Problem gamblers' harsh gaze on casino services

Authors: Catherine Prentice, Arch Woodside

Persistent link: http://hdl.handle.net/2345/3662

This work is posted on eScholarship@BC, Boston College University Libraries.

2013

These materials are made available for use in research, teaching and private study, pursuant to U.S. Copyright Law. The user must assume full responsibility for any use of the materials, including but not limited to, infringement of copyright and publication rights of reproduced materials. Any materials used for academic research or otherwise should be fully credited with the source. The publisher or original authors may retain copyright to the materials.

PROBLEM GAMBLERS' HARSH GAZE ON CASINO SERVICES

Catherine Prentice, Swinburne University Arch G. Woodside, Boston College

> Submission: April 2013 Revision: August 2013 Acceptance: August 2013

Preprint article of *Psychology & Marketing*.

The field work for the study in this article was supported by a grant from the Secretariat for Economy and Finance of Macau; the authors express their gratitude for this support. The appendices relevant for each casino and the entire set of data in this study do not appear in this copy of the paper but are available from the authors upon your request. Send correspondence to Catherine Prentice, Faculty of Business & Enterprise, Swinburne University, Melbourne, Australia (cathyjournalarticles@gmail.com); Arch G. Woodside, Boston College, Carroll School of Management, Department of Marketing, 140 Commonwealth Avenue, Chestnut Hill, MA 02467, arch.woodside@bc.edu, telephone/fax: (1) 617 552-3069/6677.

PROBLEM GAMBLERS' HARSH GAZE ON CASINO SERVICES

Abstract

This study provides a first look at the perspectives and profiles of casino problem gamblers. The study proposes that problem gamblers (1) have unique antecedent conditions and (2) evaluate their casino service more favorably than non-problem gamblers. While first proposition receives support, the findings counter the second; surprisingly - problem gamblers view casino service with a harsh gaze. The coverage here includes overall and specific findings from face-to-face interviews with gamblers (n = 348) inside seven casinos in the world's largest gaming destination (Macau). The interviews included asking participants to complete the "Problem Gambling Severity Index" (identified to participants as "My gambling-related experiences"). The study includes both fit and predictive validities of overall service quality models for each of the seven casinos—these findings support the nomological validity that specific patterns of antecedents and outcomes associate with problem gambling. Policy and managerial implications inform how-to-go about creating unique marketing service designs to assist problem gamblers in managing their gambling behavior.

Keywords: antecedent conditions; compulsive consumption; customer profiles; Macau; predictive validity; problem gambling; replication; service marketing;

INTRODUCTION

LaRose (2001, p. 1) offers the following cogent summary of early literature relevant to compulsive buying and consumption behaviors: "Off-line, compulsive buyers account for between 1 and 8 percent of the population (Faber & O'Guinn, 1992), ninety percent of all consumers make impulse buys (Cobb & Hoyer, 1986), and two-fifths describe themselves as impulse buyers (Rook & Fisher, 1995)". The author emphasizes that these behaviors defy rational consumer choice processes, inflating consumer prices and exacerbating abuse of consumer credit and personal bankruptcies and so have important social effects.

Hirschman (1992) describes the connection across a broad range of consumption behaviors that have a common compulsive quality. These behaviors go beyond the bounds of normalcy and also exceed a consumer's ability to control them through reason and willpower. Hirschman concludes that these behaviors, unless restrained by the consumer or some external intervention, lead to negative consequences, perhaps even death. Thus, some addictive behaviors are analogous to extreme compulsive behaviors.

The present study provides a first report from inside a retailing context (i.e., casinos) associated frequently in the literature with compulsive behavior (e.g., Afifi et al., 2010; Cox, et al. 2005; Nower & Blaszczynski, 2010). The objectives of the study include expanding knowledge of problem gambling and examining antecedent and outcome conditions associating with problem gambling through direct observations of casino gamblers. The study is valuable uniquely in gaining access to seven mega casino resorts in the world's largest gaming market; and in including extensive meta-analyses of antecedent and outcome conditions and cross-validations of the predictive abilities of overall service quality models across the seven casinos. The study also aids in confirming and clarifying the identity of problem gamblers and provides clues for strategies effective in managing issues involving problem gambling.

3

Following this introduction, section two briefly reviews the relevant literature on compulsive buying and problem gambling. Section three provides a model and hypotheses of antecedents and consequences relating to problem gambling. Section four describes the method of the study. Section five reports the findings. Section six is a general discussion that includes conclusions, implications for controlling problem gambling relating to casino table gambling, and revisions to theory. Section seven describes the study's limitations and implications for future research.

LITERATURE REVIEW

Compulsive Buying and Problem Gambling

Prior research on problem gambling focuses on the following topics: (1) definition and characteristics of problem gambling, and (2) antecedent conditions and configurations of antecedent conditions associate with problem gambling (3) the consequences, the outcomes, of problem gambling (4) strategies effective in preventing and controlling/ decreasing problem gambling.

What is Problem Gambling?

Compulsive buying receives substantial discussion in the psychiatric nomenclature for almost 100 years (see Black, Shaw, & Blum, 2010). Kraepelin (1915) describes the uncontrolled shopping and spending behavior as oniomania ("buying mania") or buying maniacs (oniomaniacs) in whom even buying is compulsive and leads to senseless contraction of debts with continuous delay of payment until a catastrophe clears the situation a little - a little bit never altogether because they never admit all their debts. Kraepeling (1915) concludes that the particular element is impulsiveness; they cannot help it, which sometimes even expresses itself in the fact that notwithstanding good school intelligence, the patients are absolutely incapable of thinking differently and conceiving the senseless consequences of their act and the possibilities of not doing it (cf. Bleuler, 1930, p. 540). Nataraajan and Goff (1991) propose that impulsive, compulsive, and addictive buying lie along a continuum of purchase behavior characterized by deficient self-regulation—a continuum that includes normal impulsive consumer behavior at one extreme and deviant addictive behavior at the other. The literature does not include agreement about the etiology of unregulated buying but learning theory models are common to many explanations of the course these disorders take as they progress from impulsive to repetitive and harmful compulsive behavior (LaRose, 2001).

Nataraajan and Goff (1991) identify two independent factors in compulsive buying: buying urge or desire, and degree of control over buying; they emphasize that in theory individuals are identifiable on continuums for each factor. In their model, compulsive shoppers combine high urge with low control. This view is consistent with clinical reports that compulsive buyers are preoccupied with shopping and spending; they will try to resist their urges, though often with little success (Black et al. 2010).

Figure 1 is an adaptation of Nataraajan and Goff's (1991) theory to incorporate empirical findings that between 2 to 8 percent of general populations in the U.S. engage in compulsive buying (Koren, et al. 2006) and estimates of problem gambling includes 1 to 4 percent of general populations in the U.S. and Canada (Shaffer & Hall, 2001). Figure 1 here incorporates Fitzsimons's (2008) "death to dichotomizing" perspective by including nine cells, each of them varying in size to indicate shares of their respective populations; McClelland's (1998) study by quintiles data analysis also emphasizes that substantial differences among a study's participants only become apparent for the top twenty percent of a sample. As Nataraajan and Goff (1991, p. 314) suggest, "...the majority of buyers will fall in categories [other than category 1] since the proportion of 'normal' buyers is expected to far exceed compulsiveness in any society."

See Figure 1.

The overlapping circles on top of the first rectangular cell in Figure 1 visualize the hypothesis and findings that some compulsive buying behaviors complement one another for some consumers (Black et al., 2010). The different sizes of the a, b, and c, circles indicate daily-to-monthly time commitments to specific compulsive buying behaviors are likely to vary. For example, daily smoking, and alcohol addictions may be prevalent for some problem gamblers who travel to a controlled casino area of a country (e.g., Macau in China) for one full-day of table gambling every week.

The present study adopts Nataraajan and Goff's (1991) continuum proposal and provides substantial evidence supporting core propositions as follows: (1) profiles of antecedent conditions are distinct for consumers exhibiting problem or addictive consumption behavior and (2) consumer evaluations of their current in situ service-providers vary consistently according to the consumers' location on this consumption continuum.

Accepting the perspective that compulsive buying condition extends beyond retail shopping for products, problem gambling is regarded as a sub-category of compulsive buying. Afifi et al. (2010) observe that the Canadian population includes two percent who are problem gamblers, according to the Canadian Problem Gambling Index (CPGI) (Marshall & Wynne, 2003; 2004). These statistics are similar to those reported in the United States where 78 percent of a nationally representative sample reported lifetime gambling activity and 3 percent are problem or pathological gamblers according to "Diagnostic and Statistical Manual of Mental Disorders, fourth edition" (DSM-IV) criteria (Kessler et al., 2008).

Similar to Afifi et al.'s (2010) study, instead meeting diagnostic and statistical manual (DSM-IV) criteria for a disorder (i.e., pathological gambling), this research is focused on problem gambling as gambling behavior that has a negative impact on the gambler, the relevant others , or the community as described in the CPGI (Ferris & Wynne, 2001a). Nataraajan and Goff (1991, p. 317) provide a similar perspective, "The primary criterion to determine whether or not buying

behavior is innocuous or potentially compulsive (abnormal) buying is whether or not such behavior is causing disruption in the normal life of the individual."

Whilst beyond the scope of the present study, "negative impact" and "causing disruption" are viewable as consequences of problem gambling rather than problem gambling per se. From the perspective of low control and high-intensity motive (see Figure 1), causing disruption in an individual's normal life is not a sufficient or necessary condition for problem gambling which can be seemingly an innocuous activity for long time periods. This study adopts the view that examining configurations of formative, definitional, and reflective indicators are useful for theory building and measurement of problem gambling without measuring definitional indicators.

Consistent with Nataraajan and Goff's (1991) suggestion for compulsive buying, formative indicators of problem gambling include configurations of antecedent conditions that associate positively with problem gambling when viewing problem gambling as a continuum construct. The configuration of senior male with casino reward membership is an example of a configuration of antecedent conditions associating positively with problem gambling.

Antecedent Conditions Associating with Problem Gambling

Meta-analyses of antecedent conditions associating with problem gambling are available in the literature. For example, Lorains, Cowlishaw, and Thomas (2011) examine eleven eligible studies reporting on comorbidity from the literature. Their findings from across the studies indicate that problem and pathological gamblers had high rates of other comorbid disorders. The highest mean prevalence was for nicotine dependence (60.1%), followed by a substance use disorder (57.5%), any type of mood disorder (37.9%) and any type of anxiety disorder (37.4%). However, moderate heterogeneity occurs across studies, suggesting that rate estimates do not necessarily converge around a single population figure, and that weighted means should be interpreted with caution, which suggest segmenting problem gamblers by shares of comorbidity configurations. In reviewing the literature on problem gambling, Black et al. (2010) note that the rates of problem gambling are higher in senior males, adults with mental health or substance-use disorders, persons who have been incarcerated, or those with low socioeconomic status. Residency distance to casinos can be a factor of problem gambling too (NORC, 1991). At first blush, household income may be thought to associate positively with problem gambling since money availability may be a prerequisite to gambling. However, high gambling frequency occurs for similar shares of households in the general population in the U.S.A. among the lowest and highest income categories (Woodside & Zhang, 2012).

Problem gambling is widely thought to be chronic and progressive (Cartwright, DeCaria, & Hollander, 1998). Thus, the prevalence of problem gambling is likely to occur among casino members. Customers in loyalty programs often receive special or complimentary gambling-related benefits designed for them. Similar to airline frequent flyer programs, members receive free flights depending on the frequency of use and expenditure levels of using these services. Some casino service and marketing promotions may be effective in nurturing the development of problem gambling (e.g., 24-hour operation, casino membership programs, complimentary accommodations including free food and beverage service).

Outcome Conditions Associating with Problem Gambling

Research on consequences of problem gambling is extensive. LaPlante (2009) indicates that depression and mood disorders followed by "spontaneous recovery" (i.e., without the use of programmed intervention programs) are a common outcome of problem gambling). In their literature review, Black et al. (2010, p. 177) conclude, "... the person with CB [compulsive buying] or PG [pathological gambling] finds the behaviors highly pleasurable, and only wants to stop the behaviors when their deleterious secondary consequences become overwhelming." Thus, immediate, in-context, and high pleasure is thought to be a psychological outcome of problem gambling. If present at all, such gambling-induced euphoria may occur only while the problem

gambler engages in gambling. Giffiths (2004) concludes that the social and health costs of problem gambling are large at both individual and societal levels. Personal costs can include irritability, extreme moodiness, problems with personal relationships (including divorce), absenteeism from work, neglect of family, and bankruptcy; adverse health consequences for the gambler and his or her partner include depression, insomnia, intestinal disorders, migraine, and other stress related disorders (Lorenz & Yaffee (1986). These are long-term consequences that the problem gambler may not associate directly with problem gambling per se.

Although numerous studies discuss consequences of problem gambling, none addresses the following outcomes. How do problem gamblers evaluate service experiences of the casinos? Do these evaluations differ substantially from those of non-problem gamblers? The current study attends to these issues and bridges the research void.

HYPOTHESES OF THE STUDY

Figure 2 presents the study's model, and shows the main effect associations of the hypotheses. The model includes nine antecedent conditions. Based on the insights from reviewing the relevant literature, the model includes the following specific hypotheses.

See Figure 2.

Hypotheses for Antecedent Conditions

H1: Age associates positively with problem gambling. H2: Male versus female gender associates positively with problem gambling. H3: Education associates negatively with problem gambling. H4: Income does not associate with problem gambling. H5: Occupational status associates negatively with problem gambling. H6: Membership program associates positively with problem gambling. H7: Length of paly associates positively with problem gambling. H8: Average bet amount associates positively with problem gambling. H9: Annual visitation associates positively with problem gambling.

Hypotheses for Outcome Conditions

Given that the relevant literature proposes the problem gambling provides high pleasure for problem gamblers, casino customers with high problem gambling scores should view their immediate casino service experiences more favorably. Heider's (1958) balance theory is helpful for explaining why problem gamblers are likely to have unique favorable evaluations of their immediate service experiences (see Figure 3a; the discussion of Figure 3b is in the general discussion section). Heider (1958, p. 201) explains, "By a balanced state is meant a situation in which the relations among the entities fit together harmoniously; there is no stress toward change. A basic assumption is that sentiment relations and unit relations tend toward a balanced state."

See Figures 3a and 3b.

Given that it is uniquely highly pleasurable for the problem gambler, the sentiment connection (bold double-headed arrow 1 in Figure 3a) with the service provider (2 in Figure 3a) will be most favorable — participating in an activity judged to be high pleasurable results in highly favorable evaluations of service experiences. The favorable connection between the service experiences and the problem gambler (3 in Figure 3a) results in psychological balance—possibly a euphoric condition.

The model includes ten outcome conditions that appear in Figure 2 in two sets labeled immediate and global outcomes. These outcomes refer to evaluations of a casino by customers with no, low, moderate, and high level of problem gambling indicator scores as the following method section describes. The model includes six dimensions that influence four global outcomes: casino preference, overall service quality, positive word-of-mouth communication about the casino, and

propensity to switch to another casino. The model predicts that casino service evaluations have direct influences while problem gambling has an indirect influence on the global outcome conditions—thus, the dotted lines in Figure 2 from problem gambling to the global outcomes indicate hypothesized main effects that are not significant contributors to the immediate outcomes. Given that multiple combinations of immediate outcome conditions are nearly equal in explaining the global outcome conditions, the study focuses on the main effects in the model and proposes the following:

H10: High versus low or no problem gambling associates with (a) more positive evaluations of a casino's physical facilities. High versus low or no problem gambling associates with more positive evaluations: (H11) of a casino's service responsiveness; (H12) a casino's being the customer's first choice; (H13) casino employees caring for the customer's well-being; (H14) the customer's perceptions about the quality of the games in the casino; (H15) of food and beverage quality evaluations; (H16) customers' judgments of the overall service quality of the casino; (H17) of word-of-mouth communications about the casino; H18) the ambience of the casino; (H19) negatively with customers' propensity to switch to another casino—switching behavior takes time and moves the customer away from a highly pleasurable experience.

H20: the immediate outcomes of customer service evaluations have a direct major influence on the global outcomes of most preferred casino; overall service quality; positive WOM; and propensity to switch casinos. H21: While problem gambling does have a small direct influence on global outcomes, its influence is larger consistently on the immediate outcomes. H22: Overall service quality is a lynchpin influence on the other global outcomes of (a) propensity to switch, (b) positive word-of-mouth communications, and (c) first preference for the present casino the customer is visiting. These final hypotheses relate to the nomological validity (Peter, 1981) of the model and are supported by prior work on modeling customer evaluations of specific service acts, overall satisfaction, and intentions about future visits to the service provider (Chang, et al. 2013; Woodside et al., 1987).

METHOD

The section describes the measurement constructs, sampling plan, and procedure for data collection. The researchers opt for conducting the survey at casinos in Macau since this special administrative territory of China has become the world's leading gaming destination with an estimated \$44 billion USD in revenues in 2013 (O'Keeffe, 2013). A face-to-face intercept with a self-report survey was conducted at Macau's seven large casino resorts.

Measures

Problem Gambling. According to research on the Problem Gambling Severity Index (PGSI, aka Canadian Problem Gambling Index), problem gambling is defined as scoring three or more based on the endorsement of the gambling behaviors or concerns (Ferris & Wynne, 2001). The PGSI is a well-developed tool that was created specifically for assessing problem gambling in general population samples and has been subject to extensive psychometric testing (Ferris and Wynne, 2001).

The PGSI has "good reliability" ($\alpha = 0.84$) where "good" is above an alpha of 0.80 (Kline, 1999) and high correlation (r=0.78) with test–retest reliability (Ferris & Wynne, 2001). The criterion-related validity determined that the PGSI was highly correlated with DSM-IV criteria (r = 0.81; DSM-IV is the Diagnostic and Statistical Manual, 4th edition) and with South Oaks Gambling Screen (SOGS) (r=0.80) indicating that the CPGI classification of respondents is consistent with classification using other scales (Ferris & Wynne, 2001).

The PGSI uses the following self-report items to assess level of gambling problems: (1) wagered larger amounts to get the same feeling of excitement; (2) tried to win back losses; (3) borrowed money or sold something to get money for gambling; (4) felt a gambling problem existed; (5) gambling caused health problems including stress and anxiety; (6) been criticized for betting or told a gambling problem exists; (7) gambling caused financial problems; (8) felt guilty about gambling; and (9) bet more than could be lost. Four choices are available for answering each of the nine items: "0 Never, 1 Sometimes, 2 Most of the time, 3 Almost always."

In the present study the items were used to compute PGSI scores that measures problem gambling in five categories: non-problem gambler (score of zero), low risk gambler (score of 1 - 2), moderate risk gambler (score of 3- 4), high risk (5-6), and severe risk gambler (score of 7 or more). Moderate and severe risk gamblers were combined into one group (referred to as problem gamblers). Because scores of three-to-seven reflect significant risk, that may t already have adverse consequences related to gambling for the gambler (Ferris & Wynne, 2001a).

Holtgraves (1988) examines the reliability and validity of the PGSI across a national and six regional samples of general populations of Canadians (integrated n = 12,299). He reports a coefficient alpha equal to 0.86 for the total sample and an alpha equal to 0.73 among the high scorers (i.e., > 7) on the scale. Coefficient alpha for the PGSI is 0.92 for the total respondents to the present study and 0.66 for the high scores (.i.e., 7+). The corrected item to total correlations for the nine items in the scale for the two studies indicates that the scale reliability properties are adequate for purposes the current study (correlations available upon request made to either author).

Findings for the nomological validity (Peter, 1981) indicate high validity of the scale in the patterns of relationships for the PGSI among the antecedent and outcome conditions. For example, the share of high PGSI scorers among once a year casino visitors should not be the same as very frequent casino annual visitors. The findings indicate that high PGSI scores among once a year casinos visitors is relatively rare in the sample (3/130) while the majority of customers visiting casinos 7+ times have severe PGSI scores (8/14). For the relationship of number of annual casino visits and PGSI, the phi² = .368, p < .000, with phi² > .25 indicates a large effect size (see Cohen, 1977).

Antecedent Conditions. Depending on the question between two-to-eight responses were available to tick ($\sqrt{}$) for most of the antecedent conditions appearing in Figure 2. For example, the four-sided two-page survey included two responses for gender, eight responses for eight household income ranges, seven ranges for typical/average size of bet, and six age ranges (18-25 to 61+). Open-ended responses were available to record number of trips to visits casinos annually and number of hours in the gaming area during each day of the visit.

Immediate and Global Outcomes. The outcomes focus on customer evaluations of casino services, word-of-mouth communications, casino preference, and propensity to return. Four facets–game service product (or simply game service), service environment, service delivery, and food service–underline the casino service quality conceptualization. Our conceptualization includes measures of food and beverage service but excludes other non-gaming aspects (e.g., shopping, musical and special shows), to align with the aforementioned literature, food and beverages have become an inseparable component of the casino gambling experience (Prentice, 2013). Furthermore, our conceptualization of casino service quality focuses on the performance aspects of quality evaluation (i.e., service perceptions) rather than the gap score approach, since considerable evidence suggests that performance only measures are superior (Cronin & Taylor, 1992, 1994; Parasuraman et al., 1994).

The survey included six dimensions of service evaluations as appearing in Table 1 with twoto-seven items used to measure each dimension. Tests for the psychometric properties included both exploratory and confirmatory factor analysis, and corrected item to total reliability estimates. The exploratory and confirmatory factor analyses indicated unique factor structures for the dimensions in Table 1. Details on the reliability estimations appear in Table 1.

See Table 1.

The six immediate outcomes include customer evaluations of service experiences relating uniquely to casinos. These six include the four dimensions and items in Wong and Fong's (2012) casino service quality scale (CASERV): casino patrons' perceptions of service delivery (e.g., "Staff give prompt service to customers"), service environment, food service (e.g., "The quality of food and beverage is excellent"), and service product (e.g., "The casino has sufficient number of table games available"). The present study includes a separate unique dimension relating to personal attention consisting of two items, "Casino has my best interests at heart" and "Employees care" as well an additional dimension relating to service experience evaluation: ambience.

Participants

The study's participants were PRC adult residents on a holiday trip to Macau who were confirmed to be gambling in one of the seven largest casinos in Macau. This customer market is representative of more than 90 percent of the customers for each of the casinos in the study. The survey instrument was a four-sided booklet containing the questions.

Survey Instrument

The survey was a four-sided booklet written in the Chinese language and included all questions related to the study. The survey was piloted tested twice (n = 30) for clarity. Eight questions were revised after the first pilot test and two were revised after the second pilot test.

Procedure

A request for a grant to conduct the survey was sought and received from the Secretariat for Economy and Finance of Macau. With assistance of the Macau government, all casinos contacted agreed to participate in the study. Data collections for the study were conducted in the top seven casinos by total annual revenues.

For the data collection, three female master-level students approached casino customers as they began to exit the table gaming area of each casino with the request to participate in a fourminute survey — approaching the fifth customer party following the completion of a prior survey by a customer. Prospective participants were offered a choice of a \$25 USD food voucher or a collapsible umbrella for participation. A total of 50 percent of customers approached agreed to participate in the survey. Participants completed the survey while being seated at a fold-up table in an area nearby the gaming floor. 92 percent of these customers answered all questions in the survey. The survey was completed in two time periods per day: 2 to 5 PM and 7 to 10 PM for three days per week in each of the seven casinos. The afternoon time period was used first and then the evening time period in the following weeks. The data were collected over one month in February 2013. Customer participation agreement levels did vary systematically among the three interviews but customers' answers did not. The top interviewer had 60 percent cooperation and the bottom interviewer had 40 percent cooperation. Survey cooperation levels did not vary systematically among the seven casinos.

FINDINGS

In general the hypotheses in the model relating to the relationship of antecedent conditions and problem gambling receive support. However, the findings indicate negative relationships between problem gambling and casino service performance consistently, contrary to the proposed positive relationships.

How the Antecedents Associate with Problem Gambling

Figure 4 is a summary of findings for the associations of problem gambling with the antecedent conditions and three immediate outcomes conditions. All estimates of relationships in Figure 4 are significant statistically except for that education does not associate with problem gambling.

See Figure 4.

H1: Age. The findings support H1: increasing age associates with increases in problem gambling scores. The standard simple regression coefficient for age ($\beta = 0.30$) is significant

statistically. However, the effect size is considered medium given that the significant overall age and problem gambling association does not occur among all seven casinos.

The findings support the proposition that problem gambling is an age progressive difficulty except for the final age segment: the problem gambling mean (M) and standard error (se) of the mean for this segment (61+) are about the same as for the youngest segment (18-25): M = 0.60, se = 0.60 for the 5 customers in the 61+ age group and M = 0.62, se = 0.24 for the 32 participants in the 18-25 segment. The average problem gambling score peaks for the 46-55 age group (n = 85): M = 2.92, se = 0.40.

H2: Gender. The findings support the second hypothesis. The simple linear regression coefficient ($\beta = 0.39$), the consistent higher average scores for males versus females for all age segments, and the significant correlations between gender and problem gambling for six of seven casinos indicate a large effect size for gender. Problem gambling is a male difficulty in particular.

The findings include a substantial relationship between problem gambling and annual visitation among male versus female segments. For females, average number of trips to casinos does not vary for low (1.7 trips) versus high (2.0 trips) problem-gambling scores. For males, average number of trips increases dramatically among males (from 2.7 trips for zero to 5.0 trips) as problem gambling scores increases.

H3: Education. The findings support H3 that higher formal education associates with lower problem gambling. The M (se) for problem gambling for high school diploma graduates was 0.95 (n = 84) versus 2.7 (0.29) for the 138 junior high school participants and 2.3 (0.26) for the 163 high school attendees. Among the 23 participants with schooling less than junior high, the average problem gambling score was 1.6 (0.56). Thus, a curvilinear relationship occurs for education and problem gambling, few members of the lowest and high education segments experience problem gambling in comparison to the two middle educational segments.

17

Formal educational training to avoid problem gambling may need to begin early-in-life to reach future problem gamblers — many problem gamblers will not be around to receive such training in high school. In comparison to the findings for the other antecedent conditions, the effect size for education's influence on problem gambling is small.

H4: Income. The findings do not support H4 that income level has no association with problem gambling. A highly significant positive relationship occurs between income and problem gambling. Here are rather dramatic findings: for the 123 participants with household annual incomes below USD 3,000, the mean (and standard error of the mean) for problem gambling is 1.67 (0.29); the mean (se) for the 64 participants in the highest household income categories (> \$20,000 annually) the average is 3.45 (0.48). Low income earners appear to have less gambling problem. While the effect size is medium for income's influence on problem gambling, the impact is positive and significant statistically. Additional details appear in Table 2.

See Table 2.

H5: Occupational Status. The findings partially confirm H5. The average problem gambling score (and se) is lowest for the 53 participants in professional occupations: M = 1.04 (0.31). The average (and se) is highest for the 19 participants identifying themselves to be workers: 4.26 (1.06). However, the averages for managers (n = 40) and clerks (n = 53) are counter to the perspective that occupational status has a negative relationship with problem gambling: 3.33 (0.50) versus 1.00 (0.26). For the 54 participants in customer service and sales, the problem gambling mean is 2.69 (se = 0.45); the average is lower for agricultural and forestry workers: n = 14, M = 1.50 (se = 0.65). Thus, for problem gambling workers (i.e., laborers) and managers are at risk in particular and clerks and agricultural/forestry workers are not. Occupational categories rather than "occupational status" relates to problem gambling.

H6: Membership in Casino Reward Card Programs. The association of membership in casino reward card programs with problem gambling is positive and the effect size is large. The average problem gambling score among the 171 participants reporting not holding casino membership is 0.48 (se = 0.10); the average among the 234 participants reporting membership is 3.21 (se = 0.23). Eliminating or curtailing casino reward-card membership programs are likely positive steps in curtailing problem gambling. The large positive effect of these programs on problem gambling occurs for each of the seven casinos.

H7: Hours-of-Playing-Time per Day. The findings support H7: playing time gambling in casinos associates positively with problem gambling. The effect size is large and occurs consistently across the seven casinos. Limiting players time gambling in casinos to three hours or less during the daytime and the same at night are steps likely to be effective in curtailing behaviors relating to problem gambling. Implementing such steps are possible but should await confirmation by controlled true experiments with treatment and control group conditions that indicate doing so is effective in curtailing problem gambling.

H8: Average betting. H8 predicts a positive relationship between average bet size and problem gambling. The findings do not support H8. The findings are counter to H8: participants with high problem gambling scores (n = 38) all have average bets less than 1,000 MOP (Macau Pataca currency; 1,000 MOP = \$125.41USD). None of the 16 participants reporting average bet sizes at 1,000 MOP or higher have problem gambling scores equal to 7 or higher.

The perspective that problem gambling is not found among players in special casino rooms for high rollers receives support in the present study. Problem gamblers are concentrated in Macau among relatively low-stakes table gambles (i.e., where average bets are 100 MOP).

H9: Annual visitation. The number of annual visits associates positively with problem gambling. The $\beta = 0.47$ (Figure 4) for the linear regression coefficient and the φ^2 coefficient equal to 0.25 indicate a large effect size. While two percent of respondents taking one annual trip to a

casino score in the severest level of problem gambling, the share of respondents taking 7+ annual trips to casinos having the same severe level is 57 percent.

A large increase in share of severely high problem gambling scores occurs for six versus five trips. Limiting the number of recreational trips to Macau five or fewer is likely to be an effective control on problem gambling in casinos.

How Problem Gambling Associates with the Immediate Service Evaluations

Consistently negative associations occur for problem gambling and evaluations of casino services. Figure 4 presents visuals of these relationships for three immediate service dimensions. The consistent negative associations were a surprise, which warrants a post hoc explanation. Problem gamblers are likely to recognize, that their casino gambling is unhealthy—and that the service provider is at least partially (if not entirely) to blame for their behavior. Blaming the service provider may be preferable than blaming oneself for surrendering to a highly intense desire - the low control and high motive state in Nataraajan and Goff (1991) typology.

This revisionist explanation expands on Urry's (1990) "tourist gaze." The tourist gaze in some important ways is a destructive process whereby both the service provider and the tourist reflect upon each other the gaze of expectations of good times and positive outcomes—winning at the gaming tables for example—since reality infrequently matches these expectations, negative evaluations follow.

H10: Casino's Physical Facilities. Problem gambling scores have a significant negative relationship ($\beta = -.23$) with customers' evaluations of the casino's physical facilities. Respondents with severely high problem gambling scores (7+) offer less favorable evaluations about the casino's appearance. This finding for the overall sample does not occur consistently for each of the seven casinos.

Some correlations among the different casinos vary significantly. The findings for Casino D support H10 that a positive relationship occurs between casino problem gambling and a casino's

physical facilities (r = .242, p < .04, one-tailed test). The negative overall finding for the total sample suggests the need to collect data sufficiently among several casinos to clarify problem gambling and customer evaluations of services.

H11: Quality of Service Responsiveness. Problem gambling scores have a significant negative relationship ($\beta = -.22$) with the service responsiveness of the casino. This finding occurs consistently for all seven casinos. Casino patrons with severe problem gambling report substantially lower scores on service responsiveness. The especially high relatively unfulfilled need for response speed among problem gamblers matches with Nataraajan and Goff's (1991) assessment of high-intensity motivation as a necessary condition of compulsive buying. The consistency of the findings for this relationship across the seven casinos supports this interpretation.

H12: First Choice. Problem gambling scores have a significant negative relationship (β = -.14) with customer evaluations of the casino as their first choice. This negative relationship occurs consistently though not significantly among the seven casinos. The relationship is small in effect size. Its occurrence supports the belief that a problem gambler's bad luck or losses may result in moving to another casino next time.

H13: Casino has My Best Interests at Heart plus Employees Care (hereafter BIPEC). Problem gambling scores have a significant negative relationship ($\beta = -.21$) with customer evaluations about the casino having their best interest at heart plus caring employees. This negative finding holds consistently but not significantly for all seven casinos. The effect sizes of the relationship ranges from small to medium.

This BIPEC dimension associates strongly with positive word-of-mouth advertising (r = .66). Given that relatively low scores on caring, the significant negative relationship between problem gambling scores and WOM is unsurprising (r = .12, p < .01, two-tailed test). The problem gambler is most likely to spread unfavorable messages about the casino that is perceived to be uncaring and to have no heart.

H14: Game service. The linear relationship between game service and problem gambling is negative ($\beta = -.07$) though significant statistically. Problem gamblers are more likely to conclude that game service is great at Casino X" than other casino customers. The relationship for customer evaluations of game service and problem gambling is "U" shapes. However, the effect size is small and the findings vary among the seven casinos which support the conclusion that problem gambling does not have a substantial influence on customer evaluations of game service. While the U-shaped relationship is impressive for the overall findings, the standard error for the mean of game service is relatively large in the case of respondents with severely high PGSI scores and the effect size is small.

H15: Food and Beverage Service. A significant negative relationship occurs for problem gambling scores and customer evaluations of the casino's food and beverage service ($\beta = -0.27$). The relationship is consistently negative across all seven casinos though the correlation is close to zero for Casino D. The overall effect size is medium for this relationship.

H16: Overall Service Quality. A small effect size but significant negative relationship occurs for problem gambling scores and the casino's overall service quality ($\beta = -0.14$). Casino D is an exception that a positive relationship is present between problem gambling scores and overall service quality.

H17: Positive WOM. The relationship between problem gambling scores and positive word-of-mouth communication is cubic: down, up, and down. The average +WOM score for severely high PGSI scores is significantly below the +WOM average for respondents with zero PGSI scores (details are available from the authors). These findings confirm McClelland's (1998) recommendation to look beyond simple linear relationships when examining variables.

H18: Ambience. The relationship between ambience and problem gambling is statistically significantly negative for most casinos in the study, with an exception for Casino D. Ambience of Casino D appears to be more appealing for problem gamblers. For the purposes of the study, the

negative overall relationship runs counter and refutes H18 that a positive relationship occurs for problem gambling and ambience. The findings serve to emphasize the value of self-replication in several places (contexts).

H19: Switching. While the effect size is small, the findings do support H19 - problem gambling associates negatively with switching to another casino ($\beta = -.09$). The findings are inconsistent among the seven casinos. The overall appropriate conclusion is that problem gambling does not associate substantially with casino switching behavior. While increasing on the hypothesized problem gambling continuum associates lower evaluations rather consistently, this influence does not translate into motive to switch casinos.

H20: Immediate and Global Outcomes. The findings support H20. Customer evaluations of the immediate service dimensions have substantial influences on the global outcome measures. The results from performing multiple regression analyses (MRA) for the global outcomes appear in Figure 5. Problem gambling is an insignificant effect on the global outcomes in the MRA when the models include the immediate service outcomes.

See Figure 5.

Figure 5 shows five immediate outcome variables contribute significantly in influencing evaluations of overall quality of service: ambience, quality of games, food and beverage quality, facilities, and heart+caring. The effect size is large for this model.

Predictive validities for overall service quality were estimated of individual casinos. The findings appear in Table 3. Every casino model serves to predict the overall service quality scores across the seven casinos (see Table 3). All the effect sizes are large and support the conclusion that the immediate service outcomes are useful in predicting overall service quality evaluations.

See Table 3.

While this study focuses on antecedents and outcomes of problem gambling, the pattern of findings for immediate and global outcomes provides nomological validity to estimate whether problem gambling has influence on service quality evaluations.

H21 receives support. While problem gambling does have a small direct influence on global outcomes, its influence is larger consistently on the immediate outcomes. For example, for predicting propensity to switch, while the beta, standardized partial regression coefficient (β), for problem gambling is -.09, the beta for problem gambling influence on food and beverage quality is -.20.

H22 receives limited support: Overall Service Quality as a Lynchpin. Overall service quality does affect +WOM separately in modeling the immediate and other global outcomes. However, "lynchpin" is probably an inflated view on how overall service quality influences other global outcomes. For H22a: customers' overall service quality perceptions do not have a direct influence on propensity to switch in a MRA model, see Figure 5. For H22b, customers' overall service quality perceptions do have a direct positive word-of-mouth communications in a MRA model and do not on have a direct influence on first preference for the present casino the customer is visiting in a MRA model as H22c predicts.

Meta-Analyses: Additional Findings. Table 4 provides findings from a meta-analysis of the principal relationships for antecedent and immediate outcome conditions. The findings support the general conclusion that problem gambling has a positive relationship with the three antecedents: casino membership; annual visitation; and length-of-play each day.

See Table 4.

The results also show that problem gambling has negative relationships substantially for six of the seven immediate service quality dimensions. The range of the estimates for each of the seven immediate service dimensions is more negative than positive which refutes the original perspective that problem gambling contributes positively to casino service evaluations.

GENERAL DISCUSSION, CONTROLLING PROBLEM GAMBLING STRATEGIES, AND REVISING THEORY

Demographic Antecedent Conditions

The demographic and problem gambling findings for gamblers in Macau casinos are highly similar to findings in Afifi et al.'s (2010) study of a 2002 Canadian national health survey data (n = 18,913). However, the two studies are not highly comparable since this study's context is different. Afifi et al. (2010) compare only subsamples of respondents with non-problem gambling (zero scores on the PGSI) versus problem gambling scores (3 to 7), and combines moderate and severe risk gamblers into one group (referred to as problem gamblers) because scores of three to seven reflect significant risk, that may or may not have adverse consequences related to gambling for the gambler.

The present study does not include combining moderate and severe risk gamblers but compares segments using PGSI scores of zero, 1-2, 3-4, 5-7, and 7+ scores. Gender (male), age (middle-aged), occupation (managers and laborers), education (moderate), and income (high) have positive associations with problem gambling in the present study. However, association of demographic configurations with problem gambling does not occur among middle-aged male managers with moderate educations and high incomes. This finding indicates strategies to control (i.e., lessen the occurrence and prevent) problem gambling would likely be focused on specific customer segments that include middle-aged men or younger in specific occupations with relatively moderate to high incomes.

Behavioral Antecedent Conditions

In the present study casino membership, length-of-play per day and number of casinorelated trips associate positively with problem gambling. Average bet size in casino table games has a negative association with problem gambling. However, this negative association occurs only for relatively high volume players.

The findings indicate that average betting volume does not associate with problem gambling. Hence, actions that can be used to control problem gambling should be focused on reducing or eliminating the benefits of casino reward card programs, reducing the length-of-play per day to six or fewer hours, and limiting the number of annual trips to five or fewer.

Immediate and Global Outcome Conditions—Problem Gambling and Service Provider Evaluations

For the most part, increases in the continuum of problem gambling (i.e., the PGSI scores) associates negatively with customer evaluations of their immediate experiences and global service evaluations. The 95 percent confidence intervals for the estimates indicate that if the study was done 100 times, negative rather than positive correlations for problem gambling and customer evaluations of casino services would occur.

Based on these findings, the original proposals for positive balanced relationships among problem gambling, casino game service, and evaluations of customer service experiences need revising. The revision in Figure 3b provides balance among four concepts while the strong associations between problem gambling with casino game service and gambling losses are still included. .

From theory the problem gambler should associate losses positively with casino services and negatively with gambling per se which aids in rationalizing the behavior of continuing to gamble. What the problem gambler may perceive is a mix of conscious and unconscious rationalization that, the losses attributes to the bad services in casinos but not to his or her gambling behavior. However, associations 2, 3, and 6 in Figure 3b may be necessary for explaining the negative problem gambling and service evaluation associations.

Assuming major gambling losses represents a highly negative experience that is likely to cause high cognitive dissonance for the problem gambler as Festinger (1957) suggests. Such cognitive dissonance leads problem gamblers attributing gambling losses to casino service.

Given that gambling outcome (winning or losing) is unpredictable, and losses seems to be prevalent, blaming the quality of casino services may be more convenient for problem gamblers. Testing the applicability of this model and other relevant self-context-outcome theories (e.g., Bem's 1976 self-perception theory) may require direct measurement of problem gambling dimensions based on Nataraajan and Goff's (1991) motive-control continuum rather than on an index focusing on consequences of problem gambling.

LIMITATIONS AND IMPLICATIONS FOR FUTURE RESEARCH

While the use of a self-report nine-item index to estimate the extent of problem gambling is useful, most items (1, 3, 4, 6,7, & 8) in the index (i.e., the PGSI) measure consequences to problem gambling rather than problem gambling as a configuration of high motive and low control as Nataraajan and Goff (1991) describe compulsive buying. Use of self-reports, especially to measure a highly negative psychological state can be problematic (see Nisbett and Wilson, 1977). The same criticisms apply to using Faber and O' Guinn's (1992) clinical screener for compulsive buying.

Future research needs to include easy-to-administer metrics that overcome these twin limitations. Such metrics are likely to involve the use of small samples (n < 100) of different segments that do not exhibit levels of antecedent conditions to associate with problem gambling. Given that the difficulty is progressive and chronic longitudinal studies rather than the dominating cross-sectional method would be particularly useful in problem gambling research.

The findings may not hold for casino customers in other Asian or Western markets. Additional studies are necessary in other locations (e.g., Las Vegas and Monaco) to conform or refute the findings. The sample sizes for each casino in the study are quite small; larger sample sizes for several daily and seasonal periods are necessary for confirming the exploratory findings of the present study. Future studies should collect data on winnings or losses of respondents at the time of the interviews. Feelings of euphoria or despair from major winnings or losses, respectively, may affect evaluations of immediate and global casino services.

References

- Abbott, M., Volberg, R., Bellringer, M., & Reith, G. (2004). A review of research on aspects of problem gambling: Final Report. Gambling Research Centre, Auckland: Auckland University of Technology (available at: http://www.scrsj.ac.uk/media/media_34551_en.pdf).
- Afifi, T.O, Cox, B.J., Martens, P.J., Sareen, J., & Enns, M.W. (2010). Demographic and social variables associated with problem gambling among men and women in Canada. Psychiatry Research 178, 395–400.
- Bargh, J. A., & Chartrand, T. L. (1999). The unbearable automaticity of being. American Psychologist, 54, 462-479.
- Bem, D. J. (1967), Self-perception: An alternative interpretation of cognitive dissonance phenomena. Psychological Review, 74, 183-200.
- Black, D. W., Shaw, M., & Blum, N. (2010). Pathological gambling and compulsive buying: Do they fall within an obsessive-compulsive spectrum? Dialogues in Clinical Neuroscience, 12(2), 175–185.
- Bleuler, E. (1930). Textbook of Psychiatry. AA Brill, Trans. New York, NY: Macmillan.
- Budden, M.C., & Griffin, T.F. (1996). Explorations and implications of aberrant consumer behavior. Psychology & Marketing, 13: 739–740.
- Cartwright, C., DeCaria, C., & Hollander. E. (1998). Pathological gambling: a clinical review. Journal of Practical Psychiatry Behavior Health, 5: 277–286.
- Chang, C-W., Tseng, T-H, & Woodside, A.G. (2013). Configural algorithms of patient satisfaction, participation in diagnostics, and treatment decisions' influences on hospital loyalty. Journal of Services Management, 27, 91–103.
- Cobb, C.J. & Hoyer, W.D. (1986). Planned versus impulse purchase behavior. Journal of Retailing, 62, 384-409.

- Cohen, J. (1977). Statistical power analysis for the behavioral sciences. New York: Academic Press.
- Dittmar, H. (2004). Understanding and diagnosing compulsive buying. In: Coombs R, ed. Addictive Disorders. A practical handbook. New York, NY: Wiley: 411–450.
- Edwards, E.A. (1993). Development of a new scale to measure compulsive buying behavior. Financial Counseling Planning, 4: 67–84.
- Faber, R.J., & O' Guinn, T.C. (1988). Compulsive consumption and credit abuse. Journal of Consumer Policy, 11, 97-109.
- Faber, R.J., & O' Guinn, T.C. (1989). Classifying compulsive consumers: Advances in the development of a diagnostic tool. In T.K. Srull (ed.) Advances in consumer research (16, pp. 738-744). Provo, UT: Association for Consumer Research.
- Faber, R.J., & O' Guinn, T.C. (1992). A clinical screener for compulsive buying. Journal of Consumer Research, 19, 219-225.
- Felicity K., Lorains, F.K., Cowlishaw, S., & Thomas, S.A. (2011). Prevalence of comorbid disorders in problem and pathological gambling: systematic review and meta-analysis of population surveys. Addiction, 106: 490–498.
- Ferris, J., & Wynne, H. (2001). The Canadian problem gambling index: Final report. Ottawa, ON: Canadian Centre on Substance Abuse.

Festinger, L. (1957). A theory of cognitive dissonance. Stanford: Stanford University Press.

- Fitzsimons, G.J. (2008). Death to dichotomizing. Journal of Consumer Research, 35, 5-8.
- Gibson, B., Sanbonmatsu, D.M., & Posavac, S.S. (1997). The effects of selective hypothesis testing on gambling, Journal of Experimental Psychology: Applied, 3, 126-142.
- Gooding, P., & Tarrier, N. (2009). A systematic review and meta-analysis of cognitive-behavioural interventions to reduce problem gambling: Hedging our bets? Behaviour Research and Therapy, 47, 592-607.

Griffiths, M. (2004). Betting your life on it. British Medical Journal, 29, 1055–1056.

- Hirschman, E. C. (1992). The consciousness of addition: Toward a general theory of compulsive consumption. Journal of Consumer Research, 19, 155-179.
- Hoch, S.J., & Loewenstein, G.F. (1991). Time-inconsistent preferences and consumer self-control. Journal of Consumer Research, 17, 1-16.
- Holtgraves, T. (2009). Evaluating the problem gambling severity index. Journal of Gambling Studies, 25:105–120.
- Kessler, R.C., Hwang, I., LaBrie, R., Petukhova, M., Sampson, N.A., Winters, K.C., & Shaffer, H.J.
 (2008). DSM-IV pathological gambling in the National Comorbidity Survey Replication.
 Psychological Medicine 38, 1351–1360.
- Kline, P. (1999). The handbook of psychological testing (2nd Ed.). London: Routledge
- Koran, L.M., Faber, R.J., Aboujaoude, E., & et al. (2006). Estimated prevalence of compulsive buying in the United States. American Journal of Psychiatry. 163:1806–1812.
- Kraepelin, E. (1915). Psychiatrie. 8th ed. Leipzig, Germany: Verlag Von Johann Ambrosius Barth, 15: 408–409.
- LaPlante, D.A., Nelson, S.E., LaBrie, R.A., & Shaffer, H.J. (2009). Stability and progression of disordered gambling: lessons from longitudinal studies. Canadian Journal of Psychiatry. 53: 52–60.
- LaRose, P. (2001). On the negative effects of E-commerce: A sociocognitive exploration of unregulated on-line buying. Journal of Computer-Mediated Communication, 6 (3), 1-12.
- LaRose, R. (2001). On the Negative Effects of E-Commerce: A Sociocognitive Exploration of Unregulated On-line Buying. Journal of Computer-Mediated Communication, 6, http://jcmc.indiana.edu/vol6/issue3/larose.html.
- Lorenz, V.C., & Yaffee, R.A. (1986). Pathological gambling: psychosomatic, emotional and marital difficulties as reported by the gambler. Journal of Gambling Behavior, 2: 40-45.

- Marshall, K., & Wynne, H., 2003. Fighting the odds. Perspectives, Ottawa.
- Marshall, K., & Wynne, H., 2004. Against the odds: a profile of at-risk and problem gamblers. Canadian Social Trends 11, 25–29.
- McClelland, D. C. (1998). Identifying competencies with behavioral-event interviews. Psychological Science, 9, 331-339.
- Nataraajan, R., & Goff, B.G. (1991). Compulsive buying: Toward a reconceptualization. Journal of Social Behavior and Personality, 6, 307-326.
- Nisbett, R. E., & Wilson, T.D. (1977). Telling more than we can know: Verbal reports on mental processes. Psychological Review, 84, 231-259.
- NORC, National Opinion Research Center at the University of Chicago (1991). Gambling Impact and Behavior Study, Report to the National Gambling Impact Study Commission. April 1.
- Nower, L., & Blaszczynski, A. (2010). Gambling motivations, money-limiting strategies, and precommitment preferences of problem versus non-problem gamblers. Journal of Gambling Studies, 26, 361-72.
- O' Guinn, T.C., & Faber, R.J. (1989). Compulsive Buying: A Phenomenological Exploration. Journal of Consumer Research, 16: 147-157.
- O'Keeffe, K. (2013). Macau Gambling Revenue up 25% on Year in March to Record MOP 31.34 Billion. Dow Jones Business News, April 02, at: http://www.nasdaq.com/article/macaugambling-revenue-up-25-on-year-in-march-to-record-mop3134-billion-20130402-00043#.UV2i2TdPF0w.
- Peter, J. P. (1981). Construct validity: A review of basic issues and marketing practices. Journal of Marketing Research, 18, 133-145.
- Prentice, C. (2013). Who stays, who walks, and why in high-intensity service contexts. *Journal of Business Research* http://dx.doi.org/10.1016/j.jbusres.2013.02.044

- Read more: http://www.nasdaq.com/article/macau-gambling-revenue-up-25-on-year-in-march-torecord-mop3134-billion-20130402-00043#ixzz2PVjUAAhh Prevalence of comorbid disorders in problem and pathological gambling: systematic review and meta-analysis of population surveys
- Responsible Gaming Council (2013). http://www.responsiblegambling.org/docs/rgc-research/2011-2012-annual-report-building-knowledge-creating-solutions.pdf?sfvrsn=10
- Rook, D.W., & Fisher, R. J. (1995). Normative influence on impulsive buying behavior. Journal of Consumer Research, 22, 305-313.
- Shaffer, H.J., & Hall, M.N. (2001). Updating and refining prevalence estimates of disordered gambling behavior in the United States and Canada. Can Journal of Public Health, 92: 168– 172.
- UNLV Center for Gaming Research (2013). Nevada Gaming Revenues 1984-2012. At: http://gaming.unlv.edu/reports/NV_1984_present.pdf.
- Urry, J. (1990). The tourist gaze. Thousand Oaks, CA: Sage.
- Valence, G., d'Astous, A., & Fortier, L. (1988). Compulsive buying: Concept and measurement. Journal of Consumer Policy, i1, 419--433.
- Wilson, T.D. (2002). Strangers to ourselves: Discovering the adaptive unconscious. Cambridge: Harvard University Press.
- Wong, I.K., & Fong, V.H.I. (2012). Development and validation of the casino service quality scale: CASERV. International Journal of Hospitality Management, 31, 209-217.
- Woodside, A.G., & Zhang, M. (2012). Identifying X-consumers using causal recipes: "Whales" and "jumbo Shrimps" casino gamblers. Journal of Gambling Studies, 28:13–26.
- Woodside, A.G., Frey, L.L., & Daly, R.T. (1989). Linking service quality, customer satisfaction, and behavioral intention. Journal of Health Care Marketing, 9, 5-17.





Note. The Venn diagram sitting on top of cell 1 is to indicate different compulsive behaviors (e.g., a = alcoholism, b = smoking, and c = gambling addictions) may overlap for some individuals; different sizes of overlapping circles indicates that time commitments vary for different compulsive behaviors. Sizes of rectangles in the figure vary by sizes to indicate varying shares of individuals in a population.





3a. Original hypotheses

3b. Revised hypotheses

Figures 3a and 3b Heider's Balance Theory Applied to Casino Service Evaluations by Problem Gamblers

Table 1 Construct Scale Coefficient Alpha, α, (and Corrected Item-to-Total Correlations) (Decimal Points Omitted)

Immediate Outcomes

Casino has up-to-date appealing facilities, $\alpha = 92$

The casino has up-to-date equipment (85) The casino_i's physical facilities are visually appealing (84) The casino_i's physical facilities are clean (82) The appearance of the physical facilities of the casino is in keeping with the type of service provided (72)

Quality of Service response, $\alpha = 86$

When the casino promises to do something by a certain time, it does so (74) The casino provides its services on time (80)

The casino tells its customers exactly when services will be performed (67)

Casino has best interest at heart plus employees care, $\alpha = 94$

The casino has your best interest at heart (75)

When you have problems, the employees are sympathetic and reassuring (81)

The employees are dependable (81)

The employees are helpful (83)

The employees are polite (87)

The employees are aware of your needs (79)

Quality of the games, $\alpha = 89$

The casino has sufficient number of table games available (75) The casino has sufficient number of slot machines available (78) The casino provides a variety of games (85)

Food and beverage quality, $\alpha = 83$

The casino offers a variety of food and beverage (73) The price of food and beverage is reasonable (66) The quality of food and beverage is excellent (67)

Ambience, $\alpha = 86$

The casino's ambience is comfortable (76) The casino's decor and layout are stylish (76)

Global Outcomes

Casino is my first choice (single item) I always consider this casino as my first choice to visit

Overall service quality, $\alpha = 83$

Overall service quality of the casino (71) Overall how satisfied are you with the service provided by the casino (71)

Positive word-of-mouth for this casino, $\alpha = 96$

I say positive things about the casino to other people (92) I recommend the casino to other players who haven_i¦t been here (92)

Propensity to switch from this casino, $\alpha = 87$

I will switch to other casino that offers better services and deal (78) I will switch to another casino if I experience a problem (78) with the casino service



Figure 4 Main Effect Paths (standardized b coefficients (ßs), and phi²) ¹Note. Average bet size has a negative relationship with gambling problem

Table 2 Respondents' Income Distribution and Average Problem Gambling Severity Index Scores (Standard Error of the Mean)

			problem gambling segments								
			None	1-	2	3	-4	5-6	7+	Total	Mean (s.e.)
INCON	1E \$3,000 or below	Count	81		11		16	4	11	123	
		% within INCOME	65.9%	8	.9%	1	3.0%	3.3%	8.9%	100.0%	1.7 (0.29)
	\$3,001 to \$6,000	Count	95		22		17	12	13	159	
		% within INCOME	59.7%	13	.8%	1	0.7%	7.5%	8.2%	100.0%	1.8 (0.23)
	\$6,001 to \$10,000	Count	17		3		4	3	3	30	
		% within INCOME	56.7%	10	.0%	1	3.3%	10.0%	10.0%	100.0%	1.9 (0.47)
	\$10,001 to \$15,000	Count	7		2		9	10	0	28	
		% within INCOME	25.0%	7	.1%	3	2.1%	35.7%	0.0%	100.0%	3.1 (0.41)
	\$15,001 to \$20,000	Count	5		0		1	0	1	7	
		% within INCOME	71.4%	0	.0%	1	4.3%	0.0%	14.3%	100.0%	
	\$20,001 to \$25,000	Count	3		0		2	3	1	9	
		% within INCOME	33.3%	0	.0%	2	2.2%	33.3%	11.1%	100.0%	
	\$25,001 to \$30,000	Count	2		1		2	3	0	8	3.4 (0.86)
		% within INCOME	25.0%	12	.5%	2	5.0%	37.5%	0.0%	100.0%	
	\$30,001 or above	Count	0		0		0	1	2	3	7.3 (0.88
		% within INCOME	0.0%	0	.0%		0.0%	33.3%	66.7%	100.0%	
Total		Count	210		39		51	36	31	367	2.0 (0.15)
		% within INCOME	57.2%	10	.6%	1	3.9%	9.8%	8.4%	100.0%	
			Sum of	·					I		•
			Squares	s	df		Mean	Square	F	Sig.	$\eta 2 = 0.055,$
-	Between Groups (Con	nbined)	179.0	075		7		25.582	3.011	.004	a moderate
	Line	arity	113.	530		1		113.530	13.362	.000	effect size.
	Devi	ation from Linearity	65.5	544		6		10.924	1.286	.263	
	Within Groups		3050.2	228	3	359		8.496			
	Total		3229.3	302	3	366					

INCOME * problem gambling segments Crosstabulation

 $\beta = .32$, adj. $R^2 = .10$ $\beta = -.23$ Casino up-to-date, appealing facilities ß = .17 $\beta = -.22$ Quality of service responsiveness This casino is my first choice to visit r = .66 $\beta = -.14$ (adj. R2 = .52, d.f. = 2/407) $\beta = .32$ Casino has my best interests $\beta = -.21$ $\beta = .55$ at heart + employees care ≻ Problem Gambling ß = .15 $\beta = .13$ ß= **-**.07 \rightarrow Ouality of games .48 $\beta = .25$ $\beta =$ $\beta = -.20$ \rightarrow Food & beverage quality $\beta = .16$ **Overall** service $\beta = -.14$ quality of casino \rightarrow (adj. R2 = .55, d.f. 5/404) $\beta_{1}, \beta_{2}, \beta_{3} = -.99, +2.64, -1.82$ +WOM for this casino → adj. R2 = .41, d.f. = 2/407 $\beta = .26$ $\beta = -.09$ → Ambience **Casino switching** ß = - .09 propensity

Figure 5 Problem Gambling and Evaluations of Casino Attributes and Overall Outcomes: Simple Regression Analyses and Multiple (in Bold) Regression Analyses for Three Overall Outcomes

Pre-print version of an article published in Psychology and Marketing 30(12): 1108-1123. doi:10.1002/mar.20670.

Table 3

Predictive Validities of Seven Overall Casino Service Quality and Satisfaction (OCAQS) Models: Correlations (r's) of Predicted and Actual Scores Using Individual Models for Each of the Seven Casino (Note. Decimal points omitted for r values)

<u>Casino:</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	
n =	69	68	62	53	60	40	60	
Casino A model: OCSQS = $1.989 + (.543 * \text{Ambience}) + (.070 * \text{heart+service responsiveness})$, adj. R ² = .556, d.f. = 2/66								
r =	76	57	71	82	55	62	71	
Casino B model: OCSOS = $3.079 + (.257 * Food Beverage) + (.150* Facilities Quality), adi. R2 = .440, d.f. = 2/64$								
r =	66	68	73	80	61	77	69	
Casino C model: $OCSQS = 2.411 + (.265*Food_Beverage) + (.162*Facilities_Quality), adj.R^2 = .522, d.f. = 2/59$								
r =	66	68	73	80	62	77	70	
Casing D model: $OCSOS = 452 \pm (650 \text{ Ambigues}) \pm (251 \text{ Fault Decomposition}) = 452 \pm (650 \text{ Ambigues}) \pm (251 \text{ Fault Decomposition}) = 452 \pm (650 \text{ Ambigues}) \pm (251 \text{ Fault Decomposition}) = 452 \pm (650 \text{ Ambigues}) \pm (251 \text{ Fault Decomposition}) = 452 \pm (650 \text{ Ambigues}) \pm (251 \text{ Fault Decomposition}) = 452 \pm (650 \text{ Ambigues}) \pm (251 \text{ Fault Decomposition}) = 452 \pm (650 \text{ Ambigues}) \pm (251 \text{ Fault Decomposition}) = 452 \pm (650 \text{ Ambigues}) \pm (251 \text{ Fault Decomposition}) = 452 \pm (650 \text{ Ambigues}) \pm (251 \text{ Fault Decomposition}) = 452 \pm (650 \text{ Ambigues}) \pm (251 \text{ Fault Decomposition}) = 452 \pm (650 \text{ Ambigues}) \pm (251 \text{ Fault Decomposition}) = 452 \pm (650 \text{ Ambigues}) = 452 \pm (650 Ambig$								
				.231 F000_Bev	erage), auj. K -	/ 14, u.i. – 2,4	7	
$\mathbf{r} =$	69	60	68	78	58	55	68	
Casino E model: $OCSOS = 2.88 + (.214*Food Beverage) + (.235*Ouality Games) add R2 = 434 df = 2.57$								
r =	60	62	71	77	67	72	67	
1 -	00	02	/ 1	//	07	12	07	
Casino F model: $OCSQS = 1.175 + (.327*Food_Beverage) + (.199*Facilities_Quality), adj. R2 = .563, 2/37$								
r =	66	68	73	80	62	77	70	
Casino G model: $OSSQS = 1.20/ + (.31/*Facilities_Quality + (.084*heart+employees_care), adj. R2 = .54, 2/5/$								
$\mathbf{r} =$	66	59	70	73	73	71	74	

Pre-print version of an article published in Psychology and Marketing 30(12): 1108-1123. doi:10.1002/mar.20670.

Table 4 Meta-Analysis of Antecedents and Outcomes of Problem-Gambling across Seven Casinos

	<u>r</u>	for total <u>n</u>	<u>Unweighted Mean r</u>	<u>Standard Error</u>	<u>95% Confidence Interval</u>
	Antecedents				
•	Casino reward card	+0.445	+0.448	0.037	+0.356 - +0.539
•	Number of visits annually	+0.411	+0.408	0.060	+0.260 - +0.553
•	Length-of-play each day	+0.220	+0.232	0.046	+0.120 - +0.343
	<u>Outcomes</u>				
•	The casino has your best interest at heart; services quality	-0.275	-0.243	0.040	-0.3400.146
•	Quality-of-games	-0.028	-0.103	0.103	-0.354 - +0.149
•	Food and beverage quality	-0.202	-0.250	0.070	-0.4200.080
•	Overall service quality/satisfaction	n -0.137	-0.183	0.075	-0.368 - +0.001
•	Positive word-of-mouth	-0.119	-0.114	0.076	-0.300 - +0.073
•	This casino is my first-choice	-0.135	-0.139	0.041	-0.2400.038
•	Switch casino propensity	-0.091	-0.085	0.066	-0.250 - +.077