Challenges in the Treatment of Gambling Disorder and How Mindfulness May be Helpful in Breaking the Relapse Cycle

Katie Witkiewitz, PhD
@KatieWitkiewitz
katiew@unm.edu

Research supported by Washington State University-Vancouver, National Center for Responsible Gaming, National Institute on Alcohol Abuse and Alcoholism, and National Institute on Drug Abuse. No other disclosures or conflicts of interest.
Gambling and Mindfulness

- Characteristics of pathological gambling
- Gambling and neural dysfunction
- What is mindfulness?
- Mindfulness for addiction
- Mindfulness for problem gambling
Addiction impacts billions of people worldwide and has enormous social costs.
Problem gambling has been associated with significant personal problems.

- Poor mental & physical health
- Drug use & suicide risk
- Financial & legal problems
Problem gambling is a progressive addiction characterized by:

- increasing **preoccupation** with gambling
- a need to bet more money more frequently
- **restlessness** or irritability when attempting to stop
- "chasing" losses
- loss of control manifested by gambling behavior in spite of mounting, serious, negative consequences
DSM-5 Gambling Disorder

- Persistent and recurrent problematic gambling behavior leading to clinically significant impairment or distress, as indicated by four (or more) of the following in a 12-month period:
  - Needs to gamble with more $$$ to achieve desired excitement.
  - Restless or irritable when attempting to cut down or stop gambling.
  - Repeated unsuccessful efforts to control, cut back, or stop.
  - Preoccupied with gambling.
  - Gambles when feeling distressed.
  - Chases losses.
  - Lies to conceal the extent of involvement with gambling.
  - Jeopardized or lost a relationship, job, or educational opportunity.
  - Relies on others to provide money to relieve financial troubles.
Gambling and Neural Dysfunction
Evidence of intense urges to gambling cues, as well as cocaine and sad cues.

Kober et al., 2016. Neuropsychopharm.
Increased frontal activity in response to gambling cues among individuals with problematic gambling

Kober et al., 2016. Neuropsychopharm.
Disruption of multiple neural systems in addiction and gambling disorder

**Reflective system:** executive function, decision making

**Salience system:** interoceptive awareness, subjective experience

**Impulsive system:** reinforcement and reward seeking, craving

Claus et al (2011)
Disruption of multiple neural systems may be associated with difficulty in treatment of pathological gambling

- Psychological factors
  - Coping skills
  - Cognitions and affect
  - Personality
- Physiological arousal
  - Craving and withdrawal
- Social/Personal factors
  - Interpersonal problems
  - Debt/unemployment
Could we target these systems using a behavioral treatment?

Mental training as a tool in the neuroscientific study of brain and cognitive plasticity

Mindfulness-based training attenuates insula response to an aversive interoceptive challenge

Cognitive-Affective Neural Plasticity following Active-Controlled Mindfulness Intervention
A general model of addiction etiology and relapse

Addiction: reactivity with compulsion

**Predisposition**
- Genetic factors
- Adverse experiences
- Self-judgment
- Lacking social support

**Trigger**
- Joy
- Anger
- Taste
- Fun
- Fun
- Celebration
- Stress
- Sadness
- Socialize
- Fear
- Anxiet

**Wanting (desire)**
- Wanting
- Not Wanting (discomfort)

**Wanting (craving, strong urge)**
- Not Wanting (aversion, relief)

**Substance use/Gambling behavior**

**Temporary alleviation**

**Fear**
- Hopelessness

**Shame**
- Guilt

Points of Intervention

- Substance use/Gambling behavior
- Wanting (craving, strong urge)
- Not Wanting (aversion, relief)
- Not Wanting (discomfort)
- Wanting (desire)
- Trigger
What is Mindfulness?
What is Mindfulness?

Mind Full, or Mindful?
What is Mindfulness?

“Awareness that emerges through **paying attention** on purpose, in the **present moment**, and **non-judgmentally** to the unfolding of experience moment by moment”

Why mindfulness for addiction?

Paying attention …
   Greater awareness of triggers and responses, interrupting previously automatic behavior

In the present moment …
   Accepting present experience, rather than “getting a fix” to avoid the present experience

Nonjudgmentally …
   Detach from attributions and “automatic” thoughts, shame, fear, doubt that often lead to substance use
Opportunity to test effect of meditation on substance use behavior...

Vipassana Meditation
At the North Rehabilitation Facility
King County Jail, Seattle

by: Lucia Meijer, NRF Administrator

This article reprinted by Vipassana Research Publications with the permission of American Jails, the magazine of the American Jail Association. All rights reserved. Further reproduction only by written permission of the American Jail Association.

The first Vipassana course in a North American correctional facility was conducted at the North Rehabilitation Facility (NRF) in Seattle, Washington from October 28 to November 8, 1997. Since that time, five additional ten-day courses have been conducted in the facility, the most recent from June 1-12, 1999. A total of fifty-five inmates have completed the entire ten days.
Vipassana Course Participants (n=57) compared to inmates who did not take course (n=116)

- Nine gender-segregated courses conducted over 15 months
- Participants: **no differences between groups**
  - 79% Male, age 19-58 years old (mean age = 38)
  - Alcohol and drug use at baseline (prior to incarceration)
    - 83% alcohol (average 9 drinks per drinking day), 83% used tobacco
    - 48% amphetamines, 21% marijuana, 30% opioids, 13% cocaine
  - Ethnic/racial diversity
    - 61% European American and 13% African American
    - 10% Native American, Alaskan Native and 8% Latino
    - 5.4% multiethnic or “other” and 2% Asian/Pacific Islander
- Schedule of assessments
  - Baseline
  - 3-months and 6-months post-release

Bowen et al. (2006)
Changing from Inside

https://dharma-documentaries.net/changing-from-inside
Vipassana course participants vs. other residents (n=173) at 3-months post-release

Significant reductions in substance use and negative consequences
  • Marijuana
  • Crack cocaine
  • Alcohol

Improved psychosocial outcomes
  • Decreased psychiatric symptoms
  • Increased internal locus of control
  • Increased optimism
  • Reduced recidivism

Bowen et al. (2006)
Mindfulness-Based Relapse Prevention (MBRP)

- Mindfulness practices with relapse prevention skills training
  - Mindfulness-Based Stress Reduction (Kabat-Zinn, 1990), Mindfulness-Based Cognitive Therapy (Segal et al. 2002)

- Format
  - Aftercare or post-stabilization
  - Group format, 8 weekly 2 hr. sessions
  - Daily home practice

Bowen, Chawla & Marlatt (2011); Witkiewitz, Marlatt & Walker (2005)
Mindfulness Based Relapse Prevention

Components of MBRP:

- Formal mindfulness practice
  - Breathing, walking meditation
  - Body scan, mindful movement
  - Mountain meditation
  - Loving kindness

- Informal practice
  - Mindfulness in daily life
  - SOBER breathing space
  - Urge surfing

- Relapse prevention coping skills training

http://www.mindfulrp.com
Intentions of Mindfulness-Based Treatment

**Awareness:** Training Attention

- Daily decisions that increase risk
- Internal and environmental triggers
- Seemingly “automatic” reactions
- Recognize and disengage from triggers/craving
Practicing Mindfulness

“If your attention wanders a hundred times, simply bring it back a hundred times.”
Intentions of Mindfulness-Based Treatment

Acceptance and Curiosity

- Shift from emotional avoidance to curiosity
- Decrease the need to “fix” discomfort, learning to “stay with” experiences
- Recognize basic needs that often underlie craving
Urge Surfing Exercise

“Picture the urge as an ocean wave, and imagine yourself surfing, using your breath as the surfboard...”

Bowen, Chawla & Marlatt (2011)
“SOBER” Breathing Space

Stop
Observe
Breathe
Expand
Respond
Alternatives to SOBER

- SABER – Stop, Assess, Breathe, Expand, Respond
- STOP – Stop, Take a breath, Observe, Proceed
- RAIN – Recognize, Allow, Inquire, Non-Identify
- PEACE – Pause, Exhale, Accept, Choose, Engage
- TAP – Take a breath, Acknowledge, Proceed
- STIC – Stop, Take a breath, Imagine consequences, Choose
Intentions of Mindfulness-Based Treatment

Self-Compassion and Skillful Action

• Reduce contact with environmental triggers and “depleting” activities
• Increase contact with natural/alternative reinforcers and social support
• Reduce self-judgment
• Increase resilience
Empirical Evidence

- Numerous mindfulness based treatments for substance use disorders have been developed and many have demonstrated efficacy
  - Mindfulness-Based Relapse Prevention (MBRP)
  - MBRP for Women (Amaro et al., 2014)
  - Mindfulness-Based Substance Abuse Treatment for Adolescents (Himelstein et al., 2015)
  - Mindfulness Training for Smokers (Davis et al., 2014)
  - Mindfulness-Based Addiction Treatment (Vidrine et al., 2016)
  - Mindfulness Oriented Recovery Enhancement (Garland et al., 2014)
Three RCTs of MBRP for Substance Use Disorder: Intervention Groups

Mindfulness-based relapse prevention (MBRP)
- Skills training
- Mindfulness meditation practices

Relapse prevention (RP)
- Cognitive-behavioral skills training

Treatment-as-“usual” control (TAU)
- Psychoeducation
- Relapse prevention
- 12-step groups
### Three RCTs of MBRP for Substance Use Disorder: Study Characteristics

<table>
<thead>
<tr>
<th>Pilot Efficacy Trial</th>
<th>Hybrid Efficacy Trial</th>
<th>Efficacy Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community treatment aftercare, MBRP vs. TAU</td>
<td>Residential treatment female criminal offenders, MBRP vs. RP</td>
<td>Community treatment aftercare, MBRP vs. RP vs. TAU</td>
</tr>
<tr>
<td>N = 168</td>
<td>N = 105</td>
<td>N = 286</td>
</tr>
<tr>
<td>64% male; Avg age=40</td>
<td>100% female; Avg age=33</td>
<td>72% male; Avg age=40</td>
</tr>
<tr>
<td>52% white, 29% African American, 8% Native American</td>
<td>64% white, 17% African American, 13% Native American, 2% Hispanic</td>
<td>51% white, 27% African American, 7% Native American</td>
</tr>
<tr>
<td>46% alcohol, 36% crack, 14% meth, 7% opiates, 19% polysubstance</td>
<td>36% meth, 22% opiates, 19% cocaine, 10% alcohol, 7% marijuana, 5% other drugs</td>
<td>13% alcohol, 1% crack, 1% meth, 1% opiates, 82% polysubstance</td>
</tr>
<tr>
<td>2-, 4-month follow-ups</td>
<td>4-month follow-up</td>
<td>2-, 4-, 6- and 12-month follow-ups</td>
</tr>
</tbody>
</table>

Bowen et al 2009. *Substance Abuse*  
Witkiewitz et al 2014. *Substance Use and Misuse*  
Bowen et al 2014. *JAMA Psychiatry*
# Three RCTs of MBRP for Substance Use Disorder: Study Findings

<table>
<thead>
<tr>
<th>Pilot Efficacy Trial</th>
<th>Hybrid Efficacy Trial</th>
<th>Efficacy Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community treatment aftercare</td>
<td>Residential treatment female criminal offenders</td>
<td>Community treatment aftercare</td>
</tr>
<tr>
<td>N = 168</td>
<td>N = 105</td>
<td>N = 286</td>
</tr>
<tr>
<td>MBRP greater reductions in drug use and drinking days from baseline to follow-up versus treatment as usual</td>
<td>MBRP greater reductions in drug use days from baseline to follow-up versus relapse prevention</td>
<td>MBRP longer time-to-first lapse and greater reductions in drug use and drinking days from baseline to follow-up versus treatment as usual and relapse prevention</td>
</tr>
</tbody>
</table>

Bowen et al 2009. *Substance Abuse*  
Witkiewitz et al 2014. *Substance Use and Misuse*  
Bowen et al 2014. *JAMA Psychiatry*
MBRP works for substance use disorders - could it work for gambling?
Mindfulness-based treatments may be effective for problem gambling.

- Evidence in support of MBRP for substance use.
- Case study by de Lisle, Dowling & Allen (2011):

![Graph showing weekly EGM gambling frequency](image)

**Figure 1.** Weekly EGM gambling frequency recorded over baseline, intervention, and follow-up phases. Note: EGM = electronic gaming machines.
Mindfulness-based treatments may be effective for problem gambling

Mindfulness-Based Approaches in the Treatment of Disordered Gambling: A Systematic Review and Meta-Analysis

Brandy R. Maynard¹, Alyssa N. Wilson¹, Elizabeth Labuzienski¹, and Seth W. Whiting²,³

<table>
<thead>
<tr>
<th>Study name</th>
<th>Hedges's g</th>
<th>Lower Limit</th>
<th>Upper Limit</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dowling (2006)</td>
<td>1.22</td>
<td>0.28</td>
<td>2.17</td>
<td>0.01</td>
</tr>
<tr>
<td>Grant (2009)</td>
<td>0.92</td>
<td>0.43</td>
<td>1.42</td>
<td>0.00 *</td>
</tr>
<tr>
<td>Korman (2008)</td>
<td>0.60</td>
<td>-0.01</td>
<td>1.21</td>
<td>0.05</td>
</tr>
<tr>
<td>McConaghy (1983)</td>
<td>0.45</td>
<td>-0.52</td>
<td>1.42</td>
<td>0.37</td>
</tr>
<tr>
<td>Blaszczyński (2005)</td>
<td>0.32</td>
<td>-0.48</td>
<td>1.11</td>
<td>0.44</td>
</tr>
<tr>
<td>McConaghy (1988)</td>
<td>0.21</td>
<td>-0.72</td>
<td>1.15</td>
<td>0.65</td>
</tr>
<tr>
<td>Grand Mean</td>
<td>0.68</td>
<td>0.39</td>
<td>0.98</td>
<td>0.00 *</td>
</tr>
</tbody>
</table>
Pilot study of MBRP for pathological gambling (MBRP-PG)

• Collaboration between MBRP and gambling treatment providers to adapt MBRP manual to be gambling specific.

• Clients recruited from InAct, a gambling treatment program.
“Formal” Practices

Body Scan

Sitting Meditation

“Lovingkindness” or “metta”

Mindful Movement

Walking Meditation

Mountain Meditation
“Informal” Practices

Mindfulness of daily activities

“Hourglass” breathing space

Urge surfing
Pilot Study of MBRP-PG

• 8-week MBRP program
  ▫ Assessments at baseline, 4-weeks, and 8-weeks.

• Participants (n= 11) recruited from InAct
  ▫ 36.4% female
  ▫ Average age = 53.1 (SD = 9.9), range 35-69
  ▫ 8 enrolled in treatment (73%) and completed mid-treatment assessment
  ▫ 6 completed treatment and post-treatment assessment (75%)
Measures

• Gambling behavior
  ▫ **National Opinion Research Center DSM-IV symptoms of pathological gambling (NODS)**

• Mindfulness
  ▫ **Mindfulness Practice Questionnaire**
Results

DSM-IV Symptoms of Pathological Gambling

\[ d' = 0.41 \text{ pre- to post-treatment} \]

* \( p < 0.05 \)
Results

Secondary outcomes

Changes in Gambling Urges $d' = 0.74$
and Consequences $d' = 1.23$

Changes in Self-efficacy $d' = 1.37$
Results

Weekly “formal” mindfulness practice

Days of mindfulness practice per week

- Mid-treatment: 2.4
- Post-treatment: 2.8

Formal practice (average 16 minutes/day)
Results

Weekly “informal” mindfulness practice

Informal practice (average 1.5 times per day)
Limitations

• Small sample size
• No control group
• No follow-up assessment
• Unable to examine effects by gender, race, or age
Focus on direct moment experience with acceptance, openness, genuine curiosity, kindness, authenticity

Facilitating MBRP: Style and approach to treatment

Okay with whatever happens

Person centered

Personal practice

Spontaneous
Facilitating MBRP: Inquiry as “active ingredient”

Reactions, Stories, Judgment

Direct Experience

(pain)

(suffering)

Adapted from Segal et al., 2002
Facilitating MBRP: Inquiry as “active ingredient”

Direct Experience
(pain)

Reactions, Stories, Judgment
(suffering)

“I can’t do this”

Pain in left knee, Restlessness

Adapted from Segal et al., 2002
Facilitating MBRP: Inquiry as “active ingredient”

Direct Experience (pain)

Reactions, Stories, Judgment (suffering)

Emotional discomfort (depression, anxiety)

“I can’t handle this. I need an escape. I need a drink.”

- Relationship to Craving, Relapse, Recovery

Adapted from Segal et al., 2002
Facilitating MBRP: Inquiry as “active ingredient”

Inquiry – 3 Questions

1. What did you notice/what happened?
2. Is that familiar, similar/different?
3. How does this relate to craving, relapse, recovery?

Adapted from Segal et al., 2002
Which patient populations benefit most from MBRP across studies?

- Individuals, particularly women, from minoritized groups appear to have particularly good outcomes in MBRP.

- Both men and women appear to benefit from receiving MBRP in a gender diverse group.

- MBRP may be most effective among individuals with more severe symptoms and with moderate to high levels of co-occurring negative affect symptomology.
Future directions and questions...

- Are mindfulness-based treatments for everyone?
- How can we support meditation practices among our clients?
- Who can facilitate mindfulness-based treatment?
  - Personal meditation practice, training
- Need to evaluate adaptations for different settings
- Physiological and neurobiological mechanisms?
Resources

- www.mindfulrp.com
With gratitude

Sarah Bowen

Neha Chawla  Denise Gour  Joel Grow

G. Alan Marlatt  
(1941-2011)

Undergraduate Research Assistants

Graduate Research Assistants

National Institute on Alcohol Abuse and Alcoholism

The Science of Drug Abuse & Addiction

NIDA

NIH

NATIONAL CENTER FOR RESPONSIBLE GAMING

NCGR
Thank you!

@KatieWitkiewitz
katiew@unm.edu