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Predictors of Gambling-Related Problems in Adult Internet Gamblers

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Walden University
2018

Abstract

Predictors of Gambling-Related Problems in Adult Internet Gamblers

by

Barbaradee Foote

MA, National University, 1989

BS, Willamette University, 1985

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

The use of the Internet to gamble has become increasingly prevalent in recent years. Although researchers have suggested that adult Internet gamblers are at high risk for developing a gambling disorder, few studies, overall, have been conducted on the effects of Internet gambling. Furthermore, conflicting research exists regarding what moderates gambling-related problems. The purpose of this quantitative study was to determine if age, gender, and emotions prior to the gambling experience are related predictors of Internet problem gambling severity. A retrospective design was used. The pathways model was used to support the belief that emotions felt before an Internet gambling session are associated with the severity of the gambling problem. Data were obtained from adult Internet gamblers who had Internet gambled in the preceding week. One hundred and fifty participants completed an online survey about the emotions they felt before an Internet-gambling session and self-reported the negative consequences of their gambling. The survey contained demographic questions, questions from the Positive and Negative Affect Schedule (to assess emotions felt before participants' last Internet gambling session), and questions from the Problem Gambling Severity Index. The results of the multiple linear regression analysis were significant, indicating that, as a group, participants' age, gender, and emotions felt prior to the gambling experience predicted their problem gambling severity. This study can assist with prevention, early intervention, and treatment of adult Internet gamblers.

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Chapter 1: Introduction to the Study

Introduction

Researchers have documented the existence of gambling in societies dating back at least 5,000 years and have concluded that it is part of all human cultures (Arnold, 1977; Ferentzy & Turner, 2013; Schwartz, 2013). Some researchers have found evidence of gambling in cave drawings from more than 40,000 years ago (Black, 2013). People used animal heel bones in the earliest documented games of chance (David, 1998). The discovery of 10,000 game pieces in a cave in Utah has led researchers to conclude that the first American casino existed in the 1200s (Lorenzi, 2015). According to Vacek (2011), gambling is a favorite pastime in the contemporary United States. In 2006, Americans spent $57 billion on gambling, which exceeded the combined $48 billion spent on movie tickets, music recordings, fast food, and coffee (Vacek, 2011).

Gambling continues to thrive as a cultural practice in the Internet era. As Wood and Williams (2011) noted, individuals now have the freedom to gamble from the privacy and comfort of their homes. In 1995, the first Internet gambling site was developed (Wong, 2010); this eventually led to the creation of thousands of Internet gambling sites (Wood & Williams, 2011). These Internet gambling sites are available to users 24 hours a day (Wood & Williams, 2011).

For Internet gamblers, the availability of Internet gambling sites increases the potential of developing addictive behaviors and developing gambling-related problems at a much faster rate than for venue-based gamblers (Gainsbury, Russell, Wood, Hing, &

Blaszczynski, 2015; Griffiths & Parke, 2010; Shead, Derevensky, Fong, & Gupta, 2012; Wood, Griffiths, & Parke, 2007). Gambling-related problems are a major public health issue and they affect the gambler, his or her social circle, and society (Afifi, LaPLante, Taillieu, Dowd, & Shaffer, 2014). Gambling-related problems can be linked to emotions that may lead to suicide attempts, substance abuse, impulsivity, and dysfunctional cravings (Cook et al., 2015; de Castro, Fong, Rosenthal, & Tavares, 2007; King, Abrams, & Wilkinson, 2010; McCormack, Shorter, & Griffiths, 2013a; Moghaddam, Yoon, Dickerson, Kim, & Westermeyer, 2015; Petry & Weinstock, 2007; Scholes-Balog & Hemphill, 2012; Thon et al., 2014; Valleur et al., 2015). Internet gamblers are 10 times more likely than the general population to develop gambling-related problems or disorders (McBride & Derevensky, 2009), and they are more likely to engage in potentially harmful lifestyles than casino gamblers, according to Shead et al. (2012).

Because of the evidence showing that gambling is a problem for many people in the United States (Welte, Barnes, Tidwell, Hoffman, & Wieczorek, 2015), many experts are concerned about the risks posed by Internet gambling (Gainsbury, Russell, Wood, et al., 2015; Wood & Williams, 2011). Many theoretical papers provide some context on the potential influence the Internet has on gambling activity (see Eadington, 2004; Griffiths, 1999, 2003; Griffiths & Parke, 2002; Watson, Liddell, Moore, & Eshee, 2004). However, there is limited research on specific predictors of online problem gambling severity, such as gender and emotions prior to gambling experiences (Wardle & Griffiths, 2011; Wardle, Moody, Griffiths, Orford, & Volberg, 2011; Wardle, Moody, Spence, et al.,

2011; Winters, Bengston, Door, & Stinchfield, 1998). Conflicting research also exists regarding what moderates gambling-related problems. Some researchers argue that emotions, gender, and age may moderate problems related to gambling (see Gainsbury, Russell, Wood, et al., 2015; McCormack, Shorter, & Griffiths, 2013b; McCormack, Shorter, & Griffiths, 2014; Turner, Jain, Spence, & Zangeneh, 2008) while other researchers have not found these variables to be significant (Afifi et al., 2014). Even with this knowledge, research is limited regarding Internet gamblers (McCormack, Shorter & Griffiths., 2013a).

Data from a study concerning age, gender, and emotions as predictors of gambling severity may be helpful to gamblers, researchers, educators, health practitioners, and policy makers. Findings may provide more education and understanding that will lead to early interventions and better relapse prevention strategies and policies. This chapter includes background information on Internet gambling; the problem statement; the purpose of the study; the research questions; the conceptual framework; the nature of the study; definitions of terms specific to this study; the assumptions, scope and delimitations, and limitations of the study; and the significance of the research.

Background

In 2013, the *Diagnostic and Statistical Manual of Mental Disorders* (DSM 5th ed.; American Psychiatric Association, 2013) reclassified the location of, and the criteria for, a diagnosis of gambling-related problems, as well as the diagnostic term. Authors of

the *DSM-5* placed problems with gambling under a category called "Substance-Related and Addictive Disorders" and named the diagnosis *gambling disorder* (American Psychiatric Association, 2013).

Currently, there is no consensus about how emotions felt before an Internet gambling session predict or correlate with the severity of a person's gambling disorder. McCormack et al. (2013a) studied 14 emotions as predictors of gambling-related problems among Internet gamblers in the United Kingdom; the researchers also included demographics, gambling behaviors, and levels of gambling-related problems in their analysis. They found that nearly 40% of the participants who gambled on the Internet had some risk of developing gambling-related problems and some form of a gambling disorder, and that at-risk gamblers and problem gamblers experienced emotions significantly different from nonproblem gamblers (McCormack et al., 2013a). One potential limitation is that McCormack et al. used their own survey to evaluate emotions. In another, earlier study of Internet gamblers in the United Kingdom, Matthews, Farnsworth, and Griffiths (2009) analyzed emotions and affect using 10 positive and 10 negative affect states. Matthews et al. specifically assessed emotions experienced by participants before gambling, while gambling, and after gambling and participants' overall affect using the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegan, 1988).

Matthews et al. (2009) compared data regarding emotions to the four levels of gambling-related problems using the Problem Gambling Severity Index (PGSI). The

researchers found that having overall higher negative affect states after gambling predicted problem gambling (Matthews et al., 2009). Similarly, researchers in another study included information about how negative emotions predicted the amount of time spent gambling (King et al., 2010). In a Canadian study of young venue gamblers, Goldstein, Stewart, Hoaken, and Flett (2014) found a relationship between the level of gambling disorders and five positive affect states and five negative affect states. Goldstein et al.'s finding is similar to McCormack et al.'s (2013a) finding that problem gamblers and at-risk gamblers had a significantly higher likelihood of feeling euphoria, excitement, anger, and happiness. These studies found correlations between affect and gambling severity.

Although Internet gamblers tend to be male (McCormack et al., 2014; Shead et al., 2012), there has been in increase in the number of female players (McCormack et al., 2014; Shead et al., 2012). Research results have shown differences regarding gender and the emotional experience of an Internet gambling session. Female gamblers appear to react differently to the stigma around being an Internet gambler, and they Internet gamble for reasons that are different from male gamblers (McCormack et al., 2014). Women also perceive Internet gambling as a safer way to learn to gamble than casino gambling. These women learn to gamble by using social media's social casino gambling, and Internet gambling (Gainsbury, Russell, Wood et al., 2015; Griffiths & Kuss, 2015; McCormack et al., 2014). Currently, research on gambling and gender has found gender to influence gambling severity.

Gambling-related problems are a major public health issue that effects the gambler, his or her social circle, and society (Afifi et al., 2014; Griffiths, 2004). As Internet gambling becomes more popular, concerns regarding Internet gamblers increase surrounding the risks of Internet gambling (Gainsbury, Russell, Blaszcynski, & Hing, 2015; Wood & Williams, 2011) and some researchers have shown that Internet gamblers are more likely to engage in potentially harmful lifestyles than casino gamblers (Shead et al., 2012). Findings from the current study are relevant to people with gambling problems and health care practitioners, the latter of whom may be able to assist in education, early interventions, prevention, treatment, and relapse prevention for the population of interest.

Problem Statement

The research problem was that there was a gap in the literature linking specific predictors of Internet problem gambling severity to age, gender, and emotions felt prior to gambling experiences (Afifi et al., 2014; Wardle, Moody, Griffiths, et al., 2011; Wardle, Moody, Spence, et al., 2011; Winters et al., 1998). Research has shown that Internet gamblers are at a higher risk than other gamblers of developing gambling-related problems (Nowak & Aloe, 2014; Rinker, Rodriguez, Krieger, Tackett, & Neighbors, 2016). Thus, it is vital to identify the predictors of problem gambling severity for this population of gamblers (Gainsbury, Russell, Wood et al., 2015).

Gambling severity-related problems are acknowledged as a mental health condition by experts (Gainsbury, Russell, Wood et al., 2015). However, research on the predictors of Internet gambling severity is incomplete and limited, and there is no

consensus on what may predict the gambling severity of an Internet gambler. Limited research has shown that those with gambling-related problems largely feel a variety of negative affect states (Goldstein et al., 2016; Matthews et al., 2009). Additionally, researchers found gender differences in the prevalence of gambling-related problems and emotions felt while Internet gambling (McCormack et al., 2014). Furthermore, multiple researchers have identified gender as a possible predictor or as a control variable to Internet gambling severity (Blinn-Pike, Worthy, & Jonkman, 2007; Griffiths & Barnes, 2008; Kairouz, Paradis, & Monson, 2016; Shead et al., 2012; Shin & Montalto, 2015). However, there is no consensus about whether age, gender, and emotions prior to the gambling experience predict the severity of online problem gambling. Currently, research demonstrates that Internet gamblers are at a higher risk than other gamblers to develop gambling-related problems (Nowak & Aloe, 2014; Rinker et al., 2016). In addition, historically, more women than men experience suicidal ideations and suicide attempts because of gambling problems (Husky, Michel, Richard, Guignard, & Beck, 2015).

Purpose of Study

The purpose of this quantitative study was to determine if age, gender, and emotions prior to the gambling experience are related predictors of Internet problem gambling severity. The results of the study may provide insight and knowledge that can be used by health care practitioners to connect Internet gamblers' emotions before Internet gambling sessions to problem gambling severity. Such knowledge may help practitioners to pinpoint factors that predict Internet gambling severity. The independent

variables were emotions before Internet gambling experiences, gender, and age. I used

the PANAS (Watson et al., 1988) to measure the independent variables. I also used

information from the PGSI (Ferris & Wynne, 2001a) to measure the dependent variable,

problem gambling severity.

Research Question and Hypothesis

RQ: Do age, gender, or emotions felt prior to the gambling experience predict the

problem gambling severity of Internet gamblers?

H_0: Age, gender, or emotions felt prior to the gambling experience do not predict

the problem gambling severity of Internet gamblers.

H_a: Age, gender, or emotions felt prior to the gambling experience predict the

problem gambling severity of Internet gamblers.

Conceptual Framework

The conceptual framework used for this study was the Pathways model, which is an

empirically testable schema that researchers and clinicians use to identify problem and

pathological gambling (Blaszczynski, 2000; Blaszczynski & Nower, 2002). This

integrated model consists of three distinct subgroups and typologies associated with those

who develop maladaptive gambling-related problems (Blaszczynski, 2000; Blaszczynski

& Nower, 2002; see Figure 1). The three subgroups included in the pathways model are

the "normal" behaviorally conditioned gambler, the emotional vulnerable gambler, and

the gambler with pathological antisocial and impulsive traits (Blaszczynski, 2000;

Blaszczynski & Nower, 2002). A gambler of any age may enter the behaviorally

conditioned gambler subgroup (Blaszczynski & Nower, 2002). The emotionally

vulnerable gambler may be impulsive and females with gambling problems tend to be

older than the males with gambling problems (Blaszczynski & Nower, 2002). However,

when considering emotions, the antisocial impulsive is the most highly disturbed gambler

and those in this subgroup begin gambling at an early age (Blaszczynski & Nower, 2002).
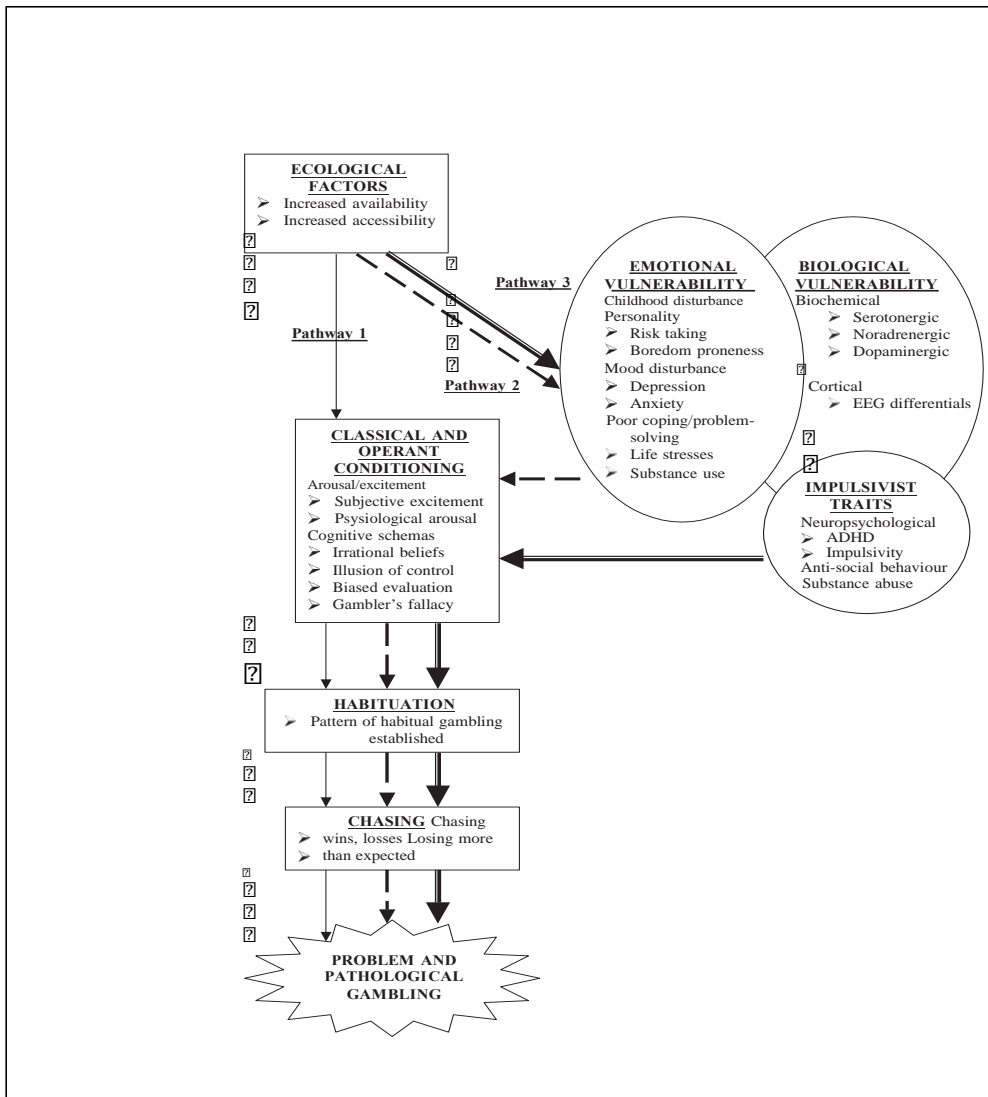
Figure 1. The Pathways integrated model of problem gambling. (Blaszczynski & Nower, 2002)

The pathways model has led researchers to believe that gamblers use gambling to regulate emotions to escape or disassociate (Blaszczynski & Nower, 2002; Griffiths, Wood, Parke, & Parke, 2006). Researchers expanded on and correlated the pathways model with Jacobs' (1986) theory of addiction, which advocates that personality and personal vulnerabilities from childhood experiences interact on a physiological level and correlate with pathological resting states of arousal. The three subgroups included in the pathways model start with the influences of availability and access to gambling (Blaszczynski & Nower, 2002). Additionally, access to not only easy, Internet gambling is mostly anonymous, is accessible 24 hours a day, is socially acceptable, and is affordable (and, in the case of social casino games, available with no financial output; Griffiths & Kuss, 2015; Griffiths, Parke, Wood, & Parke, 2006; King et al., 2010; MacKay & Hodgins, 2012). Blaszczynski and Nower (2002) listed several variables associated with the three subgroups included in the pathways model, and gamblers were homogenous, except for gender and age.

Information gained from the pathways model has allowed researchers to agree that depression, anxiety, excitement, boredom, life stress, irritability, negative emotions, age when one first gambles, and impulsivity are precursors to developing gambling-related problems (Blaszczynski & Nower, 2002; Frankfort-Nachmias & Nachmias, 2008; Ledgerwood & Petry, 2010; Moghaddam et al., 2015; Turner et al., 2008; Welte, Barnes, Tidwell, & Wieczorek, 2016; Wood & Williams, 2011). However, current research

shows mixed findings on how age, gender, and emotions fit into the pathways model (Wardle, Moody, Griffiths, et al., 2011; Wardle, Moody, Spence, et al., 2011; Winters et al., 1998), thus warranting the need for this study. In Chapter 2, I elaborate on the pathways model and why it was applicable to this study.

Nature of the Study

The use of a quantitative approach and a generalized linear model was appropriate for determining specific predictors of Internet gambling-related problems. To collect data from the participants, I used Internet surveys. The independent variables used in this study were age, gender, and emotions before the gambling experiences. The dependent variable was participants' scores on the PGSI (i.e., a continuous scale of problem gambling severity). The independent variable age was a continuous numerical variable. The independent variable gender was a categorical variable that has two categories (female and male) with no intrinsic order. The independent variable emotions before the gambling experiences was an ordinal variable ordered. I used the PANAS (Watson et al., 1988) to identify the retrospective recalled emotional state of the participants prior to an online gambling session. In addition, I identified if age, gender, and emotions before the gambling experiences have any significant correlation with the dependent variable. The dependent variable for this study was the problem gambling severity and I measured this variable using the PGSI.

Definitions

The following are terms and phrases used throughout the study:

Affect: The range of a person's emotions (Groth-Marnat, 2009). It is a subjective range of positive and negative appraisal of an object, behavior, or idea with intensity. Affect includes emotions, feelings, and sentiments (Munezero, Montero, Sutinen, & Pajunen, 2014). The PANAS is a tool used to evaluate the intensity of positive and negative affect (Watson et al., 1988).

Emotion: The expressions of one's internal state as affect or emotion. Emotions are subjective and they correspond with feelings. Emotions influence behaviors based on the person's experiences, culture, and thoughts (Munezero et al., 2014).

Emotional state: A state of being, classified as positive or negative, which is not a subjective feeling (Brudzynski, 2013). Internal or external stimuli or situations can trigger these states of being (Brudzynski, 2013). These states initially evolved to allow an animal to adjust behaviors in specific situations (Brudzynski, 2013; Griffiths, Wood et al., 2006).

Feelings: The sum of emotions and affect (Groth-Marnat, 2009). Feelings are sensations and emotional states associated with previous experiences (Munezero et al., 2014).

Gambling disorder: The *DSM-5* defined the criteria for having a gambling disorder. The criteria focus on the conditions of the gambler after losing money gambling, which include the gambler, needs to gamble with increasing amounts of money to feel excited, and has tendencies to become restless, irritable, and discontented when they attempt to cut down or stop gambling. The gambler often returns another day to get

her or his money back. The gambler often gambles when he or she experiences distressful feelings. The gambler lies to conceal the extent of involvement with gambling. The gambler has jeopardized or lost a significant relationship, job, or educational or career opportunity because of gambling (American Psychiatric Association, 2013; Petry & Gonzalez-Ibanez, 2015).

Gender: The attitudes, feelings, and behaviors that a given culture associates with a person's biological sex (Merriam-Webster, 2018). The American Psychological Association (2012) referred to behaviors that are compatible with cultural expectations as gender-normative; behaviors that are incompatible with these expectations constitute gender nonconformity (American Psychological Association, 2012).

Mood states: Mood denotes the dominant emotions. Various mood states affect behaviors. Pathological gamblers gamble to escape or avoid the affect states of negativity, anxiety, depression, and stress (Groth-Marnat, 2012; Williams, Grisham, Erskine, & Cassedy, 2012). Mood also supplements affect, and both can be involved in emotion regulation (Goldstein et al., 2014).

Problem gambling: Negative consequences (emotional, financial, and societal) are attributed to Internet gambling (Afifi et al., 2014).

Problem gambling severity: Terminology used to describe gambling-related problems. This term encompasses past diagnostic terms from different researchers, such as *problem gambling*, *disordered gambling pathological gambling,* and *compulsive gambling.* Problem gambling severity (Whelan, Meyers, & Steenbergh, 2007) is used as

an umbrella term in this study. There is no internationally accepted definition for the

phrase "problem gambling severity" as it relates to gambling harm or an appropriate

measure available to quantify gambling-related harms (Langham et al., 2016). However,

the PGSI assessment tool is used to assess the risks related to a gambler's problem

gambling severity (Ferris & Wynne, 2001a, 2001b).

Internet gambling: Any form of gambling using money and the Internet. *Internet*

gambling and *online gambling* are often used interchangeably (Gainsbury, Russell, Wood

Hing & Blaszczynski, 2015). Internet gambling provides a wide range of options that are

available to facilitate many different types of people (Gainsbury, Russell, Wood et al.,

2015).

Online-gamblers: People who have used the Internet for online gambling

purposes using money (Gainsbury & Blaszczynski, 2014; Wardle, Moody, Griffiths, et

al., 2011). These individuals may use computers or supplementary devices, such as

mobile phones, tablets, and interactive television (Gainsbury, Liu, Russel, & Teichert,

2016; Griffiths, 2007).

Pathological gambling: The *DSM-5* reclassified common gambling-related

problems as an addictive disorder and renamed the diagnosis a *gambling disorder*. The

DSM-5 included information about how the criteria for a gambling disorder have many

similarities to substance addictions. Pathological gambling is also referred to as

compulsive gambling and may be a form of impulsive-control gambling in which the

gambler keeps gambling whether they are up or down, happy or sad (American Psychiatric Association, 2013; Petry & Gonzalez-Ibanez, 2015).

Social casino games/social casino gambling: Gambling with virtual money, which is a type of practice-play on the Internet with casino-type games, with no chance of a financial payout. Gamblers can find these games on social media sites, such as Facebook, or on mobile apps. Their intent is to mimic gambling activities (Gainsbury & Derevensky, 2013; Gainsbury, Hing, et al., 2015; Gainsbury, et al., 2017; Griffiths & Kuss, 2015). These include microtransactions for additional game credits or functionality (Kim, Hollingshead, & Wohl, 2016). Free-play gambling is often on social media sites, such as Facebook, and mobile applications (Griffiths & Kuss, 2015). Although many gamblers perceive social casino games and free-play gambling as "safe", research has shown that this form of Internet gambling has generated a desire to Internet-gamble using money (Gainsbury, Russell, Wood et al., 2015; Gainsbury et al., 2017; Griffiths & Kuss, 2015; Kim, Hollingshead et al., 2016).

Assumptions

Multiple assumptions are associated with this quantitative study. The first assumption was that the PANAS (Watson et al., 1988) and the PGSI (Ferris & Wynne, 2001a) instruments had enough reliability and validity to accurately access Internet gamblers' emotions prior to the gambling experience and problem gambling severity. Another assumption was that participants would honestly complete the survey and their responses would be accurate, which is part of the validity and reliability questions

associated with any measurement tool. There was an expectation that some participants' responses would express bias because of cognitive distortions and emotional hijacking that may override correct decisions when gambling (Bechara, Damasio, Tranel, & Damasio, 2005; Ciccarelli, Nigro, Griffiths, & Cosenza, 2017; Laakasuo, Palomäki, & Salmela, 2015; Yakovenko et al., 2016) as well as when they answered the survey. Another assumption was that I could not account for all variables that affect problem gambling severity. However, this study's focus was on the relationship between emotions prior to the gambling experience and problem gambling severity, and through analysis, I also examined the influence age and gender has on the dependent variable.

I chose the multiple regression model of analysis and considered the following assumptions. I assumed that two of the independent variables were measured at a continuous level, that there is a linear relationship between the independent variables and the dependent variable, and that there are no significant outliers. A further assumption was that there was an independence of observations, that the data showed homoscedasticity, and that the residuals (errors) of the regression were normally distributed (see Lund & Lund, 2013). The chosen data analysis for the continuous independent variables (i.e., age and emotions) was regression. The chosen data analysis for the dichotomous independent variable (i.e., gender) was regression.

Scope and Delimitations

This study pertained to adult Internet gamblers and their age, gender, and emotions prior to the gambling experiences, and problem gambling severity. I used the

pathways model to identify problem and pathological gambling, based on concepts from Blaszczynski (2000). The study's findings led to additional insight and knowledge in the field of research on gambling-related problems. The participant population was adult Internet gamblers older than the age of 18, who had used Internet gambling sites or practice sites. All participants who met the criteria could participate in the study. Although not generalizable to the general population, this type of design is suitable for gaining a sample of self-selected volunteers and their self-reported responses (Gainsbury, Russell, Blaszczynski, & Hing, 2015; McCormack et al., 2013a; McCormack et al., 2013b; Wood & Williams, 2011).

Limitations

The study had several limitations associated with the quantitative method. Sometimes survey questions are hard to understand if written in a complex language. The next limitation was that only Internet gamblers who participated in an Internet gambling session(s) in the last week, to meet the criteria for the PANAS (Watson et al., 1988), were eligible to participate. Therefore, the results may not be generalizable to gamblers who have not played for longer or play with different levels of frequency. The final limitation was that gamblers must have gambled or have had gambling experiences in the last 12 months to meet the criteria for the PGSI (Ferris & Wynne, 2001b). Instead of getting participants from the general population, the web-based survey company that posted the survey, Qualtrics, gained access to the target population through their niche panels instead of the general population, excluded those who did not meet the criteria,

and provided data from only completed surveys.

Significance

The actual participation in this study may have allowed participants to gain some insight and understanding about their individual gambling issue simply by responding to the survey questions. It was possible that some participants recognized that they may have a gambling-related problem when understanding the questions and reflecting on them during and after the survey process. This study about problem gambling severity as it relates to age, gender, and emotions, may have important clinical, political, educational, and social implications, based on the responses from the survey, which included psychosocial and psychological information from the PANAS (Watson et al., 1988) and PGSI scales (Ferris & Wynne, 2001a). The results from the study provided knowledge that health care practitioners, policy makers, and educators could use to plan, implement, communicate, and evaluate intervention strategies. Such actions will help prevent gambling problems, educate or to make people aware that they may have gambling-related problems, or incorporate contingency plans to prevent relapse for those who are recovering from their gambling-related problem.

Summary

Gambling has proven to be an intricate part of the human social, emotional, and financial culture. This chapter introduced gambling-related problems as it related to Internet gambling and how the independent variables, age, gender, and emotions before the gambling experiences, may predict gambling-related problems and inform the

problem gambling severity. Results from this study offer more data that can be used in future research, and this may help develop preventive and early intervention strategies for not only Internet gamblers, but also for all gamblers. Chapter 2 includes a review of relevant literature regarding gambling-related problems and the other variables, which support the theoretical framework, the gap in research, and the need for this study.

Chapter 2: Literature Review

Introduction

Gambling is a problem that not only affects the gambler, but also affects those associated with him or her, including family and friends (Nowak & Aloe, 2014; Rinker et al., 2016). Gambling-related problems are a major public health issue that affects the gambler, his or her social circle, and society (Afifi et al., 2014). Internet gambling-related problems may begin by changing the gambler's finances, after which they may progress to severe financial problems, bankruptcies, criminal activities, stress-related health issues, completed suicides, and homicide (Cook et al., 2015; Ledgerwood, Steinberg, Wu, & Potenza, 2005; Moghaddam et al., 2015; Thon et al., 2014). According to McBride and Derevensky (2009), Internet gamblers are 10 times more likely to develop gambling-related problems than casino gamblers.

Researcher have provided some information about possible affects the Internet has on gamblers' activities. The concern for many researchers, health care practitioners, policy makers, and educators is that gambling has become such a popular American past time that they are unsure of how to address problems associated with Internet gambling (Gainsbury, Russell, Blaszczynski, & Hing, 2015; Wood & Williams, 2011). Currently, researchers have not identified how emotions prior to the gambling experience, age, or gender can predict the problem gambling severity of Internet gamblers. This purpose of this study was to investigate whether adult Internet gamblers' emotions prior to the gambling experiences, age, or gender predict the severity of their gambling problem

using the PANAS and PGSI as validated assessment tools. Researchers have used the PANAS to evaluate gamblers' affect (Watson et al., 1988) and the PGSI to measure problem gambling severity (Ferris & Wynne, 2001a). Results from some of the studies whose authors have used the PANAS and the PGSI are included in the literature review. This chapter also includes the literature search strategy, the conceptual framework, and that literature review related to key variables. Last, this chapter includes a summary of the themes found in the literature.

Literature Search Strategy

The literature consists of information from the EBSCOhost database platform, which I accessed through Walden University Library. The literature review includes scholarly peer-reviewed articles published within the past 5 years. Some of the articles dating older than 5 years are important because they provide historical context for the variables. Initially, I did not intend to analyze age, gender, and emotions associated with Internet gambling; rather, I sought gaps in the research regarding Internet gambling and the prevalence of *pathological gambling*. While researching peer-reviewed literature, I learned that the American Psychiatric Association (2013) had published the *DSM-5*. In the *DSM-IV-TR,* the categorization of gambling-related problems was in a subgroup of Impulse Control Disorder (American Psychiatric Association, 2000). The American Psychiatric Association categorized gambling-related problems as substance-related and addictive disorder. Furthermore, the American Psychiatric Association diagnosed gambling-related problems on a *gambling disorder* spectrum. As I continued to search for

literature, I noticed limited research on students who Internet-gamble. Therefore, I initially intended to conduct a prevalence study that expanded the research of Sammut (2010), Ly (2010), Griffiths, Parke, Wood & Rigby (2010), and Shead et al. (2012).

I broadened the search and found a gap regarding whether age, gender, and emotions felt prior to an Internet-gambling session are predictors of problem gambling severity. From there, I narrowed the scope of my literature review to peer-reviewed articles in the following databases and search engines, PsycINFO, PsycArticles, SAGE Premier, SocINDEX with full text, Academic Search Complete, CINAHL Plus with Full Text, ERIC, and Google Scholar. I saved and reviewed more than 300 articles relating to emotions prior to an Internet gambling session, age, and gender, and problem gambling severity. In an attempt to review all articles relevant to the identified the gap, I used the following terms to search for articles, *affect*, *age*, *emotion*, *female*, *gamble*, *gambling disorder*, *gender*, *Internet*, *male*, *mood*, and *2007-present*.

Problem gambling research continues to be an underresearched area of addiction (Baggio et al., 2017). My research showed similar findings, such as a Google Scholar search return of more than 24,000 results to *alcohol, emotions, age, and gender*. Most Internet gambling studies had self-selected participants, and those studies were narrowly focused (Wardle, Moody, Spence et al., 2011).

Conceptual Framework

Blaszczynski (2000) used the Pathways model to propose that venue gamblers are not a homogenous group with one pathway to developing a gambling disorder.

Blaszczynski suggested that the pathways model provided an explanation of how gamblers develop gambling-related problems because of heterogeneous and complex reasons (Blaszczynski, 2000). Blaszczynski (2000) and Blaszczynski and Nower (2002) proposed that multifaceted interactions, ecological factors, emotional vulnerability, biological vulnerability, impulsive traits, classical operant conditioning, and habituation trigger maladaptive behaviors lead to gambling-related problems. The focus of this research was on venue gamblers rather than on Internet gamblers (Blaszczynski, 2000; Blaszczynski & Nower, 2002).

A tenet of the pathways model is that all gamblers have the possibility of developing gambling-related problems and problem gambling severity because of the ecological factors of availability and their accessibility to gambling (Blaszczynski, 2000). Subsequently, the pathways model suggests that gamblers then fit into additional subgroups: biological vulnerability because of childhood disturbance, mood disturbance and poor problem solving; biological vulnerabilities that are biochemical and cortical; and impulsive traits that are because of neuropsychological issues, such as ADHD, antisocial behavior, and substance abuse (Blaszczynski, 2000; Blaszczynski & Nower, 2002). Additionally, the problem gambler's emotional reaction, tendency to be emotionally dysregulated, or impulsive traits may lead to the development of a gambling disorder (Blaszczynski, 2000; Blaszczynski & Nower, 2002). In this study, I focused on the emotions felt before gambling, age, and gender as possible predictors of a gambling disorder. According to the pathways model, not only can emotions overall be correlated

with the development of a gambling disorder, but the presence of certain affect states surrounding an Internet gambling session and the etiology of the gambling-related problem can be used to identify the most appropriate intervention (Blaszczynski, 2000).

The pathways model and the gambling disorders diagnosis both consider financial loss as part of the development of a gambling disorder diagnosis (Blaszczynski, 2000; Blaszczynski & Nower, 2002). However, gamblers do not always need to wager money on the Internet to develop gambling-related problems (Bednarz, Delfabbro, & King, 2013). The social casino gambler, who gambles without money or only minimal amounts of money, develops gambling-related problems similar to Internet gamblers (Bednarz et al., 2013). Hence, social casino gamblers were not eliminated from this study.

This study involved the following assessments, the PGSI and the PANAS, for measuring, respectively, the independent variable (participants recalled emotions prior to an Internet-gambling session, age, and gender) and the dependent variable (the severity of their gambling-related problems). The pathways model aligns with the PGSI and the PANAS tools and the PGSI and PANAS have been used in multiple gambling-related studies using the conceptual framework of the pathways model (Goldstein et al., 2016; James, Tunney, & O'Malley, 2016; MacLaren, Harrigan, & Dixon, 2012; Matthews et al., 2009). Researchers commonly use the PGSI in surveys (Welte et al., 2015). The results of this study improve the understanding of the emotional aspects of gambling disorders by determining if emotions significantly predict problem gambling severity, and if age or gender significantly predict problem gambling severity. Knowledge about

emotions, age, or gender as predictors of gambling disorder may be useful in prevention, early interventions, prognosis, and treatment.

<div align="center">**Literature Review Related to Key Variables and Concepts**</div>

History of Gambling

Schwartz (2013) believed that gambling began more than 5,000 years ago and David (1998) argued that gambling began as early as 3500 BC. Gambling began with the use of heel bones from animals and later, the Lydians and Greeks created the first games involving dice (David, 1998; Schwartz, 2013). According to David (1998), Galileo-Galilee appeared to be the first person to write about understanding probabilities and spreads. Galileo-Galilee's writing led gamblers to seek calculations of certain probabilities ranging from 0 and 1, using dice and cards to predict the odds that an event will happen. Caesar referenced gambling with dice during his reign from 69 BC to 141 BC (David, 1998). Additionally, the first reference to gambling restrictions came from Caesar, and his governing body prohibited gambling in all areas except during Saturnalia (David, 1998). David explained that during the Dark ages, the Church prohibited all forms of gambling.

The first modern casino was in Venice, Italy in 1638 (Schwartz, 2013). In 1665, settlers from Britain built and organized Newmarket, which was the first racetrack in Long Island, New York (Dunstan, 1997; O'Brien, 2014). Many people did not view gambling as a productive and ethical past time, and President George Washington stated that all gambling was the route of all evil (Polsson, 2016). Nevertheless, in 1793,

Washington bought the first lottery ticket ever sold in Columbia, Washington (Polsson, 2016). In the 1700s, government officials developed lotteries to raise money for the government (Schwartz, 2013), and gambling techniques and methods have improved and flourished in the United States since that time. In the United States, for more than 200 years, most gambling was a vice and illegal. Nevada opened its first casino in 1931 (Schwartz, 2013). However, in 1957, 27 years after the 12-step program, Alcoholics Anonymous and Gambler's Anonymous was founded (Castellani, 2000). In 1958, Bergler wrote that there were two types of gamblers: the criminal gamblers and the neurotic gambler (Castellani, 2000). Bergler also wrote that the pathological gambler had a medical problem (Castellani, 2000). In 1972, the first treatment center for problems related to gambling opened in Brecksville, Ohio at the Veteran's Administration Hospital (Russo, McCormick, Ramirez, & Taber, 1984). The Diagnostic Statistical Manual of Mental Disorders-III (DSM-III) was published in 1980, and the researchers determined that a gambler who was unable to stop gambling excessively could have a form of mental illness (Castellani, 2000). As of 2007, the U.S. government officials allowed commercial venue gambling in 11 states with Indian tribes operating casinos in 28 states (Cape Cod Times, 2007).

The first Internet gambling casinos went live between 1994 and 1995, with InterCasino accepting the first Internet wager (Williams & Wood, 2007). Not long after, Internet gambling included lotteries, sports-betting, bingo, and poker games, with betting exchanges, and skill games being developed (Williams & Wood, 2007). Some of the

online venues involve the use of money, and others involved players playing for free, hence the terms free-play gambling or social casino gaming (Frahn, Delfabbro, & King, 2015; Gainsbury et al., 2017; Kim, Wohl, Salmon, Gupta, & Derevensky, 2015; Hollingshead, Kim, Wohl, & Derevensky, 2016), which led to easy access gambling, more frequent gambling, and gambling-related problems.

Prevalence of Gambling and Gambling Problems

According to Wood et al. (2007), only a limited number of studies have been about people with Internet gambling-related problems and the prevalence of online gambling. Published reports of studies have had vastly different results. Some researchers reported no evidence to suggest that Internet-gambling was problematic or addictive (Wood et al., 2007). In another study examined by Wood et al., the researchers found that of 1,294 participants in Ontario, Canada, only 5.3% had gambled online during the past 12 months and that women were more likely to Internet gamble than men (6.3% for women and 4.3% for men). Other researchers reported that 90% of their participants from the United States had gambled within the past 12 months and 70% had gambled within the 2 months prior to the survey (Wood et al., 2007). Other researchers collected data, reported an increase in gambling prevalence, and noted that Internet gamblers have a higher risk of becoming problem gamblers than nonInternet gamblers (Wardle, Moody, Spence et al., 2011).

Many of the studies on Internet-gambling have involved adolescents or adult students, and their results may not be generalizable to the Internet-gambling population.

Petry and Gonzalez-Ibanez (2015) noted that 3–14% of student Internet gamblers develop gambling-related problems. McBride and Derevensky (2009) found those in the 18–24-year-old age range were more likely to have gambled on the Internet than the 25–54-years-olds, thus exposing the 18–24-year old students to a higher risk of developing a gambling disorder. Nowak and Aloe (2014) also stated that problem gambling severity is more prevalent among adults in certain age groups than other age groups (Nowak & Aloe, 2014).

Gender Research

There are multitudes of Internet gambling studies related to gender differences (McCormack et al., 2014). According to McCormack et al. (2014), gambling has for the most part been associated with males. However, females have been Internet gambling for a shorter period than males. The results from their study included information about how female gamblers experienced gambling much differently than males, and the researchers reported more shame and guilt than male gamblers (McCormack et al., 2014). The results from the study conducted by Gainsbury, Russell, Blaszczynski, and Hing (2015) included information about how males are more likely to possess multiple gambling accounts (91.9%). A study conducted by Gainsbury, Russell, Wood, Hing, and Blaszczynski (2014) revealed that of the 455 people who reported being problem gamblers, 93.2% were males and 6.8% were females. According to Petry and Gonzalez-Ibanez (2015), male gamblers with gambling-related problems tend to use slot machines and females tend to get into trouble playing bingo. Afifi et al. (2014) reported the strong, but not

significant, effect that being "male" moderates gambling problems as a function of involvement (type of games played) for nonInternet gamblers. Turner et al. (2008) reported sex differences in the ways social gamblers use gambling to cope with or intensify certain emotions. When Welte et al. (2015) compared their data in 1999–2000 to 2011–2013, regarding age, they found an increase in problem gambling with men and a decrease with women. The effect was not strong enough to support their hypothesis that involvement effect would vary by gender. Gainsbury, Russell, Blaszczynski, and Hing (2015) reported that age significantly predicted the diversity of an Internet gambler's game choices and that gender and problem gambling severity did not predict types of involvement. Some researchers have only used gender as a control variable (Blinn-Pike et al., 2007; Griffiths & Barnes, 2008; Shead et al., 2012; Kairouz et al., 2016; Shin & Montalto, 2015).

Age Research

The results regarding significant differences on age predicting problem gambling severity are not conclusive, but rather mixed. The University of Michigan's 1975 national survey showed that younger and middle-aged adults had more gambling-related problems than older adults (Welte et al., 2015). When Welte et al. compared their data from 1999–2000 to data from 2011–2013, regarding age, they found that the younger (18–30 age group) and older age groups had a decrease in the frequency of gambling. However, the 31–45 age group had the highest prevalence rate of gambling severity (Welte et al., 2015). Afifi et al. (2014) reported the strong but not significant effect that being "older"

(p. 213) moderates gambling problems as a function of involvement (type of games played) for nonInternet gamblers. Still, the effect was not strong enough to support their hypothesis that involvement effect would vary by age.

Turner et al. (2008) did not find significant relationships where the age of onset predicts the pathways to a gambling disorder. However, Blaszczynski and Nower, (2002) stated in their pathways model that an early age of onset predicts a higher risk of becoming a gambler that is impulsive and has antisocial traits. Turner et al. reported significant results linking impulsivity, age, and their level of gambling-related problems. The researchers also found significant relationships between impulsivity, depression, anxiety, and the level of gambling-related problems. Until recently, older people were not a high-risk group, but Baby Boomers are at higher risk of developing gambling-related problems because of their amount of leisure time and accessibility to Internet gambling, not limited to online sports-wagering (Thompson & McNeilly, 2016).

Affect and Emotion Research

Some studies have looked at gamblers and affect (Buelow & Suhr, 2013; Goldstein et al., 2016; Griffiths & Kuss, 2015; Lloyd et al., 2010; Matthews et al., 2009; Petry & Weinstock, 2007; Wardle, Moody, Spence et al., 2011; Wong, Chan, Conwell, Conner, & Yip, 2010). Goldstein et al. (2016) used the PGSI, the PANAS-X, and a variety of other assessments to look at mood, motives, and gambling behaviors. Goldstein et al. speculated that young adults have been Internet gambling less years than older adults have and may not yet have developed a coping mechanism for negative affect

states. Goldstein et al. also found those with positive affect states tended to spend more money and drink more. Additionally, most gambling studies pertained to nonInternet gamblers, not at Internet gamblers. Blaszczynski and Nower (2002) and Matthews et al. (2009) stated that previous research has shown that nonInternet gamblers with gambling-related problems gamble to regulate their affect state. Additionally, Blaszczynski and Nower and Matthews et al. agreed that most researchers have found that high negative affect states in general, while gambling and after gambling, predict gambling-related problems. Matthews et al. analyzed Internet gamblers and found that negative affect states after gambling online, and having an overall negative affect state, predict problem gambling.

No prior studies have involved real-time Internet gambling, but researchers have examined emotions or affect states. Matthews et al. (2009) analyzed Internet gamblers (average age was 20.7 year), attending Midlands University in the United Kingdom, and their emotions related to an Internet-gambling session. Matthews et al. used the PANAS six emotional state measures as the predictor variables for gambling severity measured by South Oaks Gambling Screen. Matthews et al. found that a participant's overall negative affect state and negative affect states after gambling predicted gambling severity. Likewise, Atkinson, Sharp, Schmitz, and Yaroslavsky (2012) researched young adult students (18–25) in the United States. Atkinson et al. used the PGSI and the 21-item version of the Depression, Anxiety, and Stress Scales with additional assessments that did

not look at other affect states. Atkinson et al. found a link between negative affect and gambling severity.

McCormack et al. (2013b) used participants from posts on international gaming websites with an average age of 34.7 years to examine the characteristics and predictors of gambling-related problems. McCormack et al. (2013b) used an in-house survey that did not include the PANAS but similarities to the PGSI existed. McCormack et al. (2013b) analyzed a variety of characteristics, including emotions felt while gambling online and found that problem gamblers and at-risk gamblers were more likely to feel excitement, euphoria, anger, and happiness, but the problem gamblers were also more likely to feel escapism, loneliness, frustration, irritability, shame, guilt, and happiness. The nonproblem gamblers did not feel any emotion change because of playing online.

The emotions experienced at the beginning of a gambling session may be different from the feelings experienced at the end of a gambling session, and those differences may be associated with the severity of gambling problems (Gainsbury, Russell, Wood et al., 2015). Matthews et al. (2009) and McCormack et al. (2013b) are the two studies in the field of Internet-gambling research that pertained to affect states and emotions felt at different points in time regarding Internet-gambling. Although Internet gamblers and their emotions, mental-health symptoms, and cravings are like those with other addictions (de Castro et al., 2007; McCormack et al., 2013b; Scholes-Balog & Hemphill, 2012), the research remains limited surrounding emotions felt before and after an Internet gambling session. Affect and emotions can be regulated by Internet gambling

(Lloyd et al., 2010; Wood & Griffiths, 2007) and Turner et al. (2008) reported emotional vulnerability had the largest effect on the pathways to developing a gambling disorder. Turner et al. reported significant results linking impulsivity to their level of gambling-related problems. Last, the researchers found significant relationships between impulsivity, depression, anxiety, and the level of gambling-related problems (Turner et al., 2008).

Gambling Severity Research

Researchers have linked many factors to Internet-gambling severity to include impulsivity, anxiety, and depression. Ledgerwood and Petry (2010) noted that antisocial impulsive gamblers are prone to having a history of drug and alcohol treatment and inpatient psychiatric hospitalization. Brunello et al. (as cited in Petry & Gonzalez-Ibanez, 2015) linked irresponsibility and substance abuse to gambling severity in Internet gamblers. Antisocial impulsive gamblers may be a result of parents struggling with addiction, according to Ledgerwood and Petry (2010). Nowak and Aloe (2014) found that gambling severity is the result of a need to escape and is ignited by adverse physiological and emotional states. Problem gambling severity is a direct reflection of a general negative affect and a negative affect directly after a gambling experience (Goldstein et al., 2016; Matthews et al., 2009). Goldstein et al. also noted that the involvement in different types of gambling is, in part, the connection between online-gambling and problem gambling severity and winning money. In addition, Internet gamblers have been found to have more problems gambling than casino gamblers (Baggio et al., 2017) and

most recently, social casino gamblers have also been identified to have existing gambling problems (Gainsbury et al., 2017). Those gamblers who use devices other than computers have a higher rate of gambling severity (Gainsbury, Liu et al., 2016). Atkinson et al. (2012) noted that a negative effect, among males but not females, mediates between reward responsiveness and gambling severity. However, Matthews et al. (2009) found that gambling severity increases within those who have an overall negative affect.

According to Blaszczynski and Nower (2002), pathological gambling can be associated with high levels of impulsivity, which relates directly to the problem gambling severity and responses to treatment. Thon et al. (2014) found that in a study of 342 pathological gamblers in treatment, those who had more gambling severity were more likely to suffer suicidal behaviors. Moghaddam et al. (2015) also found that problem and pathological gamblers are at a higher risk for suicidal ideation and attempts. Another study conducted by Gainsbury, Russell and Blaszczynski (2014) included information about how 19% of all the participants reported that gambling caused them significant problems. However, 94.9% of the participants believed that gambling is morally wrong, yet 34.6% of those participants believed that the benefits from gambling are about equal to the harm from gambling (Gainsbury Russell and Blaszczynski, 2014), thus suggesting that gambling may be wrong but can be beneficial. Additionally, Internet gamblers who gamble on multiple sites have a higher gambling severity (Gainsbury, Russell, Blaszczynski, & Hing, 2015). Last, gamblers prone to feeling shame also have increased gambling severity compared to those who do not feel shame (Yi, 2012). The study

included information about how "shame partially mediated the effect of problem gambling severity on the use of avoidant coping strategies" (Yi, p.6). Yi (2012) noted that shame-proneness was highly connected with problem gambling severity when controlling for guilt-proneness.

Summary and Conclusions

The literature shows a gap in the research regarding adult Internet gamblers who gamble for money or free-play, their emotions felt before an Internet gambling session, and how those emotions relate to the severity of their gambling-related problems. Furthermore, there is no consensus about emotions being associated with the severity of gambling-related problems or a gambling disorder. The pathways model suggests that gamblers develop gambling-related problems because of heterogeneous and complex reasons and this model is compatible with the PANAS and the PGSI assessments. The data results may be useful in preventative, early intervention, and treatment of those with problems related to their Internet gambling.

Chapter 3 provides an explanation of the specific research design with a rationale for the chosen methodology that details the procedures for recruiting, data collection, and analysis. Chapter 3 also includes a discussion of the threats to validity while still following ethical principles determined by the Institutional Review Board (IRB) so that no harm came to the participants.

Chapter 3: Research Method

Introduction

The purpose of this study was to determine if age, gender, and emotions prior to the gambling experience are related predictors of Internet problem gambling severity. Evidence exists that gambling can be an addictive behavior driven by emotions. According to Afifi et al. (2014) and Griffiths (2004), gambling-related problems are a significant public health issue that effects the gambler, his or her social circle, and society. Researchers have acknowledged gambling severity related problems as a mental health disorder (Gainsbury, Russell, Blaszczynski et al., 2014). Goldstein et al. (2016) noted that the research on the predictors of Internet gambling severity is incomplete and limited consensuses exists relating to what factors may predict gambling severity of Internet gamblers.

In this chapter, I explain how I investigated and filled this gap in literature. I used an Internet survey to examine whether the emotions experienced by adult Internet gamblers before an Internet gambling session, along with their gender and age, are related to their problem gambling severity. I used information from the PANAS (Watson, Clark & Tellgan, 1988) and the PGSI (Ferris & Wynne, 2001a) to measure the variables. This chapter includes a review of the study's purpose and the research question. The chapter also includes the research design and rationale and a detailed description of the study method, including the target population; sampling and sampling procedures; and procedures for recruitment, participation, and data collection. Finally, this chapter

includes the instrumentation and operationalization of constructs, threats to validity, the ethical procedures, and a summary.

Research Design and Rationale

I used a quantitative research method to measure the variables in this study. The independent variables in this study were emotions felt prior to an Internet-gambling session (as measured by the PANAS), age, and gender. The dependent variable in this study was problem gambling severity (as measured by the PGSI). I used a quantitative correlational design to investigate if there is a significant relationship between the independent and the dependent variable. There were no time constraints imposed on the study. A resource constraint was the availability of eligible participants recruited through Qualtrics. Resources dedicated to participant recruitment were limited to what was available through Qualtrics participant recruitment services.

A quantitative approach is appropriate when the variables under investigation are objectively measurable and quantifiable (Shuttleworth, 2018). I measured the independent and dependent variables in this study using validated quantitative instruments; therefore, a quantitative approach was appropriate for this study. More specifically, a quantitative correlational design allowed me to search for significant and nonsignificant relationships between the independent and dependent variables. This approach also helped me to confirm whether positive or negative emotional states prior to an Internet-gambling session, age, or gender predict problem gambling severity.

Methodology

Target Population

The population of interest included adults in the United States who have gambled on the Internet. In 2013, Welte et al. (2015) estimated that 2% of the population in the United States Internet gambled. However, a smaller sample of 150 participants was obtained through Qualtrics Research Survey Platform participant pool.

Sampling and Sampling Procedure

The sampling strategy used in this study was nonprobability convenience sampling. Nonprobability convenience sampling is an appropriate strategy to use when it is not feasible to sample from the entire population of interest. Because I was unable to sample from the entire population of adults who have gambled on the Internet, a convenience sample was appropriate to use. I culled participants via the Internet. Reaching potential participants via the Internet is an acceptable form of participant recruitment (Griffiths, 2010). Specifically, participants for this study were recruited via the Qualtrics Research Survey Platform participant pool (Qualtrics, 2014). The Qualtrics participant pool consists of individuals from the general population who are compensated by Qualtrics to participate in survey research (Qualtrics, 2014).

Qualtrics sent survey invitations to individuals in its participant pool who met the study inclusion criteria. Then, the participants were directed to a link to my survey. The inclusion criteria for the current study were that all participants must (a) be at least 21 years old, (b) reside in the United States, (c) have participated in Internet gambling using

money in the past 7 days, and (d) have Internet-gambled more than once during the past 12 months. I set the age requirement at 21 years and older. The PGSI allowed me to assess gambling severity during the last 12 months, and I chose the 7-day criteria for participants to align with the PANAS. People who were interested in participating in the study who did not meet the criteria were directed to another Qualtrics Research Survey Platform website where they received a thank you message for their interest in participating.

According to Retell, Roseau, and Savile (2012), with small samples (i.e., $N =$ 100–150 participants), continuous data can perform as well as categorical data. However, using a larger sample size can help decrease the likelihood of having underrejected data when completing a binary analysis (Rhemtulla, Brosseau-Liard, & Savalei, 2012). Depending on the power size, the minimum number of participants that I needed for this study was 77 to 119. I calculated this minimum number using G*Power 3.1.9.2 software using the following conservative power of the test number of 0.80 and the more commonly used power of the test of 0.95. Using a power of the test number of 0.80 allows for a minimum number of participants to complete the study and for the researcher to still detect a significant effect (Faul, Erdfelder, Lang, & Buchner, 2007). Using the power of the test number of 0.95 increased the needed participant number to 119. On both calculations, I used a priori criteria: multiple regression with three independent variables and one dependent variable, a medium effect size of 0.15, an alpha level of 0.05, and a power level of 0.80 or 0.95 (Faul, Erdfelder, Lang, & Buchner, 2007).

Procedures for Recruitment, Participation, and Data Collection

After receiving approval from Walden University's Institutional Review Board to conduct the study, I provided my survey instruments and study inclusion criteria to Qualtrics. Then, Qualtrics sent the online survey to individuals in its participant pool who met the inclusion criteria. Those who met the criteria were sent an e-mail that linked them to the URL that Qualtrics designated for this study's survey questions.

Qualtrics Survey platform monitored the URL that Qualtrics designated for this survey. When a volunteer clicked on the Qualtrics URL, the potential participant was presented with an informed consent page. The informed consent page presented instructions and information regarding the study and participants' rights. Participants answered an item at the bottom of the page to indicate whether they agreed or did not agree to participate. Participants who agreed to the informed consent received the study questionnaires. After completing the demographic questionnaire, the PANAS, and the PGSI, each participant exited the study with no debriefing. However, in case the survey questions elicited disquieting emotions from a participant, the survey included telephone numbers and web links to organizations that provide support or counseling in the United States. The Qualtrics Research Survey Platform website kept the survey available on the Internet until at least 150 individuals who met the study's inclusion criteria had completed the questionnaires.

Instrumentation and Operationalization of Constructs

The instruments that I used to operationalize the constructs of affect and gambling severity in the current study were the PANAS (see Appendix A) and the PGSI (see Appendix B). The PANAS research instrument allowed me to determine the independent variable (i.e., the level of positive emotions and negative emotions). The PGSI research instrument allowed me to determine the dependent variable (i.e., problem gambling severity).

PANAS. The PANAS (Watson et al., 1988) consists of a self-report Likert scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*) to determine participants' positive affect and negative affect (see Appendix A). Researchers use the PANAS to measure emotional experiences by asking participants about 20 dimensions of their positive affect and negative affect (Codagnone, Bogliacino, Ivchenko, Veltri, & Gaskell, 2014; Giorgetta, et al., 2014; Hudson, Jacques, & Stewart, 2013; Matthews et al., 2009; Watson et al., 1988). The PANAS assesses affect state and trait affect (Galinha, Pereira, & Esteves, 2013). For this study, I had the PANAS direct participants to think about their emotions before their last Internet-gambling session. Then, the PANAS directed them to, "Indicate to what extent you feel this way right now, at the present moment, OR indicate the extent you have felt this way over the past week" (Watson et al., 1988). Through PANAS, I asked the participants to recall their "emotions felt when you began your last Internet-gambling session."

The PANAS assessment tool was the most appropriate assessment to support this study's research question about emotions felt before an Internet-gambling session. There were 20 questions and participants were asked to recall emotions felt at the beginning of their last Internet gambling session. Items 1, 3, 5, 9, 10, 12, 14, 16, 17, and 19 were added for a total positive affect score. Items 2, 4, 6, 7, 8, 11, 13, 15, 18, and 20 were added for a total negative affect score. With both the positive affect and the negative affect, there can be a range of scores from 10 to 50. The higher the total scores of positive affect, for example, the more positive affect the participant is reporting. The lower the negative affect total scores, for example, the less intense the negative affect being reported. For example, 'interested' and 'excited' represent positive affect and if the participant felt 'interested' 'very slightly', then a score of 1 is applied, if 'interested' 'a little' then it would be scored 2, if 'moderately', then a score of 4 would be applied, and if they felt 'extremely' 'interested' then a score of 5 would be applied. If they felt 'moderately' 'excited', a score of 3 would be applied and the participant would thus far have a score of 8. All the scores that represent positive affect are added, with a potential score of 10–50. The same procedure applies to the negative affect questions.

The PANAS (Watson et al., 1988) is the most widely used measure of positive affect and negative affect and it provides an independent measure of the positive affect and negative affect (Lim, Yu, Kim, & Kim, 2010). Google Scholar showed the PANAS cited 21,154, and EBSCO Host noted 1,599 citations. The PANAS has two affect factors that are opposite, the positive affect and negative affect. The positive affect dimension

includes interested, excited, strong, enthusiastic, proud, alert, inspired, determined, attentive, and active. The negative affect dimension includes distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, and afraid. Watson et al. (1988) used the PANAS and documented internal consistency of more than 0.84, a test-retest reliability of 0.69 for the positive affect states and 0.72 for the negative affect subscales. In numerous gambling studies, researchers chose to use the PANAS to gather data (Codagnone et al., 2014; Giorgetta et al., 2014; Hudson, Jacques, & Stewart, 2013; Matthews et al., 2009). Matthews et al. (2009) noted the PANAS reliability was .89 (95% CI = .88–.90) for the positive affect scale and .85 (95% CI = .84–.87) for the negative affect scale. Crawford & Henry, (2004) noted the PANAS reliability was .91 for the positive affect scale and .87 for the negative affect scale. For this reason, the PANAS the researchers chose to measure six predictor variables: general negative affect state, negative affect state while gambling online, negative affect state after gambling online, general positive affect state, positive affect state while gambling online, and positive affect state after gambling online (Matthews et al., 2009). However, I considered only two affect states: positive affect states before a gambling session and negative affect states before an Internet-gambling session, in addition to age and gender, as predictors of the severity of gambling-related problems. Previous researchers have used the total score of the positive emotions and the total scores of the negative emotions, but they have not added the two total scores together (Bastian et al., 2015; Goldstein et al., 2016; Matthews et al., 2009; Rosi, Cavallini, Gamboz, & Russo, 2016). The positive emotions and

negative emotions scores are kept separate because higher scores indicate higher levels of either positive or negative affect states. Summing both positive and negative emotions may result in a skewed interpretation of the data. I obtained permission from the developer to use.

PGSI. The PGSI came out of the Canadian Problem Gambling Index (Ferris & Wynne, 2001a). The PGSI is a reliable 9-item questionnaire that measures self-reported gambling-related problems during the last 12 months (see Appendix B). The PGSI determines the classification of gambling-related problems by asking about gambling-related behaviors. The PGSI uses a Likert scale ranging from 0 (*never*) to 3 (*almost always*). The PGSI defines four levels of problem gambling based on a total raw score as follows, 0 = nonproblem gambling; 1 or 2 = a low level of problem gambling with few or no identified negative consequences; 3 to 7 = a moderate level of problem gambling leading to some negative consequences; and 8 or more = problem gambling with negative consequences and a possible loss of control. The severity of their problem gambling is determined by summing the Likert scale answers (ranging 0–27) that measure the participant's severity of gambling-related problems (Ferris & Wynne, 2001b). Sample items include, Have you gambled more than you could really afford to lose? and Have you felt you have a problem with gambling? The scores for each item were summed to create a total PGSI score that ranged from 0–27.

The PGSI has an identified reliability coefficient of 0.90 (Orford, Wardle, Griffiths, Sproston & Erens,, 2010). In multipl gambling studies, researchers chose to use

the PGSI to gather data (Frahn et al., 2015; Gainsbury, Russell, Blaszczynski, & Hing, 2015; Matthews et al., 2009; McCormack, et al, 2014; Welte et al., 2016; Yi, 2012). I obtained permission from the developer to use the PGSI.

Demographics. Demographic information were collected with the form found in Appendix C. Demographic data included gender (i.e., male, female), and age (years) for the data analysis. The following demographic questions were used for the purposes of characterizing the sample: How often do they Internet gambler with money?, How often do they gamble via free-play/play social casino games?, When did they last Internet gamble?, and When did they last free-play/play social casino games? After submitting the demographic information, participants were asked to complete the PGSI and the PANAS.

Data Analysis Plan

I used the SPSS Data Editor to clean the data and to assist me in identifying errors in the datasets. Specifically, the data were checked for missing responses and the presence of outliers. Participants with nonrandom patterns of missing responses were excluded from the analysis. Outliers were checked by computing standardized values for each of the independent and dependent variables. Tabachnick and Fidell (2013) suggested that scores with standardized values higher than 3.29 or less than -3.29 should be considered outliers and removed from the data. I computed and reported means, standard deviations, frequencies, and percentages for the independent, dependent, and demographic variables. Additionally, Cronbach's alpha inter-item reliability coefficients were reported for the subscales used in the study (i.e., the PANAS and PGSI).

The following research question guided the SPSS analysis:

RQ: Do age, gender, or emotions felt prior to the gambling experience predict the problem gambling severity of Internet gamblers?

H_0: Age, gender, or emotions felt prior to the gambling experience do not predict the problem gambling severity of Internet gamblers.

H_a: Age, gender, or emotions felt prior to the gambling experience predict the problem gambling severity of Internet gamblers.

I addressed the research question and hypotheses by conducting a multiple linear regression. Multiple linear regression is an appropriate analysis to use when the goal of the researcher is to determine if multiple independent variables predict a single dependent variable (Tabachnick & Fidell, 2013). The independent variables in this analysis were age, gender, and emotions felt prior to an Internet gambling session. The dependent variable was problem gambling severity. I used standard entry multiple regression, meaning that all independent variables were added to the model at the same step. The overall regression model was evaluated using a significance level of .05. R-squared was computed to determine the proportion of variance in problem gambling severity that is explained by age, gender, and emotions felt prior to an Internet gambling session.

I tested the assumptions of multiple linear regression (i.e., normality, homoscedasticity, and absence of multicollinearity) prior to the analysis. First, multiple linear regression assumes that the regression residuals are normally distributed. This assumption was tested by visual examination of the normal P-P plot. Second, multiple

linear regression assumes that the data are homoscedastic, meaning that the data are equally distributed across values of the independent and dependent variables. This was tested by visual examination of a scatterplot of residuals versus predicted values. Finally, multiple linear regression assumes that there is no multicollinearity among the independent variables. This was tested using Variance Inflation Factors (VIFs). Stevens (2009) suggested that VIF values higher than 10 indicate multicollinearity is a problem.

Threats to Validity

There are threats to internal validity in this study. The threats to internal validity include not being able to verify participants' age or ferret out fabricated answers. Possible ways to detect fabrication would be if the participant answered positively (e.g., yes) to every question and answered most days for the PANAS. Additionally, large financial incentive to participate may have caused participants to pretend they are an Internet gambler. Furthermore, there was a possible Hawthorne effect caused by knowing the subject of the study, the required qualification of having participated in Internet-gambling within the last week, and having forced choice responses in the survey. It may also be the case in this study that participants' personal beliefs and cultural biases may influence how they interpret many of the questionnaires' words. Examples include *could really afford to lose, problem, guilt*, and the forced choice responses. Moreover, the length and repetitiveness of the survey may cause fatigue and frustration.

A potential threat to external validity existed in this study. External validity refers to the extent that the results of the study are applicable to other people or contexts. The

study sample may not be representative of all adult Internet gamblers because convenience sampling was used.

Finally, statistical conclusion validity refers to the extent that the results of the statistical analysis can be interpreted accurately. I mitigated threats to statistical conclusion validity by collecting a sufficiently large sample (as determined by the power analysis) to detect significant results. Additionally, the assumptions of multiple linear regression were tested to ensure that the results of the regression analysis can be interpreted accurately.

Ethical Procedures

Ethical procedures followed in this study were based on the 1979 Belmont Report, which specifies ethical guidelines when conducting research using human subjects (Human Research Protection; American Psychological Association, 2016). I took steps to maintain ethically sound research practices, and the study procedures were approved by the Walden IRB before any data were collected. First, each participant read and electronically sign an informed consent form before completing the survey. The informed consent form discussed the risks and benefits of study participation, the voluntary nature of study participation, how participants' confidentiality was honored, how I can be contacted, the contact information for the researcher's advisor, and how a participant may contact relevant Walden University officials. Although none of the studies uncovered during the literature review on Internet-gambling were found to encounter Internet gamblers as having negative emotional reactions to the questionnaires,

to help ensure the participants' welfare, I identified resources for those who experience distress while taking the survey. Participants were made aware in the informed consent that they were not obligated to participate in this study or to answer any question they are uncomfortable answering. In an additional attempt to address ethical concerns associated with the survey, the informed consent included telephone numbers and web links to organizations that assist gamblers with problems in the United States.

The treatment of participants was fair, and I followed the steps approved by IRB. All records in this study will remain confidential, and only Qualtrics Research Survey Platform and myself will have access to those records. Data files were encrypted and backed up onto a password-protected flash-drive that will be secured in a fire-proof safe in the researcher's house. The data will be stored for 10 years after the completion of my dissertation before it is securely erased. None of the data that were collected included any information that identifies a participant.

Summary

This was a retrospective quantitative study that involved an online survey about emotions felt before an Internet-gambling session, and asked participants to self-report negative consequences of their gambling. The results identified if age, gender, and emotions felt prior to an Internet gambling session predict problem gambling severity. In the next chapter, I discuss the time frame, discrepancies in data collections, baseline descriptive, and demographic characteristics of the sample. Chapter 4 also provides the results of the data analysis, including tables, figures, and a summary.

Chapter 4: Results

Introduction

The purpose of this study was to determine if age, gender, and emotions prior to the gambling experience predict Internet problem gambling severity. I designed the study to answer the following research question and test two corresponding hypotheses:

RQ: Do age, gender, or emotions felt prior to the gambling experience predict the problem gambling severity of Internet gamblers?

H_0: Age, gender, or emotions felt prior to the gambling experience do not predict the problem gambling severity of Internet gamblers.

H_a: Age, gender, or emotions felt prior to the gambling experience predict the problem gambling severity of Internet gamblers.

In this chapter, I present the findings from the statistical analyses conducted to examine the research question and hypotheses. First, the chapter includes details of the data collection and descriptive statistics of the sample. This content is followed by the results of the data analysis. Finally, I present a summary of this chapter.

Data Collection

I collected data from September 20, 2017, to October 4, 2017, using an online survey. A total of 150 eligible participants completed the survey. Before conducting the statistical analysis, I checked the data for missing responses and outliers. I found no missing responses in the data. I checked outliers by computing standardized values for each of the independent and dependent variables. Two outliers (both extreme high

values) were identified for negative emotions. The outliers were removed prior to analysis.

Table 1 presents descriptive statistics for the demographic characteristics of the sample. The sample was evenly divided between men and women, and most participants identified as heterosexual ($n = 139$, 92.7%). The age of the participants ranged from 21 to 77 years old ($M = 40.46$, $SD = 13.28$). The largest proportion of participants indicated that they rarely Internet gambled with money ($n = 49$, 32.7%) and very often gambled via free-play/practice with casino games ($n = 53$, 35.3%). However, 66 (88.0%) men and 62 (82.7%) women reported having gambling-related problems (i.e., had a problem gambling severity score of 1 or higher). There were 34 participants (85.0%) in the 21–30 age bracket who reported having gambling-related problems. There were 42 participants (89.4%) in the 31–40 age bracket who reported having gambling-related problems. There were 22 participants (81.5%) in the 41–50 age bracket who reported having gambling-related problems. There were 20 participants (83.3%) in the 51–60 age bracket who reported having gambling-related problems. There were five participants (83.3%) in the 61–70 age bracket who reported having gambling-related problems. There were four participants (80.0%) who were 71 years old or older who reported having gambling-related problems. All participants indicated they last Internet gambled and played free casino games on the day they completed the survey (i.e., today).

Table 1

Descriptive Statistics for Demographic Characteristics

Variable	*n*	%
Gender		
Male	75	50.0
Female	75	50.0
Sexual orientation		
Heterosexual	139	92.7
Gay	2	1.3
Lesbian	1	0.7
Bisexual	7	4.7
Other	1	0.7
How often do you Internet gamble with money?		
Always	25	16.7
Very often	41	27.3
Sometimes	35	23.3
Rarely	49	32.7
How often do you gamble via free-play/practice with casino games?		
Always	38	25.3
Very often	53	35.3
Sometimes	32	21.3
Rarely	27	18.0
When did you last Internet gamble?		
Today	150	100.0
When did you last free-play/practice with casino games?		
Today	150	100.0

Results

Prior to the analysis of the research question and hypotheses, I conducted a

reliability analysis for the subscales of the PANAS and PGSI. Table 2 presents the

Cronbach's alpha reliability coefficients. All subscales demonstrated high reliability.

Composite scores for each subscale were computed following each instrument's scoring

instructions (i.e., the responses to the items pertaining to each subscale were summed).

Table 2

Reliability Coefficients for Study Subscales

Variable	No. of items	Cronbach's alpha
Positive emotion	10	.89
Negative emotion	10	.91
Problem gambling severity	9	.93

Table 3 presents the descriptive statistics for each subscale composite score.

Table 3

Descriptive Statistics for Study Subscales

Variable	*M*	*SD*
Positive emotion	35.94	8.23
Negative emotion	16.82	7.35
Problem gambling severity	6.68	6.41

I performed a multiple linear regression to address the research question and

hypotheses. The independent variables in this analysis were age, gender, and emotions

(i.e., positive and negative emotion) felt prior to an Internet gambling session. The

dependent variable was problem gambling severity. I used standard entry multiple

regression, meaning that all independent variables were added to the model at the same

step.

I tested the assumptions of multiple linear regression prior to the analysis. Visual examination of a normal P-P plot (see Figure 2) was performed to test normality. The data did not strongly deviate from the normal line, indicating that the assumption was met. I tested homoscedasticity by visual examination of a scatterplot of residuals versus predicted values (see Figure 3). The data were approximately equally distributed around 0, indicating that the assumption was met. I calculated VIFs to test for multicollinearity. All VIF values were less than 10 (see Table 4), indicating that multicollinearity was not a problem.
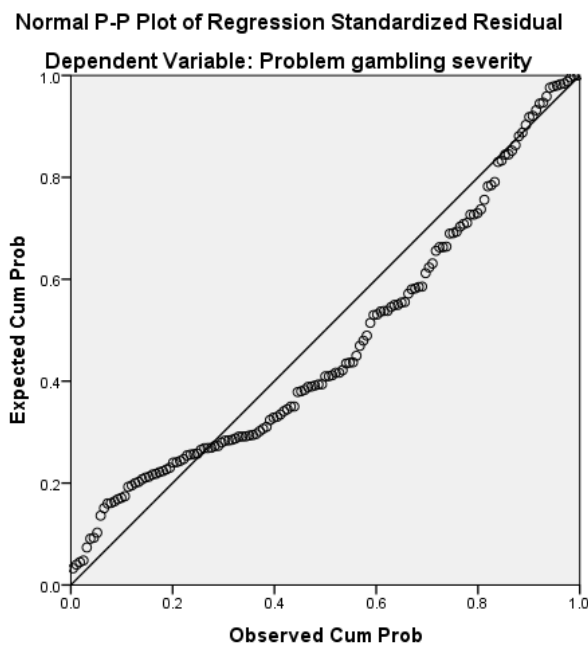

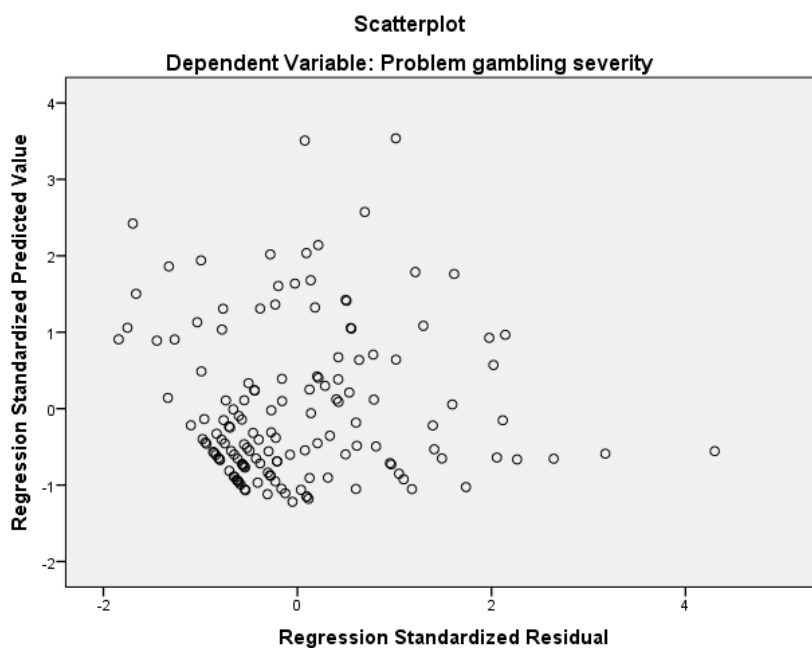*Figure 2.* Normal P-P plot for multiple linear regression.

Scatterplot
Dependent Variable: Problem gambling severity

Figure 3. Residuals versus predicted values for multiple linear regression.

Table 4

Multiple Linear Regression Predicting Problem Gambling Severity

Variable	*B*	Std. Error	Beta	*t*	Sig.	VIF
Age	-0.01	0.04	-0.02	-0.27	.788	1.15
Gender	-1.16	0.87	-0.09	-1.33	.187	1.03
Positive emotion	0.04	0.05	0.05	0.73	.467	1.03
Negative emotion	0.45	0.06	0.53	7.04	< .001	1.18

Note. $F(4, 142) = 16.02$, $p < .001$, $R^2 = .31$.

Table 4 presents the results of the regression. The results of the multiple linear regression model were significant, $F(4, 142) = 16.02$, $p < .001$, $R^2 = .31$, indicating that age, gender, and emotions felt prior to the gambling experience predicted problem gambling severity. Therefore, the null hypothesis (Ho) was rejected. Age, gender, and emotions explained 31% of the variance in problem gambling severity. Negative emotion

was a significant positive predictor of problem gambling severity, $B = 0.45$, $p < .001$.
This means that participants who scored higher in negative emotion tended to have higher
problem gambling severity. No other predictors were significant.

As a follow-up analysis, I conducted a regression with the variables entered in
two steps. In the first step, negative emotion was entered as the only predictor. In the
second step, the remaining predictor variables (age, gender, and positive emotion) were
entered. The regression was significant at the first step, $F(1, 145) = 61.78$, $p < .001$, and
the R^2 was .30, indicating that negative emotion alone accounted for 30% of the variance
in problem gambling severity. The R^2 at the second step was .31, meaning that adding
age, gender, and positive emotion to the model explained an additional 1% of the
variance in problem gambling severity. The change in from the first step to the second
step was not significant, $p = .476$, indicating that age, gender, and positive emotion did
not explain a significant amount of variance in problem gambling severity beyond the
variance explained by negative emotion.

Summary

I conducted multiple linear regression to address the research question and
hypotheses. The results of the regression were significant, indicating that age, gender, and
emotions felt prior to the gambling experience predicted problem gambling severity. The
null hypothesis (H_0) was rejected. Specifically, negative emotion was a significant
positive predictor of problem gambling severity. Chapter 5 contains a discussion of the

implications of these findings and how the findings align with previous research.

Recommendations for future research is also discussed.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this quantitative study was to determine if age, gender, and emotions prior to the gambling experience were related predictors of Internet problem gambling severity. This knowledge may be helpful to researchers, health care practitioners, and policy makers in developing education, early intervention, and intervention strategies for problem Internet gambling. Gambling-related problems can be difficult for gamblers and the people in their lives, leading to severe financial issues, bankruptcies, criminal activities, stress-related health issues, suicide, and even homicide (Cook et al., 2015; Moghaddam et al., 2015; Nowak & Aloe, 2014; Thon et al., 2014). Gambling-related problems are also major public health and social issues (Afifi et al., 2014), and research has revealed that Internet gamblers are at a higher risk of developing gambling problems than nonInternet gamblers (Nowak & Aloe, 2014; Rinker et al., 2016).

I conducted a multiple linear regression to address the research question and hypotheses. The results of the regression were significant, indicating that age, gender, and emotions felt prior to the gambling experience predicted problem gambling severity. The null hypothesis was rejected. Additionally, negative emotion was a significant positive predictor of problem gambling severity.

Interpretation of the Findings

Gender Research

Many studies exist on gender differences in relation to gambling, and ongoing research data show that more men Internet gamble than women and that men suffer from higher severity Internet gambling-related problems than women (Edgren, Castren, Alho, & Salonen, 2017; Kam, Wong, So, Un, & Chan, 2017). Additionally, more men reported having gambling-related problems (93.2%) than women (6.8%) (McCormack, Shorter and Griffiths, 2014). Data from the present study revealed that 82.7% of women reported gambling-related problems, as compared to 88% of men. This research finding supports the research of Gainsbury, Russell and Blaszczynski (2014), McCormack et al. (2014), and Edgren et al. (2017), who found the percentage of those reporting gambling-related problems was higher in men than in women. My findings may reflect that women may be moving from free-play/social casino gaming to Internet gambling, subsequently increasing the number of women with gambling-related problems.

McCormack, Shorter, and Griffiths (2014) noted that Internet gambling studies often do not have an equal number of male and female participants. In the present study, participants were divided equally along gender lines, with 50% of participants being male and 50% being female. Data from the present study revealed that more males than females reported having gambling-related problems. Even with participants being divided equally by gender, findings still support that gambling-related problems are more prevalent in men than in women.

Age Research

Research results are mixed regarding whether age is a significant predictor of gambling severity. Knowing which age groups tend to have gambling problems may possibly help in the prevention and early intervention of problem gambling. My findings do not align with the research of Turner et al. (2008), who found a link between age and the level of gambling severity. Welte et al. (2015) found that the age group of 31–45 years had the highest prevalence of gambling-related problems (89.4%). The findings of the present study revealed that the age bracket of 21–30 years had the second highest prevalence of gambling-related problems at 85.0%. My findings do not support the findings of previous researchers that gambling severity is more common in certain age groups (Nowak & Aloe, 2014; Turner et al., 2008; Welte et al., 2015). The findings of the present study are mixed regarding age being a predictor of gambling severity.

Affect and Emotion Research

Affect and emotions can help to explain why Internet gamblers gamble (Goldstein et al., 2016). Gamblers often use gambling to regulate their emotions or to escape or disassociate from current life situations (Blaszczynski & Nower, 2002; Griffiths et al., 2006). My findings revealed that negative emotion felt before an Internet gambling session or over the past week was a significant positive predictor of problem gambling severity. This finding partially supports the research of Blaszczynski and Nower (2002) and Matthews et al. (2009), who found that high negative affect states in general, while gambling and after gambling were related to gambling-related problems. The connection

between negative emotion, gambling problems, and gambling severity supports the Pathways model, which holds that gambling problems can be partially explained by emotional vulnerabilities (Blaszczynski, 2000; Blaszczynski & Nower, 2002). The findings of the present study on the connection between negative emotion problem gambling severity also align with the research of Groth-Marnot (2012) and Williams et al. (2012), who found connections between pathological gambling and negative mood states. Also, Turner et al. (2008) reported a significant relationship between depression and gambling-related problems. The findings of the present study support the findings of previous studies that negative affect predicts Internet-gambling severity.

Gambling Severity

Impulsivity, anxiety, and depression have been linked to Internet-gambling severity (Nowak & Aloe, 2014; Thon et al., 2014). Nowak and Aloe (2014) found connections between adverse physiological and emotional states, feelings of a need to escape, and gambling severity. Additionally, gambling severity is associated with many negative consequences including suicidal behaviors (Thon et al., 2014). Knowing the severity of a gambling problem can help professionals to better understand the consequences of problem gambling. Examining and assessing gambling severity also allows researchers and health care practitioners understand the point at which individuals have gone from gambling for fun to a type of gambling that may become a severe and debilitating problem (McCormack et al., 2014). Findings of the present study support connections between negative affective states and gambling severity.

Awareness of the severity of gambling compulsion is often the first step in early intervention. As researchers learn more about what predicts gambling severity, this data can be used by therapists to better understand and treat gambling-related problems. In the present study, gender and age did not predict gambling severity; however, emotions felt prior to the gambling experience, specifically negative emotion, predicted problem gambling severity. The results of the present study on emotion and gambling severity and the pathways model (Blaszczynski & Nower, 2000) affirm that negative affect is related to gambling-related problems and gambling severity. Thus, identifying an overall negative affect or when individuals are prone to negative affective episodes can help therapists to target potential gambling problems in their patients.

Limitations

This study had several limitations, including some that are inherent to quantitative studies in general. One limitation was that only Internet gamblers who had gambled within the last week and at least one other time in the past 12 months could participate, limiting the timeframe of gambling that could be examined. Additionally, attempts were made to make the survey easy to comprehend, but there was no way to ensure that participants understood the questions or their answer choices and answered truthfully. Qualtrics, a web-based survey company, accessed only people who were on their niche panels and not individuals from the general population of Internet gamblers. For this reason, the results may not generalize well to the entire Internet gambling population or the general population. Moreover, the study asked participants to remember how they felt

when they Internet gambled in the past, which is subject to recalling past feelings inaccurately, as opposed to asking participants how they felt in real time. Last, the hypothesis bundled together age, gender, and emotions, as opposed to having three hypotheses, including one for age, one for gender, and one for emotions.

Recommendations

Although the study was not underpowered, I recommend a study with a larger number of participants from the general population of Internet gamblers so that findings may better generalize to the Internet gambling population. I also recommend that this study be duplicated in the future with the intention of comparing those results with the results of the present study. I also recommend that research be conducted on gambling problems and gambling severity in lesbian, gay, bisexual, and transgender (LGBT) populations to collect information on sexual orientation and Internet gambling severity.

There was no analysis, in this study, to determine how gender was related to different types of gambling. Future researchers may want to research if there are connections between gender and social casino gamblers or Internet gamblers. Furthermore, it is unknown if there gender differences as they relate to the severity of individuals' PGSI score and negative emotions. Moreover, regarding gender differences, it is unknown if a specific gender received the most PGSI scores that were eight or higher, and which tended to score higher overall. Last, it is unknown, according to gender, who scored the highest on the PANAS's negative emotions scale. All in all,

some questions went unanswered in this study that offer directions for future investigation.

Additionally, reflecting on the pathways model, knowing that gamblers gamble to regulate their emotions, to escape or disassociate (Blaszczynski & Nower, 2002; Griffiths et al., 2006) begs the question regarding what the gambler is trying to escape or disassociate from. Additionally, if individuals are using gambling to regulate emotions, why do individuals turn to gambling instead of coping strategies? The results of the present study are useful, and, with more analysis, even more questions can be answered, and more information added to the body of research regarding Internet gamblers and free play, social casino gamblers. Other researchers can use data from the present study to examine and better understand the gambling problems of Internet gamblers and social casino gamblers.

Implications

This study may have positive implications for both practice and social change. The data analysis suggests that Internet gamblers who have a negative affect before Internet gambling and free play social casino gambling have an increased chance of having problem gambling severity. This study's data can be used for prevention and early intervention to help prevent the Internet gambler from a severe addiction. This information can also help support the rationale of therapists in asking questions about gambling if they discover on intake that their client has a high negative affect. To date, not all intake assessments ask about gambling behaviors.

Society generally accepts gambling behavior in the form of lottery tickets to free social casino gambling to Internet gambling, until it becomes an addiction that can lead to financial problems, bankruptcy, criminal activity, stress-related health issues, suicide, and possibly homicide (Cook et al., 2015; Ledgerwood et al., 2005; Moghaddam et al., 2015; Thon et al., 2014). The findings of the present study support connection between negative affective states and gambling severity, which can help therapists and counseling professionals understand what predicts problem gambling and inform interventions. Hopefully these findings can help professionals prevent and minimize the problem of Internet gambling before the consequences become severe, thus helping problem gamblers, their friends and family, and society (Afifi et al., 2014).

Conclusion

Gambling has been around for thousands of years and continues to be an integral part of human emotional, social, and financial culture. Internet gamblers continue to be at high risk for gambling-related problems. This study provided valuable information on the connections between negative emotional states and gambling problem severity. Findings were significant regarding age, gender, and emotions felt prior to the gambling experience, and negative emotion was found to predict gambling severity.

This study's results also align with Jacobs' (1986) theory of addiction and the pathways model (Blaszczynski, 2000; Blaszczynski & Nower, 2002). The pathways model holds that gambling problems can be partially explained by emotional vulnerabilities and individuals feeling the need to escape or disassociate from current life

situations. To the body of research, the results of this study add a better understanding of age, gender, and emotions as they relate to Internet gamblers and free play or social casino gamblers. Results may also inform interventions and practitioners regarding ways to help identify predictors of gambling severity in individuals, thereby helping individuals minimize the negative consequences of problem gambling.

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Appendix A: Positive and Negative Affect Schedule

This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word.

Indicate to what extent you feel this way right now, at the present moment, OR indicate the extent you have felt this way over the past week (circle the instructions you followed when taking this measure).

1	2	3	4	5
Very Slightly or Not at All	A Little	Moderately	Quite a Bit	Extremely

_____ 1. Interested   _____11. Irritable

_____ 2. Distressed   _____12. Alert

_____ 3. Excited   _____13. Ashamed

_____ 4. Upset   _____14. Inspired

_____ 5. Strong   _____15. Nervous

_____ 6. Guilty   _____16. Determined

_____ 7. Scared   _____17. Attentive

_____ 8. Hostile   _____18. Jittery

_____ 9. Enthusiastic   _____19. Active

_____ 10. Proud   _____20. Afraid

Scoring Instructions:

Positive Affect Score: Add the scores on Items 1, 3, 5, 9, 10, 12, 14, 16, 17, and 19. Scores can range from 10–50, with higher scores representing higher levels of positive affect.

Mean Score: Momentary 29.7 (SD 7.9); Weekly 33.3 (SD 7.2)

Negative Affect Score: Add the scores on Items 2, 4, 6, 7, 8, 11, 13, 15, 18, and 20. Scores can range from 10–50, with lower scores representing lower levels of negative affect.

Mean Score: Momentary 14.8 (SD 5.4); Weekly 17.4 (SD 6.2)

Reference

Watson, D., Clark, L. A., & Tellegan, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063–1070. Reproduced with permission.

Appendix B: Problem Gambling Severity Index

Thinking about the last 12 months...

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

0 Never.

1 Sometimes.

2 Most of the time.

3 Almost always.

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

0 Never.

1 Sometimes.

2 Most of the time.

3 Almost always.

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

0 Never.

1 Sometimes.

2 Most of the time.

3 Almost always.

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

0 Never.

1 Sometimes.

2 Most of the time.

3 Almost always.

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

0 Never.

1 Sometimes.

2 Most of the time.

3 Almost always.

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

0 Never.

1 Sometimes.

2 Most of the time.

3 Almost always.

Have people criticized your betting or told you that you had a gambling problem,

regardless of whether or not you thought it was true?

0 Never.

1 Sometimes.

2 Most of the time.

3 Almost always.

Has your gambling caused any financial problems for you or

your household?

0 Never.

1 Sometimes.

2 Most of the time.

3 Almost always.

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

0 Never.

1 Sometimes.

2 Most of the time.

3 Almost always.

TOTAL SCORE

Total your score. The higher your score, the greater the risk that your gambling is a
problem.
Score of 0 = Nonproblem gambling.
Score of 1 or 2 = Low level of problems with few or no identified negative consequences.
Score of 3 to 7 = Moderate level of problems leading to some negative consequences.

Score of 8 or more = Problem gambling with negative consequences and a possible loss of control.

References

Ferris, J., & Wynne, H. J. (2001a). The Canadian Problem Gambling Index. Ottawa, Canada: Canadian Centre on Substance Abuse.

Ferris, J., & Wynne, H. J. (2001b). The Canadian Problem Gambling Index: User's Manual. Ottawa, Canada: Canadian Centre on Substance Abuse.

Appendix C: Demographic Questions

PART 1

1. What is your gender?   Male ☐   Female ☐

2. What is your age (years)?_____

3. What is your sexual orientation?
Heterosexual ☐ Gay ☐ Lesbian ☐   Bisexual ☐ Other_____

4. How often do you Internet gamble with money?
Always ☐   Very often ☐   Sometimes ☐   Rarely ☐
Never ☐

5. How often do you gamble via free-play/play with social casino games?
Always ☐   Very often ☐   Sometimes ☐   Rarely ☐
Never ☐

6. When did you last Internet gamble?
Today   7 days to 14 days   15 days or more

7. When did you last free/play with social casino games?
Today   7 days to 14 days   15 days or more