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Gambling and Drug Use: An Analysis of Risky Behaviours Among Adolescents

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Abstract: This research examines several types of gambling behaviors in adolescence with a focus on its association with drug use. The literature suggests strong associations between drug use and gambling. The idea is that both gambling and drug use are behaviors which involves risk. All associations, but one, were low positive and significant at the .001 level. The strongest associations involved playing dice and playing cards for money. In controlling for males and females, most correlations were stronger for males. Further research on drug use and gambling is supported by this data. Research on gambling and other risky behaviors of adolescents should be continued to determine their association and causal connections.

Keywords: Gambling, drug use, risk factors, adolescents

During the past decade, legal gambling has been one of the fastest changing and growing industries in the United Sates and globally (Derevensky & Gilbeau, 2019). Gambling opportunities have become so widespread that it is difficult to find areas where some form of legal gambling does not exist. Gamblers can bet on a wide diversity of activities and games via the Internet on their computer or smartphone using gambling apps, online wagering, and state-supported games. This has resulted not only in an increase in availability, but more variety in types of gambling opportunities, with easier accessibility for youth.

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Even though gambling is forbidden to minors, in recent years there has been a marked increase in this behavior (Derevensky & Gilbeau 2019). Estimates are that over 60% of all adolescents have gambled in the past year (Welt *et al.*, 2008). The increasing number of underaged youth participating in games of chance for recreation and entertainment is attributable to the legalization, normalization, and proliferation of gambling opportunities (Hurt *et al.*, 2008). Several studies have shown that the percentage of young people who are problem gamblers is significant and even greater than the percentage of adult problem gamblers (Blinn-Pike, Worthy, & Jonkman, 2010). Research shows 2-9 percent of adolescents are problem gamblers, while between 10-18% are considered at-risk gamblers[1]. Men and boys are consistently more likely to gamble than women and girls across all age categories from pre-adolescent to adult. (Hurt *et al.*, 2008; Villella *et al.*, 2011).

There are varying reasons ascribed to adolescent gambling. Gambling has an inherent element of risk, and adolescence is a period of development characterized by high rates of risk- taking behavior in a variety of settings (Chambers, Taylor, & Potenza, 2003; Proimos *et al.*, 1998; Wagner & Anthony, (2002). Because adolescents live in a time of increased gambling availability (Federal Trade Commission, 2006); there is the general perception that gambling is acceptable and normal (Gupta & Derevensky, 1998, 2000). Contrary to the belief of gambling for monetary gain in adults, adolescent gambling is seen as an opportunity to socialize (Lynch, Maciejewski, & Potenza, 2004). Given the proliferation of gambling on the internet, it is difficult to regulate for adults, and these difficulties extend to youth (Hardoon & Derevensky, 2002; Hardoon, Gupta, & Derevensky 2004). Indeed, adolescent gambling on the internet, is emerging as a specific concern because youth are competent with computer technologies, thus they might become more engaged in computerized gambling than their adult counterparts. This can also be exacerbated because there are technical difficulties in regulating internet gambling given there is no face-to-face contact and thus it is difficult if not impossible to verify age. In addition, the lack of supervision as well as potential for incurring losses over a relatively short period worsens the potential problems for youth gamblers (Griffiths & Woods, 2004).

Although gambling was initially characterized as a specific phenomenon of adulthood, the progressive lowering of the age of onset, combined with earlier and increased access, led researchers to study the younger population as well. According to the literature, those who develop a gambling addiction in adulthood begin to play significantly at young ages compared to those that do not develop this disorder (Lynch, Maciejewski, & Potenza, 2004). This is consistent with life course theory that the earlier the age of onset of delinquency the more likely individuals will be an adult criminal (Farrington, Piquero, & Jennings, 2013; Forsyth, *et al.*, 2011, 2018; Dick, *et al.*, 2019; Rahman, *et al.*, 2012).

Gambling and Drug Use Among Adolescents

Gambling in youth was previously considered to be related to poor academic achievement, truancy, criminal involvement, and delinquency; but more recently, researchers have examined the relationship between gambling and drug use (Kryszajtys *et al.*, 2018). Both gambling and substance misuse are prevalent among young people where elevated rates of alcohol use, abuse, and dependence are reported in association with gambling in adolescent boys and girls as compared to their nongambling peers (Welte *et al.* 2008). Youth with gambling problems are also at greater risk for the development of additional addictions, including alcohol and substance abuse disorders (Welte *et al.* 2008). Researchers have found significant relationships between gambling, alcohol misuse, and illicit drug use (Barnes *et al.*, 2002, 2005, 2009; Welte *et al.*, 2008; Winters *et al.*, 2004, 2005). Studies of high school students find adolescent gambling associated with increased rates of a variety of risky behaviors, including alcohol and substance use (Welte *et al.* 2008). Some research suggests risky behavior, such as gambling elicits the same pleasure response as drugs. For example, Knutson et al (2001), using magnetic resonance imaging (MRI) found gambling elicited similar brain activity as produced in subjects that are intoxicated on drugs. This suggests people actually get 'high' on gambling. The higher the gain the more likely individuals are to take the risk and activity in the brain circuitry increases as risk and gain increase (Knutson *et al.*, 2001). Zweig (2008) also found that at the neurobiological level, 'scoring' financially is almost indistinguishable from scoring a hit from an addictive drug" (348).

Other researchers claim these co-occurring problems constitute a *problem behavior syndrome* (Donovan & Jessor, 1985; Jessor & Jessor, 1977; Welte *et al.*, 2008) and what Hirschi & Gottfredson (1994) termed the generality of deviance. Again, in support of life course theory young adult gamblers who initiated gambling behavior as adolescents were found to be more likely to report substance use problems than were young adult gamblers who started gambling as adults (Lynch, Maciejewski, & Potenza, 2004; Chen, *et al.*; 2018).

Methods

We use data from the 2018 Louisiana Communities that Care Youth Survey (CCYS) to test the relationship between adolescent gambling and drug use. The CCYS is a biannual survey administered on even years, to all sixth, eighth, tenth, and twelfth grade private and public-school students. The survey is designed to assess students' involvement in a specific set of indicators, as well as their exposure to a scientifically valid risk and protective factors identified in the Risk and Protective Factor Model of adolescent problem behaviors. The self-reported attitudes/behaviors of students used in this study are also a good fit for examining the illegal behaviors of adolescents. Each of

the 80,000 plus students completed the survey online during a designated class period/time. Students are given approximately 60 minutes to complete 131 questions. Passive consent was used to secure parental permission for participation. Teachers were provided with a short script to read to students just prior to administration. The script served as informed consent and included references to the voluntary nature of the survey and privacy. No identifiable data is collected from the survey. The results are disseminated at various aggregated levels, including State, region, parish, and by individual schools. All school level reports are password protected and require consent to access.

Self-Report Studies

The CCYS is a type of self-report study. A self-report study is a survey, questionnaire, or poll in which respondents read the question and select a response by themselves without researcher interference. Self-report surveys enable researchers to explore the attitudes, beliefs, motivations, and personality characteristics of respondents. Self-report measures have been considered valid data sources for general demographic data, delinquency, criminality, and other domains of behavior (Hindelang, Hirschi, & Weis, 1979).

Self-report surveys are one of three major ways of measuring involvement in delinquent and criminal behavior. The basic approach of the self-report method is to ask individuals if they have engaged in delinquent or criminal behavior, and if so, how often. The increased use and refinement of the self-report method has grown since its initial use in the 1950's in criminological research, especially longitudinal research on the etiology of delinquent and criminal behavior. Although there is much room for continued improvement, self-report data appear acceptably valid and reliable for most research purposes.

Some of the limitations of FBI crime data are overcome by self-report studies. Several researchers rather than relying on official reports of arrests, have drawn upon samples of various populations and have directly inquired through survey questionnaires regarding the respondents past delinquent behavior. This method aimed at adolescents not identified by law enforcement agencies as juvenile delinquents is designed to reveal and measure under identified and unreported instances of juvenile delinquency. Self-report studies clearly show that delinquent behavior is far more common and widespread than is indicated by official statistics. Findings from these studies over time has led researchers to conclude that enormous numbers of young people appear to be involved in delinquent acts. The conclusion does not deny that crime may be more concentrated in some groups, but that it is also unlikely to be absent in other groups. Such studies clearly support the contention that official statistics fail to completely measure the volume of delinquency and the incidence of many specific delinquent acts.

Hirschi's (1969) support for self-report as an ideal methodology is that official records are a weaker measure of the commission of delinquent acts than honest self-reports. His rationale is that every delinquent act is witnessed and motivated by that young person; only they can explain it, not the police (Hindelang, Hirschi, & Weis, 1979; Hirschi, 1969).

> Every delinquent act committed by a person is witnessed by him; he cannot commit delinquency acts without knowing it (otherwise, there is nothing to explain). Obviously, the police do not have such omnipresence…In short, the records of the police are, on a priori grounds, a weaker measure of the commission of delinquent acts than presumably honest self-reports (Hirschi,1969, p.64).

Table 1 shows the grade level of students who completed the survey in 2018. As you can see, there are fewer students in 10th and 12th grade than in 6th and 8th.

Table 1: Grade of Responders

Grade	*Number*	*Percent*
Sixth (6)	24,763	29.0
Eighth (8)	25,872	30.3
Tenth (10)	19,485	22.9
Twelfth (12)	15,143	17.8
Total	85,263	100

Table 2 reports the ethnicity of respondents, with the largest number, 43,954 (44.6%), reporting as white followed by 34,966 (35.5%) reporting as African American.

Table 2: Ethnicity of Responders

	Number	*Percent*
African American	34,966	35.5
Asian	2,331	2.4
Hispanic	6,662	6.8
Native American	4,195	4.3
Pacific Islander	719	0.7
White	43,954	44.6
Other	5,732	5.8
Total	85,263	100

Table 3 displays the gender of respondents, where 41,100 (49%) are male and 52,708 (50%) are female[2].

Table 3: Gender of Responders

	Number	*Percent*
Male	41,000	49.0
Female	42,708	51.0
Total	83,708	100

Measures of Drug Use

The CCYS asks about frequency of drug use. The specific wording is "[o]n how many occasions have you used _____ in the last 30 days." Possible responses are 0 Occasions (1), 1-2 Occasions (2), 3-9 Occasions (3), 10-19 Occasions (4), 20+ Occasions (5). Table 4 shows the eleven (11) drugs used in this research, as well as the descriptions and slang/common names provided on the survey. Individual scores were totalled and ranged from 13-65.

Table 4: Drugs and Descriptions

Drugs	*Description*
Alcohol	beverages (beer, wine liquor) –more than a few sips.
Marijuana	(grass, pot) or hashish (hash, hash oil).
LSD	or other hallucinogens
Cocaine	or crack
Inhalant	sniffed glue, breathed the contents of an aerosol spray can, or inhaled other gases or sprays, in order to get high.
Methamphetamine	(meth speed, crank, crystal meth).
Stimulant	other than methamphetamines (such as amphetamines, Ritalin, Dexedrine) without a doctor telling you to take them.
Sedative	(tranquilizers, such as Valium or Xanax, barbiturates, or sleeping pills) without a doctor telling you to take them.
Heroin	or other opiates
Prescription	(narcotics such as Oxycontin, methadone, morphine, codeine, Demerol, Vicodin, Percocet) without a doctor telling you to take them.
Ecstasy	(MDMA, X, or E)

Measures of Gambling

The CCYS asks the frequency of a gambling. The question asked was: How many times in the past year (12 months) have you_____? The responses were: Never (1), 1 or 2 times (2), 3 to 9 times (3), 10 to 19 times (4), 20 + times (5). Table 5 shows the types of gambling and descriptions.

Table 5: Gambling and Descriptions

Drugs	*Description*
Lottery	Scratch off or large drawings
Sports	Bet on sporting events
Cards	Played cards for money
Horse Races	Bet money on horse races
Bingo	Played bingo for money or prizes
Internet	Gambled on the internet
Dice	Bet on dice games such as craps
Skill	Bet on games of personal skill such as pool, darts, or bowling
Machines	Bet on video poker or other gambling machines

Scores were totalled for individuals with a range of 9 to 45.

Results

As can be seen in Tables 6, 7, 8, and 9, findings suggest that drug use is positively associated with gambling. In Table 6 are the total drug use scale score associations with each type of gambling. Correlations ranged from the strongest played cards for money r=.186; bet on dice games such as craps r=.176; bet on games of personal skill such as pool, darts, or bowling r=.130; gambled on the internet r=.122; played the lottery r=.118; bet money on sporting events r=.111; bet on video poker or other gambling machines r= .102; bet money on horse races r=.094. The weakest correlation was played bingo r=.043. All associations were significant at the .001 level.

Table 6: Drug Use and Gambling

	Lottery	*Sports*	*Cards*	*Horse Races*	*Bingo*	*Internet*	*Dice*	*Skill*	*Machines*
Pearson Correlation	.118**	.111**	.186**	.094**	.043**	.122**	.176**	.130**	.102**
Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N	80801	80737	80648	80556	80665	80525	80392	80642	80648

** Correlation is significant at the 0.01 level (2-tailed).

Tables 7 and 8 controls for males and females supports the literature as male gambling had stronger associations with drug use. The exception was playing the lottery (females r= .120; males r= .117). The strength of the associations for males and females were not in the same relative order. The three strongest associations for males were played cards for money (r= .228); bet on dice games (r= .203); and bet on game of personal skill (r.=.162). The three strongest associations for females were bet on dice games (r= .143); played cards for money (r= .136); and played the lottery (r=.120). All

other associations for males were above .10; except for played bingo (r=.045). All other associations for females were below .10.

Table 7: Drug Use and Gambling: Males

	Lottery	*Sports*	*Cards*	*Horse Races*	*Bingo*	*Internet*	*Dice*	*Skill*	*Machines*
Pearson Correlation	.117**	.138**	.228**	.109**	.045**	.146**	.203**	.162**	.117**
Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N	38450	38430	38368	38329	38399	38314	38253	38362	38358

** Correlation is significant at the 0.01 level (2-tailed).

Table 8: Drug Use and Gambling: Females

	Lottery	*Sports*	*Cards*	*Horse Races*	*Bingo*	*Internet*	*Dice*	*Skill*	*Machines*
Pearson Correlation	.120**	.078**	.136**	.074**	.043**	.086**	.143**	.086**	.076**
Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N	41098	41061	41032	40985	41024	40968	40901	41033	41047

** Correlation is significant at the 0.01 level (2-tailed).

Table 9 shows associations with individual drugs used with individual gambling behaviors (rather than the scale total used in tables 2,3,4). All associations were

Table 9: Drugs Used and Gambling Types

	Lottery	*Sports*	*Cards*	*Horse Races*	*Bingo*	*Internet*	*Dice*	*Skill*	*Machine*
Alcohol	.131**	.120**	.196**	.104**	.053**	.103**	.130**	.128**	.090**
Drunk	.072**	.083**	.140**	.069**	.019**	.069**	.115**	.084**	.060**
Marijuana	.039**	.047**	.090**	.023**	-.009**	.060**	.145**	.058**	.046**
Hallucinogens	.027**	.025**	.057**	.041**	.011**	.059**	.061**	.046**	.053**
Cocaine	.023**	.025**	.043**	.031**	.014**	.044**	.049**	.035**	.030**
Inhalants	.070**	.049**	.062**	.023**	.054**	.049**	.040**	.062**	.030**
Meth	.028**	.017**	.024**	.026**	.008*	.040**	.032**	.023**	.028**
Stimulants	.046**	.039**	.061**	.034**	.016**	.055**	.060**	.044**	.039**
Sedatives	.046**	.039**	.061**	.034**	.016**	.055**	.060**	.044**	.039**
Heroin	.020**	.025**	.033**	.055**	.018**	.051**	.042**	.034**	.052**
Prescription	.038**	.039**	.064**	.031**	.023**	.054**	.083**	.054**	.044**
MDMA	.031**	.036**	.065**	.047**	.020**	.063**	.090**	.048**	.074**
Synthetics	.051**	.040**	.049**	.051**	.039**	.062**	.054**	.052**	.064**

**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

positive, but one, played bingo and used marijuana (r = -. 009) while negative, was not significant. Associations at .10 or above were limited to three measures of substance use, two measures of alcohol use and marijuana use, and several measures of gambling associated with the use of these substances.

Seven types of gambling had associations with alcohol above .10 ranging from the strongest, played cards for money (r=.196); played the lottery (r=.131); bet on dice games (r=.130); bet on games of personal skill (r=.128); bet on sporting events (r=.120); bet money on horse races (r=.104); and gambled on the internet (r=.103). Two types of gambling had associations with being drunk or very high from drinking alcohol above .10 were played cards for money (r=.140) and bet on dice games (r=.115). Only one type of gambling had an association with marijuana above .10: bet on dice games (r=.145).

Discussion

Our findings show a consistent relationship between gambling and substance use. Interestingly, contrary to expectations that the internet would be a prime vehicle for adolescent gambling and thus relation to drug use, we found it was face-to-face gambling that had the strongest correlation with drug use. We also found, like previous research that boys were more likely to gamble than girls for all gambling behaviors, except for playing the lottery. In addition, the top three associations between gambling and drug use for boys were playing cards for money, betting on dice games, and betting on games of personal skill. For girls the three strongest associations were betting on dice games, playing cards for money and playing the lottery.

Future research should examine the prevalence of gambling, problem gambling; and substance use disorders as kindred afflictions. Other risky behaviors of adolescents should be examined to determine their association with gambling. It would be instructive to treat problem gambling as an addiction like illicit drug use and gauge the degree to which each shares risk and protective factors, such as strong family and school ties. Further research should focus on gender differences in the association between gambling and drug use as well as the impact of risk and protective factors is also warranted. Finally, further research on drug use and gambling should also include age of onset. Understanding these relationships is important. Adolescent gambling, and substance use and their cooccurrence are serious public health concerns. Indeed, gambling is seen by many to be a hidden problem in the illicit drug use community.

Notes

1. Descriptive measures of gambling were inconsistent across the literature. Distinguishing between gambling, problem gambling, pathological gambling was grossly inconsistent to the point that the terms are of little comparative utility. Descriptive measures of levels of drug

use were similarly inconsistent. The inconsistency in measurement makes it difficult to fully understand and/or compare the nature of the relationship between gambling and drug use in the literature. We used these terms interchangeably, but the idea from the literature is that there is a relationship between gambling and drugs use

2. Discrepancies across demographic characteristics are a result of missing data from lack of response to particular questions.

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