

From “Action” and “Escape”
Gamblers to the Pathways Model:
The Subtyping of Problem Gamblers

Mark Yapelli

University of Oklahoma

copyright 2012

A Brief History of Pathological Gambling Research

DSM Criteria

- Pathological Gambling first included in the DSM-II (1980)
- Criteria based primarily on clinical experience of Dr. Robert Custer
- Custer was among the first to treat problem and pathological gamblers, and to observe comorbid psychological disorders associated with problem and pathological gamblers

7 original criteria for pathological gambling in DSM-III (must meet at least 3 of 7)

- Arrest due to attempts to obtain money for gambling
- Default on debts
- Disrupted family relationships
- Borrowing of money from illegal sources
- Inability to account for loss of money
- Loss of work
- Necessity for another person to provide money

Updated DSM-III-R Criteria

Less focus specifically on financial and external consequences
(must meet 4 of 9)

- Preoccupation with gambling
- Frequent gambling of larger amounts of money
- A need to increase the size of bets
- Irritability if unable to gamble
- Repeated loss of money by gambling and returning to win back losses (*chasing*)
- Repeated efforts to stop gambling
- Frequent gambling when expected to meet obligations
- Sacrifice of important activities in order to gamble
- Continuation of gambling despite financial, social, occupational, or legal problems

DSM-IV Criteria

Updated due to new empirical research
(must meet 5 of 10)

- Preoccupation with gambling
- Needs to gamble with increasing amounts of money
- Unsuccessful attempts to control or stop gambling
- Irritability when attempting to stop gambling
- Gambling to escape problems or relieve a dysphoric mood
- “Chasing” losses
- Lying to conceal involvement with gambling
- Committing illegal acts to finance gambling
- Jeopardizing a relationship, job, or educational or career opportunity
- Relying on others to provide money for financial problems due to gambling

What We Know About Co-morbid Psychological Problems & Gambling

Substance Use Disorders

Significant associations between pathological gambling and substance use disorders

- Rate of pathological gambling positively associated with number of substances used by an individual
(Lesieur, Blume, & Zoppa, 1986)
- Persons admitted to chemical dependence treatment programs 3 to 6 times more likely to be problem gamblers than those from general population
(National Research Council, 1999)
- Lifetime rates of alcohol or other drug diagnoses range from 25% to over 67% among treatment-seeking pathological gamblers
(Petry, 2005)
- 73.2% of pathological gamblers met DSM criteria for alcohol use disorder; 38.1% met criteria for drug use disorder
(Petry, Stinson, & Grant, 2005)
- Substance-dependent individuals 3 times more likely to be at moderate or high risk for problem gambling than general population
(Rush, Bassani, Urbanoski, & Castel, 2008)
- Prevalence rate of 57.5% for substance use disorders among problem and pathological gamblers
(Lorains, Cowlishaw, & Thomas, 2011)

Depression

Significant associations between pathological gambling and depressive disorders

- Recent critical literature review found that depression has consistently been demonstrated to be a pathological gambling risk factor
(Johansson, Grant, Kim, Odlaug, & Götestam, 2009)
- Earliest co-morbidity studies inconclusive, but several reviews of studies since the 90s have demonstrated associations between pathological gambling and depression
(e.g., NRC, 1999; Petry, 2005)
- Pathological gamblers reporting more severe gambling symptoms reported higher rates of depression
(Ibañez et al., 2001)
- 49.6% prevalence rate for mood disorders among problem and pathological gamblers
(Petry, Stinson, & Grant, 2005)
- In analysis of 11 populations studies, 37.9% of problem and pathological gamblers suffered from at least one co-morbid mood disorder
(Lorains, Cowlishaw, & Thomas, 2011)

Suicidality

- NRC (1999) reported that pathological gambling literature has reported strong association between pathological gambling and suicidal thoughts and attempts.
- Study analyzing 44 gambling-related suicides found evidence of co-morbid depression, large financial debts, and relationship problems as contributing to the suicidality of pathological gamblers

(Blaxzczyński & Farrell, 1998)

- In study of 101 problem and pathological gamblers, 32.7% reported at least one suicide attempt

(Hodgins, Mansley, & Thygesen, 2006)

- Evidence that more severe levels of pathological gambling may be linked to suicide; one study reported an association between increased gambling severity and gambling-related suicidal ideation

(Ledgerwood, Steinberg, Wu, & Potenza, 2005)

Anxiety & OCD

Results inconclusive, but some evidence to suggest treatment-seeking gamblers have high rates of GAD and other anxiety disorders (Petry, 2005)

- One study reported that 41.3% of problem and pathological gamblers met criteria for at least one anxiety disorder

(Petry, Stinson, & Grant, 2005)

- Adolescents with higher state and trait anxiety scores reported more severe gambling problems

(Ste-Marie, Gupta, & Derevensky, 2006)

- Treatment-seeking gamblers had higher scores on OCD inventory than control group

(Blaszczynski, 1999)

- Pathological lottery gamblers reported more obsessive, compulsive, and hoarding symptoms than non-pathological lottery gamblers

(Frost, Meagher, & Riskind, 2001)

Personality Disorders

- Problem gamblers found to be 6 times more likely to meet criteria for Antisocial Personality Disorder than non-gamblers

(Cunningham-Williams, Cottler, Compton, & Spitznagel, 1998)

- Analysis of 2001-2002 NESARC data found that 60.8% of problem and pathological gamblers met DSM criteria for a personality disorder

(Petry, Stinson, & Grant, 2005)

- Review of 7 studies reported that 6 of 7 found associations between ASPD and problem and pathological gambling

(Petry, 2005)

- 2 studies reported significant association between pathological gambling and Borderline Personality Disorder

(Petry, Stinson, & Grant, 2005; Sacco, Cunningham-Williams, Ostmann, & Spitznagel, 1998)

ADHD

- NRC (1999) reported that research in the 90s demonstrated an association between pathological gambling and ADHD
- 2 studies reported that pathological gamblers were more likely to report ADHD symptoms and meet ADHD criteria than non-gamblers
(Rugle & Melamed, 1993; Specker, Carlson, Christenson, & Marcotte, 1995)
- Pathological gamblers had higher rates of diagnosed childhood ADHD than the general population
(Carlton & Manowicz, 1994)
- Among a sample of adult pathological gamblers, 29.1% had been diagnosed with childhood ADHD
(Rodriguez-Jimenez et al., 2006)

Impulsivity

- One study reported an association between impulsivity and the severity level of pathological gambling

(Alessi & Petry, 2003)

- Pathological gamblers reported higher rates of impulsivity than non-pathological gamblers

(Nower, Derevensky, & Gupta, 2004; Blaszczynski & Steel, 1998)

- Pathological gamblers reported impulsive behaviors at a greater rate than non-gamblers, regardless of substance use history

(Ledgerwood, Alessi, Phoenix, & Petry, 2009)

Subtyping of Problem and Pathological Gamblers

Note:

This portion of the presentation relies heavily on
The subtyping of pathological gambling: A comprehensive review
(Milosevic & Ledgerwood, 2010)

Milosevic & Ledgerwood identified 17 research articles from 1970 through 2009 that presented classification taxonomies of pathological gamblers

Subtyping of Problem and Pathological Gamblers

- Several risk factors and co-morbid psychological disorders have been demonstrated to be associated with problem and pathological gambling.
- Do gamblers experience these disorders similarly?
- Are there different “types” of gamblers who tend to have certain co-morbid disorders?
- Do different “types” of gamblers gamble for different psychological reasons?

Varieties of pathological gambling

(Moran, 1970)

- First research attempting to classify pathological gamblers
- Sample: 50 male pathological gamblers
- Method: Structured clinical interviews
- Moran developed a taxonomy of 5 pathological gambler subtypes
- Criticism: Classification system based on researcher's deductive reasoning rather than more objective, empirical measures

Moran's Subtypes:

- Subcultural
 - PGs who gamble due to family and peer pressure
- Neurotic
 - PGs who gamble due to emotional difficulties and life stressors
- Impulsive (most severe)
 - PGs who lose control and cannot overcome gambling cravings, suffer serious consequences
- Psychopathic
 - PGs who gamble due to personality disorder and/or psychopathy
- Symptomatic
 - PGs who gamble primarily due to another psychological disorder

Measurement and structure of pathological gambling behavior

(Zimmerman, Meeland, & Krug, 1985)

- First empirical investigation of PG subtypes
- Sample: 83 PGs from Gamblers Anonymous (83% men), 61 non-gamblers (100% men)
- Method: Factor analysis of responses on Inventory of Gambling Behavior
- Relied on Moran's subtypes as a foundation
- Reported a 5-factor model of pathological gambling

Zimmerman, Meeland, & Krug's Subtypes:

- Neurotic Gambling
 - PGs who gamble to relieve frustration and worry
- Psychopathic Gambling
 - PGs with history of truancy, vandalism, and theft, and who are prone to boredom
- Impulsive Gambling
 - PGs who are energetic risk-takers
- White Collar Crime
 - PGs with history of fraud, tax evasion, and other crimes
- Employment Problems
 - PGs who experience problems at work related to gambling

*Personality dimensions of the
pathological gambler*
(Graham & Lowenfeld, 1986)

- First subtyping research to consider personality characteristics
- Sample: 100 male PGs at VA hospital
- Method: Cluster analysis of MMPI scores
- Reported a 4-cluster taxonomy of pathological gambling

Graham & Lowenfeld's Subtypes:

- Personality Disordered
 - PGs whose MMPI profiles suggested hostility, grandiosity, rebelliousness, and emotional problems
- Paranoid
 - PGs with elevated paranoia on MMPI, as well as irritability, hostility, and excessive alcohol use
- Depressive/anxious with alcoholism
 - PGs with combination of depressive and anxious symptoms, and excessive alcohol use
- Passive-aggressive/emotionally unstable
 - PGs with impulsivity, immaturity, and low frustration tolerance

*Pathological gambling:
A parsimonious need state model*
(McCormick, 1987)

- First major theoretical model of PG subtypes
- Reviewed previous subtyping research
- Integrated literature into parsimonious model
- Postulated 2 subtypes of PGs based on a “need state” by which gambling behavior is driven

McCormick's Subtypes:

- Recurrently Depressed PG
 - PGs who have depression histories that predate their pathological gambling
 - Also have histories of childhood trauma
- Chronically Understimulated PG
 - PGs who do not report dysphoric mood
 - Easily prone to boredom, have low frustration tolerance, and require greater stimulation

“Action” & “Escape” Gamblers
and
The Pathways Model

When lady luck Loses:
Women and compulsive gambling
(Lesieur & Blume, 1991)

- First research to focus explicitly on female PGs
- Sample: 50 female pathological gamblers in Gamblers Anonymous
- Method: Intensive interviews
- Lesieur & Blume reported 2 distinct subtypes
- While this research specifically focused on female gamblers, it became widely used in the training of gambling counselors for all PGs

Lesieur & Blume's Subtypes:

- Action Seekers
 - PGs who require excessive stimulation needs
 - Gambling behavior may look manic and provide gamblers with excitement and a “high”
- Escape Seekers
 - PGs who experience dysphoria, mood disorders, and life stressors
 - Gambling behavior is dissociative, and motivated by a desire to “numb” anxiety and depression

A pathways model of problem and pathological gambling

(Blaszczynski & Nower, 2002)

- Theoretical model of PG subtypes based on previous research in the 80s, and additional research throughout the 90s
 - Gonzalez-Ibañez, 1994
 - 1 Low psychopathology, impulsiveness, sensation seeking
 - 2 Elevated anxiety/depression, low impulsivity and sensation seeking
 - 3 Elevated anxiety/depression, average impulsivity and sensation seeking
 - Steel & Blaszczynski, 1996
 - 1 Psychological distress
 - 2 Sensation seeking
 - 3 Crime and liveliness
 - 4 Impulsive antisocial
 - Lesieur, 2001
 - 1 “Normal” problem gambler
 - 2 Moderately impulsive action seeker
 - 3 Impulsive Escape Seeker

A pathways model of problem and pathological gambling

(Blaszczynski & Nower, 2002)

- Integrated biological, personality, developmental, and ecological factors into a theoretical model of PG subtypes
- What are the conditions necessary for people to become PGs?
- Identified 3 pathways to becoming a PG

The Pathways Model:

- Behaviorally Conditioned
 - PGs who gamble primarily due to behavioral conditioning
 - Possess irrational/distorted gambling cognitions
 - Poor decision making
- Emotionally Vulnerable
 - PGs who have also been behaviorally conditioned
 - Additionally, they exhibit substantial psychological distress
 - Experience depression, anxiety, and significant life stressors
 - Are prone to boredom and are risk takers
 - May be dependent on alcohol or other drugs
- Antisocial Impulsivist
 - PGs who possess many of the same traits of the other 2 pathways
 - Additionally display features of impulsivity, ASPD, and ADHD
 - May abuse drugs and/or alcohol

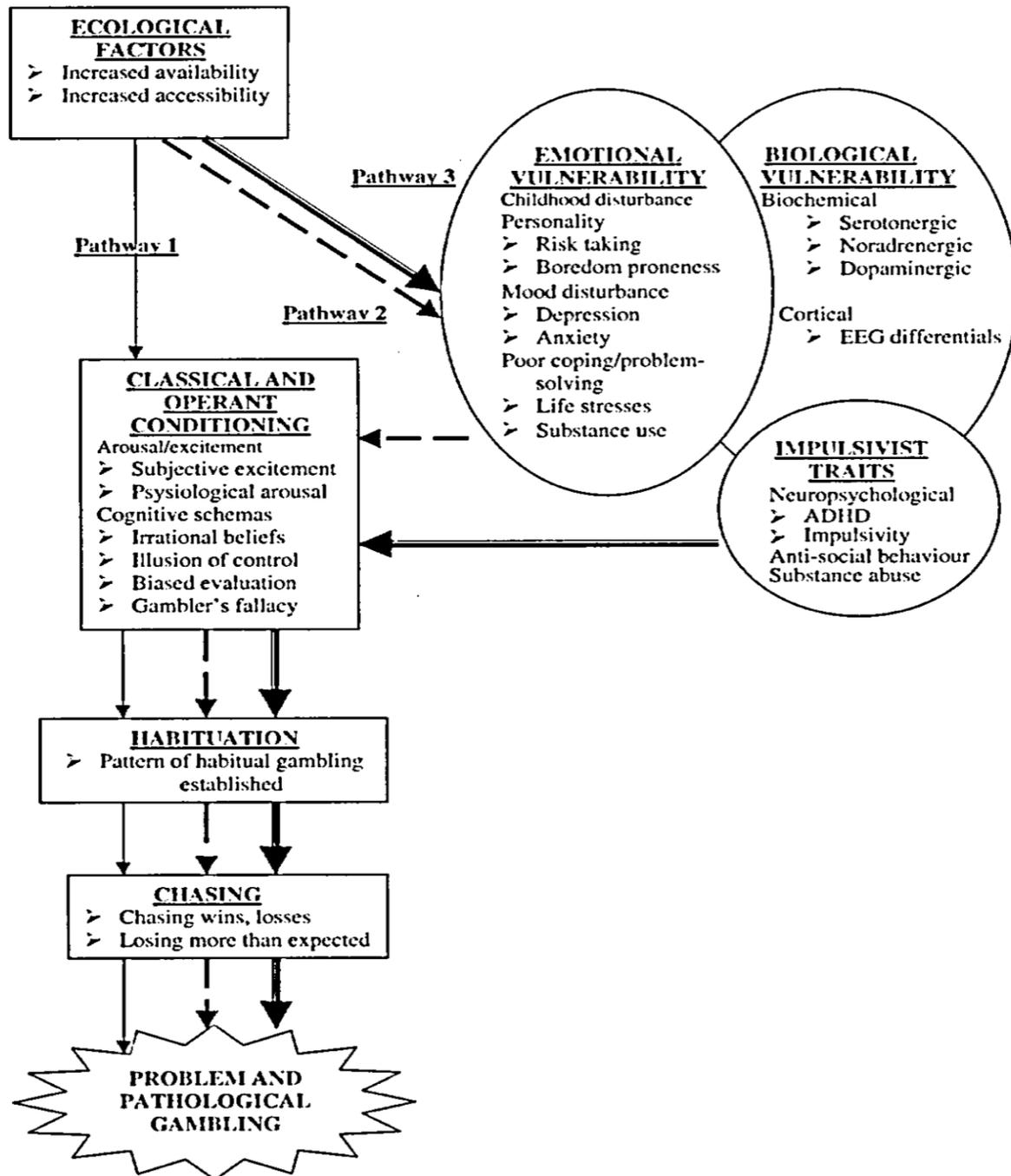


Figure 4 Integrat gambling

Behaviorally Conditioned

Increased Availability
Increased Accessibility
Conditioning
Irrational Cognitions
Habituation
Chasing

Emotionally Vulnerable

Personality Factors:
Risk Taking
Boredom Proneness

Mood Disturbance:
Depression
Anxiety

Antisocial Impulsivist

Impulsivist Traits:
ADHD
Impulsivity
Anti-social behavior

Post-Pathways Research

- Several more studies have attempted to identify PG subtypes
- Milosevic & Ledgerwood (2010):
 - “Given that the behaviorally conditioned, emotionally vulnerable, and antisocial impulsivist PG subtypes presented in the pathways model are consistent with currently published subtyping studies, the pathways model can be adopted as a conceptual framework upon which further theoretical and empirical investigation on gambling subtypes is grounded”

*A Cluster Analysis of Associated
Features of Blaszczynski and
Nower's Pathways Model*

Dissertation Research

Mark Yapelli

University of Oklahoma

Methods

Participants and Procedures

- Surveyed 182 self-identified problem gamblers
 - Provided \$10 gift card to take online survey
 - Recruited through various methods:
 - Oklahoma State Gambling Helpline
 - Gambling Treatment Providers
 - Gamblers Anonymous
 - NCPG Website
 - Online Forums/Message Boards
 - Snowballing

Survey

- Purpose of the survey was to empirically measure gamblers on as many associated features of the Pathways Model as possible
- Behaviorally Conditioned Gamblers
 - Irrational gambling cognitions
- Emotionally Vulnerable Gamblers
 - Risk taking, boredom proneness, depression, anxiety
- Antisocial Impulsivist Gamblers
 - Anti-social behavior, impulsivity, ADHD

Instruments

- South Oaks Gambling Screen (SOGS)
 - Pathological gambling screening instrument
- Gambling Related Cognitions Scale (GRCS)
 - Assesses gamblers' levels of irrational beliefs
 - Specifically looked at “predictive control” subscale
- Sensation Seeking Scale (SSS-V)
 - Used “boredom susceptibility” subscale
- Domain Specific Risk Taking Scale (DOSPERT)
 - Assesses risk-taking levels across several domains

Instruments

- Patient Health Questionnaire (PHQ-9)
 - Depression screening instrument
- Generalized Anxiety Disorder Scale (GAD-7)
- Self-Report Psychopathy Scale (SRPS)
 - Assesses levels of antisocial personality features
- Eysenck's Impulsivity Scale (EIS-7)
- Adult ADHD Self-Report Scale (ASRS)

Sample

- Final sample of 177 gamblers
- 159 (89.8%) had never received gambling treatment
- Ages ranged from 19 – 64
- Represented 32 states and 3 Canadian provinces
- 5 participants excluded
 - Either scored a '0' on SOGS or reported never having gambled at least weekly

Sample Demographics

113 Men (63.8%)

64 Women (36.2%)

Mostly White sample:

84.7% White

5.1% African-American

5.1% Asian/Asian-American

2.8% Hispanic/Latino

1.1% American Indian/Native American

1.1% Multiracial

Favorite Gambling Type

51.4% - Slots

21.5% - Poker

11.9% - Blackjack

5.1% - Sports Betting

5.1% - Video Poker

1.7% - Lottery/Scratch Tickets

1.1% - Craps/Dice

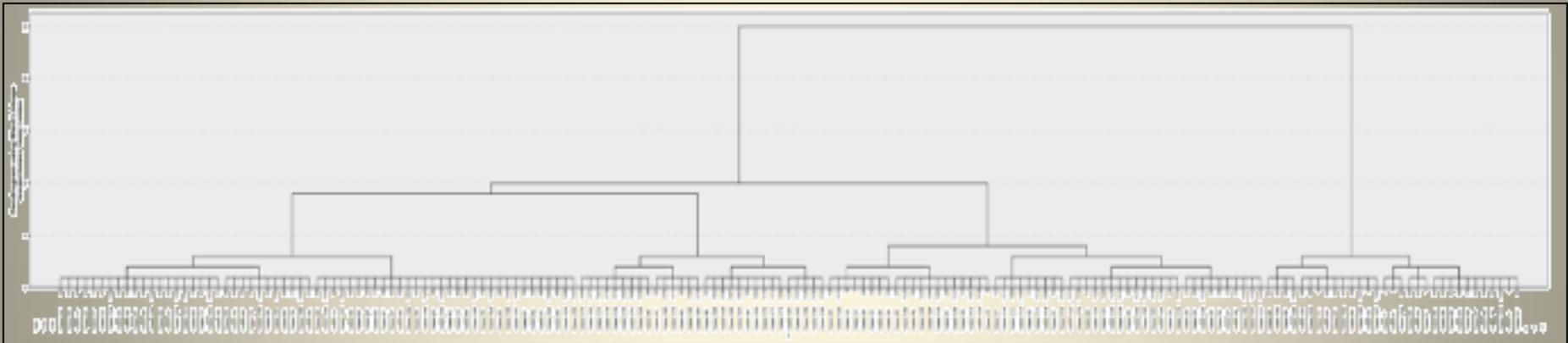
SOGS Scores and Classification

- 99 (55.9%) of the gamblers scored a '5' or higher on the SOGS, classifying them as pathological gamblers
- 27 (15.3%) of the gamblers scored a '3' or '4' on the SOGS, classifying them as problem gamblers
- 43 (24.3%) of the gamblers scored a '1' or '2' on the SOGS, classifying them as having some gambling problems
- 8 (4.5%) of the gamblers scored a '0' on the SOGS, but endorsed gambling at least weekly

Hierarchical Cluster Analysis

- Analyzed scores and correlations of all instruments
- Selected the 5 most differentiated and theoretically important measures to increase power
- Completed hierarchical cluster analysis of all 177 participants on the following measures:
 - Boredom susceptibility (SSS-V, BS subscale)
 - Risk-Taking (DOSPERT)
 - Depression (PHQ-9)
 - Impulsivity (GAD-7)
 - Anti-social Features (SRPS)

Dendrogram



Dendrogram



Cluster 1

Cluster 2

Cluster 3

Cluster 4

Results

Cluster #1 (N=31)

Antisocial Impulsivist

- Only cluster with elevated scores on impulsivity and antisocial features
- Gamblers in this cluster had elevated scores on all 5 of the core measures, suggesting that these gamblers not only possess the same traits as those in the other pathways subtypes, they actually experience the traits at a more severe level
- Analogous to Antisocial Impulsivist subtype

Cluster #1 (N=31)

Antisocial Impulsivist

- Gamblers in this cluster had the highest mean SOGS score (12.1)
- Gamblers in this cluster had elevated scores on all other measures not included in the cluster analysis:
 - Irrational gambling beliefs
 - Anxiety
 - ADHD

Cluster #2 (N=53)

Emotionally Vulnerable – Risk & Boredom

- This cluster had elevated scores on risk-taking and boredom susceptibility, but low scores on depression
- This cluster had similar scores on impulsivity and antisocial features to the sample average
- Analogous to Emotionally Vulnerable subtype's personality features, but NOT mood features (i.e., depression & anxiety)

Cluster #2 (N=53)

Emotionally Vulnerable – Risk & Boredom

- Gamblers in this cluster had similar mean SOGS score to the sample average (6.3)
- Gamblers in this cluster had similar mean scores to the sample average on:
 - Irrational gambling beliefs
 - ADHD
- Gamblers in this cluster actually had low scores on:
 - Anxiety

Cluster #3 (N=30)

Emotionally Vulnerable – Depression & Anxiety

- This cluster had elevated scores on depression, but low scores on risk-taking and boredom proneness
- This cluster had similar scores on impulsivity and antisocial features to the sample average
- Analogous to Emotionally Vulnerable subtype's mood features, but NOT personality features (i.e., risk-taking and boredom proneness)

Cluster #3 (N=30)

Emotionally Vulnerable – Depression & Anxiety

- Gamblers in this cluster had elevated mean SOGS scores (9.3)
- Gamblers in this cluster had elevated scores on:
 - Anxiety
 - ADHD
- Gamblers in this cluster had similar mean scores to the sample average on:
 - Irrational gambling beliefs

Cluster #4 (N=63)

Behaviorally Conditioned

- This cluster had low scores on all 5 of the core measures
- Gamblers in this cluster had the lowest mean SOGS score (4.2)
- Gamblers in this cluster had low scores on the 3 secondary measures (irrational gambling beliefs, anxiety, and ADHD)
- Analogous to Behaviorally Conditioned subtype

Cluster Demographics

Cluster #1

Antisocial Impulsivist

- Men overrepresented (83.9%)
- Overrepresentation of “action” gambling
 - Poker (32.3%)
 - Blackjack (19.4%)
 - Sports Betting (19.4%)
- Underrepresentation of “passive” gambling
 - Slots (25.8%)

Cluster #1

Antisocial Impulsivist

- Overrepresentation of online gamblers (77.4%)
- Overrepresentation of gamblers who have wagered more than \$1,000 in one day (67.7%)
- Overrepresentation of gamblers who reported having a father with a gambling problem (22.6%)
- Overrepresentation of gamblers who have borrowed money and not paid back (61.3%)
- Overrepresentation of “chasing” (67.7%)
- Overrepresentation of gamblers who lost time at work or school to gambling (67.7%)

Cluster #2

Emotionally Vulnerable – Risk & Boredom

- Men overrepresented (79.2%)
- Overrepresentation of “action” gambling
 - Poker (34.0%)
- Underrepresentation of “passive” gambling
 - Slots (37.7%)
- Overrepresentation of online gamblers (67.9%)

Cluster #3

Emotionally Vulnerable – Depression & Anxiety

- Women overrepresented (60.0%)
- Overrepresentation of “passive” gambling
 - Slots (83.3%)
- Underrepresentation of “action” gambling
 - Poker (6.7%)
 - Blackjack (0%)
 - Sports Betting (3.3%)

Cluster #3

Emotionally Vulnerable – Depression & Anxiety

- Underrepresentation of online gamblers (30.0%)
- Underrepresentation of gamblers who have wagered more than \$1,000 in one day (33.3%)
- Overrepresentation of “chasing” (50.0%)

Cluster #4

Behaviorally Conditioned

- Women somewhat overrepresented (47.6%)
- Slight overrepresentation of “passive” gambling
 - Slots (60.3%)
 - Video Poker (9.5%)
- Underrepresentation of “action” gambling
 - Poker (12.7%)

Cluster #4

Behaviorally Conditioned

- Slight Underrepresentation of online gamblers (41.3%)
- Underrepresentation of gamblers who reported having a father with a gambling problem (6.3%)
- Underrepresentation of gamblers who have borrowed money and not paid back (4.8%)
- Underrepresentation of “chasing” (11.1%)
- Underrepresentation of gamblers who lost time at work or school to gambling (14.3%)

Discussion

- Results provide additional evidence for the Pathways Model
- The three subtypes proposed by Blaszczynski and Nower were apparent in the cluster analysis of associated features
- The 2nd subtype, the “emotionally vulnerable” gambler, appeared to have two distinct types

Integration of my findings with
the Pathways Model:

Behaviorally Conditioned

Increased Availability
Increased Accessibility
Conditioning
Irrational Cognitions
Habituation
Chasing

Emotionally Vulnerable

Personality Factors:
Risk Taking
Boredom Proneness

Mood Disturbance:
Depression
Anxiety

Antisocial Impulsivist

Impulsivist Traits:
ADHD
Impulsivity
Anti-social behavior

Behaviorally Conditioned

Increased Availability
Increased Accessibility
Conditioning
Irrational Cognitions
Habituation
Chasing

**Emotionally Vulnerable
Risk & Boredom**

Risk Taking
Boredom Proneness

**Emotionally Vulnerable
Depression & Anxiety**

Depression
Anxiety

Antisocial Impulsivist

Impulsivist Traits:
ADHD
Impulsivity
Anti-social behavior

Treatment Implications?

- Motivational interviewing and behavioral methods generally considered “best practice” for treatment of pathological gambling
- Should different gambler subtypes be treated in similar ways?
- What methods may be more appropriate for treatment of different subtypes?

Thank You!

markyapelli@ou.edu

References

- Alessi, S. M., & Petry, N. M. (2003). Pathological gambling severity is associated with impulsivity in a delay discounting procedure. *Behavioural Processes, 64*, 345–354.
- American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders. 3rd ed.* Washington, DC: American Psychiatric Association.
- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders. 3rd ed., revised.* Washington, DC: American Psychiatric Association.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders. 4th ed.* Washington, DC: American Psychiatric Association.
- Blaszczynski, A. P. (1999). Pathological gambling and obsessive-compulsive spectrum disorders. *Psychological Reports, 84*, 107-113.
- Blaszczynski, A., & Farell, E. (1998). A case series of 44 completed gambling-related suicides. *Journal of Gambling Studies, 14*(2), 93-109.
- Blaszczynski, A., & Nower, L. (2002). A pathways model of problem and pathological gambling. *Addiction, 97*, 487-499.
- Blaszczynski, A., & Steel, Z. (1998). Personality disorders among pathological gamblers. *Journal of Gambling Studies, 14*, 51-71.
- Carlton, P. L., & Manowicz, P. (1994). Factors determining the severity of pathological gamblers in males. *Journal of Gambling Studies, 10*, 147-157.
- Cunningham-Williams, R. M., Cottler, L. B., Compton, W. M., & Spitznagel, E. L. (1998). Taking chances: Problem gamblers and mental health disorders--Results from the St. Louis Epidemiological Catchment Area (ECA) Study. *American Journal of Public Health, 88*(7), 1093-1096.
- Frost, R. O., Meagher, B. M., & Riskind, J. H. (2001). Obsessive-compulsive features in pathological lottery and scratch-ticket gamblers. *Journal of Gambling Studies, 17*, 5-19.
- Graham, J. R., & Lowenfeld, B. H. (1986). Personality dimensions of the pathological gambler. *Journal of Gambling Behavior, 2*, 58-66.

References

- Hodgins, D. C., Mansley, C., & Thygesen, K. (2006). Risk factors for suicide ideation and attempts among pathological gamblers. *The American Journal on Addictions, 15*, 303-310.
- Ibañez, A., Blanco, C., Donahue, E., Lesieur, H. R., Pérez de Castro, I., Fernández-Piqueras, J., & Sáiz-Ruiz, J. (2001). Psychiatric comorbidity in pathological gamblers seeking treatment. *American Journal of Psychiatry, 158*, 1733-1735.
- Ledgerwood, D. M., Alessi, S. M., Phoenix, N., & Petry, N. M. (2009). Behavioral assessment of impulsivity in pathological gamblers with and without substance use disorder histories versus healthy controls. *Drug and Alcohol Dependence, 105*(1-2), 89-96.
- Ledgerwood, D. M., Steinberg, M. A., Wu, R., & Potenza, M. N. (2005). Self-reported gambling-related suicidality among gambling helpline callers. *Psychology of Addictive Behaviors, 19*(2), 175-183.
- Lesieur, H. R., & Blume, S. B. (When lady luck loses: Women and compulsive gambling. In N. Van Den Bergh (Ed.), *Feminist perspectives on addiction* (pp. 181-197). New York: Springer Publishing Co.
- Lesieur, H. R., Blume, S., & Zoppa, R. (1986). Alcoholism, drug abuse and gambling. *Alcoholism: Clinical and Experimental Research, 10*, 33-38.
- Lorains, F. K., Cowlishaw, S., & Thomas, S. A. (2011). Prevalence of comorbid disorders in problem and pathological gambling: Systematic review and meta-analysis of population surveys. *Addiction, 106*(3), 490-498
- McCormick, R. A. (1987). Pathological gambling: A parsimonious need state model. *Journal of Gambling Behavior, 3*, 257-263.
- Milosevic, A., & Ledgerwood, D. M. (2010). The subtyping of pathological gambling: A comprehensive review. *Clinical Psychology Review, 30*, 988-998.
- Moran, E. (1970). Varieties of pathological gambling. *The British Journal of Psychiatry, 116*, 593-597.
- National Research Council. (1999). *Pathological Gambling*. Washington, DC: American Psychiatric Association.
- Nower, L., Derevensky, J., & Gupta, R. (2004). The relationship of impulsivity, sensation seeking, coping and substance use in youth gamblers. *Psychology of Addictive Behaviors, 18*(1), 49-55.
- Petry N. M. (2005). *Pathological gambling: Etiology, comorbidity, and treatment*. Washington, DC: American Psychological Society.

References

- Petry, N. M., Stinson, F. S., & Grant, B. F. (2005). Comorbidity of DSM-IV pathological gambling and other psychiatric disorders: Results from the National Epidemiological Survey on Alcohol and Related Conditions. *Journal of Clinical Psychiatry*, *66*(5), 564–74.
- Rodriguez-Jimenez, R., Avila, C., Jimenez-Arriero, M. A., Ponce, G., Monasor, R., Himenez, M., Aragües, Hoenicka, J., Rubio, G., & Palomo, T. (2006). Impulsivity and sustained attention in pathological gamblers: Influence of childhood ADHD history. *Journal of Gambling Studies*, *22*, 451-461.
- Rugle, L., & Melamed, L. (1993). Neuropsychological assessment of attention problems in pathological gamblers. *Journal of Nervous and Mental Disorders*, *18*(2), 107-112.
- Rush, B. R., Bassani, D. G., Urbanoski, K. A., Castel, S. (2008). Influence of co-occurring mental and substance use disorders on the prevalence of problem gambling in Canada. *Addiction*, *103*(11), 1847-1856.
- Sacco, P., Cunningham-Williams, R. M., Ostmann, E., & Spitznagel, E. (2008). The association between gambling pathology and personality disorders. *Journal of Psychiatric Research*, *42*(13), 1122-1130.
- Shaffer, H. J., Hall, M. N., & Bilt, J. V. (1997). *Estimating the Prevalence of Disordered Gambling Behavior in the United States and Canada: A Meta-Analysis*. Cambridge, MA: Harvard Medical School Division on Addictions.
- Specker, S. M., Carlson, G. A., Christenson, G. A., & Marcotte, M. (1995). Impulse control disorders and attention deficit disorder in pathological gamblers. *Annals of Clinical Psychiatry*, *7*(4), 175-179.
- Ste-Marie, C., Gupta, R., & Derevensky, J. L. (2006). Anxiety and social stress related to adolescent gambling behavior and substance use. *Journal of Child & Adolescent Substance Abuse*, *15*(4), 55-74.
- Wardle, H., Sproston, K., Orford, J., Erens, B., Griffiths, M., Constantine, R., & Pigott, S. (2007). *The British Gambling Prevalence Survey 2007*. London: National Centre for Social Research.
- Zimmerman, M. A., Meeland, T., & Krug, S. E. (1985). Measurement and structure of pathological gambling behavior. *Journal of Personality Assessment*, *49*, 76-81.