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Assessing Problem Gambling and Co-Occurring Substance Use and Criminal Activity among Drug Court Clients

Jennifer L. Zorland

Georgia State University, jzorland1@student.gsu.edu

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ASSESSING PROBLEM GAMBLING AND CO-OCCURRING SUBSTANCE USE AND
CRIMINAL ACTIVITY AMONG DRUG COURT CLIENTS

by

JENNIFER L. ZORLAND

Under the Direction of Gabriel Kuperminc.

ABSTRACT

Research has demonstrated that problem gambling is associated with substance and alcohol abuse (Petry, Stinson, & Grant, 2005), participation in criminal activities (McCorkle, 2002; Meyer & Stadler, 1999), and involvement in the criminal justice system (NORC, 1999). This study assessed problem gambling and its relation to crime and substance use within a population in which these risk factors are compounded: Adults mandated to participate in drug and DUI courts. Results indicate that the prevalence and severity of problem gambling may be higher within this population than any other. Furthermore, the results of qualitative and quantitative analyses converged to highlight that gambling, crime and substance use are interrelated behaviors, as each may lead to and/or reinforce the other. These findings suggest that problem gambling is a salient issue among substance-abusing offenders and that resources should be dedicated to screening those involved with the criminal justice system for problem gambling, establishing evidence based best practices in the prevention and treatment of problem gambling within this population, and that such practices may incorporate components addressing gambling, crime, and substance use.

INDEX WORDS: Problem gambling, Crime, Substance use, Offender, Addiction, Co-morbidity, Criminal justice, Qualitative, Mixed methods

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JENNIFER L. ZORLAND

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Doctor of Philosophy

in the College of Arts and Sciences

Georgia State University

2009

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Jennifer L. Zorland
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JENNIFER L. ZORLAND

Committee Chair: Gabriel Kuperminc

Committee: Marci Culley

James Emshoff

Michael Eriksen

Electronic Version Approved:

Office of Graduate Studies

College of Arts and Sciences

Georgia State University

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TABLE OF CONTENTS

LIST OF TABLES	vi
LIST OF FIGURES	vii
1 INTRODUCTION	1
1.1 Pathways Model	3
1.2 Pathological Gambling Assessment	6
1.3 Problem Gambling and Crime	8
1.4 Problem Gambling and ATOD	13
1.5 Offending, Substance Abuse and Gambling	16
1.6 Other Variables of Interest	17
1.7 Hypotheses	19
2 METHOD	21
2.1 Sampling	21
2.2 Participants	22
2.3 Instrument	27
2.4 Procedure	29
2.5 Plan of Analysis	31
3 RESULTS	33
3.1 Preliminary Analyses	33
3.2 Prevalence Assessment	36
3.3 Predictors of PG Severity	38
3.4 Crime, Gambling and Substance Use	41
4 DISCUSSION	50

4.1	Prevalence of PG	50
4.2	Gambling, Crime and Substance Use	53
4.3	Conclusions	58
4.4	Limitations	60
4.5	Future Directions	61
REFERENCES		66
APPENDICES		81
A	Georgia Therapeutic Court Gambling Assessment	82
B	Recruitment Flyer	95
C	Informed Consent	97

LIST OF TABLES

Table 2.1: Gambling Activities and Frequency by Gender	24
Table 2.2: Individuals within Social Network with a Gambling Problem	25
Table 2.3: Gambling-related Criminal Acts Committed by Gender	26
Table 3.1: Descriptive and Normality Statistics	35
Table 3.2: Intercorrelations Between Variables	35
Table 3.3: Prevalence of Gambler Type by Grouping Variables	36
Table 3.4: PG Severity by Grouping Variables	37
Table 3.5: Hierarchical Regression Analysis: Predictors of PG Severity	39
Table 3.6: Hierarchical Regression Analysis: Predictors of PG Severity among Participants who Identified as Black or White	40

LIST OF FIGURES

Figure 3.1: Crime and Gambling	42
Figure 3.2: Substance Use and Gambling	46
Figure 3.3: Gambling, Crime and Substance Use	49

1. INTRODUCTION

Gambling is defined as risking something of value on an event that has an uncertain outcome (Korn & Shaffer, 1999). The vast majority of people can gamble recreationally and experience no ill effects. However, for a small proportion of the population gambling can become problematic. Problem gambling (PG) is associated with outcomes that negatively affect the individual and cause interpersonal problems (George & Murali, 2005). Pathological gambling (PAG) is extreme PG which is considered an addiction and an impulse control disorder characterized by “persistent and recurrent maladaptive gambling behavior that disrupts personal, family, or vocational pursuits” (pg. 671) (American Psychological Association [APA], 1994).

Previous research has demonstrated that PG is associated with participation in criminal acts (McCorkle, 2002; Meyer & Stadler, 1999), involvement in the criminal justice system (National Opinion Research Center [NORC], 1999), and substance and alcohol abuse (Petry, Stinson, & Grant, 2005). In fact, previous research has asserted the highest prevalence of PG (roughly 30%) is likely found among offenders (Williams, Royston & Hagen, 2005), while other studies have made the same assertion about the prevalence of PG among substance abusers (Cunningham-Williams, Cottler, Compton, Spitznagel, & Ben-Abdallah, 2000; Petry, 2002). However, there has yet to be an assessment of the prevalence of PG within populations in which these risk factors are compounded.

Adults mandated to participate in drug and DUI (driving under the influence) courts due to criminal activity fueled by drug and /or alcohol addiction may be at greater risk of developing PG than are those with only one of these risk factors as the risk associated with crime and substance use may be additive or interact, however this has yet to be assessed. Furthermore, the relation between PG, criminal behavior, and substance abuse has not been adequately explored.

Such inquiry could be instrumental in informing resource dedication, as well as intervention efforts by identifying whether the co-occurrence of these variables leads to an increased risk of PG, and if there are correlates and indicators of PG specific to this population.

The revenue from legalized gambling in the US has more than doubled in the past 10 years (French, Maclean, & Ettner, 2008). The Georgia Lottery Corporation (GLC) (2007) reported more than \$3.4 billion in ticket sales during 2007, an increase of more than \$244 million from 2006. Despite the steady growth of ticket sales, the amount of money provided to the Georgia Department of Human Resources by the GLC for PG prevention and treatment has remained stable at \$200,000 per fiscal year (GLC, 2007). This amount is slight considering that the estimated lifetime costs of PG (to the gamblers, their families, employers, taxpayers, and multiple institutions) in the US are between \$40 and \$53 billion, while in Georgia PGs cost these entities \$701,357,400 over their lifetimes (Zorland, Mooss, Perkins, & Emshoff, 2008a). Limited resources devoted to the prevention and treatment of PG highlight the need to increase efforts to identify high risk populations which can be targeted for prevention and treatment interventions, thus limiting potential harm and costs associated with PG.

The present study assesses PG and the relation between gambling, crime and substance use among adult drug and DUI court participants. “Drug court” is an umbrella term that includes drug and DUI (driving under the influence) courts that offer a therapeutic alternative to incarceration for offenders who have been clinically assessed as having a substance abuse disorder. This study explores the relation between PG, criminal behavior, and drug use within this population. Specifically, the association between scope of gambling related crime, history of involvement with the criminal justice system, elevated alcohol, tobacco, and drug (ATOD) use

during gambling activities and PG severity will be quantitatively assessed. Additionally, the nature of the relation between crime, substance use, and gambling will be qualitatively explored.

This study is part of a larger initiative to address PG in Georgia which includes outreach to institutions of higher learning, college students, treatment providers, the faith-based community, veterans groups and criminal justice system professionals to increase awareness of PG. Furthermore, this initiative addresses workforce development by training clinicians in the treatment of PG. Additionally, this project includes a social marketing campaign targeted at increasing awareness of PG especially among high risk groups (college students, offenders, and youth). This campaign is comprised of billboards on interstates, electronic video messages displayed at public transportation stations, and public service announcements on radio stations. The use of multiple approaches has been shown to have the potential to prevent and mitigate the harm caused risky health behaviors (Dickson-Gillespie, Rugle, Rosenthal, & Fong, 2008).

1.1. Pathways Model

PG has been explained by numerous theories and models, among them are social learning, cognitive, and biological. Blaszczynski (2000) developed a Pathways Model, which incorporates elements of differing theories to explain causal pathways to PAG. This model distinguishes three subgroups of PAGs: “normal PAGs”, “emotionally vulnerable PAGs”, and “biologically based impulsive PAGs.” The author posits that all PAGs are influenced by an interaction of biological, psychological and ecological factors. Biological factors include elevated states of arousal that develop as a response to gaming. Psychological and cognitive factors refer to the function of classical and operant conditioning. For example, irrational belief systems may develop in the form of gambling fallacies, distorted illusions of control, and

misunderstandings regarding probabilities. Ecological factors include policies related to gambling and the availability of gambling activities.

Normal PAGs. Normal PAGs are not psychologically disturbed but tend to have faulty cognitions regarding gambling. This leads to poor decision making regarding gambling resulting in a temporary loss of control over gambling activities. Correlates such as substance abuse, anxiety and depression are the result of negative outcomes related to gambling. They are not evidenced prior to the development of PAG, rather they develop as a result of PAG. These PAGs may recover on their own (natural recovery) or may benefit from minimal interventions, such as Gamblers Anonymous (GA) meetings and self-help manuals. They can often begin to participate in gambling activities again without experiencing problems.

Emotionally vulnerable PAGs. Emotionally vulnerable PAGs gamble as a means of escaping emotional pain, trauma, boredom, or life stressors through dissociation. Often these gamblers have a history of negative life experiences and issues such as trauma or neglect, substance abuse, depression, display poor coping strategies, and have a family history of PG which put them at risk to develop a gambling problem. The literature supports the existence of these associations. Specifically, findings from a twin cohort study (after adjusting for genetic and environmental covariates) indicated that having experienced child abuse, child neglect, witnessing someone badly hurt or killed, and having been physically attacked increased the risk of being a PAG (by 131%, 453%, 183%, and 239%, respectively) (Scherrer et al., 2008). Moreover, Goodyear-Smith et al. (2006) found that primary care patients who expressed concern about their gambling were nearly 3 times more likely to report being depressed than others. Furthermore, Moore and Jadlos (2002) found that over 50% of PAGS indicated having a family history of PG. Interventions that focus on enhancing problem solving skills and self-esteem,

stress management, and therapy to resolve internal conflicts may be beneficial for this group. Additionally, both normal and emotionally vulnerable PAGS may benefit from educational interventions focusing on randomness and addressing faulty cognitions (Macdonald, Turner, & Somerset, 2008).

Biologically based impulsive PAGs. Other PAGs have a biological predisposition, which may be a medical or psychological condition that leaves them vulnerable to developing PAG. These individuals are impulsive and often have traits characteristic of Attention Deficit Disorder (ADD). Previous research indicated that between 30% and 43% of PGs met the criteria for ADD (Steffgen, 1995). These PAGs begin gambling at an early age, and may have a family history of antisocial conduct. The literature supports the association between PAG and impulsivity, and suggests those with substance abuse problems also have elevated levels of impulsivity in comparison to others (Petry, 2001). These types of gamblers have multiple issues which are unrelated to their gambling, such as substance abuse problems, suicidal tendencies, difficulties in interpersonal relationships, and often have a criminal history. This subgroup is least likely to seek, and is most resistant to treatment; however medication may be useful in treating these types of gamblers.

Pathways model applied to offending PAGs. Crofts (2003) found that patterns of criminal activity varied between different types of PAGs. Within a sample of 63 offenders who had committed gambling-related crime only two normal PAGs were identified. The author concluded that normal PAGs generally do not offend, and provided two possible rationales for this. First, perhaps these types of PAGs do not offend because they are more apt to seek treatment when their problem becomes serious than other types of PAGs. Conversely, normal

PAGs may tend to steal from family and friends but stop and seek treatment prior to these acts coming to the attention of the authorities.

Forty-six percent of the participants in Croft's (2003) study were identified as emotionally vulnerable PAGs. These participants "borrowed" money from their jobs to pay gambling debts and to continue gambling activities which served as a means of coping with the negative emotional state produced by their gambling debts and by stealing. Thus, these gamblers were caught in a cycle: gambling to cope with negative emotions, stealing to obtain money to continue to gamble, the stealing led to stress, which increased the need to gamble to cope, which required more money that was obtained by theft. The author found that these types of gamblers offended for years, stopping only upon arrest. Croft (2003) was unable to adequately assess the proportion of biologically based PAGs due to a lack of information within court records. However, two of the three participants who were identified as biologically based PAGs had criminal histories that were not gambling-related and had participated in "impulsive, highly risky robberies" (pg. 195).

These findings are important as they provide additional support for Blaszczynski's (2000) assertion that PAGs are not a homogenous group, rather causal pathways to PAG likely differ between individuals. Furthermore, differences in patterns of crime may help identify an offender with a gambling problem, and also which type of PAG an offender is so that the appropriate treatment can be provided.

1.2. Pathological Gambling Assessment

The criteria for a clinical diagnosis of PAG include the presence of 5 of 10 features which tap into 3 dimensions believed to be indicative of PAG: disruption, dependence and a loss of control. Specific criteria encompass gambling related illegal acts, preoccupation, tolerance, loss

of control, lying, irritability when limiting gambling, escape gambling, chasing losses by continuing to gamble in an effort to recoup losses, experiencing negative impacts on relationships or employment due to gambling, and having a reliance on others to alleviate financial issues resulting from gambling (APA, 2000). Whereas PAG implies that a clinical diagnosis has been made, most non-clinical assessment tools are based on clinical criteria. Shaffer, Hall, and Vander Bilt (1999) noted that assessments by either method are essentially equivalent. Therefore, the term PAG will be used to indicate those identified as PAGs using clinical or non-clinical methods.

The South Oaks Gambling Screen (SOGS) (Lesieur & Blume, 1987) is the tool most often utilized to assess for PG. This measure has undergone the most psychometric testing of any PAG measure (Giovanni, Frisch, & Stinchfield, 2001) and is considered by many to be the gold standard of PAG assessment tools (Volberg & Banks, 1990). This measure consists of 20 items, all equally weighted (1 point each), which were originally based on the DSM-III (APA, 1980) criteria for PAG, and have since been revised to reflect changes made to the criteria in the DSM-IV (APA, 1994) (Lesieur & Blume, 1993). A score of 4 or less on the SOGS indicates non-PAG, while a score of 5 or more indicates probable PAG. Walters (1997) utilized a more comprehensive scoring protocol. Specifically, a SOGS score over 4 indicated PAG, a score of 3 to 4 indicated PG, and a score of 1 or 2 indicated some problem with gambling (or what is often referred to as at-risk for PG). Nixon and Nowatzki (2006) utilized the same scoring protocol as Walters (1997), and Shaffer et al. (1999) also used similar levels of PG severity in their meta-analysis of 134 studies.

1.3. Problem Gambling and Crime

The literature suggests that a large proportion of PGs commit criminal offenses, the majority of which are income generating and related to gambling (Blaszczynski, McConaghy & Frankova, 1989; Lesieur, 2002). For example, illegally obtained monies are often used to gamble with or to pay off gambling debts (Lesieur & Rosenthal, 1991; Lesieur & Custer, 1984). Previous research suggests that as PG severity increases participation in criminal activity also increases (Lahn, 2005). Moreover, the prevalence of PG is higher among offending and correctional populations than that found within the general population (Williams et al., 2005). Furthermore, gambling often occurs within correctional settings, which may influence PG rates and severity among offenders (McCorkle, 2002). Finally, due to elevated levels of involvement with the criminal justice system correctional costs associated with PGs are high. More information regarding PG and crime is needed to inform prevention and intervention efforts, thus mitigating these costs.

Rates of participation in criminal activities among PGs. Research findings indicate that more than 50% of PGs commit crimes (Potenza et al., 2001; Schwer, Thompson, & Nakamuro, 2003). Meyer and Stadler (1999) assessed a sample of PAGs in treatment or self-help groups (n = 300) and high and low frequency gamblers from the general population and military (n = 274) and found that 89.3% of PAGs in treatment reported having participated in criminal activity compared to only 51.8% of other types of gamblers. Similarly, Blaszczynski et al.'s (1989) study of criminal behavior among PAGs seeking treatment (n = 109, 86% of which were male) determined that 63.3% had committed criminal offenses. The studies by Meyer and Stadler (1999) and Blaszczynski et al. (1989) utilized samples of PGs seeking help; therefore these

results may not translate to those with less severe gambling problems or those who chose not to seek help. However, these findings suggest that PGs are at risk of participating in criminal acts.

It should be noted that the prevalence of gambling-related crime is likely underestimated as many of these crimes are committed against family, friends or employers who do not report the acts to the authorities (Sakurai & Smith, 2003). Additionally, most offenders are not asked if their crimes were in any way related to gambling, and they are not motivated to volunteer such information as doing so would generally have no impact on sentencing (Crofts, 2002).

The motivation behind crimes committed by problem gamblers. Numerous studies have concluded that roughly half of PGs reported committing gambling-related crimes and that the majority of criminal offenses committed by PGs are motivated by gambling, either directly (to obtain money to gamble with or to pay gambling debts) or indirectly (to cover expenses not paid because the money was spent gambling) (Blaszczynski et al., 1989, Maryland Department of Health and Mental Hygiene[MDHM], 1990; Meyer & Fabian, 1992; Potenza et al. 2001; Schwer et al., 2003). Lesieur and Custer (1984) found that compulsive gamblers generally turned to crime only after they had exhausted legal methods of obtaining money for gambling purposes.

Many PAGs may exclusively commit gambling related crimes. Blaszczynski et al. (1989) found that two-thirds of PAGs who committed crimes reported that these acts were directly or indirectly related to their gambling. Of the respondents 40.4% reported only committing crimes related to gambling, 13.7% cited committing both gambling and non-gambling related offenses, while 9.2% reported only committing offenses that were not related to gambling.

Types of crimes committed by offenders with gambling problems. Research has shown that a large proportion of crimes committed by PGs are white-collar, income generating and non-violent in nature. These crimes most often include fraud, forgery, embezzlement, tax evasion,

larceny, selling drugs or stolen items, shoplifting, burglary, and petty theft or robbery (Blaszczynski et al., 1989; Lesieur, 2002; Meyer & Fabian, 1992; NORC, 1999; Schwer et al., 2003). Zimmerman, Meeland, and Krug (1985) found that participation in white collar crime, such as fraud, tax evasion, and embezzlement differentiated compulsive gamblers from non-gamblers.

It should be noted that some of the crimes committed by PGs are violent. PGs, like other offenders, commit crimes against persons, such as assault (McCorkle, 2002). Additionally, gambling related criminal activities may be large in scope. PAGs who had been arrested reported that 25% of assaults, 33% of property crimes, and 20% of drug crimes committed were directly related to their gambling (McCorkle, 2002). However, the results of a recent study found that male inmates with severe PG were significantly more likely to commit income generating crimes, but were no more or less likely to have committed violent crimes than were other inmates (Turner, Preston, Saunders, McAcroy, & Jain, 2009). Further research is needed to adequately assess what types of criminal acts are indicative of PG.

Problem severity and criminal activity. The severity of PG has been found to be associated with participation in criminal activity (Lahn, 2005; The National Institute of Justice [NIJ], 2004). For example, Meyer and Stadler (1999) found that 89.3% of PAGs reported having ever committed a crime, compared to 51.8% of non-PAGs, and over 35.0% of PAGs “often” or “very often” committed criminal acts related to gambling, compared to 8.2% of non-PAGs. Similarly, Meyer and Fabian (1992) found that among 437 GA members (95% of which were male) those who reported engaging in criminal acts (54.5%) gambled more frequently and for longer periods of time, bet higher dollar amounts, incurred larger losses, and had more debt than those who did not cite such activity.

Furthermore, this association may exist among both male and female PAGs.

Ledgerwood, Weinstock, Morasco, and Petry (2007) found that among 231 PAGs in treatment (45% of which were female) 27% reported participating in criminal acts (62% were males and 38% were females). These PAGs had significantly more severe gambling problems than those who did not commit crimes, and this difference persisted throughout treatment and at follow-up.

History of involvement with the criminal justice system. PGs and PAGs are arrested and incarcerated at a much higher rate than other types of gamblers. NORC (1999) conducted a national survey of 2,417 adults, representing 100 different communities and concluded that 32% of PGs and PAGs were arrested, compared to only 10% of low-risk gamblers and 4.5% of non-gamblers. Similarly, Meyer and Stadler (1999) found that 35% of PAGs reported having been involved with the police and 28.3% cited having been convicted of an offense compared to other types of gamblers (6.2% and 3.3%, respectively). Furthermore, PAGs are imprisoned at nearly twice the rate of PGs (23% versus 13%), and at nearly six times the rate of low-risk gamblers (4%). Therefore, a history of involvement with the criminal justice system may be a predictor of PG.

Prevalence of problem gambling within offender populations. Numerous studies conducted across geographic locations have found a much higher prevalence of PG among offending populations (Abbott & McKenna, 2005; Lesieur & Klein, 1985; Shaffer et al., 1999; Templer, Kaiser, & Siscoe, 1993); some research suggests that offenders have the highest PG prevalence of any population (Williams et al., 2005). Prevalence estimates of PG within the general population range from roughly 2.5% to 5% (Emshoff, 2007; NIJ, 2004; Shaffer et al., 1999). A meta-analysis of 27 articles published between 1990 and 2004 revealed that one-third of criminal offenders are PGs (Williams et al., 2005).

Elevated prevalence estimates have been found among offenders who are incarcerated (Anderson, 1999; Templer et al., 1993), as well as among arrestees (McCorkle, 2002). For example, Walters (1997) utilized the SOGS to assess 363 male inmates in a medium security prison and found that 25.6% had some problem with gambling. Specifically, the results revealed that 5.2% were PAGs, 7.4% were PGs, and 13.0% had some problem with gambling.

Although there has been little research assessing sex differences or similarities related to PG, two recent studies assessed gambling among male (n = 357) and female (n = 94) prisoners. The results revealed high rates of PAG and PG based on lifetime SOGS scores, especially among women. Specifically, 33% of females were assessed as PAGS and 12% as PGs, whereas 21% of males were assessed as PAGS and 10% as PGs (Abbott & McKenna, 2005; Abbott, McKenna & Giles, 2005).

It is important to note that utilizing populations involved in the criminal justice system to estimate the rate of PG among offenders may lead to biased estimates as the majority of those who commit gambling related crimes are neither arrested nor convicted. Among PGs who reported gambling related criminal activity less than 10% cited having ever been arrested for such acts (Schwer et al., 2003) and only 21% were charged for their gambling related offenses (Blaszczynski et al., 1989). Furthermore, Potenza et al. (2001) found that males were significantly more likely than females to report having been arrested for gambling related crime, while females were significantly more likely to report participation in illegal activities related to their gambling without being arrested. Therefore, the rate of PG among women offenders may be under-estimated when obtaining samples involved in the criminal justice system.

Correctional and crime related costs. High costs associated with crime among PGs highlight the need to dedicate resources toward PG prevention and treatment. Due to increased

rates of arrests and incarceration among PGs, correctional costs within this population are exceptionally high. Specifically, in the US lifetime correctional costs per PAG have been estimated at \$2,950, and for each PG the costs are roughly \$2,210 (NORC, 1999). Similarly, Schwer et al. (2003) estimated that each PG costs the criminal justice system \$2,431. Correctional costs related to PGs in the current Georgia population have been estimated at \$249,159,000 (Zorland, Mooss, Perkins, & Emshoff, 2008b).

Additional costs include those that result from gambling related crime, yet there is a dearth of research examining the cost of crimes attributed to PG. However, Lesieur's (1998) testimony before the National Gambling Impact Study Commission included information regarding criminal activity assessed among almost 400 GA members. Lesieur stated that the majority of respondents (57.0%) reported having stolen to finance gambling; fewer than 230 participants reportedly stole \$30 million (of money and/or property). This equates to an average amount stolen by each respondent (who admitted to stealing) of \$135,000. Furthermore, abused dollars refer to monies that were "improperly" obtained, but were not reported as a crime (stolen from friend or using another's credit card); it has been estimated that over the course of their lives each PAG abuses \$2,880, while each PG abuses \$968 (Grinols, 2004).

1.4. Problem Gambling and ATOD

PG often co-occurs with other addictive behaviors; roughly half of PGs suffer from a substance abuse disorder (Black & Moyer, 1999; Cunningham-Williams, Cottler, Compton, & Spitznagel, 1998; Lesieur, Blume, & Zoppa, 1985; Ramirez, McCormick, Russo, & Taber 1984; Steinberg, Kosten, & Rounsaville, 1992; Zimmerman, Chelminski, & Young, 2006). Goodyear-Smith et al. (2006) found that among individuals seeking general primary health care those expressing concern about their gambling were 5 times more likely than others to also be

concerned about their drug use, nearly 3 times more likely to be concerned about drinking, and 4 times more likely to be concerned about smoking. Furthermore, Kessler et al. (2008) conducted a retrospective analysis (n = 3435) and after statistically controlling for age found that alcohol or drug abuse increased the likelihood of developing PG by 350% whereas alcohol or drug dependence increased the likelihood of developing PG by 480%.

Substance abuse and problem gambling. Rates of PAG and PG among substance users have been assessed as being much higher than what is found in the general population, many studies assessed the prevalence to be roughly 30% (Cunningham-Williams et al., 2000; Petry, 2002; Rush, Bassani, Urbanoski, & Castel, 2008; Spunt, 2002). For example, a study of 220 substance abusers in treatment revealed that 10% were PGs and an additional 20% were PAGs based on the SOGS (Feigelman, Kleinman, Lesieur, Millman, & Lesser, 1995). Furthermore, research suggests that PGs are 5.4 times more likely to have a drug use disorder than non-PGs (Petry et al., 2005).

Alcohol abuse and problem gambling. Previous research has indicated that nearly 75% of PAGs have an alcohol use disorder (Zimmerman et al., 2006). Drinking weekly or more often was found to be a predictor of having gambling related problems and alcohol consumption was positively correlated with the number of such problems (French et al., 2008). Furthermore, research has indicated that individuals who suffer from PG are 6.3 times more likely to have an alcohol use disorder than non-problem gamblers (Petry et al., 2005).

Gender differences in the association between alcohol and PG may exist. Specifically, Blanco, Hasin, Petry, Frederick, and Grant (2006) found that among a sample of subclinical PAGs males were significantly more likely than females to be heavy drinkers and to have had a diagnosis of an alcohol disorder. Additionally, Westphal and Johnson (2003) found that among

adults in treatment for PG men reported greater problems with alcohol use. However, significantly more women identified problem drinking as increasing their gambling problem

Switching addictions. Switching addictions, or replacing one addiction with another, has been a well-documented phenomenon among substance abusers and such replacement may be behavioral in nature. Blume (1994) noted that many patients in treatment for PG developed the problem when they began to abstain from substance use. In effect, these individuals substituted gambling to achieve the “high” they had obtained from chemicals in the past. In addition, as PG progresses individuals may return to substance use as a means of escape from problems associated with their PG creating a cycle of alternating one maladaptive coping style for another. Blume (1994) asserted that the risk of developing PG while in treatment for a chemical dependency is high, especially among those with a history of frequent gambling (Blume, 1994). Therefore, individuals in substance abuse treatment may be at increased risk of PG.

Smoking and gambling. Previous research suggests that there is an association between smoking and gambling (Cunningham-Williams et al., 1998; Kessler et al., 2008; Mason & Arnold, 2007; Potenza et al., 2004). For example, Petry et al. (2005) found that PGs were 7.2 times more likely to be nicotine dependent than non-PGs. Additionally, Welte, Wieczorek, Barnes, and Tidwell (2006) found that smoking predicted participation in any gambling and that heavier smoking predicted PG. Respondents who were daily smokers also felt they had less control over their gambling and “craved” gambling more than non-daily smokers. Moreover, Sullivan and Beer (2003) found that 82% of PGs seeking treatment reported that they smoked more when gambling than when not gambling. Furthermore, Potenza et al. (2004) found that smokers were more likely than non-smokers to cite being depressed and to have considered suicide due to gambling problems, which may suggest that PG is more severe among smokers.

Moreover, smoking, PG severity, and substance abuse may be related. Petry and Oncken (2002) found that roughly 67% of participants entering treatment for PG were smokers. Those who reported smoking daily were more likely to have a co-occurring substance abuse problem, more severe gambling problems, and reportedly gambled on significantly more days and with larger amounts of money than others.

1.5. Offending, Substance Abuse and Gambling

Research has indicated that PG may be related to criminal activity, particularly when an individual has a co-morbid substance abuse problem (Anderson, 1999; Templer et al., 1993). Those with co-occurring substance abuse and gambling addictions were twice as likely to have been in legal trouble as those without a co-morbid condition (Feigelman et al., 1995). Moreover, Walters (1997) found that among a sample of federal prisoners roughly 80% of PGs and PAGs had a substance abuse problem compared to just over 45% of those with a less severe or no gambling problem. In addition, among male inmates PGs were significantly more likely to be problem drinkers, use tobacco, and to use other illicit substances excluding marijuana than non-PGs (Abbott, et al, 2005).

McCorkle (2002) found that among arrestees PAGs were more likely than other types of gamblers to meet the clinical criteria for alcohol and substance dependency or abuse. Specifically, among 2307 arrestees 96.7% of PAGs and 83.8% of PGs had a comorbid drug or alcohol use problem. These rates were significantly higher than rates among at-risk gamblers (of which 79.3% had a comorbid substance abuse problem). The results of this study also indicated that PAGs who also had a substance abuse problem were significantly more likely than individuals without a co-morbid condition (either PG or substance abuse) to report having assaulted someone, stolen, or sold drugs within the past year.

While the research clearly demonstrates that substance abuse and PG are related, only the relation between the amount one smokes while gambling and PG has been assessed (Sullivan & Beer, 2003). It has yet to be assessed if elevated levels of drinking and drug use while gambling are associated with PG severity.

1.6. Other Variables of Interest

A recent assessment of the literature conducted by Johansson, Grant, Kim, Odlaug, and Gotestam (2008) found that few risk factors have been empirically validated. The authors assessed risk factors that have been evaluated by 3 or more scientifically sound studies as being “well established.” Drug and alcohol abuse, and participation in illegal acts were among those risk factors identified as well established, in addition to gender and age. Additionally, ethnicity has been identified as a potential risk factor, yet this variable has to be assessed within offending and substance abusing populations.

Gender. The literature often cites being male as a risk factor for PG (Feigelman et al. 1995). However, recent research suggests that this gender gap no longer exists (Crisp et al., 2004; Hing & Breen, 2001; Korn & Shaffer, 2002) and that a “feminization” of gambling may be occurring (Volberg, 2003). Moreover, women have been identified as a high-risk group for developing gambling problems (Alberta Alcohol and Drug Abuse Commission [AADAC], 1994; Korn & Shaffer, 2002; Volberg, 1994).

Gambling research has followed a trajectory similar to that of substance abuse: women are underrepresented and interventions tend to be developed based on what is known about male PGs (Lesieur & Blume, 1991; Mark & Lesieur, 1992; Volberg, 2003). Lindgren, Youngs, McDonald, Klenow, and Schriener (1987) warned against placing too much importance on the influence of gender in relation to gambling as this may strengthen traditional gender role

stereotypes while failing to enhance what is known about gambling behaviors. However, due to the dearth of PG research among women further exploration of gender similarities, as well as differences may be warranted.

Recent research findings suggest that gender alone fails to explain much variance in regard to gambling when other variables are considered. Specifically, Nelson et al. (2006) found that gender explained little unique variance of PG progression when other psychosocial variables were included in their model. Similarly, LaPlante, Nelson, LaBrie, and Shaffer (2006) asserted that demographic, economic, and health variables were better predictors of gambling behaviors than was gender. Additionally, Hraba and Lee (1996) found that men and women share more similarities than differences in gambling behavior (types of gambling activities, frequency of gambling, the amount of money wagered, and the amount of leisure time spent gambling) and PG. The only significant gender difference found was that males participated in a significantly wider scope of gambling activities than women. This finding has been supported by other studies (Tavaras, Zilberman, Neites, & Gentil, 2001).

Ethnicity. Minorities are significantly more likely to suffer from PG than Whites (Korn & Shaffer, 2002; Volberg, 1994; French et al., 2008) and are less likely to enter treatment for PG (Volberg, 1994). Welte et al. (2006) found that Whites are 80% less likely to be PG than are Blacks or Latinos. Furthermore, Volberg (2003) asserted that the differences in PG rates between Whites and others are much larger than the differences found between men and women. Research has also indicated there may be an interaction between minority status and gender. Canadian females identified as PGs were four times more likely to be non-White than non-PGs (AADAC, 1994).

Age. The literature suggests that those who begin gambling in their youth are at increased risk of developing PG (Volberg, 1994). Anderson (1999) found that 62% of incarcerated males assessed as PAGs reportedly began gambling between 4 and 15 years of age, while 86% began between 4 and 21 years of age. The elderly are also at increased risk (Shaffer & Korn, 2002) although no age group is immune from developing PG. A recent study revealed that the majority of PAGs (67.4%) developed the problem between the ages of 25 and 54, 19.6% reported their gambling problem began before they were 25 years of age, and 19.6% cited developing a problem after the age of 54 (Grant, Kim, Odlaug, Buchanan, & Potenza, in press).

Research suggests that among PGs women begin gambling significantly later in life than men (Nelson, LaPlante, LaBrie, & Shaffer, 2006). Moreover, Tavares et al. (2001) found that women developed PG later in life than men (34.2 years and 20.4 years of age, respectively). Furthermore, the authors concluded that the severity of the problem increased over twice as quickly among women as men indicating a sex by age interaction.

1.7.Hypotheses

The present study addresses three goals. The first is to estimate the prevalence of PG among drug court participants. Based on existing research, it is expected that the prevalence of PG will be at least 3 to 4 times higher than the 5% found in the general population. Furthermore, differences in PG severity based on gender, ethnicity, and court type will be evaluated. Specifically, it is hypothesized that there will be no significant gender differences in PG severity as the literature indicates that the gender gap in PG is narrowing; PG severity will be significantly higher among ethnic minorities as has been consistently demonstrated in previous research; and that drug court clients will have significantly higher PG severity as their substance abuse problems may be more severe than those who are in DUI court. Additionally, PG rates

among participants who only reported playing the lottery and/or scratch off tickets will be assessed, as these gambling activities are legal within the state of Georgia.

The second goal is to assess the relation between PG severity and crime, as well as between PG severity and ATOD. Based on previous research I expect that participation in a wider scope of gambling-related criminal activities, having a more extensive history of involvement with the criminal justice system, and elevated levels of ATOD use during gambling activities will predict increased PG severity.

The third goal is to explore how these data may inform what we know about the relations between drug abuse, crime and PG. Specifically, qualitative data will be assessed to further elucidate the nature of the relation between crime, substance use, and gambling within this population.

2. METHOD

2.1. Sampling

Efforts were made to ensure that the sample was representative of the population of drug court clients in the state. Each felony drug, DUI, and hybrid court in Georgia that was operational at the time that data collection began (n = 41) was contacted and researchers requested their staff allow their clients to be recruited (Georgia Accountability Courts, 2008). Eighteen of the courts contacted (44%) allowed researchers to attempt to recruit their clients to participate in the study. Participants were recruited from 47% of all drug courts (15 of 32) and 33% of all DUI courts (3 of 9).

University of Georgia's College of Family and Consumer Sciences (2008) identified five types of counties in Georgia, and participants were recruited from courts serving each of these types. Urban counties have a population of 50,000 or more, a large proportion of which are minorities. Many residents lack a formal education and job skills; there are high unemployment and crime rates. Urbanizing counties have ample job and educational opportunities, access to medical care, transportation, and housing. Suburban counties are considered metropolitan as over 25% of their residents commute into urban cores to work. The population in these counties is mostly White and has a high socio-economic status. Rural growth counties experienced economic and population growth during the 1980's, yet have an insufficient tax base to provide services to residents. Finally, rural decline counties experienced a population decrease during the 1980's. These counties have no viable economic development, few job or educational opportunities and an inadequate infrastructure to provide medical care. Residents of these counties tend to be the elderly or youth.

Georgia drug courts serve 50 counties and participants were recruited from 18 courts serving 48% of all counties served. This includes 60% of urban counties served (6 of 10), 40% of urbanizing counties served (4 of 10), 44% of suburban counties served (10 of 23), 75% of rural growth counties served (3 of 4), and 33% of rural decline counties served (1 of 3). Thus, the sample includes participants from all five county types.

2.2. Participants

A convenience sample of 602 drug court participants was recruited from throughout Georgia to participate in the study. A priori power analyses using Cohen's (1992) power table suggested that a sample of roughly 600 participants was adequate to achieve statistical power of 0.80 ($\beta = 0.20$) to detect interaction effects (Aiken & West, 1996) as the research utilized an alpha level of 0.05 and assumed a small effect size for main and moderating effects ($r = .02$). This analysis also assumed high reliability and a low level of intercorrelation among predictors.

The majority of participants were male (71.4%) and age ranged from 18 to 63 with an average of 36 years ($SD = 10.60$). Thirty-nine percent of participants were under the age of 30, 25% between 31 and 40, and 36% were over 40. The majority of respondents identified as White (52.7%) or Black (36.9%), followed by American Indian (3.0%) and Latino(a) (2.8%).

In regard to educational attainment, nearly 23% of participants had not obtained a high school diploma (or equivalent), 41% completed high school or obtained their general equivalency diploma (GED), almost 28% attended college, and roughly 8% obtained a bachelor's or graduate degree. Most were employed as skilled workers/tradesman (36.4%), manual laborers (27.6%), or cited being managers/professionals (11.1%). Just over 10.0% reported having ever served in the military.

It should be noted that the demographic characteristics of the sample differed from those found within the general population of Georgia, which was expected as drug and DUI court clients are a highly unique subset of the population and have multiple risk factors related to problems in living. Comparing the demographic characteristics of the sample to the overall population of the state as recorded by the United States Census Bureau (2008), males were overrepresented (71.4% of the sample compared to 49.6% in the general population). Furthermore, Black or African American individuals and American Indians were overrepresented (36.9% and 3.0% of the sample, respectively, compared to 30.0% and 0.4% of the population). Conversely, Latino(a) and White Americans were underrepresented (2.8% and 52.7% in the sample compared to 8.0% and 65.4% in the general population). Additionally, educational attainment appears to be lower within the sample than what is found in the general population. Census data only provides information related to educational attainment for those 25 years of age and older, so this variable cannot be directly compared between the sample and the state as a whole. However, it does appear as if a smaller proportion of the sample had obtained a high school diploma or equivalent than the 78.6% of the general population. Moreover, 24.3% of the general population in Georgia age 25 years or older had obtained a bachelor's degree or higher compared to only 8.0% of the sample.

On average, participants had engaged in roughly 5 different types of gambling activities ($M = 4.96$, $SD = 4.18$). The frequency with which participants engaged in various gambling activities are displayed by gender in Table 2.1. On average participants reported having first gambled at 20 years of age ($SD = 7.27$) with a range of 4 to 54 years. Just over 40% ($n = 246$) of participants reported having gambled prior to reaching 18 years of age.

Table 2.1. *Gambling Activities and Frequency by Gender*

Activity	Male			Female		
	Not at all	Less than once a week	Once a week or more	Not at all	Less than once a week	Once a week or more
Card games	49.0%	37.0%	14.0%	68.0%	27.9%	4.1%
Animals	85.8%	11.9%	2.3%	92.4%	7.6%	0.0%
Sports	48.2%	36.7%	15.1%	82.0%	16.3%	1.7%
Dice	67.2%	21.6%	11.2%	88.3%	10.5%	1.2%
Casinos (legal or not)	64.7%	28.8%	6.5%	67.4%	29.7%	2.9%
Lottery	27.9%	45.3%	26.8%	32.5%	50.6%	16.9%
Bingo	85.6%	11.6%	2.8%	79.1%	18.0%	2.9%
Stock market	83.0%	13.0%	4.0%	91.3%	7.0%	1.7%
Gambling machines (VLTs)	60.7%	31.4%	7.9%	60.5%	32.0%	7.5%
Played games for money	50.2%	37.2%	12.6%	76.7%	19.2%	4.1%
Pull tabs or scratch offs	51.9%	34.4%	13.7%	65.7%	27.3%	7.0%
Other forms of gambling	90.9%	5.6%	3.5%	98.8%	1.2%	0.0%

Nearly 7.0% of respondents cited currently having a gambling problem and 7.3% of participants reported being interested in obtaining help for a gambling problem. A small percentage of respondents reported having ever asked someone for help or having been to GA to address their gambling problem (2.5% and 2.0%, respectively). Almost 20% (19.6%) of respondents reported that either one or both of their parents had a history of PG. Nearly 60% (57%) of respondents cited having a PG within their social network and roughly 15% had more

than one such person. See Table 2.2 for descriptive information regarding the relation of those with PG to the participants.

Table 2.2. *Individuals within Social Network with a Gambling Problem*

Relation	Percent	n
Father	7.3%	88
Mother	6.8%	41
Sibling	14.0%	84
Child	1.2%	7
Spouse	4.5%	27
Friend or significant other	28.6%	172
Another relative	24.4%	147

The vast majority of respondents were drug court participants (87.4%) whereas 12.6% were DUI court clients. The average number of arrests reported by participants was 9.02 ($SD = 12.41$). On average, participants reported having 4.42 misdemeanor convictions ($SD = 8.43$) and 2.01 felony convictions ($SD = 3.31$). Of the arrests and convictions reported participants indicated an average of 0.38 ($SD = 1.77$) were gambling-related. Over 33% of participants ($n = 199$) reported having ever participated in any gambling-related criminal activity. The percentages of participants who reported committing specific gambling-related criminal acts are displayed in Table 2.3.

Table 2.3. *Gambling-related Criminal Acts Committed by Gender*

	Male		Female		Total	
	%	n	%	n	%	n
Gambling-related crime						
Crimes against persons						
Assault: Hurt or threaten another person	11.2%	48	1.2%	2	8.3%	50
Crimes against property						
Burglary: Breaking/entering to steal	11.6%	50	4.7%	8	9.6%	58
Larceny: Shoplifting, pick pocket, theft from a vehicle	17.7%	76	8.7%	15	15.1%	91
Fraud: Identity theft, illegal check or credit card use	12.6%	54	9.3%	16	11.6%	70
Embezzlement: Stole money/items from work	10.7%	46	5.8%	10	9.3%	56
Motor Vehicle Theft	6.5%	28	2.3%	4	5.3%	32
Crimes Against Society						
Gambling/hustling	26.3%	113	9.9%	17	21.6%	130
Sold/traded drugs	24.9%	107	17.4%	30	22.8%	137
Prostitution or pimping	8.1%	35	4.7%	8	7.1%	43
Another crime or one previously listed but don't want to say	14.9%	64	7.0%	12	12.6%	76

Just over 78% of participants reported smoking or using other tobacco products regularly and over 58% reported having done so while gambling. Over 52% reported having used drugs or alcohol while gambling and nearly 55% cited having gambled drunk or high. Elevated levels of smoking, drinking, and drug use during gambling activities were reported by roughly 30% of participants (36.2%, 29.6%, and 27.1%, respectively).

2.3. Instrument

The Georgia Therapeutic Court Gambling Assessment (GTCGA) was developed by the researcher for use in assessing PG and its correlates within adult drug and DUI court populations (see appendix A for measure). This composite measure consists of 66 items, including 10 demographic items; the SOGS (Lesieur & Blume, 1993) to assess PG prevalence and severity; as well as items assessing known correlates of PG such as participation in gambling related crimes, history of involvement with the criminal justice system and ATOD use while gambling. Two open ended questions were included in an effort to allow participants to share information that they regarded as being important, as well as to provide context to responses to close ended questions. These questions consisted of “How were these illegal activities related to gambling or paying gambling debts?” (modified from Anderson, 1999 by including “or gambling debts”) and “Is there anything else you would like to share regarding your experiences gambling or gambling debts?”

South Oaks Gambling Screen (SOGS). The SOGS has been found to be reliable and valid as a means of assessing lifetime PAG among participants of both genders (Lesieur & Blume, 1987; Mark & Lesieur, 1994). Specifically, previous research determined that this measure had high reliability ($\alpha = .97$), test-re-test reliability ($r = 0.71$), and a high level of convergent validity in that SOGS scores correlated highly with assessments by counselors ($r = 0.86$), clinicians ($r = 0.94$), and with assessments made by family members ($r = 0.60$) (Lesieur & Blume, 1993; Giovanni et al., 2001). The current study assessed lifetime PAG and found an acceptably high level of internal consistency as assessed by Cronbach’s alpha ($\alpha = .91$).

The SOGS consists of 20 equally weighted items, which are based on DSM-IV (APA, 1994) diagnostic criteria for PAG (Lesieur & Blume, 1993). Items with responses of “Yes” or

“No” include “Did you ever gambled more than you intended to?” and “Have you ever felt guilty about the way you gamble or what happens when you gamble?.” Other items have more than 2 responses, for example “When you gamble how often do you go back another day to win back money you have lost?” Responses range from “Never” to “Every time I lose”. Scores are summed, and a score of 1 or 2 indicates some problem (often called at-risk), 3 or 4 indicates PG, and 5 or more indicates PAG (Walters, 1997; Williams et al., 2005). Furthermore, Templer et al. (1993) treated PG as a continuous variable utilizing SOGS score and found that PG severity was significantly associated with additional psychological problems. Moreover, Walters (1997) found that the SOGS explained a significant amount of variance in 4 gambling related variables when it was treated as a continuous or dichotomous variable.

Scope of gambling related crime. Nineteen items assessed participation in gambling-related illegal activities. Specifically, these items ask which, if any, of 19 types of illegal activities the respondent engaged in specifically to gamble or to pay gambling debts. Eighteen of the items were taken from Anderson’s (1999) measure and an additional item was added by the researcher which assessed gambling-related assault: “Have you ever hurt or threatened someone due to gambling or gambling related debt?” Response options were a forced choice of “Yes” or “No” and each affirmative response was scored with 1 point. Scores were summed with higher scores indicating a larger scope of gambling-related crime. Modifications were made to these items which were informed by the wording used by Huizinga and Esbensen (1990) to make them more understandable to those who may have a lower than average reading level or understanding of legalese. Although overall internal reliability of this scale was not established previously, data from the current study suggests that reliability is relatively high ($\alpha = .94$).

History of involvement with the criminal justice system. Two items assessed the extent to which participants had been involved with the criminal justice system. The first of these inquired as to how many times the participant had been arrested. The second item asked how many times the participant had been sentenced to spend time in jail or prison. The responses to these items were summed; therefore higher scores indicated a higher level of involvement with the criminal justice system.

ATOD use while gambling. Three items assessed whether or not participants engaged in elevated levels of ATOD use while participating in gambling activities. Items had response options of “Yes” or “No” and included “When you have gambled did you tend to drink more than when you were not gambling?” and “When you gamble do you tend to smoke or use other tobacco products more than when not gambling?” Each affirmative response was scored 1 point and scores were summed with higher scores indicating increased ATOD use while gambling.

2.4.Procedure

After obtaining IRB approval drug courts were recruited to participate by the researcher contacting Judges and court coordinators via phone, e-mail, and in person at Georgia’s annual Drug Court Conference. Participants were recruited from participating drug and DUI courts with a recruitment flier (see appendix B). The flier described the research, what participation would entail, compensation, informed potential participants that researchers were in no way affiliated with the drug court, and stated that participation, or refusal to participate would in no way impact their status in the court. The researchers contact information was also provided. The fliers were distributed to participants an hour prior to data collection when possible, otherwise they were distributed immediately prior to data collection, at the same time that the researchers verbally

requested participation, explained the purpose of the study, and answered any questions that prospective participants had.

Questionnaires were administered to participants in private rooms at their respective courthouses or court ordered treatment facilities by the researcher and in some instances other researchers who were also Collaborative Institutional Review Board Training Program (CITI) certified assisted in data collection. Participants were informed that their responses would be confidential and informed consent was obtained prior to the questionnaire being administered. Researchers provided participants with two informed consent documents. Participants were asked to read along while researchers reviewed the consent form verbally with all participants. Participants were asked to sign one copy and return it to the researcher, and to keep one copy for their records. Participant copies included a list of treatment providers in the event that someone wished to obtain help for discomfort resulting from participation in the study (see appendix C).

All participants completed a pencil and paper questionnaire. This questionnaire was administered to individuals and groups ranging from 2 to 40 participants at a time. Researchers went over the questionnaire with participants prior to them completing them to ensure they understand what they are being asked and that the definition of gambling was clear. In several instances participant reading level served as a barrier to them participating on their own. In these instances the researcher read the questionnaire aloud to the participant or the participant was assisted by another participant with whom they felt comfortable. These options were made available to participants to choose from. Researchers remained in the room while participants completed the questionnaires. Each participant received a \$10.00 gift card as compensation for completing the survey. After all participants at a location had completed the questionnaire the

researchers returned to Georgia State University and locked these forms and informed consent forms up separately in locked file cabinets in a secure office.

2.5. Plan of Analysis

Quantitative Assessment. Past research has indicated that age, gender and ethnicity are related to PG severity. Therefore, correlations between these covariates with the independent and the dependent variables, as well as interaction effects of the covariates on the relation between the independent and dependent variables were assessed. Moderating variables were mean centered before product terms were computed (Aiken & West, 1996; Cronbach, 1987). Hierarchical regression analyses were run to assess each potential interaction. Specifically, covariates were entered in the first step, main effects in the second step, and the interaction term in the third step.

Primary analyses included assessing prevalence rates of categorical types of gamblers by examining frequencies. Group differences in PG severity (assessed as a continuous variable) based on gender, ethnicity, and court type were assessed with t-tests. The relation between PG severity and scope of gambling-related crime, history of involvement with the criminal justice system and ATOD use were assessed via a hierarchical regression analysis. For this analysis covariates were entered in the first step and main effects were entered in the second step.

Qualitative Assessment. All qualitative data were textually analyzed for themes and subthemes that might elucidate the nature of the relation between gambling, substance abuse and criminal activity. Data were examined through an open coding process as described by Creswell (1998) using NVivo 8. Specifically, the data were initially be explored for any responses that were relevant to gambling, crime, and/or substance use and these responses were be coded. This process continued until the categories become “saturated” (Creswell, pg. 150), meaning that all

relevant information as it related to the research question had been obtained. Then these coded data (or properties) were reduced as subthemes in larger thematic categories. Finally, inter-rater reliability was calculated between two researchers to assess level of agreement in coding (Miles & Huberman, 1994).

3. RESULTS

3.1. Preliminary Analyses

Missing data. Prior to conducting analyses regarding prevalence of PG or moderation, the data were screened and normality of the variables was assessed. A missing value analysis indicated that the only variable missing over 5% of the data was ATOD and that the data was not missing completely at random (MAR), as Little's MCAR test was significant, $X^2(101) = 204.72$, $p < .01$. However, separate variance t-tests, which assess whether or not there is a systematic association between missingness of ATOD and the other variables by grouping those who had missing ATOD data and those who did not, indicated that missingness could be predicted from other variables but not from the dependent variable. These findings suggest that the missing data were missing at random (MAR) (Tabachnick & Fidell, 2007). Therefore, missing data were imputed via expectation-maximization (EM), excluding ethnicity. Missing ethnicity data was not imputed because when this missing data was coupled with participant responses of "prefer not to answer" nearly 10% of this data was missing. Therefore, it was determined that this variable was not adequately assessed and to impute the missing data would be unsound and perhaps lead to biased results.

Assessment of assumptions of regression. There were no out of range values, however 3 outliers were identified within the PG severity variable and 13 were identified within the history of involvement with the criminal justice system variable. The outliers were re-scored to the next less extreme value (within 3.29 *SD* of the mean) present within their respective scores. Additionally, standardized skew and kurtosis values indicated non-normality. However, the violation of the normality assumption was not likely to have led to biased results. Specifically, Lumley, Diehr, Emerson, and Chen (2002) found that when sample size was greater than 500

linear regression and t-tests are valid for any type of distribution. Finally, no indications of homoskedasticity or multicollinearity were identified suggesting that all statistical assumptions of regression were met.

Assessment of covariates. Age, gender, and ethnicity were assessed as potential covariates. The correlations among variables suggested that the covariates were significantly, but not highly related to both the independent variables and the dependent variable ($r < .20$). Additionally, hierarchical regression analysis indicated that there were no statistically significant interactions of age, ethnicity, or gender on the associations between the independent and dependent variables.

With regard to ethnicity, the vast majority of participants identified as either Black/African American or White, whereas nearly 10% of ethnicity data were missing (as mentioned earlier participants either cited preferring not to answer all or part of the ethnicity items or failed to answer these items). It was determined that other than those participants who identified as Black or White ethnicity was not adequately assessed. Therefore, a t-test assessing ethnic group differences in PG severity utilized a subsample which included all participants who identified as Black or White only ($n = 539$). Furthermore, the hierarchical regression analysis assessing predictors of PG severity was rerun utilizing this subsample and included ethnicity in the model as a covariate.

Descriptive statistics and correlations. Descriptive statistics of variables, including means and standard deviations by gender, as well as normality statistics are displayed in Table 3.1. Additionally, correlations among variables are presented in Table 3.2.

Table 3.1 *Descriptive and Normality Statistics*

Variable	Descriptives				Normality statistics	
	Min	Max	Mean	SD	Skewness	Kurtosis
PG severity	0	20	2.49	3.85	1.85	2.76
Scope of gambling-related crime	0	19	1.98	4.00	2.32	4.65
History of involvement with CJS	0	63	11.23	12.48	2.48	6.53
Elevated ATOD while gambling	0	3	0.93	1.21	0.82	-1.02

Note: Descriptive statistics for PG severity were obtained prior to rescoring outliers

Note: Criminal justice system (CJS)

Table 3.2. *Intercorrelations Between Variables*

Variable	PG severity	Gender	Ethnicity	Scope of Gambling related crime	History of involvement with CJS	Elevated ATOD while gambling
PG severity	–					
Gender	-0.16**	–				
Ethnicity	-0.10*	0.12**	–			
Scope of gambling related crime	0.68**	-0.13**	-0.14**	–		
History of involvement with CJS	0.24**	-0.20**	-0.10**	0.35**	–	
Elevated ATOD while gambling	0.43**	-0.10*	0.01	0.36**	0.13**	–

Note: Criminal justice system (CJS)

* $p < .05$ ** $p \leq .01$

3.2. Prevalence Assessment

The results of the prevalence assessment revealed that 52% of respondents (n = 313) evidenced some problem gambling, whereas 48% (n = 289) either did not gamble or had no problem with gambling. The results supported the hypothesis that this sample would have PG rates at least 3 to 4 times those found within the general population. Specifically, the results indicated that 30.4% of respondents could be classified as PAG or PG, compared to 4% (1.4% PAG and 2.6% PG) found within the general population. Furthermore, the prevalence of PAG and PG combined (30.4%) was higher than the prevalence of gamblers categorized as having some problem gambling (21.6%), which may support the hypothesis that the risk of crime and substance use together may be greater than either occurring in isolation. Categorical PG classifications are presented in Table 3.3 for the sample as a whole, by gender, ethnicity and type of court.

Table 3.3. *Prevalence of Gambler Type by Grouping Variables*

Variable	Pathological Gambler		Problem Gambler		Some Problem		No problem or does not gamble	
	%	n	%	n	%	n	%	n
Total Sample	20.1	121	10.3	62	21.6	130	48.0	289
Male	23.5	101	11.9	51	22.8	98	41.9	180
Female	11.6	20	6.4	11	18.6	32	63.4	109
Black	29.7	66	12.2	27	21.2	47	36.9	82
White	12.0	38	9.1	29	22.4	71	56.5	179
Drug Court	22.2	117	10.5	55	22.4	118	44.9	236
DUI Court	5.3	4	9.2	7	15.8	12	69.7	53

When PG severity was assessed as a continuous variable the results of independent samples t-tests partially supported hypotheses regarding group differences. Specifically, the hypotheses that those who identified as Black would have significantly higher PG severity than those who identified as White, and that drug court clients would have significantly higher PG severity than DUI court clients were supported. However, the results did not support the hypothesis of similar levels of PG severity between males and females. Specifically, the results revealed significant differences in PG severity based on gender ($t(600) = 4.04, p = .001$), ethnicity ($t(537) = 5.70, p = .001$), and court type ($t(600) = -3.32, p = .001$). Specifically, males had significantly higher PG than females, the group who identified as Black/African American had significantly higher PG severity than those who identified as White, and drug court clients had significantly higher PG severity than did DUI court clients (see Table 3.4 for PG severity means and standard deviations by group).

Table 3.4. *PG Severity by Grouping Variables*

Variable	Mean	SD
Male	2.87	4.02
Female	1.50	2.99
Black/African American	3.40	4.24
White	1.63	2.98
Drug court	2.68	3.89
DUI court	1.14	2.82

Lottery and pull tab scratch off only players. A number of respondents reported only having gambled on the lottery and/or pull tabs/scratch off tickets ($n = 61$), whereas 405 participants reported participating in lottery/scratch offs and at least one additional gambling

activity. Of the participants who reported having only gambled on lottery/scratch off tickets, 9.8% were assessed as PAGs, 3.3% as PGs, 21.3% had some problem gambling, and 65.6% had no problem gambling. Of those who participated in the lottery and additional gambling activities 26.4% were assessed as PAGs, 13.3% as PGs, 24.7% had some problem gambling, and 35.6% had no problem gambling.

The results of an independent samples t-test revealed that the lottery/scratch off only subsample had significantly lower average PG severity scores than those who participated in additional gambling activities. Specifically, the average PG severity score of the lottery/scratch off only group was 1.03 ($SD = 2.11$) compared an average score of 3.26 ($SD = 4.18$) among the group that participated in additional activities. These sub-samples were highly similar to each other in terms of age and ethnic distribution. However, a higher percentage of females were represented in the lottery/scratch off only group than in the other group (42.6% and 25.7%, respectively). These results indicate that among drug and DUI court participants PG prevalence is lower among those who only gamble on lottery/scratch offs than among those who participate in those and additional gambling activities. However, the prevalence of PAG and PG combined is still greater among the lottery/scratch off subsample than what is found in the general population (13.1% versus 4.0%, respectively).

3.3.Predictors of PG Severity

Hierarchical regression analyses were conducted to assess whether or not participation in a wider scope of gambling-related criminal activities, having a more extensive history of involvement with the criminal justice system, and/or elevated ATOD use during gambling activities predicted increased PG severity. The first hierarchical regression analysis included the entire sample and gender as a covariate ($n = 602$), whereas the second assessed these relations

among only those participants who identified as Black or White ($n = 539$), and included gender and ethnicity as covariates.

The results of the first regression analysis revealed that 49.9% of the variance in PG severity could be explained by scope of gambling-related crime, history of involvement with the criminal justice system and elevated ATOD use while gambling, after statistically controlling for gender. Specifically, each *SD* increase in scope of gambling-related crimes was associated with a 0.60 *SD* increase in PG severity. Additionally, each *SD* increase in elevated ATOD use during gambling was associated with a 0.20 *SD* increase in PG severity. History of involvement with the criminal justice system was not independently associated with PG severity when also accounting for ATOD use and scope of gambling related crime (see Table 3.5).

Table 3.5 *Hierarchical Regression Analysis: Predictors of PG Severity (N = 602)*

Variable	<i>B</i>	<i>SE B</i>	β	R^2
Step 1				
Gender	-1.37	0.34	-.16**	
Change in R^2 Step 1				0.03**
Step 2				
Scope of gambling-related crime	0.57	0.03	.60**	
Extent of history with criminal justice system	0.01	0.01	.01	
Elevated ATOD while gambling	0.64	0.10	.20**	
Change in R^2 Step 2				0.47**
R^2			49.9% **	

Note. Male coded 0

* $p < .05$ ** $p \leq .01$

Similar results were obtained from the regression analysis in which a subsample of participants who identified as Black or White was selected. The results revealed that 51.5% of the variance in PG severity could be explained by scope of gambling-related crime, history of involvement with the criminal justice system and elevated ATOD use while gambling after statistically controlling for gender and ethnicity. Specifically, each *SD* increase in scope of gambling-related crimes was associated with a 0.58 *SD* increase in PG severity. Additionally, each *SD* increase in elevated ATOD use during gambling was associated with a 0.21 *SD* increase in PG severity. History of involvement with the criminal justice system was not independently associated with PG severity when also accounting for ATOD use and scope of gambling related crimes (see Table 3.6).

Table 3.6. *Hierarchical Regression Analysis: Predictors of PG Severity among Participants who Identified as Black or White (N = 539)*

Variable	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>R</i> ²
Step 1				
Gender	-0.96	0.34	-.12**	
Ethnicity	-1.59	0.32	-.22**	
Change in <i>R</i> ² Step 1				0.07**
Step 2				
Scope of gambling-related crime	0.54	0.03	.58**	
Extent of history with criminal justice system	.01	0.01	.01	
Elevated ATOD while gambling	0.64	0.10	.21**	
Change in <i>R</i> ² Step 2				0.44**
<i>R</i> ²				51.5% **

Note. Male and Black coded 0

p* < .05 *p* ≤ .01

3.4. Crime, Gambling and Substance Use

Qualitative data provided in response to “How were these illegal activities related to gambling or paying gambling debts?” and “Is there anything else you would like to share regarding your experiences gambling or gambling debts?” provided insight into if and how participants perceived crime, substance use and gambling to be related. Slightly over 20% (n = 124) of participants answered these qualitative items. Of them 46.8 % were classified as PAGs, 14.5% as PGs, 17.7% as having some problem gambling, and 21.0% as having no problem gambling. This subsample was similar to the entire sample in gender and ethnic distribution. However, the subsample did differ from the entire sample in that there were a larger percentage of PAGs and fewer no problem or non-gamblers represented. Furthermore, there was greater representation of drug court participants (95%) than DUI court participants. Through the analysis of this data 3 thematic categories emerged: 1) crime related to gambling, 2) gambling associated with substance use, and 3) gambling, crime and substance abuse are interrelated. It should be noted that these themes and subthemes are not mutually exclusive and some participants are represented within more than one theme or subtheme. Inter-rater reliability was assessed at 94% indicating a high level of agreement in regard to themes and subthemes among the two raters.

Crime related to gambling. Seventy-five respondents mentioned criminal activity associated with gambling. Of these participants 41 were classified as PAGs, 13 as PGs, 14 as having some problem gambling and 10 as having no problem gambling. Five subthemes emerged within this category: 1) crimes that were proactive in that they were committed to gamble, 2) crimes that were reactive in that they were committed to cover gambling losses, 3) the type of motivation was ambiguous, 4) gambling with proceeds from criminal acts that were not

motivated by gambling, and 5) there was no relation between criminal activity and gambling (see Figure 3.1).

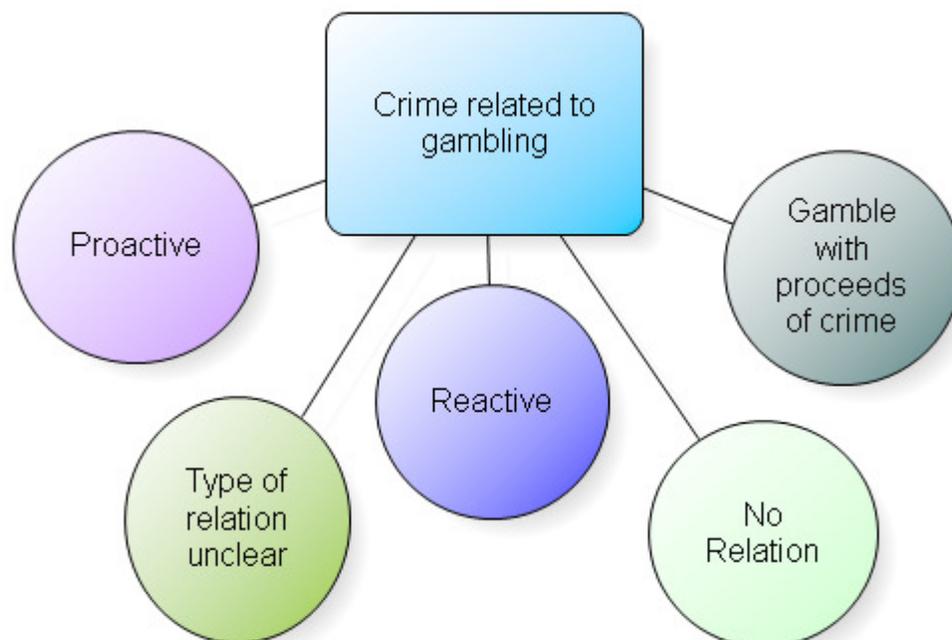


Figure 3.1. *Crime and Gambling*

Crimes that were committed for the purpose of obtaining money or property with which to gamble are considered proactive, as they were committed explicitly to allow for participation in gambling activities. Blaszczynski et al. (1989) would refer to crimes committed for this purpose as being directly related to gambling. This subtheme was mentioned by 21 participants, the majority of which were assessed as PAGs or PGs. Specifically, 12 were classified as PAGs, 4 as PGs, 3 as having some problem gambling and 2 as having no problem gambling. The following quotes characterize participant responses regarding crime proactively related to gambling:

I used to cash checks I knew were bad to play keno. I hustled pool to play keno. I've used drug money to play lottery tickets (Male PAG).

I was addicted to the GA lottery and I did a lot of illegal things to play (Male with no gambling problem).

[I committed crimes because] sometimes I just needed enough for a lottery scratch off ticket (Male PAG).

I sold dope or hustled to get money to gamble (Male PAG).

I took from stores to have money to play cards (Male PAG).

Crimes that were committed to pay gambling debts or to fulfill financial obligations that were to be covered with money that was spent gambling are considered reactive, as they were committed in reaction to outcomes related to gambling. Blaszczynski et al. (1989) would refer to these crimes as being indirectly related to gambling. Twelve participants mentioned crime that was reactively related to gambling. Of them 9 were classified as PAGs, 2 as having some problem gambling and 1 as having no problem gambling. The following quotes characterize participant responses regarding crime reactively related to gambling:

Lost the money [gambling] and when bill day came didn't have it to pay the bill [so I stole to get the money to pay the bill] (Male PAG).

I stole items from my job to pay a gambling debt (Male PAG).

I used money gained [from criminal acts] to pay off bookie debt (Male PAG).

Eighteen participants reported gambling with the profits of their criminal activity and did not indicate that this activity was motivated in any way by gambling. Of the participants who reported gambling with proceeds from crime 7 were classified as PAGs, 3 as PGs, 6 as having some problem gambling and 2 as having no problem gambling. The following quotes characterize participant responses regarding gambling with profits from crime:

I wasn't getting money to gamble but I did use it to gamble (Male PAG).

I would steal money and when I realized how much I had I decided to gamble (Male PAG).

I sold drugs and gambled w/it to double up b/c it was basically free and easy money to start with (Male PG).

A lot of my get high and hustling partners would gamble with the proceeds from our crimes (Male PAG).

I used to sell drugs but not for gambling but I went to Vegas with money I got from selling (Male with some gambling problem).

The more free money I obtained the more prone I would be to spend it gambling (Male with some problem).

I usually gamble more when I'm gambling with money that came easy. Easy come easy go per say (Male PAG).

A number of participants who reported that they gambled with proceeds from crimes explained that they viewed these proceeds as "easy money" that they did not mind risking. Fifteen of the 18 participants who cited this subtheme specifically mentioned that they gambled with proceeds from crimes were drug-related. Perhaps this is because drug crimes result in large amounts of cash money, that drugs are considered acceptable wagers, or both.

Not having committed any gambling related crime was mentioned by 9 participants. Of these participants 3 were classified as PAGs, 2 as PGs, and 4 as having no problem gambling. The following quotes characterize participant responses that indicated that they had never participated in gambling related crime:

I never did anything illegal to support my gambling debts. I have spent paychecks or borrowed from my girlfriend (Male PAG).

[In response to how crimes and gambling were related] they are not, I used cash- if I lost, I lost that was it (Male PAG).

Twenty-two respondents mentioned crime that was gambling related, yet it was unclear what the exact nature of this relation was. The vast majority of these respondents were classified as PAGs. Specifically, 14 of these participants were assessed as PAGs, 4 as PGs, 3 as having some problem gambling and 1 as having no problem gambling. The following quotes characterize participant responses regarding how their crimes were related to gambling:

I handle finance from work. I tried to use money from work [to gamble] and put it back later without permission (Male PAG).

Like when I used my mothers ID and bank card to get money out the bank (Female PAG).

I needed money to pay for my lifestyle – drugs and gambling was my lifestyle (Male PAG).

When you lost all of the money [gambling] you have to find a way to get money (Male PAG).

Gambling and substance use. Twenty-nine participants indicated that gambling was in some way associated with substance use. The majority of these participants were assessed as having at a minimum some problem gambling. Specifically, of these participants 15 were classified as PAGs, 7 as PGs, 5 as having some problem gambling and 2 as having no problem gambling. The following subthemes emerged: 1) gambling to obtain drugs, 2) co-occurring addictions, 3) gambling while high, 4) switching addictions, 5) belief at-risk to develop PG due to addictive nature, and 6) gambling led to substance use (see Figure 3.2).

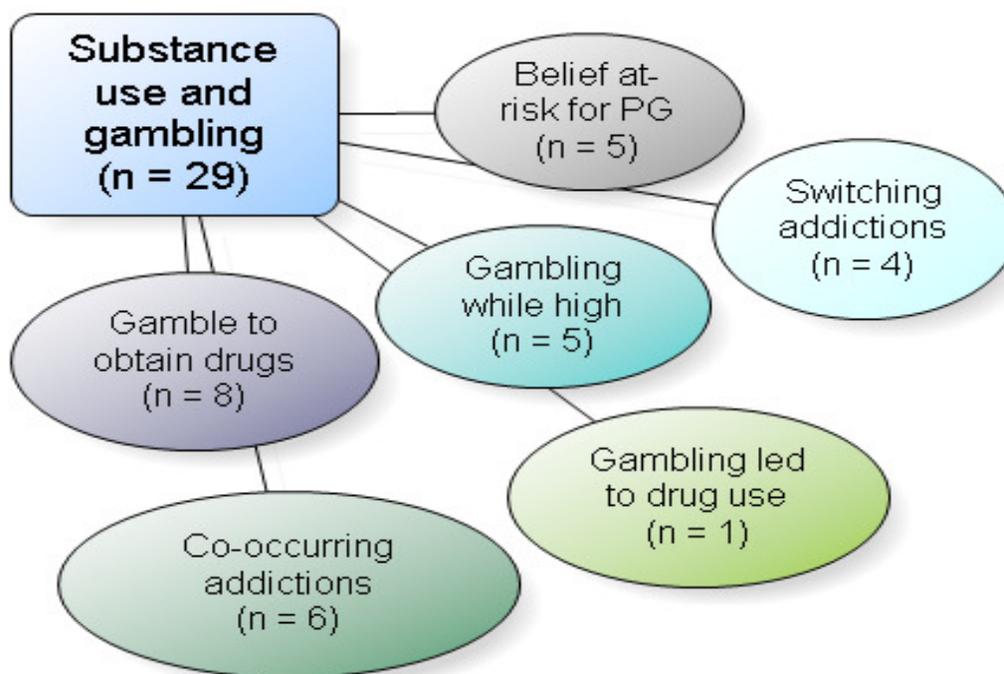


Figure 3.2. *Substance Use and Gambling*

Eight participants cited gambling to obtain drugs. Of them 3 were classified as PAGs, 1 as a PG, 2 as having some problem gambling, and 2 as having no problem gambling.

Interestingly, 2 of these participants (1 assessed as a PAG and 1 as having some gambling problem) indicated that gambling provided them with a means of obtaining drugs that was preferable to (or less risky than) other methods available to them. The following quotes characterize participant responses regarding gambling to obtain drugs:

I used money to gamble to make more money to get dope (Male with some problem gambling).

I basically liked to play card games and scratch lottery tickets ...as another outlet to getting drugs (when I won) so I would not have to prostitute my body (Female with some problem gambling).

Most of my illegal activities were to purchase drugs. After I got high with the money I have left I would gamble to get more money for more drugs, but gambling stopped me from doing other illegal activities that might lead me to jail or death (Male PAG).

Six participants suggested that they may have or have had a co-occurring addiction to drugs or alcohol (4 were classified as PAGs and 2 as PGs). The following quotes characterize participant responses regarding co-occurring addictions:

My addiction consisted of ... dope, alcohol, and being able to play cards for money (Male PG).

I gambled shooting dice in the back of an AA meeting (Male PAG).

Gambling I have found can be just as addictive as the drugs I am addicted to. I found that when you get to the point where you can no longer control yourself because of the euphoria you get from both winning and losing. You seem to go through withdrawals much the same as substance withdrawal. Just not as bad physically but mentally is a bitch (Male PAG).

Five participants (1 PAG, 2 PGs and 2 with some gambling problem) felt they may be at risk to develop a gambling problem. The following quotes characterize participant responses regarding being at risk of PG:

I definitely think it would be a major problem for me if I did gamble much at all (Male PG).

I only played lottery scratch off tickets... because of my addict behavior and at times compulsion (Female with some problem).

Five participants cited gambling while high as a form of leisure. Of them 3 were classified as PAGs, 1 as a PG, and 1 as having some problem gambling. The following quotes characterize these participant responses:

I basically liked to play card games and scratch lottery tickets when I got high for recreation (Female with some problem gambling).

The only time I went gambling was when I was geeked up on meth (Male PAG).

Four participants alluded to the phenomenon of switching addictions. Of them 3 were classified as PAGs and 1 as having some problem gambling. Specifically, 3 of these participants indicated that they switched from gambling addiction to drug addiction and one mentioned an increase in desire to gamble since abstaining from drug use. The following quotes characterize participant responses regarding switching addictions:

Gambling on the lottery was an obsession until crack cocaine took over the picture 5 years ago (Male PAG).

Although I don't gamble much since I have been clean the desire is greater (Male PAG).

One participant, a male classified as a PAG, cited using drugs as a result of gambling. This participant stated: “[*Gambling*] caused me to use drugs and hurt everyone around me”.

Gambling, substance use and crime all interrelated. Seven participants suggested that gambling, crime, and substance use are all interrelated (see Figure 3.3). Of them 4 were classified as PAGs, 2 as PGs and 1 as having some problem gambling. The following quotes characterize participant responses regarding the interrelation of these behaviors:

it's just like a bad circle of addiction the more you gamble the more you use drugs and the more you get addicted, the deeper you go the harder to quit. After a while you are willing to do whatever it takes to come up with the money to gamble more (Male with some problem gambling).

[Crime was related to gambling in that] I needed money to pay for my lifestyle – drugs and gambling was my lifestyle (Male PAG).

The nature of this interrelation varied. For example, 2 of these participants suggested that gambling, crime and substance use were all intricately tied together in what they described as their “lifestyle”. Another participant reportedly committed crimes to obtain money to gamble, and then used the money gained gambling to buy drugs. An additional participant asserted that

the more he gambled, the more he used drugs, and the more addicted he became, until he stated he was willing to “do whatever it takes” to get money to gamble.

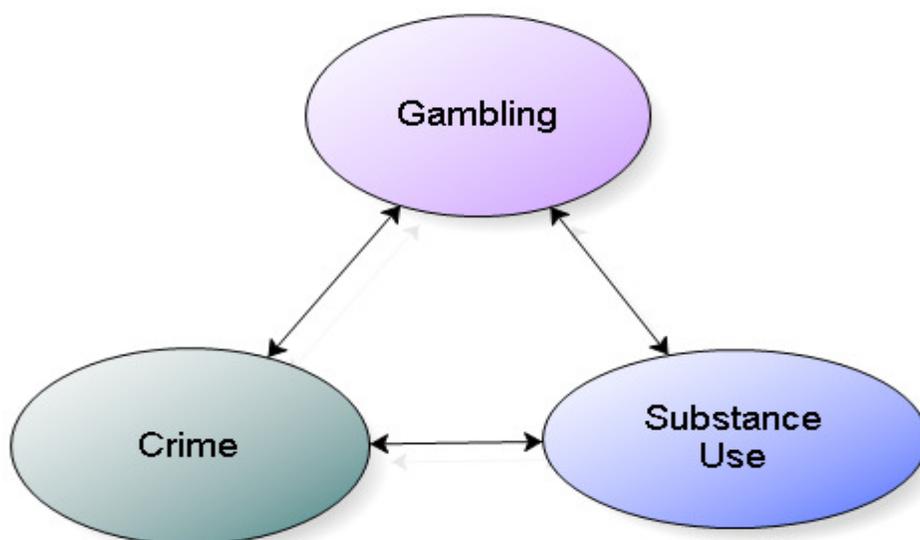


Figure 3.3. *Gambling, Crime and Substance Use*

4. DISCUSSION

The primary goals of this study were to assess the lifetime prevalence of PG among adult drug and DUI court participants; to examine the relation between the scope of gambling-related crime, involvement with the criminal justice system, ATOD use and PG severity; and to apply contextual information gleaned from qualitative data to enhance what is known about how gambling, crime and substance use are interrelated. The results suggest that the prevalence of PG within this population may be the highest of any population that has been assessed, and that some subgroups may be higher risk than others. Furthermore, scope of gambling-related criminal activity and elevated levels of ATOD use were significant predictors of PG severity, whereas extent of involvement with the criminal justice system was not. Moreover, the data highlighted the interrelation between gambling, crime, and substance use, and suggest that these behaviors may lead to and/or reinforce one another.

The findings point to the importance of dedicating resources to this issue allowing for the widespread assessment of PG among substance-abusing offenders, and for the development, evaluation, implementation and dissemination of evidence based best practices for preventing and treating PG. Furthermore, the findings suggest that interventions intended to address PG, substance use or criminal activity may lead to the best outcomes when they incorporate addressing all three of these maladaptive and addictive behaviors. Based on the findings from this study, holistic interventions may be needed to reduce the incidence and prevalence of not only PG, but also of co-occurring substance abuse and criminal activity.

4.1. Prevalence of PG

The results of this study supported the hypothesis that the prevalence of PAG and PG would be at least 3 to 4 times higher than what is found in the general population. A prevalence

assessment conducted in 2007 found the prevalence of PAG and PG in the general population within the state of Georgia to be 4.0% (1.4% PAG and 2.6% PG) (Emshoff et al., 2007). The current study found a prevalence rate of PAG and PG of over 30.0% (20.1% PAG and 10.3% PG), roughly 8 times that found in the general population. This equates to drug and DUI court clients having an extremely high prevalence of gambling problems compared to the general population (over 14 times the rate of PAG and roughly 4 times the rate of PG). Furthermore, the prevalence of gamblers identified as having some gambling problem (or at-risk) among drug and DUI court clients was high (21.6%), especially when compared to the 13.0% prevalence found among male inmates (Walters, 1997).

Furthermore, what is generally found in regard to the distribution of PG categories is a decrease in prevalence as PG severity increases; the majority of those with a gambling problem are sub-clinical (Shaffer & Korn, 2002). However, what was found within this population was an excessively high rate of PAG, the most severe category of PG. The more severe the gambling problem, the more negative outcomes and social costs are associated with it (Grinols, 2004). The heightened severity of PG among drug court clients may be explained by the presence of not one, but two risk factors that have been identified as being the factors associated with the highest prevalence of PG (offending and substance abuse) (Meyer & Stadler, 1999; Petry et al., 2005). It could be that the risk associated with these factors is additive, or that the presence of multiple co-occurring risks compounds the likelihood of a severe gambling problem.

The high prevalence of PG, coupled with the increased severity of PG found within this population highlight the need to dedicate resources not only to assessing drug and DUI court clients for PG, but also to provide treatment as indicated. It is likely that investments in successfully addressing this issue within this population will more than pay for themselves by

reducing the lifetime costs associated with PG, which in GA have been estimated at \$701,357,400 (Zorland et al., 2008a). Moreover, prevention programs should be targeted at substance abusing offenders in particular as they may be most at risk of developing a severe gambling problem.

Lottery and scratch off players. The prevalence of PG among those who reported only playing the lottery/scratch offs was roughly 13% and more than 21% were assessed as having some problem gambling. While these rates are lower than those found within the entire sample, they are still much higher than what is found within the general population. Therefore, engaging in only legal gambling activities should not be considered a buffer for the development of PG. Substance abusing offenders who solely participate in state run gambling activities are also at increased risk of PG and warnings about the potential dangers of participating in such activities should be incorporated into prevention and treatment programs.

Group differences in PG severity. The results supported the hypotheses that participants who identified as Black or African American compared to White and those who were in Drug as compared to DUI court would have significantly higher PG severity. The hypothesis that there would be no gender differences in regard to PG severity was not supported; males had significantly higher severity than females. These findings suggest that those who identify as Black, drug court participants, and males may be in most need of prevention and treatment interventions for PG. Therefore, interventions should be developed that are culturally sensitive and gender responsive, and that address the issues related to addiction that have been found to be salient among drug court clients. Interventions that are appropriate in regard to culture and gender have been found to be more successful with their target populations than interventions that were developed based on research findings that utilized samples of White, male college

students (Beckerman & Fonatana, 2001; Covington & Bloom, 2000; Hagan, Finnegan, & Nelson-Zlupko, 1994).

4.2. Gambling, Crime and Substance Use

Gambling and crime. The results of the quantitative and qualitative analyses suggest that there is a complex relation between gambling and crime. Specifically, gambling-related crimes may be proactive in that they are motivated by a desire to participate in legal (the lottery) or illegal (card games, sports, etc.) gambling activities. Alternately, crimes may be reactive in that they are motivated by a desire to recoup gambling losses. Gambling-related crimes were committed by all types of gamblers (from PAGs to those assessed as having no problem). However, the vast majority (27 of the 33) of the participants who mentioned crime that was proactive or reactive in relation to gambling were PAGs or PGs. This finding provides support for previous research findings indicating that gambling problems tend to lead to crime once the problem has become severe. (Lahn, 2005; NIJ, 2004).

Furthermore, as was expected scope of gambling related crime was a significant predictor of PG severity. This is important as the literature tends to focus solely on white collar crimes (e.g., Zimmerman et al., 1985) as indicators of PG. The results from the present study highlight the need to expand the focus to the commission of crimes against persons, property, and society as possibly being gambling-related. It may be that as PG severity increases a larger number of illegal methods of obtaining funds to gamble with are explored.

In addition, profits from crimes that may not have been motivated by gambling provide a means to gamble. The high rate of gambling problems found among participants who mentioned gambling with proceeds of crime (16 of 18 had at a minimum some problem gambling) may be explained by previous research which has indicated that the act of gambling itself can increase

the risk of gambling problems. For example, Sharpe (2002) suggested that PG may result as a consequence of experience rather than pathology. Specifically, initial experiences of winning may lead to erroneous cognitions such as the “gambler’s fallacy”, the tendency to remember wins over losses, as well as an association of gambling with psychological and physiological arousal, both of which may reinforce gambling behaviors. As gambling behaviors increase such activities become more strongly associated with physical arousal, thus patterns of gambling behavior become habitual and may lead to uncontrolled gambling.

An unexpected result was that the extent of involvement with the criminal justice system was not a significant predictor of PG severity independent of the effects of the scope of gambling related crime. It is likely that the moderately high correlation between scope of gambling-related crime and involvement in the criminal justice system masked the univariate association of criminal justice system involvement with PG severity. Conversely, it may also be that many gambling related crimes do not come to the attention of the authorities, as they may be dealt with by the victims, for example family members and employers. As noted by Schwer et al. (2003) less than 10% of PGs who admitted to participating in gambling-related crime were arrested as a result of these acts. Furthermore, Blaszczynski et al., (1989) found that among PGs who committed gambling-related crime only 21% were actually charged. These reasons may explain in part why involvement with the criminal justice system, although correlated with PG severity, did not account for variance in PG over and above the effects of gambling-related crime. .

Collectively, the findings point to the importance of screening for PG among anyone entering the criminal justice system, especially those who have been identified as having a substance abuse problem. Such practices may lead to the identification of individuals with the most severe gambling problems and of those at heightened risk for developing PG, thus

providing an opportunity for intervention. Gambling problems may seem to be a secondary concern to criminal offending, yet once a gambling problem develops it may lead to additional crime motivated by gambling. While it is important to note that not all participants assessed as having a gambling problem reported participating in gambling-related crime, the data demonstrate that some crimes are motivated by gambling. Thus, some gambling-related crime could be prevented if PG was successfully prevented or treated, as the motivation underlying such crimes would be removed.

Gambling and substance use. The results of the present study indicate that gambling and substance use are related. This association was mentioned by all types of gamblers, the majority of which were assessed as being PAGs or PGs (22 of the 29 who cited this association). Previous research has demonstrated an association between ATOD use and PG (Black & Moyer, 1999; Cunningham-Williams et al., 1998), and the findings of one study indicated that over 80% of PGs smoked more while gambling than when not gambling (Sullivan & Beer, 2003). The current study took this one step further by assessing elevated tobacco use during gambling activities, as well as alcohol and drug use. As predicted, elevated levels of ATOD use during gambling activities was a significant predictor of PG severity and the qualitative data suggested that gambling may be a popular leisure activity while high.

Moreover, some participants indicated that they may have a gambling problem co-occurring with a drug and/or alcohol problem. This finding, coupled with those indicating that ATOD use while gambling is associated with PG severity highlight the potential tendency for addictive behaviors to co-occur. Gambling with impaired judgment may lead to uncontrolled gambling. Furthermore, it is possible that participating in multiple addictive behaviors at one

time magnifies the severity of both problems and amplifies the risk of dependence upon the behaviors.

In addition, the findings suggest that substance abusing offenders may participate in gambling activities as a method of obtaining drugs. In fact, the data suggested that gambling may be perceived as an acceptable mode of obtaining drugs. Over half of 8 respondents who cited this relation were classified as PGs or PAGs suggests that PG severity may be related to gambling motivated by acquiring drugs. Specifically, these gamblers are not only rewarded from the action and excitement of gambling (Lesieur, 1984), but also from acquiring drugs or money to purchase drugs upon winning. Such strong positive reinforcement may result in gambling behaviors becoming habituated, thus a gambling problem may develop (Jacobs, 1986; 1988).

The data also indicated that gambling may be involved in the phenomenon of switching addictions, or replacing one addictive behavior with another. Interestingly, both switching from gambling to drug addiction and from drug to gambling addiction were mentioned. This finding is important as drug court clients are drug screened frequently by their respective courts, yet there is no way for the courts to objectively assess their clients for participation in gambling activities. Drug court clients are coerced by the legal system into abstinence from drug use. Therefore, they may attempt to find another avenue of achieving the “high” they can no longer get from substances which are detectable by drug testing. Gambling could be an attractive alternative to substance use as these behaviors have been shown to have the same motivation behind them (Gupta & Derevensky, 1998; Jacobs, 1986, 1988). Moreover, those who initially had a gambling problem may be at increased risk of returning to it once they can no longer use drugs to achieve a high.

The results also highlighted the perception among some participants (all of whom were assessed as having at least some problem gambling) that an addiction to drugs or alcohol may increase the risk of developing an addiction to gambling. Specifically, some participants expressed concern that if they participated in gambling to any degree, or if such behaviors went beyond a certain threshold (such as participating in activities other than the lottery) a gambling problem would likely ensue. This finding is of concern because, as mentioned previously in the discussion of the prevalence assessment findings, limiting gambling activities to the lottery and/or scratch offs may not provide a buffer to the development of a gambling problem.

Finally, 1 participant (classified as a PAG) cited substance use as a result of gambling. This unique perspective is important as it describes PG as the causal mechanism behind another addictive behavior. This assertion is supported by the literature which suggests that gambling may result in negative outcomes which may lead to substance use as a way of avoiding or dealing with upsetting or unpleasant situations (Blaszczynski, 2000).

Crime, substance use and gambling as interrelated behaviors. When examined collectively the data suggest that crime, substance abuse, and gambling are interrelated. These behaviors appear to reinforce one another other and/or increase the likelihood of the others co-occurring. This finding has implications for assessment, prevention, and treatment. Specifically, the presence of any of these behaviors should serve as an indicator that the others may be present and screening should be implemented. In addition, comprehensive prevention programs that address gambling, crime and substance use should be targeted at individuals with indicators of any these behaviors, as they are at increased risk of the other behaviors becoming problematic. Finally, treatment programs for substance abuse or PG, as well as intervention designed to address crime should incorporate components which address substance abuse, gambling and

crime. The successful prevention and/or treatment of all or any of these behaviors may positively impact the prevalence and incidence of the others.

4.3. Conclusions

Substance abusing offenders are a unique and understudied population, and possibly the most at-risk of developing severe PG. The prevalence of PG among drug court clients is one of the, if not the, highest found in any population. The ultimate goal of drug courts is to treat addictions to substances underlying criminal offending. Substance abusing offenders are extremely vulnerable in regard to experiencing gambling problems. There is evidence that PG may replace substance abuse as a motivating factor behind criminal activity in some cases. In other cases it is likely that gambling problems will compromise the process of recovery from substance abuse. Therefore, it is vital that PG prevention and treatment are incorporated into drug court curriculum.

Furthermore, there is a complex relation between crime, ATOD and gambling. These findings suggest that 1) policy changes should be made within the criminal justice system regarding PG, 2) increased resource dedication is needed to adequately address PG within this population, and 3) components addressing PG, substance use and crime should be incorporated into PG interventions targeted at substance abusing offenders.

Specifically, policy should be established which mandates that PG is assessed upon intake into the criminal justice system. This will allow for the burden of PG within this population to be estimated, which would inform resource dedication while also allowing for treatment to be provided to those identified as having a gambling problem. In addition, it should be mandated that information regarding treatment to address all of these issues should be made

available in correctional settings, as entrance into the criminal justice system provides an opportunity to intervene with those at increased risk of PG.

Secondly, increased resources dedicated to addressing PG are needed to successfully impact the problem. The Substance Abuse Mental Health Services Administration (SAMHSA) (n.d) cites a lack of resources dedicated to PG as a barrier to providing services as this limits adequate screening and the availability of treatment. Furthermore, to provide adequate treatment funds are needed for workforce development, which would allow for clinicians working with substance abusing offenders to become knowledgeable about the indicators of and treatment for PG. There are a limited number of professionals trained in PG treatment, and experience treating other addictive behaviors is not sufficient to successfully treat PG (SAMHSA, n.d.).

Additionally, funds are needed for the development, implementation, and evaluation of PG interventions, particularly to establish and disseminate evidence based best practices in the prevention and treatment of PG. The results of this study suggest that PG interventions must be developed that are both gender responsive and culturally sensitive, as PG severity differed by these grouping variables and such approaches have been found to be more successful than those that are not designed with population specific needs and appropriateness in mind.

Furthermore, interventions designed to address PG should not only be targeted at the individual, but also at environmental risk factors (Elias, 1987) such as availability and social normative beliefs regarding gambling. Empowering approaches to preventing and treating PG should be utilized, such as having those who are targeted by these interventions play a role in defining what they should look like. Such practices have been found to lead to enduring programs which have a more positive impact than those that are short term (Cowen, 1996), and

when there is a sense of ownership of the community outcomes are generally better (Everhart & Wandersman, 2000).

Finally, the results of this study converge to highlight the importance of developing holistic interventions that address PG in addition to multiple other addictive and maladaptive behaviors targeted at substance abusing offenders. Such preventative and treatment interventions make the most of limited resources and may lead to the most positive outcomes, such as reduced criminal activity and co-morbidity. These interventions must also be evaluated in an effort to establish evidence based best practices in preventing and treating addiction in general, rather than focusing on a single addiction. Taking a more broad view of addiction in prevention and treatment initiatives may lead to better outcomes, not only by treating dysfunction but also by potentially preventing associated health compromising behaviors.

4.4.Limitations

The cross-sectional design provides information about the association between PG and its correlates at one point in time; researchers do not know how this impact might evolve over time. Furthermore, the measure used to assess PG severity assessed lifetime prevalence, but offers no information about the current prevalence of PG is within this sample. Additionally, the crimes for which participants were mandated to these alternative courts were not assessed or controlled for potentially leading to misspecification of the model.

The self-report measure utilized leaves room for bias, as participants may inaccurately report perceptions of gambling and related variables. Participants were recruited and volunteered to participate, those who declined may be systematically different than those who agreed to take part in the study. Participants were only recruited from drug courts in Georgia, and only those courts that agreed to allow researchers to recruit their clients. Therefore, the sample obtained

may not be representative of the population of all drug court clients. Furthermore, gender identity and individual differences in susceptibility to demand characteristics were not assessed or controlled for possibly compromising validity of the research.

In regard to the qualitative data, the potential for selection bias is compounded as all participants chose to participate in the study and then these participants again chose to answer these items. Furthermore, only a small percentage of the entire sample (20.6%) opted to provide qualitative data. These participants were similar to the entire sample in regard to ethnicity and gender. However, a larger proportion of drug court clients and PAGs than were found in the entire sample answered these items. Furthermore, drug and DUI court clients who are farther along in their respective programs may have been more likely to have provided responses to these items as self-reflection and disclosure are part of the recovery process. However, stage of drug and DUI court program completion was not assessed. Therefore, the qualitative results may not represent the views of all drug and DUI court clients.

Finally, participants were recruited from multiple drug courts that may differ in program implementation and fidelity to the drug court model. Some of these courts may include the mention of PG during treatment, possibly increasing awareness of some participants that they have a problem gambling. Potential differences in curriculum, implementation, fidelity, and client dosage of the intervention were not assessed, nor were they controlled for. Therefore, some of the variance in measured variables may have been due to contextual differences between the courts, potentially affecting the results.

4.5. Future Directions

Future efforts should be made to engage policy makers to make changes to address PG within the criminal justice system. Future research endeavors should examine the impact of any

policy changes regarding PG that may occur. Specifically, screening should be mandated and the burden of PG assessed among those involved in the criminal justice system, and the impact of any preventative or treatment interventions on the incidence and prevalence of PG should be examined.

This study should be replicated in locations in which a larger scope of gambling activities are legally available, as availability of gambling opportunities has been found to impact the prevalence of PG (Pearce, Mason, Hiscock, & Day, 2008; Volberg, 1994; Welte, Wieczorek, Barnes, & Tidwell, 2006). Additionally, the results from the present study indicated that drug court participants had higher levels of PG severity than did DUI court clients. This difference should be the subject of future research endeavors. Furthermore, risk factors that have been well established in the literature should be assessed qualitatively. The research suggests that there are many variables associated with PG, but does not provide information about the nature of these associations. Such information is fundamental to developing interventions that will successfully address PG.

Additionally, the relation between crime and gambling should be assessed by methods in addition to self-report, such as assessing court documents and perhaps interviewing employers, and family members as key informants. Obtaining such information through multiple sources may provide a more accurate estimate of this relation. Moreover, additional research should assess the relation between crime, substance use, gambling and additional variables which may be risk factors or highlight areas to intervene. For example, one study found that women who reported that their partner had a gambling problem were 10.5 times more likely to have experienced interpersonal violence (IPV) than those who did not, whereas women who reported their partners had both a gambling and a drinking problem were 50 times more likely to have

experienced IPV than those whose partners had either problem (gambling or alcohol) but did not have a comorbid condition (Muelleman, Den Otter, Wadman, Tran, & Anderson, 2002).

Additionally, Petry (2002) found that compared to non-PAGs, those with co-occurring PAG and substance abuse disorders were at increased risk of HIV and other sexually transmitted diseases (STDs). Further inquiry into these relations could assess whether or not those involved in IPV and those who participate in risky sexual behaviors are at increased risk for PG, and/or if PGs are at increased risk of perpetrating IPV or contracting an STD.

The results of the present study suggest that substance-abusing offenders may perceive gambling as an acceptable method of obtaining drugs. Additional research may enhance knowledge regarding these perceptions and may assist in establishing the best ways to communicate the risks about PG, as well as relaying information regarding responsible gambling practices in an effort to reduce potential harm caused by gambling.

Additional research should assess the influence of individual and environmental factors on PG development, treatment and prevention. For example, at the individual level research is needed to further assess the role of impulse control in PG and the efficacy of clinical interventions such as medication trials. Alternately, more research is also needed to assess factors at larger ecological levels that may impact PG such as normative beliefs within the community regarding gambling, availability of gambling opportunities, the placement and frequency of advertising for gambling, as well as what audience these advertisements are targeted toward. Interventions targeted at community level factors should be developed and assessed, such as presenting public service announcement that do not shed a positive light on gambling and holding community forums to encourage discussion regarding negative outcomes

related to gambling. Such interventions should then be assessed as to their impact on PG prevalence, incidence and severity.

While the results of the present study indicate that there is a relation between gambling crime and substance use, the study cannot inform understanding of causal pathways. Therefore, research endeavors are needed that are prospective in nature. Such research designs may allow for greater confidence in sorting out causes and effects, providing information instrumental to successful intervention efforts. Knowing which, if any, of these maladaptive behaviors fuels (or causes) the others may provide insight into where to target intervention efforts to achieve the most positive outcomes.

Due to the elevated risk for problems in living among drug and DUI court clients whether or not a harm reduction approach to PG can work within this population should be empirically assessed. While gambling can provide a positive experience as a form of leisure, this requires that such activities are controlled. It has yet to be assessed if individuals with multiple risk factors for PG, and who already suffer from a substance abuse disorder are able to maintain a healthy level of gambling. This is important as a harm reduction approach may not be advisable when addressing PG within this highly vulnerable population.

Moreover, a benefit-to-cost analysis should be conducting with regard to providing treatment for PG among substance abusing offenders using recent figures. Politzer, Morrow, and Leavey (1985) assessed the benefit to cost ratio of gambling treatment roughly 25 years ago and estimated it to be more than 20:1. PG costs have been estimated at roughly 40% of costs related to drug problems (Grinols, 2004). In the US each PAG incurs an annual cost of \$1,200 and each problem gambler incurs costs of \$715 (to their families, businesses and to the government). Comparing these costs to those incurred annually per smoker (\$1,500); car accident (\$3,600) and

per person with mental illness (\$2,300) (NORC, 1999) indicates that greater resources should be dedicated toward PG. However, the costs of not treating PG are needed to persuade policy makers to address PG and to get it on the agenda along with other addictive behaviors when funding decisions are being made.

Gambling problems negatively affect not only the individual with the problem, but their families and society. This problem has been found to be preventable and treatable (Politzer et al., 1985). Substance-abusing offenders have a high, if not the highest prevalence of PG of any population. Successful prevention and treatment efforts targeted at this population may not only reduce the incidence and prevalence of PG, but may also reduce associated criminal activity and substance use. The results of this study highlight the need to address PG along with criminal activity and drug use among offenders with a substance abuse problem. Through continued work in areas of prevention, policy, and research the rate of PG can be reduced, as can the negative impacts that are associated with this problem.

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APPENDICES

Appendix A: Georgia Therapeutic Court Gambling Assessment

GEORGIA THERAPEUTIC COURT GAMBLING ASSESSMENT**[GTCSA]**

Date: _____

Please indicate the following:

1. Age: _____
2. Gender Male Female
3. Are you Hispanic or Latino/Latina?
 - a. Yes
 - b. No
 - c. I prefer not to answer
4. How do you describe yourself? (Pick all that apply)
 - a. American Indian or Alaskan Native
 - b. Asian
 - c. Black or African American
 - d. Native Hawaiian or Other Pacific Islander
 - e. White
 - f. I prefer not to answer
5. Highest level of education completed
 - a. 8th Grade or Less
 - b. Some High School
 - c. High School
 - d. Some College
 - e. Bachelor's Degree
 - f. Graduate Degree
6. What is your usual occupation?
 - a. Student
 - b. Homemaker
 - c. Retired/disability
 - d. Manual labor (unskilled)
 - e. Skilled worker (tradesman)
 - f. Managerial/Professional
 - g. Unemployed
 - h. Military

- i. Other Please specify _____
7. Have you ever been in the military? _____Yes
_____No
8. Are you currently in DUI or Drug Court (Please circle one)?
9. Have you ever been diagnosed with a mental health condition? _____Yes
_____No
- 9 b. If yes, what were you diagnosed with?

10. Do you smoke cigarettes or use other tobacco products? _____Yes
_____No
11. I have thought about committing suicide:
- a. never
 - b. once or twice
 - c. sometimes
 - d. often
 - e. almost every day
12. Have you ever felt the need to bet more and more money? _____Yes _____No
13. Have you ever had to lie to people important to you about how much you gamble?
_____Yes _____No
14. Do you currently have trouble controlling your gambling? _____Yes _____No
- 14 b. If yes, would you be interested in receiving help to control your gambling?
_____Yes _____No

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

PLEASE "✓" ONE ANSWER FOR EACH STATEMENT:	NOT AT ALL	LESS THAN ONCE A WEEK	<i>ONCE A WEEK OR MORE</i>
a. Bet on card games			
b. Bet on horses, dogs, or other animals			
c. Bet on sports games			
d. Bet on dice games			
e. Went to casinos (legal or otherwise)			
f. Bet on lotteries			
g. Bet on bingo			
h. Played the stock and/or commodities market			
i. Played slot machines, poker machines, or other gambling machines (video lottery terminals)			
j. Bowled, shot pool, played golf, or some other game of skill for money or other items of value			
k. Played pull tabs or scratch off games other than lotteries			
l. Some form of gambling not listed above (please specify): _____			

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

- | | |
|---|---|
| <input type="checkbox"/> Never gambled | <input type="checkbox"/> More than \$100.00 up to \$1,000.00 |
| <input type="checkbox"/> \$1.00 or less | <input type="checkbox"/> More than \$1,000.00 up to \$10,000.00 |
| <input type="checkbox"/> More than \$1.00 up to \$10.00 | <input type="checkbox"/> More than \$10,000.00 |
| <input type="checkbox"/> More than \$10.00 up to \$100.00 | |

17. What is the dollar amount of the most valuable thing you ever gambled with on any one-day?

- | | |
|---|---|
| <input type="checkbox"/> Never gambled | <input type="checkbox"/> More than \$100.00 up to \$1,000.00 |
| <input type="checkbox"/> \$1.00 or less | <input type="checkbox"/> More than \$1,000.00 up to \$10,000.00 |
| <input type="checkbox"/> More than \$1.00 up to \$10.00 | <input type="checkbox"/> More than \$10,000.00 |
| <input type="checkbox"/> More than \$10.00 up to \$100.00 | |

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

- | | |
|---|--|
| <input type="checkbox"/> Father | <input type="checkbox"/> Mother |
| <input type="checkbox"/> Brother/Sister | <input type="checkbox"/> My Spouse/Partner |
| <input type="checkbox"/> My Child(ren) | <input type="checkbox"/> Another Relative |
| <input type="checkbox"/> A Friend or Someone Important in My Life | |

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

- | | |
|---|---|
| <input type="checkbox"/> Never | <input type="checkbox"/> Most of the Times I Lose |
| <input type="checkbox"/> Some of the Time
(less than half the time I Lose) | <input type="checkbox"/> Every Time I Lose |

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

_____ Never

_____ Yes, less than half the time I lost

_____ Yes, most of the time

21. Do you feel you have had a problem with betting or money gambling

_____ No

_____ Yes

_____ Yes, in the past, but not now

22. Did you ever gamble more than you intended to? _____Yes _____No

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

24. Have you ever felt guilty about the way you gamble, or what happens when you gamble? _____Yes _____No

25. Have you ever felt like you would like to stop betting money on gambling, but didn't think you could? _____Yes _____No

26. Have you ever hidden betting slips, lottery tickets, gambling money, IOUs, or other signs of betting or gambling from your spouse, children, or other important people in your life? _____Yes _____No

27. Have you ever argued with people you live with over how you handle money? _____Yes _____No

28. (If you answered "Yes" to question 27) Have money arguments ever centered on your gambling? _____Yes _____No

29. Have you ever borrowed from someone and not paid them back as a result of your gambling? _____Yes _____No

30. Have you ever lost time from work (or school) due to betting money or gambling? _____Yes _____No

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

a. From household money

_____Yes _____No

- b. From your spouse _____Yes _____No
- c. From other relatives or in-laws _____Yes _____No
- d. From banks, loan companies, or credit unions _____Yes _____No
- e. From credit cards _____Yes _____No
- f. From loan sharks _____Yes _____No
- g. You cashed in stocks, bonds, or other securities _____Yes _____No
- h. You sold personal or family property _____Yes _____No
- i. You borrowed on your checking accounts (passed bad checks) _____Yes
_____No
- j. You have (had) a credit line with a bookie _____Yes _____No
- k. You have (had) a credit line with a casino _____Yes _____No

32. The following is a list of things other people have done to pay gambling debts or to get money in order to be able to gamble. Which of these have you done for those reasons? (check "Yes" or "No" for each):

- a. Taken something from a store without paying for it _____Yes _____No
- b. Stolen or tried to steal a car, motorcycle, or other vehicle _____Yes _____No
- c. Stolen or tried to steal money or things worth less than \$5 _____Yes _____No
- d. Stolen or tried to steal money or things worth between \$5 and \$100 _____Yes
_____No
- e. Stolen or tried to steal money or things worth more than \$100 _____Yes _____No
- f. Used checks illegally or used fake money to pay for something _____Yes _____No
- g. Used or tried to use credit cards or bank cards without the owner's permission _____Yes _____No
- h. Participated in identity theft _____Yes _____No
- i. Stole money or items from work _____Yes _____No

- j. Gone into or tried to go into a building to steal something _____Yes _____No
- k. Snatched someone's purse or wallet or picked someone's pocket _____Yes _____No
- l. Taken something from a car that did not belong to you _____Yes _____No
- m. Knowingly bought, sold, or held stolen goods or tried to do something with these goods _____Yes _____No
- n. Sold or traded drugs _____Yes _____No
- o. Hustled at cards, dice or some other game/sport (i.e. pool) _____Yes _____No
- p. Ran another type of con game _____Yes _____No
- q. Had sex/engaged in prostitution or pimping _____Yes _____No
- r. Hustled in some other way (or in a way already mentioned), but you don't want to say _____Yes _____No

33. How were these illegal activities related to gambling or paying gambling debts?

34. About how much of the money you got illegally was used for gambling or to pay gambling debts?

- a. All
- b. Most
- c. Some
- d. A little
- e. None

35. How many times have you been:

- a. Arrested? _____
- b. Sentenced to spend time in jail or prison? _____
- c. Convicted of a felony? _____
- d. Convicted of a misdemeanor? _____

36. (If you have ever been arrested, sentenced to jail/prison or convicted) How many times, if any, of these were due to gambling or paying gambling debts?

37. Have you ever hurt or threatened someone due to gambling or gambling related debt?

_____Yes _____No

38. Have you ever been hurt or threatened by someone due to gambling or gambling related debt?

_____Yes _____No

39. Have you ever gambled while in jail or prison?

_____Yes _____No

40. (If you answered "Yes" to question 39), what type(s) of gambling activity(ies) were they?

41. (If you answered "Yes" to question 39), How frequently did you gamble while in jail or prison?

- a. Very frequently
- b. Frequently
- c. Sometimes
- d. Rarely
- e. Never

42. (If you answered "Yes" to question 39), What prompted your gambling while in jail or prison (ie: cause, benefits, etc.)

43. (If you answered "Yes" to question 39), Which best describes how often you gamble when in jail or prison as opposed to when you are not in jail or prison?

- a. Gamble more frequently when in jail/prison than when not in jail/prison
- b. Gamble about the same amount when in jail/prison and when not in jail/prison
- c. Gamble less frequently when in jail/prison compared to when not in jail/prison

44. (If you answered "Yes" to question 39), Since you gambled while in jail/prison, how much do you gamble now?

- a. I gamble more frequently since I gambled while in jail/prison
- b. I gamble about the same amount I did prior to gambling while in jail/prison
- c. I gamble less frequently than I did prior to gambling while in jail/prison

45. (If you answered "Yes" to question 39), Did/Do you owe people money as a result of gambling while in jail/prison (accrue gambling debt)?

_____ Yes _____ No

46. (If you answered "Yes" to question 39), Is there anything else you would like to share about your gambling experiences while in jail or prison?

47. Have you ever wanted to get help with your gambling while you were in jail or prison?

_____ Yes _____ No

48. Did you ever seek out help with your gambling while in jail or prison?

_____ Yes _____ No

49. Did you ever get help with your gambling problem while in jail/prison?

_____ Yes _____ No

50. Did you ever hear about gambling treatment that was provided by, or offered in the jail/prison? _____ Yes _____ No
51. Have you ever been to Gamblers Anonymous meeting or to a therapist for help dealing with a gambling problem? _____ Yes _____ No
52. Have you ever asked someone else for help with a gambling problem? _____ Yes _____ No
53. Approximately how much credit card debt do you currently have?
- a. None
 - b. Less than \$1,000
 - c. \$1,000 to \$4,999
 - d. \$5,000 to \$9,999
 - e. \$10,000 to \$19,999
 - f. \$20,000 to \$29,999
 - g. \$30,000 to \$49,999
 - h. More than \$50,000
54. Of this debt, how much, if any of it is related to gambling (to gamble with or to pay gambling debt)?
- a. All
 - b. Most
 - c. Some
 - d. A little
 - e. None
55. Are any of your credit cards currently "maxed out" (at their maximum limit)? _____ Yes _____ No
56. Are you currently able to make your minimum monthly credit card payments on time? _____ Yes _____ No
57. Have you ever filed for bankruptcy? _____ Yes _____ No
58. (If you answered "Yes" to question 57), Was this ever as a result of your gambling or gambling related debt? _____ Yes _____ No
59. Have you ever used drugs or alcohol while gambling? _____ Yes _____ No
60. Have you ever gambled while drunk or high _____ Yes _____ No
61. Have you ever smoked or used other tobacco products while gambling?

Appendix B: Recruitment Flyer

You are invited to participate in a research study:

Georgia State University, Department of Psychology

Title: *An examination of problem gambling among adults participating in Drug and DUI courts*

Purpose of study: to examine gambling among individuals in Drug Court and DUI programs

- Participation in this study is completely voluntary; no one associated with the court will know if you decide to participate or not
- Participation will not influence your status in the court in any way
- How much time will it take?
About 20 minutes
- What will you need to do?
Fill out a paper & pencil questionnaire
- When will this happen?
SPECIFIED FOR EACH COURT
- Will anyone know what you write on your questionnaire?
No, you will not put your name on the form, and only researchers will see your questionnaire. Your answers will be kept private.
- What will you be asked?
If, when, and how often you gamble, what you bet on, if gambling was in any way related to any criminal activity you may have participated in; and if you have any known risk factors of problem gambling. You will also be asked other information, such as your gender, age, and ethnicity.
- What will you get out of this?
If you agree to participate you will receive a \$10 gift card. You may also provide information that could help drug and dui courts when they consider modifying their programs.

If you have any questions, feel free to contact: Jennifer Zorland: 404-413-6332, jzorland1@gsu.edu or Angela Mooss: amooss@hotmail.com; 402-290-7267

Appendix C: Informed Consent

Georgia State University
Department of Psychology
Informed Consent

Title: *An examination of problem gambling among adults participating in Drug and DUI courts*

Principal Investigator: P.I.: James Emshoff, PhD.
Student P.I.: Jennifer Zorland

I. Purpose:

You are invited to participate in a research study. The purpose of the study is to investigate your gambling activities. This study will also examine if gambling is in any way related to any criminal acts you may have taken part in. We will also ask you if you have any risk factors related to problem gambling. You are invited to take part because you are in a Drug or DUI Court. A total of 150 participants will be recruited for this study. Participation will require 45 minutes of your time today.

II. Procedures:

If you decide to participate, you will complete a paper and pencil questionnaire. Completing the questionnaire is the only thing you will be expected to do. The researcher will give you the questionnaire. Questionnaires will be completed in groups, in a private area of the Courthouse. It will take about 45 minutes to complete. You will receive a \$10 Kroger gift card for your participation.

III. Risks:

In this study, you may experience some discomfort in answering some of the questions about your gambling and criminal activity. You may experience discomfort in answering a question about having ever thought about committing suicide. There is a list of treatment providers on the next page. Please contact one of these, or another provider immediately if you experience discomfort, or feel you want to harm yourself. You will be responsible for the cost of these services.

IV. Benefits:

Participation in this study may not benefit you personally. Overall, we hope to determine if programs are needed in Drug and DUI Courts to address problem gambling. This information may help improve Drug and DUI Courts.

V. Voluntary Participation and Withdrawal:

Participation in this research study is voluntary. You do not have to be in this study. No member of the Court staff will be aware of your decision. Participation will not affect your status in the Court. Researchers are in no way associated with the Court. If you decide to be in the study you may change your mind. You have the right to drop out at any time. You may

skip questions. You may stop participating at any time. Whatever you decide, you will not lose any benefits to which you are otherwise entitled.

VI. Confidentiality:

We will keep your records private to the extent allowed by law. We will collect no identifying information from you. Only the researchers will have access to the information you provide. It will be stored in a locked cabinet at Georgia State University. Your name and other facts that might point to you will not appear when we present this study or publish its results. The findings will be summarized. They will be reported in group form. You will not be identified personally.

VII. Contact Persons:

Call James Emshoff jemshoff@gsu.edu, 404-413-6270; or Jennifer Zorland at jzorland1@student.gsu.edu, 404-413-6332 if you have questions about this study. If you have questions or concerns about your rights as a participant in this research study, you may contact Susan Vogtner in the Office of Research Integrity at 404-413-3513 or svogtner1@gsu.edu.

VIII. Copy of Consent Form to Subject:

We will give you a copy of this consent form to keep.

If you are willing to volunteer for this research, please sign below.

Participant

Date

Principal Investigator or Researcher Obtaining Consent

Date

Treatment Provider Contact List**Chatham County/Savannah area**

Mrs. Dawn Gilbert (912) 547-8200; dawnegilbert@aol.com

340 Eisenhower, Building 500, Suite 520

Savannah, Georgia 31406

Treatment rates - 95/hr, Sliding Scale Payment (can be lower depending on needs of client)

Additional Comments: Treats All ages. Experience treating problem gambling, Accepts some Insurance

Mrs. Teresa A. Lank (912) 232-7111

3025 Bull Street, Suite 258

Savannah, Georgia 31405

Treatment Rates: \$90 to \$100, Sliding Scale Payment (can be lower depending on needs of client)

Additional Comments: Treats All ages. Uses Cognitive Behavioral Therapy, Accepts some Insurance

Troup County/Peachtree City area

Ms. Mellissa Dingler (678) 364-0135

1201 Georgian Park

Peachtree City, Georgia, 30269

Additional Comments: Accepts some insurance and credit cards; utilizes psychotherapy and hypnosis

Ms. Sandra Pointer (770) 252-3760

2594 Highway 34 E

Newnan, Georgia 30265

Treatment Rates: \$50 to \$120

Additional Comments: Treats All ages. Uses Cognitive Behavioral Therapy, Accepts some Insurance

Muscogee County/Columbus area

Mary Cole-Harris (706) 322-7557; marycoleharris@bellsouth.net

6501 Veterans Pkwy, Suite 2E

Columbus, Georgia 31909

Treatment Rates: \$100

Additional Comments: Accepts some insurance, treats all ages, experience treating problem gambling

Dr. Duane "Dutch" F Kockx (706) 576-6575

5210 Armour Road, Suite 200A

Columbus, Georgia 31904

Treatment Rates: \$60-\$70

Additional Comments: Treats All ages, Accepts some Insurance, Uses Cognitive Behavioral Therapy

Forsyth/Cumming area

Dr. Brad Hieger (404) 388-3909; doctorbrad@bellsouth.net

308 Tribble Gap Road

Cumming, Georgia 30040

Treatment Rates: \$130/hr to \$80/hr, accepts sliding scale payment

Additional Comments: Accepts insurance, treats all ages, has experience treating problem gambling

Dr. Jeffrey Stull (770) 888-7754; drrjstull@hotmail.com

101 Pilgrim Village Dr, Suite 200

Cumming, Georgia 30040

Treatment Rates: \$130/hr to \$65/hr, accepts sliding scale payment

Additional Comments: Accepts some insurance, treats all ages, has experience treating problem gambling

Hall County/Gainesville/Athens area

Dr. Caleb Loring (770) 535-1284
 200 West Academy Street NW, Suite A
 Gainesville, Georgia 30501
 Treatment Rates: \$120 to \$130
 Additional Comments: Accepts some insurance, treats all ages

Cynthia Purcell (770) 532-3178
 P.O. Box 6842
 Gainesville, Georgia 30504
 Treatment Rates: \$80-\$90, accepts sliding scale payment
 Additional Comments: Accepts some insurance, treats all ages

Gwinnett County area

Mrs. Angela Breazeale (678) 474-4899
 3500 Duluth Park Lane, Suite 410
 Duluth, Georgia 30096
 Treatment Rates: \$90 to \$100, accepts sliding scale payment
 Additional Comments: Does not accept insurance, treats adults only

Mr. Darrin S. Bronfman (770) 417-2721
 4530 S Berkeley Lake Rd, Suite B
 Norcross, Georgia 30071
 Treatment Rates: \$90-\$100, accepts sliding scale payment
 Additional Comments: Accepts some insurance, treats all ages

Cobb County area

Harriet Stafford Wall, (770) 993-2676 x1; whappy@bellsouth.net
 1014 Canton Street
 Roswell, Georgia 30075
 Treatment Rates: \$140/hr, accepts sliding scale payment
 Additional Comments: Accepts some insurance, treats adults, experience treating problem gambling

Mr. Steve Brand (770) 641-8726; steve.brand@greattherapy.com
 14 Norcross St; Suite 201
 Roswell, Georgia 30075
 Treatment Rates: \$130/hr., accepts sliding scale payment
 Additional Comments: Does not accept insurance, treats all ages, experience treating problem gambling

Dekalb County area

Ms. Elizabeth L. Edge (404) 374-8630, eedge@mindspring.com
 1945 Mason Mill Road, Suite 100
 Decatur, Georgia 30033
 Treatment Rates: \$110-75, accepts sliding scale payment
 Additional Comments: Does not accept insurance, treats all ages, experience treating problem gambling

Dr. Mark Dennis Ackerman (770) 396-2206
 3280 Howell Mill Rd, Suite 217, East Wing
 Atlanta, Georgia 30327
 Treatment Rates: \$145/hr.