

Gambling with the Family?

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Prepared for
Gambling and the American Moral Landscape
Boisi Center for Religion and American Public Life
Boston College
Chestnut Hill, MA
October 25, 2007

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- *What happens in Vegas stays in Vegas*
- *Don't people who gamble realize it has an effect on the whole family; everyone is destroyed (wife of a compulsive gambler writing to a Gamblers Anonymous website)*

The end of Prohibition in 1933 moved a vice into the normative mainstream virtually overnight. The growth of legal gambling in the United States and elsewhere, although not as dramatic, has had a similar effect: Vice transformed not into virtue, but certainly into a mainstream activity enjoyed regularly by millions of people. This is demonstrated primarily by the rise of state-supported lotteries, but has also been accompanied by the growth of casinos, slot machines, and other gaming activities. The proliferation of a variety of forms of legal gambling has also generated myriad public policy arguments over their promised payoffs to state and local budgets.

Thirty years ago only 13 states had a lottery, with only a couple of states permitting casino gambling. As of the latter part of 2007, 42 states and the District of Columbia sponsor lotteries (including multi-state), 11 states have commercial casinos, and 28 states have American Indian casinos. In fact, people within the borders of every state except for Utah and Hawaii may now place legal wagers on a variety of games. Most popular, of course, is the lottery, which has been seen as a boon for state coffers. However, other gambling activities, such as legal slots, pari-mutuel betting, and even internet gambling are also seen by state executives and legislators as a cash cow, especially during a period of devolution. Recently, Thomas E. Perez, Secretary of Labor, Licensing, and Regulation for the state of Maryland, complained that citizens of his state have chosen to gamble elsewhere: “By not having slots, Maryland has already left hundreds of millions of dollars in potential general fund revenue on the table, and the tables are located in West Virginia and Delaware” (Wagner, 2007, p.B01).

Although the growth of legal gambling has been met with a broad range of reactions from the general public, elected officials, and policy experts, there is little doubt that it has had both positive and negative consequences. On the positive side, there is evidence that the revenues generated from legal gambling have increased state educational funds and generated economic growth (Morgan, 2000; Rephann et al., 1997; Walker and Jackson, 1998; see, however, Eadington, 1999; Madhusudhan, 1996). Moreover, advocates argue

that legal gambling has pushed organized crime largely out of the gambling industry because of the greater state oversight that occurs in a regulated environment. However, problems have also accompanied the rapid growth of legal gambling. For example, it is no surprise that increasing the overall number of gamblers by expanding availability may also have increased the number of people with gambling problems. For instance, the estimated prevalence of current problem gambling increased from 2.3 percent in 1974 to about 5 percent in 1999 (Petry and Armentano, 1999). Although it is difficult to find comparable trend data, the estimated prevalence of pathological gambling – a disorder defined in the American Psychiatric Association’s Diagnostic and Statistical Manual (DSM-IV) – stands at between 0.4% and 0.8%, or an estimated 900,000 – 1.6 million adults in the U.S. (Gerstein et al., 1999; Petry, Stinson, and Grant, 2005), and has likely increased since the mid-1970s (Shaffer, Hall, and Bilt, 1999). Moreover, even though it remains illegal in most jurisdictions for young people to engage in gambling, the prevalence of problem gambling is higher among adolescents than adults (Potenza, Kosten, and Rounsaville, 2007; Shaffer, Hall, and Bilt, 1999).¹

Criminologists have typically placed gambling in a category known as victimless crimes (Lesieur and Welch, 2000). Along with vices such as prostitution, pornography, and drug use, gambling was generally seen as a behavior that may have unfortunate consequences, but that affected primarily the individual. However, the term “victimless crime” is becoming more and more of an anachronism, especially as studies have adopted a broader scope and included extra-individual influences and effects.² For example, family studies have shown that compulsive engagement in “victimless crimes,” such as prostitution, drug use, and pornography, can have substantial negative effects on marital relations, parent-child engagement, and family functioning in general (e.g., Farley, 2003; Hoffmann and Su, 1998; Manning, 2006)

Although few rigorous studies exist at this time, a substantial body of literature provides a sense that some forms of gambling have dire consequences for families. It is clear that many people engage in legal gambling with no apparent problems, yet the practical effects of problem gambling on family functioning require not only acknowledgement, but also additional scholarly attention. Thus, the aim of this paper is to provide a general overview of what existing studies have shown. Moreover, I examine data from two large national surveys conducted in the U.S. to provide a specific sense of how families might be affected by the gambling behaviors of their members. Finally, I briefly discuss research strategies that are needed to evaluate fully how problem and pathological

gambling affect and are affected by individual conditions, family relationships, and other related lifestyle problems.

Some Potential Consequences of Gambling Problems

The majority of people who have gambled, legally or illegally, do not experience problems with this type of behavior; rather, most simply enjoy the risk or the thrill of the games, whereas a few gamble professionally. A 1998 national survey conducted by the National Opinion Research Center (NORC) for the National Gambling Impact Study Commission found, for example, that while approximately 85 percent of adults in the U.S. have gambled in their lifetimes, almost nine in ten had had no symptoms that would indicate problem or pathological gambling (Gerstein et al., 1999). According to these estimates, about 9 percent of gamblers reported some risk due to their behavior, 1.5 percent were classified as problem gamblers, and about 0.9 percent were classified as pathological gamblers. Similarly, researchers using the National Epidemiological Survey on Alcohol and Related Conditions (NESARC) estimated that about 0.42 percent of adults in the U.S. reported symptoms consistent with a lifetime prevalence of pathological gambling; this included 0.64 percent of men and 0.23 percent of women (Petry, Stinson, and Grant, 2005). However, the authors did not report the overall prevalence of gamblers in the sample, so one cannot determine the proportion of gamblers with problems, even though this proportion is bound to be small (see also Welte et al., 2001).³

Yet considering prevalence estimates only can mask the overall negative impact that gambling presents. Whereas the prevalence of problem gambling may be relatively low, even among active participants, the number of people affected directly is still consequential. Assuming that 85 percent of adults report gambling, this translates into approximately 187 million gamblers. Thus, from the NORC national estimates, there are about 1.6 million pathological gamblers, 2.8 million problem gamblers, and 15 million at-risk gamblers among adults in the U.S. (Gerstein et al., 1999). If the prevalence of these problems among adolescents is similar or slightly higher, there are substantially more problem and pathological gamblers in the overall population of the U.S.

Moreover, the attributable risk is also consequential. Attributable risk (AR) is a term used in epidemiology to define the difference in the rate of some disease or disorder among those who are exposed to some condition versus those who are not exposed to the condition. It gauges the excess risk of the outcome (e.g., mental health disorder) in the exposed group compared with the non-exposed group. If we consider gambling behavior as

the exposure, then clearly the AR is complete if problem or pathological gambling is the outcome. However, a more useful approach is to consider the AR when problem or pathological gambling is the exposure and the outcomes are mental health problems, economic disruption, family turmoil, marital problems, or poor parent-child relationships.

Unfortunately, it is difficult to determine the AR for gambling problems and these outcomes. Consider, for example, divorce, a condition that is associated with gambling problems. One of the major problems is that we cannot determine the risk of divorce prior to the onset of gambling problems; it is conceivable that some other factor, such as impulsivity or borderline personality disorder, affects the risk of both problem gambling and divorce, thus presenting a classic confounding effect. In addition, although pathological gambling is associated with various mental health problems, such as alcohol abuse and personality disorders (Petry, Stinson, and Grant, 2005), the sequencing of problems is not evident. It seems most likely that mental health problems affect subsequent gambling problems, but studies thus far have been only marginally successful in sorting out the temporal ordering of these conditions (Hodgins, Peden, and Cassidy, 2005; Petry, 2007). For example, substance use disorders may predate most gambling problems, whereas mood disorders may follow or accompany their onset. As a general alternative to the expensive prospective studies that are needed to fully establish the sequencing of disorders (many studies simply rely on respondents' memories for onset information), researchers usually compare groups of problem or pathological gamblers to gamblers with no problems or to non-gamblers on the prevalence of some outcome, such as divorce, marital problems, mental health problems, or domestic abuse.⁴ Thus, much of the literature reviewed in the next section is based on comparing prevalence measures (or arithmetic means from frequency scales), while statistically adjusting for the effects of potential confounding variables.

Gambling and Family Problems

The correlates of problem and pathological gambling are fairly well established. The prevalence of pathological gambling tends to be higher among adults with the following characteristics: male, African-American, ages 45-64, fewer years of formal education, low income, living in the western U.S., and divorced, separated, or never married (Emerson et al., 2007; Gerstein et al., 1999; Petry, Stinson, and Grant, 2005; Potenza, Kosten, and Rounsaville, 2007; Welte et al., 2001, 2004). Moreover, problem and pathological gamblers tend to share certain personality characteristics, such as a propensity for risk,

impulsivity, or sensation seeking, and to experience other mental health problems such as depression, antisocial personality disorder, and drug and alcohol abuse (Grant and Kim, 2001; Hardoon and Derevensky, 2002; Petry, Stinson, and Grant, 2005; Petry and Weinstock, 2007; Scherrer et al., 2007a; Slutske et al., 2001; Welte et al., 2001, 2004). Moreover, these problems may not simply be the result of high frequency gambling. For instance, Welte et al. (2004) determined that alcohol abuse and pathological gambling are significantly associated even when holding constant frequency of gambling. Pathological gamblers also tend to suffer disproportionately from physical health problems, especially angina and liver disease (Morasco et al., 2006).

The association between problematic forms of gambling, personality characteristics, and mental health problems raises an important question when addressing family problems: Are there common sources of gambling and interpersonal problems that are made manifest by gambling behavior, but do not result uniformly from this behavior? For example, the association between pathological gambling and divorce or separation may reflect a common cause, such as a tendency towards impulsivity, antisocial personality disorder, or bipolar disorder. Similarly, impulse control problems are thought to underlie much delinquent behavior among youth, and they may also lead to gambling problems among adolescents who engage in gaming activities. The association between delinquency and pathological gambling (Vitaro, Ladouceur, and Bujold, 1996) may therefore be the result of a common causal mechanism.

This is not to say that gambling might not exacerbate already existing family problems, or even precede particular problems. Studies have attempted to consider these possibilities by statistically adjusting for the effects of potential confounding variables when examining gambling problems and family-related outcomes. For example, in a large study of adolescents residing in Ontario, Hardoon, Gupta, and Derevensky (2006) determined that problem gambling was associated with poor perceived parental social support, drug use problems, conduct problems, and general family problems, even after statistically adjusting for the effects of several potential confounding variables. Similarly, several studies have found that, in general, the families of problem and pathological gamblers experience poor communication, inadequate conflict resolution, attenuated relationship quality, and ineffective parenting (Ciarrocchi and Hohmann, 1989; Hodgins, Shead, and Makarchuk, 2007; Lorenz and Yaffee, 1988). Unfortunately, studies have not adopted a sufficient longitudinal perspective that would be needed to determine whether a poor family environment is preceded by or the result of gambling problems.

Comprehensive reviews by Dickson-Swift, James, and Kippen (2005) and Kalischuk and Cardwell (2004) have found that families with pathological gamblers experience numerous negative consequences. These include a heightened risk of problem gambling among children,⁵ more family financial problems, a greater degree of family conflict and arguments, harsh and critical parenting, more emotional distance between spouses, and heightened stress among all family members. Relative to other married people, spouses of problem gamblers also report more abuse, depression, anxiety, and physical problems; diminished interest in sex, and dissatisfaction with sexual relations. Moreover, a disproportionate number of spouses report that they either had left their partner or seriously considered leaving because of his or her gambling (see also Gaudia, 1987; Lorenz and Yaffee, 1988).

Children are often acutely affected by their parents' gambling problems. Their parents tend to spend less time with them and are emotionally distant or preoccupied even when they are present, especially during active periods of gambling. The children often blame themselves for the family turmoil, feel abandoned, and are at heightened risk of drug and alcohol problems (Darbyshire, Oster, and Carrig, 2001a, 2001b; Hardoon, Gupta, and Derevensky, 2006; Jacobs et al., 1989). For instance, utilizing in-depth interviews with 15 children and adolescents of problem gamblers in Australia, Darbyshire, Oster, and Carrig (2001a) discovered that a common theme concerned pervasive loss. These children experienced physical loss as their parents were absent during gambling episodes or through separation and divorce; existential loss in that they felt a diminished personal attachment to and love from parents; the sense of loss of knowing who their parents are and what they should expect out of them; the loss of trust; and the loss of tangible items, such as presents during holidays or birthdays. These loss experiences often result in a higher incidence of anxiety and depression among offspring, involvement in health risk behaviors, and an increased probability of attempting suicide (Jacobs et al., 1989).

Moreover, as mentioned earlier, children of problem and pathological gamblers are significantly more likely to gamble themselves, and are at greater risk of crossing the threshold to problem and pathological gambling. This is known as an *intergenerational transmission* effect, and has been found in studies of adolescent substance use and mental health disorders (e.g., Hoffmann, Baldwin, and Cerbone, 2003; Hoffmann and Cerbone, 2002). Although the transmission of gambling problems is due, in part, to a higher genetic risk, it also involves shared environmental influences that occur primarily within the family (Eisen et al., 1998).⁶ For example, assuming that there is a genetic-based risk of

gambling problems, perhaps because of a neurological propensity toward low impulse control or impaired decision-making abilities, they likely become manifest mainly if the family environment allows or encourages gambling to occur.

It is important to consider that the link between problem or pathological gambling and family problems may not be causal, but, rather, it may result from a common set of personality, neurological, or genetic characteristics. Potenza, Kosten, and Rounsaville (2001) described several neurobiological precursors to pathological gambling, including abnormal serotonin functioning that adversely affects impulse control, decreased MOA sensitivity, and deficits in decision-making capabilities that stem from impaired neurological functioning. These deficits seem to result in a tendency to choose immediate rewards, even when faced with punishment; and may be linked to impaired frontal cortical functioning. Several of these characteristics have also been linked to delinquency, criminal behavior, low educational achievement, aggression, and mental health problems (e.g., depression, anxiety) (e.g., Caspi et al., 2002; Lesch and Merschdorf, 2000; Moffitt et al., 1998; Moore, Scarpa, and Raine, 2002; Rowe, 2002). The various consequences of physiological and neurological dysfunction likely create conditions that directly affect both family problems and gambling problems. In particular, individuals with these dysfunctions are likely not only to seek out opportunities to gamble (or find other ways to satisfy their need for risk and stimulation), but accordingly have problems with gambling that may become pathological.

Nevertheless, it is also likely that gambling problems exacerbate family problems, magnifying them and, when coupled with neurological deficiencies, producing a dysfunctional environment in which aggressive interactions, impaired decision-making, heightened stress, and emotional distance become more and more common. The result is that family turmoil increases, culminating, too often, in family breakup or upheaval and children who suffer from acute stress, guilt, and consequent interpersonal problems.

However, another important inquiry that has rarely been pursued in research on gambling is whether family members can act as a buffer against problems or pathologies. The typical research question in this area is whether gambling problems are associated with family problems. An alternative question involves whether gambling with family members rather than alone or with friends may actually decrease the likelihood of having problems. Numerous studies have shown the important role that spouses and biological kin play in attenuating the risk of mental health disorders because they can provide social support, enhance coping strategies, and offer informal therapy (e.g., Grzywacz and Bass,

2003; Kawachi and Berkman, 2001). Family members may thus serve a social support and coping function that operates to attenuate the risk of problematic gambling behavior. Much like the solitary drinker is thought to be ripe for alcohol problems, the solitary gambler sets himself up for consequent problems. Although gambling may present problems for some individuals and their families, it seems clear that the families of most gamblers are able to function well despite variable risk in the propensity to experience problem behaviors. Yet, this does not diminish the fact that a substantial number of gamblers present pathologies that negatively affect their families.

Investigating Some Consequences of Gambling for Family Relations and Functioning

Although there have been several studies of the effects of gambling on families, virtually all of this research has used regional samples or convenience samples of gamblers in treatment settings. In this section, I draw upon data from two extant national surveys⁷ to examine the association between gambling behavior and several family-related conditions. Although data limitations do not allow consideration of a sufficient array of outcomes, information from these surveys do allow us to consider several with an eye towards understanding some important relationships among key variables. For example, one of the limitations of using standardized instruments to study pathological and problem gambling and how they affect one's family is that some of the items used in the instruments that measure this mental disorder ask about family relations. Therefore, it is not possible – if researchers use standardized instruments such as the SOGS, NODS, or the DIS – to fully disentangle family problems from gambling problems. Table 1, for instance, lists the items that were included in the national survey portion of the National Gambling Impact and Behavior Study (NGIBS), a 1998 study conducted by the National Opinion Research Center (NORC). The items comprise the NORC DSM-IV Screen Gambling Problems (NODS), which was developed for the National Gambling Impact Study Commission. The NODS items were designed to be consistent with DSM-IV diagnostic criteria for pathological gambling (Gerstein et al., 1999). Note that items 11-14 ask specifically about whether the respondent's gambling behavior has ever led to stealing from, lying to, or caused relationship problems with family members. Item 17 concerns asking family members for money to pay for gambling debts. Hence, it is possible for respondents to be categorized as problem gamblers – gauged by affirmative responses to 3-4 items – if they had problems only with family members, or had no problems with family members that were affected by their gambling behavior.

Table 1. DSM-IV Criteria and Matched NODS Lifetime Questions, National Gambling Impact and Behavior Study (NGIBS), 1998

Preoccupation	1	Have there ever been periods lasting 2 weeks or longer when you spent a lot of time thinking about your gambling experiences or planning out future gambling ventures or bets? OR
	2	Have there ever been periods lasting 2 weeks or longer when you spent a lot of time thinking about ways of getting money to gamble with?
Tolerance	3	Have there ever been periods when you needed to gamble with increasing amounts of money or with larger bets than before in order to get the same feeling of excitement?
Withdrawal	4	Have you ever tried to stop, cut down, or control your gambling?
	5	On one or more of the times when you tried to stop, cut down, or control your gambling, were you restless or irritable?
Loss of control	6	Have you ever tried but not succeeded in stopping, cutting down, or controlling your gambling?
	7	If so, has this happened three or more times?
Escape	8	Have you ever gambled as a way to escape from personal problems? OR
	9	Have you ever gambled to relieve uncomfortable feelings such as guilt, anxiety, helplessness, or depression?
Chasing	10	Has there ever been a period when, if you lost money gambling one day, you would return another day to get even?
Lying	11	Have you ever lied to family members, friends, or others about how much you gamble or how much money you lost on gambling?
	12	If so, has this happened three or more times?
Illegal acts	13	Have you ever written a bad check or taken money that didn't belong to you from family members or anyone else in order to pay for your gambling?
Risky significant relationship	14	Has your gambling ever caused serious or repeated problems in your relationships with any of your family members or friends? OR
	15	ASK ONLY IF R IS IN SCHOOL Has your gambling caused you any problems in school, such as missing classes or days of school or your grades dropping? OR
	16	Has your gambling ever caused you to lose a job, have trouble with your job, or miss out on an important job or career opportunity?
Bailout	17	Have you ever needed to ask family members or anyone else to loan you money or otherwise bail you out of a desperate money situation that was largely caused by your gambling?

Note: The NODS is composed of 17 lifetime items and 17 corresponding past-year items, compared to the 20 lifetime items and 20 past-year items that make up the SOGS, and the 20 items (19 items in the field test) that make up the Diagnostic Interview for Gambling Severity (DIGS; Winters, Specker, and Stinchfield, 2002). Like the updated SOGS-R used in most of the epidemiological research on gambling since 1991, the past-year item is asked for each lifetime NODS item that receives a positive response. The maximum score on the NODS is 10, compared to 20 for the SOGS. Although there are fewer items in the NODS, and the maximum score is lower, the NODS is designed to be more demanding and restrictive in assessing problematic behaviors that the SOGS or other screens based on the DSM-IV criteria. Source: Gerstein et al., 1999, p.18. The items that involve family-related situations and conditions are in bold font.

In order to partially distinguish between gambling problems that involve the family and other gambling problems, it may be useful to consider interrelationships among items in this instrument. Are there specific commonalities between family problems associated with gambling and other problems, or are family problems distinguishable from other problems? In order to determine some answers to this question, I examined the NODS items administered in the NORC 1998 survey using a latent class (LC) cluster analysis method (Magidson and Vermunt, 2004). In order to conduct an efficient analysis, I first included all of the relevant items for which there was complete data available to estimate the models. I then examined only the items listed in Table 1 that involve family issues. The results of these analyses are presented in Tables 2 and 3.⁸

The key result from Table 2 is that there are three clusters that distinguish the items in the gambling problems screening instrument.⁹ Cluster 1 is the largest; it contains about 86 percent of the sample and includes mainly those who have gambled and experienced no gambling problems. Cluster 2 contains about 11 percent of the sample, and cluster 3 includes about 3 percent of the sample. Although cluster 3 is the smallest, it contains most of the reported problematic gambling behaviors. For example, respondents in cluster 3 have a 93 percent chance of reporting that they had been preoccupied with their gambling experiences, an 81 chance of having gambled to escape from personal problems, and a 94 percent chance that their gambling had caused serious problems in their interpersonal relationships. In fact, the only items that did not fall within this cluster involved illegal acts and having occupational problems due to gambling. Note, furthermore, that the family-related items are not distinguishable from other items in the NODS. It appears that treating several family-related gambling problem items along with other gambling problems (e.g., preoccupation, withdrawal, chasing) is reasonable.

Table 3 includes the results of an LC cluster analysis that included only the family-related items in the NODS. The 2 cluster model fits the data best. It shows that four of the five items are consistently reported by those in cluster 2: Lying to family members, relationship problems, asking for a bail-out, and emotionally harmful arguments with family members.¹⁰ Much like the earlier analysis, the item that does not distinguish problem gamblers well involves committing illegal acts. This may be because only a small proportion of gamblers in the NORC survey answered yes to this question ($n = 16$, or one percent of gamblers). However, it may also reflect that this rather extreme behavior is not part of even many pathological gamblers' lifestyles.

Table 2. Latent Class Cluster Analysis of Items from the NODS, National Gambling Impact and Behavior Study (NGIBS), 1998

Items	Cluster 1	Cluster 2	Cluster 3
Preoccupation with planning gambling (1)			
Yes	0.034	0.495	0.927
No	0.966	0.505	0.072
Preoccupation with money for gambling (2)			
Yes	0.011	0.327	0.746
No	0.989	0.673	0.254
Increase in tolerance (3)			
Yes	0.013	0.221	0.690
No	0.987	0.779	0.310
Tried to cut down – irritable and restless (5)			
Yes	0.009	0.274	0.778
No	0.992	0.726	0.222
Loss of control – not succeeded (6)			
Yes	0.019	0.355	0.710
No	0.981	0.645	0.290
Tried to gamble to escape personal problems (8)			
Yes	0.030	0.340	0.810
No	0.970	0.660	0.190
Chased money after a loss (10)			
Yes	0.113	0.680	0.779
No	0.887	0.320	0.221
Lied to family members or friends about gambling (11)			
Yes	0.038	0.543	0.927
No	0.962	0.457	0.070
Taken money/written bad check to pay gambling (13)			
Yes	0.001	0.017	0.362
No	0.999	0.983	0.638
Gambling caused serious relationship problems (14)			
Yes	0.005	0.152	0.946
No	0.995	0.845	0.054
Gambling caused job/occupation problems (16)			
Yes	0.000	0.029	0.234
No	0.995	0.848	0.054
Asked family members for loan/bail-out (17)			
Yes	0.011	0.187	0.689
No	0.989	0.813	0.311
Emotionally harmful arguments due to gambling ^a			
Yes	0.003	0.135	0.870
No	0.997	0.865	0.130
Cluster Size (proportion of sample)	0.863	0.108	0.030

Note: The questions are taken from the NORC DSM-IV Screen for Gambling Problems (NODS) and were assessed using latent class cluster analysis. The numbers in parentheses indicate the item number from Table 1. The numbers in columns two through four indicate the probability that a person who falls within the particular cluster answered yes or no to the question. The sample size is 1,214.

^aNot part of the NODS. This question was asked just after the NODS items were completed by respondents.

Table 3. Latent Class Cluster Analysis of Items Involving the Family from the NODS, National Gambling Impact and Behavior Study (NGIBS), 1998

Indicators	Cluster 1	Cluster 2
Lied to family members or friends about gambling (11)		
Yes	0.070	0.855
No	0.930	0.145
Taken money/written bad check to pay gambling (13)		
Yes	0.002	0.183
No	0.998	0.817
Gambling caused serious relationship problems (14)		
Yes	0.005	0.692
No	0.995	0.308
Asked family members for loan/bail-out (17)		
Yes	0.018	0.625
No	0.982	0.375
Emotionally harmful arguments due to gambling ^a		
Yes	0.003	0.624
No	0.997	0.376
Cluster Size (proportion of sample)	0.934	0.063

Note: The questions are taken from the NORC DSM-IV Screen for Gambling Problems (NODS) and were assessed using a latent class cluster analysis. The numbers in parentheses indicate the item number from Table 1. The numbers in columns two and three indicate the probability that a person who falls within the particular cluster answered yes or no to the question. The sample size is 1,214.

^aNot part of the NODS. This question was asked just after the NODS items were completed by respondents.

Given the finding that most of the items in the NODS, and by association the DIS and the DIGS, consistently distinguish a similar set of problem gambling symptoms, the next question is the degree to which these problems are associated with other family-related problems. One question that has already been answered involves family arguments. The question from the NORC survey is “Did you ever argue with a *family member* about your gambling to the point where it became emotionally harmful?” Given that the cluster analysis indicates that respondents in cluster 3 (see Table 2) have an 87 percent chance of answering yes to this inquiry, it seems clear that various gambling problems predict family arguments over gambling that reach an emotionally harmful level.

As a subsequent step I used the NORC NGIBS data and data from the 2001 National Epidemiological Survey of Alcohol and Related Conditions (NESARC) to construct gambling problems scales to conduct two sets of analyses.¹¹ The first analysis involved

determining the most common symptoms of problem and pathological gambling among those who reported gambling in their lifetimes. Second, although psychiatric practice typically distinguishes pathological gamblers from other gamblers by using five symptoms as a cut-off point, an alternative procedure that I adopted is to determine whether family problems and gambling problems are associated in a monotonic fashion, or whether there is a clear threshold at which problems tend to appear. I therefore categorized the battery of symptoms in two different ways: a five category scale and a four category scale that is drawn from Gerstein et al. (1999).

Table 4 provides the percentage of gamblers who reported the various lifetime gambling problems. The most frequent problem – reported by almost 18 percent of gamblers in the NGIBS – was whether respondents had ever tried to cut down on their gambling. However, a similar question that was asked in the both the NGIBS and the NESARC indicated that only about two percent of gamblers had been unsuccessful when attempting to stop or decrease their gambling behavior. The second most frequent problem reported in the NGIBS, but, curiously not in the NESARC, was chasing, or trying to regain lost earnings. In the NESARC, the most frequent problem involved preoccupation with gambling, answered affirmatively by seven percent of lifetime gamblers. The differences between the NGIBS and the NESARC may result from the different criteria used to ask the gambling problems questions: any lifetime gambling in the NGIBS or having gambled five or more times in at least one year in the NESARC. In other words, respondents who had not gambled this often were not asked the NESARC problem gambling questions.

Table 4. Frequency of Gambling Problem Symptoms among Those Who Have Ever Gambled, NGIBS 1998 and NESARC 2001

Category	Question	NGIBS – Percent reporting	NESARC – Percent reporting
Preoccupation	Have there ever been periods lasting 2 weeks or longer when you spent a lot of time thinking about your gambling experiences or planning out future gambling ventures or bets?	9.7	7.2
	Have there ever been periods lasting 2 weeks or longer when you spent a lot of time thinking about ways of getting money to gamble with?	6.8	2.4
Tolerance	Have there ever been periods when you needed to gamble with increasing amounts of money or with larger bets than before in order to get the same feeling of excitement?	4.1	6.3
Withdrawal	Have you ever tried to stop, cut down, or control your gambling?	17.9	–

	On one or more of the times when you tried to stop, cut down, or control your gambling, were you restless or irritable?	2.0	1.0
Loss of control	Have you ever tried but not succeeded in stopping, cutting down, or controlling your gambling?	2.4	2.4
	If so, has this happened three or more times?	1.4	–
Escape	Have you ever gambled as a way to escape from personal problems?	6.5	3.0
	Have you ever gambled to relieve uncomfortable feelings such as guilt, anxiety, helplessness, or depression?	6.1	–
Chasing	Has there ever been a period when, if you lost money gambling one day, you would return another day to get even?	17.4	4.4
Lying	Have you ever lied to family members, friends, or others about how much you gamble or how much money you lost on gambling?	8.6	3.2
	If so, has this happened three or more times?	2.4	–
Illegal acts	Have you ever written a bad check or taken money that didn't belong to you from family members or anyone else in order to pay for your gambling?	1.1	0.4
Risky significant relationship	Has your gambling ever caused serious or repeated problems in your relationships with any of your family members or friends?	3.3	0.3
	Has your gambling ever caused you to lose a job, have trouble with your job, or miss out on an important job or career opportunity?	0.6	0.3
Bailout	Have you ever needed to ask family members or anyone else to loan you money or otherwise bail you out of a desperate money situation that was largely caused by your gambling?	3.9	1.1
Arguments ^a	Did you ever argue with a family member about your gambling to the point where it became emotionally harmful?	2.9	–

Note: The NGIBS 1998 is the National Gambling Impact and Behavior Study conducted by the National Opinion Research Center (NORC). The NESARC 2001 is the National Epidemiological Survey of Alcohol and Related Conditions sponsored by the National Institute on Alcohol Abuse and Alcoholism (NIAAA). The NESARC asked the problem gambling items only to those who reported they had gambled five or more times in their lifetimes. The wording in the two surveys was slightly different; the table shows the wording used in the NGIBS. The percentages are based on weighted data. The items in bold are questions that included direct inquiries about family issues.

^aNot part of the NODS or the items used in the NESARC. This question was asked just after the NODS items were completed by NGIBS respondents.

Among the family-related items, the most frequent problem reported involved lying to family members about gambling or how much the respondent lost on gambling. It was reported by more than eight percent of gamblers in the NGIBS and three percent of gamblers in the NESARC. On the other hand, illegal acts, some of which may have involved family members, were reported by few of the gamblers in these surveys. It is somewhat surprising that only a small proportion of gamblers reported that their gambling had ever caused relationship problems (3.3 percent – NGIBS; 0.3 percent – NESARC).

The next analysis uses the symptom inventories to determine their associations with family-related problems and concerns. Unfortunately, the available national data sets that I've used thus far, as well as others that might have been utilized to examine problem and pathological gambling (e.g., the National Comorbidity Study [Kessler and Merikangas, 2004]; the Research Institute on Addictions 1999-2000 national telephone survey [Welte et al., 2001]), were not designed with family-relevant issues specifically in mind. The available family items are therefore sparse. The following analysis is not sufficient to provide a broad sense of the links between problem gambling and family turmoil or disruption, but, when coupled with previous studies that have focused on family issues, helps to generate some general concerns and conclusions about how gambling problems negatively affect families.

Before looking at the associations among family problems and gambling problems, however, it is useful to investigate the question of how family members may serve a protective effect. Table 5 uses the NGIBS data to assess reasons to gamble and with whom respondents gambled most often.¹² To provide a comparison, I also examined a question about whether respondents gambled for excitement or the challenge of the game. The results are clear: Those who report gambling problems are more likely than others to say they gamble for excitement or for the challenge, with a step function evident. Moreover, those in the high symptoms categories are less likely than other gamblers to report that they gamble to socialize with family or friends. It is interesting to note that those who have experienced no problems are also less likely to report that socializing with family or friends is an important reason for gambling. An auxiliary analysis indicates that their most important reason is to win money (62 percent said this was important or very important).

The second panel of the table suggests that those with the most gambling problems tend to gamble with friends (non-family members) rather than alone or with family members. More than half of the respondents who report five or more symptoms normally gamble with people outside their families. Of course, this does not provide convincing

Table 5. Gambling Problems, Reasons to Gamble, and Gambling with Family Members, National Gambling Impact and Behavior Study (NGIBS), 1998

Problem gambling symptoms	Important or very important (%)		Who do you usually gamble with? (%)		
	<i>Reason to gamble: To socialize with family or friends^a</i>	<i>Reason to gamble: Excitement or challenge of game^a</i>	Alone	Spouse or other family members	Non-family members
0	24.0	34.6	36.4	33.6	29.9
1-2	41.1	62.6	30.2	24.8	44.9
3-4	40.2	83.0	37.8	29.2	33.0
5-6	29.0	80.4	21.4	24.9	53.8
7-10	27.3	90.1	15.2	14.7	70.1
Total	26.4	39.5	35.8	32.8	31.5

Note: The NGIBS 1998 is the National Gambling Impact and Behavior Study conducted by the National Opinion Research Center (NORC). The NESARC 2001 is the National Epidemiological Survey of Alcohol and Related Conditions sponsored by the National Institute on Alcohol Abuse and Alcoholism (NIAAA). The questions that are used to gauge problem gambling symptoms are listed in Table 1 and are drawn from the NODS (Gerstein et al., 1999). The percentages are based on weighted data. Fisher’s exact tests were conducted to determine whether the patterns of results are statistically significant. All three tests showed a significant pattern at the $p < .05$ level.

^aPercent of respondents reporting this reason for gambling as important or very important. Alternative responses include not so important and not at all important.

evidence that family members protect against gambling problems, but it does point toward intriguing questions about family influences on gambling behavior. Family members may serve as an anchor that mitigates problems, or perhaps gamblers who manifest problems are less likely to have family members to gamble with.

Table 6 explores the associations among marital status and history and gambling problems. A consistent association in previous studies is that problem and pathological gamblers tend to be single or divorced. Data from both the NGIBS and the NESARC support this view. Among problem and pathological gamblers, for instance, a disproportionate percentage of respondents have never married or are currently divorced. Moreover, about one-quarter of pathological gamblers have been married two or more times, with a relatively small percentage reporting only one marriage (47.4 percent vs. 59.7

Table 6. Gambling Problems, Marital Status, and Marital History, NGIBS 1998 and NESARC 2001

Gambling problems	Number of marriages ^a			Current marriage ^b		Currently divorced/separated (% yes) ^a	Was gambling a factor in divorce? (% yes) ^{b,c}
	Never married	One	Two or more	Together	Separated		
None	18.1%	59.7%	22.2%	96.4%	3.6%	11.9	5.0
At-risk	26.9%	52.6%	20.5%	94.9%	5.1%	11.3	3.2
Problem	32.9%	49.9%	17.2%	99.8%	0.2%	15.7	3.5
Pathological	27.4%	47.4%	25.1%	88.3%	11.7%	23.9	35.0
Total	20.1%	58.1%	21.8%	96.2%	3.8%	12.2	5.5

Note: The NGIBS 1998 is the National Gambling Impact and Behavior Study conducted by the National Opinion Research Center (NORC). The NESARC 2001 is the National Epidemiological Survey of Alcohol and Related Conditions sponsored by the National Institute on Alcohol Abuse and Alcoholism (NIAAA). The questions that are used to gauge gambling problems are listed in Table 1, with some variation in the NESARC instrument. The categories include no symptoms (None), 1-2 symptoms (At-risk), 3-4 symptoms (Problem), and 5 or more symptoms (Pathological) as detailed in Gerstein et al. (1999). The percentages are based on weighted data. Fisher's exact tests were conducted to determine whether the patterns of results are statistically significant. All of the tests showed a significant pattern at the $p < .05$ level.

^aThe analysis is based on data from the NESARC 2001 data.

^bThe analysis is based on data from the NGIBS 1998 data.

^cAmong those who reported that they had ever been divorced. Two questions were used to construct this variable: (1) Whether the respondent's gambling or (2) the respondent's spouse's gambling had been a factor in the respondent's divorce.

percent of gamblers reporting no problems). The NGIBS also included an item that asked married respondents if they were currently living with their spouses or separated. More than one in ten lifetime pathological gamblers said they were currently separated. This is more than twice the percentage relative to remainder of the sample. Finally, the NGIBS included a question about whether their divorce was precipitated by either their or their spouse's gambling. Not surprisingly, a substantial proportion of pathological gamblers reported that this was the case. In fact, the prevalence among pathological gamblers was seven times the next highest group.

Table 7 examines relationship problems among respondents in the NGIBS and NESARC. As discussed earlier, the experience of gambling-linked relationship problems is the concern of one of the items used to gauge gambling pathology. Nonetheless, it is instructive to examine other relationship items available in these national data sets. The analysis indicates, first, that there appears to be a modest step function between symptoms of problem gambling and reports of arguments, with the highest prevalence (59.5 percent) among pathological gamblers in the NESARC. Second, arguments with family members about gambling are strongly associated with gambling problems. This was shown in Tables 2 and 3, but is reiterated here. About one-fifth of problem gamblers and more than half of pathological gamblers reported arguing with family members to the point where it became "emotionally harmful." Third, another strong association occurs between gambling pathology and complaints from family members. More than two-thirds of pathological gamblers reported this condition in their households, whereas only three percent of gamblers who had experienced no problems reported it.

The final analysis involves some associations that indirectly affect the family. Several studies have shown that gambling problems are associated with difficulties at work and high levels of debt. The NESARC survey asked respondents whether they had been fired from a job in the past year. As shown in Table 8, the relative risk among pathological gamblers was twice that of gamblers who had experienced no problems. Moreover, the risk of having a financial crisis or reporting bankruptcy was also substantially higher among problem and pathological gamblers than among others (the risk of bankruptcy was also higher among problem and pathological gamblers in the NGIBS; see Gerstein et al., 1999). About 21 percent of NGIBS pathological gamblers said they had household gambling debt. As with relationship problems, being in a desperate situation over debt is one of the symptoms in the NODS and the DIS (see Table 1, item 17), so it is no surprise that a disproportionate percentage of pathological gamblers reported gambling debts. However, it should also be clear that household gambling debts affect not only the gambler, but,

Table 7. Relationship Problems and Gambling Problems, NGIBS 1998 and NESARC 2001

Gambling problems	Had arguments or friction with friends, family members, or others (% yes)^a	Argued with a family member about gambling to the point where it became emotionally harmful (% yes)^b	Household member complained about respondent's gambling (% yes)^b
None	46.1	0.3	3.3
At-risk	52.6	1.2	4.5
Problem	53.4	20.6	12.6
Pathological	59.5	56.4	68.8
Total	48.1	4.1	10.9

Note: The NGIBS 1998 is the National Gambling Impact and Behavior Study conducted by the National Opinion Research Center (NORC). The NESARC 2001 is the National Epidemiological Survey of Alcohol and Related Conditions sponsored by the National Institute on Alcohol Abuse and Alcoholism (NIAAA). The questions that are used to gauge gambling problems are listed in Table 1, with some variation in the NESARC instrument. The categories include no symptoms (None), 1-2 symptoms (At-risk), 3-4 symptoms (Problem), and 5 or more symptoms (Pathological) as detailed in Gerstein et al. (1999). The percentages are based on weighted data. Fisher's exact tests were conducted to determine whether the patterns of results are statistically significant. All three tests showed a significant pattern at the $p < .05$ level.

^aThe analysis is based on data from the NESARC 2001 data.

^bThe analysis is based on data from the NGIBS 1998 data.

Table 8. Gambling Problems, Employment Risk, Financial Problems, and Household Debt, NGIBS 1998 and NESARC 2001

Gambling problems	Been fired from a job in the past year (% yes) ^a	Major financial crisis or bankruptcy (% yes) ^a	Any household gambling debt? (% yes) ^b	Current household debt (%) ^b			
				None	Less than \$10,000	\$10,000 - \$99,999	\$100,000 or more
None	6.7	11.1	0.6	15.9	35.7	35.4	13.0
At-risk	9.9	18.1	2.5	15.2	42.2	26.6	16.0
Problem	10.8	27.5	8.5	33.9	36.4	27.5	2.1
Pathological	15.8	30.2	20.9	10.1	14.4	60.0	15.5
Total	7.5	13.1	1.7	16.1	36.2	34.6	13.1

Note: The NGIBS 1998 is the National Gambling Impact and Behavior Study conducted by the National Opinion Research Center (NORC). The NESARC 2001 is the National Epidemiological Survey of Alcohol and Related Conditions sponsored by the National Institute on Alcohol Abuse and Alcoholism (NIAAA). The questions that are used to gauge gambling problems are listed in Table 1, with some variation in the NESARC instrument. The categories include no symptoms (None), 1-2 symptoms (At-risk), 3-4 symptoms (Problem), and 5 or more symptoms (Pathological) as detailed in Gerstein et al. (1999). The percentages are based on weighted data. Fisher's exact tests were conducted to determine whether the patterns of results are statistically significant. All of the tests showed a significant pattern at the $p < .05$ level.

^aThe analysis is based on data from the NESARC 2001 data.

^bThe analysis is based on data from the NGIBS 1998 data.

usually, the entire family. For example, when this analysis was replicated using a subsample of married respondents, the same associations held.

As a final step, I used the NGIBS data to estimate how much household debt respondents reported. The modal category for pathological gamblers was \$10,000 - \$99,999, whereas the modal category for those with no problems or at-risk gamblers was less than \$10,000. I also estimated household debt using more finely-detailed categories and determined that the median debt carried by pathological gamblers was in the range of \$25,000 – \$49,000, whereas the median debt carried by those with no problems or at-risk gamblers was in the range of \$1,000 - \$9,000.

Discussion

The growth of gambling in the United States and elsewhere has been remarkable, with recent data suggesting that gambling expenditures now outstrip expenditures for many other popular forms of entertainment, such as sporting events, music, and movies. Moreover, the number of gamblers has grown as the availability of gaming activities has reached almost every state and territory in the U.S. This rapid expanse in what was previously a vice has included positive and negative consequences. Many policy experts, while admitting that a regulated gambling environment encourages responsible behavior and has added to state coffers (though through a revenue stream similar to a regressive tax), are also concerned with the potential increase in problematic forms of gambling. As with many other “vices,” there is mounting acknowledgement and evidence that gambling problems affect not only the individual, but also families and communities. Nevertheless, it is important to remember that most people who gamble do not develop problems; a large majority buy lottery tickets, gamble at casinos, or bet at the track on a regular basis with no negative consequences. Rather, a small minority experience problems that cross a threshold into pathological behavior.

In this paper, I’ve provided an overview of the literature on the link between problem and pathological gambling and family functioning and stability. Moreover, an analysis of data from two national surveys demonstrates some specific family-relevant correlates of problem and pathological gambling. Although these data cannot establish causality or even the sequencing of problems and outcomes, it is clear that pathological gamblers experience a relatively high prevalence of multiple marriages, separation, divorce, emotionally harmful arguments with family members, fights over gambling behavior, financial and occupational problems, and high debt. These findings complement previous studies that were designed to specifically address family problems (e.g., Darbyshire, Oster, and Carrig,

2001a, 2001b; Dickson-Swift, James, and Kippen, 2005; Hardoon, Gupta, and Derevensky, 2006; Hodgins, Shead, and Makarchuk, 2007; Kalischuk and Cardwell, 2004; Lorenz and Yaffee, 1988). But they also extend the scope of research by examining national level data from the U.S. In general, the results of this collection of studies suggests that there is an entire constellation of problems that accompanies pathological gambling, with many of these problems negatively affecting relations with spouses, children, and other family members.

Nevertheless, an area that has not been explored sufficiently is the role that family support may play in restraining problematic or pathological forms of gambling. Much as the mental health literature shows that cohesive families which offer social support attenuate the problems associated with mental health disorders and speed recovery, it is likely that supportive family relations may also provide a buffer against pathological forms of gambling. Although certainly not conclusive, the results in Table 5 suggest that pathological gamblers are less likely than others to gamble with family members; rather, they are apt to gamble with friends and acquaintances who may have their own problems restraining their gambling. At the risk of overspeculation, family members may play an important role in a situation known as *natural recovery*. Recent studies have shown that recovery from pathological gambling without formal treatment is common, with up to one-third of lifetime pathological gamblers no longer experiencing problems even though they had received no formal treatment (Slutske, 2006; Slutske, Jackson, and Sher, 2003). Problem and pathological gambling might therefore be episodic and transitory, rather than persistent. However, the term natural recovery is typically used to indicate no formal treatment or intervention, such as enrollment in Gamblers Anonymous or therapy from a mental health care provider. What leads to this type of remission is still somewhat of a mystery, but likely includes family social support and coping skills that are enhanced by cohesive family environments. Clearly, more research should be conducted on what role family support structures play in buffering the potential for gambling problems and affecting the recovery when pathological gambling occurs (cf. Sobell, Ellingstad, and Sobell, 2000). This type of research requires prospective designs, which would follow a group of individuals as they engage in gambling and, if they develop pathological symptoms, follow them through treatment and natural recovery. But it must also give direct and thorough attention to family relations, especially those conditions that change over time.

Although prospective studies of gambling problems and pathologies, and how families affect and are affected by these conditions, are a valuable research model, conceptual

development is also needed to better understand the course of problem gambling. Although we now know that pathological gambling is often comorbid with other mental health disorders, such as alcohol abuse, drug abuse, depressive disorders, and antisocial personality disorder, and that it negatively affects family functioning and stability, the mechanisms that underlie these associations are only beginning to be appreciated. There is still, moreover, substantial unobserved heterogeneity across individuals who manifest these problems. As I have argued elsewhere when examining problematic forms of drug use, certain “deviant behaviors” are related to what some have labeled “lifestyle factors” that affect not only involvement in pathological gambling and drug abuse, but also lead to diminished commitment to conventional institutions such as work, school, and families (Hoffmann, Dufur, and Huang, 2007). In this context, it is useful to conceptualize problem and pathological gambling as part of a constellation of factors – which may be manifest in difficulties with impulse control or self-control – that are related to a lack of investment in conventional lifestyles and activities. One of the key points of the literature on life course transitions, for instance, is that some people, perhaps due to their particular personality compositions, neurological conditions or dysfunctions, or family and community socialization experiences, are less attached and committed to conventional institutions such as schools, legitimate employers, and families. Not only are they less likely to succeed in their family or their work lives, but they are also apt to get involved in various forms of compulsive or destructive activities (Sampson and Laub, 1997). Continuing to conduct research that identifies this constellation of factors with greater precision is important because it will elaborate social and behavioral conditions that affect family relations, life transitions, and life course trajectories, and how they are related to problematic forms of gambling or associated disorders.

Although natural recovery may occur among a substantial proportion of pathological gamblers, a general lifestyle of problem behaviors and attenuated social relationships still exists for many of them. Without understanding the broader social, psychological, and physiological contexts within which problem and pathological gambling are embedded, we cannot begin to fully understand how to overcome their consequences for individuals, families, or communities.

Notes

1. Throughout this paper, I use the terms *problem gambling* and *pathological gambling* to describe a set of symptoms or behaviors that indicate that the person has experienced some negative consequences as a result of gambling. The DSM-IV lists a fixed set of consequences that experts consider particularly problematic. Moreover, inventories such as the South Oaks Gambling Screen (SOGS) and the NORC DSM-IV Screen for Gambling Problems (NODS) set predetermined limits on how many of these consequences gauge at-risk, problem, and pathological gambling (Lesieur, 1998). For instance, the NODS defines at-risk gamblers as having 1-2 symptoms, problem gamblers as having 3-4 symptoms, and pathological gamblers as having 5 or more symptoms based on a set of questions that involve such consequences as loss of control, lying, or committing illegal acts to finance gambling (Gerstein et al., 1999; Volberg, Nysse-Karris, and Gerstein, 2006). See Table 1 for more detailed information on the NODS.

2. I do not discuss in this chapter – nor do I engage in the debates about – some of the normative issues involving vices or victimless crimes, such as whether they should fall under the purview of the criminal justice system, the mental health system, or the regulatory system. There is a voluminous literature on the ethics and legalization of several so-called vices (e.g., Grossman, Chaloupka, and Shim, 2002; Weitzer, 2006). Instead, I focus on some of the practical and measurable implications of gambling behaviors, especially as legal outlets have increased in recent decades, and how these have affected family relations, behaviors, and functioning.

3. Welte et al. (2001) conducted a national telephone survey of adults in the U.S. in 2000. They reported that the prevalence of current pathological gambling was 1.3 percent based on the Diagnostic Interview Schedule (DIS) (which is used to measure symptoms consistent with the DSM-IV). This is substantially higher than the other reports. Note that NESARC was based on in-person surveys, whereas the NORC study was based on a telephone survey and a casino patron survey. Although some observers claim that telephone surveys tend to underestimate the prevalence of problem and pathological gambling because people with these problems may be hesitant to answer the telephone lest it be a debt collector (Potenza, Kosten, and Rounsaville, 2001), the fact that the telephone surveys have revealed a higher prevalence of problem gambling casts doubt on this hypothesis. Rather, perhaps in-person surveys underestimate problem behaviors because of satisficing or social desirability bias (Holbrook, Green, and Krosnick, 2003). A more reasonable explanation, though, is that sampling variability affects the results of such

surveys, especially since pathological gambling is a rare condition. Perhaps if confidence intervals regularly accompanied prevalence reports, researchers could judge whether these differences are due to sampling variability, variation in measurement techniques, or some actual mechanism in the population.

4. Yet, this approach is fraught with additional problems. In particular, given the relatively low prevalence of gambling problems in general population surveys, large samples are required to gain a sufficient number of problem or pathological gamblers to conduct studies of outcomes, some of which are also relatively rare. For example, even a large study such as the NESARC ($n = 43,093$) yielded only 195 lifetime pathological gamblers, 79 past-year pathological gamblers, and about 400 people with a major depressive disorder. The NORC survey ($n = 1,887$) uncovered only 21 lifetime pathological gamblers and 3 past-year pathological gamblers, even though the NORC researchers attempted to increase the power of their study by including a survey 530 patrons of casinos (Gerstein et al., 1999).

5. In a concise description of this phenomenon, Kalischuk and Cardwell (2004) wrote,

Children of compulsive gamblers are four times more likely to gamble themselves, often being introduced to gambling by their parents (Abbott, Cramer, and Sherrets, 1995; Ladouceur et al., 2001). This tendency has been described as the '*intergenerational multiplier effect*' [emphasis added] in children whose parents are problem gamblers (Abbott, 2001). Hardoon, Derevensky, and Gupta (2003) reported that at risk adolescents and probable pathological gamblers reported significantly more family members as having gambling problems than non-gamblers and social gamblers. Gambino et al. (1993) found that veterans whose parents were described as problem gamblers had three times the risk of scoring as probable pathological gamblers; those whose grandparents were perceived as problem gamblers were 12 times more likely to have gambling problems. Walters (2001) found that the family history effect followed gender lines, with the father's gambling raising the risk factor for a son more than the mother's gambling increasing the risk factor for a daughter [see also Felscher, Derevensky, and Gupta, 2003].

6. Twin studies indicate a substantial shared genetic component to problem and pathological gambling (Eisen et al., 2001). Estimates indicate that about 35 percent

of the variance in pathological gambling is due to inheritability, with about 60 percent due to shared family characteristics.

7. The two surveys are the National Gambling Impact and Behavior Study (NGIBS), collected by the National Opinion Research Center (NORC) for the National Gambling Impact Study Commission in 1999; and the National Epidemiological Study of Alcoholism and Related Conditions (NESARC), which was conducted under the sponsorship of the National Institute on Alcohol Abuse and Alcoholism (NIAAA). Details of these surveys and the data sets that they yielded are available in Gerstein et al. (1999) and Grant et al. (2003). Briefly, the NORC study involved was a telephone survey supplemented by a casino patron survey of 2,417 adults in the U.S. The NESARC was an in-person survey of more than 43,093 adults in the United States residing in non-institutionalized settings. Both surveys were designed to yield data that could be used to represent the non-institutionalized adult population residing in the U.S.

8. I relied on the lifetime gambling items because there was not sufficient variability in the past-year items to conduct the LC cluster analysis. The following items were excluded from the model because of insufficient data that was likely caused by the skip patterns employed in the NORC survey: ever tried to cut down (item 4); loss of control happened three or more times (item 7); ever gambled to relieve uncomfortable feelings (item 9); lying happened three or more times (item 12); and gambling caused school problems (item 15). Nevertheless, the analysis provides a general picture of the pattern of responses. I replicated this analysis using data from the NESARC. Although the specific patterns were different, the general results were similar. In particular, the illegal activities item did not cluster with the other items. A second item that did not fall within the general gambling problems cluster involved a question about whether gambling had led the respondent to break up with or nearly break up with someone.

Moreover, given the binary nature of the items, I also estimated a one-parameter Rasch model to determine whether a single dimension underlies the items in the NODS. In general, the Rasch model estimates the probability that a respondent chooses a specific response option for an item as

$$\ln (P_{nij}/P_{ni}(j - 1)) = B_n - D_i - F_j$$

where P_{nij} is the probability of the respondent scoring in category j of item I ; $P_{ni}(j - 1)$ is the probability of the respondent scoring in category $j - 1$ of item I ; B_n is the individual

measure of the respondent n ; D_i is the difficulty parameter of the item I ; and F is the difficulty of category step j . The results of this model are consistent with the cluster analysis exercise: illegal acts and occupational problems in the NGIBS are not part of the underlying dimension captured by the Rasch model.

9. The analyses represented in Tables 2 and 3 were fit using the statistical software Latent Gold. The results indicated that a three cluster model fit the data better than a one, two, or four cluster model. In Table 3, a two cluster model fit the data better than a one or three cluster model. The results in the following table provide model fit information.

Latent Class Cluster Analysis Model Fit Information

	Log-likelihood	BIC	Parameters	L²	df
Table 2					
1-Cluster	-3779.89	7652.05	13	2728.15	8178
2-Cluster	-2872.80	5937.22	27	913.96	8164
3-Cluster	-2782.48	5855.96	41	733.34	8150
4-Cluster	-2757.49	5905.34	55	683.35	8136
Table 3					
1-Cluster	-1210.17	2455.85	5	629.78	26
2-Cluster	-923.45	1924.99	11	56.32	20
3-Cluster	-906.85	1934.39	17	23.12	14

10. The item that asked about emotionally harmful arguments with family members was not part of the NODS. Nevertheless, I included it in this analysis because (1) it is clearly an important family problem that reportedly results from gambling, and (2) it maximizes the variability available to the analysis. Table 7 provides an additional analysis of this questionnaire item.

11. The NESARC consisted of a representative sample of non-institutionalized adults, 18 years and older, residing in the United States. Its sample size was 43,093. The sample frame also included the following non-institutional group quarters and housing units: boarding houses, rooming houses, non-transient hotels and motels, shelters, facilities for housing workers, college quarters, and group homes. The purpose of the study was to estimate the prevalence of the following behaviors and associated disorders: alcohol and drug use, abuse, and dependence; mental health disorders; and pathological gambling (Grant et al., 2003; see also Petry, Stimson, and Grant, 2005).

12. I use the four category classification system developed by Gerstein et al. (1999) hereafter. The frequency distribution of these categories is shown in the following table.

Note that the percentages are different in the NGIBS and the NESARC mainly because of the different threshold criteria: the gambling problem questions were asked among all NGIBS respondents who reported gambling, whereas the NESARC limited these questions to those who reported gambling at least five times in their lifetimes.

Distribution of Lifetime Gambling Problems, NGIBS 1998 and NESARC 2001

Gambling problem category	NGIBS, 1998	NESARC, 2001
None (0 symptoms)	87.7% (86.3 – 89.1)	80.3% (79.2 – 81.3)
At-risk (1-2 symptoms)	9.1% (7.9 – 10.4)	13.6% (12.8 – 14.5)
Problem (3-4 symptoms)	1.7% (1.3 – 2.4)	4.5% (4.1 – 5.1)
Pathological (5 or more symptoms)	1.5% (1.1 – 1.9)	1.6% (1.3 – 1.9)

Note: The percentages are based on the subsample of lifetime gamblers in the NGIBS and those reporting lifetime gambling on five or more occasions in the NESARC. They are based on weighted data. 95 percent confidence intervals appear in parentheses.

The analyses presented in Tables 5-8 rely on cross-tabulations of weighted data. However, I confirmed the patterns shown in these tables with logistic and multinomial logistic regression models that included the following covariates: age, gender, years of formal education, race/ethnicity, region of the country, urban residence, and family income. Where necessary, I used multiple imputation methods to account for patterns of missing data. The multivariable models adjusted for the multistage sample design of the surveys and relied on weighted data. With few exceptions, the patterns shown in the tables were confirmed with these multivariable models.

References

- Caspi, Avshalom, Joseph McClay, Terrie E. Moffitt, Jonathan Mill, Judy Martin, Ian W. Craig, Alan Taylor, and Richie Poulton. 2002. "Role of Genotype in the Cycle of Violence in Maltreated Children." *Science* 297: 851-853.
- Ciarrocchi, Joseph, and Ann A. Hohmann, A. 1989. "The Family Environment of Married Male Pathological Gamblers, Alcoholics and Dually Addicted Gamblers." *Journal of Gambling Studies* 5: 283-291.
- Darbyshire, Philip, Candice Oster, and Helen Carrig. 2001a. "The Experience of Pervasive Loss: Children and Young People Living in a Family Where Parental Gambling Is a Problem." *Journal of Gambling Studies* 17: 23-45.
- . 2001b. "Children of Parent(s) who have a Gambling Problem: A Review of the Literature and Commentary on Research Approaches." *Health and Social Care in the Community* 9: 185-193.
- Dickson-Swift, V.A., E. L. James, and S. Kippen. 2005. "The Experience of Living with a Problem Gambler: Spouse and Partners Speak Out." *Journal of Gambling Issues* 13: 1-22.
- Eisen, Seth A., Nong Lin, Michael J. Lyons, Jeffrey F. Scherrer, Kristin Griffith, William R. True, Jack Goldberg, and Ming T. Tsuang. 1998. "Familial Influences on Gambling Behavior: An Analysis of 3359 Twin Pairs." *Addiction* 93: 1375-1384.
- Eisen, Seth A., Wendy S. Slutske, Michael J. Lyons, John Lassman, Hong Xian, Richard Toomey, S. Chantarujikapong, and Ming T. Tsuang. 2001. "The Genetics of Pathological Gambling." *Seminar in Clinical Neuropsychiatry* 6: 195-204.
- Farley, Melissa. 2003. "Prostitution and the Invisibility of Harm." *Women & Therapy* 26: 247-280.
- Felscher, Jennifer R., Jeffrey L. Derevensky, and Rina Gupta. 2003. "Parental Influences and Social Modelling of Youth Lottery Participation." *Journal of Community & Applied Social Psychology* 13: 361-377.
- Friedman, Joseph, Simon Hakim, and J. Weinblatt. 1989. "Casino Gambling as a 'Growth Pole' Strategy and Its Effect on Crime." *Journal of Regional Studies* 29: 615-623.
- Gaudia, Ronald. 1987. "Effects of Compulsive Gambling on the Family." *Social Work* 254-256.
- Gerstein, Dean R., Sally Murphy, Marianna Toce, John P. Hoffmann, Amanda Palmer, Robert Johnson, Cindy Larison, Lucien Chuchro, Tracie Bruie, Lazlo Englemann, Mary Ann Hill, Henrick Harwood, Adam Tucker, and Eugene Christiansen. 1999. *Gambling Impact and Behavior Study: Report to the National Gambling Impact Study*

- Commission*. Chicago, IL: National Opinion Research Center at the University of Chicago.
- Grant, Bridget F., Karl Kaplan, Joseph Shepard, and Terry Moore. 2003. *Source and Accuracy Statement for Wave 1 of the 2001-2002 National Epidemiologic Survey on Alcohol and Related Conditions*. Bethesda, MD: National Institute on Alcohol Abuse and Alcoholism.
- Grossman, Michael, Frank J. Chaloupka, and Kyumin Shim. 2002. "Illegal Drug Use and Public Policy." *Health Affairs* 21: 134-145.
- Grzywacz, Joseph G., and Brenda L. Bass. 2003. "Work, Family, and Mental Health: Testing Different Models of Work-Family Fit." *Journal of Marriage and Family* 65: 248-261.
- Hardoon, Karen K., Rina Gupta, and Jeffrey L. Derevensky. 2004. "Psychosocial Variables Associated with Adolescent Gambling." *Psychology of Addictive Behaviors* 18: 170-179.
- Hodgins, David C., Nicole Peden, and Erin Cassidy. 2005. "The Association Between Comorbidity and Outcome in Pathological Gambling: A Prospective Follow-up of Recent Quitters." *Journal of Gambling Studies* 21: 255-271.
- Hodgins, David C., N. Will Shead, and Karyn Makarchuk. 2007. "Relationship Satisfaction and Psychological Distress Among Concerned Significant Others of Pathological Gamblers." *Journal of Nervous and Mental Disease* 195: 65-71.
- Hoffmann, John P., Scott A. Baldwin, and Felicia G. Cerbone. 2003. "The Onset of Major Depressive Disorders among Adolescents." *Journal of the American Academy of Child and Adolescent Psychiatry* 42: 217-224.
- Hoffmann, John P., and Felicia G. Cerbone. 2002. "Parental Substance Use Disorder and the Risk of Adolescent Drug Abuse: An Event History Analysis." *Drug and Alcohol Dependence* 66: 255-264.
- Hoffmann, John P., Mikaela Dufur, and Lynn Huang. 2007. "Drug Use and Job Quits: A Longitudinal Analysis." *Journal of Drug Issues* 37: 569-596.
- Hoffmann, John P., and S. Susan Su. "Parental Substance Use Disorder, Mediating Variables, and Adolescent Drug Use: A Nonrecursive Model." *Addiction* 93: 1353-1366.
- Holbrook, Allyson L., Melanie C. Green, and Jon A. Krosnick. 2003. "Telephone Versus Face-To-Face Interviewing of National Probability Samples with Long Questionnaires: Comparisons of Respondent Satisficing and Social Desirability Response Bias." *Public Opinion Quarterly* 67: 79-125.

- Jacobs, Durand F., Albert R. Marston, Robert D. Singer, Keith Widaman, Todd Little, and Jeannette Veizades. 1989. "Children of Problem Gamblers." *Journal of Gambling Studies* 5: 261-268.
- Kalischuk, Ruth Grant, and Kelly Cardwell. 2004. *Problem Gambling and Its Impact on Families: Final Report*. Submitted to the Alberta Alcohol and Drug Abuse Commission. Lethbridge: University of Lethbridge.
- Kawachi, Ichiro, and Lisa F. Berkman. 2001. "Social Ties and Mental Health." *Journal of Urban Health* 78: 458-467.
- Kearney, Melissa Schettini. 2005. "State Lotteries and Consumer Behavior." *Journal of Public Economics* 89: 2269-2299.
- Kessler, Ronald C., and Kathleen R. Merikangas. 2004. "The National Comorbidity Survey Replication (NCS-R): Background and Aims." *International Journal of Methods in Psychiatric Research* 13: 60-68.
- Lesch, Klaus Peter, and Ursula Mersdorf. 2000. "Impulsivity, Aggression, and Serotonin: A Molecular Psychobiological Perspective." *Behavioral Sciences and the Law* 18: 581-604.
- Lesieur, Henry R. 1998. "Costs and Treatment of Pathological Gambling." *Annals of the American Academy of Political and Social Science* 556: 153-171.
- Lesieur, Henry R., and Michael Welch. 2000. "Vice Crimes: Personal Autonomy Versus Societal Dictates." In Joseph F. Sheley (Ed.), *Criminology: A Contemporary Handbook, Third Edition* (pp.233-263). Belmont, CA: Wadsworth.
- Lorenz, Valerie C., and Robert A. Yaffee. 1988. "Pathological Gambling, Psychosomatic, Emotional and Mental Differences as Reported by the Spouse of the Gambler." *Journal of Gambling Studies* 4: 13-26.
- Madhusudhan, Ranjana G. 1996. "Betting on Casino Revenues: Lessons from State Experiences." *National Tax Journal* 49: 401-412.
- Magidson Jay, and Jeroen K. Vermunt. 2004. "Latent Class Models." In David Kaplan (Ed.), *The Sage Handbook of Quantitative Methodology for the Social Sciences* (pp.175-197). Newbury Park, CA: Sage Publications.
- Manning, Jill K. 2006. "The Impact of Internet Pornography on Marriage and the Family: A Review of the Research." *Sexual Addiction & Compulsivity* 13: 131-165.
- Moffitt, Terrie E., Gary L. Brammer, Avshalom Caspi, J. Paul Fawcett, Michael Raleigh, Arthur Yuwiler, and Phil Silva. 1998. "Whole Blood Serotonin Relates to Violence in an Epidemiological Study." *Biological Psychiatry* 43: 446-457.

- Moore, Todd M., Angela Scarpa, and Adrian Raine. 2002. "A Meta-Analysis of Serotonin Metabolite 5-HIAA and Antisocial Behavior." *Aggressive Behavior* 28: 299-316.
- Morasco, Benjamin J., Robert H. Pietrzak, Carlos Blanco, Bridget F. Grant, Deborah Hasin, and Nancy M. Petry. 2006. "Health Problems and Medical Utilization Associated With Gambling Disorders: Results from the National Epidemiologic Survey on Alcohol and Related Conditions." *Psychosomatic Medicine* 68: 976-984.
- Morgan, John. 2000. "Financing Public Goods by Means of Lotteries." *Review of Economic Studies* 67: 761-784.
- Petry, Nancy M. 2007. "Gambling and Substance Use Disorders: Current Status and Future Directions." *American Journal of Addictions* 16: 1-9.
- Petry, Nancy M., and Christopher Armentano. 1999. "Prevalence, Assessment, and Treatment of Pathological Gambling: A Review." *Psychiatric Services* 50: 1021-1027.
- Petry, Nancy M., Frederick S. Stinson, and Bridget F. Grant. 2005. "Comorbidity of DSM-IV Pathological Gambling and Other Psychiatric Disorders: Results from the National Epidemiologic Survey on Alcohol and Related Conditions." *Journal of Clinical Psychiatry* 66: 564-574.
- Petry, Nancy M., and Jeremiah Weinstock. 2007. "Internet Gambling Is Common in College Students and Associated with Poor Mental Health." *American Journal of Addictions* 16: 325-330.
- Potenza, Marc N., Thomas R. Kosten, and Bruce J. Rounsaville. 2007. "Pathological Gambling." *Journal of the American Medical Association* 286: 141-144.
- Rephann, Terance J., Margaret Dalton, Anthony Stair, and Andrew Isserman. 1997. "Casino Gambling as an Economic Development Strategy." *Tourism Economics* 3: 161-183.
- Rowe, David D. 2002. *Biology and Crime*. Los Angeles: Roxbury Publishing.
- Sampson, Robert J., and John H. Laub. 1997. "A Life Course Theory of Cumulative Disadvantage and the Stability of Delinquency." In Terence P. Thornberry (Ed.), *Developmental Theories of Crime and Delinquency* (pp.133-162). New Brunswick, NJ: Transaction Publishers.
- Shaffer, Howard J., Matthew N. Hall, and Joni Vander Bilt. 1999. "Estimating the Prevalence of Disordered Gambling Behavior in the United States and Canada: A Research Synthesis." *American Journal of Public Health* 89: 1369-1376.
- Scherrer, Jeffrey F., Wendy S. Slutske, Hong Xian, Brian Waterman, Kamini R. Shah, Rachel Volberg and Seth A. Eisen. 2007a. "Factors Associated with Pathological

- Gambling at 10-Year Follow-Up in a National Sample of Middle-Aged Men.” *Addiction* 102: 970-978.
- Scherrer, Jeffrey F., Hong Xian, Julie M. Krygiel Kapp, Brain Waterman, Kamini R. Shah, Rachel Volberg, and Seth A. Eisen. 2007b. “Association between Exposure to Childhood and Lifetime Traumatic Events and Lifetime Pathological Gambling in a Twin Cohort.” *Journal of Nervous and Mental Disease* 195: 72-78.
- Slutske, Wendy S. 2006. “Natural Recovery and Treatment Seeking in Pathological Gambling: Results from Two National Surveys.” *American Journal of Psychiatry* 163: 297-302.
- Slutske, Wendy S., Seth Eisen, Hong Xian, William R. True, Michael J. Lyons, Jack Goldberg, and Ming Tsuang. 2001. “A Twin Study of the Association Between Pathological Gambling and Antisocial Personality Disorder.” *Journal of Abnormal Psychology* 110: 297-308.
- Slutske, Wendy S., Kristina M. Jackson, and Kenneth J. Sher. 2003. “The Natural History of Problem Gambling from Age 18 to 29.” *Journal of Abnormal Psychology* 112: 263-274.
- Sobell, Linda C., Timothy P. Ellingstad, Mark B. Sobell. 2000. “Natural Recovery from Alcohol and Drug Problems: Methodological Review of the Research with Suggestions for Future Directions.” *Addiction* 95: 749–764
- Vitaro, Frank, Robert Ladouceur, and Annie Bujold. 1996. “Predictive and Concurrent Correlates of Gambling in Early Adolescent Boys.” *Journal of Early Adolescence* 16: 211-228.
- Volberg, Rachel A., Kari L Nysee-Carris, and Dean R. Gerstein. 2006 *California Problem Gambling Prevalence Survey: Final Report*. Chicago: National Opinion Research Center.
- Wagner, John. 2007. “O’Malley Aide Offers Case for Md. Slots; Residents’ Spending In Other States Cited.” *The Washington Post*, August 15, p.B01.
- Walker, Douglas M., and John D. Jackson. 1998. “New Goods and Economic Growth: Evidence from Legalized Gambling.” *Review of Regional Studies* 28: 47-69.
- Weitzer, Ronald. 2006. “The Moral Crusade Against Prostitution.” *Society* 43: 33-38.
- Welte, John, Grace Barnes, William Wieczorek, Marie-Cecile Tidwell, and John Parker. 2001. “Alcohol and Gambling Pathology among U.S. Adults: Prevalence, Demographic Patterns, and Comorbidity.” *Journal of Studies on Alcohol* 62: 706-712.
- , 2004. “Risk Factors for Pathological Gambling.” *Addictive Behaviors* 29: 323-335.

Winters, Ken C., Steven M. Specker, and Ronald D. Stinchfield. 2002. "Measuring Pathological Gambling with the Diagnostic Interview for Gambling Severity (DIGS). In Jeffrey J. Marotta, Judy A. Cornelius, and William R. Eadington (Eds.), *The Downside: Problem and Pathological Gambling* (pp.143-148). Reno: Institute for the Study of Gambling and Commercial Gaming, University of Nevada.