

2015

Predictor Variables of Online Sports Problem Gambling by College Fraternity Members

Matt Stanley
Walden University

Follow this and additional works at: <https://scholarworks.waldenu.edu/dissertations>

 Part of the [Psychology Commons](#)

This Dissertation is brought to you for free and open access by the Walden Dissertations and Doctoral Studies Collection at ScholarWorks. It has been accepted for inclusion in Walden Dissertations and Doctoral Studies by an authorized administrator of ScholarWorks. For more information, please contact ScholarWorks@waldenu.edu.

Walden University

College of Social and Behavioral Sciences

This is to certify that the doctoral dissertation by

Matthew Stanley

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee

Dr. Sandra Rasmussen, Committee Chairperson, Psychology Faculty

Dr. Michael Johnson, Committee Member, Psychology Faculty

Dr. Abby Harris, University Reviewer, Psychology Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2015

Abstract

Predictor Variables of Online Sports Problem Gambling by College Fraternity Members

by

Matthew Stanley

MA, Cleveland State University, 2006

BS, Ohio University, 2002

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy in Clinical Psychology

Walden University

May 2015

Abstract

The quantitative study identified predictor variables of online sports problem gambling, as measured by the South Oaks Gambling Screen (SOGS) among fraternity students at major college universities. The data were composed of 125 college fraternity students from ages 18 to 25 years of age. The average SOGS score was 1.776 with a standard deviation of 1.93. A SOGS score of 5 or greater indicates a probable problem gambler. The study used the Blaszczynski and Nower (2002) pathways model to determine how fraternity students could become problem gamblers. A stepwise regression model was run in SPSS using multiple independent variables taken from the survey to determine which of the independent variables were significantly correlated with the dependent variable, SOGS score. The study found 5 independent variables to be statistically significant: family history of gambling, competitive wagering, tobacco use, placing a wager with a friend, and wagering with funds acquired by illicit means. These 5 variables hold an *R*-squared (adjusted) of .26, which means that about 26% of the variability in the SOGS scores can be accounted for by these 5 variables. The study results supported the hypothesis that a complex set of social, biological, and psychological factors may contribute to determine how fraternity students could become problem gamblers. This study identified multiple individuals and parties who would benefit from further research about the ill-effects of online sports gambling among fraternity students.

Predictor Variables of Online Sports Problem Gambling by College Fraternity Members

by

Matthew Stanley

MA, Cleveland State University, 2006

BS, Ohio University, 2002

Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy in Clinical Psychology

Walden University

May 2015

Table of Contents

List of Tables	v
Chapter 1: Introduction to the Study.....	1
Introduction.....	1
Background.....	4
Problem Statement.....	5
Purpose of the Study.....	7
Research Questions and Hypotheses	8
Theoretical Framework for the Study.....	10
Nature of the Study.....	12
Definitions.....	13
Assumptions.....	15
Scope and Delimitations	16
Limitations	16
Significance.....	17
Summary.....	21
Chapter 2: Literature Review.....	23
Background.....	23
Literature Search Strategy.....	23
Theoretical Foundation	24
Behaviorally Conditioned Problem Gamblers	24

Emotionally Vulnerable Problem Gamblers.....	26
Anti-Social Impulsivists.....	27
Literature Review Related to Key Variables and/or Concepts.....	28
Family History with Gambling.....	28
Types of Wagering.....	29
Wagering Methods.....	31
Amount Wagered.....	34
Funding Sources.....	35
Motivation to Wager.....	36
Time Spent and Information Used watching Sports.....	42
Organized Sports Participation.....	43
Risky Behaviors.....	46
Socioeconomic Status.....	48
Developed Human Settlements.....	50
The South Oaks Gambling Screen.....	50
Summary and Conclusions.....	51
Chapter 3: Research Method.....	53
Predictor Variables.....	53
Research Design and Rationale.....	53
Population.....	55
Sampling and Sampling Procedures.....	56

Procedures for Recruitment, Participation and Data Collection.....	56
Instrumentation and Operationalization of Constructs	57
Operationalization.....	58
Data Analysis	62
Threats to Validity	63
Ethical Procedures	63
Summary.....	64
Chapter 4: Results.....	65
Introduction.....	65
Data Collection	65
Results.....	66
Single Variable Data Comparisons.....	68
Hypothesis #1: Family	68
Hypothesis #2: Number of Games Wagered	69
Hypothesis #3: Athletic Participation	72
Hypothesis #4: Risky Behavior	73
Other Factors.....	75
Regression Model	77
The Model.....	80
Summary.....	84
Chapter 5: Discussion, Conclusions, and Recommendations.....	85

Introduction.....	85
Interpretation of the Findings.....	87
Limitations of the Study.....	89
Recommendations.....	90
Establishment of an independent publicly controlled gambling research organization.....	91
A revision of campus policies and procedures for gambling.....	93
Increased state and federal funding for treatment centers and prevention programs	95
Implications.....	98
Students.....	98
Parents.....	100
Colleges.....	101
Mental Health Service Providers	102
Society.....	103
Conclusion	107
References.....	108
Appendix A: South Oaks Gambling Screen	128
Appendix B: Independent Variables/ Demographic Questionnaire.....	132

List of Tables

Table 1. SOGS Breakdown – The Sample.....	67
Table 2. SOGS * Does your father regularly wager on sports?.....	68
Table 3. T-Test of Difference Between Mean SOGS Score of Family Member Who Wages on Sports Against Family Member Who Does Not	69
Table 4. Mean of SOGS by Number of Games Wagered.....	70
Table 5. T-Test of SOGS by Number of Games Wagered	71
Table 6. Mean of SOGS by Athletic Participation	72
Table 7. T-Test of SOGS by Athletic Participation.....	73
Table 8. Mean of SOGS by Tobacco Use.....	74
Table 9. T-Test of SOGS by Tobacco	74
Table 10. Difference of Means Between Campus Bookmaker vs. Friend.....	76
Table 11. Differences in Means of Motivations to Wager on Sports	77
Table 12. Regression Model for SOGS	81
Table 13. Differences in Means of Motivations to Bet for Competitive Reasons.....	82
Table 14. Difference in Means in Wagering With a Friend vs. Other.....	83

Chapter 1: Introduction to the Study

Introduction

Rapid growth of Internet gambling has significantly changed the gaming industry (The National Gambling Impact Study Commission, 1999). While the gaming industry has always been influenced by technology, the Internet has changed the industry by allowing sports bets to be placed anywhere in the world (Griffiths, 2007; King, Delfabbro, & Griffiths, 2010). This broad accessibility and the convergence of digital media with high-speed broadband technology allows for not only increased sport betting opportunities, but also a greater susceptibility of college students to gambling problems (Reilly, 2009). There is empirical evidence that populations increasingly exposed to gambling will have an increased gambling problems (Fisher, 1993; Hardoon & Derevensky, 2002; Abbott & Clarke, 2007).

Numerous empirical reports have identified sub-populations that can be identified within the college student population (Boyer, 1987; Coomes & DeBard, 2004; Horowitz, 1987; Howe & Strauss, 1993, 2000, 2003; Levine, 1980; Levine & Cureton, 1998; Light, 2001; Loeb, 1994; Moffatt, 1989; Strauss & Howe, 1991). The Baird's *Manual of American College Fraternities* (2012) has been utilized as an authoritative reference work since its first publication in 1879.

William Raimond Baird's "*Manual of American College Fraternities*" (2012) identifies a fraternity as an all-male social student society with member initiations and a name consisting of two-to-three Greek letters. Underlying the whole experience is the ritual that is exclusive to each fraternity. While often incorrectly associated with illegal and immoral hazing activities, a

fraternity ritual is the solemn and historical rationale for an organization's existence. The ritual is often presented to new members during a serious church-like ceremony where new members learn the underlying meaning of their respective organizations. Amongst the benefits of membership; a fraternity offers students: a niche on the campus, a chance to develop personal skills, an organized agenda of activities and friendship with students of similar interests and as former Penn State President John Oswald called “. . . an island of smallness on the large ocean that is today's college campus” (Baird, 2012).

A fraternity has been identified as a specific sub population (Jones, 1976; Layden, 1995) with divergent demographic characteristics; such as: members valuing interpersonal relationships (Ricker, 1983), a stimulating group environment (Feldman & Newcomb, 1969), and participation in extracurricular life (Astin, 1977). Sport-betting is a part of fraternity life (Biddix & Hardy, 2008; Dickson, Derevensky & Gupta, 2002; LaBrie, Shaffer, LaPlante & Wechsler 2003; Layden, 1995). Nelson et al. (2007) compared student populations and found sports fans gamble more than students who are not sport fans. Furthermore, Lloyd et al. (2010), Stuhldreher et al. (2007), and Dixon et al. (2013) suggested fraternity students who are sports fans have different Internet gambling activity patterns and risk developing pathological gambling problems as well as comorbid maladaptive behaviors.

The comorbidity of pathological gambling with other maladaptive high-risk behaviors makes understanding pathological gambling on college campuses important to public health and policy. Some maladaptive high-risk behaviors found with pathological gambling include:

alcohol dependence (Reilly, 2009), (Petry & Weinstock, 2010), illicit drug use (Griffiths & Sutherland, 1998), suicide (Stuhldreher et al., 2007), unipolar depression and bipolar disorder (McIntyre et al., 2007), criminal offenses (Yeoman & Griffiths, 1996), unsafe sex after drinking (Labrie et al., 2003), driving under the influence (Engwall et al., 2004), greater use of tobacco (Lesieur et al., 1991), and stress (Stuhldreher et al., 2007). Additionally, financial distress for a gambler and their family can occur (Shaw et al., 2007), as well as measurable societal costs (Ladouceur et al., 1994).

Literature is limited in regard to how emerging technology affects fraternity members as a subset population of college students; however, understanding how an emergent technology influences a vulnerable segment of the college population is relevant. Reith (2003) found colleges have been negligent in addressing pathological gambling on their respective campuses. Reilly (2009) and Lloyd et al. (2010) suggested college administrations, including the departments of: athletics, judicial affairs, residence life, financial aid, academic advisors, health and counseling professional and faculty members can all assist in the adoption and maintenance of a plan to prevent and treat pathological gambling on campus. College students are susceptible to impulse control or addiction problems (Engwall et al., 2004). Because impulse control and addiction behavior is linked (McIntyre et al., 2007; Shaw et al., 2007; Stuhldreher, 2007;) routine campus screens for substance and eating disorders should also include gambling.

More gambling-related research is needed to examine vulnerable population segments, with regard to how and to what extent fraternities have become involved in online-sports betting

(King et al., 2010; Shaffer & Korn, 2002). Research concerning online-sports wagering is of relevance to college administrators who can use the findings to study the convergence of digital media, gambling, and high-speed Internet access on student development. Hume and Mort (2011) found that understanding students with problems controlling their gambling produces greater accuracy in assessments and interventions aimed at pathological gambling prevention. The research will also be useful to public officials responsible for socially responsible laws to protect students from online sports betting while not compromising adult consensual gambling.

Background

Pathological gambling was first recognized by the American Psychiatric Association (APA) *Diagnostic Manual of Mental Disorders* (DSM-3) (1980) as a medical psychological problem. Seven years later Lesieur and Blume (1987) developed the widely-utilized South Oaks Gambling Screen (SOGS). In their first survey of college students at the University of Minnesota in 1987, they found that 5% of 384 students were pathological gamblers. Four years later Lesieur and Blume (1991) conducted the first multi-institutional survey and found that 15% of students presented for problem gambling, and 5.5% could receive a pathological classification.

In the early 1990s, Lesieur, Cross, and Frank et al. (1991) found pathological gambling rates increasing at 4 to 8%; Shaffer and Hall (1996) reported rates of 6%; Shaffer, Hall, and Vander Bilt (1999) reported rates of 4.7% for pathological gambling and 9.3% for problem gambling; and the Research Council (1999) found rates of 4 to 7% for pathological gambling.

Shaffer and Hall (2001) reported rates of 6% for severe gambling disorder or Level 3 and 11% for subclinical or Level 2. Gupta and Derevensky (2004) reported pathological gambling rates to be between 2.1 and 12%; Weinstock and Petry (2008) reported a lifetime rate of 5% and Griffiths (2009) reported a 6% pathological gambling rate.

An oversight in the extant research is that previous researchers have consistently combined college students into one demographic category. This can potentially create statistically inaccurate data, as researcher have shown diversity in gambling and pathological gamblers (Hume & Mort, 2011; King et al., 2010; Lloyd et al., 2010; Shead et al., 2012). Gamblers constitute a multifarious group whose behaviors are altered by gambling preferences and demographic group (LaBrie et al., 2007; Lloyd et al., 2010). Researchers have yet to empirically identify if fraternity members have a preference for sports betting online and the prevalence for pathological gambling among this demographic group.

Problem Statement

Reilly (2009) found no empirical evidence to suggest that gambling online among college students has led to higher rates of excessive gambling. This is unusual to find a lack of theory and research given the apparent social relevance of the convergence of digital media, high-speed broadband Internet and sports betting that involves players worldwide (Meyer et al., 2009). Fourteen years ago the National Gambling Impact Study Commission (1999) found collective annual sports betting amounted to \$380 billion and the government stated in this report that betting on sports is the most popular form of gambling in the United States. Obtaining an

official statistic of sports betting is difficult because wagering with a bookmaker is illegal everywhere but Nevada (Rushin, 2013); however, estimates show that Americans bet up to \$500 billion on sports every year and only 1% of it is legal (McClam, 2013). Statistics from the FBI (2013) show that \$2.5 billion is wagered on the NCAA tournament. The financial planning website Mint (2012) extrapolated Nevada data and estimated that wagering on the Super Bowl surpassed \$8 billion in 2012. Moreover, Rushin (2013) found that more money is bet on the first 4 days of March Madness than on the Super Bowl.

Brown (2006) found college students to be the fastest growing segment of Internet gamblers as a natural consequence of exposure to digital media and the Internet while at higher education institutions. However, it is likely colleges do not collect data on pathological gambling out of fear of negative publicity (De Freitas & Griffith, 2008; Gose, 2000). The convergence of digital media technologies like smart phones, tablets, and social networking sites with gambling has led to gambling being normalized in society (Bell, 1999), increasing gambling opportunities for students (Wong & Tsang, 2011), and persuading students' perception of placing sports-bets online as a harmless, acceptable, and credible fraternity activity (Dixon et al., 2009).

This project informed research data in terms of participation and disordered gambling prevalence rates for pathological gambling among fraternity students whose preference is sports betting online. Online sports gambling is increasing among college students and may be associated with more psychosocial problems compared to those who avoid online sports betting (Shead et al., 2012). Students who bet on sports have specific patterns of gambling behavior that

are unique from adults aged 25 years and older. These preferences can include amounts wagered and preference for gambling venues such as the Internet (King et al., 2010). Family history of gambling has also been linked to problem gambling and should be examined within this context. Stuhldreher et al. (2007), Dixon et al. (2009), and LaPlante et al. (2009) have suggested that additional research is needed about Fraternity gambling habits and the potential risks of online sports betting amongst this vulnerable population segment.

Purpose of the Study

The purpose of this quantitative study was to identify predictor variables of online sports problem gambling, as measured by the SOGS, in Fraternity students at four major public colleges in Ohio. The studies that have focused on pathological gambling on college campuses did not account for different subpopulations of students such as Fraternities, and did not differentiate between gambling preference such as online poker versus online sports betting.

One reason that this subpopulation has not received much attention is that online sports betting is a relatively new field, and according to King et al. (2010) there is difficulty in identifying how and to what extent college students have participated. Additionally, LaPlante et al. (2008) found pathological gamblers move in and out of disordered states and that pathological gambling is not necessarily a progressive disorder. LaBrie et al. (2003) also noted that different questionnaires or surveys have been used and there is a tendency to underreport illegal or undesirable behavior. There is also confusion as to whether use of these newer gambling arenas

are in fact gambling in the psychological and legal way gambling has traditionally been defined (Meyer et al., 2009).

Research should continue to be conducted to determine the impact of the convergence of digital media, high-speed broadband Internet and gambling on student development, particularly with regard to any long-term neurophysiological and psychological effects. An increased knowledge base allows for campus policies and practices to be formed or reevaluated so that those students most at-risk for pathological gambling can receive help. Research can aid elected officials in devising a pragmatic and relevant social policy response to Fraternities participating in online sports betting.

Research Questions and Hypotheses

Based upon the literature review the following research questions and hypotheses were examined:

Research Question 1: What is the relationship between family history of gambling and SOGS score in a sample of fraternity students who wager on sports on the internet?

H_0 1: There is no statistically significant difference in mean SOGS scores of students who have family history of gambling than those who do not have a family history of gambling among the target group.

H_1 1: There is a statistically significant difference in mean SOGS scores of students who have family history of gambling than those who do not have a family history of gambling among the target group.

Research Question 2: What is the relationship between types of wagers made and SOGS score in a sample of fraternity students who wager on sports on the internet?

H_02 : There is no statistically significant difference in mean SOGS scores of students based upon type of wager made.

H_12 : There is a statistically significant difference in mean SOGS scores of students based upon type of wager made.

Research Question #3: What is the relationship between athletic participation and SOGS score in a sample of fraternity students who wager on sports on the internet?

H_03 : There is no statistically significant difference in mean SOGS scores of students who participate in athletics than those who do not participate in athletics among the target group.

H_13 : There is a statistically significant difference in mean SOGS scores of students who participate in athletics than those who do not participate in athletics among the target group.

Research Question #4: What is the relationship between engaging in “risky” behaviors, such as alcohol and tobacco use, and SOGS score in a sample of fraternity students who wager on sports on the internet?

H_04 : There is no statistically significant difference in mean SOGS scores of students who engage in “risky” behaviors than those who do engage in “risky” behaviors among the target group.

*H*₁₄: There is a statistically significant difference in mean SOGS scores of students who engage in “risky” behaviors than those who do engage in “risky” behaviors among the target group.

The value of the dependent variable is determined by the SOGS research instrument, which is a survey that consists of 16 questions and scores between 0 and 20. The independent variables came from a separate self-administered survey and were tested to determine if they are statistically significant in a regression model. Some of the variables are categorical and others are numerical. Through linear regression modeling it was seen which of the independent variables are correlated with the dependent variable SOGS score significantly.

Theoretical Framework for the Study

The lack of empirical research impedes the development of a single, empirically-validated theoretical betting model. Additionally, this model must be developed to integrate psychological, biological, sociological, and environmental components that lead to pathological gambling among fraternity members who gamble on sports online. Blaszczynski and Nower (2002) found pathological gambling viewed from an etiological conceptualization as a categorical or spectrum disorder assumes homogeneity among pathological gamblers. Blaszczynski and Nower (2002) rejected that gamblers are a homogenous group and identified three subgroups of gamblers in a conceptual model that includes: behaviorally conditioned, emotionally vulnerable, and biologically based problem gamblers. Blaszczynski and Nower found each subgroup has: contingencies of reinforcement, cognitive processes, distortions, and

common exposure to related ecological factors (i.e. accessibility, availability, acceptability). The Blaszczynski and Nower model is also known as the pathways model and found that some individuals have other predisposing addictive risk factors including affective disturbances and emotional stressors while others suffer from biological impulsivity. The pathways model accounts for differences among subgroups of problem gamblers (Blaszczynski & Nower, 2002) and therefore is relevant in looking at subgroups of students on American college campuses.

The pathways model can also be used alongside a behavioral understating as a guide for treatment and conceptualization of gambling problems. Implementing the pathways model with learning theory such as operant conditioning maintains that: independent chance events, misunderstandings of statistical probabilities related to gambling, and erroneous and irrational beliefs form a basis to understand why people may continue to gamble despite accumulating losses. Social learning such as family history and peer involvement give people a positive acceptance of gambling as a legitimate American pastime (Tepperman, 2009). The gambling behavior is thus explained through operant and classical conditioning (Nower and Blaszczynski, 2010). The early wins are merely short-term gains which shape student's beliefs that winning is possible. Reinforcement of student gambling behavior is by either monetary gain or increased arousal. Gamblers learn intermittent winning comes through persistence and is a means to supplement income or lead a wealthy lifestyle. But, over the long-term the more frequent someone gambles leads to a progressive, downward spiral of loss, which leads to cognitive

dissonance or irrational and erroneous beliefs, as a gambler justifies their behavior and overestimates their probability of winning.

Nature of the Study

The design of the study was a quantitative study which used a random online sample through the online company Survey Monkey. The survey consisted of two separate parts, the South Oaks Gambling Screen and a second questionnaire which contained the independent variables.

The SOGS portion of the survey was the first 16 questions and was scored for each survey taker from 0 to 20. The higher the number, the more likely a person was a problem gambler with scores 5 or greater indicating a probable problem gambler. This number was used as the dependent variable in a regression analysis with independent variables used from the second half of the survey. The independent variables deal with things such as: family history with gambling, amount wagered on sports, amount of time spent watching and researching sports, and other addictive behaviors such as tobacco use. With previous research showing that the target group is particularly vulnerable to problem gambling these variables were chosen to find factors with the highest correlation (Dixon et al., 2009; LaPlante et al., 2009; Stuhldreher et al., 2007). All of the independent variables were run with regression analysis to determine which ones best described the SOGS data. A stepwise regression model with SPSS was run on the data, where the least useful independent variables were eliminated one-by-one from the model removing the statistically insignificant variables.

Definitions

Fraternity: A student society organized for social and other purposes, commonly composed of affiliated branches or chapters in various institutions and designated by two or more letters of the Greek alphabet; a body of persons associated as by ties of brotherhood.

Internet: Worldwide interconnection of computer networks used by the government, academic institutions, businesses, and individuals. Each site on the Internet has its own address, and users are able to access these sites for various reasons.

Bookie: A person who accepts sports-bets.

Line: The point spread. Expresses the favorite and underdog to encourage equal betting and allow bettors to add or subtract the point spread from a team's final score.

Office pools – Participants typically contribute \$5 to \$20 to the pool. Each participant fills out a list of winners (a bracket) in the case of a tournament or a predicted score in the case of an individual game (such as the Super Bowl). The person whose prediction is most accurate wins the entire pot. In some cases, there are second prizes, third prizes, and so on, or the pot is divided accordingly.

Level 0 gambling: No gambling at all. (National Research Council, 1999).

Level 1 gambling: Social and recreational gambling (see below) with no appreciable harmful effects. (National Research Council, 1999).

Problem gambler: Also known as Level 2 gambling. Gambling problems are beginning. A SOGS score of 3 or 4, has 3 or 4 of DSM-IV criteria. (National Research Council, 1999).

Problem gambling: Gambling behavior that results in any harmful effects to the gambler, his or her family, significant others, friends, and coworkers. Some problem gamblers would not necessarily meet criteria for pathological gambling (National Research Council, 1999).

Pathological gambler: Also known as Level 3 gambling. Gambling is affecting individual's life. A score of 5 or more on SOGS, 5 or more of DSM-IV criteria (National Research Council, 1999).

Pathological gambling: A mental disorder characterized by a continuous or periodic loss of control over gambling, a preoccupation with gambling and with obtaining money with which to gamble, irrational thinking, and a continuation of the behavior despite adverse consequences (National Research Council, 1999).

Probable pathological gambler: A common reference in prevalence research studies and other gambling literature to a person who is suspected of being a pathological gambler on the basis of some criteria, but who has not been clinically evaluated as such (National Research Council, 1999).

Disordered gambling: Inspired by language in DSM pertaining to disorders of impulse control and used by Shaffer et al. (1997) in their meta-analysis to serve as a conceptual container for the panoply of terms associated with gambling-related problems and pathology (National Research Council, 1999). The term is used occasionally in this report to describe the combination of problem and pathological gambling.

Problematic gambling: Synonymous with either disordered gambling or excessive gambling (National Research Council, 1999).

Excessive gambling: Reference to an amount of time or money spent gambling that exceeds an arbitrarily defined acceptable level (National Research Council, 1999).

Compulsive gambling: The original lay term for pathological gambling, it is still used by Gamblers Anonymous and throughout much of the self-help treatment community (National Research Council, 1999).

Social gambling: Synonymous with recreational gambling (National Research Council, 1999)

Recreational gambling: Gambling for entertainment or social purposes, with no harmful effects (National Research Council, 1999).

Assumptions

It was assumed that participants will answer the SOGS and the separate questionnaire honestly. This study assumed that the participant's respective ages will be between 18 and 22 years. In addition, these students were enrolled in the university and have at least a part-time course load and are active members of the fraternity sampled.

It was assumed that all questions will be answered in both the SOGS and the separate questionnaire. It was assumed administration of the SOGS to participants will find a percentage of probably pathological online sports-bettors in each fraternity. In addition, the problematic gambling behavior was to be seen with a negative mood state.

Scope and Delimitations

The target of this study was fraternity students who live on campus. Among those, the focus was on those who wager on sports. Variables that were strongly correlated with problem gambling were also considered. Fraternity students were chosen because prior researchers found this group is more susceptible to problem gambling than the general population (Layden, 1995). The general population uses the Internet less than this group (Meyer, Hayer & Griffiths, 2009) and may therefore place fewer wagers online than people of other generations.

Since the sample scope is well defined, it is more likely that a sample gathered online will reflect the sample frame. That is, the homogeneity of fraternity members allows more flexibility when drawing an online sample than the general population. With better methodology in online sampling, the results were quite useful in addressing problematic gambling on sporting events and the convergence of gambling and digital technologies. While further research needs to be done, the results here are a good basis for looking at problem gambling as a result of online sports wagering with a wider section of the general population.

Limitations

The largest limitation of this study was that the sample was using an online sampling company. Online sampling typically has a higher abandon rate, which may increase the likelihood of bias into the sample. Nevertheless, as online sampling gets better, these problems are decreasing every year. The results of the study were useful for looking in particular at the general trends among problem gamblers within this sample frame. The sample being limited to

fraternity members made the sample selection more reliable. Caution is mostly in taking these sample estimates to be unbiased population estimates.

In addition to the problems of this study in particular, sample estimates may be inaccurate in the sample due to the nature of the subject certain people may lie about their respective involvement in gambling activities. Anonymity was guaranteed but some people still may not have disclosed exactly what they gamble on and thus the sample estimates may not be accurate, due to question response bias. This is why the focus of this study was not on the sample estimates but rather the predictors of problem gambling among the target group.

Lastly, the dependent variable was the SOGS, which is a tool that was created using the DSM-III over 30 years ago. It is possible that this tool is not as accurate at finding problem gamblers as others. As many others have used the SOGS, this was not considered a major limitation. Even if there is a slight miscalculation of those who are truly problem gamblers, there was no reason to think that it is biased toward one of the independent variables.

Significance

Sports and sports betting are tied to college students and our American culture (Biddix & Hardy, 2008). However, the online sports betting may have become a vice for fraternity students. With internet technology, today's fraternity student may be in danger of losing focus and getting caught up in a cultural norm that will not aid in graduation or in life after leaving college (Lee, Lemanski & Jun, 2008). Unfortunately, studies addressing sports gambling (McClellan & Winters, 2006; Neighbors, Lostutter, Whiteside & Fossos et al., 2007; Weinstock,

Whelan, Meyers & Watson, 2007) have failed to take into account different populations on campus nor have they differentiated between player preferences for online gambling activities such as poker vs. online sports betting. Gose (2000) found the nonprofit National Council on Problem Gambling, reported authorities on college campuses turn a blind-eye to those suffering from a gambling addiction. It is unfortunate that such negligence seems to be widespread. Reilly (2009) found that in comparison to other programs such as drug, alcohol, and rape-crisis counseling, gambling is incorrectly prioritized. Gose (2000) found only 22% of college campuses have a written policy on gambling and fewer than 30% of schools have an addiction recovery program.

The gap in practice and policy are missed opportunities. The research is clear that risks of excessive gambling are very real problems. The response of administrators and those who develop legislative policy should be to integrate gambling related harms into existing programs already targeting addictive behaviors. Programs should also facilitate recovery for those who are in need of treatment. Perhaps colleges are waiting for more thorough examinations of effectiveness of college gambling policy programs before taking action. However, if students are not aware of the risks they cannot take the necessary precautions. By understanding a specific group which may have a prevalence for pathological gambling, such as a fraternity, student affairs administrators will be more aptly and able to design policies and campus practices about problem gambling risks and treatment.

Most people experience some degree of stress on a daily basis, but students who become in trouble financially are even more likely to face situations and events that require them to make changes and adapt their behavior for better or worse. .

Stress can show itself in a myriad of ways; but when fraternity students inadvertently become wrapped up with gambling debt stress can escalate. Physical problems can include unusual fatigue, sleeping problems, frequent colds, and even chest pains and nausea. If a fraternity student is hounded by a collection agency they may begin to behave differently, too: pacing, eating too much, crying a lot, or physically striking out at others. Emotionally, the fraternity student could experience anxiety, depression, fear, and irritability, as well as anger and frustration. Mentally, the fraternity student may have trouble with concentration, memory and decision making, and perhaps lose their sense of humor. (Thomas & Moore, 2003)

Students who develop a problem gambling may be exposed to such potentially life-threatening situations that may include suicide. Fraternity students who are not given help with their problem gambling will generate psychological stress in their mind and their body will provide the necessary fuel to react physically. Since this student population's problem gambling oversight is non-existent, they are unaware that they cannot or should not react physically. Fraternity students are uninformed about the health consequences of this psychological stress cycle which are potentially hazardous, as the stress response can lead to many cardiovascular maladies. Chronic stress can lead to insomnia, weight gain, and suppression of immune

function. There is a paradoxical existence of stress associated with problem gambling which students must be given help in understanding and applying to their own life.

From a sociological standpoint the Fraternity community is one student sub-population which reinforces Solomon Asch's 1952 study of group influence. Asch's research demonstrated the power of groups over individuals. Applied to the Fraternity community, even if a member recognizes that his gambling behavior is problematic, he may go along with the group to avoid ridicule or exclusion. In Asch's research his experiment was done in a laboratory and with people who did not know each other. A fraternity on the other hand is a real-life group whose influence on a member's attitude and behavior can be even stronger.

This study should serve as a wake-up call to university officials who should be wary of what social psychologist Irving Janis refers to as groupthink – or a tendency of in-group members such as fraternities to conform without critically testing, analyzing, and evaluating ideas, which results in a narrow view of an issue. Fraternity students are not going to raise the issue of problem gambling on their own; especially when they view gambling as a harmless activity and as something to be used for immediate financial gain.

An influential college administrator should instead begin to make decisions which are informed by research and consensus. If they are aware of the pitfalls and short-coming of pathological gambling amongst a specific student population they can begin to have democratic discussions and voting processes, hammering out disagreements, and seeking advice from informed and objective people outside the group. This study is a resource that people in

positions of high responsibility may use; to do otherwise most certainly can only lead to disastrous and irrational decision-making regarding problem gambling on our college campuses.

No gambling research has ever made a connection between Sororities and problem gambling. This study can serve as a foundation for both college administration and public policy officials to examine any connection between the sorority subgroup and problem gambling. Since the public colleges in this study include Sororities as a part of their Greek Letter system, the findings and social change implications of this study are of value. A recommendation for further study of the Sorority subgroup to problem gambling should be forthcoming.

Summary

The focus of this study was to find the prevalence of pathological gambling among fraternity students who have a preference for sports betting online. Additionally, this study will identify predictor variables of problem gambling, as measured by The South Oaks Gambling Screen, in fraternity students at four major public colleges in Ohio. College students have a prevalence for pathological gambling (Petry & Weinstock, 2007); however, college administrators and policy makers have not kept pace with the convergence of digital media, high-speed broadband Internet, and gambling. College programs already targeting addictive behaviors need to include gambling. Colleges would be vigilant and proactive to design policies including prevention and treatment for those groups of students who have a prevalence for pathological gambling.

A critique of the literature is discussed in Chapter 2. This study's literature review focused on specific gambling variables likely to impact fraternity members and their decision to engage in gambling on sports online. Key sections included: family history, types of wagering and wagering methods. In addition, the literature review included motivation to wager as well as risky behaviors. A discussion of the research method occurred in chapter 3. The study results are indicated in chapter 4 and are followed by the conclusion and the implications in chapter 5.

Chapter 2: Literature Review

Background

The National Gambling Impact Study Commission (1999) found sports betting is the most popular form of gambling in America. The convergence of digital media, high-speed broadband Internet and sports betting has increased gambling opportunities (Wong & Tsang, 2011), normalized gambling in society (Bell, 1999), and given students the perception that online sports betting is not only acceptable and harmless but a credible fraternity activity (Dixon et al., 2009). All of these factors are disconcerting because they affect the prevalence rate of pathological gambling among a population of the student body whose preference is to gamble on sports (Welte, Barnes, Tidwell & Hoffman, 2008). It is unfortunate that the current research literature regarding the prevalence of pathological gambling among fraternity students and their preference for online sports betting is nonexistent.

Literature Search Strategy

The search plan was a process that began with identification of preliminary sources. The most frequently used preliminary sources included the multidisciplinary online databases: Academic Search Complete, ProQuest Central, PsychInfo, PsycARTICLES and Science Direct. Reference lists at the end of relevant journal articles and books were utilized to find journals which published articles directly related to this topic. Personal networking assisted in revealing sources as well as the involvement of community members. The land-based Horseshoe Casino which opened its doors to the Cleveland area just over a year ago, as well as recent legislation in

American allowing four states to place bets on sports has meant greater awareness of gambling and in turn sparked articles and opinions related to the topic to be published. The significance of these events has meant that a degree of flexibility had to be used in the search process.

Theoretical Foundation

Research by Blaszczynski and Nower (2002) uncovered the mistaken assumption that there is homogeneity among problematic gamblers. Instead, Blaszczynski and Nower found a complex set of social, biological, and psychological factors that affect how someone may become a problem gambler; and therefore one model that explains pathological gambling is unlikely to be forthcoming. Thus, independently, any behavioral, cognitive, and biological model of problem gambling is inadequate to explain the varied causes of problem gambling. However, Blaszczynski and Nower's (2002) pathways model does assert the absence of homogeneity among problem gamblers and subtypes of problem gamblers can be reliably determined on the basis of the differential contribution of various etiological factors (Sharpe, 2008).

Behaviorally Conditioned Problem Gamblers

Blaszczynski and Nower (2002) labeled the first group of gamblers *behaviorally conditioned problem gamblers*. Sharpe (2008) found the social environment predominates the etiology of problem gambling for these individuals. Blaszczynski and Nower (2002) found psychological factors are viewed as a consequence of involvement with gambling and that these gamblers are exposed to gambling by chance or through peer groups and become conditioned

according to the learning principals of operant and classical conditioning. These gamblers develop arousal in association with gambling and learn unhelpful cognitions including an illusion of control. Petry (2006) found overestimation of situational or dispositional factors, otherwise known as *attributional bias*, is related to an illusion of control of chance events. Petry (2006) found these conditioned responses ensure that individuals continue to gamble, sustain heavier losses than anticipated and subsequently chase their losses. From an operant standpoint Grant and Potenza (2004) found the variable ratio of losses to wins automatically built into institutional gambling provides a particularly pathogenic formulation. Grant and Potenza (2004) found that winning money is the gambling behavior that acts as a quintessential positive reinforcement. Abrams and Kushner (2004) found that the gambling behavior of winning money with an unpredictable variable acts as an intermittent reinforcement of gambling behavior and describes a particularly extinction resistant reinforcement schedule, even when reinforcement is absent over many trials. Furthermore, McCown and Chamberlain (2000) found that when intermittent reinforcement is applied to gambling behavior the resistance to extinction is an especially show process because the frequency and magnitude of the reinforcement of winning money may vary over time. The financial consequences of this behavior lead gamblers to become depressed and/or anxious; however, these mood states are secondary to the gambling and typically improve once the gambling is resolved (Sharpe, 2008).

Hayano (1982) and Ocean and Smith (1993) found that in addition to money, theorists have posited a range of gambling reinforcements that initiate and perpetuate the problematic

gambling behavior. These include social reinforcers (i.e. interaction with friends), material reinforcers (i.e. drinks or services for playing), ambient reinforcers (i.e. auditory and visual stimuli), cognitive reinforcers (i.e. “near misses” such as being one touchdown or play away from a large payout), and even physiological arousal.

Abrams and Kushner (2004) found *big wins* (typically defined as grossly exceeding one’s expectations or annual salary) are related to operant conditioning. Snyder (1978) and Walker (1992) found that many pathological gamblers have reported experiencing a big win early in their gambling career. Covernty and Norman (1997) found that over the course of a gambling career those who experienced a big win sooner viewed themselves as more successful and played for a longer period of time.

Emotionally Vulnerable Problem Gamblers

Blaszczunski and Nower’s (2002) second sub-group are described as emotionally vulnerable problem gamblers. Sharpe (2008) found that in this group, the social determinants and psychological responses are identical to those described for the behaviorally conditioned gamblers. However, Sharpe (2008) found in addition, these gamblers have pre-existing psychological disturbances characterized by depression and anxiety. From an operant standpoint McConaghy (1980) found that initiation of a habitual behavior that falls short of completion will lead to an uncomfortable arousal state. Applying this behavior to gambling Abrams and Kushner (2004) found that gamblers playing frequency minus accrued significant wins (i.e. behavior ‘completion’) leads to continued betting in order to experience relief from the aversive arousal.

According to Sharpe (2002) in a negative-reinforcement model gambling losses are considered a setback that is relatively minor. Sharpe (2002) also found that ironically, problematic gambling (i.e. typically defined as relationship problems, financial difficulties or criminal activity) leads to an increase in gambling in a misguided attempt to manage symptoms.

Abrams and Kushner (2004) found negative reinforcement (i.e. the removal of a punishing stimulus) has commonalities with drive-reduction theory; which may explain problem gamblers behavior to continue gambling despite continuous losses. Jacobs (1986) negative-reinforcement model adds that addictive behaviors, especially those related to gambling allow those gamblers who are chronically either over-aroused or under-aroused to obtain an optimal arousal state. McCormick et al. (1988) found these individuals have a history of negative childhood events that have contributed to their mood disturbance and generally low self-esteem. According to Blaszczynski and Nower (2002) for this sub-group, the pre-existing psychological disturbance is thought to be of etiological significance and of primary importance, whereas gambling is typically a secondary problem.

Anti-Social Impulsivists

Blaszczynski and Nower's (2002) third subgroup is known as the anti-social impulsivists and is considered the most severe of the spectrum of problem gamblers. According to Sharpe (2008) this group has all the psychological and biological vulnerabilities of the emotionally vulnerable group and is exposed to all the social factors and psychological responses that characterize the behaviorally conditioned gamblers. It is the additional presence of impulsive

traits that are typically associated with multiple impulsive type problems (i.e. drug and alcohol abuse) and at the extreme can meet criteria for anti-social personality disorder (Sharpe, 2008). According to Carlton and Manowicz (1994) these gamblers typically have a history of attention deficit hyperactivity disorder. Petry (2011) found that the anti-social impulsivist group may be distinguishable on EEG functioning and neuropsychological functioning.

Blaszczynski and Nower (2002) found that the anti-social impulsivists are those pathological gamblers who are most likely to have multiple addictions, a history of personality disorder and serious psychopathology co-morbidity with their gambling problems. Blaszczynski et al. (2007) found they are likely to: get caught up in criminal activity to support their gambling, less likely to seek treatment, and are more likely to drop out of treatment programs. Hence, Blaszczynski and Nower (2002) found these gamblers are the most disturbed and most resistant to treatment.

Literature Review Related to Key Variables and/or Concepts

Family History with Gambling

King et al. (2010), McComb and Sabiston (2010) and Hume and Mort (2011) found that a family history of pathological gambling makes a gambler more susceptible to developing gambling problems. Family relationships (McComb & Sabiston, 2010) as well as alcoholism and heredity (Mazza, 2013) may also play a role in development of problematic gambling. The genetic predisposition (Seijas, 2013) is connected to impulsivity – the more impulsivity in the family the greater the likelihood that this trait will be passed on. Thus, an individual with higher

levels of impulsivity in their family has a predisposition to develop pathological gambling problems if such problems already existed in their family. Winters et al. (1998) added the risk is 3 to 5 times greater when a predisposition exists. Ross et al. (2010) disagreed with the assumption that social relationships relate to gambling activities.

Ciarrocchi and Richardson (2010) found that adults classified by SOGS as pathological gamblers also had a family member with a gambling problem. Only 4% of the author's respondents that were classified as pathological gamblers did not have a family history of pathological gambling. Ferris and Stirpe (2009) found that 28% of parents whose son or daughter was undergoing pathological gambling treatment reported being problem gamblers.

Types of Wagering

Straight wagering. Wong and So (2003) found that college students classified as either Level 2 or Level 3 gamblers used straight wagering. This type of wagering does not bet against the spread; instead bets are placed on one team to win over the other. For large sports games such as the Super Bowl bettors may place 'future bets' months before the contest. This is extremely risky as anyone who has ever played fantasy football would know there is no guarantee their team will even make it to the playoffs, let alone win the championship. 'Parlays' involve one bet with multiple wagers. Like 'future bets' the payoff may be larger than 'straight wagering,' but the risk is also larger because every game on your 'parlay' must win in order to collect winnings.

The wagering data of Shaffer, Hall and Vander Bilt's (1999) 11 meta-analysis studies reviewed by the NRC (1999) found straight wagering was used most by those with higher rates of disordered gambling. Additionally there was a higher percentage of Level 2 and Level 3 gamblers than Level 1 gamblers found in each of the 11 studies. The data does not give a definite estimate of risk associated with straight wagering. Petry (2005) found that speculation should be avoided because problematic gamblers are likely to engage in a variety of wagering methods. Therefore, higher proportions of problematic gamblers may be found in those activities in which individuals relatively rarely engage.

Fantasy sports. The American Gaming Association (2012) estimated that 36.8 million consumers participate in a type of wagering known as fantasy sports/ office pools. The report also states that the cost to employers to pay unproductive workers checking their fantasy teams during the National Football Season could be as high as \$1.5 billion for 17 weeks. While these activities seem to constitute gambling in the legal sense of the word, they do not appear to be much of a threat to either society at large or the integrity of sports.

Office pools. Over 100 million people participated worldwide in the online office pools for the 2013 March Madness basketball tournament; a number which roughly amounts to one-third of the U.S. population (Umstead, 2013). Businesses capitalize upon the fascination with March Madness by hosting their own bracket challenges. For instance, even though it is no secret that the newspaper industry is hurting economically, the Arizona Daily Star offered \$1 million prize to contest participants who create a perfect bracket (Umstead, 2013). While many

will take this bait, the fact of the matter is that companies like the Arizona Daily Star know that the likelihood of paying out on a perfect bracket is slim to none. According to Keene (2013), there are 9.2 quintillion different bracket combinations. Thus, odds are a billion-to-one to have a perfect bracket if the entire planet participated.

A vast majority of office pools are cash enterprises kept within one locale (Keene, 2013). An average of 13.5 minutes is spent each day by employees looking at their NCAA tournament picks and the 19-day tournament costs employers an estimated \$1.2 billion per year (Umstead, 2013). While 55% of human resource professionals believe that office pools improved employee morale, 37% felt that they had a negative impact on work productivity and lead to problem gambling. Yet with such a loss in productivity, only 6% of employers said they would not allow office pools in their companies. Consequently, office pools are prosecuted only sporadically by police (Smith, Rousu & Dion, 2012).

Wagering Methods

Online. The editors of the Bloomberg editorial board found that after Delaware and Nevada, New Jersey is the third state to permit online gambling. New Jersey has become the largest venue in America to offer online wagering and the Christian Science Monitor's editorial board found New Jersey's legislation has initiated the largest gambling surge in the United States since 1978, the year it allowed casinos to open in Atlantic City. On November 26, 2013, almost all of the state's 9 million adult residents were given access to wagering with a computer, smart

phone or tablet, and a revenue stream of some kind from the comfort of wherever they are in the state.

Bloomberg Industries (2013) forecasted annual online gambling revenue could reach \$23 billion nationwide legally. Sheldon Adelson, a Las Vegas billionaire casino owner, recently announced moral objective to online gambling and is launching a major lobby campaign in Washington to make sure Internet gambling does not expand even further. The editors at the Christian Science Monitor found that the easy access means many more people will throw away their money on the false promise of easy winnings and a misguided belief in luck. In addition, the Editors found that if past is precedent, many of them will be poor or addictive gamblers and any minor with astute computer skills who is able to bypass a website's system for checking an online gambler's age.

The editors at the Bloomberg editorial board (2013) found prevention of problematic gambling and other related harmful side-effects will be easier to prevent online. The board found those that want to open accounts will have to have identities verified, and from a technical perspective loss limits should be easy to impose. Madden (2013) found that New Jersey's Council on Compulsive Gambling helped to draw up some of the protections that casinos are supposed to enforce, under the watchful eyes of state regulators. However, Madden (2013) reported that Assistant Director Jeffrey Beck still sees a problem keeping those under 21 years of age out. He also acknowledged that it is very easy for someone to access a father's credit card and have all the account information available and play in his father's name. In addition, the

author noted that Beck is concerned that someone gambling home alone might act differently than someone in a casino setting, and not necessarily for their own good. Madden (2013) reported that safeguards may not keep out problematic gamblers, but they are better than a land-based casino where one can plow through chips. The author also found online gambling operators can comply with prohibitions against under-age gamble and anti-money laundering laws easier than land-based casinos.

Nick Bramhill of the Daily Mail (2013, July 30) found that there are more gambling addicts due to online betting. Griffiths (1993) found that some forms of online gambling, notably online gaming is considered to carry a high risk of addiction. Humphreys and Soebbing (2013) found that accessibility to gambling is the risk factor most associated with the development of problematic gambling and believe that we can confidently expect a tsunami of online sports betting problems over the next 5 to 10 years.

The editors at the *Christian Science Monitor* (2013) found that the current forms of land-based gambling cause an estimated \$7 billion in yearly damage through crime, addiction, or bankruptcy. Weinstock et al. (2004) found that contextual dimensions to gambling, such as the setting (home, casino, bar) may lead to problem gambling. However, Shaffer and Hall (2002) noted that gambling exposure seems necessary for someone to have a gambling problem, but availability is likely to be just one of several factors that cause gambling problems. Shaffer and Kidman (2004) found that the growth of land-based casinos is motivated by governments seeking revenue without implementing new or higher taxes. In addition, the authors found tourism,

entertainment and leisure coupled with new technologies has contributed to an increase in problematic gambling.

While the constant availability betting environment of the Internet and physical attraction of land-based casinos garner much attention, Strumph (2003) and the American Gaming Association (2012) found that wagers placed over the Internet probably constitute less than 10% of the illegal market. According to Strumph (2003) most illegal sports betting involves illegal bookmaking organizers who pool individual sports-bets. Although bookies have long time prominence, to date no empirical studies have evaluated their day-to-day operation, structure, relationship to the legal market or balance sheets.

Amount Wagered

Stuart, Stewart and Wall et al. (2008) found that students spend more money as they increase in age and the amount spent can range from \$17.63 to \$48.46 per week. The American Gaming Association (2013) reported that Nevada is the only state where sports betting is legal, taxed, policed and regulated. The sports betting in Nevada is less than 1% of all sports betting nationwide (Institute for the Study of Gambling and Commercial Gaming, 2013). The National Gambling Impact Study Commission (2012) found \$3.5 billion legally wagered in Nevada's sports books while illegal wagers exceeded \$380 billion. According to Christiansen Capital Advisors (2012) more than \$4 billion in revenue was generated from sports betting which is more than close to 4 time the \$1.7 billion in 2001. The American Gaming Association (2012) reported 33% of sports-bets in Nevada are placed on professional, non-college events.

During 2012, football was the most popular sport on which to bet at Nevada's casinos, garnering 45% of total wagers. The Federal Bureau of Investigation (2012) estimated that the most sports-bets placed on a single day sporting event occur on the Super Bowl. The Nevada Gaming Board found close to \$100 million was wagered at the 2012 Super Bowl. The Las Vegas Convention and Visitors Authority (2012) estimated that Super Bowl weekend produced more than \$105 million in revenue in non-gaming impact with more than 300,000 visitors.

Basketball was the next most popular with more than 25% of sports wagers according to the Federal Bureau of Investigation (2012). The Federal Bureau of Investigation (2012) estimated that that close to \$3 million is illegally wagered on March Madness each year. The FBI (2012) also found that comparatively Nevada's 216 sports book operators legally collected close to \$100 million, which is less than 4% of the illegal take. The FBI found that the next most popular sport to bet on is baseball with 20%.

Funding Sources

Winters and Arria (2013) of the Center for Adolescent Substance Abuse found that financial aid money is used by students to gamble. The difference between problematic gambling and substance abuse is that an immense amount of money can be lost before others realize there is a problem. The National Council on Problem Gambling (2012) found long-term effects on a gambler's life that are not common with substance abuse, including financial ruin and the loss of family and friends. Additionally, college students recovering from a substance abuse problem are on the road to recovery once the drinking stops; whereas, a student gambler

may still be faced with the challenge of paying gambling losses. According to the National Council on Problem Gambling (2012) this can increase the gambling addiction and lead to chasing losses. Moreover, students may begin to lie, cheat, or steal in school. They may sell personal belongings or rely on others such as family members if faced with a desperate financial situation.

Motivation to Wager

Gambler sub types. The identification of gambling sub-types by Blaszczynski and Nower (2002) has led to the increased realization that gamblers are not a homogenous group. Blaszczynski and Nower (2002) identified three sub-types of gamblers: (1) behaviorally conditioned, (2) emotionally vulnerable, and (3) anti-social impulsivist.

According to research by Moran (1970) five non-mutual types of pathological gambling exist: (a) Sub-cultural, in which gambling is understood in a social context, (b) neurotic, where gambling provides relief from tension, either emotional or situational, (c) impulsive, where gambling has become uncontrollable and despite not wanting to gamble, individuals persist in the activity, (d) psychopathic, in which gambling behavior is a part or symptom of underlying psychopathy or antisocial personality characteristics, and (e) symptomatic, in which gambling behavior is associated with the presence of another mental disorder.

McCormick (1987) identified two subtypes of gamblers: recurrently depressed and chronically understimulated. Lesiur (2001) identified three subtypes: normal, moderately impulsive, and impulsive. Turner and Littman-Sharp (2006) proposed two further subtypes: (a)

positive profile, characterized by gambling in situations that are positive in nature in terms of potential for positive reinforcement, and (b) negative profile, reflects gambling more often in situations involving unpleasant emotions and/or conflict situations.

Increased opportunities/ ease of access. College students in the United States are part of or perhaps a product of the information age. The increased availability of WiFi high-speed Internet and low-cost of personal computers including smart phone technology has transformed gambling giving opportunities to participate that were unheard of in the mid-20th century. Hume and Mort (2011) found that smart phone technology allows students to replace stationary involvement with anywhere/ anytime ease of access and thus enabling impulsive usage. Shead et al. (2012) found greater use also means increased exposure to gambling related media advertisements that are targeted aggressively toward the college student.

Within each fraternity house non-wired Internet access give members the ability to gamble privately within their respective rooms. Members of the fraternity will thus not have to worry about showing gambling behavior around their brothers in a land-based casino; instead removing themselves from social commitments by staying in their own room. The situation is very convenient for a fraternity member who may after placing bets immediately be immersed in the fraternity's social environment which may include socials with other fraternities and sororities. Essentially, the fraternity member may never have to leave the fraternity house – only the comfort of their own bedroom where they place their bets.

Rose (2010) found Americans have legally wagered over a trillion dollars per year, and arguably fraternities have been directly exposed to gambling because of this growth. As a result, the number of addicted fraternity students around the country may be experiencing significant increases in gambling related problems. The obvious proposition is: in the Cleveland area especially, pathological gamblers have been manufactured where it is now legal to gamble. The argument by the gambling industry is that the rates of problem gambling addictions stay the same or decrease over time (National Center for Responsible Gaming, 2012). The National Center for Responsible Gaming (2012) found there is a small initial spike in the number of reported problem gambling cases then public awareness campaigns and treatment programs are introduced that stem the damage. But this misses the point. Lives are injured whether it is temporary or not and a greater number of fraternity students may be turning into problem or pathological gamblers (Rose, 2010).

Intrinsic motivation and extrinsic motivation. Research by Hume and Mort (2011) also suggest primary motivations for gambling may include excitement and entertainment. There may be a social piece here also because of the interaction with fellow players online. According to the authors, gambling is fun and may relive boredom from hours spent studying in the library. In addition to these intrinsic motivations, Hume and Mort (2011) found that college students have exposure to extrinsic motivators. The authors suggest that the positive and negative reinforcement that comes from a win or loss explains behavior. The authors also point out that going after the prize is suggestive of the arousal theory. In other words, a prize or a win

will increase arousal levels when they become too low. The cognitive theory then kicks in - someone learns, interprets and is motivated by these experiences as ways to increase pleasure. So arousal and cognitive theory each seem to create a circuit. But the authors also describe playing the game because it is there and what students believe to be a harmless activity – certainly less risky in their viewpoint than alcohol or cigarettes. Unfortunately, Hume and Mort (2011) found that college students lack the cognitive ability to turn off the cycle.

Interactive services consumption. Hume and Mort (2011) described Internet technology and interactive consumer goods as devices which today's college student regards as a necessity in their lifestyle. The authors hint at a sense of empowerment, but also describe a release from specific geographic constraints that allow the student to do their own thing when and how they see fit. According to the authors this allows them to be more efficient and avoid adult supervision. It may very well be a rite of passage for these students according to the authors.

The Internet is a fixture of modern life. Texting, tweeting, instant messaging, and social networks are becoming primary methods of social interaction for college students. The promise of the information superhighway is at the advent of realization. Among the many uses of the Internet, gambling on poker, sports, and casinos has found a home.

Online gamblers certainly had a reason to be happy in the late 1990s and early 2000s. Schneider (2008) found that when the twentieth century came to an end over six-hundred and

fifty online gaming sites existed and doubled to fourteen hundred in less than a year. By 2002 the author found 1800 online gambling sites, a number that remained static through the year 2005.

Immersion and dissociation. The virtual environment of these gambling games is catching up to the video-game world where games are created with such a life-like real feel to them. We used to say that you could lose yourself in a great book. Today this same phrase may apply to both the video game and online gambling environment. Fraternity members will not only lose track of time but will enter a zombie state because they are so immersed in the virtual world. They are psychologically rewarded when engaged in the virtual world.

Anonymity. Closely related to accessibility and the convenience of the fraternity member's room is the ability of the fraternity member to remain anonymous. When placing their online bets a fraternity member may do so with a pseudonym screen name and further allows interaction with others in the virtual world without worry of disapproval or judgment. The benefit of being anonymous is that they never have to show their face – no one except themselves know if they have lost. In a land-based casino there could be the possibility of committing a structural or social faux pas when placing a bet because of inexperience. That will not occur when their identity is secret and may give the fraternity member a greater sense of perceived control over their online bets.

Escape. With the reclassification of gambling as an addiction in the DSM-5, then it is likely that the problematic sports-bettor will seek out mood-alternating experiences. For example, if during the course of a fraternity social with another fraternity or sorority and the

member is not particularly enjoying themselves – perhaps being rejected by members of another sorority or having a disagreement with fraternity friends; online sports betting is a convenient way to escape. This escape will be a factor that perpetuates the cycle of excessive online sports betting.

Culture. Involvement in placing sports-bets as opposed to other forms of gambling including poker and slot machines at land-based casinos may come from a culture which views sports – playing them, watching them, exulting in victories, despairing over defeats – to be one of the great equalizers of American democracy. In the early twentieth century, the baseball diamond was the only place in America where rural and urban men bumped into each other, so separate were their worlds. And the stands were just about the only places where factory workers and office bureaucrats rubbed shoulders. At the turn of the last century baseball, football, and later basketball and ice hockey have been introduced; and watching instilled civic pride as one rooted for their home team was able to bond across class boundaries.

Betting on sports is an American obsession. Where horse racing used to be popular the new generation of gamblers favors human sports. Betting on sports from football, PGA Tour golf to NASCAR auto racing make even the most banal game exciting. It is like putting a Shakespearian sonnet into a Curious George Book. You have a personal stake in something even though it may be inconsequential in the course of world history.

Nelson et al. (2007) found that male participation in sports gambling could be attributed to a new avenue for those interested in sports to actively participate or be involved. Additionally

Nelson et al. (2007) found that sports-oriented bookmaking operations began to make a push to promote gambling through excessive media advertising on television and radio marketing to this population.

Like fraternity initiations, sports are an activity that recall the bucolic American past – participation is not only a safe haven but an endgame!

Time Spent and Information Used watching Sports

Involvement in sports is as much a part of being an American as natural born citizenship and fraternities bask in them. Smart phone technology and the Internet allow them to read a platitude of sports pages, check out sports magazines online, listen to sports radio, watch games live and shows about sports 24/7 if they so choose. When the student goes to restaurants and bars they are inundated with telecasts of several sports at once. When not clothed in official fraternity garb members wear team and player-branded jerseys which arguably allows more bonding through athletic wear than through shared interests. Fraternities talk about sports and play fantasy sports.

Linnet et al. (2010) also suggested that gambling is becoming so widespread that it is considered a socially accepted activity among students with 63% reported gambling and close to 5% gambling on a daily basis. Umstead (2013) found almost 6% of college males reported Internet gambling weekly, which is an increase of 100% from the previous year.

Organized Sports Participation

High school. To understand where the wagering behavior comes from Otterman (n.d.) found wagering on sports to be part of the middle and high school athletic experience. In some cases the author found that an authority figure such as parents or teachers or coaches who sanction gambling make participation therefore acceptable. Completing NCAA brackets and squares on the Super Bowl is not just reserved for the professional gambler. Instead, it is almost like a rite of passage and acceptable social activity that allows everyone whose favorite team did not make it to the big bowl game to have a stake or share in the excitement. Monaghan et al. (2008) found problematic behaviors by problem gamblers are likely to develop during adolescence.

College. Chiu and Storm (2010) found gambling to be a socially acceptable and popular activity on college campuses. King et al. (2010) found that the online social environment brings the added benefit of peer recognition and a chance to beat the competition. Shaffer (1997) found that as gambling has become more accessible and accepted socially it has led to increasing numbers of college students to gamble. Additionally, the author found these newest gamblers are reporting higher rates of gambling disorder and becoming part of a community of pathological gamblers that already experience difficulties adjusting. Martens (2013) found that college students are 3 times likelier than adults to develop severe problems.

The place to begin looking at online gambling on college campuses as problematic can be found with research by Layden (1995a, 1995b, and 1995c) in three separate articles published in

Sports Illustrated Magazine. Gose (2000) found that the National Collegiate Athletic Association (NCAA) acknowledged illegal sports gambling was rampant on college campuses. Caswell (2006), Hardy (2006), Reilly (2009), Linnet (2010), and Shead et al. (2012) have all described problematic online gambling by college students at American universities. Reilly's (2009) study found that among college students 11% have a serious gambling problem. Reilly (2009) found 42% of college students from a nationally representative sample in CAGS gambled during one year of its publication.

Shead et al. (2012) studied close to one-thousand students at one university in California and found over 8% gambled for money online and over 5% gambled on the Internet within the past year. The author cited the National Gambling Impact Study Commission (1999) which found Internet betting widespread on college campuses. Three U.S. college campuses were studied with over 20% of college kids reported online betting and over 6% on a weekly basis. Additionally, Shead et al. (2012) pointed out 7 major universities in Florida, 2 in Quebec, Canada showed similar findings. However, Shead et al. (2012) acknowledged that empirical studies have yet to provide reliable data to support these claims. Additional concerns with the research done by these authors is the limited focus on either one campus and the gender of the participants as well as the form of gambling. Lesieur and Blume (1987) SOGS screen found that males gambled more than females. Furthermore, no study has yet to address the Greek student population directly and their preference for sports betting online.

The NCAA's May 2013 report about gambling issues among college athletes found over 20% of Division I male golfers placed sports-bets at least once a month. This is an increase of more than 14% since the 2004 NCAA survey. More than half of the athletes surveyed believed that placing sports-bets is acceptable as long as the bets are on a sport the athlete is not playing. Almost 60% of the surveyed athletes believed that placing sports-bets would make them a lot of money. Close to 20% of those surveyed viewed their participation in fantasy sports which require entry fees and have prize money to be legal. The NCAA rules do not allow this according to the associate director for sports gambling issues for the NCAA, Mark Strothkamp.

Strothkamp (2013) explained the increase sports betting in male golfers by the culture within golf. Public and private golf courses in America have regular bets taking place daily according to Strothkamp (2013). Betting is the norm within the sport. Furthermore, Strothkamp (2013) found casual bets on the course are not only accepted within American culture but encouraged. The NCAA's leading researcher who analyzed the 2004 23,000 response survey, Tom Paskus, concluded that it is difficult for the NCAA to address gambling issues among athletes when the behavior is entrenched.

Because gambling has become as widespread as it is in this country (McCarthy, 2007), most people do not take seriously the legal ban on sports betting (Rose, 2010). In May 2004 the NCAA released data showing 25% of male collegiate athletes and about 10% of female collegiate athletes placed a bet during their college years. Among the 21,000 athletes surveyed about 1% (i.e., 231) collegiate football players threw games for money, 2.3% (i.e., 481) were

asked to change a sporting event outcome because of their gambling debts, and 1.4% (i.e., 294) admitted altering their performance to change the game's final score (Shead et al., 2012). The range of problems related to college students' gambling include murder, drug addiction, depression, attempted suicide, and academic failure, and parents have felt the need to step in to pay their children's gambling debts (Blinn-Pike, 2007).

Risky Behaviors

Online gambling can cause many problems in addition to financial risk. The research by Linnet et al. (2010), Reilly (2009), Shead et al. (2012), Smith and Wynne (2004), Linden (2009), Nelson et al. (2007), Otterman (n.d.), Lloyd et al. (2010), King et al. (2010), McComb and Sabiston (2010), Tepperman (2009), Monaghan et al. (2008) and Ferentzy and Turner (2009) all describe dangers of gambling.

Reilly (2009) reported risky behaviors connected to online gambling with college students including correlations to unsafe behaviors such as binge drinking, suicide, and stress. Additionally, gambling behavior was found by the author to correlate to tobacco and marijuana use, drug-related health problems, as well as social and performance problems. The author noted psychological difficulties, unmanageable debt, and failing grades among this population. According to Reilly (2009) anywhere from 2 to 7% of college students experience problematic gambling with 6 to 15% incurring Level 2 disordered gambling (gambling outside the scope of the APA's definition for pathological gambling). Another study by Tepperman (2009) found aspects of risky behaviors not covered by Reilly (2009) including neglect of health, work,

friends, and family. The study found financial troubles, planning issues, distancing from family, and overall negative emotional involvement with gambling.

There are other drug use issues associated with gambling (Petry, 2005); however, low reported prevalence rates of pathological gambling and drug use disorders have meant only large studies have produced significant correlations between the two. Gerstein et al. (1999) found 4.3% of those identified as Level 1 gamblers, 16.8% of those identified as Level 2 gamblers and 8.1% of those identified as Level 3 gamblers reported illicit drug use. The Cunningham-Williams et al. (1998) study found 7.8% of those identified as Level 1 gamblers and 15.5% of those identified as Level 2 – Level 3 gamblers had illicit drug use disorders. Bland et al. (1993) found Level 3 gamblers were 4 times more likely to have illicit drug abuse than non-gamblers.

Petry (2005) found smoking and nicotine dependence to have comorbidity with pathological gambling. Cunningham-Williams et al. (1998) found Level 2 to Level 3 gamblers had higher rates of nicotine dependence than Level 1 gamblers and non-gamblers. Smart and Ferris (1996) found that among heavy gamblers 41% were smokers compared with 30% who were identified as recreational gamblers and 21% who were non-gamblers.

Nelson et al. (2007) found that binge drinking, tobacco and marijuana use are also factors that the college-age student is prone to and connected to pathological gambling. Johansson et al. (2009) found that alcohol is the most problematic risk factor. McComb and Sabiston (2010) add smoking and sexual and contraceptive behavior are also problematic.

Ferentzy and Turner (2009) found a connection to organized crime. According to the authors, problem gamblers seek illegal venues and loan sharks. The authors also state that problem gamblers are Organized Crimes' best customers. Ferentzy and Turner (2009) found close to two-thirds of pathological gamblers participating in treatment reported having committed offenses related to gambling. Furthermore, problem gamblers are turning up in larger numbers, and many of these reported gambling was how their criminal involvement started. It is somewhat ironic that Organized Crime has been able to utilize the Internet to pursue its means.

Socioeconomic Status

A demographic characteristic consistently associated with problematic gambling is lower socioeconomic status. Since lower socioeconomic status is associated with mental health conditions it is a difficult variable to isolate (Petry & Oncken, 2002). The authors found other variables such as ethnicity and education are confounded with socioeconomic status that may either interactively or independently be related to psychotic disorders. Friedman and Savage (1948) found economic status can affect development of psychiatric symptoms. Therefore, many variables including employment, ethnicity, education, and income have a unique or shared risk making it difficult to ascertain to what extent and how each affects disordered gambling.

Petry and Oncken (2002) found that there is little empirical evidence to suggest that less educated individuals are unable to understand gambling probabilities. Dohrenwend (1990) found that social status can be de-escalated with impaired functioning according to the downward-drift theory. In other words, your social standing within your social class does not cause a mental

disorder. But, someone whose mental health is deteriorating can lead to a lower social class. Additionally, the author found that a lower social class may lead to or increase psychiatric disorders. According to Petry and Oncken (2002) those with pre-existing biological or genetic risk factors are also at-risk for problematic gambling in deprived situations.

The NRC (1999) studied Shaffer, Hall, and Vander Bilt's 1997 and 1999 meta-analysis and found that individuals making less than \$25,000 were more likely to be Level 2 to 3 gamblers. Petry and Oncken (2002) found that over half treatment-seeking gamblers earned less than \$30,000, and just 6% earned more than \$75,000. Volberg (1988) found over two-thirds of Level 2 to 3 gamblers earned less than \$25,000. Abbott and Volberg (2000) suggested Level 3 treatment-seeking gamblers while employed full time are more often found in low-income positions which suggests screening and treatment services should occur in certain employment settings. The NRC (1999) also found individuals receiving disability benefits are at risk for developing problematic gambling. According to the government study 6% of respondents classified as Level 2-3 gamblers received disability benefits.

The NRC (1999) found that education and income are inversely related to level of gambling problems. The NRC (1999) found 13% of Level 1 gamblers and 23% of Level 2 to 3 had a high school education or less. Volberg and Steadman (1989) found many Level 2 to 3 gamblers did not graduate from high school. Similar results were found by Volberg (1994). Petry and Oncken (2002) found that most treatment-seeking gamblers had at least a high school degree.

Developed Human Settlements

Petry (2005), NRC (1999), and Welte (2011) found evidence that supported the conclusion that proximity to gambling venues spurs higher problem gambling rates. The NRC (1999) found students in proximity of 50 miles or less to a casino are more likely than those who live between 50 and 250 miles to develop gambling problems. Gerstein et al. (1999) found Level 2 to 3 gamblers lived within 50 miles of a casino. This suggests that gambling participation as well as prevalence for problematic gambling have increased with legalized gambling opportunities. Petry (2005) found problematic gambling will continue to increase over the course of several years, but prevalence may stabilize. However; Petry and Oncken (2002) found that 4 to 10 years may go by before a gambler identifies a problem or seeks treatment. Stinchfield and Winters (2001) found increased time to sample various forms of gambling will inherently lead to increased rates of disordered gambling. According to Petry (2005) exposure to gambling opportunities translates into increases in the proportion of individuals developing gambling problems; but, the rise will eventually stabilize.

The South Oaks Gambling Screen

The South Oaks Gambling Screen (SOGS) was the dependent variable for this study. A twenty-item SOGS remains the screen of choice for problem gambling. The SOGS take the number scored out of twenty, and a score of at least five is indicative of pathological gambling. There were four different samples used, but the one most related to this study was among university students which had a sample size of 384. A strength of this survey lies in its

connection to other co-morbid disorders (Lesieur and Blume, 1987). Fortune and Goodie (2010) found that the simplicity of the SOGS as well as its adherence to criteria set in the DSM-4 make it the leading diagnostic instrument for pathological gambling.

Unfortunately, one problem with the SOGS is a lack of specific information about psychometric properties when used with a general population survey (Lesieur and Blume, 1987). In addition, this measurement tool is over thirty-years old and the original diagnostic criteria that were used was the DSM-3. The DSM-5 has recently been published and since 1987 significant diagnostic criteria have changed not the least of which are more criteria and a raised cut score from four to five. In addition, the authors have also pointed out that the SOGS does not differentiate between problematic gamblers and those who are treatment-seeking, which would affect prevalence rates. Also, if a person has borrowed money this scale on the SOGS is more heavily weighted. Svetieva and Walker (2008) found that the SOGS included core constructs that are similar to an addiction model. So, the authors believed that pathological gambling is not neutral but instead may become a clinically diagnosed addiction if looking for other addictions. Svetieva and Walker (2008) also found both problem and pathological gambling related and differing only in severity.

Summary and Conclusions

Fraternity students are a subset population of students on a college campus who have risk factors for gambling on sports online. The Internet's availability has allowed fraternity students an opportunity to become immersed in an activity that has not been readily addressed by the

college community. The risk factors for problem gambling among fraternity students is staggering when considering they are at such a disadvantage for dealing with its effects. Fraternity students are also partaking in an activity that the general population is still divided over.

While the NCAA may have laws in place to prevent student athletes and administrators from gambling they are not keeping a watching eye out for fraternity students. The ability for fraternities to place online sports-bets is ultimately unchecked. Add the advertising industry that preys upon these students and you begin to see a slowly brewing mess. Lack of regulation by the government and college campuses has led to a scenario where adults who should have stepped in are silent. Whether the silence is for personal gain or because a solution is not insight remains unclear. However, it is still illegal to place sports-bets online, but the legal ramifications have also not deterred fraternities nor prompted officials to become more involved.

At some point society will have to recognize this subset group of students whose addiction is not addressed. Even though predictive factors including opportunity is staring policy makers in the face it seems for the present the only avenue students have to help themselves is personal self-control. Unfortunately, when viewing the issue of gambling through the Pathways model the odds are stacked against these students. While the SOGS is the leading diagnostic instrument, it is not perfect.

Chapter 3 will discuss the SOGS use in this study over other diagnostic instruments and key variables such as: family history, types of wagering and wagering methods.

Chapter 3: Research Method

Predictor Variables

This study seeks to determine predictor variables that are highly correlated with problem gambling, as defined by the South Oaks Gambling Screen (SOGS), among fraternity students. This section explains the research design and rationale for this study, which focuses on regression modeling using stepwise selection. Data were collected through online surveys and analyzed using SPSS software using regression modeling and point estimates. Issues of reliability, validity, and ethics are discussed in Chapter 3 as well.

Research Design and Rationale

Based upon the literature review the following research questions and hypotheses were examined:

Research Question 1: What is the relationship between family history of gambling and SOGS score in a sample of fraternity students who wager on sports on the internet?

H_0 1: There is no statistically significant difference in mean SOGS scores of students who have family history of gambling than those who do not have a family history of gambling among the target group.

H_1 1: There is a statistically significant difference in mean SOGS scores of students who have family history of gambling than those who do not have a family history of gambling among the target group.

Research Question 2: What is the relationship between types of wagers made and SOGS score in a sample of fraternity students who wager on sports on the internet?

H_02 : There is no statistically significant difference in mean SOGS scores of students based upon type of wager made.

H_12 : There is a statistically significant difference in mean SOGS scores of students based upon type of wager made.

Research Question #3: What is the relationship between athletic participation and SOGS score in a sample of fraternity students who wager on sports on the internet?

H_03 : There is no statistically significant difference in mean SOGS scores of students who participate in athletics than those who do not participate in athletics among the target group.

H_13 : There is a statistically significant difference in mean SOGS scores of students who participate in athletics than those who do not participate in athletics among the target group.

Research Question #4: What is the relationship between engaging in “risky” behaviors, such as alcohol and tobacco use, and SOGS score in a sample of fraternity students who wager on sports on the internet?

H_04 : There is no statistically significant difference in mean SOGS scores of students who engage in “risky” behaviors than those who do engage in “risky” behaviors among the target group.

*H*₁₄: There is a statistically significant difference in mean SOGS scores of students who engage in “risky” behaviors than those who do engage in “risky” behaviors among the target group.

The value of the dependent variable is determined by the SOGS research instrument, which is a survey that consists of 16 questions and scores between 0 and 20. The independent variables are a number of factors chosen to see if they are statistically significant in a regression model. The independent variables come from a self-administered survey, on a separate form. Some of the variables are categorical and others are numerical. Through linear regression modeling it can be seen which of the independent variables are correlated with the dependent variable SOGS score significantly.

Population

The sample consisted of college fraternity members who live in a fraternity house. According to the North American Fraternity Conference (2013), there are approximately 350,000 fraternity members in North American colleges, though not all of these individuals live in a fraternity house. With young adults being more likely to use online wagering than are children or older adults, focusing on young adults is a natural focus. Therefore, investigating the possibility that online sports betting is correlated to problem gambling is a useful tool in order to determine how best to prevent or treat problem gambling.

Sampling and Sampling Procedures

This study conducted a survey using a random sample from an online data collection company, Survey Monkey, using parameters of males aged 18 to 25 on a college campus. The data of 125 college fraternity students from ages 18 to 25 was collected on October 15th thru October 19th in 2014. An online random sample was sufficient given the research questions asked and the focus on statistical significance rather than point estimates.

Procedures for Recruitment, Participation and Data Collection

These responses were gathered with the assistance from an online data collection company, Survey Monkey, using parameters of males aged 18 to 25 on college campuses. Survey Monkey is a professional online survey company which was able to create a sample that fit the sample frame of college fraternity males in the original survey design. The biggest positive of this methodology was that the anonymous nature allowed the survey respondent to be more likely to tell the truth. One downside was an inability to maintain absolute control throughout the sampling process. A second downside of online sampling was a possibility for having an abandon rate that potentially could have been higher than in-person sampling. Respondents are more likely to fill out surveys in-person rather than anonymously where the person giving the survey will not be able to know if their individual response was completed.

Instrumentation and Operationalization of Constructs

The survey consists of two separate parts. The first part was the South Oaks Gambling Screen (SOGS). The SOGS consists of 16 questions that identify if a respondent is a problem gambler. The second part that was collected consisted of demographic and other relevant information (i.e. athletic participation, alcoholic intake, tobacco use, family gambling history, and hours per week spent watching sports). The survey administered to the fraternity students can be seen in Appendix A. The SOGS is a questionnaire with 16-items created using DSM-III pathological gambling criteria. The SOGS is scored with a maximum score of 20 and is the dependent variable for this study. A score of 5 or greater by a person taking the SOGS is labeled a problem gambler. The SOGS was created in 1987 to help identify pathological gambling so the problems related to pathological gambling could be treated. Prior to the SOGS, a test developed by Gamblers Anonymous was used, but this test resulted in a high number of false positives. The SOGS may be administered by professional interviewers, nonprofessionals, or one's self. The SOGS has been re-tested for validity since the development of the DSM-IV and remains valid.

The SOGS is one of the most often used screening instruments to test for problem gambling since its development (Lesieur & Blume, 1987) until today. The SOGS can be used by individuals without asking for permission as long as the assessment is not altered in any way. The SOGS was the first questionnaire administered for this research because the questions asked after the SOGS could potentially bias the answers to the SOGS itself.

The original validation study for the SOGS showed that it is satisfactory in both internal reliable ($r = .86$) and valid when cross-checked with councilors independent assessment (Cronchbach Alpha = .97) over four different samples. One of those four samples included only university students. Reliability was tested with a one-month test-retest procedure. Concurrent validity of 95.3% was found using *DSM-III-R* problem gambling criteria and family members' and counselors' independent assessments of the SOGS (Lesieur & Blume, 1987). Over time the SOGS has been tested multiple times and consistently been both a valid and reliable instrument. The SOGS also has been tested more recently relevant to the *DSM-IV* and was still found to be reliable. One example of this was in 2006 when McMillen and Wenzel (2006) used the SOGS with 8,749 adults in the state of Victoria, Australia. This sample had a Cronchbach Alpha of .86 and a satisfactory validity coefficient ($r = .73$), correlating problem gambling and self-ratings of problem gambling.

Operationalization

The independent variables were measured using a number of different assessment tools. The independent predictor variables were mostly gambling and demographic related, but a few were lifestyle choices. They are individually broken down as listed on the questionnaire. Question 1 focused on if the father has a history of gambling, as previous research has shown links between the father gambling and the son. Question 2 identified if the student has anyone in the family who wager on sports, which is a statistically significant predictor of problem

gambling. Both questions 1 and 2 had a binary response (yes or no) and fit into the regression model by making a yes answer the value 1 and a no answer the value 0.

Question 3 identified on which sports a person bets. This helped determine if problem gamblers were more likely to wager on certain sports. Questions 4 and 5 looked at the type of wagers (e.g., straight money bets, over/under bets) made in football and the NCAA's Men's Basketball March Madness, to determine if it is more likely that problem gamblers make a certain type of wager. These two events were chosen as football and the NCAA College Basketball tournament were two of the more popular contests on which Americans place wagers (Caswell, 2006). These two questions were coded as follows: for question 3 any betting on professional sports as a 1, otherwise 0; any betting on college sports as a 1, otherwise 0. For questions 4 and 5, there were three categories: (a) basic wagers, which are straight bets and money line bets, (b) exotic wagers, which are over/unders, parlays/teasers and proposition bets, and (c) pool bets, which included betting squares/event pools and bracket pools. For all of these, at least one yes is coded as a 1, otherwise a 0 is coded.

The basic wagers are wagers on who will win a single sporting event. They involved a point spread, where a certain number of points were added to the final score to determine a winner (called taking or laying points). The exotic wagers were more complex. Over/under bets are wagers on if the total score of the game is over or under a given number. Parlays/Teasers involve picking multiple winners of different sporting events and having to pick every one correct for a much higher payout, else the bet is lost. Propositions bets are bets on actions within

a sporting event, as opposed to betting on the final result. Pool bets include betting squares where all bettors are randomly given a number or a series of numbers and the bettor hopes that the numbers they have match the final score. Bracket pools involve a bettor picking who will win each game throughout an entire tournament. This is most often done with the NCAA Division I Men's basketball tournament.

Question 6 looked at the method of wagering on sports. The focus of this study was online wagering, but there were a variety of ways for a student to wager on sports besides online wagering. It is possible that people who wagered in multiple ways were more likely to be problem gamblers. This question was broken into three groups for analysis: (a) Online wagering, (b) established brick and mortar bookmaking, which includes land casinos, local bookmakers, and campus bookmakers, and (c) friends. Any "other" responses were fit into the proper category by the researcher. For all of these categories, at least one yes is coded as a 1, otherwise a 0 is coded.

Question 7 asked how much the student typically wagered on a single sporting event. Question 8 asked about the number of bets as opposed to the size of those bets. The raw numbers were included in the statistical analyses as recorded.

Questions 9 and 10 focused on how much thought was put into the sports wagers made, by asking about how much time and what sources were used in order to acquire information used in order to wager. Question 9 had a numerical response and was fitted into the model as such. Responses to question 10 were categorized into three groups: (a) Friends, (b) web/media (web

site, sports commentators, radio, newspaper/magazines and touts), and (c) personal analysis (watching sporting events and analyzing sports statistics). Any yes response was coded as a 1. Any no response was coded as a 0.

Question 11 looked at how the participant paid for their sports wagering. It was grouped into 5 groups: (a) Personal income, (b) friends/family (parent/guardian income and friends/other family), (c) scholarship, (d) student loan, and (e) stolen. Any yes response was coded as a 1, while a no response was coded as a 0. Question 12 looked at one's motivation to place a wager. Each resultant motivational category choice was coded individually, with a yes coded as 1 and a no as 0. Question 13 looked at the amount of time spent watching sports. This was a numerical response that was directly fitted into the model.

Questions 14 and 15 were used since previous research showed a high correlation between playing collegiate sports and one's likelihood to wager (Nelson, 2007). Both of these questions were answered as a yes or no and the model fitted as such. Questions 16 and 17 looked to see if other addictive behaviors (e.g., alcohol and tobacco) correlated with problem gambling. Question 16 had a numerical response, and was fitted into the model directly. Question 17 had a yes or no response and was fitted in the model as a binary operator.

The final two questions were demographic in nature - the first about household income and the second asked for home zip code in order to categorize participants' home of origin into urban, suburban, or rural. The household income question was a categorical question that was fitted into a numerical model by taking the number values of the midpoint. The zip codes

provided were determined as urban or rural and fit into the model as such, with urban being 1 and rural being 0. What constituted urban, suburban and rural was determined by the U.S. Census.

Data Analysis

All data analysis was done using SPSS version 20. All data collected was manually entered into SPSS by the researcher. Upon completing the data entry, the data was double checked for accuracy. Data included participants' SOGS scores and their responses to the second survey. The first priority of this study was to identify what percentage of fraternity students who bet on online sports are problem gamblers as defined by SOGS. This was a point estimate. Another important purpose, however, was to identify what factors were correlated with problem gambling.

The majority of the data analysis was done with a stepwise regression using backwards elimination modeling. A regression equation was estimated using all of the predictor variables in an effort to predict SOGS scores (i.e., the criterion variable). The regression model then removed the least significant independent variable until only statistically significant predictor variables remained. A multiple regression method was chosen to analyze the data for this study in order to test multiple predictor variables as possible predictors. Backwards elimination was chosen with a p -value of .05 in order to start with the maximum model and work down.

Threats to Validity

The limitations in this study come mostly from the nature of the sample drawn. Since online random sample methodology is not as firmly established as random digit dialing random sampling, this means that the sample itself is more suspect to bias. Another limitation was the very nature of the survey's questions. Sports gambling is illegal in most states and thus respondents may lie about many of the questions asked on the survey. While anonymity was assured, this did not verify honest answering of the questions.

Lastly, while the SOGS is a trustworthy measuring tool for problem gambling, it is just that, a tool that is shown to slightly overestimate the number of problem gamblers (Fabiansson, 2010). A false positive is seen as better than a false negative (Fortune & Goodie, 2010).

Ethical Procedures

In this type of study, there must be tremendous care placed on how data will be collected and analyzed. For this particular study, it was critical to protect the confidentiality of the participants. Student names were not used and demographic information was limited to hide participant's identities. Names of locations and any events were changed to protect participant's confidentiality. All students were informed that participation is voluntary and, if they chose, they could withdraw their participation at any point in the study. All information used to inform the participants about the purpose of the study, questions, and informed consent was given verbally to eliminate any paper trail to the participants.

Summary

This study sought to identify the factors that are strongly linked with a person having a higher SOGS score, which in turn identifies that person as more likely to be a problem gambler. This study used a convenience sample across four different Ohio universities. The data acquired were used to run a regression analysis with multiple independent variables via backward elimination in order to find a regression equation with the best fit for the data. It was possible to identify predictor variables to help determine what is more likely to lead Fraternity students to problem gambling, and thus future interventions can be better equipped to target those Fraternity students in order to lower the number of those identified as problem gamblers.

Chapter 4 goes over the results of the research, both simple t-test analysis and the multiple variable regression analysis.

Chapter 4: Results

Introduction

A survey was taken to determine what factors were more likely to lead to problem gambling. There were multiple hypotheses tested based upon previous research. These hypotheses included identifying a relationship between problem gambling and family history, types of wagers made, and quantity of wagers made in a week. The data were examined on two levels: first as pairwise difference among the group means for the IVs in terms of the dependent variable. Second a regression model was calculated that identified the most likely combination of IVs to cause problem gambling.

Data Collection

The data collected was of 125 college fraternity students from ages 18 to 25 on October 15th through October 19th in 2014. These responses were gathered with the assistance from an online data collection company, Survey Monkey, using parameters of males aged 18 to 25 on a college campus.

Survey Monkey is a professional online survey company who was able to create a sample that fit the sample frame of college Fraternity males in the original survey design. The biggest positive of this methodology was that the anonymous nature allowed the survey respondent to be more likely to tell the truth. One downside was an inability to maintain absolute control throughout the sampling process. A second downside of online sampling was a possibility for having an abandon rate that potentially could have been higher than in-person sampling.

This online survey had an abandon rate of 28%, meaning that 28% of the men who took the survey did not complete it, survey were not required by the professional Survey Monkey service to given a reason for their discontinuing. The researcher using Survey Monkey does not have the ability to force a respondent to complete the survey in its entirety. None of these incompletes are included in the final sample. The median survey taker took 4 minutes and 37 seconds to complete the survey, which is close to the 5 min length that the survey was designed to be.

Results

The survey was comprised of two portions, the SOGS and the other variables. The 1st 16 questions are the SOGS questions and were tallied used the South Oaks Gaming Screen. A score of 1-4 indicates some problem with gambling. A score of 5 or more indicates an individual who is likely a pathological gambler.

For the sample, the average SOGS is (N = 125) is 1.776 with a standard deviation of 1.93. Table 1 shows a breakdown of the SOGS scores of the sample.

Table 1

SOGS Breakdown – The Sample

SOGS Score	Frequency	Percent	Valid Percent	Cumulative Percent
0	5	4.0	4.0	4.0
1	85	68.0	68.0	72.0
2	19	15.2	15.2	87.2
3	2	1.6	1.6	88.8
4	4	3.2	3.2	92.0
5	1	.8	.8	92.8
6	1	.8	.8	93.6
7	3	2.4	2.4	96.0
9	5	4.0	4.0	100.0
Total	125	100.0	100.0	

Only 5 people got a score of 0 (4%). There were 106 respondents who scored between 1-4 (88%). Ten scored as probable pathological gamblers (SOGS 5+) as defined by the South Oaks Gambling Screen. This SOGS score is the dependent variable for all analysis of the data. It was compared to a number of independent variables in the study. The variable SOGS has a skewness of 2.74, indicating that the data has a positive skew. It has a kurtosis of 6.98, which indicates that the sample is more concentrated at the mean than a normal distribution.

Single Variable Data Comparisons

The simplest comparisons looked at the mean SOGS score among multiple groups from the different independent variables. The independent variables were examined, with particular emphasis on the target hypothesis.

Hypothesis #1: Family

Previous research (Shaw et al., 2007) showed a correlation between having a family member who wagers on sports and problem gambling. This link was examined again here, this time with emphasis on the target group.

The survey found a correlation between having a family member wager on sports and problem gambling for college males. The mean SOGS score of the 7 participants who have a father wagers on sports is 3.29, as opposed to 1.6864, as seen in Table 2. The sample size of seven is small but the difference in means appears to be significant here.

Table 2

*SOGS * Does your father regularly wager on sports?*

Does Your Father regularly wager on Sports?	Mean	N	Std. Deviation
Yes	3.29	7	2.43
No	1.69	118	1.87
Total	1.78	125	1.93

Using a one-sample t -test, there was a statistically significant difference between the mean SOGS score of men who have a family member who has wagered on sports against one who has not ($t = -3.16, p = .002$), as seen in Table 3. The difference in means is between 0.94 and 3.17 with 95% confidence, if equality of variance is not assumed. Also, normally cannot be assumed due to the difference in the sample sizes

Table 3

T-Test of Difference Between Mean SOGS Score of Family Member Who Wages on Sports Against Family Member Who Does Not

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2- tailed)	Mean Differen ce	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	10.92	.001	-3.16	123	.002	-1.62	.51	-2.63	-.60
Equal variances not assumed			-2.26	15. 59	.04	-1.62	.72	-3.14	-.09

Hypothesis #2: Number of Games Wagered

It was believed that many people who get hooked on gambling, including those with a problem, are those who wager on more games. This hypothesis compares those who bet on more

than one game a week against those who do not. The mean SOGS score of those who wager on two or more games per week is 3.50 against those who do not as 1.60. Only 12 people in the sample claimed to bet on more than one game in a typical week, as shown in Table 4.

Table 4

Mean of SOGS by Number of Games Wagered

	NumGaWager	N	Mean	Std. Deviation	Std. Error Mean
SOG	0-1	111	1.60	1.68	.16
S	2+	12	3.50	3.15	.90

This is statistically significant only if equal variances are assumed, as seen below in

Table 5.

Table 5

T-Test of SOGS by Number of Games Wagered

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig.	Mean Differen ce	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
SO GS	Equal variances assumed	14.44	.00	-3.35	121	.001	-1.90	.566	-3.02	-.78
	Equal variances not assumed			-2.06	11. 69	.063	-1.90	.923	-3.91	.12

Thus, it appears that the number of games is statistically significant, but cannot be said for certain since the group of those who gamble 2 or more times per week is low and the test for equal variances are inconclusive at the 95% confidence level. Thus, for right now we fail to reject the null hypothesis that betting on 2+ games per week can predict SOGS scores.

Hypothesis #3: Athletic Participation

Some believe that being involved in organized sports leads to a higher likelihood to becoming a problem gambler, as seen in Table 6. This test compares those who played organized sports in high school or college with those who did not.

Table 6

Mean of SOGS by Athletic Participation

	Athletic	N	Mean	Std. Deviation	Std. Error Mean
SOGS	Not Involved	46	1.78	1.81	.27
	Involved	79	1.77	2.01	.23

The mean between the two groups is almost identical. Thus, fail to reject the null hypothesis that there is a difference in the means between those who played organized sports against those who did not. The *t*-test is provided below like the other hypothesis, as seen in Table 7.

Table 7

T-Test of SOGS by Athletic Participation

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig.	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
SO GS	Equal variances assumed	.01	.94	.03	123	.98	.01	.36	-.70	.72
	Equal variances not assumed			.03	102.12	.98	.01	.35	-.68	.70

Hypothesis #4: Risky Behavior

Shaffer and Hall (2002) have shown a correlation between a number of “risky behaviors.” For the purposes of this study, there is a comparison of SOGS scores to tobacco use. The null hypothesis is that there is no significant difference in SOGS scores due to tobacco use while the alternate hypothesis is that there is a significant difference. Only 11 members of the sample use tobacco and they have a mean SOGS score of 3.55. The other 114 non-tobacco user have a mean SOGS score of 1.61, as seen in Table 8.

Table 8

Mean of SOGS by Tobacco Use

	Tobacco Use	N	Mean	Std. Deviation	Std. Error Mean
SOGS	No	114	1.61	1.61	.15
	Yes	11	3.55	3.62	1.09

The between group (users of tobacco and abstainers from tobacco) mean SOGS score is statistically significant only if equal variances are assumed, as in Table 9:

Table 9

T-Test of SOGS by Tobacco

	Levene's Test for Equality of Variances		t-test for Equality of Means							
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
								Lower	Upper	
SOGS	Equal variances assumed	31.53	.00	-3.31	123	.001	-1.94	.59	-3.10	-.78
	Equal variances not assumed			-1.76	10.39	.11	-1.94	1.10	-4.38	.50

The data between group mean differences is statistically significant if equal variances are assumed. Equal variances cannot be assumed due to the small sample size of the smoking groups.

Other Factors

Type of event bet on. The event bet on by the most men in the sample was the Super Bowl ($n = 58$, mean = 1.96), which was not significantly higher than the mean for non-Super Bowl gamblers of 1.77. As the events bet on become more regular, that is they occur more often, the average SOGS score of a person betting on them goes up. For example, the 24 men who bet on March Madness had a mean SOGS score of 2.96. March Madness is a once a year event, but unlike the Super Bowl is played over a number of games. It is known for its high percentage of betting on the games. The men who wagered on regular season games carried an even higher average SOGS score, 3.75 for NCAA Football and 4.00 for NCAA Basketball.

Medium of Wager. Problem gambling is much more likely to result from betting with a campus bookie than any other type of medium. On the other hand, betting with a friend does not seem to lend itself to problem gambling, as people who wager with friends actually have a lower SOGS score than the general US population, as shown in Table 10.

Table 10

Difference of Means Between Campus Bookmaker vs. Friend

What medium do you use to wager on sporting events? (check all the apply)	Mean	N	Std. Deviation
Campus Bookmaker	3.67	9	3.70
Friend (not a bookie)	1.46	61	1.43

Motivation. Betting on sports events to make the game more interesting does not lead someone to be more likely to become a problem gambler. On the contrary, “as a distraction” is correlated with problem gambling. Competitive reasons seem to lead to PG more than non-competitive ones, as seen in Table 11.

Table 11

Differences in Means of Motivations to Wager on Sports

Which of the following best describes your motivation to bet on sporting events?	Mean	N	Std. Deviation
Makes watching the game more interesting	1.04	23	.37
Competitive Outlet	3.57	7	3.74
Proficiency at wagering on sporting events	3.00	6	2.76
To win money	2.00	29	2.00
As a distraction	3.83	6	3.49
To take Risk	3.33	3	4.93
For enjoyment	1.38	21	.86
For social Reasons	1.17	30	.53
Total	1.77	125	1.92

Regression Model

After looking at a number of single variables and running *t-tests*, a stepwise regression model was created to determine which of the independent variables are significantly correlated with the dependent variable, SOGS. In order to do this, a number of the independent variables were grouped in such a way that would help lead to practical results. Most results were turned

into binary responses so they could be fit into a regression model. Below states all of the independent variables of the model and how they were derived:

Family- A binary variable that states if any member of the respondent family wagers on sports. Taken from question 17 and 18.

FriendPlace- A binary variable that states if a person wagered on sports with a friend. Taken from question 22.

WagerPlaceBin- A binary variable that states if a person wagers on sports with someone other than a friend, such as a bookie or a casino. Taken from question 22.

NumGaWagered- A binary variable that states if a person wagers on 2 or more games per week. Taken from question 24.

AmountWager- A binary variable that states if a person wagers more than \$10 on a typical event. Taken from question 23.

TimeAcquire- A binary variable that states if a person spends more than 15 minutes inquiring information to wager on a sporting event. Taken from question 25.

MediaAcquire- A binary variable that states if a person uses media information (TV, Radio, Newspaper or the Internet) in deciding on what to wager in a sporting event. Taken from question 26.

AnalysisAcquire- A binary variable that states if a person uses sports analysis in deciding on what to wager in a sporting event. Taken from question 26.

WagerOthers- A binary variable that states if a person wagers money gained legally from sources besides personal income. Taken from question 27

WagerIncome- A binary variable that states if a person wagers money gained legally from personal income. Taken from question 27

WagerIllicit- A binary variable that states if a person wagers money gained illegally or marked for other uses (such as a college scholarship). Taken from question 27

BetDistraction- A binary variable that states if a person wagers as a means of distraction. Taken from question 28.

Betcompetition- A binary variable that states if a person wagers as a means of competition. Taken from question 28.

BetSocial- A binary variable that states if a person wagers as a means of being social. Taken from question 28.

HoursWatching- A numeric variable that states how many hours of sports are watched a week. Taken from question 29.

RecSportsPlay- A binary variable that states if the respondent plays sports recreationally. Taken from question 30.

OrgSporsPlay- A binary variable that states if the respondent currently plays organized sports. Taken from question 30.

HighSchoolSportsPlay- A binary variable that states if the respondent played organized sports in High School. Taken from question 31.

NumOfDrinks- A numeric variable based upon the number of drinks had by a student in a typical week. Taken from question 32.

TobaccoUse- A binary variable that states if the respondent uses tobacco on a regular basis. Taken from question 33.

The Model

All of the independent variables above were input into SPSS and a stepwise regression model was run, the model is below:

$$SOGS = 1.33 + Family * 1.56 + BetCompetition * 0.83 + TobaccoUse * 1.47 - FriendPlace * 0.63 + WagerIllicit * 1.01$$

The Model found 5 independent variables to be statistically significant. These five variables hold an R-squared (adjusted) of .26. This means that approximately 26.3% of the variability found in the SOGS scores can be attributed to these 5 variables. The Cronbach's alpha between these 5 independent variables is .06.

Table 12

Regression Model for SOGS

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.34 ^a	.12	.11	1.62	.12	15.80	1	119	.000
2	.43 ^b	.18	.17	1.57	.06	9.19	1	118	.003
3	.49 ^c	.24	.22	1.52	.05	8.28	1	117	.005
4	.51 ^d	.27	.24	1.49	.03	5.08	1	116	.03
5	.54^e	.29	.26	1.47	.03	4.26	1	115	.04

a. Predictors: (Constant), Family

b. Predictors: (Constant), Family, BetCompetition

c. Predictors: (Constant), Family, BetCompetition, TobaccoUse

d. Predictors: (Constant), Family, BetCompetition, TobaccoUse, FriendPlace

e. Predictors: (Constant), Family, BetCompetition, TobaccoUse, FriendPlace, WagerIllicit

The stepwise regression model inserted the family variable first due to its high r-squared value. The family variable alone accounts for 11% of the variability in the SOGS score. It was also the only main hypothesis that was determined to be statistically significant even if equality of the variances is not assumed.

The next variable included is the BetCompetition variable. Adding this variable to the model increases the R-squared value by 6.4%. The variable Bet Competition is taken from question 28 which focuses on why people choose to wager on games. BetCompetition separates those who bet for a competitive reason against those who do not. The 3 choices deemed to be primarily competitive are: “Competitive Outlet, “To Win Money” and “Proficiency at Wagering on Sporting Events”

Table 13

Differences in Means of Motivations to Bet for Competitive Reasons

Bet Competition	Mean	N	Std. Deviation
No	1.46	83	1.51
Yes	2.40	42	2.47
Total	1.78	125	1.93

Someone who bets due to one of these three reasons has a higher SOGS score of about 1. It holds a *t*-score of 2.28 with a significance level of .03. Many of the variables put into the

model are related, as in if someone says they bet for primarily competitive reasons, which means they do not bet for social reasons.

The next variable in the model is tobacco use. A tobacco user has an increase of 1.46 to the SOGS score in the model. Tobacco use is under the “risky behavior” that was a focus point of this study. Tobacco adds 5.4% to the explained variability of the model. A binary variable for other risky behaviors would be useful to run *t*-tests to compare.

The fourth variable to add to the model is FriendPlace. This is the only factor that has a negative relationship with the SOGS score in the model. This is where it is important to remember that FriendPlace is tied to other methods of betting. Those who claim only to bet with a friend have a lower SOGS score by 0.63. The model has an increased R^2 value of .02 when this variable is added.

Table 14

Difference in Means in Wagering With a Friend vs. Other

	FriendPlace	N	Mean	Std. Deviation	Std. Error Mean
SOG	0	64	2.08	2.28	.29
S	Friend (not a bookie)	61	1.46	1.43	.18

The last variable added to the model is WagerIllicit. SPSS selected the order of insertion into the model based upon R^2 values. The other 15 independent variables added to the model did

not make the model statistically significantly better. This is due at least in part due to the independent variables being correlated to each other.

Summary

Through the *t*-test analysis and the regression model, it appears that family history is the most important factor in determining problem gamblers among those tested. Quite simply, there were 14 people in the survey who are problem gamblers according to the SOGS. Of those 14, five of them have a family member who wagers on sports regularly.

The other factors to look at have come out through the regression model. Purpose of why someone bets appears to be a factor. So does tobacco use, wagering with a friend and funds used in order to bet. Other factors that some claim to be important show not to be important here. The most significant being that playing sports seems to have no relation to having a problem betting on sports.

Chapter 5 discusses the significance of the study and the implications for future research.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this quantitative study has been to identify predictor variables of online sports problem gambling, as measured by the SOGS, among fraternity students at four major public colleges in Ohio. Fraternity students represent a unique demographic among college undergraduates (Jones, 1976; Layden, 1995) and have a culture of wagering on sports (Biddix & Hardy, 2008; Dickson, Derevensky & Gupta, 2002; LaBrie, Shaffer, LaPlante & Wechsler, 2003; Layden, 1995). Sports betting online is a relatively new arena for gambling and also a unique type of gambling that is readily accessible to this special type of gambler, and has not been the subject of empirical studies. This is in contrast to findings by Lloyd et al. (2010), Stuhldreher et al. (2007), and Dixon et al. (2013) who have all suggested that this particular sub-group may have differing patterns of Internet gambling activity than other student sub-groups and thus differ markedly in their risk of developing gambling problems in addition to/ or maladaptive behavior that has a co-morbidity with pathological gambling.

One reason why empirical studies for online sports betting among specific sub-populations have been non-existent is a result of the 1961 Federal Wire Act which banned all forms of interstate wagering except horse racing. Thus, betting on professional sports is illegal in most of the United States outside of Nevada (Schwartz, 2010) and there is a tendency to underreport illegal or undesirable behavior (LaBrie et al., (2013). However; in December 2011, the Department of Justice (DOJ) issued a ruling that the Wire Act applied only to sports betting,

not all wagering (Vardi, 2011). This reversal by the DOJ has to be taken in context with the Unlawful Internet Gambling Enforcement Act (UIGEA) of 2006 which clarified online gambling regulations. This law stated that any participation in a fantasy or simulation sports-game is exempted on the grounds that it has an outcome that reflects the relative knowledge of the participants, deeming it a game of skill (Rose, 2006). This is a Fantasy Sports Loophole which allows daily fantasy games to cross the threshold into gambling, and created confusion as to whether this newer gambling arena is in fact gambling in the psychological and/or legal way gambling has traditionally been defined.

A second reason for the lack of public health research into the intricacies of the college demographic and preferences for online sports-gambling is that National Public Health Centers such as the National Institute of Health (NIH) does not focus on studies which are not tied to drugs or alcohol. The idea that gambling lends itself to addiction like drugs or alcohol has taken some time to be acknowledged. Until the 2013 publication of the fifth edition of the Diagnostic Statistics Manual, or DSM-5, problem gambling was classified as an ‘impulse control disorder’ in the same category as pyromania and kleptomania. Gamblers exhibit many of the same problems as other addicts such as family strife, financial hardship, and struggles with depression or anxiety. Additionally, pathological gamblers move in and out of disordered states and pathological gambling is not necessarily a progressive disorder and difficult to identify. Unfortunately, gambling studies have had to been tied to drugs or alcohol. However, the American Gaming Association (AGA) funds the National Council for Responsible Gambling

and has their own independent and scientific review board. Research from the AGA leads one to believe that the individual is at fault for problem-gambling. Public health advocacy groups such as Stop Predatory Gambling, a Washington, D.C.-based non-profit criticize the AGA for minimizing the gambling industries role. Les Bernal, the national director of Stop Predatory Gambling found that online gambling is one of the biggest health issues for youth in America today and that no one has been paying attention. Dr. Eal Grinols, a professor of economics at Baylor University found that ultimately gambling will have to be linked to an increase in social costs and the problems it creates just like smoking was ultimately linked to cancer before public action will be more forthcoming

Interpretation of the Findings

This study gives further evidence to Mazza (2013) and Hume and Mort (2011) showing a link between problem gambling and family history. Both a simple T-test and regression analysis showed that there is a significant relationship between the SOGS score and having a family member who regularly wagers on sporting events. This study extends what was known among the general population to fraternity students. In terms of the Blaszczynski and Nower (2002) Pathways model these students are becoming problematic gamblers because of their family, a social reinforcer identified by Hayano (1982) and Ocean and Smith (1993). This marks them as behaviorally conditioned problem gamblers within the Pathways model.

This study agrees with (Reilly, 2009; Petry 2005; Cunningham-Williams et al. 1998; Smart and Ferris, 1996; Nelson et al., 2007; McComb and Sabiston, 2010) that there are

risky behaviors, such as tobacco use connected to online gambling. Fraternity members are a group often associated with risky behavior, so for this link to be confirmed in the target group in this study is particularly helpful. It was encouraging that only 11 of the 125 respondents did smoke tobacco, but it was also clear that these students were more likely to be problem gamblers. It is vital to control this behavior since tobacco has highly addictive properties and can be linked with numerous ill-health effects. The Blaszczynski and Nower (2002) Pathways model is applicable in describing and categorizing these students as behaviorally conditioned problem gamblers. Their problem gambling may be viewed as a consequence of abusing a risky behavior, tobacco in this model.

This study found that those who wager on sports online with the reasoning that their sports knowledge can beat the bookmakers' lines for monetary gain are more likely to be problem gamblers. This finding again fits into the Blaszczynski and Nower (2002) Pathways model. Specifically, these gamblers can be termed behaviorally conditioned problem gamblers because they are becoming conditioned according to the learning principles of operant and classical conditioning. These gamblers have developed an arousal with an association with gambling and have learned the unhelpful cognition of an illusion of control. Students' knowledge of sporting events is an attributional bias which gives them the illusion of control and leads to problem gambling.

This study shows that wagering with a friend is less likely to lead to problem gambling than betting with someone else, such as a campus bookie or an online sportsbook. This

point is significant for two reasons. Not only is it a statistically significant finding in this study, but it also shows that there is no homogenous type of problem gambler. The Pathways model stresses the absence of homogeneity among problem gamblers because of various etiological factors.

The study also shows that gambling with income obtained by either stolen or through student loans leads to problem gambling. Again, the Pathways model is useful in explaining that there are varied pathways that lead to problem gambling. While illicit funding of activities is not a behavioral cognitive or biological reason to gamble, the Pathways model asserts that this finding may be another factor in the categorization this sub-type of problem gambler.

Limitations of the Study

One of the limitations of a prevalence study is that the entire story is not told. One of the fallacies is that if you assume that your prevalence statistics are absolutely correct and you show that the prevalence of pathological gambling has not increased. For instance Lesieur, Cross, and Frank et al. (1991) found prevalence rates at 4 to 8% and Shaffer and Hall (1996) reported rates of 6%. What this forgets is that the prevalence is a pool out of which people move and into which people come, and looking at prevalence compared to time one and time two, you have to account for the people who have recovered, died, moved away. A prevalence study during 2002 would include this researcher Matt Stanley, but one in 2015 would not.

Another limitation of the study is the difference in the variability of the groups due to the large difference in sample sizes. Future samples should contain more of what the regression model targeted as the key variables, in particular having a larger amount of people who have family member who wager on sports, people who wager on many games and those who use tobacco. Additionally a follow-up study that screened for these respondents to examine the difference in means between the groups could be beneficial.

This study relies on self-reporting. Dr. Robert Williams, a professor of addiction counseling at the University of Lethbridge in Alberta, Canada found that self-reporting may under-represent problem gamblers who would be more likely to have their phone disconnected. Dr. Williams compared what respondents report they spend on gambling to actual gambling revenue. He found the more reliable studies where those in which the total revenue reported by participants is closer to the total revenue made by the gaming industry (Meyer, 2014)

Recommendations

Viewing problem gambling as an addiction rather than an impulse control disorder has not changed the fact that there is no magical pill for treatment. This study has not uncovered a definitive answer to the predictor variables determining how or why fraternity students who gamble on sports online become pathological gamblers. A small sample size and existing issues with prevalence studies highlight the need for future randomized controlled trials to further evaluate the predictor variables which indicate the prevalence of fraternity students becoming pathological gamblers. To ensure future epidemiologic research is rigorous in design and

delivery, it needs to include or account for the convergence of gambling with increasing technological advancement. Future trials must simultaneously include high quality descriptions in all aspects of methodology to enable appraisal and interpretation of results.

Establishment of an independent publicly controlled gambling research organization

While it is true that those in the academic field have a consistent tendency to report the need for more research, there is secondary reason the federal and state governments should be interested. Proponents of legalized gambling took advantage of the federal government's 1999 National Gambling Impact Study, which recommended a moratorium on further gambling expansion until more research could be done on the economic and social costs and benefits. In other words, proponents of gambling are legally able to operate current businesses ventures without fear of either increased government regulation or competition from those wishing to enter the field. One reason for this is partly because the National Center for Responsible Gambling (NCRG) is the charitable arm of the gambling industry's trade association, called the American Gaming Association (AGA).

The NCRG is the only private funder of gambling addiction research in the country. The NCRG has not produced research of the type and focus which the 1999 Commission requested. While the NCRG (2012) reported there is a small initial spike in the number of reported problem gamblers with increased exposure; they subsequently reported public awareness campaigns and treatment programs are introduced leading the rates of problem gambling addictions to stay the same or decrease over time. It does not take a Ph.D. to recognize that reporting economic and

social costs of online sports betting is not in the AGA's interest. To maintain their false image their reports will find such things as the cost to employers to pay unproductive workers checking their fantasy teams during the National Football Season could be as high as \$1.5 billion for 17 weeks; while also pointing out that while these activities seem to constitute gambling in the legal sense of the word, they do not appear to be much of a threat to either society at large or the integrity of sports (NCRG, 2012).

Dr. John Warren Kindt, a professor at the University of Illinois whose research stresses social and economic costs of gambling called the NCRG funded research pabulum and misdirecting the debate (Meyer, 2014). Meyer (2014) also found the debate over the social and health costs of gambling has been sidelined even as availability has expanded dramatically in the last few years. Christine Reilly, the senior research director at NCRG, is adamant that the NCRG's review board is independent, mimics the structure of the National Institute of Health (NIH) and does not interfere in the work of its researchers. The debate over whether the 1999 Commission has been purposely ignored and thwarted by private interests is not immediately clear then, but deserves to be looked into. Since this report indicates that fraternity students are vulnerable consumers, any tactics used by the gambling industry to mislead these students about the addictive properties of gambling would be unethical and immoral. The debate about funding gambling research does indicate that the public interest would be well served to have an independent arm specifically focused on funding future gambling studies.

A revision of campus policies and procedures for gambling

This study has identified predictive variables for Fraternity students which should allow more accuracy in creating assessments and interventions to prevent pathological gambling on American college campuses. The public Ohio campuses studied in this report do not offer adequate resources for prevention of pathological gambling. The problem is somewhat similar to how gambling studies are funded. These campuses have adopted an operating standard that continues to view gambling as an effect of an alcohol or drug abuse disorder. Thus, students are screened for a substance use disorder with gambling seen as co-morbid instead of the underlying cause of addiction. Hence, students suffering from problem gambling would have their disordered gambling treated only if it lies within the scope of a substance abuse disorder.

Another problem with current campus prevention efforts lies with the psychometric instruments used to identify problem gambling and current federal law. This study used The South Oaks Gambling Screen (SOGS) and guaranteed anonymity. Federal law still finds online gambling on sports to be illegal, which may cause Fraternity students to lie about their respective involvement in gambling activities.

Fraternity students are faced with a very real dilemma. First, since problem gambling is not something that all students know that they can receive treatment for they may never report to their respective college campuses treatment center to begin with. Those that do go in are have additional concerns they must unfairly weigh in order to receive treatment. If the Fraternity student is an athlete or in any way receiving scholarship or grant money, loose interpretation

of campuses policies may threaten these educational benefits. Additionally, campus policies concerning infraction of federal laws, which have an identified fantasy sports loop-hole, more than likely are not spelled out in their student handbook. Therefore, it is anyone's guess how a student with a problem gambling would be not only viewed by their respective college; but if disciplinary action is taken, one extreme may be expulsion and legal action – although to this date no state has taken legal action against anyone participating in fantasy sports. To this end, it would be unclear if the student would be able to receive needed treatment. Further studies of Fraternity students being able to receive treatment for problem gambling within America's prison system were not available at the time of this report.

A recommendation for each respective Ohio campus would be to create and ensure that their policies on gambling are consistent with current applicable state and federal laws. Instead of throwing the proverbial disciplinary book at students in an after-the-fact manner, colleges may serve the Fraternity community better by promoting campus-wide awareness of state and federal laws regarding gambling. Administration could also collaborate with local campus law enforcement, community law enforcement, as well as applicable state law enforcement agencies to identify illegal gambling activities such as sports-book operations involving Fraternities.

Colleges insisting on making disciplinary actions clear to Fraternity students and their parents should include in their respective policy that adjustments to disciplinary actions of violators of gambling policies will be made if the Fraternity student seeks assistance from their campus counseling center. Colleges should promote recovery among Fraternity students who

have a gambling problem. Each college must provide within their addiction counseling centers evidence-based strategies to identify and help Fraternity students who are problem gamblers. If a college's current addiction center is not able to identify and treat gambling disorders then it should be the college's responsibility to encourage referrals to off-campus treatment providers who are able to treat problem gamblers.

To help reduce gambling problems each college should strengthen their prevention efforts by creating and implementing effective policies and programs that will prevent excessive student gambling and promote recovery among those with a problem gambling. An adequate program would first assess student attitudes, behaviors, and problems. Then each college should create their own unique campus-wide awareness campaign with the dual objectives of awareness of pathological gambling as a mental health disorder that has a high rate of comorbidity with alcohol use and other addictive disorders and responsible gaming principles. This study suggests that groups such as Fraternity students could be targeted. In addition, old-school methods of disseminating information through flyers and student handbooks should be replaced with newer technology that incorporates social media.

Increased state and federal funding for treatment centers and prevention programs

Citizens and their respective government officials at the state and federal level must understand and recognize the important role played by the government in the online-sports betting industry's growth and development. Government decisions influence the expansion of online sports betting as well as: the kinds of online sports betting which will be permitted, the

conditions under which these gambling establishments operate, who may take part in them and under what conditions, as well as who may work for and even own them. While increased revenue points toward a positive economic impact and is easy to quantify; the social costs associated with problem online sports gambling are not being addressed mainly because the devastating impact of problem gambling is not as apparent or visible to a public citizenry who may not all participate in online sports betting, yet are still able to suffer its adverse effects. Since citizens' lives and families may be devastated by problem gambling, the goal of the state and federal government should be to prevent gambling-related harms, promote healthy gambling and protect vulnerable populations such as fraternity students.

States and a federal government which raise revenue through sale of popular consumer products need to budget for gambling treatment programs. Such state and federally sponsored gambling treatment programs may have a number of objectives including: raising awareness of problem gambling, ensuring responsible advertising by online sports betting operations and available voluntary self-exclusion programs that allow individuals to sign an agreement to ban themselves from gaming. The state and federal government should also provide brochures and other public service announcements either through prominently displayed signage or social media concerning: responsible online gambling, pathological gambling and the odds of winning as well as where to get help for gambling disorders.

State and federal government should require online betting establishments to adopt a clear mission statement as to their policy on problem gambling with on-going government

oversight. The state and federal government should also recognize either through certification or licensing treatment professionals who can provide training and strategies for government and mental health staff for recognizing and addressing citizens who may have a problem gambling. Additionally, the state and federal government must also invoke a 'hold harmless' statute in as much the same fashion as colleges who discover one of their own to have a problem gambling. This statute should allow online betting sites to refuse service while simultaneously respectfully and confidentially providing a problem gambler state supported access to treatment programs or mental health professionals in lieu of harsh disciplinary actions which may have resulted from their problem gambling. The state and federal government should then make sure that insurance companies make available medical treatment for problem gambling.

Additionally, state and federal government have a commitment to the community-at-large to ensure ongoing funding and support of scientific research on gambling. Future gambling research needs to begin coming from an independent state and federally sponsored gambling research arm, with at least one of its aims directed towards student disordered gambling and recovery efforts for students in need. Failure to work with our nations institutions of higher education in implementing comprehensive and recovery-based gambling policies, as well as education of students about online gambling risks, has the potential to set up future destructive social costs in our communities when these students leave higher education. The magnitude and extent of long-term personal consequences on the pathological student gambler and his or her

family is not immediately clear, but may include a variety of financial, physical and emotional problems, including divorce, domestic violence, child abuse and neglect.

Other costly financial problems for the state and federal government related to student pathological gambling could include: crime, loss of employment, and bankruptcy. Employers may experience losses in the form of lowered productivity and time missed from work as well as a variety of other crimes such as embezzlement. The broader costs to society of job loss, unemployment benefits, welfare benefits, poor physical and mental health, as well as problem gambling treatment deserves our government's immediate attention.

Implications

Gambling on America's college campuses is not a new phenomenon. The New York Times has been publishing articles about gambling on American college campuses since 1887. This study has found though that our collective American perception of sports betting as a harmless activity may be misguided and out-of-touch. The conversion of technological advancements with sports betting has opened a new window into the college Fraternity sports betting world that has not received proper scrutiny. Perhaps the most significant implication of this study about online-sports betting by Fraternities on American college campuses is the reality that problem gambling exists among this demographic and there are numerous stakeholders.

Students

This study used the Blaszczynski and Nower pathway's model for conceptualizing problem gambling among a specific demographic of college students. The non-existent

empirical literature concerning this study's research question reinforces the popular misconception about sports gambling as a harmless activity. Unfortunately, Fraternity students who have been identified by this study as having met certain identifiable characteristics are susceptible to becoming problem gamblers. Furthermore, while alcohol-related problems have been addressed by the higher education community; problem gambling has gone relatively unnoticed. The result of ignored predictor variables and lack of oversight is a specific segment of the college demographic, who are not only susceptible, but becoming problem gamblers while attending our nation's higher education communities.

The implication of susceptibility to problem gambling among our nation's Fraternity students has consequences. Fraternity students who become preoccupied with online sports betting not only run the risk of developing problem gambling, but also run the risk of suffering serious adverse life consequences. Since this nation has not seriously studied problem gambling amid this demographic, there is no way to know with certainty how these students' futures will be dealt with among the higher education community which lack both resources and guidelines for handling student problem gambling. If colleges choose to take a strong disciplinary stance toward Fraternity students who are problem gamblers, might there also be a possibility then that these students are 'branded' for life by their respective colleges much like society's treatment for sexual offenders? Furthermore, since the finding of this study of tobacco as a predictive variable of problem gambling and its already known highly addictive properties – what does this say

about our society which not only offers it for sale to these students but directly profits from a tax on this product?

Before clambering to conspiracies of high education's treatment of problem gambling and society's involvement though the sale of tobacco, it may be prudent too look at how Fraternity students may currently suffer from problem gambling. A serious preoccupation with gambling may affect them personally by: destroying friendships, finances, and ultimately jeopardizing graduation from college. The findings within this study of gambling's co-morbidity with other risky-behaviors such as alcohol abuse may mean increases in: underage drinking, binge-drinking, alcohol-related assaults, alcohol-related car crashes and emergency room visits. Problem gamblers tend to become suicidal at far higher rates than the general population and even the population of persons addicted to substances such as illegal drugs and alcohol. This study has also found students who are pathological gamblers are at a heightened risk of mental disorders such as: mood disorders, anxiety disorders, and personality disorders.

Parents

The implication of problem gambling existing on college campuses should, if it is not already, be a serious concern for parents; regardless of whether or not they help in financing their son or daughter's education. It may be conjecture to argue that an objective of parenting is to prepare children to handle most of what life throws at them as they age. Unfortunately, the non-existence of empirical studies concerning problem gambling among fraternity students means parents may inadvertently be conditioning their children that gambling is a fun American past-

time without stressing its adverse consequences. The findings of this study of parental involvement as an indicator of future problem gambling suggest that much more needs to be done to increase problem gambling awareness among parents. American colleges can hold some of the blame here since many of them do not have policies in place to address problem gambling or provide recovery-oriented resources.

Colleges

University administrators also have a stake in Fraternity student problem gambling. In addition to the responsibility of providing gambling policies and awareness to parents; they should also be concerned with having a healthy student body. Since problem gambling is related to risky behaviors that could turn into liability issues; college administrators need to begin strengthening their health promotion efforts to not only raise awareness, but also to enable those Fraternity students who are struggling with problem gambling to obtain the necessary resources to maintain a healthy lifestyle while at their university.

Liability issues aside; college administrators could face legal issues if and when federal and state laws concerning online gambling begin to be enforced. Schools may draw ire from both the national and state government law enforcement agencies if it is discovered that administration officials have knowledge that an unlawful activity is occurring on their campus. Additionally, administration could be seen as condoning the activity if policies and procedures are not made clear to the student body concerning problem gambling.

College administration must recognize that this study has found Fraternity students who are problem gamblers may be using money meant for their tuition or room and board to gamble. The inability of students to pay their tuition could force college administration to suspend or even expel students. Schools whose students receive financial aid from the government are obligated to report enrollment and dismissal rates as well as other relevant statistics concerning the finances of its student body. Federal aid money that is found to be going towards online sports betting as well as decreasing enrollment and tuition dollars because of student problem gambling is sure to effect prospective student enrollment as well as the reputation of the school as well as the reputation of those future students who may graduate from their respective colleges.

A school that loses its ability to offer financial aid will also see a domino effect in other areas. Declining enrollment because of an inability to offer financial aid decreases the eligibility pool of future students. Hard decisions such as spending on faculty will have to be weighed against school improvement projects including updating facilities, the maintenance of current building and ground facilities and future research projects or grants.

Mental Health Service Providers

This implication of problem gambling on college campuses is indicative of the need to address it among the mental health community. Mental health specialists have an obligation to employ evidence based strategies to identify and treat Fraternity students who have a problem gambling. Unfortunately, since problem gambling has been reclassified, Ohio has not made

training requirements to treat problem gambling clear. Certificated alcohol and drug related training programs associated with addiction now include gambling. These state certification programs may take years to complete and Ohio has not been clear if those wishing to specialize in treating gambling related disorders are then additionally required to undergo years of alcohol and drug-related training.

Regardless of whether the state decides that mental health practitioners should have a license or a certificate; treatment providers will need to be able to: understand the prevalence and diagnostic criteria associated with disordered gambling, recognize the effects of disordered gambling on physical and mental health functioning, incorporate contemporary theories of gambling addiction, screen patients for disordered gambling, provide appropriate, brief interventions, know when referral is necessary, and provide continuing care to patients with suspected disordered gambling. Mental health providers also will need more information than is currently available as to whether or not the state is going to subsidize treatment for problem gamblers and/or training for treatment providers.

Society

Fraternity students with a problem gambling present society with other public health ramifications. The tax on gambling is a regressive tax. Fraternity students do not generate incomes comparable to those workers considered full-time by the Government and are more likely than full-time workers to be classified by the government as low-income wage earners. Therefore, the amount of taxes paid by fraternity students is disproportionate to their income

resulting in a larger percentage of their income being spent on taxes than those considered full-time workers. If the tax on gambling revenues follows the current trend in Ohio of increased taxes on sales of cigarettes as a substitute for increasing income taxes – which are progressive – then the tax structure in Ohio will become even more regressive. Income inequality effects the public health further when these students gamble away everything they own and end up in crippling debt. Generating poor credit at such an early age may prevent these students from landing jobs, buying cars, mortgages, or even renting when employers or businesses see their credit histories. If these students stay in poverty they will remain under-compensated. Whether one views this situation as a society having to transfer resources through welfare programs or the initial transfer of wealth from Fraternity students who don't have money to people who have abundant resources – you are still talking about two sides of the same coin: essentially a product that is showing up on the door-step of college campuses and destroying lives.

A regressive tax is just one piece of the puzzle though. The small towns and municipalities which are either part of or geographically close in proximity to each respective university depend on income spent by students. While Fraternity students may constitute a small proportion of the total money spent by students; the community and its surrounding small towns are still effected. In other words, any money spent by Fraternity students on online sports betting is income lost to the surrounding community. Moreover, these online sports book operations are not taxable by the local communities. Ohio's straining state budgets have already meant tuition increases at colleges in order to make-up for the decreased revenue from the state. As mentioned

previously, decreased state funding will mean budgetary cuts by the college community effecting everything from scholarships to public-health related research projects and general upkeep and innovation.

The convergence of digital media with sports betting has given today's Fraternity student 24/7 streaming access to sports betting in the privacy of their respective residences. Robert Steele, a former Representative from Connecticut and author of *The Curse*, found that drunk driving arrests and annual calls to local police departments as well as a spike in the number of people who sought treatment for gambling addiction all increased when the availability of gambling rose. Additionally, Steele found that rates of embezzlement also increased. Within the public education system, Steele observed value changes in students. Steele found that before the availability of gambling; society through parents, teachers, and even students accepted the adage that the way to succeed in life is through hard work. Steele also found that once a betting culture is introduced into a community these values become lost to the hopes of hitting the big one, either the lottery or a large scale pay-off.

An amicus curiae brief was filed in April 2014 by the Public Health Advocacy Institute before the Massachusetts Supreme Judicial Court. The brief alleged that problem gambling affects the public health, including not only the gambler, but also their families, neighbors and communities and others with whom they interact. The group wanted voters to be able to decide whether to invite a predatory and toxic industry to do business in their state. The brief labels gambling as a disease vector comparable to the tobacco industry which preys upon society's

most vulnerable members and adversely affects the physical, emotional and social health of the individual users and the communities where use of the products is prevalent. The Public Health Advocacy Institute found that the casino industry has co-opted and corrupted scholarship on the effects of gambling through the use of front groups that funnel money to beholden scientists who are able to sanitize its origin (Banthin, 2014). The Public Health Advocacy group cited a paper in the Journal of Addiction by Jahiel and Babor (2007) who found that the introduction of a dangerous product [online sports gambling] into places where it previously did not exist is an industrial epidemic driven at least in part by corporations and their allies who promote a product that is also a disease agent (Meyer, 2014).

Ohioans must understand that there is power differential at play here. While the government in Ohio watches the online sports betting occur on our college campuses destroy the lives of not only a vulnerable population, but also friends, family, community members and all those who come into contact with the gambler, the gaming industry is gaining momentum by influencing Ohio legislators, who are becoming dependent on them for campaign contributions and alternative sources of revenue for the state. The Cleveland Plain Dealer reported in 2011 that Ohio is failing to employ harm reduction strategies (Meyer, 2014). If our legislators are going to allow Fraternity students to gamble on sports online, then they should simultaneously and immediately begin making concerted efforts to: prevent problem gambling, effectively treat problem gambling, and minimize the amount of revenue that comes from those students who are problem gamblers.

Conclusion

This quantitative study has identified several predictor variables of online sports problem gambling, as measured by the SOGS, among fraternity students at major public colleges in Ohio. Furthermore, this study is indicative that Fraternity students are a unique demographic among college undergraduate students who are involved in wagering online on sports. While the classification of problem gambling as an addictive disorder within the DSM-V has brought more awareness to this disorder, this study has shown that a sub-population of college students remains unnoticed amongst those who have the capacity to implement needed reform. The limitations of the study should not get in the way of recognizing the importance of a critical review of the suggested recommendations. Furthermore, this study has identified multiple players who would benefit from further research about the ill-effects of online sports gambling among Fraternity students.

References

- Abbott, M. & Clarke, D. (2007). Prospective problem gambling research: Contribution and potential. *International Gambling Studies*, 7(1), 123-144. doi: 10.1080/14459790701261714.
- Abbott, M. & Volberg, R. (2000). *Taking the pulse on gambling and problem gambling in New Zealand: Phase one of the 1999 national prevalence survey*. In association with Statistics New Zealand. Wellington: Department of Internal Affairs.
- Abrams, K. & Kushner, M. (2004). The moderating effects of tension-reduction alcohol outcome expectancies on placebo responding in individuals with social phobia. *Addictive Behaviors*, 29, 1221-1224.
- American Gaming Association (2012). Sports Wagering. Retrieved January 1, 2014, from <http://www.americangaming.org>.
- American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Astin, A. (1977). *Four critical years*. San Francisco, CA: Jossey-Bass.
- Baird, W. (2012). *Manual of American College Fraternities*. Charleston, SC : Nabu Press.
- Banthin, C. (2014, April 16). PHAI files amicus brief comparing gambling and tobacco industries. Retrieved from <http://www.phaionline.org/2014/04/16/pha-files-amicus-brief>

comparing-gambling-and-tobacco-industries/.

Bell, T. (1999). Gamblers in cyberspace. *The Futurist*, 33(8), 18-19.

Biddix, J. & Hardy, T. (2008). Fraternity as “enabling environment.” Does membership lead to gambling problems? Online submission, Oracle: *The Research Journal of the Association of Fraternity Advisors* 3(2), 26-37. Retrieved from <http://www.eric.ed.gov/PDFS/ED513116.pdf>.

Bland, R., Newman, S., Orn, H. & Stebelsky, G. (1993). Epidemiology of pathological gambling in Edmonton. *The Canadian Journal of Psychiatry*, 38(2), 108-112.

Blaszczynski, A., Ladouceur, R. & Nower, L. (2007). Self-exclusion: A proposed gateway to treatment model. *International Gambling Studies*, 7(1), 59-71.

Blaszczynski, A. & Nower, L. (2002). A pathways model of problem and pathological gambling. *Addiction*, 97(5), 487-499. doi: 10.1046/j.1360-0443.2002.00015.x.

Blinn-Pike, L. (2007). Disordered gambling among college students: A meta-analytic synthesis. *Journal of Gambling Studies*, 23, 175-183.

Bloomberg L.P. (2013, November 25). *U.S. should go all in with online gambling*. Retrieved January 2, 2014 from Bloomberg database.

Bramhill, N. (2013, July 30). *Steep rise in gambling addiction among women reported*. Retrieved January 2, 2014 from <http://www.irishcentral.com>.

Brown, S. (2006). The surge in online gambling on college campuses. *New Directions for Student Services*, 113, 53-61. doi: 10.1002/ss.195.

- Boyer, R. (1987). Labor flexibilities: Many forms, uncertain effects. *Labor and Society*, 12, 107-129.
- Caswell, J. (2006). Listening to their stories: Students' perspectives about campus gambling. *New Directions for Student Services*, 2006(13), 25-32. doi: 10.1002/ss.192.
- Carlton, P. & Manowitz, P. (1994). Factors determining the severity of pathological gambling in males. *Journal of Gambling Studies*, 10(2), 147-157.
- Chiu, J. & Storm, L. (2010). Personality, perceived luck and gambling attitudes as predictors of gambling involvement. *Journal of Gambling Studies*, 2(26), 205-227. doi: 10.1007/s108099-009-9160-x.
- Christiansen Capital Advisors, LP. (2013). *Responsible gambling strategies for Internet gambling: The theoretical and empirical base of using pop-up messages to encourage self-awareness*, 1-13. Retrieved January 2, 2014 from <http://www.academia.edu>.
- Christian Science Monitor L.P. (2013, November 26). *New Jersey's dicey launch of Internet gambling*. Retrieved January 2, 2014 from the Christian Science Monitor database.
- Ciarrocchi, J. & Richardson, R. (2010). Profile of compulsive gamblers in treatment: Update and comparisons. *Journal of Gambling Behavior*, 5, 53-65.
- Coomes, M. & DeBard, R. (2004). *Serving the millennial generation: New directions for student services*. San Francisco, CA: Jossey Bass.
- Coventry, K. & Norman, A. (1997). Arousal, sensation seeking and frequency of gambling in off-course horse racing bettors. *British Journal of Psychology*, 88, 671-681.

- Cunningham-Williams, R., Cottler, L., Compton, W. & Spitznagel, E. (1998). Taking chances: Problem gamblers and mental health disorders – results from the St. Louis Epidemiological Catchment Area study. *Journal of Public Health, 88*, 1093-1096.
- De Freitas, S. & Griffiths, M. (2008). The convergence of gaming practices with other media forms: What potential for learning? A review of the literature. *Learning, Media and Technology, 33*, 11-20.
- Dickson, L., Derevensky, J., & Gupta, R. (2002). The prevention of gambling problems in youth: A conceptual framework. *Journal of Gambling Studies, 18*(2), 97-159.
- Dixon, M., Nastally, B., Jackson, J. & Habib, R. (2009). Altering the “near-miss” effect in slot machine gamblers. *Journal of Applied Behavior Analysis, 42*, 913-918.
- Dixon, M., & Habib, R. (2013). Neurobehavioral evidence for the “near-miss” effect in pathological gamblers. *Journal of the Experimental Analysis of Behavior, 93*(3), 313-328. doi: 10.1901/jeab.2010.93-313.
- Dohrenwend, B. (1990). Socioeconomic status (SES) and psychiatric disorders. *Soc Psychiatry Psychiatr Epidemiol, 25*(1), 41-47.
- Engwall, D., Hunter, R. & Steinberg, M. (2004). Gambling and other risky behaviors on university campuses. *Journal of American College Health, 52*(6), 245-256. doi: 10.3200/JACH.52.6.245-256.
- Federal Bureau of Investigation. (2013). *FBI releases inaugural compilation of annual crime statistics from the national incident-based reporting system*. Retrieved January 2, 2014

from <http://www.fbi.gov>.

Feldman, K. & Newcomb, T. (1969). *The impact of college on students*. San Francisco, CA: Jossey-Bass.

Ferentzy, P. & Turner, N. (2009). Gambling and organized crime: A review of the literature. *The Journal of Gambling Studies*, 23, 111-115. Doi: 10.4309/jgi.2009.23.6.

Ferris, J. & Stirpe, T. (2009). *Gambling in Ontario: A report from a general population survey on gambling-related problems and opinions*. Toronto, Ontario: Addiction Research Foundation, Problem and Compulsive Gambling Project.

Fisher, S. (1993). Gambling and pathological gambling in adolescents. *The Journal of Gambling Studies*, 9(3), 277-288. doi: 10.1007/BF01015923.

Friedman, M. & Savage, L. (1948). The utility analysis of choices involving risk. *Journal of Political Economy*, 56, 279-304.

Gerstein, M., Gerstein, D. & Volberg, R. (2009). The NODS-Clip: A rapid screed for adult pathological and problem gambling. *Journal of Gambling Studies*, 25, 541-555.

Gerstein, D., Murphy, S., Toce, M., Hoffman, J. & Palmer, A. (1999). *Gambling impact and behavior study: Report to the National Gambling Impact Study Commission*. Chicago: National Opinion Research Center.

Gose, B. (2000). A dangerous bet on campus. *Chronicle of Higher Education*, 46(31), 49-51.

Grant, J. & Potenza, M. (2004). Impulse control disorders: Clinical characteristics and pharmacological management. *Annals of Clinical Psychiatry*, 16, 27-34.

- Griffith, M. (2009). Minimizing harm from gambling: What is the gambling industry's role? *Addiction, 104*(5), 696-697. doi: 10.1111/j/1360-0443.2009.02499.x.
- Griffiths, M. (2007, January 19). *Gambling entices our young and vulnerable – They need our help*. The guardian. Retrieved from <http://www.academia.edu>.
- Griffiths, M. (2003). Internet abuse in the workplace: Issues and concerns for employers and employment counselors. *Journal of Employment Counseling, 40*, 87-96.
- Griffiths, M. & Sutherland, I. (1998). Adolescent gambling and drug use. *Journal of Community and Applied Social Psychology, 8*(6), 423-427. doi: 10.1002/ (SICI) 1099-1298(199811/12)8:6<423: AID-CASP499>3.0.CO; 2-B.
- Gupta, R., Derevensky, J. & Marget, N. (2004). Coping strategies employed by adolescents with gambling problems. *Child and Adolescent Mental Health, 9*(3), 115-120. doi: 10.1111/j.1475-3588.2004.00092.x.
- Hardoon, K. & Derevensky, J. (2002). Child and adolescent gambling behavior: Current knowledge. *Clinical Child Psychology and Psychiatry, 7*(2), 263-281. doi: 10.1177/1359104502007002012.
- Hardy, T.W. (2006). A minute to learn and a lifetime to master: Implications of the poker craze for college campuses. *New Directions for Student Services, 2006*(13), 33-41. doi: 10.1002/ss.193.
- Hayano, D. (1982). *Poker faces: The life and work of professional card players*. Berkeley, CA: University of California Press.

- Horowitz, H. (1987). *Campus life*. New York, NY: Alfred A Knopf.
- Howe, N. & Strauss, B. (1993). *13th gen: abort, retry, ignore, fail?* New York, NY: Vintage Books.
- Howe, N. & Strauss, B. (2000). *Millennials rising: The next generation*. New York, NY: Vintage Books.
- Howe, N. & Strauss, B. (2003). *Millennials go to college*. New York, NY: Vintage Books.
- Hume, M. & Mort, S. (2011). Fun friend, or foe: youth perceptions and definitions of online gambling. *Social Marketing Quarterly*, 17(1), 109-133.
- Humphreys, B. & Soebbing, B. (2013). Access to legal gambling and the incidence of crime: Evidence from Alberta. *Journal of Urban and Regional Policy*, 12(1), 1-13. doi: 10.1111/grow.12304.
- Institute for the Study of Gambling and Commercial Gaming. (n.d.). *Online gambling*. Retrieved January 2, 2014 from <http://www.unr.edu/gaming>.
- Jacobs, D. (1986). A general theory of addictions: A new theoretical model. *Journal of Gambling Behavior*, 41, 99-123.
- James, F. (2010, December 8). Sen. Harry Reid tried shoehorning online gambling into tax deal. *It's All Politics*. Retrieved from <http://www.npr.org/blogs/itsallpolitics/2010/12/08/>
- Johansson, A., Grant, J., Kim, S., Odlaug, B. & Gotestam, K. (2009). Risk factors for problematic gambling: A critical literature review. *Journal of Gambling Studies*, 25(1), 67-92. doi: 10.1007/s10899-008-9088-6.

- Jones, T. (1976). Ethical decision making by individuals in organizations: An issue-contingent model. *The Academy of Management Review*, 16(2), 366-395.
- Keene, T. (2013, January 29). *Harrow sports ventures CEO Rick Harrow on Bloomberg TV*. Retrieved January 1, 2014, from <http://search.proquest.com>.
- King, D., Delfabbro, P., & Griffiths, M. (2010). The convergence of gambling and digital media: Implications for gambling in young people. *The Journal of Gambling Studies*, 26(2), 175-187. doi: 10.1007/s10899-009-9153-9.
- LaBrie, R., Shaffer, H., LaPlante, D., & Wechsler, H. (2003). Correlates of college student gambling in the United States. *Journal of American College Health*, 52(2), 53-62.
- LaBrie, R., Laplante, D., Nelson, S., Schumann, A. & Shaffer, H. (2007). Assessing the playing field: A prospective longitudinal study of Internet sports gambling behavior. *Journal of Gambling Studies*, 23(3), 347-362.
- Ladouceur, R., Boisvert, J., Pepin, M., Loranger, M. & Sylvain, C. (1994). Social cost of pathological gambling. *Journal of Gambling Studies*, 10(4), 399-409.
- LaPlante, D., Kleschinsky, J., LaBrie, R., Nelson, S. & Shaffer, H. (2009). Sitting at the virtual poker table: A prospective epidemiological study of actual Internet poker gambling behavior. *Computers in Human Behavior*, 25(3), 711-717.
- LaPlante, D., Schumann, A., LaBrie, R. & Shaffer, H. (2008). Population trends in Internet sports gambling. *Computers in Human Behavior*, 24, 2399-1414.
- Las Vegas Convention and Visitors Authority. (2013). *2012 Las Vegas Visitor Profile Study*.

- Retrieved January 2, 2014 from <http://www.lvcva.com>.
- Layden, T. (1995a, April 3). Bettor education. *Sports Illustrated*, 68-74. Retrieved from <http://sportsillustrated.cnn.com>.
- Layden, T. (1995b, April 10). Book smart. *Sports Illustrated*, 68-74. Retrieved from <http://sportsillustrated.cnn.com>.
- Layden, T. (1995c, April 17). You bet your life. *Sports Illustrated*, 46-48. Retrieved from <http://sportsillustrated.cnn.com>.
- Lee, H., Lemanski, J. & Jun., J. (2008). Role of gambling media exposure in influencing trajectories among college students. *Journal of Gambling Studies*, 24, 25-37.
- Lesieur, H. (2001). Cluster analysis of types of inpatient pathological gamblers. *Dissertation Abstracts International*, 62B, 2065.
- Lesieur, H., Cross, J., Frank, M., Welch, M., White, C., Rubenstein, G., Moseley, K. & Mark, M. (1991). Gambling and pathological gambling among university students. *Addictive Behaviors*, 16(6), 517-527.
- Lesieur, H. & Blume, S. (1987). The South Oaks Gambling Screen (SOGS): A new instrument for the identification of pathological gamblers. *American Journal of Psychiatry*, 144(9), 1184-1188.
- Lesieur, H. & Blume, S. (1991). Evaluation of patients treated for pathological gambling in a combined alcohol, substance abuse and pathological gambling treatment unit using the Addiction Severity Index. *British Journal of Addiction*, 86(8), 1017-1028. doi:

10.1111/j.1360-0443.1991.tb01863.x.

Levine, A. (1980). *When dreams and heroes died*. San Francisco, CA: Jossey-Bass.

Levine, A. & Cureton, J. (1998). *When hope and fear collide*. San Francisco, CA: Jossey-Bass.

Light, R. (2001). *Making the most of college*. Cambridge, MA: Harvard University Press.

Linden, A. (2009, March 07). Gambling takes down many young fans. *The Journal News*.

Retrieved January 2, 2014 from <http://www.lohud.com>.

Linnet, J., Gebauer, L., Shaffer, H., Mouridsen, K. & Moller, A. (2010). Experienced poker players differ from inexperienced poker players in estimation bias and decision bias.

Journal of Gambling Issues, 24, 86-100. Doi: 10.4309/jgi.2010.24.6.

Lloyd, J., Doll, H., Hawton, K., Dutton, W., Geddes, J., Goodwin, G., & Rogers, R. (2010).

Internet gamblers: A latent class analysis of their behaviors and health experiences.

Journal of Gambling Studies, 26(3), 387-399. doi: 10.1007/s10899-010-9188-y.

Loeb, P. (1994). *Generation at the crossroads*. New Brunswick, NJ: Rutgers University Press.

Madden, D. (2013, November 27). *Internet gaming in New Jersey draws concerns about compulsive gamblers*. CBS Philly. Retrieved January 2, 2014 from

<http://philadelphia.cbslocal.com>.

Martens, S. (2013). Dimensions of oppositionality in a Brazilian community sample: Testing the

DSM-5 proposal and etiological links. *Journal of the American Academy of Child and Adolescent Psychiatry*, 52(4), 389-400.

Mazza, V. (2013). *Pathological gamblers: Impulsive, or Impulsive Sensation Seekers*. Retrieved

- January 1, 2014, from <http://www.personalityresearch.org/papers/sinha.html>.
- Mint. (2012). *Betting on the bowl: How much is wagered on the big game*. Retrieved May 16, 2015 from <http://blog.mint.com/trends/betting-on-the-bowl-how-much-is-wagered-on-the-big-game-012012/>.
- McCarthy, A. (2013, November 6). *Online gambling draws opposition*. Retrieved January 2, 2014 from <http://www.politico.com> database.
- McClam, E. (2013, July 15). *Game on: Christie fights for sports betting*. Retrieved January 1, 2014, from <http://www.cnbc.com/id/100885834>.
- McClellan, G. & Winters, K. (2006). Gambling: An old school new wave challenge for higher education in the twenty-first century. In G.S. McClellan, T.W. Hardy, & J. Caswell (Eds.), *Gambling on campus: New directions for student services* (pp.9-23). San Francisco, CA: Jossey-Bass.
- McComb, J. & Sabiston, C. (2010). Family influences on adolescent gambling behavior: A review of the literature. *Journal of Gambling Studies*, 26, 503-520.
- McConaghy, N. (1980). Behavior completion mechanisms rather than primary drives maintain behavioral patterns. *Activitas Nervosa Superior*, 22, 138-151.
- McCormick, R. (1988). Pathological gambling: A parsimonious need state model. *Journal of Gambling Behavior*, 3, 257-263.
- McCormick, R. (1987). Personality profiles of hospitalized pathological gamblers: The California personality inventory. *Journal of Clinical Psychology*, 43, 521-527.

- McCown, W. & Chamberlain, L. (2000). *Best possible odds: Contemporary treatment strategies for gambling disorders*. Somerset, NJ: John-Wiley & Sons.
- McIntyre, R., McElroy, S., Konarski, J., Soczynska, J., Wilkins, K. & Kennedy, S. (2007). Problem gambling in bipolar disorder: Results from the Canadian community health survey. *Journal of Affective Disorders, 102*(1-3), 27-34.
- Meyer, E. (2014, September 15). Gambling with America's health: The public health costs of legal gambling. Pacific Standard: The Science of Society. Retrieved from <http://www.psmag.com/navigation/health-and-behavior/las-vegas-legal-gambling-with-americas-public-health-policy-90625/>
- Meyer, R., Chapman, L. & Weaver, C. (2009). Case studies in abnormal behavior, 8th (ed.). *Clinical Psychologist, 13*(1), 38-39. doi: 10.1080/13284200802495974.
- Moffatt, M. (1989). *Coming of Age in New Jersey: College and American culture*. New Brunswick, NJ: Rutgers University Press.
- Monaghan, S., Derevensky, J., & Sklar, A. (2008). Impact of gambling advertisements and marketing on children and adolescents: Policy recommendations to minimize harm. *The Journal of Gambling Issues, 22*, 252-274. Doi:10.4309/jgi.2008.22.7.
- Moran, E. (1970). Varieties of pathological gambling. *British Journal of Psychiatry, 116*, 593-597.
- Mort, G. (2011). Fun, friend, or foe: Youth perceptions and definitions of online gambling. *Social Marketing Quarterly, 17*(1), 109-133. doi: 10.1080/15245004.2010.546939.

- National Collegiate Athletic Association. (2013). *Gambling*. Retrieved January 2, 2014 from NCAA database <http://web1.ncaa.org>.
- National Council on Problem Gambling. (2012). *Problem gamblers*. Retrieved January 2, 2014 from <http://www.ncpgambling.org>.
- National Gambling Impact and Policy Commission (US). (2012). *National gambling impact study commission final report* (No.2). Washington, D.C.: The Commission.
- National Gambling Impact and Policy Commission (US). (1999). *National gambling impact study commission final report* (No. 1). Washington, D.C.: The Commission.
- National Research Council. (1999). *Pathological gambling: A critical review*. Washington, DC: National Academy Press.
- Neighbors, C., Lostutter, T., Ursula, W., Fossos, N., Walker, D. & Larimer, M. (2007). Injunctive norms and problem gambling among college students. *Journal of Gambling Studies*, 23(3), 259-273.
- Nelson, T., Toben, F., LaBrie, R., LaPlante, D., Stanton, M., Shaffer, H., & Wechsler, H. (2007). Sports betting and other gambling in athletes, fans and other college students. *Research for Quarterly Exercise and Sport*, 78(4), 271-283.
- Nevada Gaming Board. (2013). *Statistics and publications*. Retrieved January 2, 2014 from <http://gaming.nv.gov>.
- North-American Interfraternity Conference (NIC). (n.d.). *Who we are and what we do*. Retrieved January 2, 2014 from http://nicindy.org/about_us/who_we_are/.

- Nower, L. & Blaszczynski, A. Gambling motivations, money-limiting strategies, and precommitment preferences of problem versus non-problem gamblers. *Journal of Gambling Studies*, 26, 361-371.
- Ocean, G. & Smith, G. (1993). Social reward, conflict, and commitment: a theoretical model of gambling behavior. *Journal of Gambling Studies*, 9, 321-339.
- Otterman, T. (n.d.). *Sports gambling by college students is not just harmless fun*. Retrieved January 2, 2014 from <http://gamblinghelp.org/media/Otterman.article.pdf>.
- Reith, G. (2003). *Gambling: Who wins? Who Loses?* Amherst, NY: Prometheus Books.
- Rushin, S. (2013, April 08). It's time to build a better world. *Sports Illustrated*. Retrieved from <http://sportsillustrated.cnn.com>.
- Petry, N. (2011) Drinking patterns of pathological gamblers before, during, and after gambling treatment. *Journal of the Society of Psychologists in Addictive Behaviors*, 4(25), 664-674.
- Petry, N. (2006). Should the scope of addictive behaviors be broadened to include pathological gambling? *Addiction*, 101(1), 152-160. doi: 10.1111/j.1360-0443.2006.01593.x.
- Petry, N. (2005). *Pathological gambling: Etiology, comorbidity, and treatment*. Washington, DC: American Psychological Association.
- Petry, N. & Oncken, C. (2002). Cigarette smoking is associated with increased severity of gambling problems in treatment-seeking gamblers. *Addiction*, 97, 745-753.
- Petry, N. & Weinstock, J. (2010). Internet gambling is common in college students and associated with poor mental health. *The American Journal on Addictions*, 16(5), 325-330.

doi: 10.1080/10550490701525673.

Petry, N. & Weinstock, J. (2007). Internet gambling is common in college students and associated with poor mental health. *The American Journal on Addictions, 16*, 325-330.

Reilly, C. (2009). *Addressing college gambling: Recommendations for science-based policies and programs*. The Division on Addictions at the Cambridge Health Alliance and the National Center for Responsible Gaming. Retrieved from <http://www.divisiononaddiction.org>.

Riker, H. (1983). Programming for personal development. In W.A. Bryan, R.A. Schwaz (Eds.), *The eighties: Challenges for fraternities and sororities*. Carbondale, Illinois: Southern University Press.

Rose, N. (2010). Gaming law review and economics. *Mary Ann Liebert, 14*(1), 3-4. Doi: 10.1089/glre.2010.14102.

Rose, N. (2006). Viewpoint: the unlawful internet gambling enforcement act of 2006 analyzed. *Gaming Law Review, 10*(6), 537-541. Doi: 10.1089/blr.2006.10.537.

Schneider, F. (2008). Money laundering: Some facts. *European journal of law economics, 26*, 387-404. Doi:10.1007/s10657-008-9070-x.

Schwartz, D. (2010). Not Undertaking the Almost-Impossible Task: The 1961 Wire Act's Development, Initial Applications, and Ultimate Purpose. *Gaming Law Review and Economics, 14*(7), 533-540. Doi:10.1089/glre.2010.14708.

Seijas, R. (2013). Impulsivity versus the addictive nature of gambling. Retrieved January 1,

- 2014, from <http://www.personalityresearch.org/papers/sinha.html>.
- Shaffer, H. (1997). The most important unresolved issue in the addictions: Conceptual chaos. *Substance Use and Misuse*, 32(11), 1573-1580.
- Shaffer, H. & Hall, M. (1996). The natural history of gambling and drinking problems among casino employees. *The Journal of Social Psychology*, 142(4), 405-424.
- Shaffer, H., Hall, M. & Vander Bilt, J. (1999). Estimating the prevalence of disordered gambling behavior in the United States and Canada: A research synthesis. *American Journal of Public Health*, 89(9), 1369-1376.
- Shaffer, H., & Hall, M. (2002). The natural history of gambling and drinking problems among casino employees. *Journal of Social Psychology*, 142(4), 405-424.
- Shaffer, H. & Hall, M. (2001). Updating and refining meta-analytic prevalence estimates of disordered gambling behavior in the United States and Canada. *Canadian Journal of Public Health*, 92(3), 168-172.
- Shaffer, H. & Kidman, R. (2004). *Gambling and the public health*. In J.E. Grant & M.N. Potenza (Eds.), *Pathological gambling: A clinical guide to treatment* (p.3-23). Washington, DC: American Psychiatric Publishing, Inc.
- Shaffer, H. & Korn, D. (2002). Gambling and related mental disorders: A public health analysis. *Annual Reviews*, 23, 171-212. doi: 10.1146/annurev.pubhealth.23.100901.140532.
- Sharpe, L. (2008). Understanding pathological gambling: Distinct pathways or individual formulations? In M.J. Esposito (Ed.), *Psychology of gambling* (pp.147-162). Hauppauge,

- New York: Nova Biomedical Books.
- Sharpe, L. (2002). A reformulated cognitive-behavioral model of problem gambling: A biopsychosocial perspective. *Clinical Psychology Review, 22*(1), 1-25.
- Shaw, M., Forbush, K., Schlinder, J., Rosenman, E. & Black, D. (2007). The effect of pathological gambling on families, marriages, and children. *CNS Spectrums, 12*(8), 615-622.
- Shed, N., Derevensky, J., Gupta, R. & Fong, T. (2012). Characteristics of Internet gamblers among a sample of students at a large, public university in southwestern United States. *Journal of College Student Development, 53*(1), 133-148.
- Smart, R. & Ferris, J. (1996). Alcohol, drugs, and gambling in the Ontario adult population. *Canadian Journal of Psychiatry, 41*, 36-45.
- Smith, G. & Wynne, H. (2004). VLT gambling in Alberta: A preliminary analysis. *Journal of Gambling Issues, 12*(2), 3-15.
- Smith, M., Rousu, M. & Dion, P. (2012). Internet poker: Examining motivations, behaviors, outcomes, and player traits using structural equations analysis. *Journal of Gambling Issues, 27*, 1-23.
- Snyder, W. (1978). Decision-making with risk and uncertainty: The case of horseracing. *American Journal of Psychology, 91*, 201-209.
- Stinchfield, R., & Winters, K. (2001). Outcome of Minnesota's gambling treatment programs. *Journal of Gambling Studies, 17*, 217-245.

- Strauss, W. & Howe, N. (1991). *Generations: The history of America's future*. New York, NY: William Morrow and Company.
- Strothkamp, M. (2013). Wagering and social environments survey report. Retrieved January 2, 2014 from <http://www.ncaa.org> database.
- Strumpf, K. (2003). *Illegal sports bookmakers*. Unpublished manuscript. Retrieved January 2, 2014 from <http://people.ku.edu/~cigar>.
- Stuart, S., Stewart, S., & Wall, A. (2008). Gambling among university undergraduate students: An investigation of gambler subtypes varying in affective motivations for gambling. In M.J. Esposito (Ed.), *Psychology of gambling* (p.83-110). Hauppauge, NY: Nova Biomedical Books.
- Stuhldreher, W. & Stuhldreher, T. (2007). Gambling as an emerging health problem on campus. *Journal of American College Health*, 56(1), 75-88. doi: 10.3200/JACH.56.1.75-88.
- Svetieva, E. & Walker, M. (2008). Inconsistency between concept and measurement: The Canadian Problem Gambling Index (CPGI). *The Journal of Gambling Studies*, 22, 157-173. doi: 10.4309/jgi.2008.22.2.
- Tepperman, L. (2009). *Betting their lives: The close relations of problem gamblers*. New York, NY: Oxford University Press.
- Thomas, A. & Moore, S. (2003). The interactive effects of avoidance coping and dysphoric mood on problem gambling for female and male gamblers. *Journal of Gambling Issues*, 8. doi: 10.4309/jgi.2003.8.16

- Turner, N. & Littman-Sharp, N. (2006). *Inventory of gambling situations user's guide*. Toronto Centre for Addiction and Mental Health.
- Umstead, T. (2013, March 08). *March madness: Cable gladness*. Retrieved January 1, 2014, from <http://search.proquest.com>.
- Vardi, N. (2011, December 11). Department of justice flip-flops on Internet gambling. *Forbes*. Retrieved from <http://www.forbes.com>
- Volberg, R. (1994). *Gambling and problem gambling in Saskatchewan*. Report to the Minister's Advisory Committee on social impacts of gaming.
- Volberg, R. (1988). *Compulsive gambling treatment program evaluation: Final report. Report to the New York Office of Mental Health*. New York, NY.
- Volberg, R. & Steadman, H. (1989). *Problem gambling in Iowa. Report to the Iowa Department of Human Services*. New York, NY.
- Walker, M. (1992). *The psychology of gambling*. Oxford: Pergamon Press.
- Wardle, H., Sproston, K., Orford, J., Erens, B., Griffiths, M., Constantine, R., et. al. (2007). *British Gambling Prevalence Survey 2007*. London: National Center for Social Research.
- Welte, J., Barnes, G., Tidwell, M. & Hoffman, J. (2011). The prevalence of problem gambling among U.S. adolescents and young adults: Results from a national survey. *Journal of Gambling Studies*, 24, 119-133.
- Weinstock, J., Whelan, J., Meyers, A. & Watson, J. (2007). Gambling behavior of student-athletes and a student cohort: What are the odds? *Journal of Gambling Studies*, 23(1), 13-

24.

Weinstock, R. & Petry, N. (2008). Pathological gambling college students' perceived social support. *Journal College Student Development, 49*(6), 625-632.

Weinstock, R., Whelan, J. & Meyers, A. (2004). Behavioral assessment of gambling: An application of the timeline follow back method. *Psychological Assessment, 16*, 72-80.

Winters, K. & Arria, A. (2011). Prevention and early interventions for at risk children and adolescents. *Journal of the Academy of Child and Adolescent Psychiatry, 18*(2), 21-24.

Winters, K., Bengston, P., Dorr, D. & Stinchfield, R. (1998). Prevalence and risk factors of problem gambling among college students. *Psychology of Addictive Behaviors, 12*(2), 127-135.

Wong, S. & So, E. (2003). Prevalence estimates of problem and pathological gambling in Hong Kong. *The American Journal of Psychiatry, 160*(7), 1353-1354.

Wong, S. & Tsang, S. (2011). Development and validation of the Chinese adolescent gambling expectancy scale. *International Gambling Studies, 12*(3), 309-329. doi: 10.1080/14459795.2012.672582.

Yeoman, T. & Griffiths, M. (1996). Adolescent machine gambling and crime. *Journal of Adolescence, 19*(2), 183-188.

Appendix A: South Oaks Gambling Screen

Walden University's approval number for this study is **06-17-14-0057610**

Date:

1. Please indicate which of the following types of gambling you have done in your lifetime. For each type, mark one answer: "Not at All," "Less than Once a Week", or "Once a Week or More."

Please Check one answer for each statement:	NOT AT ALL	Less than once a week	Once a week or more
a. Played cards for money.			
b. Bet on horses, dogs, or other animals (at OTB, the track, or with a bookie).			
c. Bet on sports (parlay cards, with bookie, at Jai Alai).			
d. Played dice games, including craps, over and under or other dice games.			
e. Went to casinos (legal or otherwise).			
f. Played the numbers or bet on lotteries.			
g. Played bingo.			
h. Played the stock and/or commodities market.			
i. Played slot machines, poker machines, or other gambling machines.			
j. Bowled, shot pool, played golf, or some other game of skill for money.			

k. Played pull tabs or "paper" games other than lotteries.			
--	--	--	--

2. What is the largest amount of money you have ever gambled with on any one-day?

- Never Gambled
 More than \$10.00 up to 100.00
 More than \$100.00 up to \$1,000
 More than \$1,000 up to \$10,000
 More than \$10,000

3. Check which of the following people in your life has (or had) a gambling problem.

- Father Mother
 Brother/Sister My spouse/partner
 My child(ren) Another relative
 A Friend or someone important in my life

4. When you gamble, how often do you go back another day to win back money you have lost?

- Never Some of the time
 Most of the time Every time that I lose

5. Have you ever claimed to be winning money gambling, but weren't really? In fact you lost?

- Never
 Yes, less than half the time I lost
 Yes, most of the time

6. Do you feel you have ever had a problem with betting or money gambling?

- _____ No _____ Yes, currently
_____ Yes, in the past, but not now.
7. Did you ever gamble more than you intended to?
_____ Yes _____ No
8. Have people criticized your betting or told you that you had a problem, regardless of whether or not you thought it was true?
_____ Yes _____ No
9. Have you ever felt guilty about the way you gamble, or what happens when you gamble?
_____ Yes _____ No
10. Have you ever felt like you would like to stop betting money on gambling, but did not think that you could?
_____ Yes _____ No
11. Have you ever hidden betting slips, lottery tickets, gambling money, IOUs, or other signs of betting or gambling from your spouse, children or other important people in your life?
_____ Yes _____ No
12. Have you ever argued with people you live with over how you handle money?
_____ Yes _____ No
13. (If you answered "yes": to question 12) Have money arguments ever centered on your gambling?
_____ Yes _____ No
14. Have you ever borrowed from someone and not paid them back as a result of your gambling?
_____ Yes _____ No
15. Have you ever lost time from work (or school) due to betting money or gambling?

_____ Yes _____ No

16. If you borrowed money to gamble or to pay gambling debts, who or where did you borrow from (check "Yes" or "No" for each):

- a. From household money _____ Yes _____ No
- b. From your spouse/partner _____ Yes _____ No
- c. From relatives or in-laws _____ Yes _____ No
- d. From banks, loan companies, or credit unions
_____ Yes _____ No
- e. From credit cards _____ Yes _____ No
- f. From loan sharks _____ Yes _____ No
- g. You cashed in stocks, bonds or other securities
_____ Yes _____ No
- h. You sold personal or family property
_____ Yes _____ No
- i. You borrowed on your checking accounts (passed bad checks)
_____ Yes _____ No
- j. You have (had) a credit line with a bookie
_____ Yes _____ No
- k. You have (had) a credit line with a casino
_____ Yes _____ No

Appendix B: Independent Variables/ Demographic Questionnaire

1. Does Your Father regularly wager on Sports?

_____Yes _____No

2. Does another member of your family regularly wager on Sports?

_____Yes _____No

3. Do you wager on the following sports/events (check all the apply)

Super Bowl _____

March Madness _____

NFL Regular Season _____

NCAA Football _____

NCAA Basketball Regular Season _____

Other Professional Sports (MLB, NBA, NHL, etc.) _____

Other Collegiate Sports _____

4. Which ways do you typically wager on Football? (check all the apply)

Straight Wagers with Point Spreads _____

Moneyline Wagers _____

Proposition Bets _____

Over/Under Totals _____

Parlays/Teasers _____

Betting Squares/Event Pools _____

5. Which ways do you typically wager on March Madness? (check all the apply)

Straight Wagers with Point Spreads _____

Moneyline Wagers _____

Proposition Bets _____

Over/Under Totals _____

Parlays/Teasers _____

Bracket Pools _____

6. What medium do you use to wager on sporting events? (check all the apply)

Online Sportsbook _____

Land Casino (directly or indirectly) _____

Campus Bookmaker _____

Local Bookmaker _____

Friend (not a bookie) _____

Other (please list) _____

7. How much do you typically wager on a sporting event? _____

8. How many games do you wager on in a typical week? _____

9. How much time do you spend acquiring information in order to wager on sporting events? _____

10. What information do you typically use when deciding how to wager on a sporting event?

Friend _____

Web Site _____

Watching Sporting Events _____

Sports Commentators _____

Newspaper/Periodicals _____

Radio _____

Analyzing Sports Statistics _____

Touts _____

Other (please list) _____

11. How do you fund your sports wagering?

Personal Income _____

Parent/Guardian Income _____

Scholarship/Grants _____

Student Loans _____

Friends/Other Family _____

Stolen _____

Other (please list) _____

12. Which of the following best describes your motivation to bet on sporting events?

Makes watching the game more interesting _____

Competitive Outlet _____

Proficiency at wagering on sporting events _____

To win money _____

As a distraction _____

To take Risk _____

For enjoyment _____

For social Reasons _____

13. On average, how many hours a week do you watch sports? _____

14. Do you play sports? (check all the apply)

Recreationally (non-organized play) _____

Intercollegiate/Club _____

NCAA Sanctioned _____

15. Did you play interscholastic sports in High School?

____Yes ____No

16. On average, how many alcoholic drinks do you consume in 1 week? _____

17. Do you use tobacco on a regular basis?

_____ Yes _____ No

18. On campus, do you live?

Off Campus Housing _____

Residence Hall _____

Greek Fraternity House _____

Finally, please answer the following demographic questions

19. What is your total household income (including parents/legal guardian)?

_____ Less than \$20,000

_____ \$20,000 to \$39,999

_____ \$40,000 to \$59,999

_____ \$60,000 to \$79,999

_____ \$80,000 to \$99,999

_____ \$100,000 to \$149,999

_____ \$150,000 or more

20. What is the ZIP-Code of your home (non-campus) address?
