


FOCUS ON THE FUTURE


2008 SEATTLE WASHINGTON




Presenters: Clayton Neighbors, Ph.D.
and Ed Gottheil, MD, Ph.D.

Epidemiological Aspects of
Pathological Gambling in Relation to
Substance Use Disorders

Content not to be used without expressed written consent of its owner.



Epidemiological aspects of Pathological Gambling in Relation to Substance Use Disorders



Defining Gambling


- ◆ Gambling is placing something of value on an event that has a possibility of resulting in a larger more beneficial outcome. Inherent to gambling is risk and chance influencing the results.

<ul style="list-style-type: none"> • Lotteries • Slot machines • Cards • Instant scratch tickets • Bingo 	<ul style="list-style-type: none"> • Dice • Roulette • Races • Sporting events • Texas Hold-em • Internet gambling
---	--




Increase in Legalized Gambling in U.S.

- ◆ Between 1975 and 1999, lifetime prevalence of adult gambling increased from about 65% to about 86%.
- ◆ Casino gambling in 2 states → legalized gambling in every state except 2.
- ◆ Gambling expenditure increased from 0.3% to 0.7% of personal income.
- ◆ In 2001, Americans made an estimate 303 million trips to casinos, resulting in casino-based revenues of 27.2 billion dollars and contributing to gross gambling revenues of 63.3 billion



Gambling Increase

- ◆ “As the opportunity of gambling becomes more commonplace, it appears likely that the number of people who will develop gambling problems also will increase.”
 - The National Gambling Impact Study Commission’s Final Report (1999).
- ◆ Mixed evidence regarding the impact of new gambling establishments/lottery on problem and pathological gambling.



Comparing research

- ◆ Relative to substance use, gambling research has received MUCH less attention.
- ◆ Pubmed (April 2008) keywords:
 - Alcohol or drinking
 - . 621,042
 - Cocaine, methamphetamine, heroin or marijuana
 - . 45,857
 - Gambling or gamble
 - . 6,213

Gambling research over time

- ♦ Gambling or gamble = 6,213*
- ♦ Both the **quality** and quantity of gambling research has increased dramatically since the mid-1990's.
- ♦ More than half of the available literature has been published since 2000.

Year	1940-1950	1951-1960	1961-1970	1971-1980	1981-1990	1991-2000
Gambling or gamble	23	126	236	406	698	1563

Assessment Overview

- ♦ South Oaks Gambling Screen (SOGS) from DSM IIIIR
- ♦ DSM-IV (5 of 10)
 - National Opinion Research Center DSM Screen for Gambling Problems (NODS)
 - Diagnostic Interview for Gambling Schedule (DIGS)
 - Response Massachusetts Adolescents Gambling Screen (MAGS)
- ♦ Gamblers Anonymous 20 (GA-20)
- ♦ Lie/Bet Questionnaire
- ♦ Time-Line Follow-Back
- ♦ Addiction Severity Index for Pathological Gamblers and the Gambling Severity Index (ASI-PG, GSI)

Gambling as Continuum

Level 1	Level 2	Level 3
Non-problem gamblers SOGS<3	Problem gamblers At risk gamblers SOGS = 3 or 4 SOGS>3 but don't meet DSM	Pathological Gamblers (DSM criteria) Probable pathological gamblers (SOGS=5+)

Lifetime Gambling Prevalence

	Level 1	Level 2	Level 3
1976 Commission on the review of the National Policy Toward Gambling N = 1749 (pre-DSM)	68%	2.3%	.8%
1999 Shaffer, Hall, & Vander Bilt meta-analysis. N = 79037 (c. SOGS)	94.7%	3.9%	1.6%
2001 Welte et al National Survey N = 2638	--	SOGS 7.5% DSM 2.8%	SOGS 4.0% DSM 2.0%
2005 Petry et al NESARC N = 43093	--	--	DSM .42%

Gambling Prevalence by Subgroup

LIFETIME	Level 1	Level 2	Level 3
Adult	93.92%	4.15%	1.92%
Adolescent	90.38%	8.40%	3.38%
College	83.13%	10.88%	5.56%
Treatment or Prison	67.61%	17.29%	15.44%

PAST YEAR	Level 1	Level 2	Level 3
Adult	96.04%	2.54%	1.46%
Adolescent	82.68%	14.60%	4.8%

From Shaffer et al (2001) meta-analysis

Pathological Gambling (PG), Substance Use, and Other Comorbid Disorders (CD)


Crockford & el-Guebaly (1998) seminal review.

- ♦ Pathological gambling → substance use disorder: 25%-63%
- ♦ Substance use disorder → pathological gambling: 9%-16%

Shaffer et al meta-analysis (1999)

- ♦ Substance use treatment populations (18 studies)


	Level 1	Level 2	Level 3
General Population	94.67%	3.85%	1.6%
Substance Abusers	71.54%	15.01%	14.23%



Pathological Gambling (PG), Substance Use, and Other Comorbid Disorders (CD)

	CD->PG	PG->CD
Any Alcohol Use Disorder	1.03%	73.22%
Any Drug Use Disorder	1.56%	38.10%
Nicotine Dependence	1.45%	60.37%
Any Mood Disorder	1.08%	49.62%
Any Anxiety Disorder	1.02%	41.30%
Any Personality Disorder	1.74%	60.82%

OR = Odds ratio adjusted or controlling for demographics
 From NESARC-Petry et al 2005
 --PG = .42% overall



Gender differences in comorbidity

Blanco et al (2006) – NESARC


	Men	Women
Level 2	6.79%	3.26%
Level 3	.64%	.23%

- ◆ Men
 - More tobacco use
 - Substance use disorders
 - Earlier onset
- ◆ Women
 - Mood and anxiety disorders
 - Gambling as a means of coping/escape
 - Preference for casino gambling




Common risk factors and correlates for gambling and substance use problems among young adults

- ◆ Gender (men)
- ◆ Athletes
- ◆ Fraternity/sorority affiliation
- ◆ Family history
- ◆ Age of onset
- ◆ Depression
- ◆ Anxiety
- ◆ Sensation seeking and impulsivity
- ◆ Social norms
- ◆ Low academic performance




Epidemiological Conclusions

- ◆ Legalized gambling has increased dramatically over the past three decades.
- ◆ Pathological gambling is a moving target.
- ◆ Most pathological gamblers have one or more substance abuse disorders.
- ◆ Many similar correlates between substance use disorders and pathological gambling.



Neurobiological and Genetic Overlap

- ◆ Examination of neurobiological and genetic factors associated with PG and SUD can provide relatively objective data in comparison to other dimensions of overlap.
- ◆ Neurotransmitter systems have been linked to both PG and SUD (Serotonergic, Dopaminergic, Noradrenergic, and Opioidergic).



Neurobiological and Genetic Overlap

- ◆ Neuroimaging studies have shown both PG and SUD to have similar profiles.
- ◆ Ventromedial prefrontal cortex associated with decision making and risk-reward assessment.
- ◆ Cravings in PG and cocaine dependence both linked to diminished activation of the ventral striatum



Neurobiological and Genetic Overlap

- ◆ The D2A1 allele (associated with smoking and drug use) has been found more prevalent in PG's (51%) relative to controls (26%).
- ◆ The Ddel allele, associated with smoking, has been found to be more prevalent in PG.



Neurobiological and Genetic Conclusions

- ◆ Less research = less evidence.
- ◆ Available evidence suggests similarities in neurobiology, functional neuroimaging, and genetic predispositions for PG and SUD.



Treatment Literature

- ◆ Treatment literature relatively sparse
- ◆ Several approaches have been studied, few using randomized controlled designs (Grant & Potenza, 2004; Petry, 2005; Toneatto & Ladouceur, 2003)
 - Self-help approaches
 - Behavioral, Cognitive, CBT
 - Brief interventions
 - Pharmacological treatment



Self-Help/Natural Recovery

- ◆ GA most common treatment option
- ◆ Over 1000 chapters nationwide
- ◆ High attrition from GA—many attend only 1 or 2 sessions
- ◆ No rigorous studies of GA efficacy



Psychotherapy

- ◆ Behavioral therapy (e.g., imaginal desensitization)
- ◆ Cognitive therapy (e.g., cognitive restructuring, randomness)
- ◆ Cognitive-Behavior Therapy; CBT (e.g., problem-solving; social skills; relapse prevention)
- ◆ Brief interventions (e.g., personalized feedback from brief assessment; MI + CBT; phone and/or in-person)



Machine Images

