PROBLEM AND PATHOLOGICAL GAMBLING, A CROSS SECTIONAL STUDY
AND REVIEW OF CURRENT KNOWLEDGE

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PROBLEM AND PATHOLOGICAL GAMBLING, A CROSS SECTIONAL STUDY
AND REVIEW OF CURRENT KNOWLEDGE

A Project

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Division of Social Work
Abstract

of

PROBLEM AND PATHOLOGICAL GAMBLING, A CROSS SECTIONAL STUDY AND REVIEW OF CURRENT KNOWLEDGE

by

Taren Rayme Hooten

The purpose of this project is to construct a comprehensive, clinical picture of pathological gambling. It includes an extensive literature review to demonstrate the extent of knowledge regarding pathological gambling that the state of California’s mental health clinicians, second year Master of Social Work (MSW II) mental health stipend students, and the general public hold. The sample consisted of 14 participants from each of the three previously listed groups making for a sample size of 42 participants. The method for analysis used in this study was a descriptive research design, and the tool used to collect data was a multiple choice and true or false answer questionnaire composed of 20 questions. Data was collected from both Sacramento and Yolo Counties. Clinicians in this study were statistically more knowledgeable than the MSW II students and general public on the subject of problem and pathological gambling. However, the MSW II sample did not demonstrate more knowledge than the general public. In spite of some statistically significant differences between clinicians, MSW II student’s, and the general
public, study data inferred a general lack of in-depth understanding of this issue of problem and pathological gambling. It is vital for the social work profession and the general public to invest more education and interventions to address this increasingly critical issue.

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Date
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Chapter 1

PURPOSE OF THE STUDY

The purpose of this thesis is to construct a comprehensive, clinical picture of pathological gambling on a national level as well as specifically within the state of California, and demonstrate the extent of knowledge regarding pathological gambling that the state of California’s mental health workers, MSW II mental health stipend students, and the general public hold. California is particularly relevant in the scope of pathological gambling considering there are as many as 590,000 adult problem gamblers, 333,000 adult pathological gamblers, 436,800 youth problem gamblers, and 159,900 youth pathological gamblers (Attorney General’s Report). Revenues gathered through gambling in California have risen five-fold since 1996 from $2.5 billion to $13 billion in 2004. There are also 97 card rooms, 61 Native American casinos, and approximately 10 horse tracks running California (On Track slide show). This increase in gambling availability has caused concern in policy makers and mental health workers alike. Pavalko (2001) suggests that, “along with expansion clinicians, counselors, researchers, and public policy makers have to come to realize that as opportunities to gambling increase, increasing numbers of people gamble, more people get into financial and other difficulties related to their gambling” (p. 1). Overall, as gambling opportunities increase so do the gambling problems that follow. Hence, the question this thesis will pose and attempt to answer is as too whether not California mental health professionals, professionals in training, and the general public are prepared and knowledgeable about
the growing issue of pathological and problem gambling. The author hypothesizes that the outcome of this study will show that both the general public and master’s of social work students questionnaire results will highly correlate in demonstrating a lack of knowledge in all area’s that are addressed on the questionnaire.

This thesis will also present an extensive and comprehensive literature review demonstrating the current knowledge and recent studies surrounding this topic and other mitigating factors surrounding it. The literature review topics will include sources providing background on the history of gambling and it’s classification, prevalence rates, demographics, current classifications, adverse consequences of problem and pathological gambling, etiology, and prevalent treatment methods utilized to combat this disorder. By addressing each of these topics in depth a greater degree of clarity can be reached regarding the complex dynamics of this psychiatric disability. The following pages are a brief introduction to each of those points to provide a general snapshot of the content of this thesis, and to demonstrate the gravity of problem and pathological gambling and its implications. It should also be noted that the research tool that will be later utilized in following chapters will be based on the information presented within the literature review.

**Defining Pathological and Problem Gambling**

Within this thesis problem and pathological gambling are defined and categorized in two ways: by the three levels of gambling and by the DSM-IV listed criteria. The three levels of gambling, as presented by Petry (2005), Aasved (2002), and Ciarrocchi (2001), begin with level one as being the recreational gambling level where there are no
significant adverse consequences to their gambling. Level two gamblers (often coined problem gamblers) are those who are considered at risk, in-transition gamblers who begin to experience guilt surrounding their gambling habits, are borrowing gambling money from household expenses, start accumulating debts, are gambling beyond their means, having spurts of excessive gambling, and are characterized as abusers. They are disorganized gamblers who experience adverse life consequences as a result of their gambling (Petry, 2005). Level three or pathological gambling is the juncture that gambling becomes clinically significant and the individual meets the DSM-IV criteria and displays, “persistent and recurrent maladaptive gambling behavior that disrupts personal, family, or vocational pursuits” (DSM-IV, 2000, p. 659). The DSM-IV criteria for pathological gambling will be discussed more in depth within the literature review.

**Prevalence**

On a national level 38 states have a legal lottery system, 28 states allow and have Native American casinos, and 48 states (with the exception of Hawaii and Utah) have some form of legalized gambling. In a given year, more money is spent on gambling than other forms of entertainment such as going to the movie theatre, music, theme parks, spectator sports, and video games combined. These statistics only encompass legal gambling and do not include illegal forms of gambling such as cock fighting or betting through bookies (Wolfe & Owens, 2009, p. 13). According to Reith (2003) gambling has undergone a profound transformation, “from being regarded as an economically marginal, politically corrupt, and often morally dubious activity, it has, at the start of the twenty-first century become a global player in the economies of North America, Europe,
and Australia” (p. 9). As far as economy in concerned, Wolfe and Owens (2009) assert that, “In 2005 the American Gaming Association estimated total revenue from gambling at 84.65 billion for the year” (p. 13). Furthermore, within the reviewed literature it was emphasized repeatedly that as availability of gambling opportunities increase pathological and problem gambling will only continue to increase with it. Pavalko (2001) states that as gambling opportunities increase that, “along with expansion clinicians, counselors, researchers, and public policy makers have to come to realize that as opportunities to gambling increase, increasing numbers of people gamble, more people get into financial and other difficulties related to their gambling” (p. 1). Hence, with the increase in gambling brings increases in gambling problems and the adverse effects that such behaviors cause as well as tax dollars spent to counter those adverse effects.

Currently, on a national level past year and lifetime prevalence rates of pathological gambling are reported to be as high as approximately 1.4 and 5.1 percent (Petry & Armentano, 1999). Hence, somewhere between three and five million people suffer from the adverse consequences of pathological gambling. This number is excluding problem gamblers, who are gamblers that suffer adverse consequences because of their gambling but do not meet the full DSM criteria. However, just because these individuals do not meet the full criteria for the disorder does not imply that their gambling issues don’t carry heavy costs.

Demographics

To further clarify the picture of pathological gambling it is also important to be aware of significant, prevalent subgroups that demonstrate an increased vulnerability
towards this diagnosis. The demographics of pathological and problem gamblers can be divided into four statistically relevant subtypes: age, gender, ethnicity, and socioeconomic status. First, in regards to age, adolescents have been shown to have the highest prevalence rates amongst the pathological and problem gambling population. Aged adults, however, are a population that has steadily increased in prevalence over the last twenty-five years. Tirachaimongkol, Jackson, and Tomnay (2010) suggest that the prevalence of this population could range as high as 2-17% depending on the location and availability. While their prevalence rates are not as high as their adolescent counterparts they are in many ways more vulnerable considering they live on limited incomes, have fewer social supports, and are more prone to mental illness (which has been associated with higher gambling rates). Gender is also a significant variable in pathological gambling prevalence rates. While two thirds of pathological gamblers are men, female gambling rates have been on a steady rise (Aseveed, 2003). Female gamblers are a more vulnerable group than males due to their gambling habits, typical reasoning behind their gambling, and their lesser likelihood to seek out treatment. Ethnic minorities are another prevalent and vulnerable in the pathological gambling population. Native American, African American, certain immigrant populations, and Asian American, especially Chinese Americans have been shown to be especially vulnerable. This has been attributed to positive cultural beliefs and values concerning luck and risk taking, overrepresentation in gambling studies (studies tend to overly represent white males and exclude females and ethnic minorities), and vulnerable life conditions.
Finally, low socioeconomic status has also shown to be associated with problem and pathological gambling. For one, populations that are already at risk for pathological gambling, such as women, minority groups, children, and older adults are more likely to experience poverty, and vice versa. It’s been shown that higher-income households have spent more on gaming such as casinos, lottery tickets, and bingo (Shaffer & Korn, 2002). However, lower-income households spend proportionately more of their money on gambling than their higher-income counterparts. Those with higher incomes typically don’t see as much gain from the risk of gambling unless it was such a substantial gain that had the potential to significantly alter their lives.

**Etiology**

Why are some people able to gamble and walk away without any adverse consequences and others are not? Blaszczynski and Nower (1999) find that, “At the moment, there is no single conceptual theoretical model of gambling that adequately accounts for the multiple biological, psychological, and ecological variables contributing to the development of pathological gambling.” That being said, there have been a variety of explanations presented for the causation of pathological gambling, or rather, why certain persons struggle with problem and pathological gambling and others do not. These surround psychological or cognitive patterns of thinking, psychological states, genetics, various impairment of the frontal lobe including decision making, an imbalance of neurotransmitters, impulsivity, and comparisons with substance dependence and co-morbidity. It is important to keep in mind that one factor is not independently responsible for an individual’s gambling habits (Bechara, 2003, p. 46). These merely
provide a comprehensive snapshot of the forces that could be at play behind an individual’s pathological gambling. As stated by Maccallum, Blaszczynski, Ladouceur, and Nower (2007), “Gambling is a complex behavior involving a series of critical decision points that ultimately determine the initiation, length, duration and intensity of individual sessions” (p.1830). Ledgerwood and Petry (2006) also concluded in their study surrounding a gambler's psychological experience that, “One must also consider the numerous other biological, genetic, social/environmental influences on gambling” (p. 24).

One factor that has been shown to be attributed to pathological and problem gambling is faulty cognitive patterns, or rather, “a set of false and erroneous beliefs about their ability to control or predict gambling outcomes, which may be responsible for the persistence of their gambling behavior” (Oei, Lin, & Raylu, 2008, p. 2). Faulty cognitions or irrational thinking has also been shown to perpetuate longer durations and enhance the intensity of gambling (Maccallum, Blaszczynski, Ladouceur, & Nower, 2007). Porter and Ghezzi (2000) state, “pathological gamblers have difficulty applying the principle of independence of events and generating a random serious of numbers when monetary incentives are involved. . . the assumption is that difficulties of this sort spawn an irrational belief system that both creates and sustains pathological gambling” (p. 31). There are also a number of gambler fallacies and distortions that problem and pathological gamblers tend to ascribe to, which are perpetuated in a number of difference ways.
Problem gambling etiology has also been associated with certain psychological states and co-occurring pathology. For instance, Cunningham-Williams, Cottler, Compton, and Spitznagel (1998) found in their study that both recreational and problem gamblers had higher rates of most psychiatric disorders than their non-gambling counterparts. In a different study conducted by Kausch (2003) it was found within the sample that, “among the 113 gamblers, 43% of those individuals carried a clinical diagnosis of depressive disorder, 7% bipolar disorder, 5% schizophrenic disorder, and 19% had no psychiatric disorder” (p. 266). Ultimately, there are two prominent subgroups when framing problem gambling through a psychological and psychopathology lens. These are gamblers who, “describe an alleviation of low mood and distraction from stressors,” and those that, “emphasize the hedonic thrill of physiological arousal induced by gambling” (Rogers, Moeller, Swann & Clark, 2009, p. 1322). The literature review details each of these subgroups, and explains how their psychological states can perpetuate, produce, or be a result of pathological and problem gambling behavior.

Furthermore, impulsivity is a, “predominate characteristic of widely utilized conceptual models of gambling” (Maccallum, Blaszczynski, Ladouceur, & Nower, 2007, p. 1829). Impulsivity in pathological gamblers is characterized as a, “multifaceted behavioral construct, characterized by deficits in self-control expressed as a repeated failure of self-discipline, self-regulation, or sensitivity to immediate reward” (Maccallum, Blaszczynski, Ladouceur & Nower, 2007, p. 1829). Pathological gamblers have also, “reported acting on the spur of the moment, experienced trouble planning and thinking
carefully, and noted greater attention difficulties” (Ledgerwood, Alessi, Phoenix, & Petry, 2009, p. 90). Impulsivity distinguishes problem and pathological gambling from other forms of addiction in how it manifests and perpetuates gambling behavior.

The connectivity between substance abuse and pathological gambling in both its similarities and differences is essential when addressing either concept. Exploring both issues simultaneously brings clarity, “for treatment and prevention of relapse, as well as for theories of addictions” (Kausch, 2003, p. 1). Similarities between substance abuse and gambling are expressed in Rogers, Moeller, Seann, and Clark’s (2010) study. They state, “Pathological gamblers display several hallmarks of an addiction syndrome, including symptoms of withdrawal, tolerance, and cravings” (p. 1330). Moreover, substance abuse and gambling are often two co-occurring diagnoses and are co-morbid of each other.

Finally, brain processes and genial factors are also of consequence in regards to the etiology of gambling. It should be mentioned that all of the above processes, as well as the behaviors they produce, are all products of overlapping processes that occur within the same various areas within the brain, specifically areas located within the frontal lobe (Hochman, Yechiam, & Bechara, 2010). The areas within the frontal and prefrontal lobes are a part of the processing of impulsivity, cognitive thought, emotional memory, and other various processes. Abnormalities within these areas of the brain or certain genetic predispositions can also produce and amplify the factors listed above and behaviors such as pathological gambling. This will be expressed in more detail within the literature review.
Furthermore, while information regarding brain functioning and genetic predispositions are based on evidence found in peer-reviewed studies and academic research much of it is still up for speculation. The brain is an enormously complex system that researchers have only begun to explore. Inference and empirical evidence is what much of this research is based upon, which creates contradictions and varying perspectives within the literature. As a result, finding a homologous position regarding pathological gambling and its implications within the brain is difficult at best. In further exploring and understanding the brain and genetic predispositions we come closer to understanding and developing treatment and prevention surrounding this life impacting diagnosis.

**Adverse Consequences of Gambling**

The kinds of statistics that have been previously mentioned have provoked doubt and speculation on the parts of communities who have been posed with being potential cites of future casinos. Stitt, Nichols, and Giacopassi (2003) found in their study of community responses to casinos that, “community satisfaction with casino gambling is mixed at best” (p. 108). Concerns appear legitimate when one considers the social costs of community and local and state government. For instance, pathological gamblers have a statistically higher incarceration rate, higher rates of domestic violence in the home, a higher prevalence of child abuse, and higher rates of substance abuse. Furthermore, the cost of treatment options, debt and bankruptcy costs, and crime rates all are community and government costs. Family costs are equally as detrimental. Kalischuk (2010) states in her study, “commonly reported adverse effects of problem gambling include financial
loss, conflict, lying and deception, family neglect, and relationship difficulties, and alcohol and drug misuse” (p. 8). Domestic violence, child abuse, substance abuse, criminal behavior, family disruptions, and personal debt all increase with a pathological gambler in the home. Hence, with the increase in availability of gambling opportunities and options comes an increase in gambling as well as significant and often detrimental social costs.

**Treatment**

Lastly, the literature review will also address the most current and prevalent treatment options. Walker et al (2006) stated that, “a major task currently confronting problem gambling research is the development of effective interventions” (p. 35). First, cognitive behavioral therapies are the most “evidence and empirically based treatments” according to Harvard's Mental Health Letter (2010,2). Sylvain, Landouceur, and Boisvert (1997) found CBT to be effective with their sample, especially if combined with utilizing social support. Gambling Anonymous is also a prevalent treatment for pathological gambling, and it is described as, “a less formal, but commonly recognized treatment for problem gambling, which is a mutual aid fellowship based on the 12-steps program first developed for Alcoholics Anonymous. . . the principal criteria for success in GA is total abstinence from gambling” (Oei & Gordon, 2007, p. 32). Lastly, motivational interviewing, while less prevalent than CBT and GA, was still a note worthy therapy mentioned within the literature. Motivational interviewing is a person-centered, directive method for enhancing intrinsic motivation to change by exploring and resolving
ambivalence, and a therapy model that is used in treating pathological gambling (Moyers & Rollnick, 2002).

Finally, therapy is one form of prevalent treatment for pathological gambling, however medication has also been employed to help alleviate gambling symptoms. Grant and Kim (2008) state that there are close associations between pathological gambling and other mental disorders such as mood disorders, obsessive compulsive disorders, and addictive disorders. Furthermore, they find that medications for these types of disorders are helpful in treating pathological and problem gamblers. Finally, family therapy, psychotherapy, and group therapy are also less commonly used techniques that can also be utilized for treating this disorder.

However, it should be noted that it has been extensively shown that, “many individuals overcome gambling problems on their own” (Petry, Weinstock, Ledgerwood, and Morasco, 2008). Petry et al. (2006) suggests that this self-recovery stems from, “a strong desire to stop gambling, which manifests in reductions in gambling without formal treatment, or prior to or during initial stages of treatment” (p. 132). Hence, many pathological gamblers are able to reduce if not totally quit their gambling activities without the intervention of any formal treatment method. Overall, as Walker et al (2008) states, “Recent reviews of treatment effectiveness for problem gambling have noted that the research is characterized by a wide range of outcome domains and measures” (p. 35). Overall, more research is needed to fill the gaps in demonstrating effective and consistent treatment options.
Summary and Implications

The origins or reasoning behind pathological gambling holds a new significance in the recent classification that it will receive in the DSM-V, which is scheduled to be released in 2013. In the past, beginning with DSM-III, pathological gambling was classified as a ‘Disorder of Impulse Control,’ which dubs gambling as being rooted in the inability to resist impulses or temptations to engage in an act that is harmful to oneself or others. As of recent these assumptions are changing and professionals are beginning to see pathological gambling as more related to addictive behavior than impulse control. Hence, DSM-V will shift the classification and basis of pathological gambling to an addictive disorder along with alcohol and drug dependency. This shift is significant in that it will impact, and hopefully increase, the treatment availability, the ability for insurance claiming, funding, and awareness of the disorder (Petry, 2006, p. 153). Hence, discussing clarifying this disorder and the implications behind its basis holds significant gravity, especially at this juncture of moving to a new classification.

Justification

To sum up, these are topics that are both relevant to the research question presented in this study as well as to practicing social workers, particularly clinical social workers. For instance, by being knowledgeable and conscious on this crucial and growing social issue social workers are promoting a more ethically sound practice. The code of ethics calls for social workers to continuously perpetuate their knowledge of the field, to be consistently conscious of pertinent social issues, and to work towards widening their generalist scope of practice. Also, this research demonstrates the
importance and benefit of simultaneously screening for pathological or problem gambling at social agencies that also screen for other concerns such as alcohol use, drug use, domestic violence, or legal issues. Often, while the adverse consequences of gambling might be easily identified the root problem of gambling goes unidentified at the agency they are receiving services from. Hence, they are never treated for the disorder and as a result their problems perpetuate, especially if the agency or institution they are receiving services from is short term. This thesis also highlights current gambling scales that have been found to be empirically sound. Finally, this thesis also calls for the expansion of macro awareness not just for social workers, but also for other social service and health professionals, the general public, and for policy makers.

Theory

Theory bases that support the pathways etiology of pathological gambling that have been highlighted are behavioral theories and cognitive behavioral theories. First, behavior theories are based on conditioning, or rather, classical and operational conditioning. Classical conditioning, as presented by Pavlov, implies that an initially neutral stimulus comes to produce a conditioned response after being paired repeatedly with a conditioned stimulus (Corcoran, 2006). Therefore, a seemingly unbiased object, event, or feeling state will cue the problem behavior. In regards to gambling a seemingly neutral cue, such bright lights or the feelings of boredom, can signal or cue gambling behavior. Operant conditioning, on the other hand, finds that future behavior is determined by the consequences of present behavior. There are two types of reinforcement that perpetuate behavior, positive and negative. Positive reinforcement
perpetrates behavior because the individual finds the behavior pleasurable or to yield positive results, and hence will want to continue the behavior. Negative reinforcements are perpetuated by an individual’s want to avoid a future consequence and so they use a behavior to escape or avoid such consequences. In gambling, an individual can use it for both. For instance, women are more likely to gamble to escape emotional pain, and so they are negatively reinforced to continue play. However, men tend to gamble for excitement and stimulation, and so they gamble for the positive results that gambling can yield.

The cognitive behavioral theory, unlike behavioral theory, focuses on not just the behavioral aspect and cues, but on the cognitions behind those behaviors as well. To be more specific, it focuses on the procurement and function of the human thought and knowledge base, or rather, how one comes to think and know and the role this plays on one’s behavior (Greene, 2008). An individual’s cognition includes their memories and experiences in the external world with people as well as in their environment, and how they process and interpret such events and interactions. Schemas, which are an individual’s way of organizing one’s interpretations of reality, assumptions, and thinking patterns, are how this information is stored. These interpretations of reality are then reflected in one’s actions and how they view the world. In regards too gambling the cognitive behavioral theory would assume that distorted schemas or thoughts are what allow a gambler to continue gambling behavior despite the adverse consequences that may result (Blaszczynski & Nower, 1999). Distorted thoughts and schemas could include, for example, the gamblers fallacy. This is a gambler’s belief that if an one
continues to gamble long enough that their losses will eventually be paid off by a win, however, typically the win isn’t substantial enough to pay off what has already been lost.

**Terms and Definitions**

Terms and definitions that are pertinent to this thesis are problem gambling (or level two gambling), pathological gambling (or level three gambling), and life time and past year rates. Problem or level two gamblers are those who are considered at risk, in-transition gamblers who begin to experience guilt surrounding their gambling habits, are borrowing gambling money from household expenses, start accumulating debts, are gambling beyond their means, having spurts of excessive gambling, and are characterized as abusers. They are disorganized gamblers who experience adverse life consequences as a result of their gambling (Petry, 2005). Level three or pathological gambling is the juncture that gambling becomes clinically significant and the individual meets the DSM-IV criteria and displays, “persistent and recurrent maladaptive gambling behavior that disrupts personal, family, or vocational pursuits” (DSM-IV, 2000, p. 659). Past year rates or prevalence describes how much an individual or population has gambled in the last year. Lifetime rates or prevalence describes how much an individual or population has gambled throughout their entire lives. These significance of these terms lies in their relation to statistical data surrounding gambling rates and prevalence. For example, it’s important to note that senior gamblers have higher past year rates and lower life time rates of gambling. This implies that seniors are not typically a population that has a gambling history or past, but rather are a population of individuals that begins gambling.
as they enter the senior population. Hence, this is only adds to the evidence that casinos and other gambling outlets are targeting and marketing towards seniors.

**Assumptions**

Assumptions for which this thesis relies on are, for one, that gambling is a common human behavior that cuts across cultures and genders. It is a behavior that has an extensive history, and has been both accepted and criminalized throughout its existence. Within America today it is an activity that is controversial at best. In some states gambling is accepted and completely legalized while in others it is considered a vice and illegal in its entirety. To be specific, in Nevada all forms of gambling are legal while in Utah all forms of gambling are completely illegal including the lottery. Either way, all gambling activities are regulated to an extent by government and the people of the community for which the gambling organization serves or is located within. This thesis has also been written under the assumption that while certain individuals are statistically more likely or at a higher risk for pathological gambling it is a phenomena that can affect any individual despite their ethnicity, socioeconomic status, gender, or age.

The scope of this thesis covers a clinical snapshot of what research is available regarding pathological gambling as well as to demonstrate if mental health professionals in Sacramento, California are aware of this knowledge base. This implies discussing past and present gambling classifications, a brief political standing of American culture on gambling, its past and present prevalence, etiology, demographics, adverse consequences from a clinical standing, and current treatment options as demonstrated in the literature.
It also involves gathering empirical data from professionals currently in the field and MSW II Mental Health Cohort students at Sacramento State University.

Limitations

In regards too the limitations, while this study will touch briefly on the political undertones of gambling when necessary the purpose of this thesis is not to provide a political argument or backdrop of how gambling is portrayed or accepted in current American culture. This thesis’s purpose is also not aimed at extensively exploring the past history or origins of gambling, or describing what implications or meanings gambling holds to the specific cultures outside of those that were found to be statistically relevant in the literature. Finally, while this thesis does describe to a degree of depth current and statistically relevant treatment options it does not outline treatment interventions or strategies. Due to the already comprehensive material included and time constraints, these topics are not addressed.
Chapter 2

REVIEW OF THE LITERATURE

A Brief History of Gambling Within America

The history of gambling within American culture has varied through the course of time, “but generally, the tone has been one of open hostility to what was considered to be a ‘deviant’ activity, especially when the gamblers in question were members of economically marginal groups” (Reith, 2003, p. 32). From the Reformation to the more recent present the idea behind gambling, one of chance and luck, directly opposed the American mainstream values of hard work, personal effort, and saving. In both Europe and in North America legislation was passed specifically aimed at prohibiting the lower classes from participating in gambling activities under reasoning that, “the rich could take care of themselves, the poor needed protection from the poverty and destitution that would invariably follow if they were allowed to gamble” (Reith, 2003, p. 33). It was considered a sin or vice, and those who participated, especially in excess, were of lower moral stature. The shift that labeled gambling a leisure rather than a deviance began in the 19th century when, “individual entrepreneurs such as bookmakers and gambling house operators organized private, local games on a small scale” (Reith, 2003, p. 34). As it became evident that there was a profit to be made from overseeing and organizing gambling it became difficult to ban. Moves to regulate such activities took precedence instead.

Just 47 years ago, statewide lotteries did not exist. In fact, between the years of 1920 and 1946 nearly every form of gambling was illegal. However, between the years
of 1973 and 2006, “purchases of lottery tickets grew more than four-fold in inflation-adjusted dollars,” and other forms of gambling, such as American Indian casinos, grew exponentially (Wolfe & Owens, 2009, p. 53). Wolfe and Owens (2009) attribute this growth to the intense competition amongst the various units of government, mainly between state governments. As gambling slowly became establish and more socially acceptable, state governments, with profits in mind, promoted gambling within their citizen’s home states. Hence, competition innovated rather than stunted growth.

According to Reith (2003) it has also become a source of income through financial hardships for both the state and private beneficiaries that share ownership of lotteries, casinos, and other forms of gambling. “over the past half century in the United States and elsewhere, individual liberties and the ability to make personal decisions about recreational and leisure activities have received higher priorities” (Wolfe & Owen, 2006, p. 54). Clearly, as the social and political climate evolve so does America’s view on once deemed deviant behaviors such as gambling. Currently, the gambling industry is seen as a, “legitimate entertainment provider that should be allowed the same freedoms as any other business” (Reith, 2003). Gambling generally is only seen as a deviant behavior when an individual is no longer able to control one’s gambling activity.

**Defining Pathological and Problem Gambling**

In order too define the notion of ‘gambling’ a more conceptual explanation and understanding must be established. Foremost, it is important to reiterate that not all gambling is necessarily harmful for those who choose to participate in its various forms. The majority of the population is able to gamble without encountering significant adverse
consequences and are able to enjoy social and recreational gambling (Petry, 2005, 10). However, for the estimated 1-5.4% of the population who do suffer adverse consequences due to their gambling there is a struggle among clinicians concerning how to categorize and describe their behavior and actions. Hence, a controversy still surrounds the definition and criteria used to define pathological gambling even in the DSM-IV. For the sake of this thesis descriptions from Petry (2005), Aasved (2002), and Ciarrocchi (2001) will be used to describe the different types, or levels, of gambling that will be presented within this literature review. It should be noted, however, that their descriptions represent an overall holistic and human service type model through which to define gambling.

First, Petry (2005) and Aasved (2002) establish three different levels of gambling beginning with level 0, which refers to individuals who have never gambled. This would imply the individual has never so much as purchased a lottery ticket or put a coin in a slot machine. The next level is level one gambling. This level refers to ‘social’ or ‘recreational’ gambling which does not result in any significant problems for the individual. Petry (2005) describes these gamblers as being individuals who spend as little as one dollar a year on gambling or those who purchase a daily lottery ticket. This category represents the vast majority of the population as indicated previously. The next level, level two gambling, emerges when adverse consequences start arising in an individual’s life due to their gambling. These gamblers are also labeled ‘problem gamblers’ (level two gamblers and problem gambling will be used interchangeably) and are considered at risk, in-transition, and disorganized gamblers. This is where
conceptualizing and defining an individual’s gambling issues enters a grey area because, “little consensus exists regarding level two gambling, descriptions of its clinical manifestations also vary widely” (Petry, 2005, 11). Ciarrocchi (2001, 15) describes level two gamblers as individuals meeting three or four of the DSM-IV criteria for pathological gambling, but have not yet met the five which would be considered pathological gambling. He states that once an individual meets this description they can be considered ‘at risk’ for more serious gambling issues, and that this category affects roughly 1.4 to 4 million individuals in America. Petry (2005) goes more in depth and describes level two gambling as the point where individuals start feeling guilty for their gambling. They gamble money meant for household expenses, borrow from others to pay for their gambling, start accumulating debts, gambling beyond their means, and episodes of excessive gambling. These individuals, according to Petry (2005), are characterized as abusers. Level two gamblers could have gambled for decades recreationally before developing a problem, and they could also have had other instances of issues with gambling at other points in their lives. Finally, the NAPAFASA (2010) describes this level of gambling, or problem gambling, as a “term generally used as an umbrella term which encompasses all gambling behaviors which cause major disruptions in one or more major areas of the gambler’s life. . . in terms of epidemiological research, problem gambling may represent “sub-clinical” gamblers, who have significant problems with gambling but do not meet clinical diagnostic criteria” (p. 2). Overall, this level of gambling, or problem gambling, encompasses a vast range of individuals and their gambling habits. However, one point agreed upon by most professionals, as pointed out
by Petry (2005), is that the vast majority of individuals at this stage in their gambling do not seek clinical help.

The last level of gambling, level three gambling which is the type of gambling that is defined within the DSM-IV, is pathological gambling. It is at this juncture that gambling becomes clinically significant and an individual displays, “persistent and recurrent maladaptive gambling behavior that disrupts personal, family, or vocational pursuits” (DSM-IV, 2000, p. 670). There are ten criteria listed in the DSM-IV under the coding for pathological gambling. These are indicated below:

**Diagnostic criteria for 312.31 Pathological Gambling**

A. Persistent and recurrent maladaptive gambling behavior as indicated by five (or more) of the following:

1. is preoccupied with gambling (e.g., preoccupied with reliving past gambling experiences, handicapping or planning the next venture, or thinking of ways to get money with which to gamble

2. needs to gamble with increasing amounts of money in order to achieve the desired excitement

3. has repeated unsuccessful efforts to control, cut back, or stop gambling

4. is restless or irritable when attempting to cut down or stop gambling

5. gambles as a way of escaping from problems or of relieving a dysphoric mood (e.g., feelings of helplessness, guilt, anxiety, depression)

6. after loosing money gambling, often returns another day to get even (“chasing” one’s losses)
(7) lies to family members, therapist, or others to conceal the extent of involvement with gambling
(8) has committed illegal acts such as forgery, fraud, theft, or embezzlement to finance gambling
(9) has jeopardized or lost a significant relationship, job, or educational or career opportunity because of gambling.
(10) relies on others to provide money to relieve a desperate financial situation caused by gambling.

B. The gambling behavior is not better accounted for by a Manic Episode.
(The Diagnostic Statistical Manual of Mental Disorders, 4th Ed., 2000, P. 672)

The Diagnostic Statistical Manual of Mental Disorders Fourth Edition (2000) further describes individuals with pathological gambling as possibly having distortions in thinking, giving examples such as denial, superstitions, overconfidence, or as sense of power and control. It also states that pathological gamblers are prone to being highly competitive, energetic, restless, and easily bored. They are described as being overly concerned with the approval of others, and that they believe that money is both the solution and cause of all their problems. It’s also important to note that there are certain physical ailments that are characteristic of pathological gamblers. Among these are hypertension, peptic ulcer disease, and migraines as just a few general medical conditions that can arise within pathological gamblers. Also, higher rates of Mood Disorders, Attention-Deficit and Hyperactivity Disorder, Substance Abuse or Dependence, and
Antisocial, Narcissistic, and Borderline Personality Disorders have been reported to be more prevalent in pathological gamblers than the general public (p. 672). The DSM-IV also emphasizes that very few pathological gamblers are ‘hooked’ on their first bet. It could be decades before a previously social or recreational gambler begins to display unhealthy gambling habits, and there may be bouts of problem gambling that can’t yet be identified or categorized as pathological gambling according to the DSM-IV. Furthermore, “there is generally a progression in the frequency of gambling, the amount wagered, and the preoccupation with gambling and obtaining money with which to gamble” (DSM-IV, 2000, p. 673).

However, while DSM-IV classification and the three levels of gambling aim for clarity, Petry (2005) states, “although the most severe cases of Level 3 gamblers may be relatively easy to classify, the less severe cases may be difficult to identify and may be inappropriately categorized” (p. 12). Furthermore, Clark and Chase (2010) suggest, “Although previous fMRI studies have explored problem gambling using case control designs, it is increasingly recognized that disordered gambling is dimensional in nature: gamblers who do not meet DSM criteria frequently describe obvious gambling-related harms (e.g., debt, interpersonal conflict)” (p. 6183). Hence, classification can become difficult especially when regarding treatment options.

As a result, scales such as the South Oaks Gambling Screen, Diagnostic Interview for Gambling Severity, the Lie/Bet Questionnaire, and the 20 Questions from Gamblers Anonymous were created to help establish clearer diagnosis’s (Petry, 2002). The most commonly used instrument for determining gambling severity is the South Oaks
Gambling Screen. This scale is comprised of 60 questions and in a study conducted by Lesieur and Blume (1987) it was found to be 97% accurate on their sample of Gamblers Anonymous members. Hence, it has high validity and accuracy and has been widely adopted by clinical settings and counselors (Pavalko, 2001). Another test is the Diagnostic Interview for Gambling Severity, which is a, “comprehensive instrument that assesses gambling problems as well as other areas of functioning and consequences related to gambling involvement” (Petry, 2005, 39). Winters, Specker, and Stinchfield (2002) found in their study that the variables within the scale, variables such as, frequency of past-year gambling, the amount of gambling debt, and the number of financial problems experienced, were positive and statistically significant and can be tested using this instrument. Another test is The Lie/Bet test, which differs from the previously mentioned scales in that it consists of only two questions regarding having lied about one’s gambling and having the need for more funds to gamble with. More testing is needed surrounding this test since mixed findings have been reported regarding its validity, however, it is useful in its brevity (especially when circumstances call for a brief communication time) (Petry, 2005). Finally, the 20 Questions from Gamblers Anonymous is the oldest tool for testing for gambling severity, and was created in the 50’s. It is still the primary tool used by Gamblers Anonymous. In a study done by Toneatto (2008) he found that, “the 20 Questions appears to be a reliable and valid measure of problem gambling and warrants continued research attention” (p. 71). He also states that it measures accurately measures clinically significant gambling behaviors and related constructs (such as boredom). Overall, each of these scales aims at clarifying
an individual's gambling severity to best treat and diagnose an individual's adverse gambling behaviors.

Finally, it's important to note that not only is gambling severity difficult to classify, so is the type of disorder that pathological gambling falls under. For instance, Grant and Kim (2006) state that based on behaviors and reactions to medications, gambling is closely associated with mood disorders, compulsive-obsessive disorders, and addictive disorders. This conclusion is supported by DSM V's change in classification for pathological gambling.

**Prevalence, Nationally and Within California**

On a national level, past year and lifetime prevalence rates of pathological gambling are reported to be as high as approximately 1.4 and 5.1 percent respectively (Petry & Armentano, 1999). In a national study done by Shaffer (2002) these numbers were slightly higher with the lifetime prevalence rates for both level three and level two somewhere between 1.5 percent and 5.4 percent. Overall, more than 3 million Americans suffer from the most severe type of gambling within their lifetime, 2.3 million are currently experiencing pathological gambling, and 8 million are currently experiencing some degree of gambling problems (Petry, 2004). Furthermore, “Pathological gambling has received little attention from clinicians and researchers despite prevalence rates similar to or greater than those of Schizophrenia and Bipolar Disorder” (Grant & Kim, 2006).

In 2001, “Americans wagered a total of almost $860 billion dollars on legalized forms of gambling” (On Track slide show, 2010). Within the United States, 38 states
have a legal lottery system, 28 states allow and have Native American casinos, and all states, with the exception of Hawaii and Utah have some form of legalized gambling. More money is spent on gambling than other forms of entertainment such as going to the movie theatre, music, theme parks, spectator sports, and video games combined. It should be noted that these statistics only encompass legal gambling (On Track Slide Show). Furthermore, Cirarroccchi (2002) states in his literature that the average pathological gambler’s damage (which will be elaborated on more thoroughly in the adverse consequences section) and debt adds to, “about $4 billion per year, and $28 billion on a lifetime basis” (p. 21). This cost is often passed on the government and hence the tax payers.

Within California there are as many as 590,000 adult problem gamblers, 333,000 adult pathological gamblers, 436,800 youth problem gamblers, and 159,900 youth pathological gamblers (Attorney Generals Report). These groups total to 1.52 million individuals within California who have gambling issues. This costs the state $998.1 million, excluding costs of societal and social services for treatment. In another survey conducted in 2006, they estimated that the lifetime prevalence of pathological gambling in California was at least 1.5%, and problem gambling at 2.5% (On Track Slide Show). Furthermore, out of the 26.3 million adults over the age of 18 anywhere between 296,500 and 490,000 are lifetime pathological gamblers, and another 450,000 and 713,400 are lifetime problem gamblers. An additional 2.2 to 2.7 million adults can be classified as lifetime at-risk gamblers. Prevalence rates also differ in California by age, gender, and ethnicity. Rates among women, older adults, and Asian and Pacific Islanders are lower,
whereas rates among African Americans and the disabled are particularly high (California Problem Gambling Prevalence Survey, 2006). However, it should be mentioned that the rate of women is increasing in California and the NAPAFASA found that 42.6% of gamblers are female.

Finally, the expansions of gambling within California have exponentially increased over the past 20 years. Revenues gathered through gambling in California have risen five-fold since 1996 from $2.5 billion to $13 billion in 2004. The California Problem Gambling Prevalence Survey (2007) suggest that, “further expansion can be expected on several fronts, including pending re-negotiation of compacts between the State of California and numerous tribal governments, efforts by commercial card rooms and racetracks, around the State to expand their operations to include slot machines or similar devices, the possible legalization of casinos across the international border in Mexico, and increases in the availability of remote and internet gambling” (p. 4). Currently there are 97 card rooms, 61 American Indian casinos, and approximately 10 horse tracks running California (On Track slide show).

Demographics

The demographics of the pathological and problem gambling community can be broken down based on age, gender, ethnicity, and socioeconomic status. Each of these ‘sub groups’ have been shown to have statistical significance and in certain instances overrepresentation within the gambling population. Also, within these subtypes there are differences in venerability, prevalence, and types of gambling.
Age

First, age is one variable that has shown significance within the pathological and problem gambling population. Two populations that have been shown to be especially vulnerable to pathological gambling are adolescents and older adults. College aged young adults and adolescents have the highest rates for the prevalence of pathological gambling. In a collaboration of six adolescent studies put together by The National Research Council it was found that the median value for adolescents who had participated in any type of gambling was 85 percent (1999). Martins, Sorr, Ialongo, and Chilcoat (2008) found in their study that 77-83% of adolescents have gambled in the past year. Furthermore, Shaffer, Hall, and Bilt (1999) found in their study that, “The results of this research synthesis demonstrate that adolescent samples consistently show a significantly higher prevalence of level 3 and level 2 gambling for both lifetime and past-year time frames than general adult population samples (e.g., 3.9% in adolescents vs 1.6% in adults for lifetime estimates of level 3 gambling)” (p. 1373). Adolescent problem and pathological gamblers have been characterized as having proneness for ‘risk behavior’ and a lack of sensitivity towards illicit behavior, which could be an explanation for their relatively high rates of gambling. Problem or pathological adolescent gamblers have also been found to exhibit, “hyper- or hypo- arousal, greater emotional distress, and higher levels of disassociation and higher rates of comorbidity than non problem gamblers” (Blaszczynski & Nower, 2002, 490). Furthermore, Martin, Tavares, Lobo, Galetti, and Gentil (2004) also found that, “younger gamblers reported more frequent engagement in suicide attempts, sexual risky behaviors, and involvement in illegal
activities” (p. 1233). They were also shown to be more likely to progress faster than
gamblers beginning later in life. A study conducted by Cupta, Derevensky and Marget (2004) also suggested that, “Research during the last decade has also shown that
problematic gambling among youth is associated with a host of negative outcomes such
as poor school performance, low-self esteem, depressive symptomotology, difficulties in
interpersonal relationships, and delinquency” (p. 196). They also found that adolescents
with gambling problems are more likely than their non-gambling counterparts to have
stressful life events, and use more avoidance and less-focused coping mechanisms.
Finally, Martins, Sorr, Ialongo, and Chilcoat (2008) found that, “lifetime
dysphoria/depression is associated with past-year gambling among adolescent girls. . .
Externalizing behaviors such as conduct disorder and impulsivity have been associated
with gambling and gambling problems in a community sample of Caucasian male
adolescents” (p. 127).

Another population that is also particularly vulnerable to pathological gambling is
older adults or adults over 60. Tirachaimongkol, Jackson, and Tomnay (2010) suggest
that the prevalence of this population could range as high as 2-17% depending on the
location and availability. Bazargan, Bazargan, and Akanda (2000) also found that the
prevalence of elderly gamblers is somewhere between 5-17%. While these rates are
alarmingly high historically this group has not had a high prevalence rate for gambling.
Murica (2010) suggests in her study that this is partially due to the negative relationship
between age and impulsivity. Rather, as individuals age they become less impulsive, and
hence, less likely to gamble. However, despite their past gambling trends Parekh and
Morano (2009) suggest that between the years of 1975 and 1998 the number of elderly gambling has increased by 45 percent. They suggest that this high growth in gambling behavior could be attributed to, “loneliness, boredom, loss of a loved one, chronic pain, fear of death, health problems, fixed incomes, and vulnerability resulting from post retirement inactivity” (p. 2002). However, they also state that availability is partially responsible for this burst in growth. They state, “as senior centers, social organizations, and churches have regularly scheduled outings to local gambling sites, the number of older gamblers will also increase.” Murcia (2010) states that elder adults gamble due to increased social isolation and for the socialization gambling provides.

While their prevalence rates are not as alarming as their adolescent counterparts they are overall a more vulnerable population. Older adults are more likely to go bankrupt and have credit card debt due to gambling than other age groups. Their limited incomes put them at higher risk, and they (Tirachaimongkol, Jackson, & Tomnay, 2010, p. 352). Parekh and Morano (2009, 688) state, “because more and more senior centers promote social outings to the casinos or other gambling opportunities such as bingo as some of the centers’ regularly scheduled activities, the vulnerability of persons living on fixed incomes could have serious and last consequences.” Hence, they are less likely able to recover from the adverse consequences of problem gambling.

In regards to treatment, Tirachaimongkol, Jackson, and Tomnay (2010) found in their study that treatment is particularly difficult with this age group considering, “older adults are more likely to present with other complex co-morbidites, such as depression, anxiety, malnutrition, and other health detriments, which may mask the underlying
problems” (p. 533). They also suggest that older adults tend to delay treatment or formal help than other age groups because they are more inclined to feel shameful or even foolish for their gambling habits. Yet, treatment is especially pertinent within this vulnerable population is in that, “A gambling addiction can destroy all plans for a comfortable retirement” (Bazargan, Bazargan, & Akanda, 2000, p. 55).

**Gender**

Another significant subtype is gender, and while men demonstrate a more prevalent rate of gambling female problem and pathological gamblers have been steadily increasing. Aseveed (2003) suggests respectively one-third of the national average of pathological gamblers are female. While historically women were significantly less likely to gamble than men Afifi, Cox, Martens, Sareen, and Enns (2010) suggest that, “greater gambling involvement among women relative to the past may be due to the increased availability of legal forms of gambling” (p. 125). They also suggest factors that increase the likelihood of women becoming pathological gamblers; “Being middle class, reporting middle to low levels of income, having a high school diploma or less, being never-married, reporting higher levels of life stress, and negative coping skills” (p. 397).

Trends that differ between men and women are, for one, that women tend to progress in their gambling more rapidly. Tavares, Zilberman, Beites, and Gentil (2001) found that gambling problems among women are more likely to surface later in life than males (the average age for males is 20.4 whereas for females it is 34.2), but that women typically progress faster than men as well. This has been termed ‘telescoping’ by the NAPAFASA, and they attribute this progression to the type of highly addictive gambling
that women typically prefer. Their literature describes women gamblers as playing games that focus more on luck and low intensity, such as slot machines or bingo, since they gamble more for escape and disassociation. In a study conducted by Welte, Barnes, Wieczorek, Tidwell, and Parker (2009) they found that the most preferred type of gambling exercised by women is machine gambling, and that this form of gambling is the most addictive. They state concerning gambling machines, such as slot machines that, “provide instant feedback are more addictive than other forms of gambling.” Hence, they conclude that women have more rapid onsets of pathological gambling because of the type of gambling they participate in, as well as their motives (escape and disassociation) behind gambling.

Women are also more likely to gamble as an escape from painful realities and are more likely to gamble because of boredom, loneliness, and isolation. They are also more likely to experience disassociation. In a study conducted by Getty, Watson, and Frisch (2000) they also demonstrated that affective states can also differ by gender. They found that the women gamblers in their sample manifested higher levels of depression than the non-gambling controls and the males within the study. Martins, Tavares, Lobo, Galetti, and Gentil (2004) found that women gamblers were more likely to be suicidal and have clinical depression than males, but less likely to involved in risky sexual behaviors and drug and alcohol abuse than their male counterparts.

Men, on the other hand, are more likely than women to, “engage in strategic forms of gambling, commit illegal acts, and have substance use problems” (Ledgerwood & Petry, 2005, p. 21). They also found that men score higher on sensation seeking tests
and demonstrate greater impulsivity. They gamble more out of excitement and risk, and tend to gravitate more to sport betting and card games. Men are also more likely to be engaged in criminal activity due to their gambling including domestic violence and child abuse. Furthermore, men are more likely than women to seek out treatment (Volberg, 1994). In a study conducted by Tavares, Zilberman, Beites, and Gentil (2001) they state, “Available data suggest that female gamblers are underrepresented in treatment settings and in Gamblers Anonymous meetings,” and that problem and pathological gambling among women has increased in recent years (p. 152). The NAPAFASA (2010) attributes this to fear of judgment, exposure, and shame and guilt on behalf of women. Also, women gamblers have reported having more feelings of self-reliance and that they should be able to handle their issues on their own.

**Ethnicity**

Ethnicity or cultural background is also a statistically significant variable within the pathological and problem gambling population (Petry, Armentano, Kuoch, Norinth, &Smith, 2003). Volbergy demonstrated in his study that, “ethnic minorities are seriously underrepresented among pathological gamblers entering treatment” (p. 382). This means that not only are they less likely to seek out treatment, but they are also more likely to go unreported suggesting that the prevalence of each of these groups is most likely higher than presented. Raylu and Oei (2004) suggest in their study that the prevalence of minority status ethnicities this could be attributed to more positive cultural beliefs and values concerning luck and risk taking as well as their lack of utilization of treatment options. Finally, Welte, Barnes, Wieczorek, Tidwell, and Parker (2009) also suggest that
minorities have significantly higher rates of problem and pathological gambling, which they attribute to more positive outlooks of minority cultures regarding gambling. However, while there may be overrepresentation within other ethnic groups those that have shown particular relevance are Native Americans, the Chinese, immigrants (Chinese and Latinos), and African Americans.

First, in a study conducted by Raylue and Oei (2004) it was found that 9.6% of American Indians are pathological gamblers, and they also found that their increased availability to gambling raises their potential for becoming a problem or pathological gambler. They also suggest in this same study that their beliefs in magical thinking that allows them to generalize this belief by ‘trying of one’s luck’ in gambling. As adolescents they’re also more likely to begin gambling earlier and at a higher prevalence than non Native Americans. Furthermore, Zitzow (1996) in his study suggested that American Natives are more predisposed to gambling due to, “variables such as low socioeconomic status, unemployment, increased alcohol use, depression, historical trauma, and lack of social alternatives” (p. 1195). Raylu and Oei (2004) found regarding Native American youth that, “adolescents showed more involvement in gambling, began gambling at an early age, and showed more pathological gambling behaviors than non-Indian students” (p. 110).

Native American tribes in the United States are a group especially conflicted on the issues of pathological gambling considering, “Native gaming is active in twenty-eight states across America sustaining a $9.6 billion industry that is growing three times faster than non-Indian gaming” (Napoli, 2002, p. 52). This money is invested in their people’s
educations, healthcare, and general well-being. However, along with the profit and casinos issues such as crime, corruption, and alcohol and gambling addictions have grown with them. However, as profits from casinos grow, so do issues of gambling alcohol addiction. They are the two biggest problems associated with tribal gaming and have been affecting Native people for decades.

The Chinese are also an ethnic group that has shown significance. Shaffer and Korn (2002) suggests that, “Asian groups in America show higher rates of gambling disorders compared with other groups” (p. 190). Liao (2008) found in a study done on the Chinese community in San Francisco that, “nearly 70% of Chinese surveyed in San Francisco perceived problem gambling to be a serious problem in their community” (p. 34). This 70% comes from an open-ended question where they could fill in any answer, and yet still, 70% responded with gambling as their answer. Finally, Oei, Lin, and Raylu (2008) also state that, “numerous studies have suggested significant gambling problems in this population” (p. 150).

This notable prevalence of problem gambling within the Chinese population has been largely associated with their culture and background. Oei, Lin, and Raylu (2008) in their study suggest that the Chinese are more likely than their Caucasian counterparts to be problem or pathological gamblers due to their cultural prevalence of superstitious beliefs, which were shown earlier to be a cognitive distortion that perpetuates pathological gambling. Papineau (2005) also supports this notion, and states compared to their Caucasian counterparts that, “specific Chinese cultural ideals and values, beliefs regarding fate and illusion of control among the Chinese gamblers might be more
insidious and profound” (p. 127). Finally, Loo, Raylu, and Oei (2008) have suggested that the prevalence for this population is due to their enjoyment and preference for the activity as a form of entertainment, and that their rate of prevalence ranges from 2.5% to 4.0%. They also found that the Chinese have difficulty admitting their issue, and are less likely to seek professional help out of fear of losing respect and face.

African Americans are also a high risk group. As stated previously, within California they are one of the highest at risk groups and problem or pathological gambling is more prevalent within their population than other minority group. Martins, Sorr, Ialongo, and Chilcoat (2008) found in their study that African American males have significantly higher problem and pathological gambling issues. Welte, Barnes, Wieczorek, Tidwell, and Parker (2003) state in their study that, “that pathological gambling was significantly more prevalent among African Americans than European Americans” (p. 334). The Research Institute on Addictions (2001) found that as many as 7.7% of African Americans are problem gamblers, and 3.7% are pathological gamblers. While this group is obviously a significant problem and pathological gambling population there is a serious lack of information regarding it.

Immigrant populations have also been found to be notable for pathological gambling prevalence. Raylu and Oei (2004) find that this could be due to acculturation. They suggest, “It is possible that increased gambling and pathological gambling is either related to a successful acculturation process (i.e. successfully adapting to a culture that has high acceptance and practice of gambling) or related to problems in the acculturation process (i.e. difficulties in adapting to the mainstream culture)” (p. 67). Two most
notable cultures that have struggled with acculturation and adaption are Chinese and Latino immigrants. For Chinese immigrants, Raylu and Oei (2009) suggested in their study that they suffer losses of social status when coming to America, and so gambling becomes a coping mechanism that proves self-worth, and is a method of financial gain. They also suggested that they use gambling as a form of socialization to lessen their isolation in their new environment. Hence, many Chinese seek out casinos because they find it an attractive environment since individuals (both employees and gamblers) are from their own culture and background surround them and can speak their language (Raylu & Oei, 2004).

Latino immigrants are also an area of concern considering their prevalence and the popularity of gambling among them. According to the NAPAFASA (2010) training project Latino immigrant males make somewhere around $12,000 dollars a year, experience language barriers, and a lack of education. They state, “Alternatively, for the individual who does not have an effective level of personal and work-related abilities, everyday stressors can become unmanageable, and the individual will develop a high risk for adopting and practicing negative coping mechanisms and addictive behaviors” (p. 2). They state risk factors for this population are the separation from family (family left behind in Mexico), alcohol and drug issues, few recreational activities, and increased number of unstructured leisure time.

**Economic Status**

Lastly, socioeconomic status is a factor that contributes to the prevalence of pathological gambling, which is closely associated with minority status, gender, and age
is socioeconomic status. Shaffer and Korn (2002) suggest that, “Poverty often is associated with increased financial risk-taking, perhaps because of the psychoeconomics of gambling—a primary driving force behind the epidemiology of gambling” (p. 181). Overall, those with lower-incomes perceive gambling as more of a life-altering event that will significantly impact their lives unlike those with higher-incomes. Those with higher incomes typically don’t see as much gain from the risk of gambling unless it was such a substantial gain that it had the potential to significantly alter their lives. Welte, Barnes, Wieczorek, Tidwell, and Parker (2003) suggest in their study similar findings. They state that, “Lower socioeconomic status persons might have more gambling pathology than higher socioeconomic status persons who gamble the same amount due to the fact that higher socioeconomic status persons have more income and more financial resources to buffer the effects of gambling losses” (p. 325). Finally in regards to both youth and adult gamblers Martins, Sorr, Ialongo, and Chilcoat (2008) found that one important environmental factor that has been associated with gambling and problem/pathological gambling is living in a disadvantaged neighborhood” (p. 126). They attribute this to the increased availability within their environment.

**Etiology**

It should be noted that no single suggested etiology is solely responsible for the manifestation of pathological gambling. Rather, “single domain models that assume pathological gamblers form a homogeneous population may no longer be adequate in the face of data that putatively demonstrates gambling to be a heterogeneous and
multidimensional disorder, the end result of a complex interaction of genetic, biological, psychological, and environmental factors” (Blaszczynski & Nower, 1999, p. 488).

**Cognitive**

Problem gambling has been attributed to faulty cognitive patterns, or rather, “a set of false and erroneous believes about their ability to control or predict gambling outcomes, which may be responsible for the persistence of their gambling behavior” (Oei, Lin, & Raylu, 2008, p. 148). Faulty cognitions, or irrational thinking have also been shown to perpetuate longer durations and enhance the intensity of gambling (Maccallum, Blaszczynski, Ladouceur, & Nower, 2007). Porter and Ghezzi (2006) state, “pathological gamblers have difficulty applying the principle of independence of events and generating a random serious of numbers when monetary incentives are involved. . . the assumption is that difficulties of this sort spawn an irrational belief system that both creates and sustains pathological gambling” (p. 31). Ida (2009) also found that addictions could be explained in two ways: weak rationality and anomaly. Emond and Marmurek (2009) found in their study surrounding thinking styles found that, “overall, detrimental gambling related cognitions were inversely related to rational thinking and positively related to experiential thinking” (p. 225). They concluded that, “irrational and erroneous cognitive schemas overestimating the probability of winning, coupled with traits of impulsivity, combine to increase the likelihood that gamblers will make spontaneous decisions to initiate gambling sessions, continue gambling longer than intended, withdraw additional funds, participate in last minute changes in bet selection, and obtain money through illegal means” (Maccallum, Blaszczynski, Ladouceur, & Nower, 2007, p.
1835). Irrational thinking was also tested by Ladouceur and Gaboury (1988) in their study in which gamblers voiced their thoughts while gambling. They found that 80% of the roulette and slot machine gamblers’ perceptions were erroneous. Petry (2002) in her study surrounding voiced cognitions also found that a large majority of the gamblers’ thoughts, 70%, were erroneous.

While there are an array of faulty cognitions that gamblers can hold there are four commonly identified distortions of thinking held by problem gamblers. One of such distorted patterns has been dubbed the ‘gambler’s fallacy.’ This is where gamblers are guided by false or inaccurate and irrational beliefs about chance, probability, random events (Porter & Ghezzi, 2006, p. 31). A gambler believes that a win is ‘due,’ or that a win will follow after a long sequences of losses even though the game is based in randomness, chance, and unpredictability (Oei, Lin, & Raylu, 2008, p. 2). An individual may lose ten hands of blackjack but they will keep playing because they’re ‘due’ for a win soon. If they are playing machine games they may encounter ‘near misses,’ which only sustain the continuation of play (near misses will be discussed more in a latter part of this section). Unfortunately, the ‘due’ win may be significantly less that the amount that they have already lost in pursuit of the win (Rogers, Moeller, Swann, & Clark, 2009, p. 8).

The ‘illusion of control’ is another distortion and this occurs when the gambler infers a degree of skill in a game that is determined by chance alone (Rogers, Moeller, Swann, & Clark, 2009, 8). Hence, the gambler believes that they have some deterministic ability to win and this state is often characterized by statements of
overconfidence and excessive self-efficacy (Zangench, Blaszczynski, and Turner, 2008, p. 76). This distortion allows gamblers to blame their losses on their lack of skills rather than the low odds of winning within the game. When they do win they create an image of having manipulated or beat the system, and that persistence pays off. Oei, Lin, & Raylu (2008) state that, “The more a chance situation contains factors of choice, (e.g. the opportunity to choose one’s own gambling machine or game), and involvement (e.g. being able to throw one’s own dice), familiarity (e.g. using a favorite gambling machine), the more it creates a false impression of control, thus maintaining the gambling behavior despite continuous losses” (p. 150).

Superstitions also fall under the ‘illusion of control’ fallacy, and often a characterization of problem gambling. In a study done by Joukhador, Blaszczynski, and Maccallum (2009) problem gamblers were more likely than non-problem gamblers to hold irrational superstitious beliefs. Superstitions, which are defined as, “a strong conviction based on the erroneous perception of a cause-effect association between two independent events” (Joukhador, Blaszczynski, and Maccallum, 2009, p. 176) and can be behavioral, talismanic, or cognitive. Behavioral superstitions include actions or rituals that an individual believes will increase their probability of winning. Entrapment is usually a result of this type of thinking. This is where an individual will gamble continuously, despite losses, because they believe a win will occur while they stop gambling. Another type are talismanic superstitions, which are based in the belief that a possession of certain tangible objects will increase one’s likelihood of winning. Finally,
cognitive superstitions are grounded in the idea that someone has to believe they’ll win in order to win (Zangench, Blaszczynski, and Turner, 2008, p. 76).

Finally, near misses can also be categorized as ‘illusions of control.’ Near misses have been shown to perpetuate gambling more than actually winning. Near misses occur when the gambler loses, but, for example, only by one slot machine line or by one card. Clark, Lawrence, Asteley-Jones, and Gray (2009) found in their study that, “compared to ‘full misses’ near misses were experienced as less pleasant, but increased desire to play” (p. 482). Hence, during near misses gamblers, “experience a range of cognitive distortions that promote an overestimation of the changes of winning” (Chase & Clark, 2010, 6180).

The third type of distortion is “availability heuristic,” which holds that wins can be more memorable or easily recollected than previous losses. Gamblers tend to recall wins in order too sustain the hope or wish of winning. Also, since wins are rarer and larger they may come to mind easier (Chase & Clark, 2010, p. 6180).

Finally, the fourth type of distortion is the illusion of luck. Gamblers may believe that they can manipulate luck to their advantage (much like the illusion of control). Chiu and Storm (2009) found in their study involving a sample of both pathological gamblers and recreational gamblers that, “the pathological gambler group was higher on impulsivity, and belief in luck, and had more positive attitudes towards gambling,” and that, “Pathological gamblers in our sample were more likely to perceive luck as a personal attribute; an internal and stable factor” (p. 210). Maltby, Day, gill, Colley, and Wood (2008) also studied this phenomena as seeing luck beyond chance and
found that individuals making external attributions (i.e. seeing events as being due to luck) are less mentally healthy than their counterparts, and that pathological gamblers’ distorted belief that luck and chance are a separate phenomena are maladaptive traits. Finally, in a study conducted by Wohl, Young, and Hart (2007) they found in their study that pathological gamblers did not see luck as an external or uncontrollable aspect, but an internal attribute they possessed. They also found that, “the degree to which gamblers saw themselves as having the quality of personal luck was positively related to the extent to which gamblers felt able to influence the outcome of their wagers” (p. 46). It’s also important to note that this illusion can vary depending on the cultural group. Certain Asian cultures, for example, believe that luck is uncontrollable and one either has it or does not have it, or that one will experience luck during certain times and during other times they will not. One can also be born with more luck than others, (Zangench, Blaszczynski, and Turner, 2008, p. 76).

It is important to note that these are the three most commonly mentioned distortions, however, other exist. For instance, Raylu and Oei (2002) have also comprised categories of their own, which specifically relate to individuals of Asian decent. Theirs include the illusion of control, predictive control (the ability to predict gambling outcomes, such as picking the same lotto numbers every time), gambling expectancy (specific thoughts surrounding gambling such as “gambling makes the future better”), interpretative bias (this involves reframing gambling losses in order to continue to gamble), and finally the perceived in ability to stop gambling (e.g. “I can’t function without gambling!”) (Emond & Harvey, 2009, p. 2).
Psychological States and Co-Occurring Psychopathology

Another component that fosters the perpetuation of gambling is a gambler’s psychological state as well as other co-occurring psychopathology that might be present (this section will ignore substance abuse since it will be addressed later in the duration of this section). For instance, Cunningham,-Williams, Cottler, Compton, and Spitznagel (1998) found in their study that both recreational and problem gamblers had higher rates of most psychiatric disorders than their non-gambling counterparts did. In different study conducted by Kausch (2003) it was found within the sample that, “among the 113 gamblers, 43% of those individuals carried a clinical diagnosis of depressive disorder, 7% bipolar disorder, 5% schizophrenic disorder, and 19% had no psychiatric disorder” (p. 266). Ultimately, there are two prominent subgroups when framing problem gambling through a psychological and psychopathology lens. These are gamblers who, “describe an alleviation of low mood and distraction from stressors,” and those that, “emphasize the hedonic thrill of physiological arousal induced by gambling” (Rogers, Moeller, Swann & Clark, 2009, p. 1322).

Depression, anxiety, social isolation, and disassociation characterize the first subgroup. Ledgerwood and Petry (2006) describe this subgroup as gamblers who are emotionally vulnerable and gamble out of the need to escape and cope with painful emotional experiences or because of, “psychiatric and interpersonal distress” (p. 412). Furthermore, “researchers have identified gambling as a means of escaping from the reality of home life, noting that gamblers often report greater feelings of safety and belonging while gambling” (p. 3). Finding from Blaszczynski and Nower’s (2002) study
suggested that there exists a high prevalence of mood disorders, particularly anxiety and/or depression, among problem and pathological gamblers. They further suggested that this group is characterized by, “a history of poor coping and problem-solving skills, and negative family background experiences, developmental variables and life events” (p. 490). They concluded that depression has been proven to, “further weaken inhibitory control and increase the propensity for impulsive decisions that result in prolonged sessions” (Maccallum, Blaszczynski, Ladouceur and Nower, 2007, p. 1832). Hence, this group has been recognized as the more precarious and more difficult to treat. Finally, and depression and anxiety in pathological gamblers has been directly linked to a desire to escape problems (Ledgerwood and Petry, 2006, p. 18).

This group is also characterized as suffering from, “anxiety and select low skill activities to narrow their focus of attention and produce states of dissociation” (Blaszczynski & Nower, 2002, p. 489). Disassociation is another experienced psychological state that gamblers use to escape their issues. Ledgerwood and Petry state (2006), “increases in the severity of gambling problems are associated with greater disassociation of gambling. . . both disassociation and escape may be strategies for coping with painful emotional experiences that involve avoidance of the pain situation” (p. 19). It was also found that dissociation was found to be higher in problem gamblers than non-problem gamblers, as was expected by the author.

Oei, Lin, and Raylu (2008) presented in a study with a sample of 234 pathological gamblers that, “it was revealed that almost 75% of gamblers who sought help for their behavior suffered from depression, whereas 61% reported suicidal ideation, with 22%
making an attempt at suicide” (p. 149). In a study done by Kausch (2003, 266) it was found that 45 of the 113 gamblers in their study (39.8%) had made a suicide attempt at some point in their lives, and 64.3% of these same individuals stated that their most recent suicide attempt was related to gambling. However, as recognized previously, there are two differing subgroups within the pathologies experienced by problem and pathological gamblers. The second group mentioned previously revolves around stimulation, impulsivity, and arousal when gambling. Blaszczynski and Nower (2002) describe individuals within this subgroup as demonstrating “elevated levels of impulsivity that is highly correlated with measures of psychopathology and clinical criteria for antisocial personality disorder. . . These gamblers exhibit a family history of problem gambling, early onset, more severe levels of gambling, a history of suicidal ideation and/or attempts, co-morbid substance dependency, antisocial and narcissistic traits, affective instability, widespread dysfunction in non-gambling related areas and unresponsiveness to treatment” (p. 490). Ledgerwood and Petry (2006) also describe this group demonstrating, “impulsiveness, sensation seeking, risk taking, and antisocial personality” (p. 23). They characterize this group of gamblers as being one of the most dangerous since they act out of lacking inhibition, thrill seeking, and boredom.

Pathological gamblers also have a higher prevalence rate of Narcissism, a personality disorder, and Attention Deficit/hyperactive disorder. Blaszczynski and Steel (1998) conducted a study on personality disorders that found 47 (57.3%) of their subjects were found to have narcissistic personality disorder, and that, “problem gamblers diagnosed with antisocial personality disorder or narcissistic personality disorder
exhibited a greater severity of problem gambling” (p. 897). These same subjects were found to have higher levels of impulsivity than those that were not diagnosed with a personality disorder. Also, pathological gamblers exhibit a strong association with previous made childhood diagnosis’s and adult ADHD have been found in pathological gamblers (Zangeneh, Blaszczynski, & Turner, 2008, p. 45). Ledgerwood, Alessi, Phoenix, and Petry (2009) included in their study that as many as 20% of pathological gamblers have ADHD, which suggests that pathological gambling may be associated with issues surrounding attention and memory difficulties. While this is relevant information more study is needed to examine the causality relationship it has with pathological gambling since few studies have examined this relationship. Afifi, Brownridge, MacMillan, Sareen (2009) have also found a relationship between family violence, mental disorders, and pathological gambling. They state, “mental disorders may cause variation in gambling problems, may be varied by the victimization of violence, or may mediate the direct relationship between violence victimization and gambling problems” (336).

Lastly, the most basic state that many studies alluded too that is experienced by pathological gamblers is boredom. The 20 questions, which Gamblers Anonymous uses to evaluate pathological gamblers, includes asking the individual if they are prone to boredom (Toneatto, 2008).

Finally, it is important to note that the psychological states and diagnoses discussed in this section can also be co-morbid of pathological gambling. Oei, Lin, and Raylu (2008) suggest that more research is needed surrounding the causation of
psychological states in pathological gamblers to create a more clear picture of this concept.

**Impulsivity**

Impulsivity is a, “predominate characteristic of widely utilized conceptual models of gambling” (Maccallum, Blaszczynski, Ladouceur, & Nower, 2007, p. 1829). Impulsivity in pathological gamblers is characterized as a, “multifaceted behavioral construct, characterized by deficits in self-control expressed as a repeated failure of self-discipline, self-regulation, or sensitivity to immediate reward, “Maccallum, Blaszczynski, Ladouceur & Nower, 2007, p. 1829). Pathological gamblers have also, “reported acting on the spur of the moment, experienced trouble planning and thinking carefully, and noted greater attention difficulties” (Ledgerwood, Alessi, Phoenix, & Petry, 2009, p. 90). Hence, it becomes clearer as too why originally this disorder was founded as Impulsive Control Disorder with the publishing of DSM-III.

Impulsiveness in pathological gamblers has also been shown to increase precarious behaviors such as risky sexual activity, over spending, criminal activity, and suicide. In a study conducted by Kausch (2003) he found that 30.9% of participants in his study had a problem with compulsive sexual behavior, and 24.5% believed they had problems with compulsive shopping or spending. Suicide is also related to depression and can also be attributed to impulsive behavior. Furthermore, “impulsivity may also place pathological gamblers at greater risk of co-occurring psychosocial problems that make initiation of recovery more difficult. . . Individuals who are more impulsive are also
more likely to have greater difficulty in financial, employment, family and relationship, and legal domains” (Ledgerwood, Alessi, Phoenix, & Petry, 2009, p. 92).

However, it should be made clear that not all impulse is negative or harmful. Maccallum, Blaszczynski, Ladouceur, and Nower (2007) conducted a study that evaluated functional and dysfunctional impulsivity in both pathological gamblers and non-pathological gamblers. They described dysfunctional impulsivity, “as the propensity to respond quickly, carelessly and with inattentiveness, may constitute a trait that contributes to the exacerbation of negative consequences are a result of an individual’s inability to plan, reflect on the implications of actions and delay gratification in an adaptive manner,” while functional impulsivity refers to the tendency to engage in rapid, error-prone information processing only in situations when it is found necessary (p. 94). They found that pathological gamblers had elevated impulse scores, which suggests a characterization of dysfunctional impulsivity.

Impulsivity also serves to distinguish gamblers from other addictions (which will be discussed in more detail in a latter section). To summarize, gamblers display aspects of impulsivity such as craving, motor impulsivity, non-planning, and chasing that other addictions do not typically substantiate. Chasing is a trait unique to pathological gamblers and refers to the impulsive and even compulsive need to catch the win despite adverse consequences to the act. This impulsive behavior has been shown to play an important role in problem gambling. As suggested by Blaszczynski and Nower (1999) in their study surrounding the pathways to pathological gambling they state that operant and classical conditioning can lead to the perpetuation of gambling. They suggest that studies
have shown increased heart rate and arousal within pathological gamblers when engaged in an act of gambling. They state, “operant condition occurs when intermittent wins delivered on a variable ration produce states of arousal often described as equivalent to a ‘drug induced high’, while with repeated pairings, this arousal is also classically conditioned to stimuli associated with the gambling environment” (p. 491). They conclude with stating that this can lead to habituation, and then chasing.

Studies have also been conducted to prove or demonstrate the presence of impulsiveness in pathological gamblers by using certain impulsivity tests. One such test is the delay-discounting test into which participants choose between small rewards available immediately, or larger rewards available at some point in the future” (Rogers, Moeller, Swann and Clark (2009, p. 1322). Robust impairments have been observed in studies that used the delay-discounting procedure when testing impulsivity in pathological gamblers. Steeper delay-discounting was reported and when combined with substance abuse there was an even more dramatic delay. In a similar study done by Maccallum, Blaszczynski, Ladouceur and Nower (2007) it was found, “that pathological gamblers seeking treatment are characterized by elevated impulsivity scale scores, suggesting a deficit in inhibitory control and capacity to delay gratification” (p. 178). Ledgerwood, Alessi, Phoenix, and Petry (2009) also concluded in their study that, “more rapid discounting of delayed rewards is a measure of greater impulsivity. . . Past studies have found that pathological gamblers discount delayed rewards more rapidly than non-pathological gamblers, even after accounting for substance abuse histories” (p. 90). Bechara (2003) states that delay-discounting, illustrates affective flexibility or motor
impulsiveness. Rather, when a pathological gamblers comes into contact with an opportunity to gamble they involuntarily reach for it. Her study confirmed that pathological gamblers more likely to perform more poorly than their non-problem gambling counterparts on delay-discounting tests and were therefore more impulsive.

Another type of test for impulsivity are the response inhibition tests. This type of test introduces two opposing neural functions simultaneously, behavioral elicitation and resistance, and analyze which function is completed first by the participant. The StopGo task is one of the more prominent tests which “measure a participants ability to restrain responding when required by the rules of the task (Ledgerwood, Alessi, Phoenix, and Petry, 2009, p. 92). Typically, a stimulus is presented, in this case gambling, and the activity itself draws the participant in to engage in the stimulus. Throughout the activity a stop mechanism will instruct the participant to cease their activity, and based on their reaction impulsivity is engaged. Those who score higher, or those who are more impulsive, have more difficulty stopping when directed especially as the latency between the stop signal and the task (gambling) being preformed increases.

Finally, the balloon Analogue Risk Task, or BART, is also commonly used to demonstrate impulsivity. This test revolves around being able to cease stimulation that could prove profitable if not overdone, or in this case, if the participant doesn’t over inflate the computer simulated balloon before it pops losing all of their profit. Those who score higher are associated with greater risk taking. Once again, pathological gamblers typically score higher on this type of test. Within this study done by Ledgerwood, Alessi, Phoenix, and Petry (2009) the delayed discounting, Go Stop tests, and Single Key
Impulse paradigm tasks were used, all showing significant differences between pathological gamblers and non pathological gamblers.

Lastly, ‘sensation seeking’ should also be mentioned as it is a commonly reoccurring theme within pathological literature and is often tied in with impulsivity. Coventry and Brown (1993) suggest in their study that, “there is also evidence to suggest that higher arousal is associated with greater persistence and more withdrawal symptoms when trying to abstain” (p. 542). Their findings suggest that not all gamblers necessarily fit into this category. Rather, on track horse track betters and casino gamblers (excluding slot players) are those most prone to sensation seeking and ‘chasing.’ They also suggest that sensation seeking has also been correlated with promiscuous sexual activity, involvement in risky sports, and drug abuse.

Although, in contrast, it has been suggested that, “more studies have found sensation-seeking was either lower in pathological gamblers or not related to gambling problems. . . In summary, sensation-seeking received little support for its strong form, which suggests it is a core underlying personality trait predisposing one to develop pathological gambling” (Ciarrocchi, 2001, p. 32). Either way, sensation seeking continues to be correlated with pathological gambling.

Lastly, impulsivity is also significantly demonstrated within pathological gamblers when examining brain functioning and processing. This will be expressed in the latter section regarding neurobiology.
Genetics and Familial

Genetics have also been shown to be a link within the pathways to pathological gambling. One of the more salient studies conducted was by Lin, Lyons, Scherrer, Griffith, True, Goldberg, and Tsuang (1998) whom interviewed over 6718 members of a nationally distributed Vietnam Era Twin registry. These pairs were both monozygotic and dizygotic and had served in the military. Their studies concluded that familial factors significantly increase the likelihood for pathological gambling, and that, “The increasing access to legalized gambling is likely to result in a higher prevalence of pathological gambling behavior among individuals who are more vulnerable because of familial factors” (p. 1382). Furthermore, familial factors are said to be between 35% and 54% of the fault for five individual symptoms of gambling behavior. They found that the genetic specific vulnerability that has been deemed responsible for such behaviors is the dopamine receptor allele D2A1 or 4. Eisenegger, Knoch, Ebstein, Gianotti, Sandor, and Fehr (2010) also concluded this finding in their study surrounding Parkinson's disease, dopamine, and pathological gambling. Parkinson patients are given dopamine treatments, however, only those with D2A1 or DRD4 receptors were found to be genetically predisposed. In a study conducted by Teo, Mythily, and Winslow (2007) they also found in their study that in their sample almost a third of the pathological gamblers reported having a family history of gambling. Finally, in a study conducted by Raylu and Oei (2004) it was found that, “pathological gambling appears to be higher among those whose parents gamble” (p. 1089).
Comparisons and Comorbidity of Substance Abuse

Understanding the connectivity between substance abuse and pathological gambling in both its similarities and differences is essential when addressing either concept. Exploring both issues simultaneously brings clarity, “for treatment and prevention of relapse, as well as for theories of addictions” (Kausch, 2003, p. 266). Similarities between substance abuse and gambling are expressed in Rogers, Moeller, Seann, and Clark’s (2010) study. They state, “pathological gamblers display several hallmarks of an addiction syndrome, including symptoms of withdrawal, tolerance, and cravings” (p. 1330). The DSM-IV also compares the two diagnosis’s in five ways. “Specifically, there are ten criteria listed, five of which parallel substance use disorder criteria: preoccupation with gambling; a need to increase the size or frequency of bets (tolerance); repeated efforts to stop or cut down gambling; becoming restless or irritable if not gambling or prevented from gambling (withdrawal); and forgoing social, work, or recreational activities to gamble” Petry (2007, p. 1).

Also, pathological gambling and substance dependence compare similarly on tests regarding impulsivity such as delay discounting tests and attention and memory tests. Ledgerwood, Alessi, Phoenix, and Petry (2009) found that, “Pathological gamblers with substance dependence took greater risks on a risk-taking task than did pathological gamblers without substance dependence histories” (p. 90). This is significant in that higher impulsivity places pathological gamblers at a higher risk for relapse, which is only amplified by substance abuse usage currently and in the past. Finally, there are also
significant similarities between substance dependence and pathological gambling within the brain, however, that will be discussed in the next section.

Moreover, substance abuse and gambling are often two co-occurring diagnoses and are co-morbid of each other. Studies surrounding gambling often find a high rate of substance dependence among their samples. This is confirmed in a study done by Kausch (2003) it is suggested that treatment seeking pathological gamblers are showing higher rates of co-morbid substance abuse in the last 20 years. He concluded that this is due to the increasing availability of gambling, and, “substance abusers may be more susceptible to the development of gambling problems compared to non-substance abusers when gambling opportunities are more readily available” (p. 7). Maccallum and Blaszczynski (2002) also suggest that, “The rates for substance use disorder within a sample of treatment-seeking pathological gamblers is higher as compared to general population figures” (411). He also suggests that substance abuse should be screened for in pathological gambling treatment. Petry (2007) suggests that, “Those gamblers with substance abuse histories had more years of gambling problems and gambled more often” (p. 3). Lesieru, Frank, Welch, Cross, White, Rubenstein, Moseley, and Mark (1991) found in their study involving in-treatment drug and alcohol dependents that 19% of them were pathological gamblers. Finally, Crockford, Goodyear, Edwards, Quickfall, and el-Guebaly (2005) also reached conclusions that pathological gambling is highly co-morbid with substance abuse.

Studies have also demonstrated that pathological gamblers have higher rates of substance abuse than the general population. Ferentzy (2003) suggests that this rate is as
high as four to ten times that of the general population. Petry (2006) suggests that 70% of pathological gamblers have had an alcohol disorder, and 30% a drug disorder. In a study done by Kausch (2003) it was found that in a chart review of 113 consecutively admitted patients admitted into a Gambling Treatment Program at a Veterans Administration Medical Center between the years of 2000 and 2001 that 66.4% of pathological gamblers had a lifetime history of substance abuse or dependence at one point in time. This same study suggested that individuals with dual diagnosis or multiple disorders are more impaired than those with a single diagnosis and are more likely to relapse to one or both of their disorders, despite treatment.

Hence, these implications lead Petry (2006) to conclude that, “High co-morbidity may suggest that the disorders are part of the same spectrum and should be classified accordingly” (p. 155). However, while both diagnoses share significant similarities Bechara (2003) warns that, “Pathological gambling can serve as an informative model for substance abuse dependence since it presents a similar addictive disorder, but it does not carry the confounding issue of exogenous drug effects on brain substrates” (p. 44). Therefore, treatment options and ‘recovery’ should reflect this distinctive difference.

**Neurobiology**

The prefrontal lobe is where most research regarding the brain concerning pathological gambling, as well as addiction, is focused. A basic understanding of the prefrontal cortex will shed light on as to why researchers targeted this region of the brain. The prefrontal lobe, which is divided into three sectors. These sectors are the ventromedial prefrontal cortex, the orbitofrontal cortex, and the dorsolateral prefrontal
cortex. Each of these lobes within the prefrontal lobe has its own separate function. The ventromedial prefrontal lobe is primarily responsible for decision-making processes, risk, and fear. This section of the prefrontal lobe is founded more in emotion and feelings, and is also where somatic states from the primary (stimuli that is immediately perceived as pleasure from the outside environment) and then secondary inducers (entities generated by recall or thought) are triggered. The orbitofrontal lobe also has been shown to share in the processing of somatic states from primary and secondary inducers, however, it is more complex than the ventromedial cortex and operates thought cognitive though processes rather than emotional (Bechara, 2003). Its function is to process planning sequential events, or step by step decision making processes, and also deals with reward expectancy (Bechara, Travel, Damasio, 2000). Finally, the dorsolateral lobe facilitates working memory, reward expectancy, and cognitive processes as well. Within the literature review each of these areas of the brain and their relationship to pathological gambling will be discussed. However, while each of cortexes has its own function they simultaneously work together and overlap responsibilities to allow the prefrontal lobe to operate (Hochman, Yechiam, & Bechara, 2010). Some studies distinguish between the three and others do not. Either way for the purposes of this literature review sometimes they will be mentioned individually and at other times as a whole depending on the content and aim of the study.

That being said, one reasoning behind targeting this area of the brain as the source of pathological gambling is due to the abnormal activity, either higher or lower than normal, that has been shown to take place in the brains of pathological gamblers.
Bechara (2003) demonstrated that activity is reduced as demonstrated by skin conductance response activity tests, which involves putting electrical resistance through the skin to detect internal and external stimulus responses. Reuter, Raedler, Rose, Hand, Glascher, and Buchel (2005) produced similar findings and concluded that when this area of the brain functions at a reduced level the mesolimbic rewards system does not function properly and, “organisms seek additional, stronger reinforcers, much as drugs of addiction or gambling, to compensate for the lack of activation” (p. 148). However, Miedi, Fehr, Meyer, and Herrmann (2009) found that increased activity in the prefrontal lobe can also cause worsened gambling severity. They correlate this with dopamine-related antagonists, which will be discussed in the latter portion of this study.

This prefrontal cortex of the brain has also been shown to be a significant source of impulsivity within the brain, and hence studies have been conducted to show that a gambler’s impulsivity stems from abnormalities in this area of the brain. Bechara, Tranel and Damasio (2000) tested the deficits of decision making in patients with lesions in the ventromedial prefrontal lobe and found that the lesion patients were, “insensitive to future consequences, positive or negative, and are primarily guided by immediate prospects. . . This myopia for the future in lesion patients persists in the face of severe adverse consequences, i.e. rising future punishment or declining future reward” (p. 2189). Reuter, Raedler, Rose, Hand, Glascher, and Buchel (2005) in their study also found that lesion patients and both gamblers and addictive individuals displayed similar behaviors of tasks involving decision making. Miller (1992) reached similar conclusions in his study with lobectomy patients. However, Bechara, Tranel and Damasio (2000) suggest
that while this is partially true and that a distinction should be made when using the term ‘impulsiveness.’ They suggest that there are two ways to define impulsivity. One is motor impulsivity, which is related to response inhibition, or making responses before all the necessary information has been gathered. The Stop/Go test discussed in the previous section illustrates this type of impulsivity. This type of impulsivity is also described by Bechara (2003) who labels this as behavioral flexibility, and when functioning abnormally, “reflects an inability to inhibit a pre-potent motor response” (p. 42).

However, the second type of impulsivity, cognitive impulsivity, is, “seen as akin to an inability to delay gratification, and which is more complex than the other forms impulsive behavior” (Bechara, Tranel and Damasio, 2000, p. 2193). It is this area of the brain Bechara, Tranel and Damasio (2000) believe cognitive impulsivity, not motor impulsivity, to stem from. Bechara (2005) supports this assumption in her studying surrounding gambling tasks stating, “although pathological gamblers and substance abusers may have decision-making impairments as measure by the gambling tasks, these deficits may not relate directly to deficits in impulsiveness as measure by a variety of personality scales, thus suggesting that the two functions, (decision making and impulsiveness) may be processed by separate mechanisms in the brain.” She concludes by stating that cognitive impulsiveness, rather than motor impulsiveness, is found to be impaired in the, ‘lateral prefrontal cortex lesions.’ Motor impulsiveness was attributed to the anterior cingulate, or insula, which is located in the back of the brain and is attached to the prefrontal cortex.
Overall, these findings regarding impulsivity hold significance in that, “the basis of neurocognitive criteria has strong implications for prognosis and rehabilitation. . . Those who do not show signs of prefrontal impairment may have the best prognosis for treatment or recovery” (Bechara, 2005, p. 46). Since cognitive thought process and impulsivity are located within the prefrontal lobes those with abnormal frontal lobes will, in the worst case scenario, never be able to shift their behavioral patterns. However, those without abnormal prefrontal lobes will have more control over their choices and decisions. Overall, they have a better capacity for change and cognitive capacity to learn to stop gambling harmfully. These types of individuals have been labeled as having hypersensitivity. These conclusions further reiterate how the pathological gambling population is a heterogenous one, and that what may cause one individual to gamble will not affect another.

This area of the brain, the frontal lobe, has also been linked to compulsiveness. Cavedini, Riboldi, Keller, D’Annucci, and Bellodi (2002) also conducted a study regarding frontal lobe dysfunction using ventromedial prefrontal cortex lesion patients, however their aim was to show that gambling was a compulsive behavior rather than an impulsive one. They found that, “from a behavioral point of view, patients with pathological gambling share certain characteristics with patients with neurological damage to the ventromedial prefrontal cortex, such as persisting in making choices according to an immediate reward even though they may be fully aware of long-term native consequences” (p. 337). They also correlate abnormal functioning of this area of the brain and the orbitofrontal cortex with Obsessive Compulsive Disorder (OCD). Yet,
Rogers, Moeller, Swann, and Clark (2009) found contrasting results in their study observing the compulsive behaviors versus the impulsive behaviors of gamblers while in medicated treatment. Their results yielded that, “while both impulsive and compulsive features are detectable in pathological gamblers, impulsive features seem to predominate and are more closely associate with the severity of gambling problems” (Rogers, Moeller, Swann & Clark, 2009, p. 1322). Compulsivity did not stand up to the statistical control of impulsivity. These findings are significant in that they show that addiction may, like gambling, be related to impaired decision making. Bechara (2003) found in her study that like in pathological gamblers, ventromedial patients and substance dependent individuals show similar behaviors. She states, “several groups have used similar strategies (ventromedial lesion patients) and found a relationship between substance abuse and poor decision making” (p. 33). Furthermore, “from a neuropsychological point of view, deficits in executive frontally mediated attention have been observed, suggesting that attention deficits may be a risk factor for the development of an addictive disorder” (Cavedini, Riboldi, Keller, D’Annucci, & Bellodi. 2002, p. 337).

Cravings have also been associated with the prefrontal cortex, especially in regards to emotional and memory based cues. Crockford, Goodyear, Edwards, Quickfall, and el-Guebaly (2005) measured cravings in pathological gamblers within the dorsolateral prefrontal cortex, and amongst their conclusions found that the dorsolateral prefrontal cortex may be involved in, “motivation and cognitive operations. . . If this is so, its activity may be a marker of established (or dependent) behavior” (p. 790), much like substance abusers. They also found that gambling cravings can stem from all three
areas of the prefrontal lobe depending on the type of gambling cue. They state, “Gambling sensory cues may evoke reward expectation mobilizing attention, spatial processing, and preparatory behaviors, while emotional and motivational predecessors may be more directly linked to reward expectancy by their closer association to reward experience” (p. 791). Attention, spatial processing, and preparatory behaviors can evoke recollections of previous gambling experiences, whereas the emotional and motivational predecessors, “may generate internal emotional states that alter subsequent decision making” (p. 791). Hence, gambling can be cued not only by external stimulus but by the recollection or thoughts of gambling, psychological or emotional states, cognitive operations, and conditioning. Miedi, Fehr, Meyer, and Herrmann (2009) also found that these cues are similar to the cues found in substance dependency individuals. They state, “from a clinical point of view, pathological gambling is related to addictive behavior, and there is emerging evidence that the underlying pathology on a neuronal level compares to cue-related drug behavior” (p. 167).

Finally, prefrontal lobe damage or abnormal functions has also been tied to aggressive behavior, and in the case of humans, has lead to criminal behavior. As mentioned previously, pathological gamblers, particularly males, have shown statistically higher crime rates and promiscuity than the non-pathological gambling counter parts. Hochman, Yechiam, and Bechara (2010) in their study and other research that, “prefrontal lesioned patients exhibit promiscuous, antisocial, and aggressive behavior, and fail to accurately distinguish between right and wrong” (p. 31). In male mice, both the orbitofrontal and the ventromedial cortexes have both been shown to play a role in the
inhibition of aggressive behavior. They also add that the orbitofrontal cortex might be partly responsible for drug usage in that, “sensitivity to recent experiences may account for the inability to resist drugs, as these produce strong, mostly attractive, experiences” (p. 32). A study conducted by Miedl, Fehr, Meyer, and herrmann, (2009) also concluded that both the dorsolateral prefrontal and orbitofrontal dysfunctions have been shown to be prevalent in pathological gamblers.

However, the frontal lobe is not the only area of the brain that have been attributed with causing these kinds of deviant behaviors. The anterior cingulate, which plays a role in emotions, has also been demonstrated to be significant in gambling behavior, especially in regards to ‘near misses.’ Clark, Lawrence, Astley-Jones, and Gray (2009) concluded in their study on near misses that, “near misses were associated with significantly greater BOLD signal in the ventral straitum and anterior insula areas that were also activated by unpredictable monetary wins on tasks” (p. 486). Its responsibilities involved assessing the salience of emotion and motivational information as well as decision-making. Neurotransmitter deficits involving serotonin and dopamine have also been also been identified as possible links to pathological gambling (it should be noted that both of these neurotransmitter’s systems run through the brain including the prefrontal cortex). Bechara (2003) found in her study using controls and elevated levels of serotonin and dopamine that, “the blockage of both dopamine and serotonin interfered with the selection of advantageous choices. . . The stimulation of both dopamine and serotonin improved the selection of advantageous choices, but only in specific parts of the task” (p. 46). Serotonin improved only the decisions that were guided by conscious
knowledge of which choices were good or bad, which was the latter part of the gambling tasks used in the study. Dopamine, on the other hand improved the covert knowledge of the participate in the early part of the task. These findings hold significance in that they hold, “implications for the treatment of addictive disorders in that more than one neurotransmitter system may be involved in the addictive process, and thus different aspects of the addictive process may respond preferentially to different pharmacological treatments” (p. 46). However, studies performed with serotonin have found mixed results. Serotonin is of interest because low levels of this neurotransmitter increase impulsive behavior, however, “data suggests the possibility of a serotonin deficiency and/or a post-synaptic hypersensitivity of serotonin receptors, other studies have found no serotonin abnormalities” (Petry, 2007, p. 4). Hypersensitive individuals, those that were mentioned previously in Bechara’s (2003) study, have the greatest cognitive capacity for behavior change.

Abnormalities in dopamine receptor genes also pose as an explanation for pathological gambling. All humans posses the D2A and the DRD allele receptor genes, however, pathological gamblers are significantly more likely to carry the D2A1 and DRA4 allele receptor genes, which are just one of the several variations (Blaszczynski & Nower, 1999). These receptors are responsible in part for modulation and inhibitory control processes as well as motor control. In a study performed by Blaszczynski & Nower (1999) they conclude that, “this genetic variant has also been found more often in individuals with impulse control disorders and has been associated with reduced D2 receptor density and deficits in dopaminergic reward pathways” (Blaszczynski & Nower,
They have also been shown to be associated with attention-deficit and hyperactivity disorder and substance abuse behavior (Eisenegger, Knoch, Ebstein, Gianotti, Sandor, Fehr, 2010, p. 704).

Also, dopamine levels have been shown to have a strong relationship with impulsive behaviors such as pathological gambling. Mutschler, Buhler, Grosshans, Diehl, Mann, and Kiefer (2009) find that a neuroendocrinological study in casino gamblers found that gambling elevated dopamine levels in problem gamblers more than in healthy controls” (p. 216). Furthermore, Miedi, Fehr, Meyer, and Herrmann (2009) study, “demonstrated an enhancement of reward and priming effects of a gambling episode in pathological gambling as compared with non-gamblers after D2 antagonist intake” (p. 173). Their study also, “showed higher levels of norepinephrine and dopamine in problem gamblers compared with healthy participants” (p. 173).

Overall, it would appear that the prefrontal lobe, specific dopamine receptor alleles, and neurotransmitter levels are involved in complex impulsivity, cognitive processes, and emotional and motivation forces that can result in pathological gambling and other addictive behaviors, despite some contradictions in findings. There are other processes in the brain that have been shown to promote pathological gambling behavior, however, the above mentioned were the most prevalent in the studies. Once again, the complexity of the brain is still beyond our full comprehension and many of these forces work simultaneously or independently. Furthermore, impulse and cognitive thoughts are processed in more brain areas than the prefrontal lobe and dopamine system. More
studies are needed to further clarify the complexities of the brain in relation to addiction and impulse.

**Adverse Consequences**

Pathological gambling’s influence spreads beyond the individual affected by the diagnosis. It also affects an individual’s family, personal, and financial lives through substance abuse, interpersonal and intimate partner violence, child abuse, debt, and criminal activity. Kalischuk (2010) states in her study, “commonly reported adverse effects of problem gambling include financial loss, conflict, lying and deception, family neglect, and relationship difficulties, and alcohol and drug misuse” (p. 8). Furthermore, Nichols (2005) found that, “it appears there is a significant number of clients at ACES who have had behavior, relationship, and attitude problems resulting from their gambling” (p. 78).

First, co-morbid substance abuse and substance dependence have already been shown to be prevalent within the pathological gambling population within this literature review. It not only has been demonstrated to perpetuate gambling but worsen the severity of gambling episodes (i.e. length of gambling, money spent while gambling). Another adverse effect of gambling is interpersonal violence. In a study conducted by Korma, Collins, Dutton, Dhayananthan, Litman-Sharp, and Skinner (2008) they found in their sample that, “62.9% of participants reported perpetrating and/or being the victims of interpersonal violence in the past year, within 25.4% reporting perpetrating severe interpersonal violence” (p. 13). Their study also found that the majority of their sample had anger issues. Korman, Collins, Littman-Sharpe, McMain, and Skinner (2005) also
found in their sample of pathological gamblers and substance abusers that, “there were more self-reports of verbal and physical abuse in the 90 days leading up to treatment among problem gambling substance users (25.2% verbally abusive, 9.6% physically abusive) than among non-problem gambling substance users (9.4% verbally abusive, 3.9% physically abusive)” (p. 25). Furthermore, in a study conducted by Bland, Newman, Orn, and Stebelsky (1993) it was found in their sample pathological gamblers that 23% had reported having hit or thrown objects at their partner on one occasion. Afifi, Brownridge, MacMillian, and Sareen (2010) found that, “pathological gambling was associated with increased odds of the perpetration of dating violence, severe martial violence, and severe child abuse” (p. 331). Also, each of these types of violence predicted gambling issues (much like the relationship between substance abuse and gambling), and problem gambling was also tied to each of these forms of abuse. The authors suggest that the stress of gambling may be what spurs these violent behaviors. In a study conducted by Muelleman, DenOtter, wadman, Tran, and Anderson (2002) it was found that of the 300 women who participated in their study that 83% reported having an intimate partner within the last year, and of that percent 61% reported having experienced interpersonal violence. Furthermore, “A survey of 144 spouses of compulsive gamblers indicated that 50% were physically and verbally abused by their spouses and 12% had attempted suicide” (p. 311). Also, the divorce rate amongst pathological gamblers is higher than the general public. Ciarrocchi (2002) states, “community sampling indicates higher divorce rates for pathological gamblers (54% versus 18% for non gamblers)” (p. 20).
Another significant effect of pathological gambling is child abuse. Petry and Steinberg (2005) found that, “This study suggests that childhood maltreatment is prevalent in pathological gamblers, especially female gamblers. . . The present study found that childhood maltreatment is associated with age of onset and severity of gambling problems” (p. 228). Rather, as the severity and intensity of gambling increases so does the child abuse. Afifi, Brownridge, MacMillan, and Sareen (2009) also found in their study that child abuse is associated with pathological gambling, as stated previously. The NAPAFASA (2010) also found in their literature that child neglect is also prevalent within pathological gambling families. One example of such neglect is leaving the child alone at home or in a car while gambling. Kalischuk (2010) finds that, “documented adverse effects include depression among spouses of problem gamblers and increased family violence” (p. 18). Finally, Suissa (2005) states in his article that not only is family violence prevalent within the pathological gambling population, but, “The aggressive or violent behavior may take different shapes from psychological abuse to economic control” (p. 2). Hence, the dynamic of family violence and gambling is a complex issue regarding more than just physical abuse.

Debt is another issue facing pathological gamblers. According to Dickerson, Boreham, Harley, and Williams (1995) female gamblers average approximately 4,500 dollars in debt and male gamblers about 33,000 dollars in debt. In a report conducted in Maryland by Lorenz, Politzer, and Yaffee (1990), they found that among treatment seeking pathological gamblers the average debt was approximately 40,000 dollars. Ciarrocchi states in his literature that, “Studies of Gamblers Anonymous report that
between 18 and 28% of men and about 8% of women members have declared bankruptcy. . . In the national survey, 19% of pathological and 10% of problem gamblers declared bankruptcy” (p. 83). Furthermore, pathological and problem gamblers are also more likely to have lost a job in the last year. They also utilize, “expensive medical services, such as emergency room visits and inpatient hospitalization at higher rates” (Petry, Weinstock, Ledgerwood, Benjamin, 2008, p. 1570).

When gamblers no longer have the means to support their gambling activities it is common for them to turn to borrowing money or obtaining it through illegal means. Hence, criminal activity is also an effect of pathological gambling, which was also implied in the previous section regarding impulsivity. Two other studies also show this relevance between pathological gambling and criminal activity. In a study conducted by Blaszczynski and McConaghy (1994) they found in their sample of pathological gamblers that, “Of the total sample, 59% admitted a gambling-related offense, and 23% to a conviction” (p. 140). Also, Blaszczynski, McConaghy, and Frankova (1989) found in their sample from Gamblers Anonymous that, “Of pathological gamblers who committed offenses, two thirds reportedly did so as a direct consequence of gambling induced problems.” Finally, Ciarrocchi (2002) also found that, “the corrections costs for each pathological gambler in the population is estimated at $1700, and $670 for each problem gambler” (p. 21). However, this number rises when the gambler is in treatment; “an inpatient study found 40% had been arrested, 19% incarcerated, 20% had criminal charges, and 31% had civil charges pending” (p. 21).
Current Treatment Options for Pathological Gambling

To give a brief background, behavioral aversion therapies were the primary orientation for early gambling treatments prior to the 1980’s. Behavioral aversion therapies focused on reducing the positive effects associated with gambling or decreasing the conditioned place preference for gambling environments. These methods could include shock therapy where the gambler was shocked when he or she experienced urges, or medications that were administered in gambling situations to make the gambler physically ill (Ghezzi, Lyons, Dixon, and Wilson, 2006, p. 253). These therapies produced results that were mixed at best, and hence cognitive behavioral therapies came into the spotlight after demonstrating effective results. Currently, while there are numerous methods in treating pathological gambling the most prevalent types of therapeutic treatments within the literature were cognitive-behavioral therapies, Gamblers Anonymous, and motivational interviewing based therapy (McCown & Howatt, 2007). Medication is another treatment option that is currently being explored in the treatment of pathological gambling.

First, cognitive behavioral therapies are the most “evidence and empirically based treatments” according to Harvard's Mental Health Letter (2010, p. 2). Sylvain, Landouceur, and Boisvert (1997) found CBT to be effective with their sample, especially if combined with utilizing social support. Petry et al. (2008) demonstrated the effectiveness of cognitive-behavioral therapy and found that, “Gambling decreased among the majority of participants in this study (utilizing cognitive behavioral therapies), even more so than those who were only referred to Gambling Anonymous.” Petry et al
(2006) also found, “benefits of CB therapy emerged in both primary outcome measures
during the treatment period, and some improvements continued throughout the year. . .
decreases in some psychosocial problems also occurred” (p. 595). These therapies are
described as being when, “Patients can either meet with a therapist or rely upon a manual
of instruction to learn how to recognize distorted thinking or rationalizations about
gambling, change the way they think about gambling (cognitive restructuring), learn to
identify and avoid gambling triggers, and develop other rewards activities” (Harvard
Mental Health Letter, 2010, p. 2) There are several techniques within which to administer
this type of the therapy. For example, in Toneatto and Sobell’s (1990) study, participants
made imaginary bets on real life events while the therapist demonstrated how the gambler
was unable to predict the outcome of the events at an acceptable rate. Petry et al. (2008)
therapies “focused on developing skills to prevent alternatives for managing high-risk
situations and moods” (p. 559) through either one on one therapy or through workbooks,
and they found that, “Benefits of cognitive-behavioral therapy emerged in both primary
outcome measures during the treatment period, and some improvements continued
throughout the year” (p. 565). Also, Sharpe and Tarrier (1992) utilized relaxation,
imaginal, in vivo exposure, and cognitive restructuring within their study, and found
effective results.

Gamblers Anonymous is also a prevalent treatment for pathological gambling,
and it is described as, “a less formal, but commonly recognized treatment for problem
gambling, which is a mutual aid fellowship based on the 12-steps program first developed
for Alcoholics Anonymous. . . the principal criteria for success in GA is total abstinence
from gambling” (Oei & Gordon, 2007, p. 95). This program requires that the gambler firstly admit their powerlessness over gambling and recognize that their lives have become unmanageable. Petry (2005) finds, “At present, more than 1000 GA chapters are available in the United states alone, with an increase of 36% between 1995 and 1998” (p. 189). McCown and Howatt (2007) state that, “an advantage of GA is that if offers an immediate set of alternative peers, a strong group dynamic for change, and structured time for the compulsive gambler;” however, they also add on the negative side that this atmosphere can be overly confrontational, and that the spiritual dynamic is lacking.

Stinchfeild and Winters (2001) revealed that, “28% of compulsive gamblers had abstained from gambling 6-month post-treatment, and 20% had gambled less than once in the previous month. . .Overall, 48% showed clinically significant improvement”(p. 220). Petry et al. (2006) found, “Number of GA meetings attended was significantly associated with gambling abstinence. . . GA attendance has been linked to improved outcomes, especially abstinence-orientated outcomes” (p. 55). Furthermore, Toneatto (2008) found that not only was GA effective for treatment of pathological gambling, but that the 20 questions was an effective screening tool for assessing gambling severity. Stewart and Brown (1988) found in a 16 year span study that out of 232 attendees about 69.4% attended 10 or fewer meetings and 7.5 received their year pins. They also found in a small prospective study that 55% of their sample of 20 gamblers returned for a second meeting (a positive outcome). However, unfortunately it’s also been found that Retrospective reports indicate that 70 to 90 percent of GA attendees drop out and that less than 10 percent become active members” (Petry & Armentano, 1999, p. 1022). Overall,
“despite the popularity of GA, little published literature exists on its efficacy,” and more should be conducted in the future (Petry, 2005, p. 1023).

Lastly, motivational interviewing, while less prevalent than CBT and GA, was still a noteworthy therapy mentioned within the literature. “Motivational interviewing is a person-centered, directive method for enhancing intrinsic motivation to change by exploring and resolving ambivalence,” and a therapy model that is used in treating pathological gambling (Moyers & Rollnick, 2002, p. 189). Arkowitz, Westra, Miller, and Rollink (2008) state, “Brief motivational interventions appear to be a way of extending the options provided by traditional treatment and encouraging reluctant gamblers to initiate the change process.” This model was originally found to be effective in substance abuse treatment, and due to their similar natures this technique is also used with pathological gamblers (Arkowitz, Westra, Miller, & Rollnick, 2008). Miller and Rollink (1991) were one of the first to empirically test this technique with the assumption that addiction interventions were strengthening the client’s resistance, which was counterproductive to treatment. They found the technique to be effective. Petry, Ledgerwood, Weinstock, and Morasco (2008) found that motivational interviewing in a combination with CBT techniques proved effective. Similar results were found by Milton, Crino, Hunt, and Prosser (2003) when they combined outpatient CBT interventions with motivational interviewing principles. Improvement rates rose from the baseline of 35% to 65%. Hodgins, Currie, and el-Guebaly (2001) used purely motivational interventions in comparison with workbook interventions and found them to be significantly more effective. Freidenberg, Blanchard, Wulfert, and Malta (2002)
found that all patients within their study utilizing motivational interviewing decreased their gambling. Lastly, Petry, Weinstock, Morasco, and Ledgerwod (2009) found in regards to college students and problem gambling that brief motivational interviewing was found to be effective, especially considering their resistance to treatment and shorter attendance rates.

Once again, these are the three most prevalent treatment options found within the literature. However, it has also been shown that methodology might not be the central component or even necessary in treating pathological gambling. For instance, Petry, Litt, Kadden, and Ledgerwood (2006) concluded that, “General reductions in gambling occurred over time regardless of treatment assignment.” They also found that cognitive behavioral therapies, motivational therapies, and GA all improved coping skills overtime. Furthermore, in regards too cognitive behavioral therapies and GA, Toneatto and Dragonetti (2008) found that both GA and cognitive behavioral therapies, “significantly reduced the frequency and amount of money wagered gambling over the follow-up period. . . the key findings showed that both treatments significantly reduced the frequency and amount of money wagered gambling over the follow-up period.” Furthermore, Petry, Weinstock, Ledgerwood, and Morasco (2008) suggest that among those receiving motivational interviewing, GA, and CBT, “Gambling decreased among the majority of participants in this study, even those who were assigned to the assessment only control condition” (p. 1069). They also imply that lifetime prevalence rates of problem and pathological gambling are higher than past year rates despite the low treatment rates of pathological gambling. This suggests that, “many individuals overcome
gambling problems on their own” (Petry, Weinstock, Ledgerwood, and Morasco, 2008, p. 1071). Petry et al. (2006) suggests that this self-recovery stems from, “a strong desire to stop gambling, which manifests in reductions in gambling without formal treatment, or prior to or during initial stages of treatment.” Lastly, McCown and Howatt (2007) recommend that when treating a pathological gamble, “that the counselor try to use a more integrated treatment package” (p. 34).

Overall, it appears that results regarding treatment methods and therapies are inconsistent at best. Walker et al (2008) states, “Recent reviews of treatment effectiveness for problem gambling have noted that the research is characterized by a wide range of outcome domains and measures” (p. 510). They suggest a systematic and consistent methodology that future studies should oblige by to produce corresponding results. They state, “We believe that these guidelines are broad enough to allow clinical research conducted from diverse perspectives to allow valid cross study evaluations of intervention studies.” Finally, while types of treatment options have been discussed it is also essential to mention the resistance to treatment. For instance, Petry, Bohl, Young, and Hart (2007) found that, “gambling-related research on the topic of treatment seeking shows a very high percent of problem and pathological gamblers delay or avoid seeking treatment altogether” (p. 47). Also, Ladouceur, Lachance, and Fournier (2008) found that only 3% of problem gamblers in the United States will seek professional help every year . .50% will drop out. They state this could be due to the abstinence focus of most treatment options and the lack of availability. Individuals who did show progress in better controlling their gambling were those who had lower scores of depression and
anxiety, scored higher on quality of life scales, made less suicide attempts in the past, had spent less money on gambling activities, had more family support, and were in the ‘action’ stage of change or desired to change.

Therapy is one form of prevalent treatment for pathological gambling, however medication has also been employed to help alleviate gambling symptoms. Grant and Kim (2008) state that there are close associations between pathological gambling and other mental disorders such as mood disorders, obsessive compulsive disorders, and addictive disorders. Furthermore, they find that medications for these types of disorders are helpful in treating pathological and problem gamblers. Hence, they suggest that opioid antagonists (which are used to fight addiction), antidepressants, and mood stabilizers (medication for bi-polar disorder, for example) are all conceivable treatment options. Serotonin reuptake inhibitors (used in treating depression) are an anti depressant and anti compulsion medication used initially on the hypothesis that pathological gambling may have some obsessive-compulsive elements (Petry, 2005). Studies done by Zimmerman, Breen and Posternak (2002) using Celexa, Pallanti, Quercioli, Sood and Hollander (2002) using Serzone, Holland et al. (2000) using fluvoxamine, and Kim, et al. (2002) using Paxil have all shown effective results using these medications. Mood stabilizers for treating diagnosis for bi-polar disorder were shown to be effective by Haller and Hinterhuber (1994) using carbamazepine and Pallanti et al. (2002) using lithium. Opioid antagonists were proved to effective by Kim et al. (2001), Blanco et al. (2002), and Hollander et al. (2000) using the same drug naltrexon. These medications were used based off the assumption that gambling, like substance abuse, is an addictive disorder and
therefore can be treated using similar medications (Zangeneh, Blaszczynski, Turner, 2008, p.184).

However, despite these positive findings it should also be noted that Petry and Armentano (1999) add that not only are such studies as those presented above composed of small sample size and are often short term but that, “No consensus has been reached on which drugs may be most useful or on the type of psychotherapy, if any, that should be provided concurrently.” Furthermore, “Some initial results of pharmacological treatments of pathological gambling are encouraging, but more research is needed to evaluate the short and long term efficacy of pharmacotherapies before they should be considered the initial treatment of choice among gamblers. . . The availability of multiple treatment options, including both pharmacotherapies and psychotherapies, may enhance participation in treatment and reduce the negative personal and societal consequences of pathological gambling” (Petry, 2005, p. 237).

**Summary**

Overall, as made evident in this literature review, there is a significant gap in the literature surrounding effective intervention strategies and options. While a vast spectrum of research has aimed at discovering the etiology and demographics of this disorder there is a limited congruence of evidence based Walker et al (2006) stated that, “a major task currently confronting problem gambling research is the development of effective interventions.” One can only hope that with the shift of categorization of pathological gambling in DSM-V that more recognition and consideration will be given to this diagnosis. Considering pathological gambling is a behavior that escalates
gradually (as opposed to being ‘hooked on the first bet’) early interventions and screenings are essential. A simple two question prompt within intake surveys in substance abuse agencies, certain hospital units, and mental health agencies could be immensely helpful in early indications and preventions before these adverse behaviors become more manifested. Petry (2005) stated that while the rate of pathological gambling on a national level is currently approximately 1.5 million it’s more than likely significantly higher considering the lack of gambling screenings, treatment options, and awareness on the parts of both clinicians and problem and pathological gamblers.

Hence, the methodology section of this thesis aims to demonstrate the knowledge basis of Sacramento and Yolo County clinicians, California State University, Sacramento Mental Health Cohort social work graduate students (MSW II), and Sacramento’s general public regarding factual information about problem and pathological gambling. Both Sacramento and Yolo County are significant to the aims of this study in that they are within a reasonable driving radius of several major casinos and card rooms. The availability of gambling these regions is high and, as expressed within this literature review, availability and problem and pathological gambling behavior are highly correlated. Hence, knowledge of problem and pathological gambling behaviors on the parts of both clinicians and social work students should be relatively if not somewhat comprehensive considering the high risk of the regions. The findings of this study will further the understanding of the preparedness of Sacramento and Yolo Counties in addressing the needs of the steadily rising number and statistically relevant population of
pathological gamblers as well as the gap in knowledge and awareness regarding this population.
Chapter 3

METHODOLOGY

This study's purpose is to demonstrate the degree of awareness of pathological gambling among current service providers in Sacramento and Yolo County, California State University, Sacramento second year Mast of Social Work students (MSWII), and the general public within the Sacramento area. This study investigates as to whether these three populations are aware of the prevalence, types of effective treatment, demographics, and the biological and psychological experiences of pathological gamblers. The findings of this study will further the understanding of the preparedness of Sacramento and Yolo Counties in addressing the needs of the steadily rising number and statistically relevant population of pathological gamblers as well as the gap in knowledge and awareness regarding this population.

To study the awareness of pathological gambling within these two counties, this study has utilized a descriptive research design to examine and gain information as to the extent of knowledge each of the before mentioned populations, service providers, MSW II students, and the general public possess. The general research study has been conducted through the administration of a survey questionnaire with a purposive sample of 42 adults within the Sacramento and Yolo county area designed to measure the basic knowledge of pathological gambling and its treatment. Multiple-choice and true or false questions have been used to meet this objective. Primary research was incorporated as obtained by the survey result.
Those who participate within the study have been asked to return the questionnaire as soon as they are able, or within the timeframe of a maximum of two weeks of the date it was received. For MSW students, a box (a lock box with a slit on the top) has been placed in the MSW student lounge to return the surveys. To collect questionnaires from current service providers and the general public they have been given, along with their questionnaire, a stamped envelope with the researchers address already filled out. The participants, upon acknowledging all the terms that the consent form mentions, are completing the survey. As the surveys are received the consent forms have been separated from the questionnaires to protect anonymity. Both questionnaires and consent forms are being stored in a safe locked location.

The reasoning behind choosing Sacramento, California for the basis of this study is due to the accessibility the region has to casino and track gambling opportunities. Sacramento, and Northern California in general, have increased gambling opportunities and profits significantly within the last two decades. As demonstrated by this thesis’s literature review, as opportunities to gamble rise as do the rates of pathological gambling. Also, Sacramento is readily accessibility of the individual conducting this study.

The sample for this study consists of participants from the general public, social service providers, and social work Mental Health Cohort students within the county of Sacramento and Yolo. The researcher is going to continue this procedure of collecting data until enough is compiled. The general public sample has been obtained through convenient and purposive sampling, and the criteria for inclusion within this sample group is that the participant must be above the age of 18, reside within Sacramento and
Yolo county, not be an MSW student or a current service provider, and voluntary and willingly agree to fill out the questionnaire. Snowball sampling has been used to obtain individuals not previously available to the researcher. The service providers have been conveniently sampled from Commincare, UC Davis medical center, Keiser, and private practice workers, LCSWs, have been selected as well. Once again, snowball sampling will be used. The criteria for inclusion within this sample are that the individuals must be currently practicing mental health workers (this includes MSWs or individuals involved in gambling treatment or training), LCSWs, or an MFT/MFTIs. The social work masters students have been selected from the researcher's Mental Health Cohort within the 2010 class. The sample consists of 14 individuals within each of the three groups listed above.

Finally, there was no inducements offered for participation. Participation was based on the willingness and availability of those asked to take part in the study. Data from the survey has been treated as confidential and respondents’ participation is completely voluntary. Beyond questions regarding clarification, I have not discussed the questionnaire with participants during or after the survey. The surveys have been physically handed out to the participants, or if necessary, emailed to the participants with the understanding that they were able fill out the survey without referring to outside sources (such as asking colleagues for answers or looking up answers on the internet).

The privacy of this study has been protected by keeping the questionnaire completely voluntary, confidential, and of no risk. Participants were informed that their participation was completely voluntary and that they could have chosen not to fill it out. Also, participants were informed during recruitment that the completion and returning of
the questionnaire implies their consent to participate. An implied consent was the first attached page of each questionnaire reiterating the voluntary nature of the study which required no signature and needed not be returned. A copy of the implied consent form will be attached in Appendix A. All research data will be destroyed shortly after the completion of the thesis project (no later than June 2011).

The questionnaire, or instrument, used in this study was comprised of 20 closed ended questions that were circle the best answer or true or false. The questionnaire included questions relating to statistical information, treatment options, demographics, and the etiology of problem and pathological gambling. All of these topics were based off findings within the literature review of this study, which was based on current literature and guided by research questions and hypothesis. The risk of discomfort and harm in this study was of no risk in that the questionnaire asks participants about their knowledge of general information concerning pathological gambling. It did not ask about the participants own personal gambling experiences or the experiences of others. Only straightforward, factual questions were asked. This study focused solely on knowledge for which the content was not different or any more sensitive than any daily conversation. Furthermore, they were not different than any other routine physical or psychological examinations or tests.
Chapter 4

DATA ANALYSIS AND STUDY FINDINGS

Thus far, a comprehensive and extensive literature review and methodology section have been presented within this thesis. The methodology section aimed to demonstrate the knowledge base of Sacramento and Yolo county clinicians, Sacramento State’s Mental Health Service Act (MHSA) mental health cohort members in the Master of Social Work program (MSW IIs), and Sacramento’s general public in regards to factual gambling information. Fourteen members of each of these groups was given a questionnaire that presented 20 questions regarding a portion of the factual information presented within the content of this thesis’s literature review. The questions were broken down into four categories: treatment, etiology, prevalence, and demographics. The content was not so difficult or specific that the general public (who is assumed to have no specialized training in this area of knowledge) could not answer some questions correctly, but not so easy that the clinicians would not average a score of 100%.

Furthermore, while a portion of the questions on the questionnaire were directly related to information regarding gambling, many of the questions could have been answered correctly if the participate had a knowledge base regarding substance abuse and addiction.

Sacramento county was selected for this study because of its convenience for the researcher who lives in Sacramento as well as for its location in relation too several major casinos and card rooms that are all within a reasonable driving distance. The availability of gambling is high in Sacramento and, as demonstrated in the literature review, higher
availability implies higher rates of problem and pathological gambling. Testing the knowledge of clinicians and future clinicians in this area will not only give some clarity as to the current awareness of this diagnosis, but also show if there is a disparity between the relatively high rates of problem and pathological gambling in California and the education that past and emerging clinicians (MHSA cohort members in this instance) have received or are receiving.

In regards to the analysis and results of these surveys three hypothesis were formulated: current clinicians would know more than MHSA students, current clinicians would know more than and general public, and the MHSA would know more than the general public. To be more specific, clinicians in Sacramento county would have a more in depth and broader knowledge base concerning problem and pathological gambling than Sacramento’s general public and the MHSA students. As a result, clinicians should have higher scores on the questionnaire than the other two groups. Furthermore, MHSA students, who are currently in a saturated academic setting, would have more knowledge concerning this diagnosis than Sacramento’s general public, and their subsequent scores would reflect this.

**Data Presentation**

There were 42 participants within this study: 14 Sacramento and Yolo County clinicians, 14 Sacramento State’s MHSA mental health cohort members in the Master of Social Work program (MSW IIs), and 14 Sacramento’s general public. Among the participants, 14 were male (33.3%) and 28 were female (66.7%). It should be noted that the overwhelming female majority is due to the higher rates of females within the
clinician and social work student population, and this reflects the reality of the social service industry. In regards to ethnicity, 8 participants were Latino (19%), 1 was African American (2.4%), 4 were Asian (9.5%), 1 was Native or Alaskan Native (2.4%), 2 were Pacific Islander (4.8%), and 26 were Caucasian (61.9%). In regards to age, 10 participants were between the ages of 18 and 25 (23.8%), 16 were between 26 and 35 (38.1%), 7 were between the ages of 36 and 45 (16.7%), 5 were between the ages of 46 and 55 (11.9%), 3 were between the ages of 56 and 66 (7.1%), and one was 66 and up (2.4%).

With respect to scoring, the clinicians mean score was 63.94%, the Social Work Master’s students was 59.52%, and the general public’s was 55.44%).

Table 1

<table>
<thead>
<tr>
<th>Group</th>
<th>Score Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Provider</td>
<td>63.9456</td>
</tr>
<tr>
<td>Social Work Master Student</td>
<td>59.5238</td>
</tr>
<tr>
<td>General Public</td>
<td>55.4422</td>
</tr>
</tbody>
</table>

These groups were also divided based on a pass and fail standard. Passing was a score of 50% or higher, which implies answering 10 or more of the 20 questions correctly. Under these terms 13 of the 14 clinicians passed, 12 of the 14 students passed, and 8 of the 14 general public passed. Within all groups, 33 participants passed and 9 failed. The range for pass and fail is 23. The median score amongst all three groups was 13 questions correct of out 20 correct, or 61%. The lowest of all scores was 8 correct out
of 20, or 40%, and the highest score, which was achieved by a clinician, was 18 out of 20, or 90%. Overall, on a cumulative scale only seven participants scored above an average of 83.3%.

Table 2

Distribution of Scores for All Groups

<table>
<thead>
<tr>
<th>Score</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.00</td>
<td>2</td>
<td>4.8</td>
<td>4.8</td>
<td>4.8</td>
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<td>28.6</td>
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<td>95.2</td>
</tr>
<tr>
<td>17.00</td>
<td>1</td>
<td>11.9</td>
<td>11.9</td>
<td>97.6</td>
</tr>
<tr>
<td>18.00</td>
<td>1</td>
<td>2.4</td>
<td>2.4</td>
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<tr>
<td>Total</td>
<td>42</td>
<td>100.00</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Independent t-tests were sued to test the difference between different groups (see Table 7). Within the two tailed test the scoring difference between clinicians and general public were found to be statistically significant (t=2.076, df=26, p=0.048). However, students verses clinicians differences of scores (t=1.328, df=26, p=.196) were not statistically significant, nor were the difference of scores in the students verses the general public (t=0.097, df=26, p=0.310). This implies that clinicians in Sacramento and Yolo County are statistically more knowledge about pathological and problem gambling than Sacramento general public. However, they do not have significantly more
knowledge than the MHSA students, nor do the MHSA students have more knowledge than the general public.

Table 3

*Test of Differences (t Test, Two Tailed)*

<table>
<thead>
<tr>
<th>Groups</th>
<th>F</th>
<th>Sig.</th>
<th>t</th>
<th>df</th>
<th>Sig. d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinicians vs. Students</td>
<td>.100</td>
<td>.755</td>
<td>1.328</td>
<td>26</td>
<td>.196</td>
</tr>
<tr>
<td>Clinicians vs. General Public</td>
<td>1.799</td>
<td>.191</td>
<td>2.076</td>
<td>26</td>
<td>.048</td>
</tr>
<tr>
<td>Students vs. General Public</td>
<td>2.972</td>
<td>.097</td>
<td>1.035</td>
<td>26</td>
<td>.310</td>
</tr>
</tbody>
</table>

Within a one tailed t-test results change, and, unlike in the two tailed test, the students and clinicians scores demonstrate a statistically significant difference (p=0.098). However, even within the one tailed test student verses general public is still insignificant (p=0.155). Hence, in this test the clinicians do demonstrate a knowledge base that is statistically significant over the MHSA students. Yet, the students still do not demonstrate a knowledge base that is more relevant in comparison to the general public’s.

Beyond statistical significance, clinical implications for this study were also intriguing in regards to the differences in scores between all three groups. While both the clinicians and the MHSA students demonstrated higher scores that were statistically significant in comparison to the general public’s, their differences in a practical sense were not so dramatically different. To be more specific, there were 20 factual questions regarding gambling on the questionnaire. The clinicians’ mean score was approximately
63 percent, the MHSA students a mid 56 percent, and the general public 55 percent (see Figure 1). Hence, out of 20 questions the average clinician answered approximately 14 questions correctly, MHSA students 12, and general public 11. While the mean scores were statistically significant the number of questions each group on average answered correctly was not drastically different. The general public were presumed to be individuals who would have no prior special training or information regarding this topic and yet they answered, on average, three more wrong than the average trained clinicians. Furthermore, only two participants (clinicians) scored 17 out of 20 and above (85%), and no one got less than two wrong. Only 7 participants (2 students, 5 clinicians) answered 15 out of the 20 questions correct, or 75% (see Table 1). Out of the 14 clinicians only half scored 75% or higher. This begs the question of how much clinicians know about this diagnosis and its emerging significance.

In regards to the four areas that the questions on the questionnaire were sectioned into (etiology, prevalence, treatment, and demographics), it was found that all three groups scored similarly. No statistical significance was found between their scores, which infers that the clinicians did not demonstrate a higher expertise in a statistical sense over the other two groups, the students or the general public, in any of the areas. However, despite the lack of statistical significant the results were not without connotation. An interesting finding relates to the scores in the demographics area. In all three areas, etiology, prevalence, and treatment, most of the participants were able to pass, or rather, score relatively average or high. However, in the demographics area all three groups scored homogeneously low compared to the other sections. For instance, in
the etiology section 37 of the 42 participants passed (88.1%), in the treatment section 34 out of the 42 participants passed (81%), and in the prevalence section, once again, 37 out of the 42 participants passed (88.1%). However, in the demographics section only 19 of the participants passed (45.2%) and 23 failed (54.8%). No participant was able to answer all 5 questions under this section correctly, and only 9 (21.4%) answered four correctly, 10 three correctly (23.8%), and 17 two correctly (40.5%), and six one correctly (14.3%).

Table 4

Demographic Scores for All Groups

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid 1.00</td>
<td>6</td>
<td>14.3</td>
<td>14.3</td>
<td>14.3</td>
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<tr>
<td>2.00</td>
<td>17</td>
<td>40.5</td>
<td>40.5</td>
<td>54.8</td>
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<td>21.4</td>
<td>100.00</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

*No participant was able to answer all five questions correctly*

Questions within this section, questions related to prevalence and current trends within the demographic groups of gender, ethnicity, socioeconomic status, and age. Out of the five questions within this section only two questions were answered correctly, on average, by participants from each of the groups. In the first question, which was true or false, it was asked if those with higher socioeconomic have higher rates of problem and pathological gambling than those of lower socioeconomic status (the answer being false). As a whole, 32 participants (76.2%) answered correctly, and 10 participants (23.8%) incorrectly. The other question inquired as to what phenomena were more likely to occur in problem and pathological gambling population (the choices being domestic violence,
substance abuse, family discourse, and criminal activity), and only 10 participants failed (23.8) and 32 (76.2%) passed. Hence, these questions appear to be the two that the majority of the participants answered correctly.

The other three questions, however, did not yield as positive of results. For instance, only three participants out of 42 were able to answer the question regarding what age has the highest prevalence of problem and pathological gambling correctly out of four choices (the correct answer was adolescents and young adults). In the question that regarded the pathology of female gamblers, which asked as to whether they gamble for excitement, progress slow than their male counterparts, have higher criminal activity, or gamble to dissociate or escape, only 18 participants (42.9%) were able to answer it correctly. The correct answer was that female gamblers tend to gamble to disassociate or escape. In the question that regarded the pathology of those experiencing problem and pathology gambling, only half of the participants were able to answer it correctly (50%), and obvious, half answered incorrectly (50%). Finally, the last question asked what other mental health issues pathological and problem gamblers are more likely to experience than the general public. The choices were personality disorders, substance abuse, depression and anxiety, personality disorders, and all of the above, which was the correct answer. Out of the 42 participants 27 were able to answer correctly (63.3%) however, 15 (35.7%) answered it incorrectly. It would appear that there is a lack of knowledge of who ‘the average’ problem and pathological gambler is and what trends they follow.

To be more specific about questions regarding the other areas of the questionnaire, questions within the treatment area surrounded facts about Gambling
Anonymous (GA), what the most evidence-based treatment methodology was, and the attendance rates of treatment. The first question asked what the most evidence based treatment for problem and pathological gambling was currently. Four choices were given; cognitive behavioral therapy, GA, aversion therapy, and family therapy with the correct answer being cognitive behavioral therapy. Half of the participants were able to answer it correctly (50%), and half answered incorrectly (50%). Another question, which was a true or false question, asked if minority ethnic groups have been shown to have lower prevalence rates of gambling but higher treatment rates than their Caucasian counterparts. In this question 10 participants (23.8%) answered incorrectly, and 32 participants (76.2%) answered correctly. Another true or false question inquired if the elderly were more likely than their younger counterparts to seek out treatment (false being correct), and 9 participants answered incorrectly (21.4%), and 33 answered correctly (78.6%).

Two questions inquired about GA. One was a true or false answer question that asked if GA focused solely on abstinence or limiting gambling activity with the correct answer being total abstinence. Out of the 42 participants, 10 participants failed (23.8%) and 32 passed (76.2%). The other asked about what percentage of GA members become actively involved in their fellowship (10, 42,54, or 62%), and 16 participants answered incorrectly (38.1%) and 26 correctly (61.9%). Finally, one question asked out of four criteria which one was not listed for pathological gambling in DSM-IV (the question gave three actual criteria and one incorrect criteria, being a manic episode has occurred within the last 6 months, which was the correct answer), and 32 participants answered
incorrectly (76.2%), and 10 correctly, (23.8%). It should be noted that the success of this section could be due to the questions being mainly true or false questions.

Table 5

_Treatment Scores for All Groups_

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Valid</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>1</td>
<td>2.4</td>
<td>2.4</td>
<td>2.4</td>
</tr>
<tr>
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<td>7</td>
<td>16.7</td>
<td>16.7</td>
<td>19.0</td>
</tr>
<tr>
<td>3.00</td>
<td>8</td>
<td>19.0</td>
<td>19.0</td>
<td>38.1</td>
</tr>
<tr>
<td>4.00</td>
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<td>11.9</td>
<td>11.9</td>
<td>50.0</td>
</tr>
<tr>
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<td>35.7</td>
<td>35.7</td>
<td>85.7</td>
</tr>
<tr>
<td>6.00</td>
<td>6</td>
<td>14.3</td>
<td>14.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>42</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

In the area of prevalence, the first question, which was a true or false question, asked if the nation average for pathological gambling was between 1-5.4% (the answer being true). In scoring, 28 participants answered correctly (66.7%), and 14 incorrectly (33.3%). Another question inquires as to what the average of both problem and pathological gamblers is in California only (the answer being approximately 150 million), and 15 participants were able to answer correctly (35.7%) and 27 answered incorrectly (64.3%). Another true or false question asked if availability directly affect prevalence rates of pathological and problem gambling, and 32 participants answered correctly (76.2%), and 10 incorrectly (23.8%). Finally, the last question what two states do not allow any form of legal gambling (the correct answer being Hawaii and Utah), and 31 participants answered correctly (73.8%), and 11 incorrectly (26.2%)
Table 6

Prevalence Scores for All Groups

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>.00</td>
<td>1</td>
<td>2.4</td>
<td>2.4</td>
</tr>
<tr>
<td>1.00</td>
<td>4</td>
<td>9.5</td>
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<td>11.9</td>
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<td>2.00</td>
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<td>33.3</td>
<td>45.2</td>
</tr>
<tr>
<td>3.00</td>
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<td>88.1</td>
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<tr>
<td>Total</td>
<td>42</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

The last area is etiology, and the first question, which was true or false, asked if individuals struggling with gambling lacked moral fiber (the correct answer was false, they do not). In response, 38 participants answered correctly (90.5%), and 4 incorrectly (9.5%, see Table 5). A following question inquired about etiology trends that individuals experiencing problem and pathological tend to fall under (this question regarded irrational thoughts, grandiose thinking, negative thoughts surrounding gambling, and being hooked on the first bet). In response, 20 participants answered correctly (47.6%), and 22 answered incorrectly (52.4%). Another question gave four choices for an answer: withdrawal, tolerance building, illusion of coping, and chasing and the participant had to chose which one those experiencing problem or pathological gambling did not suffer from, illusion of coping being the correct answer. In response, 28 participants answered correctly 66.7%), and 14 incorrectly (33.3%). The next question questioned as to what cognitive distortion has been coined the gamblers fallacy. Choices that were incorrect were that gamblers attribute their losses to bad odds rather than skill, they believe they have a deterministic ability to win, and they do not respond to ‘near misses,’ or almost
winning. The correct answer was that the individual believes they are ‘due’ for a win after long durations of play, and 21 participants answered this question correctly (50%), and 21 incorrectly (50%). The next question asked which of the following has pathological gambling been attributed to with the choices being genetic factors, nutritional deficiencies, impulsivity, and cognitive distortions. The correct answer was nutritional difficulties, and 28 participants answered this correctly (66.7%), and 14 incorrectly (33.3%). Another question inquired about treatment success, and asked if participants to chose one of the following as being untrue of problem and pathological gamblers: they recover without professional help, have high drop-out rates in treatment, and seek out treatment avidly. The correct answer was they do not seek out treatment avidly, and 27 participants answered correctly (64.3%), and 15 incorrectly (35.7%).

Table 7

<table>
<thead>
<tr>
<th>Etiology Scores for All Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>Valid</td>
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<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Discussion

In regards to the previously stated hypotheses it has been demonstrated that there is statistical significance regarding clinicians scores verses the general public’s in that the clinicians scored significantly higher. This was found to be true in both the one and two
tailed t tests performed. However, the significance between MHSA students and clinicians was not found significant in the two tailed test, but was found significant within a one tailed test (see Table 7). Finally, in both tests the difference between the general public and students was not found significant in either test. Hence, in the two tailed t test only one hypothesis was validated, and within the single tailed test two were validated. The fact that emerging clinicians were not able to demonstrate a clear standard of knowledge base in regards to the general public is concerning. Clearly there is a disparity in the preparedness of emerging clinicians to address not only gambling issues but addiction themes in the broad scope, which is what this questionnaire was heavily rooted in. Co-occurring disorders are a rising significant issue within the mental health field, and this survey calls into question as to whether not academia is addressing this trend whole heartedly.

The clinical implications of the findings were also discussed demonstrated a broader knowledge base concerning problem and pathological gambling than MHSA students and the general public. It was pointed out that while statistical significance was demonstrated in the study there was a disparity in the real life implications. For instance, there was no a huge difference between how many questions on average were answered correctly by each of the three groups. On average, clinicians only answered three more questions right than the general public sample, and only one or two than the MHSA sample. Furthermore, only two clinicians were able to answer 15 or more of the questions correctly (see Table 1). Once again it would appear there is a disparity between knowledge of gambling and its implications and the need or growing population of
problem and pathological gamblers. Only one clinician was able to score a 90% on the questionnaire which calls into question the readiness of clinicians and the preparedness of emerging clinicians, or MHSA students, to serve this clientele.

Finally, in regards to the four areas of questions that the questionnaire was divided into it was found that all participants struggled with the demographic section of questions. Unlike the other three areas (prevalence, etiology, and treatment) an overwhelming majority failed this section. It would appear that the demographics of gambling and recent trends within those demographics as covered in the literature review (gender, age, socioeconomic status, and ethnicity) were not well known to any of the three groups tested. This also implies that clinicians may have a lack of awareness of how this diagnosis manifests itself uniquely in the demographics that this thesis addressed.
Chapter 5

SUMMARY AND DISCUSSION

Thus far, a comprehensive and extensive literature review and methodology section have been presented within this thesis. The literature reviewed clarified the definition, categorization, prevalence rates (in both California and nationally), etiology, demographics, adverse consequences, and treatment of problem and pathological gambling. This information was the content of the questionnaire within the methodology section was based upon. The methodology section of this thesis aimed to demonstrate the knowledge base of Sacramento and Yolo county clinicians, Sacramento State’s MHSA mental health cohort members in the Master’s of Social Work program (MSW IIs), and Sacramento’s general public in regard to factual gambling information. Fourteen members of each of these groups was given a questionnaire that presented 20 questions regarding factual information on problem and pathological gambling. The questions were broken down into four categories: treatment, etiology, prevalence, and demographics. The content was not so difficult or specific that the general public (who is assumed to have no specialized training in this area of knowledge) could not answer some questions correctly, but not so easy that the clinicians would not average a score of 100%. Furthermore, while a portion of the questions on the questionnaire were directly related to information regarding gambling, many of the questions could have been answered correctly if the participate had a knowledge base regarding substance abuse and addiction.
In respect to the results of these questionnaires three hypotheses were formed: Current clinicians would know more (answer more questions correctly) than Sacrament’s general public, current clinicians would know more than MHSA, and finally, that the MHSA students would know more than the general public. It was found that in the two tailed t test clinicians were found to know more than the general public, but that was the only hypothesis out of the three that was validated (see Table 7). Within the single tailed test, clinicians demonstrated greater knowledge than the general public, and the clinicians were shown to know more than the MHSA students as well. Hence, two of the three hypothesis were validated. In both tests no statistical was found difference between the general public and the MHSA students.

The findings were also analyzed in regards to clinical and real-life implications, and it was pointed out that while statistical significance was demonstrated there was a disparity. For instance, the clinicians mean score was approximately 63 percent, the MHSA students a mid 56 percent, and the general public 55 percent. Hence, out of 20 questions the average clinician answered approximately 14 questions correctly, MHSA students 12, and general public 11. While the mean scores were statistically significant the number of questions they got right or wrong were not all that different. The general public were individuals who would have no special training or information regarding this topic and yet they on average answered, on average, three more wrong than the average trained clinicians. Overall, clinicians did not appear to be on average significantly more informed than students and even, in retrospect, the general public. Hence, it begs the
question of how aware trained professionals and emerging clinicians are concerning this relatively prevalent diagnosis.

Finally, in regards too the four areas of questions that the questionnaire was divided into it was found that all participants struggled with the demographic section of questions. Unlike the other three areas (prevalence, etiology, and treatment) an overwhelming majority failed this section. It would appear that the demographics of gambling and recent trends within those demographics as covered in the literature review (gender, age, socioeconomic status, and ethnicity) are not well known to any of the three groups tested (see Table 4). Hence, clinicians are not aware of how this diagnosis and the behaviors that are exhibited as a result manifest themselves uniquely in demographics that this thesis addressed.

Implications for Social Work

Pathological gambling is a ‘disorder,’ or diagnosis that holds a new significance in the recent classification that it will receive in the DSM-V which is scheduled to be released in 2013. In the past, beginning with DSM-III, pathological gambling was classified as a ‘Disorder of Impulse Control,’ which dubs gambling as being rooted in the inability to resist impulses or temptations to engage in an act that is harmful to oneself or others. As of recent these assumptions are changing and professionals are beginning to see pathological gambling as more related to addictive behavior than impulse control. Hence, DSM-V will shift the classification and basis of pathological gambling to an addictive disorder along with alcohol and drug dependency. This shift is significant in that it will impact, and hopefully increase, the treatment availability, the ability for
insurance claiming, funding, and awareness of the disorder (Petry, 2006, p. 153). Hence, discussing clarifying this disorder and the implications behind its basis holds significant gravity, especially at this juncture.

Furthermore, these findings also imply the need for regular screenings in organizations such as hospitals, jails, and mental health clinics or agencies. As social workers, we are present and perform assessments in a variety of settings and environments. Considering pathological gambling is a behavior that escalates gradually (as opposed to being ‘hooked on the first bet’) early interventions and screenings are essential. A simple two question prompt within intake surveys in substance abuse agencies, certain hospital units, jails, and mental health agencies could be immensely helpful in early indications and preventions before these adverse behaviors become more manifested. Petry (2005) stated that while the rate of pathological gambling on a national level is currently approximately 1.5 million it’s more than likely significantly higher considering the lack of gambling screenings, treatment options, and awareness on the parts of both clinicians and problem and pathological gamblers. Screening would help identify those who have slipped under the radar and help build the case for resources for this impacting diagnosis.

It should also be noted that Cunningham,-Williams, Cottler, Compton, and Spitznagel (1998) found in their study that both recreational and problem gamblers had higher rates of most psychiatric disorders than their non-gambling counterparts. Those suffering from other psychiatric disorders/disabilities are more likely to have gambling problems than those that do not. This highlights the importance of awareness of
gambling issues in regards to clinical social workers considering they are the front line for consumers and clients coming into contact with the mental health realm. It’s imperative that clinical socials worker’s are aware of how to assess and effectively treat population as well as be aware of this diagnosis’s underlying themes and trend. Furthermore, this brings to attention the issue of co-occurring mental health diagnoses which is a growing trend within our society, and the readiness and preparedness of our field regarding this phenomena.

The previous points are especially critical for clinicians and social workers within California the information presented within this thesis holds a unique gravity. For one, the availability within California is on the rise. Within California there are as many as 590,000 adult problem gamblers, 333,000 adult pathological gamblers, 436,800 youth problem gamblers, and 159,900 youth pathological gamblers (Attorney Generals Report). These groups total to 1.52 million individuals within California who have gambling issues. In another survey conducted in 2006, they estimated that the lifetime prevalence of pathological gambling in California was at least 1.5%, and problem gambling at 2.5% (On Track Slide Show).

In regards to availability, it has been shown that higher availability areas have higher rates of problem and pathological gambling. In California, there are approximately 97 card rooms, 61 American Indian casinos, and approximately 10 horse tracks running California (On Track slide show). Not to mention the obvious fact that our next door neighbor state, Nevada, is the only stated in the nation that allows for open and legalized casino style gambling in not only the casino setting, but, for instance, gas stations.
Furthermore, as the economy worsens and poverty increases it’s important to note that those with lower socioeconomic status are more likely to gamble and suffer harsher losses from their gambling than their higher socioeconomic counterparts.

In making these points, as social workers we are ethically mandated to continue build on our education and knowledge base even beyond licensure. By being knowledgeable and conscious on this crucial and growing social issue social workers are promoting a more ethically sound practice. The code of ethics calls for social workers to continuously perpetuate their knowledge of the field, to be consistently conscious of pertinent social issues, and to work towards widening their generalist scope of practice. It calls for serving individual clients as well as communities to our fullest capacity, which implies widening our knowledge base on significant issues that impact those that we serve. Gambling is clearly an issue that effects California communities everywhere (as well as elsewhere in the nation), and being able to serve this population competently promotes sound practice and a healthier community. This is especially true for clinical social workers considering the high it would seem a necessity to have at least a basic understanding of this disorder and its relation to substance abuse disorders.

Evaluation

This thesis was very broad in its scope. I covered almost all aspects of the clinical implications for this diagnosis, how prevalent the behaviors and diagnosis is, who is at risk, how gambling behavior can be manifested (etiology), and what adverse consequences can result. This was an extremely insightful endeavor considering that it shed light on not only what is known about this diagnosis but what should and needs to
be known for effective policies, social work practice, and clinical implications. For me personally, due to my lack of awareness of not only the clinical but demographic implications with this diagnosis, it was a necessary process to review a broad scope of literature and establish a base line of knowledge and understanding of gambling issues. However, it would be my pleasure to save those who follow up further with this topic the effort that I was stipulated to undertake in just 8 short months.

First, I found that there was a lack of studies and information geared specifically to immigrant populations, specifically Latino immigrant populations. For instance, migrant workers and those who are not fully able to assimilate due to cultural and language barriers. The majority of the literature I did root out implied that this was a relevant issue amongst this population but did not offer insightful or in depth information exploring the issue further. Since I was limited in my time and ability to investigate vigorously on this topic it’s certain that there is more information than I was able to allocate, however, even what I did uncover implied that more research is needed in this arena.

Another interesting piece that was uncovered through this research process regarded the elderly population, especially those in retirement and nursing home communities in Northern California. Unlike the Latino migrant population there was significant research and literature on gambling within the elderly population, however, in talking with professionals in the Sacramento and Yolo regions I found there was a redundant theme of being concerned about the rising rates of elderly gamblers. In particular, they appeared to be apprehensive about busses that casinos are sending on a
regular basis to retirement and nursing home communities. Not only do they buss this population free of charge to the casino they offer other incentives to get them in the door such as free food coupons and hotel stays. Due to the acute growth in gambling within the Northern California areas an insightful study could examine cultural issues, treatment readiness, and the ideology concerning gambling that the Northern California elderly gambling population hold. Furthermore, examining which establishments allow for bussing to casinos, and how prevalent of a practice it is and the gambling rates it produces. This thesis has reiterated how availability increases gambling behavior, and it would be interesting to see the increase bussing produces in gambling behavior in the elderly population.

Finally, it would be beneficial to inquire and research more in depth the current treatment trends on a national level, and then compare them to what is practiced (or not practice) on a local level (Sacramento, Northern California), which happens to be a high availability location. I believe the researcher would find that agencies in Northern California are ill prepared for dealing with gambling issues, and that there is little resources available for those seeking treatment. Also, that there is a lack of awareness not only in the general public population concerning gambling treatment options, but also within the social work and clinical communities.
APPENDIX A

Implied Consent Form

Facts and Myths of Problem Pathological Gambling Invitation for Participation for Adults

You are invited to participate in my thesis research project. This project aims to assess service providers and master of social work students’ general knowledge concerning pathological gambling and identify areas for professional development and in-service training. Your participation is strictly voluntary and you may refuse to participate in this questionnaire. Information you share during your participation in the project is considered confidential, as in, no individual other than the researcher, Rayme Hooten, will be aware of your participation. Furthermore, this study is of minimal risk and does not ask questions regarding personal information or your personal experiences. You’re encouraged to stop the survey for any reasons or skip any questions that you wish. Your return of the questionnaire implies your consent to participate in this study.

If you have any questions or comments you can contact the researcher, Taren Rayme Hooten, at:

Phone: XXX-XXX-XXXX

Email: rugbywomanr6@yahoo.com

Or her thesis advisor at Sacramento State University, Dr. Francis Yuen, at:

Email: fyuen@saclink.csus.edu

Furthermore, additional assistance are available at the California Office of Problem Gambling problem gambling help line at 1-800-322-8748. Or, if you a Sacramento State University Student you can contact the Health Center at 916-278-6461.
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