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GAMBLING BEHAVIOR AND THE FIVE

FACTOR MODEL OF PERSONALITY

by

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A thesis submitted in partial fulfillment
of the requirements for the

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Department of Psychology
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Thesis Approval

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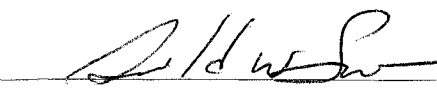The Thesis prepared by

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ABSTRACT

Gambling Behavior and the Five-Factor Model of Personality

by

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Recent research has correlated gambling with age, gender, ethnicity and various specific personality traits. No previous research has examined the predictive value that the Five-factor model of personality may lend to level of gambling. The Five-factor model argues that variation in human personality can be largely captured along five dimensions: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness (Costa & McCrae, 1992). The current study examined the relationship between level of gambling and the Five-factor model of personality in a sample of college students. Regression analysis was used to determine if any of the dimensions of the Five-factor model predict variations in level of gambling. It was found that significant portions of variance in gambling scores were predicted by Conscientiousness and Agreeableness. Findings show that the five-factor model of personality is useful in examining the personality of gamblers.

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CHAPTER 1

INTRODUCTION

Gambling is risking something of value for an outcome that is in doubt. The

popularity of gambling as a recreational activity grows with each new year. Recent

studies in the United States have found that over 85% of the people sampled have

gambled in their lifetime as opposed to 68% of the people sampled only three decades

earlier (Petry, 2005). This upward trend might be due to the increasing availability of

gambling outlets. In 1975 Nevada was the only state to offer casino gambling along with

thirteen states providing a state lottery. Over the years, opportunities to gamble have

increased and currently all but two states have some form of legalized gaming activity

(Knapp, 1997). The relatively recent availability of internet gambling sites also adds

another gambling option for people.

Historically gambling has been seen as morally wrong. Some religious

communities have criticized gambling as an evil (Thompson, 2001). However, the

perception of gambling shifted in the opposite direction sometime during the 19th century

when the commercialization of gambling increased dramatically (Reith, 2003). Games of

chance were becoming highly organized and now instead of two gamblers risking money

against each other, there was now a middleman. This commercialization helped end the

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attempts to outlaw and ban gambling based on moral principles and paved the way for the proliferation of gambling outlets.

In the mid 20th century there was a shift to the medicalization of gambling. Gradually, gambling became lumped in with addicting substances like alcohol and drugs. This movement first began with the creation of Gamblers anonymous in 1957 and continued in 1972 when Dr. Robert Custer created the first treatment program for compulsive gambling. Researchers noticed withdrawal symptoms, preoccupation, and increased wagering in gamblers. The term pathological gambler was used to describe these individuals that showed an addiction to gambling that was very similar to the addiction showed to alcohol by alcoholics.

Pathological gambling was first included in the 3rd revision of the Diagnostic and Statistical Manual of Mental Disorders (DSM III; American Psychiatric Association, 1980). The DSM III classified pathological gambling with impulse disorders such as kleptomania and pyromania. However the criterion that the DSM III used to classify pathological gamblers was criticized as being overly concentrated on the effects of pathological gambling and also did not account for problem gamblers that are not quite at the level of pathological yet (Knapp & Lech, 1986; Thompson, 2001).

Subsequent revisions to the DSM have attempted to differentiate pathological gambling from other addictions based on empirical research (Thompson, 2001). The result of these revisions is the current criterion of pathological gambling found in the DSM IV (American Psychiatric Association, 1994). The DSM IV lays out 10 criteria by which a person is classified as a pathological gambler after satisfying any 4 of them. These criteria cover preoccupation, increased wagering, unsuccessful stopping attempts,

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withdrawal effects, escape, chasing, lying, illegal activity, risking the loss of job or family, and looking to others for financial relief. The DSM IV criterion for pathological gambling, however, still fails to adequately classify gamblers that fall below the pathological level.

Researchers have recently sought to standardize the terminology in gambling research by using a common system to categorize gamblers (Gernstein et. al., 1999; Petry, 2005; Shaffer, Hall & Vander Bilt, 1997; Shaffer, Vander Bilt & Hall, 1999). One proposed method of classifying gamblers places them in one of four categorizes. Level 0 gambling identifies a person who has never gambled. Gambling at Level 1 would indicate that a person recreationally gambles in such a way as to not cause any significant problems to self or others. Level 2 gambling indicates that there have been some problems created by gambling. Level 3 gambling indicates there have been significant problems associated with gambling. Level 3 gamblers are often referred to as pathological gamblers according to criteria in the DSM-IV (American Psychiatric Association, 1994).

One of the more common instruments for placing gamblers in any of the four categories is the South Oaks Gambling Screen, or SOGS (Lesieur & Blume, 1987). The SOGS was created based on the criterion from the DSM III-R and has seven components: family disruption, employment disruption, lying about gambling wins and losses, default on debts, seeking someone to relieve a desperate financial situation caused by gambling, borrowing from illegal sources, and committing an illegal act to finance gambling. Scores on this instrument range from 0 to 20. A score of 0 indicates no problem (Shaffer's Level 0 or Level 1 gambling), a score between 1 and 4 indicates some problem (Level 2

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gambling), and a score of 5 or above indicates a probable pathological gambler or Level 3 gambling (Lesieur & Blume, 1993).

Even though the SOGS is the most widely used assessment tool in gambling research, it suffers from several shortcomings. Since the base rate of pathological gambling is low, screening tools like the SOGS can produce a large number of false positives (Culleton, 1989). The SOGS has also been criticized for being based on DSM III criterion for pathological gambling instead of the current criterion of the DSM-IV-R. However evidence has shown that SOGS scores correlate highly with DSM-IV criterion (Cox, Enns & Michaud, 2004).

Recent efforts have been made to increase the number of assessment tools for measuring gambling level. The Canadian Problem Gambling Index, or CPGI for short, was created in order to measure gambling level in general population studies as opposed to those clinical populations (Ferris & Wynne, 2001). The project that culminated in the creation of the CPGI started in 1998 and consisted of three phases. In phase one the concept of problem gambling was clarified and a pilot survey was created. The pilot instrument was then administered and later tested for validity and reliability. A final report of the findings was given in 2001 and produced the final version of the CPGI. The 31 item measure assesses correlates of problem gambling to gather a profile of the gambler and also includes nine items that can be used to gather the prevalence rate of problem gambling. The CPGI was designed to be administered over the phone as an interview style survey as opposed to the SOGS which is a paper based survey. Since the CPGI is a relatively recent addition to the multitude of gambling assessments it has not been utilized in many research studies.

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One of the main advantages the CPGI has over other measures is that it places emphasis on social and environmental aspects of gambling. The CPGI measures correlates of gambling which can provide more information about gamblers. For example a gambler may score below pathological levels on the CPGI. However, if that person scores highly on the correlates of pathological gambling they may be at a higher risk for developing a gambling problem than a person not scoring highly on the correlates.

Most previous gambling research has focused on Level 2 and Level 3 gamblers. Much of this work has looked at various demographic variables in relation to gambling activity. For example, African Americans have comprised a larger percentage of Level 2 and Level 3 gamblers than other ethnicities (Gerstein et. al., 1999). Males are also more likely to be Level 2 or Level 3 gamblers (Shaffer, Hall, and Vander Bilt, 1999). Research has also looked at rates of gambling in older adults. A recent telephone survey of older adults in Manitoba found that 77% of those 60 years of age and over have gambled in the last year (Wiebe & Cox, 2005). Of those older adults sampled, only 1.2% were found to be Level 3 gamblers and 1.6% were found to be Level 2 gamblers.

Adolescents are of special interest in the gambling literature because the legal restraints on gambling create a group of individuals that have to bypass legal authority in order to gamble. Casinos frequently check patrons for identification to ensure they are not contributing to underage gambling. Even with laws and mechanisms in place a large number of adolescents still gamble (Knapp, & Crossman, 2006; Shaffer, Vander Bilt, & Hall, 1999). Studies have shown that adolescents and younger adults are more likely to have problems gambling when compared to older adults (Shaffer, Hall, and Vander Bilt, 1999). In a study examining college aged participants in a fertile gambling area, 9.51% of

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those under 21 years of age were classified as Level 3 gamblers (Platz, Knapp, & Crossman, 2005). With these high levels of gambling in underage gamblers, it is important to compare age groups in gambling research.

In addition to examining demographic variables such as age, gender and ethnicity, researchers have also looked towards cognitive reasoning deficits to explain individual differences in gambling behavior. Researchers have utilized the Iowa Gambling Task (IGT) to look at individuals with decision making impairments (Bechara, Damasio, Damasio, & Anderson, 1994). The IGT requires individuals to select cards from one of four card decks. Some decks provide better outcomes than other decks and it is the task of the individual to keep track of these results and select cards from the advantageous decks.

Poor performance on the IGT has been demonstrated by individuals with lesions to their ventral medial prefrontal cortex (Bechara, Tranel, & Damasio, 2002). These individuals selected decks that provided large immediate rewards, but with more overall losses. Similar poor performance on the IGT was also demonstrated by pathological gamblers (Cavedini et. al., 2002). Gamblers with comorbid substance abuse problems displayed similar decision making problems when choosing between small immediate rewards and larger rewards presented later (Petry & Casarella, 1999; Petry, 2001). Those individuals with gambling problems tended to select immediate rewards as opposed to the later larger rewards. Researchers have also looked towards personality traits to help understand individual differences in gambling behavior. One of the major theories of personality that has yet to be related to gambling is the Five-factor model of personality.

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Five-Factor Model of Personality

Personality psychologists have turned to using ordinary language terms to describe personality characteristics. These terms consist of adjectives drawn from dictionaries that individuals would use to describe a person. Lists of adjectives are then given to individuals to either describe themselves or someone else. The results are then put through a factor analysis to determine the associations between terms which are labeled as dimensions. Research has consistently shown that when describing personality, five dimensions typically emerge (Goldberg, 1990, 1992; McCrae & Costa, 1985, 1992). The five dimensions have collectively been labeled the Five Factor Model of personality.

The Five-factor model of personality argues that variation in human personality can be largely captured with five dimensions: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness (Costa & McCrae, 1992). The mnemonic OCEAN serves as a prompt for easy recall of the five dimensions. Each dimension consists of more specific facets that collectively measure the broader dimension (see Table 1). For example, the facets of warmth, gregariousness, assertiveness, activity, excitement-seeking, and positive emotions collectively make up the over-arching dimension of Extraversion (Piedmont, 1998). Recent confirmatory factor analysis strengthens previous research supporting the factoral structure of the Five-factor model (Aluja, Garcia, Garcia, & Seisdedos, 2005).

Openness to Experience is one broad dimension that is comprised of 6 facets. The first facet is *fantasy*. Individuals that score highly on this facet are said to imagine intricate daydreams. *Aesthetics* is the second facet used to describe individuals that have an appreciation for art. High scorers on *feelings* experience very strong feelings and

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regard those strong feelings as an integral aspect of their lives. *Actions* describes the degree to which an individual will try new things such as new foods or activities. Openness to *ideas* describes individuals that value knowledge and learning. Individuals scoring high on *values* tend to have liberal values. Taken together, a person that scores high on the dimension of Openness to Experience is interpreted as meaning that the person is creative, artistic, original, and willing to jump into new experiences. Conversely, those that score low on Openness to Experience are less willing to explore new experiences and less creative.

The second dimension of Conscientiousness is made up of six facets labeled *competence, order, dutifulness, achievement striving, self-discipline,* and *deliberation.* Individuals that score highly on this dimension usually regard themselves as very competent in life (competence) and very organized (order). High scorers also tend to feel an obligation to their job (dutifulness) and are highly motivated to succeed in anything they do (achievement striving). These individuals tend to have self-control (self-discipline) and make plans in advance (deliberation). Those people that score high on Conscientiousness are very conscious of others along with their selves and are dependable. Those scoring low are typically careless and irresponsible.

Extraversion is the third dimension. *Warmth* is the first facet of Extraversion and describes an individual that has cordial and deep interpersonal relationships with other individuals. *Gregariousness* describes those individuals that are very sociable and actively seek out companionship. *Assertiveness* is the third facet of extraversion and describes those individuals who are natural leaders that easily take charge of situations. The first three facets are commonly known as the interpersonal traits. The last three are

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known as the temperament traits. *Activity, excitement seeking,* and *positive emotions* comprise the last three facets. Individuals that score high on these typically lead eventful lives (activity). They tend to seek out risky activities and in the extreme form can be labeled as adrenaline junkies (excitement seeking). These activities in turn cause positive emotions inside the person.

The fourth dimension of the five factor model is Agreeableness and is also made up of six facets. Individuals that score high on this dimension are usually very trusting of others and rarely expect deceit (*trust*). These individuals are also very honest themselves and can be trusted by others (*straightforwardness*). Another aspect of individuals that score highly on this dimension is their unselfishness and helping of others (*altruism*). These individuals also turn to others for decisions since they are usually too meek to make their own (*compliance*). Individuals scoring high on this dimension also show a lot of *modesty* when judging their own abilities. They also show *tender-mindedness* and compassion towards others. This usually manifests itself in donations to charities or volunteer work.

The last dimension of the five factor model is called Neuroticism. High scorers on this dimension tend to be nervous and tense (*anxiety*). They also tend to be ill tempered and hard to get along with (*angry hostility*). Individuals that score high on this dimension also have a tendency to feel sorrow and sadness often (*depression*). These individuals are sensitive to criticism from other and are especially aware of how they appear to others (*self consciousness*). High scorers also tend to not plan out actions in advanced and like to engage in spur of the moment activities (*impulsiveness*). They also have a hard time dealing effectively with stressful situations (*vulnerability*). Piedmont (1998) states that a

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person scoring high on Neuroticism would be, "… prone to experiencing psychological distress, unrealistic ideas, excessive cravings or urges, and maladaptive coping responses" (p. 84).

Personality and Gambling

Researchers have attempted to find commonalities in the personality of gamblers. Two traits that have received much attention are sensation seeking and impulsivity. Larger personality inventories consisting of many traits have also been used by researchers. Most early studies used the Minnesota Multiphasic Personality Inventory (MMPI) to find some commonalities in the personalities of gamblers. Other researchers have utilized the Tridimensional Personality Questionnaire (TPQ) to assess the personalities of gamblers (see Knapp & Lech, 1986 for a review of early studies).

Sensation seeking is a personality trait that describes individuals that seek out risky activities to satisfy a need for various novel sensations (Zuckerman, 1999). Individuals that are high in sensation seeking grow bored with the routine and seek out excitement frequently. However those that score low on this trait do not seek excitement, rather maintain a routine lifestyle.

It has been posited that pathological gamblers would score high in sensation seeking (Zuckerman, 1999). However after reviewing much of the empirical research on the subject, Hammelstein (2004) has found that pathological gamblers actually score lower on average than healthy controls. This discrepancy might be due to sample bias as many of the participants in those studies fall into a homogenous group of low sensation seekers (Zuckerman, 2005). For example, Zuckerman points out that most pathological

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gambling participant in the studies reviewed by Hammelstein are older and possibly depressed. Sensation seeking has been shown to decrease with age, and has been shown to be lower in depressed individuals (Zuckerman, 2005). In spite of the contradicting evidence, sensation seeking is still an area of interest for gambling researchers.

Impulsiveness is a trait that describes individuals that act without planning or self control. This trait has been found to be increased in problem gamblers (Steel & Blaszczynski, 1998; McCown & Chamblerlain, 2000; Alessi & Petry, 2003). However the nature of the relationship between gambling and impulsiveness has not been fully explained. Impulsiveness can also be thought of as the inability to defer gratification. Deferment of gratification along with sensation seeking and competitiveness has been examined. While sensation seeking was not found to predict pathological gambling, both deferment of gratification and competitiveness were found to predict pathological gambling (Parke, Griffiths & Irwing, 2004).

Studies have also looked at combinations of personality traits and their relationship to pathological gambling. Nearly all of the early studies employed the MMPI (see Knapp & Lech, 1986 for a review). More recently, Kim & Grant (2001) used the Tridimensional Personality Questionnaire (TPQ) to assess personality of their participants on three factors. They found that pathological gamblers were higher than normal on novelty seeking, impulsiveness, and extravagance. In a study looking at a myriad of personality characteristics, Raviv (1993) found that pathological gamblers recruited from gamblers anonymous were more depressed than control participants. It was also found that there was no difference between Level 3 gamblers and control groups on sensation seeking, anxiety, and obsessive-compulsive.

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The personality of problem gamblers has also been compared to personalities of substance-related addictive disorders. Slutske, Caspi, Moffitt & Poulton (2005) obtained scores on the Multidimensional Personality Questionnaire (MPQ) and conducted structured interviews to assess gambling. Their sample consisted of an entire cohort of individuals born in New Zealand. The participants completed the MPQ at age 18 and completed the gambling interviews at age 21. Results indicated that problem gamblers shared the same pattern of personality as alcohol dependent, cannabis dependent, and nicotine dependent participants. Each of those personality patterns significantly deviated from personalities of participants with no gambling or substance-related addiction.

Despite widespread use of the Five-factor model (Goldberg, 1993; Costa, 1996), no published studies have examined the personality of gamblers using this model. Instead, gambling researchers use different personality measures making generalizability difficult. Promising new research however has recognized the need to look at personality variables and their relationship to gambling. In a final report to the Ontario Problem Gambling Research Centre Bagby, Farvolden, Toneatto & Oakman (2003) used the NEO-PI-R and the CPGI with problem, recovered, and non-problem gamblers. Problem gamblers showed elevated neuroticism scores and lowered conscientiousness scores. Main effects were also observed on the facet level. These effects show that the Five-factor model can be useful in describing the personality of gamblers.

A clinical case study also employed the Five-factor model to assess a pathological gambler using the NEO-PI-R (Piedmont, 1998). The overall scores were quite normal except for a few dimensions. Compulsive behavior is noted by high scoring on the facets of Impulsiveness and Excitement seeking and low scoring on Self-Discipline and

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Deliberation. All these were present in the case study except for low levels of Deliberation.

Hypotheses

Three specific hypotheses will be addressed in examining the relationship between gambling level and the Five-factor model of personality:

1.   What structural features of personality, if any, distinguish between Level 1, Level 2, and Level 3 gamblers? Specifically, do any of the five dimensions of the Five-factor model account for a significant portion of the variance in scores on the CPGI?

2.   It is specifically predicted that level 3 gamblers will score high on the immoderation facet of the Neuroticism dimension, score high on both activity level and excitement-seeking on the Extraversion dimension, and score low on the self-discipline facet of the Conscientiousness dimension.

3.   Is there a significant difference in personality between participants that are under 21 and those that are over 21 with respect to level of gambling?

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CHAPTER 2

METHODOLOGY

Participants

Participants were recruited from the University of Nevada Las Vegas Psychology

Subject Pool. The Subject Pool consists primarily of students enrolled in Psychology 101.

As a result of research participation, students received class credit (but no money). A

total sample of 281 was obtained consisting of 129 males (45.9%), 150 females (53.4%),

and 2 that did not specify. The ages ranged from 18 to 47 with a mean age of 20.27 (SD =

3.19). The group consisted of 56.6% Caucasian, 14.2% Asian, 11.7% Hispanic, 6.0%

African American, 5.7% Pacific Islander, and 5.7% other. The sample mainly consisted

of college freshmen (50.2%) followed by sophomores (28.5%), juniors (13.9%), seniors

(6.0%) and 1.4% not selecting a class.

Measures

IPIP-NEO-PI

Goldberg (2001) has created an online international collaboration for free use of a

broad-bandwidth personality inventory called the IPIP. The IPIP provides an alternative

to current popular proprietary instruments. The IPIP-NEO-PI contains 300 items that

measure each of the Big-Five factors along with 6 facets of each factor. Correlations

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between the IPIP-NEO-PI and the original NEO-PI average .71, and when corrected for unreliability rise to average .94 (Goldberg, 2001). While there has only been limited research validating the IPIP instruments, recent findings indicate the IPIP alternate for the NEO-PI relates strongly with the NEO-PI and has adequate internal consistency (Gow, Whiteman, Pattie & Deary, 2005). For a list of all five dimensions and all facets see Table 1.

SOGS

In order to identify level of gambling the South Oaks Gambling Screen (SOGS) will be given (Lesieur & Blume, 1987). The SOGS has been utilized in many different settings and is the most frequently used measure of pathological gambling (Shaffer, Hall, & Vander Bilt, 1999). The SOGS has been validated against the criteria for pathological gambling established by the Diagnostic and Statistical Manual of Mental Disorders (3rd ed., rev.; DSM-III-R; American Psychiatric Association, 1987). Agreement between the SOGS and the DSM-III-R was found to be 98.1% for Gamblers Anonymous members, 95.3% for university students, and 99.3% for hospital employees (Lesieur & Blume, 1987). Reliability was also obtained by Lesieur & Blume by combining the Gamblers Anonymous group, university students group, and hospital employees group and computing internal consistency (Cronbach's α=.97). Recent findings have indicated reliability alpha for the SOGS at .69 for the general population and .86 for a gambling treatment sample (Stinchfield, 2002).

In the present study, the first question of the SOGS was modified to reflect the type of gambling available for the sample (Lesieur & Blume, 1993). Additions to the list included gambling in a casino poker room, an online poker site, an online gambling site,

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and casino table games (pai gow, blackjack, carribean stud, let it ride, 3 card poker and roulette). The remainder of the SOGS items were not altered.

CPGI

A second measure of gambling that was administered is called the Canadian Problem Gambling Index, CPGI (Ferris & Wynne, 2001). The CPGI is a newly developed measure intended for use in prevalence studies conducted over the phone. The CPGI is divided into three parts. The first part measures gambling involvement by asking a series of questions about the type of gambling played and how much is wagered. The second part of the CPGI assesses problem gambling and is titled the Problem Gambling Severity Index (PGSI). The PGSI consists of 9 items and classifies gamblers into four categories: non-problem gambler, low risk gambler, moderate risk gambler, and problem gambler. The third part of the CPGI contains correlates of problem gambling to further develop the gamblers profile.

The CPGI has been shown to possess adequate reliability. The Cronbach alpha coefficient for the PGSI (0.84) was shown to be higher than both the alpha's for the SOGS (0.81) and the DSM-IV (0.76) (Ferris & Wynne, 2001). Re-test reliability was also examined and correlations were found to be comparable from the PGSI ($r = 0.78$) to the SOGS ($r = 0.75$) and DSM-IV ($r = 0.91$).

Procedure

Participants were directed to a website which contained all of the relevant materials. Participants were welcomed to the study and given their informed consent. After consenting, participants were lead to a demographics questionnaire. The

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demographics questionnaire asked their gender, age, ethnicity, class standing, g.p.a., income, major, and if they are a Nevada resident. After completing the demographics questions, participants were either given the 300 question IPIP-NEO (Goldberg, 2001), the SOGS (Lesieur & Blume, 1987; Lesieur & Blume, 1993), or the CPGI (Ferris & Wynne, 2001). The presentation of the IPIP-NEO, SOGS, and CPGI were counterbalanced to control for any order effects.

Data Cleaning

Only those who completed the SOGS, CPGI and the IPIP-NEO were retained for analysis. Outliers were assessed by Mahalanobis distances as recommended by Tabachnick and Fidell (2007). With the use of a $p < .001$ criterion four outliers were found. Four separate regression equations were used in which each outlier was used as the dependent variable and each of the five factors as the independent variables to determine which independent variables distinguish the outlier from the other cases. Two independent variables were significant predictors for three outliers and four independent variables significantly predicted the fourth outlier. This means that three individuals had extreme scores on two dimensions and another individual had an extreme score on four of the dimensions. All four outliers were determined to be extreme scores and were deleted from the dataset leaving 277 cases for analysis.

Data Analysis

The SOGS and the CPGI significantly correlated with each other ($r = .65$, $p < .01$) and both possessed adequate reliability ($\alpha = .77$ and $\alpha = .82$ respectively). Since the CPGI

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was created for general populations and is highly related to the SOGS, it will be used in all subsequent analyses.

A multiple regression analysis was used to test whether the five dimensions of the Five-factor model could predict variations in CPGI scores. The regression used scores on the CPGI as the predictor and the five personality traits, as measured by the IPIP-NEO, as the independent variables. The reliability of the IPIP-NEO dimensions was calculated and Cronbach alphas are reported in Table 2. The five broad dimensions of the IPIP-NEO were correlated with each other to check for multicollinearity. The five broad dimensions were also correlated with scores on the CPGI. Dimensions that did not significantly correlate with scores on the CPGI were excluded from the regression analysis.

To assess whether high scores on the CPGI are related to high scores on the facets of immoderation, activity level, excitement-seeking and low scores on self-discipline, four ANOVAs were conducted. The sample was split into a high gambling group (level 3 gamblers) and a low gambling group (level 0 gamblers) based on CPGI scores. Those that score a 3 or above (moderate risk and high risk gamblers) were classified into the high group and those that score a zero were put in the low group. Mean scores on the facets of immoderation, activity level, excitement-seeking, and self-discipline were compared between the high and low groups. The high scoring group consisted of 54 individuals and the low scoring group consisted of 152 individuals. Welch's correction was used to compare means when the assumption of homogeneity of variance was violated.

The third question utilized a 2x2 Factorial ANOVA to compare the personality dimensions of participants over and under 21 within each level of gambling. The sample

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was separated into two groups. One group separated the sample by age, over 21 and under 21. The other group separated the sample based on scores on the CPGI. Those scoring a 3 or above (moderate risk and high risk gamblers) were classified as high scorers and those scoring a zero were classified as low scorers. The mean score on each personality dimension was then compared between each group.

CHAPTER 3

RESULTS

Hypothesis 1

The first research question asked if variations in CPGI scores could be accounted

for by the five broad dimensions of the Five-factor model of personality as measured by

the IPIP-NEO. Descriptive statistics for the IPIP-NEO are listed in Table 3. The five

broad dimensions of the five factor model of personality were used as independent

variables. Correlations among the independent variables are reported in Table 4. These

values range between $r = .05$ and $r = .49$. Independent variables that are highly correlated

will explain no unique variance in a regression formula. However, there is no set

guideline for determining if a correlation is too high. Lewis-Beck (1980) argues that

independent variables which correlate above .80 suffer from multicolinearity and will not

explain unique variance in the regression formula. Since the correlations between the

independent variables are all below .50, each independent variable can contribute unique

variance to the regression formula.

The independent variables were then correlated with scores on the CPGI and are

reported in Table 5 along with correlations with all the facets of each dimension.

Correlations between the dependent variable and the dimensions of Extraversion and

Openness failed to reach significance ($r = -.09, p > .05, r = -.09, p > .05$). Therefore, both

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Extraversion and Openness were left out of the regression. The other three dimensions significantly correlated with the dependent variable and were left in the equation. The regression equation consisted of three of the five dimensions as independent variables (Neuroticism, Agreeableness, and Conscientiousness) and scores on the CPGI as the dependent variable.

The three independent variables and the dependent variable were entered into a standard multiple regression. R for the regression was significantly different from zero, F (3,273) = 10.50, $p < .01$, with R^2 at .10 and 95% confidence limits from .04 and .17. Neuroticism had no significant effect on gambling score t (273) = -.07 $p = .95$, $\beta = .00$. Agreeableness was found to have a main effect on gambling scores, t (273) = -2.60, $p = .01$, $\beta = -.16$, with those scoring low on agreeableness being more likely to score high on the CPGI. Conscientiousness was found to have a significant main effect on gambling scores, t (273) = -3.50, $p < .01$, $\beta = -.24$, such that those who scored low on conscientiousness were more likely to have a high score on the CPGI.

Hypothesis 2

The second research question assessed whether individuals that scored high on the CPGI also scored high on the facets of immoderation, activity level, excitement-seeking, and scored low on self-discipline. The high CPGI group had an n = 54, and the low CPGI group had an n = 149. The assumption of homogeneity of variance was tested using the Levene test. Only one of the analyses was found to be heterogeneous (Immoderation), therefore as suggested by Howell (2002) Welch's correction was used. A significant difference was found between the high CPGI score group (M = 3.27, SD = 0.46) and the

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low CPGI score group (M = 2.93, SD = 0.62) with regards to immoderation with Welch's

correction ($p < .01$). Differences between high CPGI group (M = 3.17, SD = 0.66) and

low CPGI group (M = 3.36, SD = 0.75) on the Self-discipline facet failed to reach

significance $F(1, 201) = 2.72, p = .10$ *ns*. No significant difference was found between

the high CPGI group (M = 3.13, SD = 0.42) and the low CPGI group (M = 3.13, SD =

0.46) in regards to scores on activity level $F(1, 201) = .01, p = .94$ *ns*. There was also no

significant difference between the high CPGI group (M = 3.27, SD = 0.64) and the low

CPGI group (M = 3.28, SD = 0.68) on the excitement-seeking facet, $F(1, 201) = .01, p =$

.94 *ns*.

Hypothesis 3

Summary tables for all analyses of hypothesis 3 are provided in Table 6. A 2 x 2

ANOVA (CPGI x AGE) using Conscientiousness as the dependent variable revealed a

significant main effect of CPGI score $F(1, 199) = 17.88, p < .01$. Those that scored high

on the CPGI scored significantly lower on the dimension of Conscientiousness (M = 3.30,

SD = .40) than those who scored low on the CPGI (M = 3.59, SD = .47). When separated

by legal age, those that were under 21 (M =3.52, SD = .48) did not score significantly

different than those over 21 (M =3.50, SD = .46) with $F(1, 199) = 0.01, p = .93$ *ns*. The

interaction between CPGI score and age also failed to reach significance, $F(1, 199) =$

$1.18, p = .18$ *ns*.

Using Agreeableness as the dependent variable reveals a main effect of CPGI

score, $F(1, 199) = 7.73, p < .01$. High scorers on the CPGI were found to have

significantly higher scores on the Agreeableness dimension (M = 3.26, SD = .36) than

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those who scored lower on the CPGI ($M = 3.45$, SD $= .37$). Those individuals that were under 21 ($M = 3.40$, SD $= .37$) did not score significantly different than those over 21 ($M = 3.40$, SD $= .39$) with $F (1, 199) = 0.60$, $p = .44$ *ns*. The CPGI by age interaction failed to reach significance with $F (1, 199) = 0.78$, $p = .38$ *ns*.

Using Openness to Experience as the dependent variable revealed no main effect of CPGI score, $F (1, 199) = 0.86$, $p = .35$ *ns*. The main effect of age also failed to reach significance, $F (1, 199) = 0.18$, $p = .67$ *ns*. Those that scored high on the CPGI ($M = 3.39$, SD $= .37$) were found to have similar scores as those that scored low on the CPGI ($M = 3.46$, SD $= .41$). Those under 21 ($M = 3.44$, SD $= .39$) did not score significantly different than those over 21 ($M = 3.45$, SD $= .42$). The CPGI by age interaction failed to reach significance with $F (1, 199) = 0.08$, $p = .78$ *ns*.

Both main effects of CPGI and age were found to be non significant with Extraversion as a dependent variable with $F (1, 199) = 0.03$, $p = .86$ *ns* and $F (1, 199) = 2.20$, $p = .14$ *ns* respectively. Individuals with high CPGI scores ($M = 3.39$, SD $= .48$) showed no difference from those who scored low on the CPGI ($M = 3.45$, SD $= .45$). Those under 21 ($M = 3.47$, SD $= .44$) had similar average scores on extraversion as those over 21 ($M = 3.33$, SD $= .50$). The interaction was also non significant.

The main effects of age and CPGI using Neuroticism as the dependent variable were found to be non significant, $F (1, 199) = 0.12$, $p = .74$ *ns* and $F (1, 199) = 2.25$, $p = .11$ *ns* respectively. Those older individuals ($M = 2.72$, $SD = .49$) did not significantly differ from the younger individuals ($M = 2.70$, $SD = .48$). Those with high scores on the CPGI ($M = 2.81$, $SD = .38$) did not significantly differ from low scores on the CPGI ($M = 2.67$, $SD = .51$). There was no significant interaction effect, $F (1, 199) = 0.37$, $p = .54$ *ns*.

CHAPTER 4

DISCUSSION

Hypothesis 1

The first hypothesis sought to examine the relationship between the dimensions of

the five factor model of personality and scores on the CPGI. The Five-Factor model of

personality has only recently been recognized as a useful tool in describing gamblers.

Therefore this study was mainly descriptive in nature. The dimensions of the Five-factor

model along with the facets of each dimension were first correlated with scores on the

CPGI. Then, using those broad dimensions that significantly correlated with CPGI scores,

a regression analysis was run to predict scores on the CPGI.

Each of the five dimensions of the Five-factor model is made up of 6 facets. By

looking at personality at the facet level it is possible to get a detailed description of an

individual's personality. Correlating the facets with scores on the CGPI can be useful in

determining if there are any commonalities in the personality of gamblers.

The dimension of Extraversion is made up of 6 facets. Only one facet

(cheerfulness) significantly correlates with CPGI scores. Research has shown that

cheerfulness was positively related to high scores on gambling measures (Gupta,

Derevensky & Ellenbogen, 2006). However findings in this study do not support the

previous research as high scores on the CPGI were significantly correlated with low

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cheerfulness scores. Research has also shown a relationship between excitement seeking and gambling. Excitement-seeking is another facet of Extraversion that is very similar to the personality trait of sensation seeking (Zuckerman, 1999). These two traits describe individuals that seek out exciting activities and novel situations. No significant relationship was found between the excitement-seeking facet and CPGI scores. Previous research has shown mixed results when relating sensation seeking and gambling (Hammelstein, 2004; Zuckerman, 2005), therefore it might be expected that no relationship would be found here. Friendliness, gregariousness, assertiveness, and activity level showed no relationship with CPGI scores.

The Openness to Experience facets of imagination, emotionality, adventurousness, intellect and liberalism did not relate to CPGI scores. There was a significant negative relationship between artistic interest and scores on the CPGI. This means that those individuals that have an appreciation of the arts scored lower on the CPGI than those individuals that do not have an appreciation for art.

Significant correlations were found between CPGI scores and the dimension of Neuroticism. No significant relationships were found between the facets of anxiety, anger and self-consciousness. A significant positive correlation was found between CPGI scores and the facet of immoderation which supports previous research (Piedmont, 1998). Individuals that score high on immoderation like to engage in spontaneous activity as opposed to planned out behaviors. Vulnerability is a facet that describes individuals that have trouble dealing with stressful situations and was found to be positively related to CPGI scores. The facet of depression was also found to have a significant positive relationship with CPGI scores. Those that scored high on the depression facet also scored

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high on the CPGI. Elevated levels of depression in gamblers has been observed in previous gambling studies (Clarke, 2006; Petry, 2005; Raviv, 1993)

The overall dimension of Agreeableness was found to be significantly related to CPGI scores. Those that scored low on the dimension scored high on the CPGI. No significant relationship was found between the CPGI and the facets of trust, cooperation and modesty. However, significant relationships were found between morality, altruism and sympathy. Morality is a facet that describes individuals that are honest and trustworthy. The data in this experiment shows that those individuals that scored high on the CPGI also scored low on the morality facet. Individuals that are unselfish in helping others score high on the altruism facet. Individuals that scored low on altruism were found to score high on the CPGI. The facet of sympathy describes those individuals that show compassion towards others. It was found that those who scored low on sympathy scored high on the CPGI. Taken together, the results from this dimension describe level 3 gamblers as more caring about their own well-being as opposed to the well being of others. This type of personality characteristic seems to fit well in gambling games such as texas hold-em poker where gamblers are playing against other gamblers. The success of a gambler in texas hold-em depends on the misfortunes of the other gamblers. Showing sympathy for others might limit the success of a gambler.

The dimension of Conscientiousness was found to be significantly correlated to scores on the CPGI. Five of the six facets of Conscientiousness (self-efficacy, orderliness, dutifulness, achievement-striving and cautiousness) also significantly correlated with CPGI scores. Individuals that scored high on the CPGI scored significantly lower on all five of the facets. Low scores on the facet of self-efficacy show

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that a person is not confident in their abilities and often times they may regard themselves as not competent in life. Orderliness describes individuals who are very organized in life. Therefore low scorers would likely live relatively unorganized and mostly unplanned lives. Individuals that score low on dutifulness do not have a strong feeling of obligation for things such as their job. The achievement-striving facet describes individuals that strive toward personal achievement and have a sense of direction. Low scores on achievement-striving would then not have a strong direction in life. Low scorers on cautiousness do not tend to make plans in advance an sometimes may take unnecessary risks. The one facet that did not significantly correlate with the CPGI was self-discipline. Those individuals that score high on self-discipline have a high amount of self control in their actions.

Since three of the five dimensions were found to significantly relate to scores on the CPGI, those three dimensions were used as independent variables in the regression equation. Two of those dimensions accounted for a significant portion of the variance in CPGI scores (Agreeableness and Conscientiousness). This means that there are some personality dimensions that can help predict the level of gambling. Specifically, there is something about the personality dimensions of Agreeableness and Conscientiousness that can help predict level of gambling. Individuals that scored low on both Agreeableness and Conscientiousness scored higher on the CPGI.

No published studies have utilized the Five Factor theory of personality in gambling research. Gambling research has mainly used the MMPI (Knapp & Lech, 1987) or specific personality traits (Steel & Blaszczynski, 1998; Zuckerman, 1999). Therefore this study was mainly exploratory in nature. Future research should explore the

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relationship of the facets of each dimension with gambling measures. This study only looked at overarching dimensions and their relationship with gambling. However, while some dimensions failed to correlate significantly with gambling measures, some of their facets did.

Hypothesis 2

The second hypothesis examined the differences in specific personality facets between high and low scorers on the CPGI. Piedmont (1998) describes a case study of a pathological gambler where the gambler scored abnormally high on the facets of immoderation, activity level, excitement-seeking and self-discipline. Therefore it was predicted that these previous findings would be replicated.

The analyses showed significant differences with respect to the immoderation facet only. The immoderation facet is very similar to the personality trait of impulsiveness. These individuals do not tend to plan out actions in advanced. They also like to engage in spur of the moment activities. Therefore those individuals that score high on the CPGI are more likely to engage in impulsive behavior than individuals that score low on the CPGI. There were no significant differences found with respect to activity level, excitement-seeking or self discipline.

Future research might attempt to use a better method of categorizing gamblers. Current gambling measures scale the level of problem gambling that a person possesses and provides a total score. A cut off score is then provided to differentiate problem gamblers from non-problem gamblers. However it is hard to show that there are differences from individuals that score just above and just below the cut off score.

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Therefore it may be beneficial to gambling research to create a measure that better

categorizes gamblers, especially recreational gamblers. Most individuals report having

gambled in their life (Petry, 2005), however only a small percentage actually experience

problems from that gambling. This population of gamblers has been overlooked in much

of gambling research.

Hypothesis 3

The third hypothesis examined the differences in personality dimensions with

respect to both age and level of gambling. The sample was split into groups by age (over

21 and under 21) and level of gambling (high and low scores on the CPGI). Analyses

revealed no significant difference in personality dimensions with respect to age.

Significant differences were found in Conscientiousness and Agreeableness scores with

respect to level of gambling. Those scoring high on the CPGI scored significantly lower

on both Conscientiousness and Agreeableness than individuals that scored low on the

CPGI.

Non significant results might be expected when looking for differences in

personality dimensions with respect to age. Personality has been shown to be relatively

stable over time (see McCrae & Costa, 2003 for a review). Therefore the variance in

personality scores should be relatively similar regardless of age. Another possible

explanation for the non significant age differences is that the age range in this experiment

was not very large. One participant was in their 40's and only five participants in their

30's. This restriction of range could have masked any true population differences. Future

research should seek out a more representative sample. Future samples might include

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older adults over 55. This age group has received surprisingly little attention in gambling research.

Conclusion

Gambling is an activity that has been engaged in for thousands of years. Only recently have researchers performed in-depth empirical inquiries into the nature of the gambler. Some researchers have concentrated on finding combinations of personality traits (Knapp & Lech, 1986; Slutske et. Al., 2005), while others have concentrated on individual personality traits (Zuckerman, 1999). However, researchers are just starting to realize the potential that the Five-factor model of personality has for gambling research.

The Five-factor model of personality is an optimum measure to investigate the personality of gamblers not only because it has been validated (Costa & McCrae, 1992), but also because it provides a thorough description of an individual's personality with 5 dimensions and 30 facets. The 30 facets and 5 dimensions cover a large amount of variance in personality. The Five-factor model has been useful in describing the personality of individuals with other addictive behaviors such as alcohol dependence (Martin & Sher, 1994; Ruiz, Pincus, Dickinson, 2003; Bottlender & Soyka, 2005) and substance abuse (Quirk & McCormick, 1998). It has also been utilized recently in exploratory research looking at gambling (Bagby et. Al., 2003).

The Five-factor model is also being applied to personality disorders (Bagby, Costa, Widiger, Ryder & Marshall, 2005). Gambling researchers have looked to personality disorders to help them discover the 'addictive personality' believed to underline gambling addiction. Specifically antisocial personality disorder (ASPD) has

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been found to be associated with problem gambling (Cunningham-Williams, 1998; Petry, 2005; Pietrzak & Petry, 2005). Individuals that are identified as having ASPD tend to be impulsive, ignore obligations, engage in reckless behaviors, and have a temper. Similar types of traits are commonly found in gamblers. The current research found individuals that scored high on the CPGI also scored high on immoderation and low on dutifulness and cautiousness. These individuals display the same type of personality characteristics as those classified as having ASPD.

The NEO-PI (Costa & McCrae, 1985) is an assessment of normal personality as opposed to other personality inventories such as the Minnesota Multiphasic Personality Inventory which is a measure of clinically disordered personality. The NEO-PI offers a wide range of personality combinations that lend well to describing not only problem gambling, but also non-problem gambling. Most gambling research has overlooked is the other 90% of gamblers that do not experience problems with gambling. These individuals may display similar but more diluted personality traits as problem gamblers.

Although the CPGI provides a reliable and validated measure of gambling, improvements need to be made in order to make a more useful measure of gambling. Exploring motivational measures of gambling might provide a more useful measure of gamblers. Alcohol research has done just that with the Drinking Motives Questionnaire (DMQ; Cooper, 1994). The DMQ classifies alcohol users on four factors based on the source of the behavior being internal or external and the reinforcement being positive or negative. The resulting categories are coping, enhancement, social, and conformity motivation. The coping motivation covers individuals that drink for internal reasons to avoid a bad outcome. In order to deal with the loss of a loved one, a coping motivated

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drinker would consume alcohol. The enhancement motivated drinker engages in drinking behavior to bring about good outcomes (positive reinforcement) to themselves (internal). The social drinking mainly drinks alcohol to please others (external positive reinforcement). The conformity drinker is motivated to drink by avoiding negative consequences (negative reinforcement) for non-drinking behavior from other people (external).

A measure similar to the DMQ might be constructed with the gambler in mind. It has been shown that the main motivation to gamble is money followed by enjoyment, social reasons, excitement and boredom (Neighbors, Lostuttor, Cronce & Larimer, 2002). Using a similar paradigm to the one used in the creation of the DMQ might yield a more useful measure to categorize gamblers.

The results of this study show that the dimensions of Neuroticism, Agreeableness and Conscientiousness may be important factors in the personality of gamblers. Each of these three dimensions significantly related to measures of gambling. The same results were also found in substance abusers (Quirk & McCormick, 1998) where those experiencing the most detrimental effects of substance use scored high on Neuroticism and low on both Agreeableness and Conscientiousness. The same results were found here with gamblers. These individuals may have a hard time maintaining social relationships which could possibly help the individual offset any future problems due to gambling.

The current research also shows that examining personality at the facet level can give a more detailed personality configuration than using the five factors. Gambling researchers are just now utilizing the Five-factor model of personality to examine gamblers. More descriptive studies of the personality of gamblers are needed in order to

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create research hypotheses. Other researchers might find benefits in using the IPIP-NEO also. The IPIP-NEO can be used free of charge and it can also be implemented online for ease of use.

The results of this study are correlational in nature, which rules out the possibility of drawing any causal inferences. The direction of the relationship between these variables cannot be determined from this study alone. Personality traits could drive individuals to gamble more than others, or it could be that those individuals that gamble more often than others display a homogeneous set of traits as a result of their excessive gambling behavior. The former may be a more likely option since personality traits have been shown to be relatively stable over time (McCrae & Costa, 2003). Further investigation into the direction of this relationship is needed.

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APPENDIX A

TABLES

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Table 1

Five Factor Model: Dimensions and Facets

Neuroticism	Extraversion	Openness to Experience	Agreeableness	Conscientiousness
Anxiety	Friendliness	Imagination	Trust	Self-efficacy
Anger	Gregariousness	Artistic Interest	Morality	Orderliness
Depression	Assertiveness	Emotionality	Altruism	Dutifulness
Self-consciousness	Activity Level	Adventurousness	Cooperation	Achievement-striving
Immoderation	Excitement-seeking	Intellect	Modesty	Self-discipline
Vulnerability	Cheerfulness	Liberalism	Sympathy	Cautiousness

Table 2

Reliability of the IPIP-NEO

Five Factor Dimension	Facet	Reliability
Neuroticism	N1: Anxiety	.75
	N2: Anger	.81
	N3: Depression	.85
	N4: Self-Consciousness	.70
	N5: Immoderation	.66
	N6: Vulnerability	.67
	Composite	.84
Extraversion	E1: Friendliness	.80
	E2: Gregariousness	.81
	E3: Assertiveness	.79
	E4: Activity Level	.58
	E5: Excitement-Seeking	.78
	E6: Cheerfulness	.80
	Composite	.83
Openness to Experience	O1: Imagination	.76
	O2: Artistic Interest	.79
	O3: Emotionality	.74
	O4: Adventurousness	.59
	O5: Intellect	.76
	O6: Liberalism	.65
	Composite	.72
Agreeableness	A1: Trust	.74
	A2: Morality	.71
	A3: Altruism	.70
	A4: Cooperation	.68
	A5: Modesty	.70
	A6: Sympathy	.63
	Composite	.76
Conscientiousness	C1: Self-efficacy	.72
	C2: Orderliness	.73
	C3: Dutifulness	.72
	C4: Achievement-striving	.80
	C5: Self-discipline	.83
	C6: Cautiousness	.74
	Composite	.83

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Table 3

Descriptive statistics for the IPIP-NEO

Dimension	*M*	*SD*	Min	Max	95% CI	
					Low	High
Neuroticism	2.71	.49	1.55	4.08	2.65	2.77
Extraversion	3.46	.46	2.10	4.52	3.41	3.51
Openness	3.45	.40	2.07	4.70	3.40	3.50
Agreeableness	3.39	.38	2.22	4.48	3.35	3.43
Conscientiousness	3.53	.46	2.38	4.70	3.48	3.58

Note. *N* = 277; Min = minimum; Max = maximum; CI = confidence interval

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Table 4

Correlations among independent variables

	N	E	O	A	C
N					
E	-.40**				
O	-.05	.49**			
A	-.14*	.06	.13*		
C	-.46**	.27**	.13*	.33**	

Note: * $p < .05$, ** $p < .01$. N – Neuroticism, E – Extraversion, O – Openness, A – Agreeableness, C – Conscientiousness.

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Table 5

Correlations between Five-factor dimensions and their facets with the CPGI

Five Factor Dimensions	CPGI
Neuroticism	**.13***
anxiety	.00
anger	.06
depression	.13*
self-consciousness	.04
immoderation	.20**
vulnerability	.13*
Extraversion	**-.09**
friendliness	-.04
gregariousness	-.05
assertiveness	-.04
activity level	-.03
excitement-seeking	-.02
cheerfulness	-.22**

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Table 5 con't.

Five Factor Dimensions	CPGI
Openness to Experience	**-.09**
imagination	-.03
artistic interests	-.13**
emotionality	-.09
adventurousness	-.04
intellect	-.08
liberalism	.03
Agreeableness	**-.23****
trust	-.07
morality	-.21**
altruism	-.29**
cooperation	-.08
modesty	-.11
sympathy	-.20**

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Table 5 con't.

Five Factor Dimensions	CPGI
Conscientiousness	**-.29****
self-efficacy	-.22**
orderliness	-.18**
dutifulness	-.33**
achievement-striving	-.24**
self-discipline	-.12
cautiousness	-.20**

Note. $p < .05$. ** $p < .01$

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Table 6

Analysis of Variance for Hypothesis 3

Dimension	Source	df	F	P	η^2
Openness to Experience	CPGI	1	0.86	.35	.004
	Age	1	0.18	.67	.001
	CPGI x Age	1	0.08	.78	.000
	Within Error	199	(.16)		
Conscientiousness	CPGI	1	17.88	.00	.082
	Age	1	0.01	.93	.000
	CPGI x Age	1	1.18	.18	.009
	Within Error	199	(.21)		
Extraversion	CPGI	1	0.03	.86	.000
	Age	1	2.20	.14	.011
	CPGI x Age	1	0.80	.37	.004
	Within Error	199	(.21)		

Note. Values enclosed in parentheses denote mean square errors. $N = 203$.

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Table 6 *con't.*

Dimension	Source	df	F	P	η^2
Agreeableness	CPGI	1	7.73	.01	.037
	Age	1	0.60	.44	.003
	CPGI x Age	1	0.78	.38	.004
	Within Error	199	(.13)		
Neuroticism	CPGI	1	2.55	.11	.013
	Age	1	0.12	.74	.001
	CPGI x Age	1	0.37	.54	.002
	Within Error	199	(.23)		

Note. Values enclosed in parentheses denote mean square errors. $N = 203$.

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APPENDIX B

CANADIAN PROBLEM GAMBLING INDEX QUESTIONNAIRE

Canadian Problem Gambling Index

First, we'd like to ask some questions about activities you may participate in. People bet money and gamble on many different things including buying lottery tickets, playing bingo, or card games with their friends. I am going to list some activities that you might have bet money on.

1a. In the past 12 months, how often did you bet or spend money on Lottery tickets like the 649, Super 7, or POGO?

    <1> Daily

    <2> 2 to 6 times/week

    <3> About once/week

    <4> 2-3 times/month

    <5> About once/month

    <6> Between 6-11 times/year

    <7> Between 1-5 times/year

    <8> Never

    <97> I do not gamble [If this response appears twice, skip to 17]

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<98> Don't know

<99> Refused

[Response scale used for items 1a – 1u]

b. In the past 12 months, how often did you buy daily lottery tickets like Pick 3?

c. In the past 12 months, how often did you buy instant win or scratch tickets like break open, pull tab, or Nevada strips?

d. In the past 12 months, how often did you buy raffle or fundraising tickets?

e. In the past 12 months, how often did you bet on horse races (i.e. live at the track and/or off-track)?

f. In the past 12 months, how often did you play bingo?

Screen for casino gambling:

In the past 12 months, have you gambled at any type of casino including illegal or charity casinos?

<1> yes [go to 1g]

<5> no [go to 1l]

<97> I do not gamble

<98> don't know

<99>refused [go to 1m]

g. In the past 12 months, how often did you bet or spend money on coin slot machines or VLT's in a casino?

h. In the past 12 months, how often did you play poker in a casino?

i. In the past 12 months, how often did you play blackjack in a casino?

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j. In the past 12 months, how often did you play roulette in a casino?

k. In the past 12 months, how often did you play keno in a casino?

l. In the past 12 months, how often did you play craps in a casino?

m. In the past 12 months, how often did you play video lottery terminals (VLTs) OTHER THAN AT CASINOS (VLT= coins are not dispensed)?

n. In the past 12 months, how often did you play a sports lottery like Sport Select (e.g. Pro Line, Over/Under, Point Spread)?

o. In the past 12 months, how often did you bet or spend money on sports pools?

p. In the past 12 months, how often did you bet on cards, or board games with family or friends?

q. In the past 12 months, how often did you bet or spend money on games of skill such as pool, bowling, or darts?

r. In the past 12 months, how often did you bet on arcade or video games?

s. In the past 12 months, how often did you gamble on the Internet?

t. In the past 12 months, how often did you bet on sports with a bookie?

u. In the past 12 months, how often did you personally invest in stocks, options, or commodities markets (this does NOT include mutual funds, RRSPs)?

[If never to all gambling, or flagged as "do not gamble" at least twice, send to C section.]

[If a respondent selected <8> Never to any questions in section 1, that question was not asked in subsequent sections. For example, if a respondent selected <8> Never for 1j, the respondent would not be asked questions 2j, 3j, or 4j.]

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2a. How many minutes do you normally spend each time you buy lottery tickets like the 649, Super 7 or POGO?

[Respondents provided with a list of numbers to select]

b. How many minutes do you normally spend each time you buy daily lottery tickets like Pick 3?

c. How many minutes do you normally spend each time you buy instant win or scratch tickets like break open, pull-tab or Nevada strips?

d. How many minutes do you normally spend each time on raffle or fundraising tickets?

e. How many hours do you normally spend each time you bet on live horse races at the track and/or off track?

f. How many hours or minutes do you normally spend each time you play bingo?

g. How many hours or minutes do you normally spend each time you play coin slot machines or VLT's in a casino?

h. How many hours or minutes do you normally spend each time you play poker in a casino?

i. How many hours or minutes do you normally spend each time you play blackjack in a casino?

j. How many hours or minutes do you normally spend each time you play roulette in a casino?

k. How many hours or minutes do you normally spend each time you play keno in a casino?

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l. How many hours or minutes do you normally spend each time you play craps in a casino?

m. How many hours or minutes do you normally spend each time you play video lottery terminals (VLTs)OTHER THAN AT CASINOS (VLT = coins are not dispensed)?

n. How many minutes do you normally spend each time you play a sports lottery like Sport Select (e.g = How many Pro Line, Over/Under, Point Spread)?

o. How many hours or minutes do you normally spend each time you play sports pools?

p. How many hours or minutes do you normally spend each time you play cards or board games with family or friends?

q. How many hours or minutes do you normally spend each time you bet on games of skill such as pool, bowling or darts?

r. How many hours or minutes do you normally spend each time you bet on arcade or video games for money?

s. How many hours or minutes do you normally spend each time you gamble on the internet?

t. How many minutes do you normally spend each time you bet on sports with a bookie?

u. How many hours or minutes do you normally spend evaluating stocks, options, or commodities each time you invest?

3a. How much money, not including winnings, do you spend on lottery tickets like the 649, Super 7 or POGO in a typical month?

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<1-9999> number of dollars [Respondent provided with space to enter digits]

<d> don't know

<r> refused

[response categories for a. repeated for b. through u.]

b. How much money, not including winnings, do you spend on daily lottery tickets like Pick 3 in a typical month?

c. How much money, not including winnings, do you spend on Instant win or scratch tickets like break open, pull tab or Nevada strips in a typical month?

d. How much money, not including winnings, do you spend on raffle or fundraising tickets in a typical month?

e. How much money, not including winnings, do you spend on live horse races at the track and/or off track in a typical month?

f. How much money, not including winnings, do you spend on bingo in a typical month?

g. How much money, not including winnings, do you spend on coin slot machines or VLT's in a typical month?

h. How much money, not including winnings, do you spend on poker in a casino in a typical month?

i. How much money, not including winnings, do you spend on blackjack in a casino in a typical month?

j. How much money, not including winnings, do you spend on roulette in a casino in a typical month?

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H. How much money, not including winnings, do you spend on keno in a casino in a typical month?

l. How much money, not including winnings, do you spend on craps in a casino in a typical month?

m. How much money, not including winnings, do you spend on video lottery terminals (VLTs) OTHER THAT AT CASINOS (VLT=coins not dispensed) in a typical month?

n. How much money, not including winnings, do you spend on sports lotteries like Sport Select (or, Pro Line, Over/Under, Point Spread) in a typical month?

o. How much money, not including winnings, do you spend on sports pools in a typical month?

p. How much money, not including winnings, do you spend on cards, or board games with family or friends, in a typical month?

q. How much money, not including winnings, do you spend on games of skill such as pool, bowling or darts in a typical month?

r. How much money, not including winnings, do you spend on arcade or video games in a typical month?

s. How much money, not including winnings, do you spend on gambling on the internet in a typical month?

t. How much money, not including winnings, do you spend on sports with a bookie in a typical month?

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u. How much money, INCLUDING profits from earlier investments, do you spend on stocks, options, or commodities in a typical month?

4a. In the past 12 months, what is the largest amount of money you ever spent on lottery tickets like the 649, Super 7 or POGO in any one day?

      <1-9999> number of dollars [Respondent provided with space to enter digits]

      <d> Don't know

      <r> Refused

[response categories for a. repeated for b. through u.]

b. In the past 12 months, what is the largest amount of money you ever spent on daily lottery tickets like Pick 3 in any one day?

c. In the past 12 months, what is the largest amount of money you ever spent on Instant win or scratch tickets like break open, pull tab or Nevada strips in any one day?

d. In the past 12 months, what is the largest amount of money you ever spent on raffle or fundraising tickets in any one day?

e. In the past 12 months, what is the largest amount of money you ever spent on live Horse races at the track and/or off track in any one day?

f. In the past 12 months, what is the largest amount of money you ever spent on bingo in any one day?

g. In the past 12 months, what is the largest amount of money you ever spent on coin slot machines or VLT's in any one day?

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h. In the past 12 months, what is the largest amount of money you ever spent on poker in a casino in any one day?

i. In the past 12 months, what is the largest amount of money you ever spent on blackjack in a casino in any one day?

j. In the past 12 months, what is the largest amount of money you ever spent on roulette in a casino in any one day?

H. In the past 12 months, what is the largest amount of money you ever spent on keno in a casino in any one day?

l. In the past 12 months, what is the largest amount of money you ever spent on craps in a casino in any one day?

m. In the past 12 months, what is the largest amount of money you ever spent on video lottery terminals (VLTs) OTHER THAN AT CASINOS(VLT = coins are not dispensed) in any one day?

n. In the past 12 months, what is the largest amount of money you ever spent on sports lotteries like Sport Select (or Pro Line, Over/Under, Point Spread) in any one day?

o. In the past 12 months, what is the largest amount of money you ever spent on sports pools in any one day?

p. In the past 12 months, what is the largest amount of money you ever spent on cards or board games with family or friends in any one day?

q. In the past 12 months, what is the largest amount of money you ever spent on the outcome of games of skill such as pool, bowling or darts in any one day?

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r. In the past 12 months, what is the largest amount of money you ever spent on arcade or video games in any one day?

s. In the past 12 months, what is the largest amount of money you ever spent on gambling on the Internet in any one day?

t. In the past 12 months, what is the largest amount of money you ever spent on sports with a bookie in any one day?

u. How much money, INCLUDING profits from earlier investments, do you spend on stocks, options, or commodities in any one day?

CHECK: IF DON'T GAMBLE GO TO 18.

Section 2 – Problem Gambling Assessment

Some of the next questions may not apply to you, but please try to be as accurate as possible. THINKING ABOUT THE LAST 12 MONTHS...

5. Have you bet more than you could really afford to lose?

       <1> Never

       <3> Sometimes

       <5> Most of the time

       <7> Almost always

       <8> Don't know

       <9> Refused

[Response scale from question 5 repeated for questions 6 – 16]

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6. Still thinking about the last 12 months, have you needed to gamble with larger amounts of money to get the same feeling of excitement?

7. When you gambled, did you go back another day to try to win back the money you lost?

8. Have you borrowed money or sold anything to get money to gamble?

9. Have you felt that you might have a problem with gambling?

10. Has gambling caused you any health problems, including stress or anxiety?

11. Have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?

12. Has your gambling caused any financial problems for you or your household?

13. Have you felt guilty about the way you gamble or what happens when you gamble?

14. Have you lied to family members or others to hide your gambling?

15. Have you bet or spent more money than you wanted to on gambling?

16. Have you wanted to stop betting money or gambling, but didn't think you could?

Section 3 – Correlates

Next, we explore some of your beliefs about gambling, as well as any early experiences you have had with gambling or betting money.

17. After losing many times in a row, you are more likely to win. Do you strongly agree, agree, disagree, or strongly disagree?

    <1> Strongly agree

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<3> Agree

<5> Disagree

<7> Strongly disagree

<8> Don't know

<9> Refused

18. You could win more if you used a certain system or strategy.

<1> Strongly agree

<3> Agree

<5> Disagree

<7> Strongly disagree

<8> Don't know

<9> Refused

19. Do you remember a big win when you first started gambling?

<1> Yes

<5> No

<8> Don't know

<9> Refused

[Response scale from question 19 the same as questions 20 – 30]

20. Do you remember a big LOSS when you first started gambling?

21. Has anyone in your family EVER had a gambling problem?

22. Has anyone in your family EVER had an alcohol or drug problem?

CHECK: IF DON'T GAMBLE, SKIP TO 25 HERE.

23. IN THE LAST 12 MONTHS, have you used alcohol or drugs while gambling?

24. In the last 12 months, have you gambled while drunk, or high?

25. Have you felt you might have an alcohol or drug problem?

CHECK: IF DON'T GAMBLE SKIP TO 27

26. In the last 12 months, if something painful happened in your life, did you have the urge to gamble?

27. In the last 12 months, if something painful happened in your life, did you have the urge to have a drink?

28. In the last 12 months, if something painful happened in your life did you have the urge to use drugs? or medication?

29. Still thinking about the last 12 months, have you been under a doctor's care because of physical or emotional problems brought on by stress?

30. Have you felt seriously depressed?

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REFERENCES

Alessi, S. M., Petry, N. M. (2003). Pathological gambling severity is associated with impulsivity in a delay discounting procedure. *Behavioural Processes, 64(3),* 345-354.

Aluja, A., García, Ó., García, L. F., & Seisdedos, N. (2005). Invariance of the "NEO-PI-R" factor structure across exploratory and confirmatory factor analyses. *Personality and Individual Differences, 38,* 1879-1889.

American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Bagby, R. M., Farvolden, P., Toneatto T. & Oakman J. (2003). Final report: Personality and cognitive vulnerability in problem gambling. Ontario Problem Gambling Research Centre.

Bagby, R., Costa, J., Widiger, T., Ryder, A., & Marshall, M. (2005). DSM-IV Personality Disorders and the Five-Factor Model of Personality: A Multi-Method Examination of Domain—and Facet-Level Predictions. *European Journal of Personality, 19*(4), 307-324.

Bechara, A., Damasio, A. R., Damasio, H., & Anderson, S. W. (1994). Insensitivity to

future consequences following damage to human prefrontal cortex. *Cognition, 50,*

7 – 15.

Bechara, A., Tranel, D., & Damasio, H. (2000). Characterization of the decision-making

deficit of patients with ventromedial prefrontal cortex lesions. *Brain: A Journal of*

. *Neurology, 123(11),* 2189-2202.

Bottlender, M. & Soyka, M. (2005). Impact of different personality dimensions (NEO

Five-Factor Inventory) on the outcome of alcohol-dependent patients 6 and 12

months after treatment. *Psychiatry Research, 136(1),* 61-67.

Cavedini, P., Riboldi, G., Keller, R., D'Annucci, A., & Bellodi, L. (2002). Frontal lobe

dysfunction in pathological gambling patients. *Biological Psychiatry, 51(4),* 334-

341.

Clarke, D. (2006). Impulsivity as a mediator in the relationship between depression and

problem gambling. *Personality and Individual Differences, 40*(1), 5-15.

Cooper, M. L. (1994). Motivations for alcohol use among adolescents: Development and

validation of a four-factor model. *Psychological Assessment, 6(2),* 117 – 128.

Costa, P. T., Jr. (1996). Work and personality: Use of the NEO-PI-R in

industrial/ rganizational psychology. *Applied Psychology: An International*

Review, 45, 225-241.

Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-*

R) and NEO Five-Factor Inventory (NEO-FFI) professional manual. Odessa, FL :

Psychological Assessment Resources.

Cox, B.J., Enns, M.W., & Michaud, V. (2004). Comparisons between the South Oaks

Gambling and a DSM-IV-based interview in a community survey of problem

gambling. *Canadian Journal of Psychiatry, 49(4),* 258 – 264.

Culleton, R. P. (1989). The prevalence rates of pathological gambling: A look at

methods. *Journal of Gambling Behavior, 5,* 22 – 41.

Cunningham-Williams, R. M., Cottier, L. B., Compton, W. M., III, & Spitznagel, E. L.

(1998) Taking chances: Problem gamblers and mental health disorders: Results

from the St. Louis Epidemiologic Catchment Area Study. Am J Public Health.

88:1093-1096.

Ferris, J., & Wynne, H. (2001). The Canadian Problem Gambling Index: Final Report.

Canadian Centre on Substance Abuse.

Gerstein, D. R., Volberg, R. A., Toce, M. T., Harwood, H., Johnson, R. A., & Buie, T. et

al. (1999). *Gambling Impact and Behavior Study: Report to the National*

Gambling Impact Study Commission. Chicago: National Opinion Research

Center.

Goldberg, L. (1990). An alternative 'description of personality': The Big-Five factor

structure. *Journal of Personality and Social Psychology, 59*(6), 1216-1229.

Goldberg, L. (1992). The development of markers for the Big-Five factor structure.

Psychological Assessment, 4(1), 26-42.

Goldberg, L. R. (1993). The structure of phenotypic personality traits. *American*

Psychologist, 48(1), 26-34.

Goldberg, L. R. (2001). A Scientific Collaboratory for the Development of Advanced

    Measures of Personality Traits and Other Individual Differences

    (http://ipip.ori.org/). Internet Web Site.

Gow, A. J., Whiteman, M. C., Pattie, A., & Deary, I. J. (2005). Goldberg's 'IPIP' Big-

    Five factor markers: Internal consistency and concurrent validation in Scotland.

    Personality and Individual Differences, 39, 317-329.

Gupta, R., Derevensky, J. L., Ellenbogen, S. (2006). Personality characteristics and risk-

    taking tendencies among adolescent gamblers. *Canadian Journal of Behavioural*

    Science, 38 (3), 201-213.

Hammelstein, P. (2004). Faites vos jeux! Another look at sensation seeking and

    pathological gambling. *Personality and Individual Differences, 37*, 917-931.

Hicklin, J., & Widiger, T. (2005). Similarities and Differences Among Antisocial and

    Psychopathic Self-Report Inventories from the Perspective of General Personality

    Functioning. *European Journal of Personality, 19*(4), 325-342.

Howell, D.C. (2002) *Statistical Methods for Psychology*. Belmont, CA : Duxbury.

Kim, S., & Grant, J. (2001). Personality dimensions in pathological gambling disorder

    and obsessive-compulsive disorder. *Psychiatry Research, 104(3)*, 205-212.

Knapp, T. J. (1997). Behaviorism and public policy: B. F. Skinner's views on gambling.

    Behavior and Social Issues, 7(2), 129-139.

Knapp, T. J., & Crossman, E. W. (2006). Pathways to gambling: childhood, adolescent,

    and underage gambling. In P. Ghezzi, C. Lyons, M. Dixon & G. Wilson (Eds.),

    Gambling: Behavior Theory, Research and Application. Reno: Context Press.

Knapp, T. J., & Lech, B. C. (1986). Pathological gambling: A review with

recommendations. *Advanced Behavioral Research Therapy.*

Lesieur, H., & Blume, S. (1987). The South Oaks Gambling Screen (SOGS): A new

instrument for the identification of pathological gamblers. *American Journal of*

Psychiatry, 144, 1184–1188.

Lesieur, H., & Blume, S. (1993). Revising the South Oaks Gambling Screen in different

settings. *Journal of Gambling Studies, 9,* 213–219.

Lewis-Beck, M. (1980). Applied regression: An introduction. Beverly Hills, CA: sage

Publications.

Martin, P. R., & Petry, N. M. (2005). Are non-substance-related addictions really

addictions? *The American Journal on Addictions, 14,* 1-7.

Martin, E. D., & Sher K.J. (1994). Family history of alcoholism. Alcohol use disorders

and the five-factor model of personality. *Journal of Studies on Alcohol,* 55, 81–

90.

McCown, W. G., & Chamberlain, L. L. (2000). *Best possible odds: Contemporary*

treatment strategies for gambling disorders. Hoboken, NJ, US: John Wiley &

Sons, Inc.

McCrae, R., & Costa, P. (1985). Updating Norman's 'adequacy taxonomy': Intelligence

and personality dimensions in natural language and in questionnaires. *Journal of*

Personality and Social Psychology, 49(3), 710-721.

McCrae, R., & Costa, P. (2003). *Personality in adulthood: A five-factor theory*

perspective (2nd ed.). Guilford Press.

Neighbors, C., Lostuttor, T. W., Cronce, J. M., Larimer, M. E. (2002). Exploring college

    student gambling motivation. *Journal of Gambling Studies, 18(4)*, 361 – 370.

Ostendorf, F., & Riemann, R. (2005). Personality and Personality Disorders: Introduction

    to the Special Issue. *European Journal of Personality, 19*(4), 249-256.

Parke, A., Griffiths, M., & Irwing, P. (2004). Personality traits in pathological gambling:

    Sensation Seeking, Deferment of Gratification and Competitiveness as risk

    factors. *Addiction Research and Theory, 12*(3), 201-212.

Petry, N.M. (2001). Substance abuse, pathological gambling, and impulsiveness, *Drug*

    and Alcohol Dependence 63, pp. 29–38.

Petry, N. (2001). Pathological gamblers, with and without substance abuse disorders,

    discount delayed rewards at high rates. *Journal of Abnormal Psychology, 110(3)*,

    482-487.

Petry, N. M. (2005). *Pathological gambling: etiology, comorbidity, and treatment.*

    Washington DC: American Psychological Association.

Petry, N., & Casarella, T. (1999). Excessive discounting of delayed rewards in substance

    abusers with gambling problems. *Drug and Alcohol Dependence, 56(1)*, 25-32.

Piedmont, R., L. (1998). *The revised NEO Personality Inventory: clinical and research*

    applications. New York: Plenum Press.

Pietrzak, R., & Petry, N. (2005). Antisocial personality disorder is associated with

    increased severity of gambling, medical, drug and psychiatric problems among

    treatment-seeking pathological gamblers. *Addiction, 100*(8), 1183-1193.

Platz, L., Knapp, T. J., & Crossman, E. W. (2005). Gambling by underage college

    students: preference and pathology. *College Student Journal, 39*, 3-6.

Powell, J., Hardoon, K., Baboushkin, H., & Derevensky, J. (1999). Gambling and risk-taking behavior among university students. *Substance Use & Abuse, 34*, 1167-1184.

Quirk, S. W., & McCormick, R. A. (1998). Personality subtypes, coping styles, symptom correlates, and substances of choice among a cohort of substance abusers. *Assessment, 5(2)*, 157-169.

Raviv, M. (1993). Personality characteristics of sexual addicts and pathological gamblers. *Journal of Gambling Studies, 9(1),* 17-30.

Ruiz, M.A., Pincus, A.L., Dickinson, K.A., (2003). NEO PI-R predictors of alcohol use and alcohol-related problems. Journal of Personality Assessment 81 (3), 226–236.

Shaffer, H., Hall, M., & Vander Bilt, J. (1999). Estimating the prevalence of disordered gambling behavior in the United States and Canada: A research synthesis. *American Journal of Public Health, 89*(9), 1369-1376.

Shaffer, H. J., Vander Bilt, J., & Hall, M. N. (1999). Gambling, drinking, smoking and other health risk activities among casino employees. *American Journal of Industrial Medicine, 36*, 365-378.

Slutske, W. S., Caspi, A., Moffitt, T. E., & Poulton, R. (2005). Personality and problem gambling: A prospective study of a birth cohort of young adults. *Archives of General Psychiatry, 62*(7), 769-775.

Steel, Z., & Blaszczynski, A. (1998). Impulsivity, personality disorders and pathological gambling severity. *Addiction, 93(6)*, 895-905.

Stinchfield, R. (2002). Reliability, validity, and classification accuracy of the South Oaks Gambling Screen (SOGS). *Addictive Behaviors, 27(1)*, 1-19.

63

Tabachnick, B. & Fidell, L. (2007). *Using Multivariate Statistics, 5th ed.* Boston: Allyn & Bacon.

Thompson, W. N. (2001). *Gambling in America: an encyclopedia of history, issues, and society.* Santa Barbara, CA: ABC-CLIO.

Wiebe, J., Cox, B. (2005). Problem and probable pathological gambling among older adults assessed by the SOGS-R. *Journal of Gambling Studies, 21(2),* 205-221.

Zuckerman, M. (1999). *Vulnerability to psychopathology. A biosocial model.* Washington DC: American Psychological Association.

Zuckerman, M. (2005). Faites vos jeux anouveau: Still another look at sensation seeking and pathological gambling. *Personality and Individual Differences, 39,* 361-365.

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    207-230). Context Press.

Platz, L., Knapp, T., & Crossman, E. W. (2005). Gambling by Underage College
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