

Research Article

Gambling-Related Problems: Sentinel for Substance use among Adolescents?

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Abstract

A secondary analysis of data collected as part of the Massachusetts Youth Risk Behavior Survey was conducted to examine the association between gambling-related problems and the early onset of substance use among adolescents in grades 9-12. High school students who reported having many problems with family, school or job because of gambling were consistently more likely to report involvement at an early age (age 8 or earlier) in substance use behaviors known to be associated with high levels of morbidity and mortality, than students who reported some problems due to gambling, who were more likely to report early involvement than students who did not report problems due to gambling. The value of problem gambling as a potential sentinel marker for substance use behaviors is discussed in terms of screening adolescents in general practice settings.

Keywords

- Adolescent risk-taking
- Substance use
- Gambling-related problems
- Sentinel marker

INTRODUCTION

A major advantage of secondary analysis is that it provides a test of hypotheses based on large-scale studies that typically can only be afforded by government agencies or other large institutions. This current analysis explores the post-hoc hypothesis that problem gambling might be understood as one of a set of multiple risk-taking behaviors including early substance use that place adolescents at greater risk for adverse health outcomes [1-4] within the context of a public health paradigm [3,5]. "Data on adolescent substance use and gambling indicate that these behaviors tend to co-occur in youth suggesting that substance use should be viewed as a warning sign for co-morbid gambling problems and vice versa" [6].

The present analysis is limited to four related sets of behaviors that are associated with an increased risk for developing addictive disorders: the early onset of the use of tobacco, alcohol, marijuana and cocaine [6,7]. The specific hypothesis to be tested is that gambling-related problems may serve as a reliable and valid indicator of the likelihood of early onset of the use of alcohol, cocaine, marijuana and/or tobacco.

Etiologic studies indicate that there is considerable overlap among predictive factors between gambling and substance abuse disorders [8,9]. The question of whether gambling disorders precede substance disorders is somewhat mixed. A recent analysis using self-reported times of onset reported that onset of gambling disorders preceded alcohol or drug abuse, alcohol or drug dependence, and nicotine dependence in 18.7%, 44.3%, and 61.3% of cases respectively [10]. A recent review of the evidence

from longitudinal studies provides supporting evidence for the strong relationship between gambling disorders and substance abuse disorders [11].

METHODS AND PROCEDURES

With funding from the United States Centers for Disease Control and Prevention (CDC), the Massachusetts Department of Education (MDOE) AIDS/HIV Prevention Program conducts the Massachusetts Youth Risk Behavior Survey (MYRBS) every two years. This survey is part of the national public health surveillance system, which monitors behaviors of high school students that are related to the leading causes of morbidity and mortality among youth and adults in the United States. During the spring of 1995, the MDOE granted permission to insert a question on gambling into the MYRBS. The survey was conducted in 59 of 63 randomly selected public high schools across Massachusetts. A total of 4,159 students in grades 9 through 12 participated in this voluntary and anonymous survey with an adjusted response rate of 72%. Methodological and procedural details can be obtained from the MDOE [12]. Gambling-related problems were defined by adding a single question to the MYRBS worded: "How often does your gambling (including betting on the lottery, bingo, sporting events, casino games, cards, or racing) cause personal, family, school, or job problems for you?" This measure of self-reported problems due to gambling is suitable as a proxy for defining problem gambling in a large-scale epidemiologic study. It has been found to correlate strongly with frequency measures of gambling as well as the types of risky behaviors employed in the MYRBS survey. Evidence on the criterion validity of self-

reports of problem gambling includes estimates of 33% [13] and 33.3% [14] for its sensitivity, and 97.4% [13] and 99.3% [14] for specificity. This psychometric evidence suggests that this question provides a conservative estimate of gambling-related problems.

The final response categories were “many problems,” made up of “always and most of the time”; “some problems,” composed of “rarely and sometimes”; and “no problems,” which included “never causes problems and never gambled.” Odds ratios (OR) were computed and evaluated employing χ^2 analyses and 95% confidence intervals to determine if the results supported a dose-response effect. These analyses compared students who reported “many” problems, and “some” problems, against a reference group of students reporting no problems. The dose-response effect was obtained employing the general test of trend, i.e., a general increase in the odds of the risky behavior, proposed by Mantel [15].

RESULTS

A total of 250 (6.0%) students reported problems from gambling. This compares favorably with the 7% obtained by Proimos et al [16]. Of these, 183 (4.4%) admitted some problems and 67 (1.6%) reported many problems. The latter rate may be compared with the national prevalence rate among 16-17 year-old adolescents for pathological gambling using the diagnostic standard DSM-IV [17] that was estimated at 1.5% [18] during the same time period. A comparison of more recent estimates of adolescent disordered gambling prevalence rates have been placed in the range 1.6% – 5.6% for lifetime rates and 0.2% - 5.6% for past-year rates [19]. These estimates were based on a summary of results employing each of a number of available screening tests developed specifically for adolescents since that time [19]. It may be noted that while the estimate of 1.6% falls within the reported ranges obtained with these more current screening instruments one cannot claim to equate this estimate with DSM guidelines even though most instruments are based primarily on DSM criteria.

Comparisons of prevalence rates are difficult since there have been significant changes over time in terms of gambling opportunities and the types of gambling available (possible cohort effects). Of special concern since this study was conducted is the growth in Internet gambling particularly among youth [20]. According to estimates by the Census Bureau over 53 million adolescents will become adults with legal access to gambling including Internet gambling between now and 2031. Current concerns reflect the ease with which adolescents who have grown up facile with computer technology are capable of accessing these Internet gambling sites despite age barriers [20].

The relationships worth stressing are the associations between problem gambling and first use of tobacco, alcohol, marijuana and cocaine by age eight or younger (Table 1). Those young people reporting many gambling-related problems and some gambling-related problems were, respectively, at much greater risk for having smoked their first cigarette (OR=12.1, OR=3.8), had their first drink (OR=4.2, OR=2.2), and first trying marijuana (OR=24.5, OR=3.3), and/or cocaine (OR=61.7, OR=8.2), at or before age eight. These results may be compared with

Table 1: Odds of First Use by Age Eight for Problem Gamblers.

First Used by Age 8	Odds Ratio (95% Confidence Interval)		
	Many Problems	Some Problems	χ^2
Cigarette Tobacco	12.1 (6.5, 22.4)	3.8 (2.3, 6.3)	9.2
Alcohol	4.2 (2.3, 7.7)	2.2 (1.5, 3.4)	38.5
Marijuana	24.5 (12.8, 47.0)	3.3 (1.6, 7.1)	145.1
Cocaine	61.7 (25.9, 147.1)	8.2 (2.9, 23.0)	199.9

those reported by adults for whom gambling disorders preceded substance abuse. The odds ratios and the 95% confidence intervals were 3.5 (1.0 – 12.3) for alcohol or drug abuse, 9.8 (3.5 – 25.7) for alcohol or drug dependence, 5.3 (2.4 – 11.7), for nicotine dependence and 7.7 (3.6 – 16.3) for any substance disorder.

The actual prevalence levels for students with some problems and many problems who began at age eight or earlier are low. The combined proportions were .98%, .93%, .61% and .40% for drinking, smoking, marijuana and cocaine use, respectively. The low percentages reported here must be viewed in terms of the enhanced likelihood of mortality and the number of person-years of morbidity that potentially could result among those students who continue the use of these substances given the chronic nature of the disorders associated with sustained use and abuse of these substances [10, 21].

DISCUSSION

The cross-sectional nature of the evidence does not permit making any substantive predictions between gambling problems and substance abuse; any such predictions require longitudinal designs. The unreliability of self-reports may also be viewed as a limitation, however, it should be noted that the observed relationships are both plausible and credible, two important characteristics of claims of validity [22].

The significant relationship between gambling and first use of substances indicates that gambling-related problems might have considerable value as a sentinel or warning indicator for these potentially hazardous behaviors [6]. Gambino [23] has examined the potential value and justification for including gambling in public health screening systems in terms of changing demographics and the emerging associations between gambling addiction and the leading indicators of risk.

The results of the Proimos et al. investigation [16] and those of the present analysis suggest primary care physicians should be aware of the relationship between gambling-related problems and adverse health consequences and include questions about gambling as part of the screening process. Proimos et al have stressed that gambling might represent a non-threatening screen which will serve as an indicator of higher risk for the more hazardous behaviors covered in the youth risk behavior survey.

It may be argued that it is essential that health care providers use the assessment of gambling behavior to establish trust between the adolescent and the treatment provider. By respectfully evaluating gambling patterns, health care providers will promote a willingness of young people to discuss more socially unacceptable behaviors such as the use of alcohol, tobacco and illegal drugs. The need to establish trust within

the treatment relationship is well established. Since current adolescent gambling screens have primarily been designed to address epidemiologic questions such as prevalence estimation the health-care provider might wish to consult sources on the Internet to settle on appropriate interview questions or download one of the available screens.

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