Looking Beyond Impulse Buying: A Cross-cultural and Multi-domain Investigation of Consumer Impulsiveness

ABSTRACT

Prior research associates consumer impulsiveness (CI) mostly with impulse buying, with little attention to its influence on other types of self-regulatory failures and no consensus about its exact structure or cross-cultural measurement invariance of its various scales. We address these gaps with a revised CI scale, which shows a positive correlation between two of its factors (lack of self-control and self-indulgence) for consumers with independent self-construals and no correlation for those with interdependent self-construals. We also establish cross-cultural measurement invariance of this revised scale and test its predictive validity across five diverse behavioural domains (driving, eating, entertainment, shopping and substance abuse). This revised CI scale helps explain prior mixed findings and allows the operationalization of consumer impulsiveness across diverse cultures and self-regulatory failures in a reliable and rigorous manner.

INTRODUCTION

Consumer impulsiveness (CI) is a relatively stable consumer trait, which has been associated primarily with self-regulatory failure in a shopping context, such as impulse buying (e.g., Puri 1996; Peck and Childers 2006; Sharma et al. 2010) and compulsive shopping (O'Guinn and Faber 1989; Mowen and Spears 1999). However, some studies show that consumer impulsiveness may also influence self-regulatory failures in other behavioural domains such as binge eating (Ramanathan and Williams 2007; Sengupta and Zhou 2007), food choices (Shiv and Fedorikhin 1999) and beer consumption (Zhang and Shrum 2009).

Due to their focus on the shopping context, most scales to measure CI were developed to explore its association with impulse buying, such as buying impulsiveness (Rook and Fisher 1995), impulse buying tendency (Weun et al. 1998; Verplanken and Herabadi 2001),

consumer impulsiveness (Puri 1996; Sharma et al. 2011) and consumer buying impulsivity (Youn and Faber 2002). In the absence of scales that operationalize CI as a global rather than context-specific trait, researchers in other domains generally use existing scales without testing their validity in their research contexts (e.g., Shiv and Fedorikhin 1999).

Recent research explores impulsive behaviours in countries outside the US and Europe, such as Australia, Singapore and Malaysia (Kacen and Lee 2002), China (Zhou and Wong 2003), Vietnam (Nguyen et al. 2003), and Taiwan (Lin and Lin 2005). However, many of these studies either do not include the CI trait (e.g., Zhou and Wong 2003; Lin and Lin 2005; Lee and Kacen 2008) or use scales developed in the US. Moreover, most of these either did not attempt to establish cross-cultural measurement invariance of these scales (e.g., Nguyen et al. 2003), or could establish it for only a subset of items (e.g., Kacen and Lee 2002). Interestingly, some researchers even explore the influence of culture on impulsive consumption without accounting for cultural differences in the meaning of consumer impulsiveness (e.g., Zhang and Shrum 2009).

In the absence of a consensus on the meaning of CI across different cultures, it is not surprising that research on the influence of culture on impulsive behaviours shows mixed findings. For example, some show that compared to consumers from individualistic cultures, those from collectivistic cultures may feel greater satisfaction with impulse buying in the presence of others (Lee and Kacen 2008). In contrast, some show that the presence of others may actually reduce the impulsive consumption for people with interdependent self-construals and increase it for independents (Zhang and Shrum 2009).

Recently, Sharma et al. (2011) introduced a modified CI scale with a three-factor structure (prudence, self-indulgence, and self-control) for collectivists and a two-factor structure (prudence and hedonism) for individualists, suggesting that collectivistic consumers are more likely to distinguish between deliberate self-indulgence and involuntary loss of self-

control compared to individualists. However, Sharma et al. (2011, p.240) neither present any evidence for the cross-cultural measurement invariance for their scale nor do they explore the influence of CI and its components on self-regulatory failure in other domains besides impulse buying. Hence, there is still no consensus on the influence of CI across different cultures or behavioural domains (Steenkamp and Baumgartner 1998).

In this paper, we address all the above issues as follows:

1. First, we reconceptualize CI as a 'global' rather than a 'context-specific' trait, to broaden the scope of this construct and to study its influence on self-regulatory failures across a wider range of consumer behaviours.
2. Next, we clarify that CI has the same three-dimensional structure (imprudence, lack of self-control and self-indulgence) for consumers with either independent (individualistic) or interdependent (collectivistic) self-construals; however, 'lack of self-control' and 'imprudence' dimensions do not correlate for independent (individualistic) and positively correlate for interdependent (collectivistic) consumers.
3. We then revise Sharma et al.'s (2011) modified CI scale to extend its scope beyond the shopping context and to establish its cross-cultural measurement invariance.
4. Finally, we hypothesize and explore the differences in the influence of the three dimensions of consumer impulsiveness (imprudence, lack of self-control and self-indulgence) on self-regulatory failures in five behavioural domains (driving, eating, entertainment, shopping, and substance use).

Our research makes many conceptual, empirical and practical contributions. First, we show that consumers with independent self-construals are not able to differentiate between the deliberate versus involuntary aspects of their impulsive tendencies, unlike those with interdependent self-construals. This finding may help resolve some of the mixed findings reported in prior research on cultural differences in impulsive behaviours, besides helping

overcome the problems with scales developed in the US. We also found significant differences in the extent to which the three components of CI influence the extent of self-regulatory failure in various behavioural domains. These findings may help control the onset and spread of self-regulatory failures (especially among young consumers) and save the individual consumers and the society from huge personal and social costs by early identification of the psychological origins of different types of self-regulatory failures.

CONCEPTUAL FRAMEWORK AND HYPOTHESES

Consumer Impulsiveness (CI) – A Multi-dimensional Construct

Several scales have been used to measure the consumer impulsiveness trait, albeit with mixed results (See Sharma et al. 2011 for a detailed review). The unidimensional scales were generally found reliable although some experienced problems in establishing their unidimensionality (e.g., Beatty and Ferrell 1998; Hausman 2000).Others argued that unidimensional constructs are inadequate to fully capture the complex nature of consumer impulsiveness and conceptualized it as a two or three-factor construct, however they only had limited success in empirically validating these more complex multidimensional structures (e.g., Puri 1996; Youn and Faber 2002).

More recently, Sharma et al. (2011) proposed that CI has a three-dimensional structure (prudence, self-indulgence, and self-control) for consumers from collectivistic cultures and a two-dimensional structure (prudence and hedonism) for those from individualistic cultures. They also developed a new CI scale using data from Singapore (a collectivistic culture) and the US (an individualistic culture). In this paper, we extend Sharma et al.'s (2011) three-dimensional conceptualization of CI by providing clear definitions of each dimension and by showing that these dimensions are applicable for all consumers whether they are from individualistic or collectivistic cultures, or if they have independent or

interdependent self-construals. We also redefine CI as a global trait not restricted to the impulse buying context and with the following three dimensions:

1. **Affective dimension (self-indulgence):** tendency to spend money on self, to buy things for own pleasure and enjoying life all the time (Kaltchevaa et al. 2011), similar to Puri's (1996) 'hedonism' dimension.
2. **Behavioural dimension (lack of self-control):** inability to control oneself, regulate emotions, manage performance, maintain self-discipline, and quit bad habits (Baumeister 2002).
3. **Cognitive dimension (Imprudence):** inability to think clearly, plan in advance, and solve complex problems; opposite of Puri's (1996) 'prudence' dimension.

Clarifying Cultural Differences in Consumer Impulsiveness

Individuals from diverse cultures may view themselves and their ability to control their own actions quite differently (Hui 1982). Prior research shows that individualists (e.g., North Americans) generally tend to have an exaggerated sense of control over their actions and future events in their lives, referred to as an 'internal' locus of control (Yamaguchi et al. 2005). In contrast, people from collectivistic (e.g., Asians) cultures report lower levels of perceived personal control over their actions (Sastry and Ross 1998), express less confidence in their ability to control the environment (Heine et al. 2001) and attribute their success or failure to external factors such as luck or chance ('external' locus of control).

Compared to individualists, the behaviour of collectivists is also less 'traited' or dispositional, and more situational or contextual (Triandis 1995). In other words, compared to the people from individualistic cultures, those from the collectivistic cultures describe themselves to a lesser extent in terms of traits and attribute less of their behaviour to internal attributes or traits (Morris and Peng 1994). As a result, correlations between personality trait

scores and behavioural measures, across different situational contexts, are expected to be lower and more variable in collectivistic cultures compared to individualistic cultures.

The ideological framework of individualistic cultures contrasts the notion of an independent individual against the constraints of external social roles and forces; whereas collectivistic cultures allow many distinct patterns of behaviour based on the social positions occupied by an individual (Markus and Kitayama 1998). For example, collectivistic managers can be compassionate, strict, or both; and students can be diligent, lazy, respectful or uncooperative. We argue that consumers with interdependent selves may also think of themselves as "good" and "bad" in many different ways (e.g., smart, calculative, impulsive or irrational) whereas those with independent selves may not be able to make this distinction.

Tweed et al. (2004) also posit that consumers with interdependent selves are more likely to accept their self-control failures because they prefer internally targeted coping strategies (e.g., passive acceptance); whereas consumers with independent selves are more likely to redefine their self-control failure because they prefer externally targeted strategies (e.g., self-enhancing interpretation). Consumers with interdependent selves are more likely to distinguish between their deliberate acts of self-indulgence and involuntary loss of self-control due to the greater cross-situational variability in their self-descriptions (Suh 2002).

Based on the above, we extend Sharma et al.'s (2011) conceptualization of the CI construct by proposing that its three-dimensional structure is applicable irrespective of the national cultural context. In other words, we argue that the inability of consumers from individualistic cultures to distinguish between their deliberate and involuntary acts of self-regulatory failure does not mean that there is no distinction between their behaviour and affective reactions. We provide an alternate explanation for this by suggesting that the factors corresponding to the self-indulgence and lack of self-control dimensions may be positively correlated with each other for consumers with independent self-concepts. In contrast,

consumers from collectivistic cultures seem to be able to distinguish between their acts of deliberate and involuntary self-regulatory failure. Therefore, self-indulgence and lack of self-control factors may be uncorrelated with each other for consumers with interdependent self-concepts. Hence, the following hypotheses:

H1: Consumer Impulsiveness has a three-dimensional structure consisting of imprudence, lack of self-control and self-indulgence, for consumers with either independent or interdependent self-construals.

H2: Self-indulgence and lack of self-control factors correlate positively for consumers with independent self-construals and do not correlate for consumers with interdependent self-construals.

Extending Consumer Impulsiveness beyond Impulse Buying

Prior research focused on the influence of CI mostly in the impulse buying context, however there is growing evidence that CI may also be responsible for self-regulatory failures across a wider range of behavioural domains, such as driving (e.g., reckless driving and drunk driving; Zuckerman 2000), eating (e.g., overeating and cheating on diet; Sengupta and Zhou 2007), entertainment (or gambling; Zuckerman 2000; e.g., illegal downloading of movies; Kunze and Mai 2007), shopping (e.g., overspending and compulsive buying; Haws et al. 2012), and substance use (e.g., binge drinking and taking drugs; Zhang and Shrum 2009). Specifically, prior research shows that consumers with high impulsiveness scores generally find it more difficult to control their impulsive urges and are more likely to fail in their attempts to maintain self-regulation. Hence, we hypothesize a main effect of CI, as follows:

H3: CI has a positive influence on self-regulatory failure in all five behavioural domains (i.e., driving, eating, entertainment, shopping and substance use).

Notwithstanding the general influence of CI on self-regulatory failure across diverse consumer behaviours, all these behaviours vary in terms of their degree of severity and negative consequences (Wood et al. 1993; Arneklev et al. 2006). Hence, it is reasonable to expect some differences in the extent to which the three components of consumer impulsiveness may influence the extent of self-regulatory failure in these diverse behavioural domains. Next, we develop specific hypotheses about these differences.

Imprudence

Imprudence is the inability to think clearly or plan carefully (Sharma et al. 2011) and it is more likely to lead to self-regulatory failure when the costs of impulsive behaviours are less accessible or predictable compared to their benefits (Puri 1996). Many severe and possibly life-threatening behaviours such as taking drugs and reckless driving may fall into this category. In fact, prior research also shows a strong link between imprudence and risky behaviours such as reckless driving (Benda et al. 2005; Taubman 2008) and drug abuse (Allahverdipour et al. 2007). In contrast, the other two dimensions, namely lack of self-control and self-indulgence, are behavioural and affective in nature respectively, hence they are less likely to have such a serious impact on consumer judgements or lead to cognitive impairment reflected in these high-risk behaviours. Hence, we hypothesize as follows:

H4: Compared to self-indulgence and lack of self-control, imprudence has a stronger positive influence on high-risk behaviours.

Lack of Self-Control

Lack of self-control is the inability to control oneself, being careless, and feeling restless all the time (Sharma et al. 2011). Prior research shows that lack of self-control may lead to persistent habits that defy attempts to establish normative control (Benda 2003), which may lead to behavioural problems such as binge eating (Ramanathan and Williams

2007; Sengupta and Zhou 2007), Internet addiction (Widyanto and McMurran 2004), problem gambling (Bergen et al. 2011) and illegal downloading of music (LaRose and Kim 2007). In view of the above, we hypothesize that compared to the other two dimensions (imprudence and self-indulgence), lack of self-control may have a stronger effect on behaviours involving failure of self-control such as cheating on diet, binge drinking, illegal downloading, and gambling. Therefore, as follows:

H5: Compared to imprudence and self-indulgence, lack of self-control has a stronger positive influence on self-control behaviours.

Self-Indulgence

Self-indulgence is a hedonistic tendency, which includes enjoying spending money on oneself, buying things for one's own pleasure and trying to enjoy life (Sharma et al. 2011). Recent research uses an evolutionary perspective to show that due to an environment of abundance and consumerism, in many situations self-control may get replaced by self-indulgence for modern consumers, and this may lead to frequent self-regulatory failures such as overeating (Polivy and Herman 2006), impulse buying (Xiaoni et al. 2007) and overspending (Pirog III and Roberts 2007). Hence, we hypothesize as follows:

H6: Compared to imprudence and lack of self-control, self-indulgence has a stronger positive influence on self-indulgent behaviours.

STUDY 1 – SCALE DEVELOPMENT

We reviewed prior research on personality, cross-cultural psychology, and consumer behaviour to generate an initial pool of 33 items reflecting the conceptual definition of CI. Next, we gave the conceptual definitions of CI and its three dimensions (imprudence, self-indulgence, and lack of self-control) along with a list of our initial pool of 33 items to four independent judges (two PhD students and two faculty members, all from diverse cultural and

ethnic backgrounds – one American, one Chinese, one Indian and one Malay). They reviewed and rated each item on the extent to which it represented at least one of the dimensions of CI, using a 3-point scale (1 = Not at all, 2 = somewhat, and 3 = completely representative).

To assess face validity, we looked for items rated by at least one of the judges as 1 (= not at all representative) for all the three dimensions (Bearden et al. 1989). We found four such items: 'I make up my mind quickly', 'I am happy go lucky', 'I save regularly', and 'I plan for job security'. As these items seem to reflect cognitive ability or specific attitudes unrelated to the three dimensions of CI, they lack of face validity and so we dropped them from the scale. Next, we assessed content validity by looking for items rated as 2 or 3 for more than one dimension; however we did not find any such items.

We then added the scores assigned by all the judges to each item for a specific dimension to arrive at a sum-score and looked for items with a sum-score lower than eight, as none of the four judges consider these items even somewhat representative (Hardesty and Bearden 2004). We found eleven such items including 'I am a steady thinker', and 'I can only think of one problem at a time' for imprudence; 'I spend or charge more than I earn', and 'I often use a credit card' for self-indulgence; and 'I avoid buying things that are not on my shopping list', and 'I say things without thinking' for lack of self-control. After dropping all these items, we were left with six items for each dimension; 18 items in all. We further refined these items to develop our new scale and to assess its psychometric properties.

We used two samples to assess the initial pool of 18 items, one with undergraduate students at a university in Singapore (N = 287, 57% females, average age = 22.7 years) and the other with MBA students in a business school in London, UK (N = 224, 32% females, average age = 27.6 years). We chose Singapore and UK because both these countries are not only multi-cultural and multi-ethnic (Chen et al. 2005; Sharma 2010), their universities have students from diverse cultural backgrounds as reflected in their ethnic profiles and

nationalities by birth. Hence, these countries provide appropriate settings for a study of cross-cultural differences in consumer impulsiveness.

We assessed the psychometric properties of the new scale using principal components analysis with PROMAX rotation, because we expected the factor corresponding to the 'imprudence' dimension to be correlated with the other two factors. We found three clear factors; however six items had low corrected item-total correlations (< .40), low factor loadings (< .60), and significant cross-factor loadings (> .40) in both our samples. Hence, as advised by Nunnally (1978), we omitted these six items after examining their content to ensure that removing them does not impact the face and content validity of the CI construct.

The remaining 12 items load on three factors as expected in both our samples, explaining 67% variance in the Singapore sample (38%, 18%, and 11% for the three factors respectively) and 73% variance in the London sample (40%, 21% and 12% for the three factors respectively). Specifically, four items load on each factor corresponding to one of the three dimensions of CI (imprudence, lack of self-control and self-indulgence). Next, we treated each sub-set of four items as sub-scales and performed reliability tests on these as well as the full 12-item scale. All the sub-scales showed high reliability (Cronbach's α = .78 to .83). Table 1 shows all the items and their psychometric properties.

< Insert Table 1 about here >

STUDY 2 – SCALE VALIDATION

To test the validity and cross-cultural measurement invariance of the revised CI scale, and to assess the differences in the influence of its three dimensions on self-regulatory failure in five behavioural domains, we collected data at a large university in the Chicago Metropolitan area in USA in addition to the one in Singapore. We chose Singapore and US because both these are multi-cultural societies and consumers in both these countries show significant variance in their personal cultural orientations (Hong et al. 2000; Chen et al. 2005;

Sharma 2010), which allows us to measure their self-concepts to test the cross-cultural measurement invariance of our scale as well as its predictive validity.

568 undergraduate students participated; 297 in Singapore (55% females, 22.4 years) and 271 in the Chicago Metropolitan area (59% females, 23.1 years) with a similar age and gender profile as our first study. Both the samples also showed a high level of cultural diversity as reflected by ethnicity and nationality by birth, with only about half the participants in from the main ethnic community in each country (Chinese in Singapore and Caucasian in US) or born in their respective countries. We also collected information on household income and did not find any significant difference between the samples after adjusting for purchasing power parity.

As in the first study, we administered a trait questionnaire at the beginning of a new semester, with our new 12-item CI scale and the 30-item Self-construal scale (Singelis 1994), using a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). We used the average scores for the independent and interdependent self-concepts to operationalize these cultural factors (Table 2). We also collected self-reported data about impulsive behaviour across five categories (driving, eating, entertainment, shopping and substance use), about two months after our initial trait survey, to minimize any demand effects. Specifically, we asked the participants to respond to ten questions about their frequency of impulsive behaviours in the recent past (last one month) using seven-point Likert scales (ranging from 1 = Not at all to 7 = Very frequently) across the five behavioural domains.

< Insert Table 2 about here >

Cross-cultural Measurement Invariance

To assess the cross-cultural measurement invariance of our scale, we used Multiple-Group Confirmatory Factor Analysis with Maximum Likelihood Estimation (MLE) using AMOS 6.0 (Byrne 2004). For this we pooled our data from the two samples and divided it

into two groups based on the median split of the participants' average scores on Self-construal Scale (Singelis 1994). We classified 293 participants as independents based on their significantly higher scores on the independence sub-scale compared to others (M=5.32 vs. 3.87, $p < .001$); and the remaining 275 participants as interdependents based on their scores on the interdependence sub-scale compared to others (M=5.14 vs. 3.56, $p < .001$). Table 3 shows the factor loadings (λ) for both the groups (independents vs. interdependents).

< Insert Table 3 about here >

Configural Invariance: Configural invariance means that the items comprising a scale should exhibit the same configuration of salient and non-salient factor loadings across groups with different cultural backgrounds. We tested for configural invariance by calculating the fit indices for an unconstrained three-factor model across the two groups (independents vs. interdependent). The three-factor model shows a good fit ($\chi^2 = 297.73$, $df = 102$, $\chi^2/df = 2.92$, RMSEA = .048, SRMR = .062, CFI = .95) based on the recommended cut-off values for various fit indices (Wheaton et al. 1977; Hu and Bentler 1999). All the factor loadings (λ) for both the samples are large (> .60) and significant ($p < .01$) for all the three factors; hence our new CI scale exhibits configural invariance, indicating a similar pattern of factor loadings across the two samples and providing support to H1.

Metric Invariance: We next tested full metric invariance by constraining the factor loadings to be invariant across the two groups (Steenkamp and Baumgartner 1998). For the constrained model the χ^2 value (332.51, $df = 111$, $\chi^2/df = 3.00$) is significantly higher than the configural model ($\Delta\chi^2 = 34.78$, $\Delta df = 9$, $p < .01$), and fit indices (RMSEA = .058, SRMR = .073, CFI = .90) are also poorer than the configural model (Hu and Bentler 1999). To address this issue, we used Lagrange Multiplier (LM) χ^2 values with $p < .05$ (Byrne 2004), to identify three constraints untenable across the two groups; item #2 ("I seldom plan anything in advance") with a factor loading of .80 for the independents and .72 for the interdependents;

#4 ("I find it difficult to think clearly sometimes", $\lambda = .67$, independents; $\lambda = .81$, interdependents); and #10 ("I cannot control myself sometimes", $\lambda = .80$, independents; $\lambda = .70$, interdependents). We released the equality constraints for these three items and found a χ^2 value (308.49, $df = 108$, $\chi^2/df = 2.86$) not significantly higher than the configural model ($\Delta\chi^2 = 10.76$, $\Delta df = 6$, $p > .10$) while other fit indices (RMSEA = .047, SRMR = .061, CFI = .95) were also better than the cut-off values (Hu and Bentler 1999). Hence, we found partial support for metric invariance, which allows cross-cultural comparison of difference scores.

Scalar Invariance: Next, we tested for scalar invariance by constraining the intercepts of only the invariant items across the two groups, since only partial metric invariance was achieved. For this model the χ^2 value (343.67, $df = 117$, $\chi^2/df = 2.83$) is significantly higher than the partial metric invariance model ($\Delta\chi^2 = 35.18$, $\Delta df = 9$, $p < .05$). Moreover, the other fit indices (RMSEA = .056, SRMR = .069, CFI = .91) also suggest a poorer fit compared to the partial metric invariance model (Hu and Bentler 1999). However, two intercepts (for items 3 and 9), show high LM χ^2 values ($p < .05$). After relaxing these two constraints, the revised model showed a good fit ($\chi^2 = 321.24$, $df = 115$, $\chi^2/df = 2.84$, RMSEA = .046, SRMR = .060, CFI = .96). A comparison of this partial scalar invariance model with the configural model ($\Delta\chi^2 = 23.51$, $\Delta df = 13$, $p > .01$) showed no significant difference. Hence, we found partial support for scalar invariance, which allows valid comparisons of factor means across different groups (Steenkamp and Baumgartner 1998; Byrne 2004).

Factor Covariance Invariance: Next, we tested for factor covariance invariance by constraining the factor covariances across the two samples. For this constrained model, the χ^2 value (426.38, $df = 118$, $\chi^2/df = 3.61$) is significantly higher than the partial scalar invariance model ($\Delta\chi^2 = 105.14$, $\Delta df = 3$, $p < .001$), and other fit indices (RMSEA = .065, SRMR = .088, CFI = .87) also show a poor fit (Hu and Bentler 1999). The poor fit is due to the differences in the covariance between self-indulgence and lack of self-control across the two samples.

After removing this constraint we found the fit to be similar to the partial scalar invariance model (χ^2 = 327.54, *df* = 117, χ^2/df = 2.80, RMSEA = .044, SRMR = .058, CFI = .96). Comparison of this model with the configural model ($\Delta\chi^2$= 29.81, Δdf = 15, p > .01) shows no significant difference. Hence, we found support for partial factor covariance invariance after releasing one out of three constraints and we can use our new scale for cross-cultural comparison of correlation and regression coefficients (Steenkamp and Baumgartner 1998).

Factor Variance Invariance: Next, we tested for the factor variance invariance by constraining all the factor error variances across the two samples. The model provides a poor fit (χ^2 = 487.58, *df* = 120, χ^2/df = 4.06, RMSEA = .078, SRMR = .095, CFI = .84) and, even after relaxing the constraint on the error variances for self-indulgence and lack of self-control, it shows a relatively poor fit (χ^2 = 434.66, *df* = 118, χ^2/df = 3.68, RMSEA = .066, SRMR = .089, CFI = .87). This revised model also shows significantly higher χ^2 values than the partial factor covariance ($\Delta\chi^2$= 107.12, Δdf = 1, p < .001) and configural ($\Delta\chi^2$= 136.93, Δdf = 16, p < .001) models; thus we did not find support for even partial factor variance invariance.

Error Variance Invariance: Finally, we also tested for the error variance invariance by constraining all the error variances across the two samples. However, the model again provides a very poor fit (χ^2 = 649.29, *df* = 129, χ^2/df = 5.03, RMSEA = .085, SRMR = .118, CFI = .80). After sequentially relaxing the constraint on five error variances, the resulting model still shows a relatively poor fit (χ^2 = 476.11, *df* = 124, χ^2/df = 3.84, RMSEA = .069, SRMR = .091, CFI = .83). This revised model shows significantly higher χ^2 values than the partial factor covariance ($\Delta\chi^2$= 148.57, Δdf = 7, p < .001), and the configural ($\Delta\chi^2$= 178.38, Δdf = 22, p < .001) models; thus even partial error variance invariance is not supported.

Convergent and Discriminant Validity

All the indicators in the revised CI scale show significantly high loadings on their respective factors (greater than twice its standard error) and no major cross-factor loadings (>

.40) for both the samples. The composite reliability estimates are also high (.78 to .85) for all the scales, showing convergent validity (Anderson and Gerbing 1988). Next, we tested for discriminant validity by constraining the estimated correlation parameter among all the scales to 1.0 and performing a chi-square difference test on the values obtained in the constrained and unconstrained models. The χ^2 value for the unconstrained model (301.20) is significantly lower than the constrained model (1038.79, $\Delta df = 6$, $p < .001$), showing discriminant validity. Table 4 shows the correlation matrices for both groups. As expected, the 'lack of self-control' and 'self-indulgence' factors correlate positively for the independents ($r = .27$, $p < .01$) and do not correlate for the inter-dependents ($r = .05$, $p > .30$). Hence, H2 is supported.

< Insert Table 4 about here >

Predictive Validity

To test the predictive validity of the revised CI scale (as hypothesized in H3-H6), we first calculated the overall average score for self-regulatory failure across all the ten behaviours and used this as our first dependent variable to test H3. Next, we calculated the average scores for the three categories of impulsive behaviours to test H4-H6, namely high-risk (taking drugs, reckless or drunk driving), self-control (overeating, impulse buying, overspending and illegal downloading) and self-indulgent (cheating on diet, binge drinking and gambling) behaviours and used these as our next three dependent variables. We then compared the standardized β coefficients for these four dependent variables using CI and its three components as independent variables. Table 5 shows all the results.

< Insert Table 5 about here >

As shown in Table 5, CI has a significant effect on all the ten behaviours for both the samples, hence H3 is supported. Moreover, compared to lack of self-control and self-

indulgence, imprudence has a significantly stronger effect on high-risk behaviours for both the samples, thus supporting H4. Similarly, lack of self-control has a stronger effect on self-control behaviours and self-indulgence on self-indulgent behaviours for both the samples; hence H5 and H6 are also supported. In the next section, we discuss our findings and their conceptual and managerial implications.

GENERAL DISCUSSION AND IMPLICATIONS

In this research, we address a major research gap by broadening the scope of the CI construct beyond impulse buying into a wider range of self-regulatory failures in areas related to driving, eating, entertainment, shopping and substance abuse. In this process, we extend Sharma et al.'s (2011) conceptualization of CI by showing that it has a three-dimensional structure with cognitive (imprudence), behavioural (lack of self-control) and affective (self-indulgence) dimensions for consumers with either independent or interdependent self-construals. We also show a vital cultural difference, namely, no correlation between self-indulgence and lack of self-control for consumers with interdependent self-concepts and a positive correlation for those with independent self-concepts.

We also revise Sharma et al.'s (2011) modified CI scale and test the cross-cultural measurement invariance of the revised scale as well as its predictive validity in self-regulatory failures across five behavioural domains. Specifically, we establish full configural and partial metric, scalar, and factor covariance invariance of the revised scale. Our new scale shows a similar pattern of factor loading for both independent and interdependent groups, and it can be used for cross-cultural comparison of difference scores, factor means, correlations and regression coefficients. To the best of our knowledge, this is the first multi-dimensional scale for consumer impulsiveness to have cross-cultural measurement equivalence based on a clear understanding of its underlying shared cultural dimensions.

By showing that self-indulgence and lack of self-control correlate positively for the consumers with independent self-construals and do not correlate for those with interdependent self-construals, we demonstrate that CI can be measured using the same scale for consumers with different cultural orientations. However, it also shows that they attach significantly different meanings to the association between two of its main components. Specifically, we show that unlike those with interdependent self-construals, consumers with independent self-construals are not able to differentiate between the deliberate versus involuntary aspects of their impulsive behaviours and tendencies.

This is an important finding, because besides helping overcome the problems faced in using scales developed in the US with respondents in other countries (Kacen and Lee 2002; Nguyen et al. 2003), our new scale may also help resolve the mixed findings in prior research on cultural differences in impulsive behaviours. For example, it is possible that consumers with lower self-control and interdependent selves may seek greater approval from others and hence feel more satisfaction with their impulsive decisions in the presence of others as observed by Lee and Kacen (2008). In contrast, participants with interdependent self-construals and lower scores on self-indulgence may reduce their impulsive consumption in the presence of others as shown by Zhang and Shrum (2009) for their sample of American consumers. Thus, our new scale may help provide deeper insights into the complex socio-psychological process underlying cross-cultural differences in self-regulatory failure and impulsive consumer behaviours.

These findings also help us explain the different meanings assigned to impulsiveness by consumers with different personal cultural orientations using a strong theoretical foundation. For example, our findings may explain why the American respondents in Youn and Faber (2002) did not distinguish between the affective and behavioural aspects of their impulsiveness trait; and why Puri (1996) discovered a three-factor structure in her study with

Indian participants. Specifically, we use the different factor structures of CI for consumers with different self-concepts to demonstrate the cross-cultural differences in its meaning.

We also demonstrate significant differences in the extent to which the three components of CI influence the extent of self-regulatory failure in various behavioural domains. Specifically, we show that imprudence has a stronger influence on high-risk behaviours such as taking drugs and drunk or reckless driving; lack of self-control has a stronger influence on self-control behaviours such as cheating on diet, binge drinking, illegal downloading, and gambling; and self-indulgence has a stronger effect on self-indulgent behaviours such as overeating, impulse buying, and overspending.

These findings have useful implications for young consumers, their family members, social organizations and even public-policy makers. By showing that the individual components of a global trait like consumer impulsiveness (i.e., imprudence, self-indulgence and lack of self-control) may have different degrees of influence on a diverse range of self-regulatory failures, our research may help consumers and those responsible for their welfare understand these differences and prepare themselves to minimize their adverse impact in their day-to-day lives. Such actions may help control widespread cases of self-regulatory failures and save the individual consumers and the society from huge personal and social costs.

Parents, teachers and social workers may use these findings to develop a screening programme for teenagers and young adults, to clearly identify which aspect of impulsiveness may be affecting their behaviour, by looking at their type of self-regulatory failure. For example, behaviours such as reckless or drunk driving and alcohol or drug abuse may suggest that the affected person may have a stronger influence of the 'imprudence' dimension. In contrast, overspending, credit card abuse, impulse buying or compulsive shopping may show a stronger influence of 'self-indulgence' dimension. Finally, behaviours such as cheating on diet and binge drinking may indicate 'lack of self-control'. Such early identification of the

underlying reasons for various types of self-regulatory failures may help those in charge to devise suitable strategies to address and correct these problems.

LIMITATIONS AND FUTURE RESEARCH

Our research is only one of the steps towards a better understanding of the cross-cultural differences in the meaning of the CI trait and its association with a wide range of self-regulatory failures. Hopefully, other researchers – especially in countries outside the US – will use our new CI scale in their research to assess its suitability and validity in their cultures across wider variety of impulsive behaviours involving different degrees of self-regulatory failure. We used university students in both our studies because they represent a major consumer segment and they would be regular shoppers in near future. However, it may be argued that college students are younger, better educated and may even be psychologically different (e.g., more future oriented) compared to the general consumer population. Therefore, it would be useful to test the stability and generalizability of our findings about the three-dimensional structure of consumer impulsiveness as well as its cross-cultural invariance and predictive validity with a wider cross-section of participants with diverse backgrounds in terms of age, culture and social class.

Future research could also improve our scale by broadening the conceptual scope of the consumer impulsiveness construct, clarifying the definitions and meanings of its existing dimensions, identifying its new dimensions, examining their relationships with each other and exploring their boundaries, properties and stability using demographic, psychographic, contextual and environmental variables. Each of the components could be established more clearly as a discreet item with a contextual dimension. For example, what may merely be a 'risky' behaviour (e.g., using marijuana) in one country may be an illegal behaviour in another; alternatively a social norm in one country (e.g., drunk driving) may be illegal in another.

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Table 1 - Exploratory Factor Analysis (Study 1)

Scale Items	Singapore (N=297)				London, UK (N=224)			
	λ	**α**	**M**	**SD**	**λ**	**α**	**M**	**SD**
Imprudence (Cognitive)								
1. I am not a methodical person	.83	.65	4.51	1.21	.80	.63	3.85	1.19
2. I seldom plan anything in advance	.82	.64	4.34	1.32	.81	.65	3.56	1.23
3. I often make wrong decisions	.77	.54	4.67	1.23	.75	.52	3.44	1.34
4. I find it difficult to think clearly sometimes	.73	.51	4.71	1.09	.77	.54	4.21	1.27
5. I am not good at solving complex problems *	.52	.23	5.11	1.78	.55	.26	3.22	1.81
6. I find it difficult to argue logically *	.47	.18	4.23	1.23	.58	.29	3.92	1.93
			4.56	**1.34**			**3.77**	**1.48**
Variance extracted	**38%**				**40%**			
Reliability (Cronbach's alpha)	**.82**				**.83**			
Lack of Self-control (Behavioural)								
1. I am often restless	.75	.52	4.75	1.88	.78	.61	4.33	1.81
2. I cannot control myself sometimes	.73	.49	4.81	1.92	.83	.65	4.67	1.39
3. I often do things that I regret later	.68	.42	4.88	1.63	.75	.59	4.39	1.66
4. I am quite careless sometimes	.62	.34	4.58	1.71	.74	.57	3.93	1.55
5. I often make silly mistakes *	.48	.19	4.76	1.25	.57	.30	3.64	1.88
6. I find it difficult to concentrate sometimes *	.42	.14	4.85	1.01	.59	.31	4.25	1.77
			4.76	**1.38**			**4.33**	**1.61**
Variance extracted	**11%**				**12%**			
Reliability (Cronbach's alpha)	**.78**				**.80**			
Self-indulgence (Affective)								
7. I want to live a life full of luxury	.79	.56	4.99	0.97	.82	.65	4.45	1.08
8. I like to indulge myself	.72	.47	5.12	1.33	.80	.64	4.73	1.12
9. I love to buy things for my pleasure	.70	.45	5.03	1.24	.79	.62	4.96	1.26
10. I like all good things in life	.65	.39	5.21	1.16	.75	.60	5.05	1.19
11. I enjoy spending money on myself *	.50	.21	5.23	1.29	.58	.32	4.87	1.94
12. I want to feel good all the time *	.45	.16	5.54	1.89	.54	.28	5.15	1.87
			5.09	**1.47**			**4.80**	**1.54**
Variance extracted	**18%**				**21%**			
Reliability (Cronbach's alpha)	**.80**				**.82**			
Overall Consumer Impulsiveness Scale			**4.80**	**1.42**			**4.30**	**1.55**
Variance extracted	**67%**				**73%**			
Reliability (Cronbach's alpha)	**.82**				**.84**			

* All the values for variance extracted, reliability, means, and Std. Dev. exclude these six deleted items.
λ: Factor loadings, α: Average Inter-item Correlations; M: Mean, SD = Standard Deviation

Table 2 - Self-construal Scale (Study 2)

Scale Items *	Interdependents (N=293)				Independents (N=275)			
	λ	α	M	SD	λ	α	M	SD
Independence								
1. I enjoy being unique and different from others in many respects.	.85	.70	5.51	1.32	.80	.63	4.23	1.47
2. I can talk openly with a person who I meet for the first time, even when this person is much older than I am.	**.83**	**.66**	**4.48**	**1.21**	**.56**	**.28**	**4.01**	**1.33**
3. I do my own thing, regardless of what others think.	.84	.69	5.27	1.49	.78	.59	4.33	1.28
4. I feel it is important for me to act as an independent person.	.85	.71	5.68	1.30	.77	.55	4.41	1.19
5. I'd rather say "No" directly, than risk being misunderstood.	.82	.64	5.29	1.24	.72	.51	3.97	1.43
6. Having a lively imagination is important to me.	**.67**	**.42**	**4.78**	**1.51**	**.52**	**.26**	**4.08**	**1.12**
7. I prefer to be direct and forthright when dealing with people I've just met.	.78	.57	4.81	1.24	.79	.60	4.12	1.24
8. I am comfortable with being singled out for praise or rewards.	.81	.64	5.69	1.35	.73	.50	4.03	1.52
9. Speaking up during a class (or a meeting) is not a problem for me.	.78	.60	4.77	1.43	.71	.48	3.87	1.26
10. I act the same way no matter who I am with.	.75	.55	4.63	1.38	.67	.42	3.93	1.71
11. I value being in good health above everything.	**.49**	**.21**	**5.28**	**1.41**	**.34**	**.08**	**4.56**	**1.38**
12. I try to do what is best for me, regardless of how that might affect others.	.75	.55	4.93	1.36	.75	.53	4.11	1.09
13. Being able to take care of myself is a primary concern for me.	.78	.60	5.67	1.29	.69	.46	3.75	1.77
14. My personal identity, independent of others, is very important to me.	.82	.65	5.33	1.27	.78	.58	3.92	1.31
15. I act the same way at home that I do at school (or work).	**.76**	**.54**	**4.72**	**1.36**	**.41**	**.15**	**3.68**	**1.48**
		.85	**5.23**	**1.39**		**.82**	**4.06**	**1.33**
Interdependence								
16. Even when I strongly disagree with group members, I avoid an argument.	.72	.51	3.79	1.11	.77	.57	4.59	1.56
17. I have respect for the authority figures with whom I interact.	.67	.42	4.23	1.08	.78	.58	4.72	1.82
18. I respect people who are modest about themselves.	**.63**	**.38**	**4.57**	**1.21**	**.48**	**.21**	**4.63**	**1.34**
19. I will sacrifice my self-interest for the benefit of the group I am in.	.61	.33	3.73	1.31	.76	.57	4.21	1.58
20. I should take into consideration my parents' advice when making education/career plans.	.73	.52	4.24	1.20	.75	.53	4.70	1.45
21. I feel my fate is intertwined with the fate of those around me.	.72	.51	4.21	1.19	.74	.52	4.85	1.23
22. I feel good when I cooperate with others.	.75	.54	4.18	1.74	.80	.60	4.92	1.34
23. If my brother or sister fails, I feel responsible.	**.35**	**.09**	**3.21**	**1.53**	**.62**	**.36**	**3.83**	**1.57**
24. I often have the feeling that my relationships with others are more important than my own accomplishments.	.75	.54	3.67	1.81	.66	.43	3.96	1.42
25. I would offer my seat in a bus to my professor (or my boss).	**.59**	**.32**	**4.88**	**1.35**	**.51**	**.25**	**5.33**	**1.55**
26. My happiness depends on the happiness of those around me.	.72	.48	4.43	1.63	.68	.43	5.14	1.29
27. I will stay in a group if they need me, even when I am not happy with the group.	.63	.37	3.24	.98	.67	.44	4.28	1.38
28. It is important to me to respect decisions made by the group.	.64	.39	3.71	1.44	.69	.47	4.37	1.73
29. It is important for me to maintain harmony within my group.	.70	.46	4.44	1.33	.73	.51	5.24	1.21
30. I usually go along with what others want to do, even when I would rather do something different.	**.65**	**.40**	**3.89**	**1.58**	**.58**	**.30**	**4.41**	**1.52**
		.78	**3.99**	**1.41**		**.80**	**4.63**	**1.44**

* Items in **bold** were dropped due to poor reliability (item-total correlations < .40); hence all the scale means, std. dev. and reliabilities exclude these items.

Table 3 - Revised Consumer Impulsiveness Scale (Study 2)

Scale Items	Independents (N=293)				Interdependents (N=275)			
	λ	**α**	**M**	**SD**	**λ**	**α**	**M**	**SD**
Imprudence (Cognitive)								
1. I am not a methodical person	.74	.46	4.37	1.21	.68	.44	4.71	1.21
2. I seldom plan anything in advance	.80	.62	4.34	1.32	.72	.46	4.67	1.18
3. I often make wrong decisions	.78	.56	4.46	1.51	.80	.60	4.74	1.22
4. I find it difficult to think clearly sometimes	.67	.45	4.55	1.29	.81	.61	4.88	1.16
		.81	**4.43**	**1.38**		**.82**	**4.75**	**1.20**
Lack of Self-control (Behavioural)								
5. I am often restless	.79	.56	4.74	1.35	.81	.63	4.25	1.56
6. I cannot control myself sometimes	.80	.62	4.83	1.23	.70	.48	4.14	1.33
7. I often do things that I regret later	.81	.63	4.68	1.44	.78	.57	4.38	1.42
8. I am quite careless sometimes	.83	.64	4.79	1.52	.79	.59	4.25	1.51
		.83	**4.76**	**1.41**		**.80**	**4.26**	**1.61**
Self-indulgence (Affective)								
9. I want to live a life full of luxury	.79	.56	5.23	1.08	.84	.62	5.24	1.21
10. I like to indulge myself	.86	.74	5.14	1.12	.80	.60	5.13	1.32
11. I love to buy things for my pleasure	.78	.57	5.32	1.19	.81	.61	4.91	1.19
12. I like all good things in life	.80	.56	5.34	1.20	.78	.59	5.18	1.23
		.82	**5.26**	**1.13**		**.83**	**5.12**	**1.27**
Overall Consumer Impulsiveness		**.85**	**4.82**	**1.28**		**.84**	**4.71**	**1.48**

λ: Factor loadings, α: Average Inter-item Correlations; M: Mean, SD = Standard Deviation

Table 4 - Correlation Matrix (Study 2)

	Scale/Sub-scales	1	2	3	4
Independents (N=293)	1. Consumer Impulsiveness	1.00			
	2. Lack of Self-Control	.64***	1.00		
	3. Self-indulgence	.75***	***.27***	1.00	
	4. Imprudence	.70***	.33**	.15**	1.00
Interdependents (N=275)	1. Consumer Impulsiveness	1.00			
	2. Lack of Self-Control	.60***	1.00		
	3. Self-indulgence	.67***	***.05***	1.00	
	4. Imprudence	.75***	.26**	.19**	1.00

Note: Figures in ***bold italics*** show significant differences between the Independents and Interdependents.
* p < .05, ** p < .01, *** p < .001

Table 5 - Multiple Regression Analysis (Study 2)

Dependent Variable (Past behaviour)	Independents (N = 293) Standardized β-Coefficients			Consumer Impulsiveness	Interdependents (N = 275) Standardized β-Coefficients			Consumer Impulsiveness
	Imprudence	Lack of Self-control	Self-indulgence		Imprudence	Lack of Self-control	Self-indulgence	
Driving related								
1. Reckless driving	.19**	.22**	**.26****	.32***	.24**	.13*	**.23****	.30***
2. drunk driving	.22**	.18**	.17**	.29***	**.27****	.18**	.14*	.28***
Eating related								
3. Overeating	.20**	.21**	.19**	.30***	.16**	.21**	**.27****	.31***
4. Cheating on a diet	.17**	**.24****	**.23****	.31***	.11*	**.28****	.19**	.29***
Entertainment related								
5. Illegal downloading	.12*	**.19****	.14*	.25***	.09	.14*	.12*	.22***
6. Gambling	.10	.24***	**.25****	.30***	**.28****	.19**	.15**	.31***
Shopping related								
7. Impulse buying	.18**	.25***	**.31****	.33***	.21**	.22**	**.26****	.30***
8. Overspending	.23***	.26***	**.27****	.35***	**.25****	.17**	.22**	.33***
Substance use related								
9. Binge drinking	.15*	**.26****	.22**	.32***	.12*	**.25****	.22**	.27***
10. Taking drugs	.23**	**.27****	.25***	.34***	**.30****	.19**	.16*	.30***
Overall Self-regulatory Failure	**.15***	**.22****	**.20****	**.27*****	**.16****	**.21****	**.18****	**.28*****
High-risk Behaviours 4, 5 & 6	**.24****	.21**	.19**	.31***	**.27*****	.17**	.15**	.32***
Self-control Behaviours 2, 3 & 10	.14*	**.24****	.17**	.30***	.19**	**.25*****	.17**	.27***
Self-indulgent Behaviours 1, 7, 8 & 9	.16*	.19**	**.26*****	.28***	.21**	.20**	**.25*****	.28***

Note: Figures in **bold** are significantly different from those in the same row in the other columns.
* p < .05, ** p < .01, *** p < .001