoughts. Though the U.S. is a chronically low-PDB culture, individuals in the U.S. have ample opportunity to learn the association between PDB and self control. For instance, observing behaviors in organizations, such as the U.S. military where PDB is high (Soeters, Poponete, and Page 2006), people can learn about the association between PDB and self control. In addition, institutionalized media continually transmits these cultural values to individuals (Anderson 1997; Lull 2000; McCracken 1986). Exposure to other high-PDB cultures (e.g., China, Japan) through these media conduits provides the necessary inputs for creating and solidifying the association between PDB and self control. Over time, “cultures may prime different cognitive content by creating different semantic, associative, and content networks that together influence what we think about ourselves, others, and the world” (Oyserman and Lee 2007, p. 264). Thus, concepts (e.g., expected behaviors such as restraint) proximal to these cultural constructs

are acquired—both directly and indirectly—and become part of a person’s semantic network.

For example, with respect to independent and interdependent self construal, an associative account of culture and consequences has been supported by empirical research (see Oyserman and Lee 2007 for a review). Similarly, we argue that priming PDB activates self-control associations, resulting in related behaviors such as inhibition of impulsive buying. Why? Typically, high-PDB cultures put a premium on children’s obedience, conformity, and restraint (Hofstede 1984; 2001). Such restraint is particularly encouraged in the face of socially proscribed temptations. For example, students are expected to show restraint by not speaking out in front of teachers (Hofstede 2001). Additionally, adults are expected to control and resist individual idiosyncrasies in deference to socially normative behaviors (Hofstede 1984, 2001; Oyserman 2006). Seeley and Gardner (2003) conclude that individuals from Eastern cultures are more likely to be perceived as normatively compliant when they can control their impulsive urges. With many Eastern cultures valuing the future more than the present (Chen, Ng, and Rao 2005), delayed gratification and restraint are seen as the highest forms of virtues. For instance, in the daily life of people in Tibet—an extremely high-PDB society—people routinely practice self control. To control one’s impulsiveness is one of the most desirable norms in that society (Peacock 2004).

Over time, those in high-PDB cultures develop a strong associative network of knowledge regarding the desirability of restraint in the face of opportunities eliciting socially proscribed behaviors such as impulsive buying. To the extent that activating a cultural construct leads individuals to behave in a manner consistent with it (Hong et al.

2003), activating self control through the salience of PDB should lower impulsiveness. Consequently, high PDB will reduce impulsive buying due to the association of restraint with high PDB.

In contrast, low-PDB cultures deemphasize restraint in the face of authority or power disparity (Hofstede 2001). For instance, students from low-PDB cultures are encouraged to initiate speaking, express differences publicly, and even disagree with teachers if necessary, when they are in the classrooms. Beyond the classroom context, Lalwani, Shavitt, and Johnson (2006) find that people from low-PDB cultures tend to display less socially desirable responding tendencies because they do not see the need to comply and/or demonstrate self control. Moreover, Western cultures, typically low on PDB, tend to value the present more than the future, placing a higher value on immediate gratification than on restraint or delayed gratification (Chen, Ng, and Rao 2005). Over time, the cultural value of low PDB becomes closely associated with less self control, including situations that involve socially proscribed temptations.

While the relationship between PDB and self control may be relatively stronger in high-PDB cultures, PDB (activated through a prime or as a trait) should activate the closely related concept of self control, which in turn should lead to lower impulsive buying. Therefore, PDB should be associated with impulsive behavior, such that high (vs. low) PDB should lead to less impulsive buying. To the extent that PDB is salient (whether through chronic means such as dispositional traits or situational prime), self-control associations will be activated, which we propose will influence impulsive buying. This is illustrated in Figure 1. Based on this theorizing, we propose:

**H1:** Consumers with high PDB (either chronic or activated through situational priming) are likely to engage in less impulsive buying than consumers with low PDB.

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Figure 1 about here  
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As discussed later, we hypothesize and demonstrate vice and virtue products to be a boundary condition for the effect hypothesized in H1. This, as explained later, should occur because vice products elicit greater temptation for immediate gratification and consumption of vice products is typically socially proscribed (Wertenbroch 1998). Thereby vice products are more likely to activate control related associations.

Study 1A is a pilot study that uses secondary field data at the country level to test H1. Study 1B examines the effect of PDB as a dispositional trait on chronic impulsive-buying tendency. Study 1C primes PDB and examines the effect of activated PDB on impulsive buying. Having established a relationship between PDB and impulsive buying, Study 2 examines the activation of control associations through PDB. Two additional studies examine the moderating role of product type (Study 3) and control resources (Study 4).

### **STUDY 1A**

The dataset was from a 2003 ACNielsen|ShopperTrends study which polled 15,000 urban households across 14 Asia Pacific markets: Australia, New Zealand, China, Hong Kong, Taiwan, Korea, Japan, India, Indonesia, Malaysia, Philippine, Singapore, Thailand, and Vietnam. A representative sample from each market was drawn using multi-stage

probability sampling, and each respondent was asked about their unplanned buying behavior (ACNielsen 2003).

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Table 1 about here  
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#### Measures

A four-point item measured the degree of unplanned buying (see Table 1). The dataset provided the percentage of respondents choosing each scale-point in the 14 markets. The weighted (by percentage choosing each item) difference between the first and the other three items formed the dependent measure for each country. Using different permutations did not change the conclusion. Country scores on culture orientation were obtained from Hofstede's website (2005). Higher scores indicate higher levels of PDB. Country-level individualism was included as a control variable. Per capita GNP (United Nations Statistics Division 2006) was also included as a control for income. It may be that the higher the per capita GNP of a country, the higher the unplanned buying tendency of its residents.

#### Results

Countries with higher PDB scores showed lower unplanned buying tendencies ( $r(14) = -.70, p < .05$ ). We ran a regression analysis with unplanned buying as the dependent variable, PDB as the independent variable, and individualism and per capita GNP as control variables (all VIFs < 2). The effect of PDB was significant ( $\beta = -.81, t = -3.14, p < .05$ ) whereas the effects of per capita GNP ( $\beta = .17, t = 0.76, p > .05$ ) and individualism ( $\beta = -.32, t = -1.44, p > .05$ ) were not significant. Thus, H1 is supported: higher PDB scores are associated with lower unplanned buying tendency at the country level.

PDB influences unplanned buying after controlling for individualism/collectivism and economic factors such as income. Though this study examines unplanned buying,

which is a broader construct that subsumes impulsive buying, the high external validity of the country-level data establishes the underlying association with high generalizability. In the next study we specifically focus on examining impulsive-buying tendency.

### STUDY 1B

Participants were 120 undergraduates who participated in three seemingly unrelated tasks: a scale on PDB, a personal-inventory task (perceived gender scale to serve as baseline control), and an impulsive buying scale. Last, participants guessed the study's purpose and were debriefed. No one was correct in guessing the research purpose.

#### Measures

*PDB* was measured with an eight-item scale (Hofstede 2001, p. 86) where higher scores indicate higher PDB (Appendix A;  $\alpha = .78$ ). This scale has been shown to be distinct from individualism/collectivism and need for cognition (Hofstede 2001).

*Impulsive-buying tendency*, the dependent variable, was measured with the ten-item scale from Rook (1987). Higher scores indicate greater impulsive-buying tendency ( $\alpha = .84$ ; 1=strongly disagree, 7=strongly agree).

The *perceived gender scale* was adapted from Archer, Smith, and Kilpatrick (1995): "I like to do things that boys and men do," and "I like to do things that girls and women do" (reverse coded). We used the average of these two items ( $r = .69$ ; 1=strongly disagree; 7=strongly agree), where higher scores indicate higher levels of masculinity.

#### Results

PDB and impulsive buying were negatively correlated ( $r = -.62, p < .05$ ). We ran a regression on impulsive buying with PDB, age, and perceived gender as predictors (all VIFs < 2). Supporting H1, PDB predicted impulsive-buying tendency ( $\beta = -.33, t = -2.97, p$

< .05). Perceived gender ( $\beta = .00, t = .01, p > .95$ ) and age ( $\beta = .06, t = 1.08, p > .25$ ) were not significant. We note here that neither gender nor age was found to be significant or interact with the focal variables in any subsequent study, and they are not discussed further.

## Discussion

Chronic level of PDB predicts impulsive-buying tendency. An alternative explanation is that the impulsive buying measure could have influenced the PDB measure through a self-perception process (Bem 1972) because the latter was taken after the former. To address this concern, we administered the PDB scale at two points in time to assess test-retest reliability. In week 1, participants ( $n = 143$  new students from the same population) completed the Hofstede (2001) PDB scale and the Rook (1987) impulsive scale. In week 2, the same participants completed the PDB scale again. The PDB scores of week 1 and week 2 showed significant internal reliabilities (week 1:  $\alpha = .74$ ; week 2:  $\alpha = .72$ ) and temporal reliability by correlations between week 1 and week 2 ( $r = .69, p < .05$ ). The relationship between PDB and impulsive buying was significant at both times ( $r = -.61, p < .05$ ) and ( $r = -.58, p < .05$ ). Thus, the result is not a self-perception artifact.

Though this study measured impulsive-buying tendency rather than unplanned buying, this relationship is still correlational. In the next study, we prime PDB to establish the causality implied in H1.

## STUDY 1C

Participants were 97 undergraduates from a large U.S. university. The study was a (PDB Prime: High vs. Low) between-subjects design. Students were told that they were participating in three different studies.

## Measures

*PDB prime.* A sentence-completion task (Oyserman and Lee 2007; Srull and Wyer 1980) was developed to elicit temporary accessibility for PDB and related concepts (Appendix B). When participants focus on words associated with PDB to complete the sentence task, PDB and associated concepts such as self-control should become temporarily accessible (Oyserman and Lee 2007).

In this PDB prime, participants formed meaningful sentences from sets of scrambled words. In the high (low) PDB condition, participants completed 10 sentences related to social hierarchy (equality). Three items were used as a manipulation check: “For the time being, I mainly think that,” “At this moment, I feel that” and, “On top of my mind right now are thoughts in agreement with saying that.” Each item was rated on a 7-point scale (1=social hierarchy is important, 7=social equality is important;  $\alpha = .91$ ). A higher score indicates *lower* PDB. Pretest participants ( $n = 19$  different students from the same population) in the high (vs. low) PDB condition reported greater momentarily accessible PDB ( $M_{\text{High}} = 3.89$  vs.  $M_{\text{Low}} = 5.23$ ;  $t = 1.98$ ,  $p = .05$ ).

*Impulsive Buying Task.* Participants were told “Imagine that you are at a store and have \$10 cash. You can buy as many or as few of the products listed below, or none at all. After the study is completed, one participant in each session will be randomly selected and the participants will receive whatever they have chosen in this study. If you are selected and you decide to buy nothing, you will get \$10. If you are selected and decide to purchase something, you will get those items and the remaining money, totaling \$10.”

The products were: a serving of Oreo cookies at \$0.75, a bag of potato chips at \$1.00, a bag of gummy candies at \$1.50, a serving of Cheetos at \$0.75, a Snickers bar at \$0.75, and a bottle of cola at \$1.50. Consistent with Vohs and Faber (2007), both the dollar

amount and the quantity of products they would like to buy were used as measures of impulsive buying.

*Affect.* We measured affect with a 10-item scale ( $\alpha = .76$ ) adapted from Pham et al. (2001). It is possible that inducing high PDB in U.S. participants results in negative affect because this belief is inconsistent with their cultural norm.

## Results

*Manipulation check.* Using the three items from the pretest ( $\alpha = .91$ ), those in the high (vs. low) PDB condition reported greater momentarily accessible PDB ( $M_{\text{High}} = 3.51$  vs.  $M_{\text{Low}} = 4.17$ ;  $t = -2.80$ ,  $p < .05$ ). Thus, the priming was successful.

*Hypothesis 1.* Consistent with H1, PDB predicted the amount of money spent ( $F(1, 95) = 4.91$ ,  $p < .05$ ) such that those in the high (vs. low) PDB condition spent less money ( $M_{\text{high}} = \$2.13$  vs.  $M_{\text{low}} = \$3.54$ ). PDB also predicted the number of items purchased ( $F(1, 95) = 4.57$ ,  $p < .05$ ;  $M_{\text{high}} = 2.10$  vs.  $M_{\text{low}} = 3.49$ ).

*Additional analysis.* Asking U.S. participants, who are culturally low on PDB, to form a high (vs. low) PDB may have resulted in greater negative affect. Thus, greater positive affect in the low-PDB condition could have led to more impulsive buying. Importantly, PDB prime did not influence affect ( $F(1, 95) = .66$ ,  $p > .40$ ). Furthermore, when we included affect as a covariate in the model the results remain unchanged and affect was not significant ( $p > .50$ ). As such, affect is not a viable alternative explanation for the results.

## Discussion

The convergent support for H1 across three sub-studies (1A, 1B, 1C) using different operationalizations of PDB and different measures of impulsive buying is

reassuring, particularly given the effect on specific measures of impulsive buying is consistent with that found when using an imprecise measure in Study 1A. Furthermore, income and affect are ruled out as possible explanations. We also conducted another study measuring situational self-construal (results are available upon request). We found that the effect of PDB was obtained even after controlling for self-construal at the individual level.

## **STUDY 2: PDB AND STRENGTH OF CONTROL ASSOCIATIONS**

As discussed earlier, over time individuals learn the association between particular cultural dimensions and concepts and associations, with the associated knowledge becoming temporarily salient when the cultural dimension is activated (Hong et al. 2003). Consequently, priming high PDB should activate control-related associations among individuals (Oyserman and Lee 2007; Seeley and Gardner 2003). When high PDB is activated, control-related associations should also be activated and accessible. In contrast, when low PDB is activated, control-related associations will not be activated or be accessible. Those with high (vs. low) PDB should exhibit a greater level of competency on control responses, such as more associations and faster reaction time to control-related constructs. Accordingly, those with high (vs. low) PDB should react faster to control-related tasks (e.g., anagram solving). More specifically:

***H2:*** Consumers with high (vs. low) PDB should exhibit faster reaction time when solving control-related anagrams. In contrast, reaction time should not differ based on PDB when solving anagrams unrelated to control.

### **Method**

Participants were 42 students (48% male) who received extra course credit for the study. They first read the PDB prime and then completed the anagram task.

*PDB Prime.* Participants read a statement adapted from Hofstede's (2001, p. 98) definition of PDB: "There should be an order of inequality in this world in which everyone has a rightful place; high and low are protected by this order." In the high (low) PDB condition, they were asked to list three reasons to support (argue against) this statement.

A pretest ( $n = 42$  different students from the same population) assessed the effectiveness of the PDB prime. After the priming task, participants responded to the PDB scale used in Study 1B (Appendix A) adapted for their feeling at the moment ( $\alpha = .68$ , 1 = Strongly Disagree, 7 = Strongly Agree). Those in the high (vs. low) PDB condition reported higher PDB on the composite index ( $M_{high} = 5.50$  vs.  $M_{low} = 4.10$ ,  $t = 2.26$ ,  $p < .05$ ), indicating the prime was successful.

*Anagram task.* Participants solved nine randomly-ordered anagrams (adapted from Meyers-Levy and Zhu 2007). Three anagrams formed words that were related semantically to the concept of control: organized, restrained, and bounded. Six anagrams were words not related to control: radio, cash, dinner, piano, paper, and candy. Reaction time (RT) when solving each anagram was recorded in milliseconds.

## Results

H2 proposes that those in the high (vs. low) PDB condition should show faster RT for control-related anagrams, but there should be no RT difference for anagrams that are control-unrelated. Response times for the three control-related anagrams and six control-unrelated anagrams were averaged to form a control anagram RT index and a control-unrelated anagram RT index. A MANOVA was conducted with the control-related RT index and control-unrelated RT index as the dependent variables and PDB prime as the independent variable. PDB had an effect on control-related anagram RT index ( $F(1, 36) =$

4.33,  $p < .05$ ) but no effect on control-unrelated anagram RT index ( $F(1, 36) = 0.15, p > .70$ ). A contrast-coded difference score between the two RT indices was significant ( $F(1, 36) = 5.09, p < .05$ ). Planned contrasts found that participants in the high (vs. low) PDB condition exhibited faster RT for control-related anagrams ( $M_{\text{high}} = 8,038.69$  vs.  $M_{\text{low}} = 14,187.02, t = 2.08, p < .05$ ), but comparable RT for control-unrelated anagrams ( $M_{\text{high}} = 10,449.08, M_{\text{low}} = 9,408.08, t = .39, p > .70$ ).

## Discussion

Study 2 supports the proposition that PDB is associated with self-control concepts. An alternative view argues that high and low PDBs differ not on the strength of associations but on the affective associations to control-related constructs. To test this possibility, we used the same prime and asked 52 new respondents to provide free associations with the constructs related to control: organized, restrained, and bounded. These responses were coded by two independent coders ( $\text{Kappa} = .85$ ) in one of three categories: positive, negative, and neutral. There was no PDB effect ( $p > .20$ ) on these measures, suggesting that valence of associations does not differ between the PDB groups.

## **STUDY 3: MODERATING ROLE OF VICE AND VIRTUE PRODUCTS**

Given that PDB restrains impulsive buying due to its associations with self-control, the effect of PDB should be limited to behaviors associated with socially-proscribed products, particularly products eliciting greater temptations for immediate gratification. Specifically, vice products (e.g., ice cream) lead to greater temptation for immediate gratification than virtue products (e.g., frozen yogurt) (Wertenbroch 1998). In general the ability to delay gratification and demonstrate restraint is seen as virtuous such that consumption of vice products may be socially proscribed (Wertenbroch 1998). Therefore,

the self-control associations instantiated through high PDB should only lead to restraint toward consumption of vice products. Specifically, when consumers consider consumption of unhealthy or vice products, the self-control associations activated from high PDB should impact impulsive buying. Consequently, the association of high PDB with greater restraint for socially proscribed temptations should manifest as less impulsive buying of vice products among those with high PDB than those with low PDB.

In contrast, consumption of healthy or virtuous behaviors is not socially proscribed (and may even be encouraged) and is less likely to activate self-control associations (DoVale, Pieters, and Zeelenberg 2008; Vohs and Faber 2007). If products are not socially proscribed then PDB should not influence consumption of such products. As such, PDB should not affect buying of virtue products. Formally:

**H3:** Product type (vice vs. virtue) will moderate the effect of PDB on impulsive buying. Specifically, for vice products, high (vs. low) PDB participants will buy less whereas PDB should have no effect on buying of virtue products.

## Method

Participants were 170 (38% female) undergraduates from a large U.S. university. The study was a (PDB Prime: High vs. Low) X (Product Type: Vice vs. Virtue) mixed design. The first factor is between-subjects and the second is within-subjects. The tasks were the same as Study 1C with the purchase task including three vice and three virtue products. Last manipulation checks and demographics were obtained.

*Product Type.* Vice products included a Snickers bar, potato chips, and regular cola. Virtue products included a granola bar, an apple, and orange juice. The dollar amount spent and the quantity bought were the dependent measures.

*PDB Prime.* The sentence completion task was identical to Study 1C.

## Results

*Manipulation Checks.* Participants rated each product on a 7-point scale (1=more a virtue than vice, 7=more a vice than virtue). The scores for the three vice products and three virtue products were averaged to create a vice and a virtue index ( $\alpha_{\text{vice}} = .94$ ,  $\alpha_{\text{virtue}} = .84$ ). A paired t-test indicated that participants perceived the vice items to be significantly more a vice than the virtue items ( $M_{\text{vice}} = 4.89$  vs.  $M_{\text{virtue}} = 3.05$ ,  $t = 7.96$ ,  $p < .01$ ).

Using items from Study 1C to measure accessible PDB ( $\alpha = .92$ ), participants in the high (vs. low) PDB condition reported greater momentarily accessible PDB ( $M_{\text{High}} = 3.92$  vs.  $M_{\text{Low}} = 4.48$ ;  $t = -2.60$ ,  $p < .05$ ). Recall that a higher score indicates *lower* PDB.

*Money Spent.* Hypothesis 3 proposed that the effect of PDB on impulsive buying would be significant for vice items but not for virtue items. A repeated-measures analysis was significant ( $F(1, 168) = 6.53$ ,  $p < .05$ ). The main effects of PDB ( $F(1, 168) = 0.21$ ,  $p > .05$ ) and product type ( $F(1, 168) = 2.05$ ,  $p > .05$ ) were non-significant. Their interaction was significant ( $F(1, 168) = 6.53$ ,  $p < .05$ ). For vice products, those with high (vs. low) PDB spent less ( $M_{\text{High}} = 0.66$ ,  $SE = 0.15$ , vs.  $M_{\text{Low}} = 1.09$ ,  $SE = 0.16$ ; difference =  $-\$.43$ ,  $t(168) = -1.88$ ,  $p = .06$ ). For virtue products, those with high (vs. low) PDB spent more, though this difference was not significant ( $M_{\text{High}} = 0.82$ ,  $SE = 0.12$ , vs.  $M_{\text{Low}} = 0.52$ ,  $SE = 0.12$ ; difference =  $\$.30$ ,  $t(168) = 1.68$ ,  $p = .10$ ). See panel A of Figure 2 for cell means.

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Figure 2 about here  
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*Quantity Bought (from three vice items and three virtue items).* A repeated-measures analysis was also significant for the number of items bought ( $F(1, 168) = 6.45$ ,  $p$

< .05). The main effects of PDB ( $F(1,168) = 0.30, p > .05$ ) and product type ( $F(1,168) = 0.78, p > .05$ ) were non-significant. As hypothesized, their interaction was significant ( $F(1,168) = 6.45, p < .05$ ). For vice products, those with a high (vs. low) PDB bought fewer items ( $M_{High} = 0.20, SE = 0.05$  vs.  $M_{Low} = 0.34, SE = 0.05; t(168) = -2.07, p < .05$ ). For virtue products, PDB did not influence the number of items bought ( $M_{High} = 0.28, SE = 0.05$  vs.  $M_{Low} = 0.20, SE = 0.04; t(168) = 1.41, p > .16$ ). See panel B of Figure 2 for cell means. Thus, hypothesis 3 was supported for both dependent measures.

#### Discussion

PDB influences impulsive buying of vice products, both for the amount spent and number of items purchased. If PDB influences unplanned buying in general (i.e., buying of healthy or virtuous products), then PDB should affect purchases of both vice and virtue products. This is not the case. More importantly, and as argued earlier, consumption decisions regarding vice and virtue products differ in their activation of self-control associations (Do Vale, Pieters, and Zeelenberg 2008; Wertenbroch 1998). Thus, this study supports the thesis that differences in PDB result in different levels of self-control associations, which influence impulsive buying.

#### **STUDY 4: MODERATING ROLE OF CONTROL-RESOURCE DEPLETION**

We have theorized that high PDB is associated with greater restraint in the face of socially proscribed temptations because activating PDB activates knowledge of self control. Thus, consumers with chronically high PDB are likely to practice self control repeatedly; therefore, they may engage in self control more or less automatically. As such, the difference in impulsive buying between high- and low-PDB consumers should be even greater when self-control resources are depleted. In other words, those with chronically

high PDB tend to have greater control resources because they practice self control repeatedly, which strengthens their self-control muscles (Muraven, Baumeister, and Tice 1999). If control resources differ by chronic PDB, then depleting equal amounts of control resources should affect impulsive buying among those with chronically low PDB to a greater extent than those with chronically high PDB.

Among consumers who have not depleted their control resources, both high- and low-PDB consumers will have some resources available to control impulsive buying. When consumers encounter resource depletion, their control muscles are temporarily weakened (Baumeister 2002). When similar levels of control resources are depleted, those with chronically high (vs. low) PDB will have a greater reservoir of control resources to utilize due to their stronger control muscle. Consequently, resource depletion will magnify the difference in the “steady-state” level of control resources such that those with low PDB should show an even stronger impulsive-buying tendency than those with high PDB.

Formally:

**H4:** Control resources moderate the effect of PDB on impulsive buying.

Specifically, consumers with low (vs. high) PDB will show relatively higher levels of impulsive buying when control resources are depleted than when they are not.

Method

Study 4 was a national survey of U.S. adult consumers from an online panel of a marketing research company. In total, 901 usable surveys were completed. Age ranged from 18 to 75 years, 74% are female, 65% are married, 50.5% have annual income above 50,000 dollars, and 50% work full time. Regarding ethnicity, 5% are African American, 4% are Hispanic and 91% are Caucasian. PDB was measured and control resource was

manipulated between subjects. Participants were given the resource depletion manipulation first. Next they were given the impulsive buying task adopted from Vohs and Faber (2007). PDB and additional measures were collected last.

*Resource depletion.* The manipulation was taken from Wegner et al. (1987) and has been applied in consumer behavior research (Vohs and Faber 2007). It has two levels: resource depletion and no depletion. Participants were told “The goal of this task is to investigate thoughts as they occur naturally in people’s mind.” In the resource depletion condition, participants were told to write down all the thoughts that entered their mind in the next five minutes with one exception: not to think about a white bear. In the no depletion condition, participants were told to write down all the things they could think of, including a white bear. In both conditions, participants were told that if they thought of a white bear or white bear-related images they should make a check mark on the screen and continue writing the rest of their thoughts. Results from Vohs and Faber (2007) indicate that, though subtle, this is a reliable manipulation.

*Impulsive buying task.* The impulsive buying task, adapted from Vohs and Faber (2007), was similar to that in Study 3. Participants were told that they would be taking part in a shopping study, buying groceries for \$10. If they did not spend all the money, they could get the remainder in cash. Thus, theoretically, a respondent could choose to not buy anything and get \$10 in cash. Participants were shown eight products (granola bar, chocolate bar, pretzels, Doritos, bagel, donut, orange juice, cola) with prices closely matched for the healthy and unhealthy version of each food item. The difference in prices within each product pair ranged from zero to five cents. Participants were reminded that they could buy as many or as few of the products as they wished—or none at all. They

indicated the quantity they wanted of each product. Then, participants completed the Hofstede (2001) PDB scale used in study 1B ( $\alpha = .70$ ) and provided demographics.

This marketing research company frequently runs such studies where participants choose products online that are shipped to them regularly. Thus, for this study, the product choices participants made were real.

## Results

*Money Spent.* An ANOVA was conducted and the overall model was significant ( $F(3,897) = 19.45, p < .05$ ). The effects of PDB ( $F(1,897) = 44.73, p < .05$ ) and resource depletion ( $F(1,897) = 14.40, p < .05$ ) were significant. Their interaction was also significant ( $F(1,897) = 9.05, p < .05$ ). Among participants in the no depletion condition, those with a high (vs. low) PDB spent less ( $M_{High} = 3.48, SE = 0.31$  vs.  $M_{Low} = 4.62, SE = 0.28$ ; difference =  $-\$1.14, t(487) = -2.74, p = .006$ ). In the resource depletion condition, the difference between high and low PDB was much greater ( $M_{High} = 3.73, SE = 0.29$  vs.  $M_{Low} = 6.73, SE = 0.35$ ; difference =  $-\$3.00, t(412) = -6.55, p < .0001$ ). Income was not significant. The cell means are presented in panel A of Figure 3.

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Figure 3 about here  
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*Quantity Bought (from eight items).* The model was also significant for the number of items bought ( $F(3,897) = 17.59, p < .05$ ). PDB ( $F(1,897) = 42.23, p < .05$ ), resource depletion ( $F(1,897) = 12.79, p < .05$ ), and their interaction were all significant ( $F(1,897) = 6.19, p < .05$ ). Among participants in the no depletion condition, those with high (vs. low) PDB bought fewer items ( $M_{High} = 4.15, SE = 0.40$  vs.  $M_{Low} = 6.49, SE = 0.38$ ; difference =  $-2.04, t(487) = -2.98, p = .003$ ). In the resource depletion condition, the difference between

high and low PDB was much greater ( $M_{High} = 4.59$ ,  $SE = 0.30$  vs.  $M_{Low} = 8.28$ ,  $SE = 0.47$ ; difference =  $-3.69$ ,  $t(412) = -6.07$ ,  $p < .0001$ ). See panel B of Figure 2 for cell means.

Income was not significant.

## Discussion

These results support H4 with an externally valid test involving a real decision and adult consumers. Consistent with Study 3, we balanced the healthy and unhealthy foods items expecting the effect of PDB and resource depletion to be greater for unhealthy (i.e., impulsive) foods than for healthy foods. Indeed, the interaction of PDB and resource depletion is not significant for money spent ( $F(1,897) = 2.04$ ,  $p > .10$ ) or quantity bought ( $F(1,897) = .89$ ,  $p > .30$ ) when examining the four healthy products. In contrast, the interaction is significant for unhealthy items for money spent ( $F(1,897) = 10.49$ ,  $p < .01$ ) and quantity bought ( $F(1,897) = 8.47$ ,  $p < .01$ ). This interaction effect further replicates the results of Study 3 finding the effect of resource depletion and PDB is only significant for vice products, but not virtue products.

## GENERAL DISCUSSION

We demonstrate a relatively novel effect: the impact of PDB on impulsive buying. The first set of studies (1A-1C) shows that consumers with high PDB tend to exhibit less impulsive buying than consumers with low PDB. We show this effect using multiple methods, samples, and measures. The second set of studies (studies 2-4) provides strong support for an associative account that high PDB leads to lower impulsive buying. A response latency study shows that higher PDB indeed activates control-related associations. In Study 3, we found that the effect of PDB on impulsive buying is stronger for vice

products than for virtue products, supporting the idea that higher PDB lowers impulsive buying only for socially proscribed categories or behaviors embodied in vice products.

In Study 4, we found that under resource depletion, the effect of high PDB on impulsive buying is greater due to the limited strength of the control muscle for consumers with low PDB. Vohs and Faber (2007) found that consumers (from U.S.) were more impulsive when resources were depleted. Amplifying their result, we show that consumers with low PDB react more strongly to such depletion than those with high PDB.

The difference between impulsive buying and unplanned buying is also notable. Study 1A used an imprecise measure of impulsive buying based on country-level reports of unplanned buying. We caution readers about this imperfect measure. As one reviewer stated, impulsive buying is only one type of unplanned buying, and we agree. Later studies found consistent support for the effect of PDB, particularly on impulsive rather than unplanned buying in general. In both Studies 3 and 4, the effect of PDB is stronger for the purchase of vice products than virtue products. Yet, it would be useful for future research to more fully theorize about and clarify the similarities and differences between impulsive and unplanned buying in cross-cultural contexts.

Hofstede (1984) found individualism to be associated with low PDB and collectivism to be associated with high PDB, which has been confirmed by other researchers (Oyserman and Lee 2007). In Study 1A, we found that only cultural level of PDB predicted impulsive buying, but cultural level of individualism did not. It seems that PDB is associated with, but also different from, individualism/collectivism. The effect of PDB on impulsive buying may be further moderated by individualistic and collectivistic tendencies (Triandis and Gelfand 1998). For instance, Sengupta and Zhou (2007) found

that consumers with a promotion focus tend to engage in more impulsive eating than those with a prevention focus. Clearly, an opportunity exists to examine the many similarities and differences as well as moderated association between PDB and interdependence/independence, not to mention other cultural constructs such as uncertainty avoidance and femininity/masculinity.

Conceptually we need to further explore PDB and power disparity, which though related, are conceptually distinct constructs. Thus, priming and eliciting power-disparity differences could have negative consequences as power disparity, particularly when perceived to be illegitimate, may have unintended consequences for impulsive buying or social behaviors (Lammers et al. 2008). The difficulty in distinguishing PDB from actual power disparity may be one reason the effect of PDB on consumer behavior has been overlooked for some time. We hope our work encourages research on this topic.

#### *Managerial and Policy Implications*

First, firms dealing with multi-cultural markets can utilize knowledge about consumers' cultural background of PDB or a chronic measure of PDB to adapt their advertising, promotions, and displays. Second, marketers need to ascertain whether their products or brands are viewed by different consumer segments as virtue or vice products. For instance, in Asian countries like India, luxury brands of staple beverages (e.g., tea) may be viewed as vice products. Similarly, while lemonade may be seen as a virtue product, cola may be seen as a vice product. By understanding the interplay between PDB and likelihood to purchase, managers can increase sales based on their product positioning along the vice versus virtue continuum.

Third, impulsive buying is affected even when high PDB is primed among those living in a chronically low-PDB culture (e.g., U.S.). This finding is particularly important for policy makers who may be interested in curtailing impulsive consumption of some types of vice products in low-PDB cultures. Messages designed to activate high PDB, and therefore, control-related associations should lead to lower consumption of such vice products. For consumers whose control resources may have been depleted already, this strategy of activating high PDB (e.g., through appropriate spokespersons, cultural symbols) may be particularly useful in curtailing impulsive buying. Empirical research should be conducted to further understand this mechanism as a possible route to curtailing consumption of certain vice products when desirable from a public policy perspective.

Finally, PDB may also impact advertising and brand evaluations, perceptions of product design, and other marketing mix factors. We hope our research will encourage scholars to examine these issues.

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## APPENDIX A

### POWER-DISTANCE BELIEF (PDB) SCALE

Please indicate how strongly you agree or disagree with each of the following statements.

1. As citizens we should put high value on conformity.
- \*2. It is great to work with a manager who gives subordinates reasons for the decisions and answers any questions they may have.
- \*3. Employees should be encouraged to express disagreement with their managers.
4. I would like to work with a manager who expects subordinates to carry out the decisions loyally and without raising questions.
5. In work-related matters, managers have a right to expect obedience from their subordinates.
6. Employees should respect their supervisors highly.
- \*7. I would like to work with a manager who usually consults with subordinates before reaching her/his decisions.
- \*8. Disagreement with our bosses will promote productivity.

1 = Strongly Disagree to 7 = Strongly Agree, \*Reverse-coded

## APPENDIX B

### POWER-DISTANCE BELIEF (PDB) PRIME

	High PDB	Low PDB
1.	social order for is hierarchy our necessary.	social order for is hierarchy our unnecessary.
2.	necessary subordinates to superiors our social order obedience from is for.	not necessary subordinates to superiors our social order obedience from is for.
3.	a defined place have should everyone high or low.	equal everyone created is.
4.	world in this a social hierarchy should be this.	world in this a social hierarchy not should be this.
5.	function to properly subordinates is necessary from obedience for society.	function to properly subordinates is unnecessary from obedience for society.
6.	is important to maintain order in society a hierarchy.	is unimportant to maintain order in society a hierarchy.
7.	to maintain social order it is important even if power is unequal.	equality to it is maintain important.
8.	obey professors students must to function properly for a classroom.	to obey professors students don't need to function properly for a classroom.
9.	an organization has a place in everyone even if high or low.	place in an equal everyone has an organization.
10.	are necessary differences in power to maintain order.	in necessary society equality is.

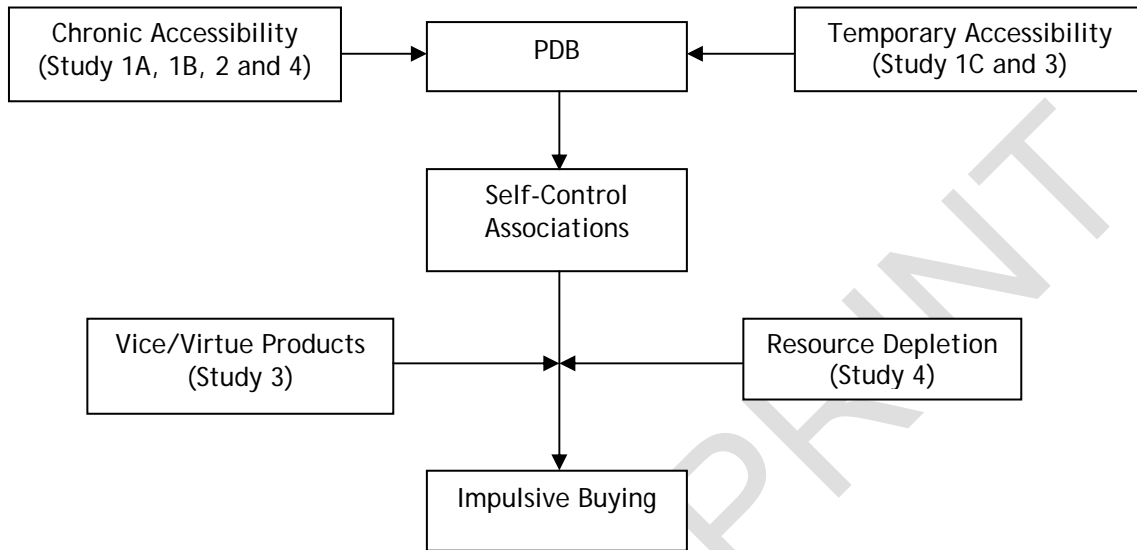
**TABLE 1**

CULTURAL DIMENSIONS AND 2003 ACNIELSEN | SHOPPERTRENDS DATA

Country	Power-distance Belief	Per Capita GNP (U.S. \$)	Individualism	Never plan (%)	Plan, but always buy additional (%)	Plan, but sometimes buy additional (%)	Plan, and never buy additional (%)
Australia	36	19651	90	6	44	46	4
China	80	1035	20	10	30	54	7
H.K.	68	26650	25	27	22	45	7
India	77	491	48	1	10	60	28
Indonesia	78	741	14	10	13	61	15
Japan	54	33520	46	11	17	58	14
Korea	45	6773	20	2	19	71	8
Malaysia	104	3842	26	3	10	68	20
New Zealand	22	13782	79	7	36	52	5
Philippine	94	1097	32	7	15	53	25
Singapore	74	20667	20	14	18	54	13
Taiwan	58	14267	17	9	26	54	11
Thailand	64	1990	20	14	26	48	12
Vietnam	45	457	20	10	17	65	7

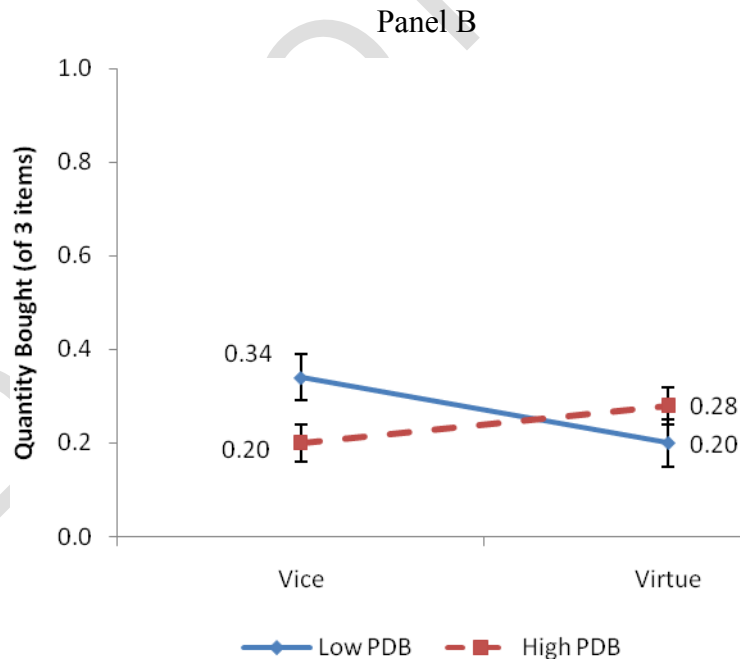
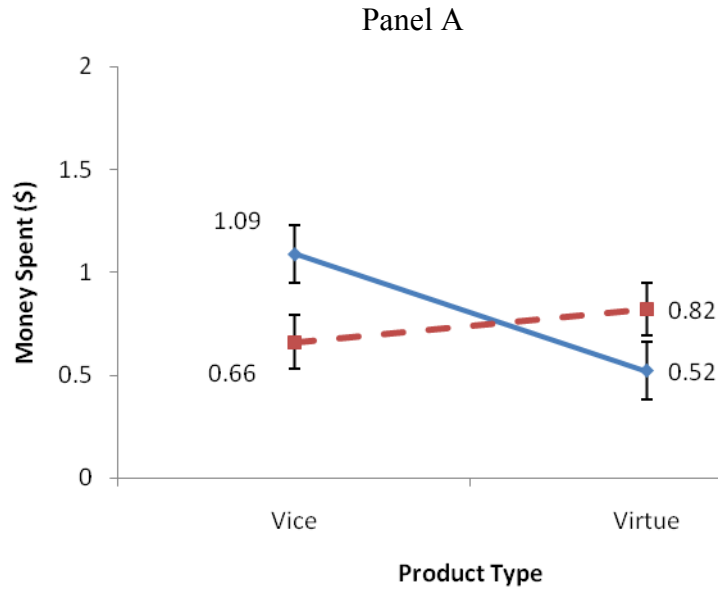
**FIGURE 1**

**THE IMPACT OF POWER-DISTANCE BELIEF (PDB) ON IMPULSIVE BUYING**



**FIGURE 2**

**STUDY 3: EFFECT OF PDB AND PRODUCT TYPE ON IMPULSIVE BUYING**

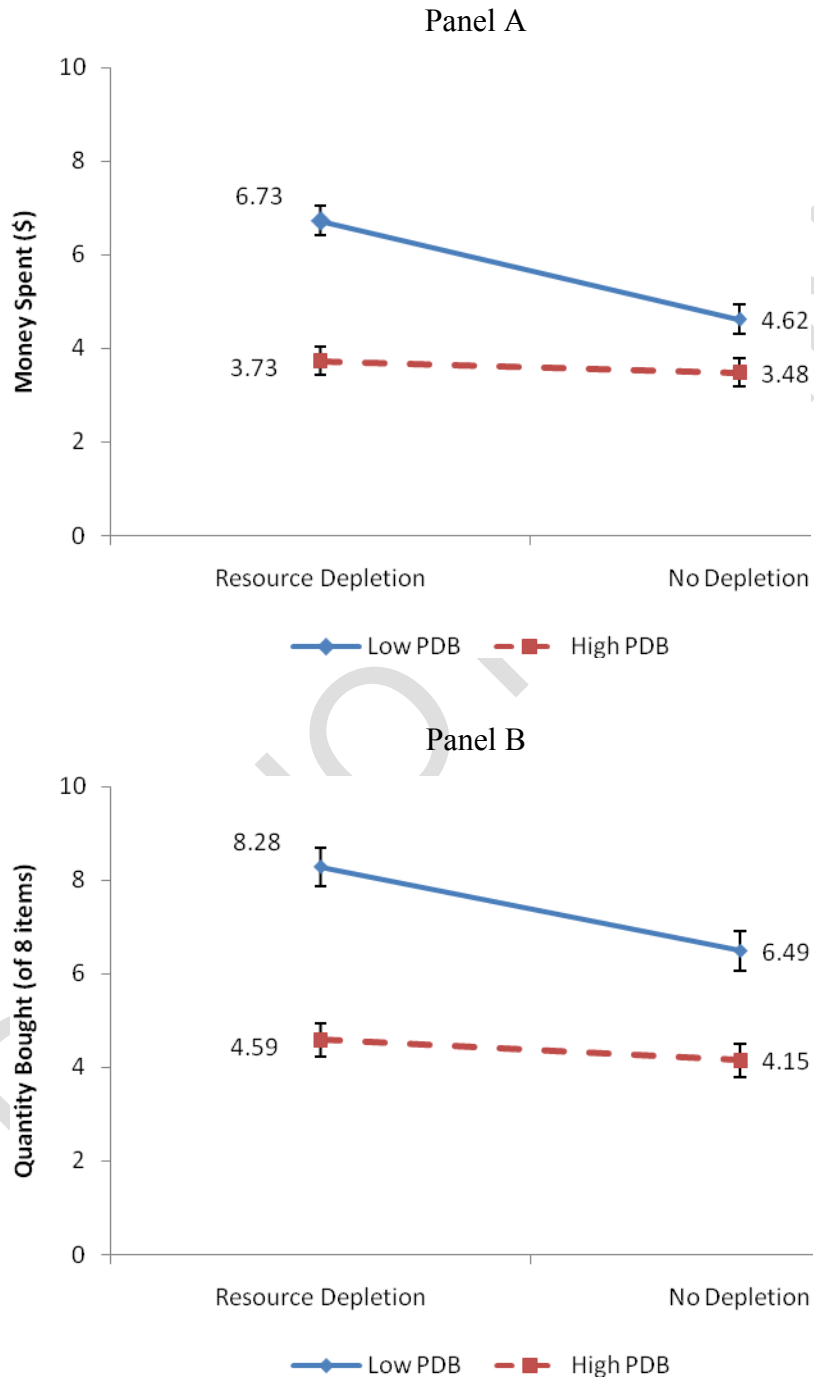


Note. - Error bars reflect standard error of the mean

**FIGURE 3**

**STUDY 4: EFFECT OF PDB AND RESOURCE DEPLETION**

**ON IMPULSIVE BUYING**



Note. - Error bars reflect standard error of the mean