

# 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](mailto:katiew@unm.edu)



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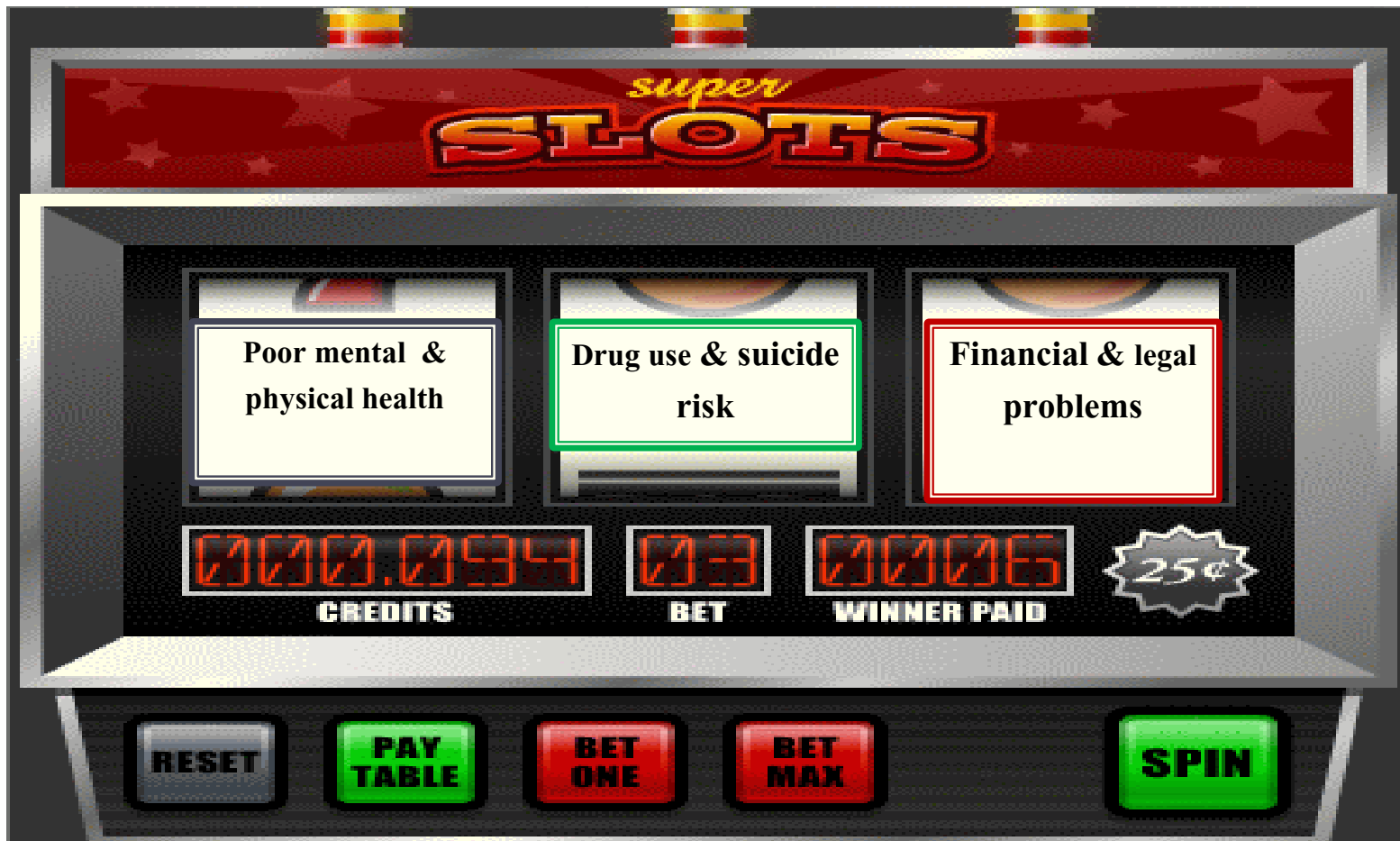
# Gambling and Mindfulness

- **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.



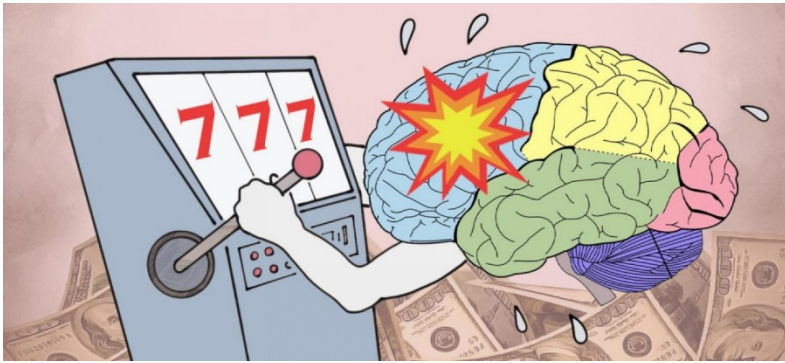
# Problem gambling is a progressive addiction characterized by:

- 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

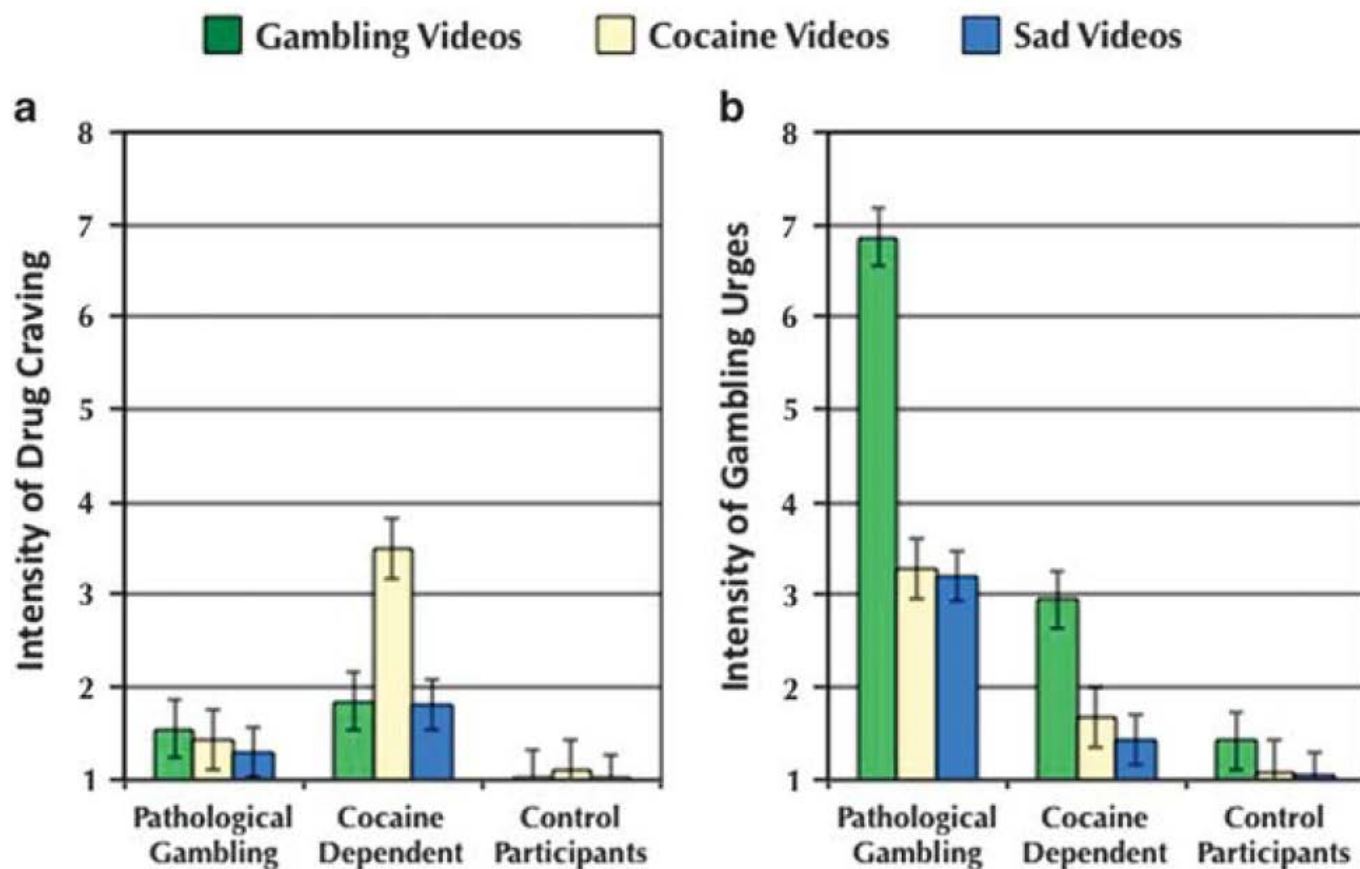
# DSM-5 Gambling Disorder

- 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



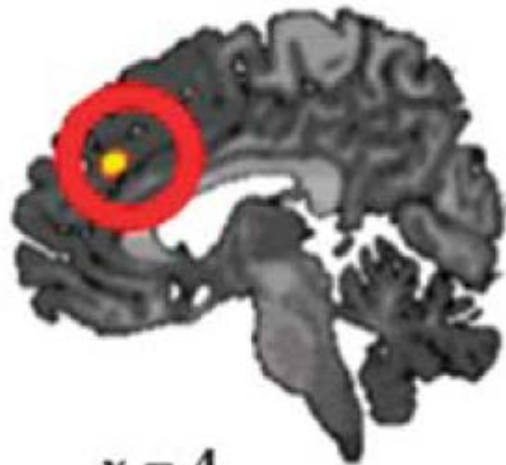
# Evidence of intense urges to gambling cues, as well as cocaine and sad cues



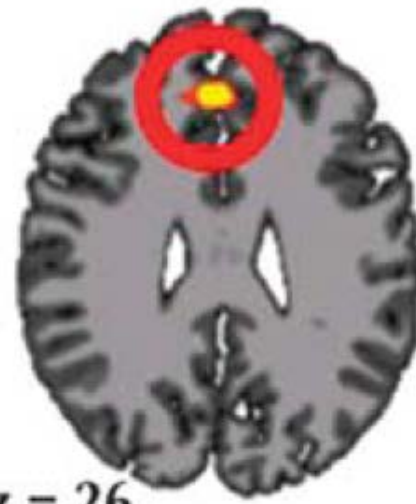


# Increased frontal activity in response to gambling cues among individuals with problematic gambling

**b**  
V2>B2



$x = 4$



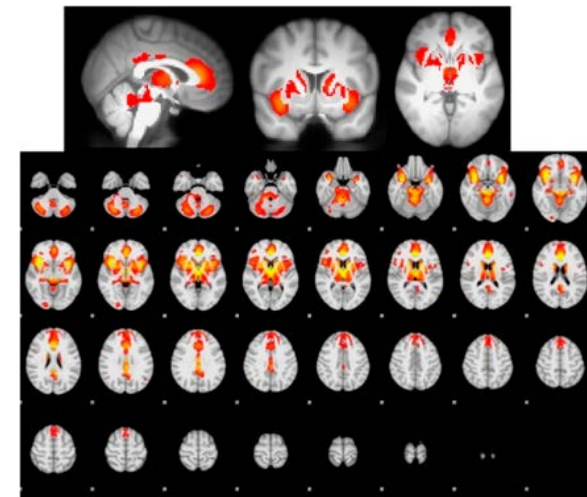
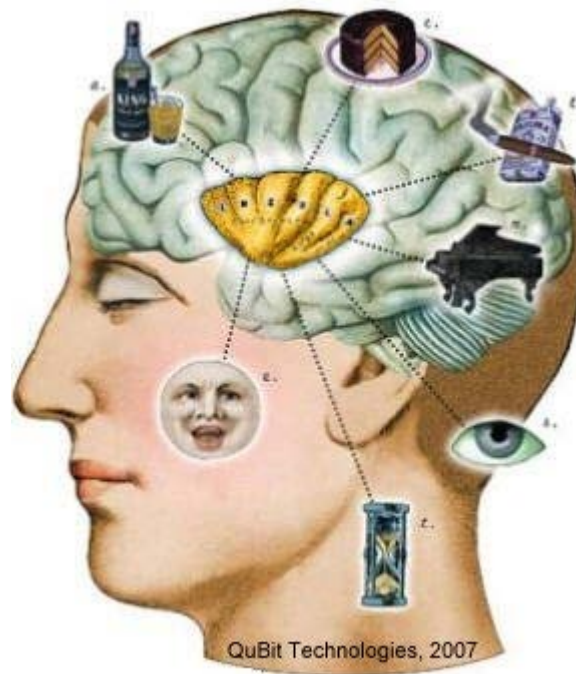
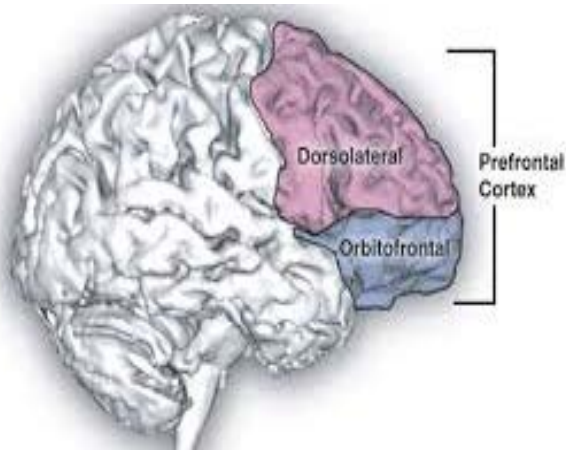
$z = 26$

# 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

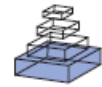


Disruption of multiple neural systems may be associated with difficulty in treatment of pathological gambling



- 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

*Heleen A. Slagter<sup>1\*</sup>, Richard J. Davidson<sup>2,3,4</sup> and Antoine Lutz<sup>2</sup>*  
doi:10.1073/sf.2011.00017

SCAN (2011) 1 of 9

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

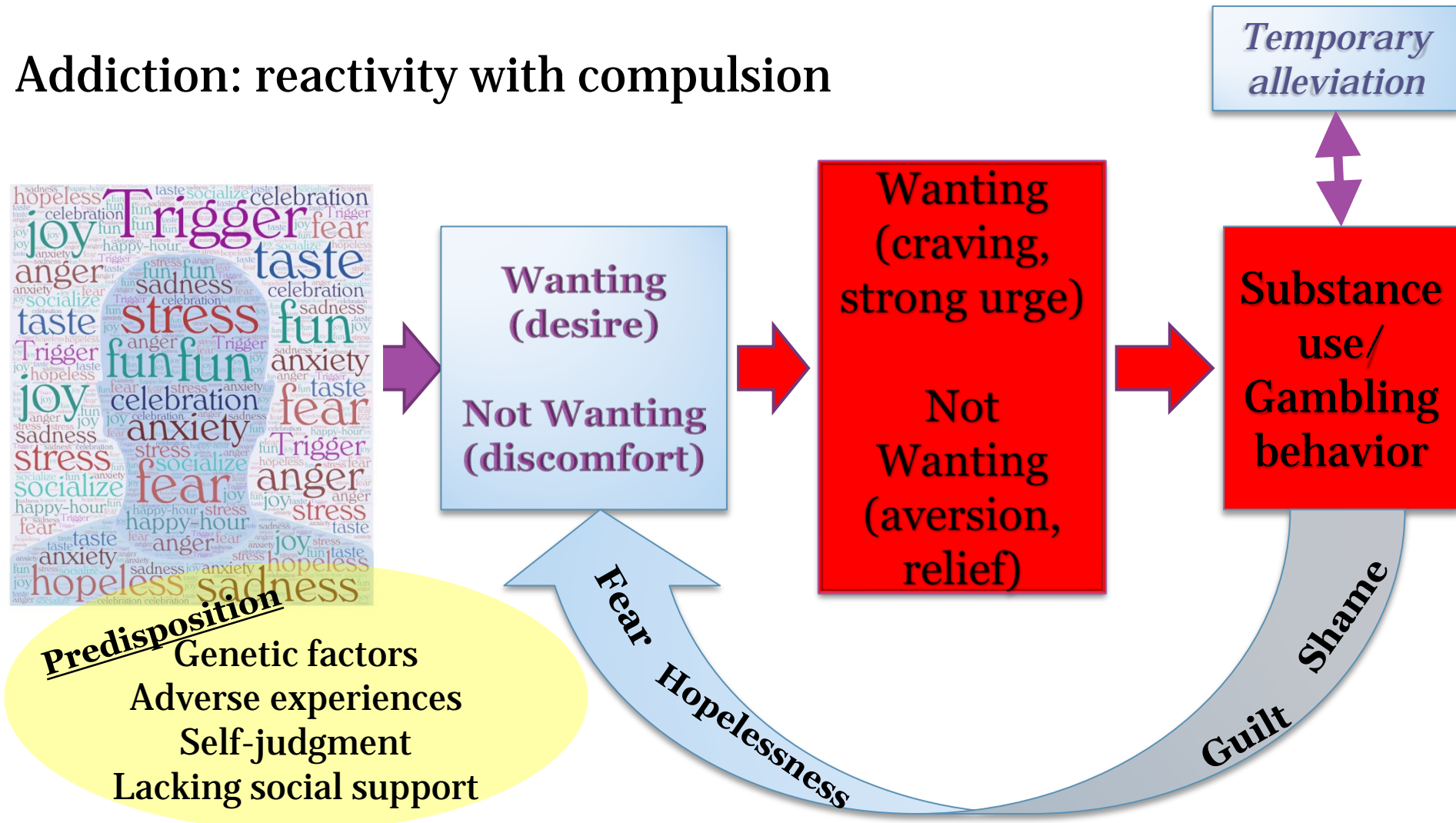
Lori Haase,<sup>1</sup> Nathaniel J. Thom,<sup>2,3</sup> Akanksha Shukla,<sup>1</sup> Paul W. Davenport,<sup>4</sup> Alan N. Simmons,<sup>1,5</sup> Martin P. Paulus,<sup>1,5</sup> and Douglas C. Johnson<sup>1,2</sup>

## **Cognitive-Affective Neural Plasticity following Active-Controlled Mindfulness Intervention**

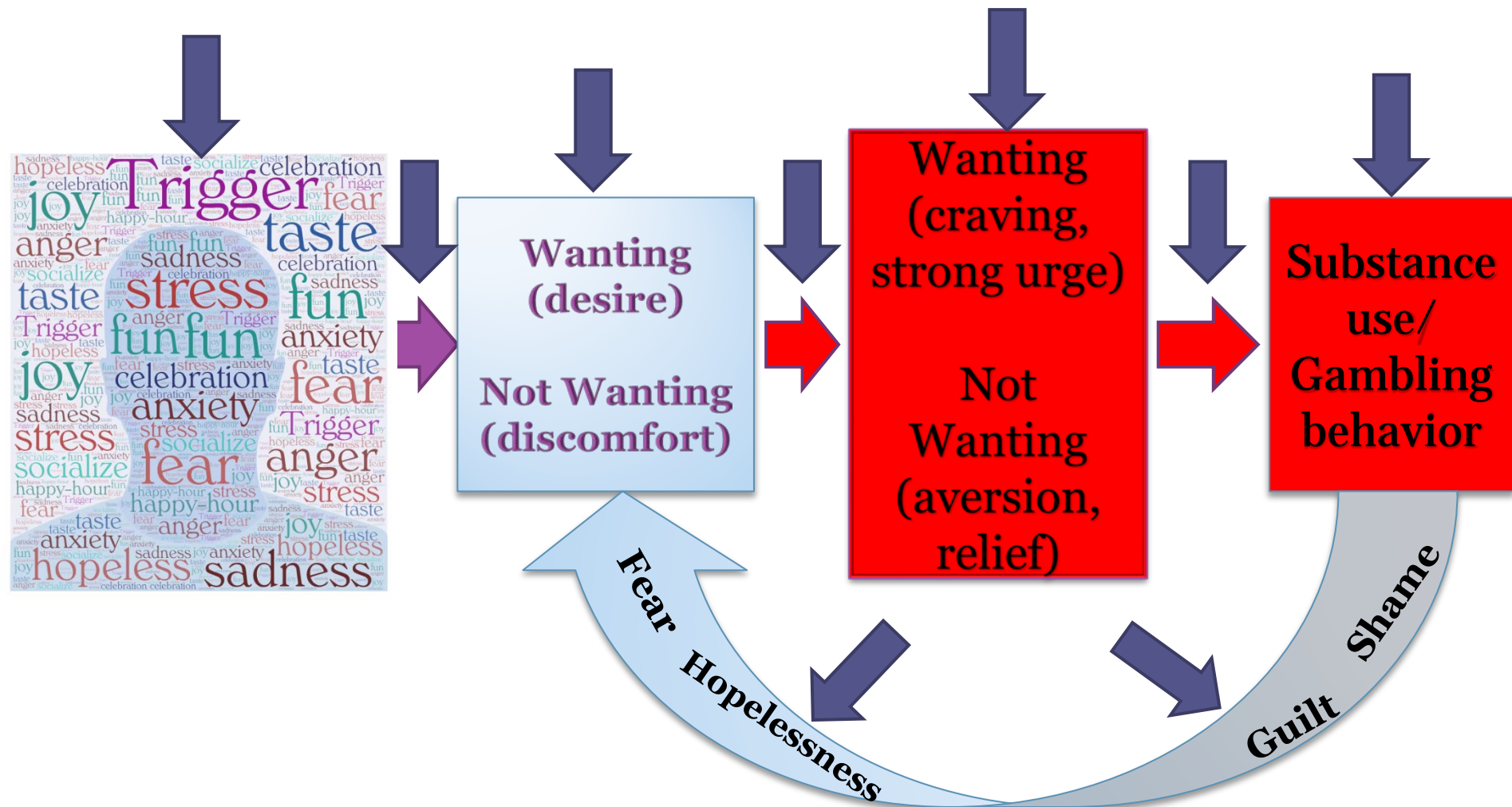
Micah Allen,<sup>1</sup> Martin Dietz,<sup>1</sup> Karina S. Blair,<sup>2</sup> Martijn van Beek,<sup>3</sup> Geraint Rees,<sup>4</sup> Peter Vestergaard-Poulsen,<sup>1</sup> Antoine Lutz,<sup>5,6</sup> and Andreas Roepstorff<sup>1,3</sup>

# A general model of addiction etiology and relapse

Addiction: reactivity with compulsion



# Points of Intervention



# What is Mindfulness?

# What is Mindfulness?



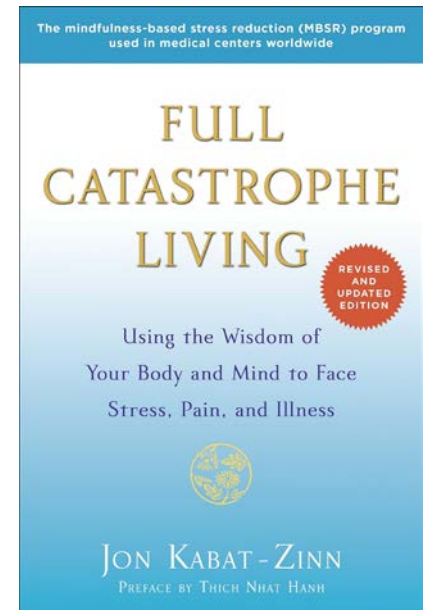
Mind Full, or Mindful?



# 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”

Kabat-Zinn (2003)



# 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...

A REPRINT FROM:  
AMERICAN JAILS MAGAZINE  
July / August, 1999

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## VIPASSANA MEDITATION AT THE NORTH REHABILITATION FACILITY

King County Jail, Seattle

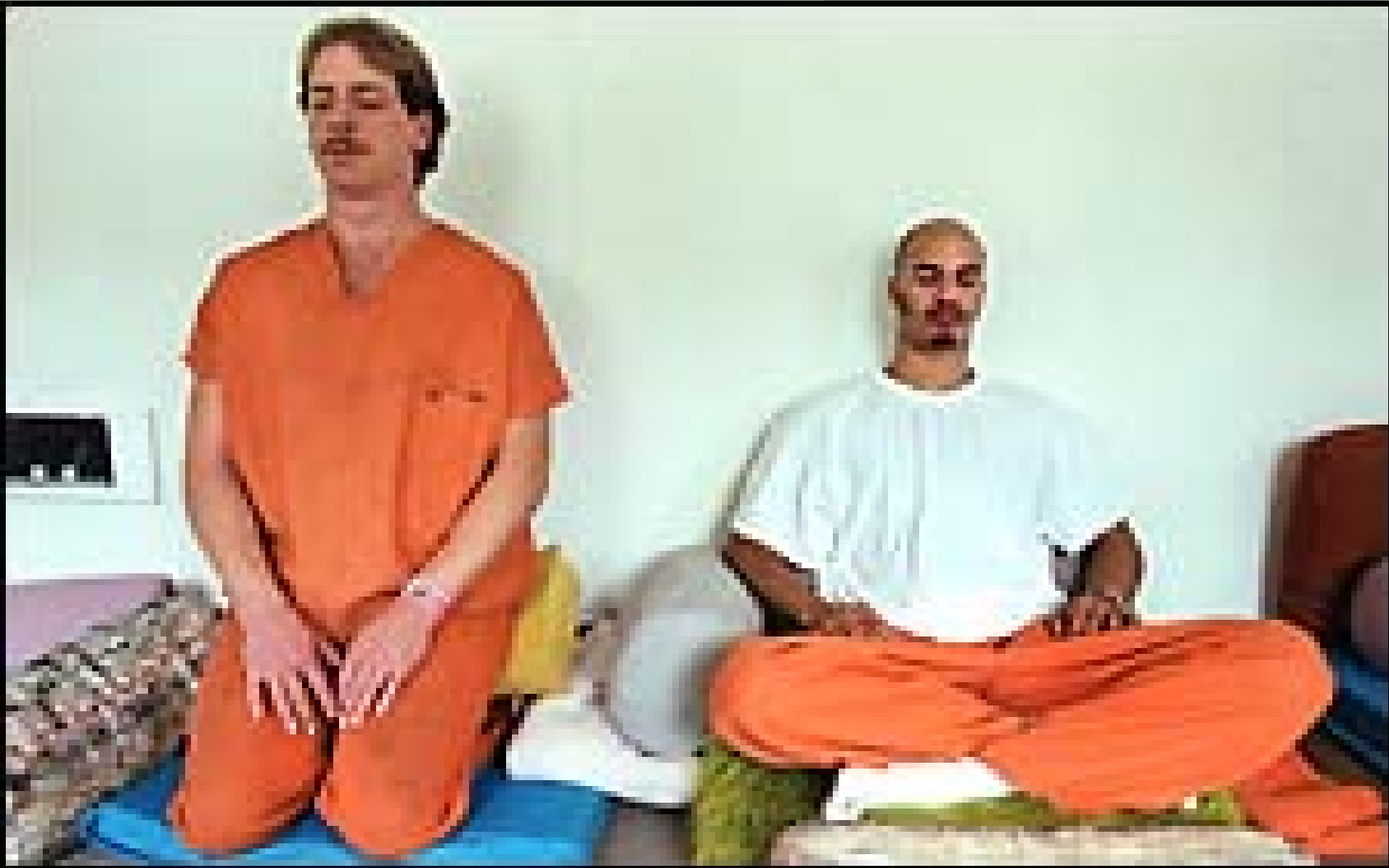
*by: Lucia Meijer, NRF Administrator*

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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.

# PROJECT CHOICES





## 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**

# 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)

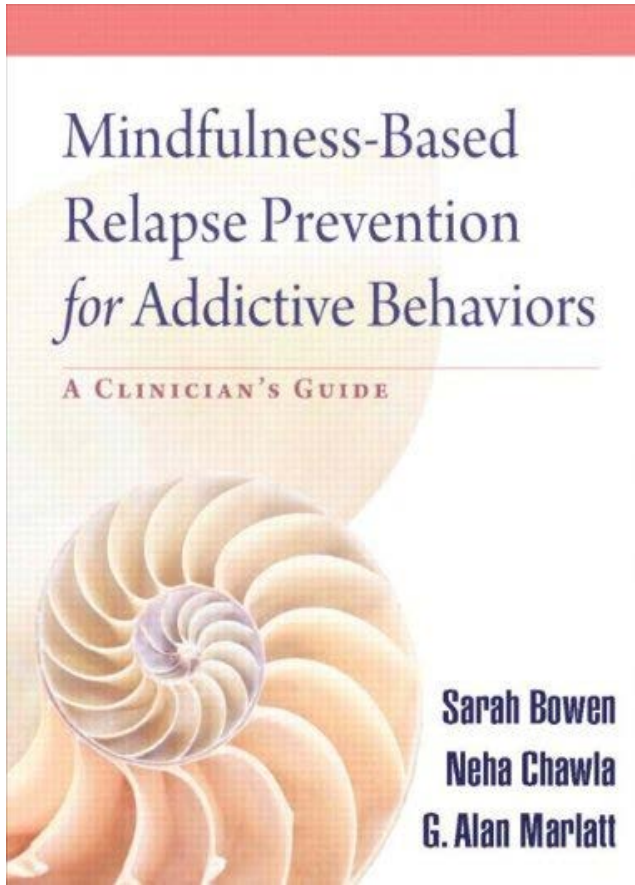


# Mindfulness-Based Relapse Prevention (MBRP)

- 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



# 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

Present  
Moment

**Observe**  
mind on  
chosen target

Paying  
Attention

**Observe**  
wandering,  
begin again

Attention  
Wanders

Nonjudgmentally



*“If your attention wanders a hundred times, simply bring it back a hundred times.”*

# Intentions of Mindfulness-Based Treatment

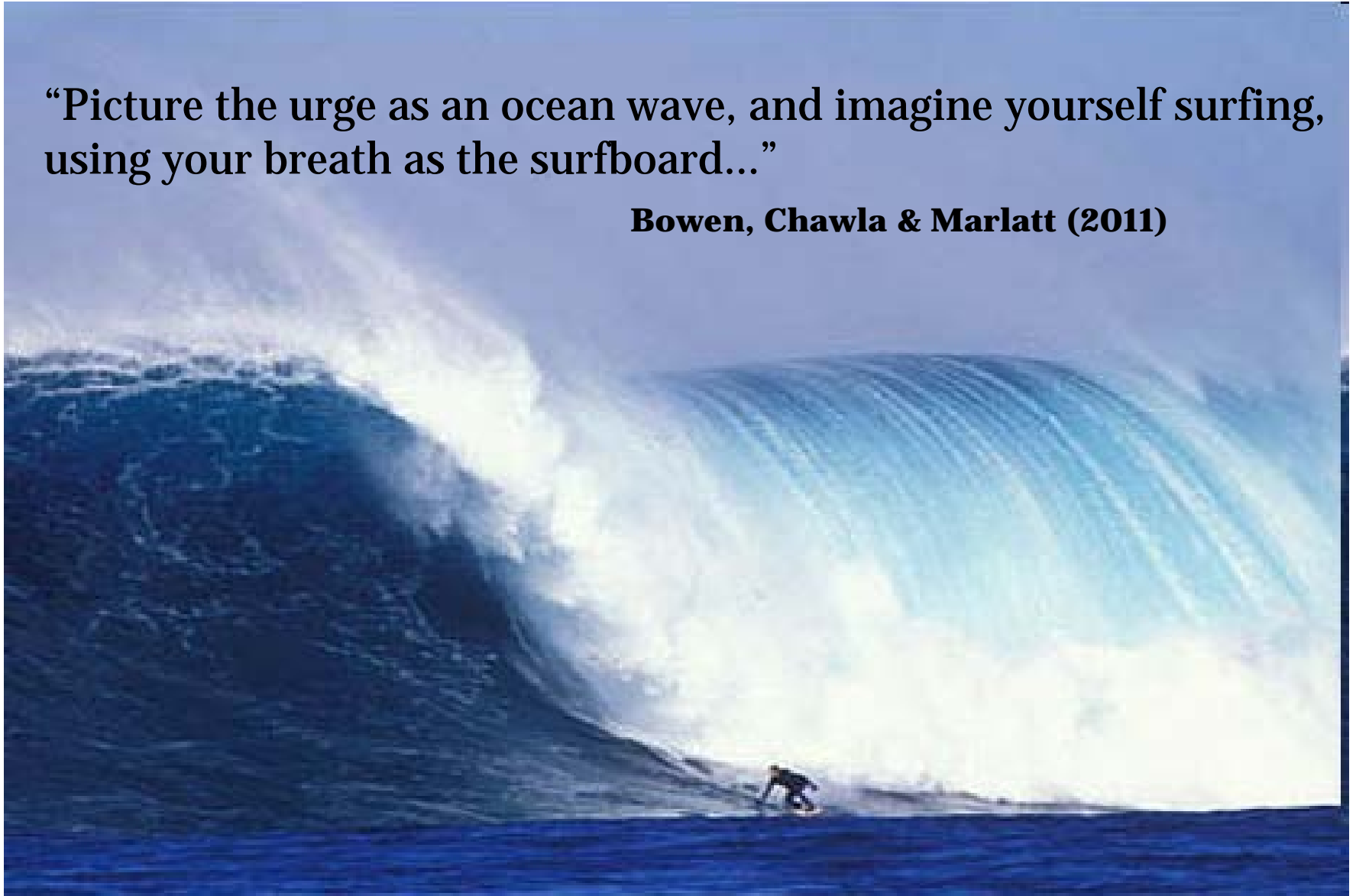
## Acceptance and Curiosity

- 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 (Himmelstein 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)

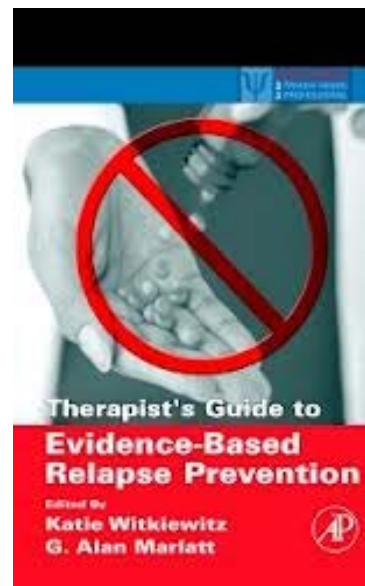
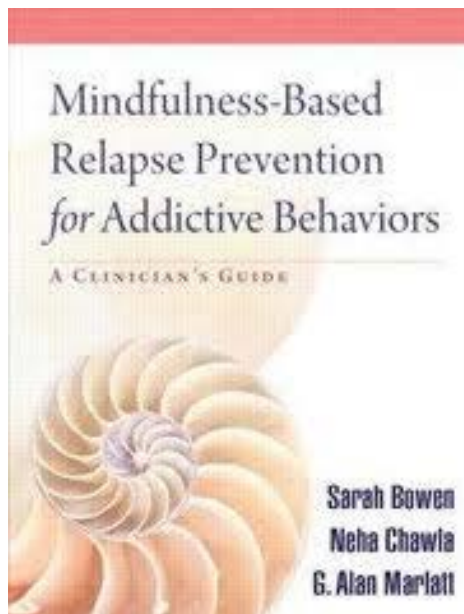
- Skills training
- Mindfulness meditation practices

## 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

Pilot Efficacy Trial	Hybrid Efficacy Trial	Efficacy Trial
Community treatment <b>aftercare, MBRP vs. TAU</b>	Residential <b>treatment</b> female criminal offenders, <b>MBRP vs. RP</b>	Community treatment <b>aftercare, MBRP vs. RP vs. TAU</b>
N = 168	N = 105	N = 286
64% male; Avg age=40	100% female; Avg age=33	72% male; Avg age=40
52% white, 29% African American, 8% Native American	64% white, 17% African American, 13% Native American, 2% Hispanic	51% white, 27% African American, 7% Native American
46% alcohol, 36% crack, 14% meth, 7% opiates, 19% polysubstance	36% meth, 22% opiates, 19% cocaine, 10% alcohol, 7% marijuana, 5% other drugs	13% alcohol, 1% crack, 1% meth, 1% opiates, 82% polysubstance
2-, 4-month follow-ups	4-month follow-up	2-, 4-, 6- and 12-month follow-ups
Bowen et al 2009. <i>Substance Abuse</i>	Witkiewitz et al 2014. <i>Substance Use and Misuse</i>	Bowen et al 2014. <i>JAMA Psychiatry</i>

# Three RCTs of MBRP for Substance Use Disorder: Study Findings

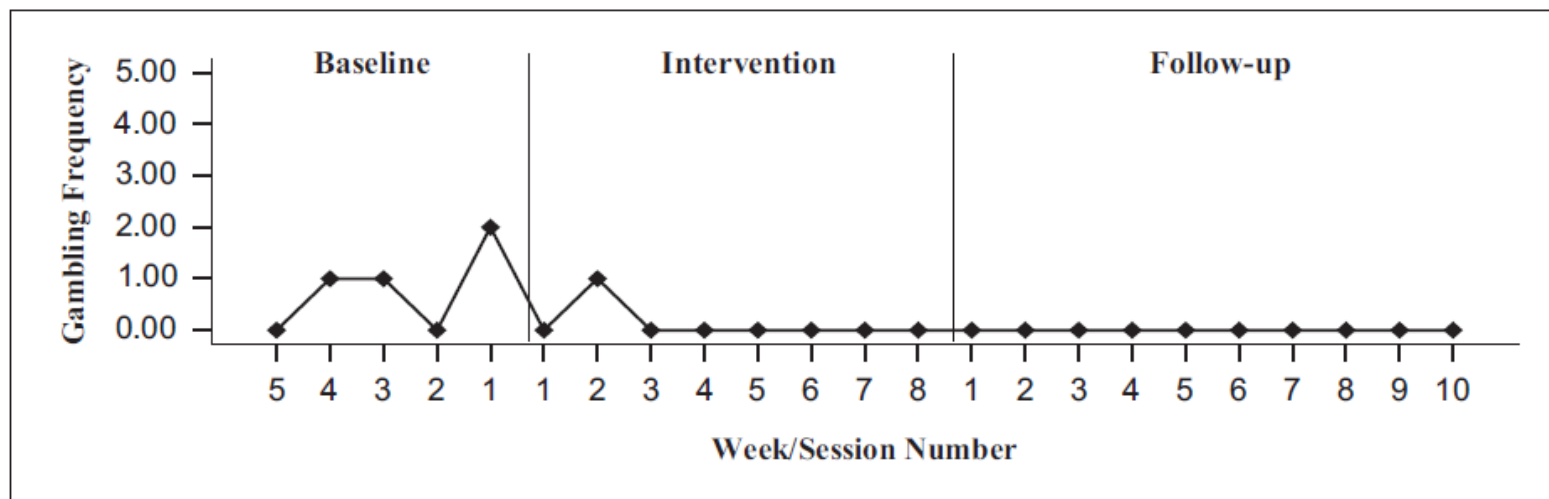
Pilot Efficacy Trial	Hybrid Efficacy Trial	Efficacy Trial
Community treatment aftercare	Residential treatment female criminal offenders	Community treatment aftercare
N = 168	N = 105	N = 286
MBRP greater reductions in drug use and drinking days from baseline to follow-up versus treatment as usual	MBRP greater reductions in drug use days from baseline to follow-up versus relapse prevention	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
Bowen et al 2009. <i>Substance Abuse</i>	Witkiewitz et al 2014. <i>Substance Use and Misuse</i>	Bowen et al 2014. <i>JAMA Psychiatry</i>

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):



**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

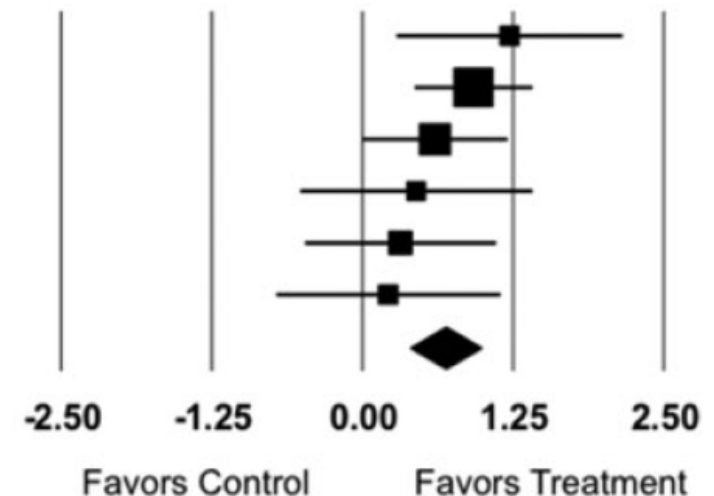
## Mindfulness-Based Approaches in the Treatment of Disordered Gambling: A Systematic Review and Meta-Analysis

Research on Social Work Practice  
 2018, Vol. 28(3) 348-362  
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 DOI: 10.1177/1049731515606977  
[journals.sagepub.com/home/rsw](http://journals.sagepub.com/home/rsw)  


Brandy R. Maynard<sup>1</sup>, Alyssa N. Wilson<sup>1</sup>, Elizabeth Labuziensi<sup>1</sup>,  
 and Seth W. Whiting<sup>2,3</sup>

Study name	Statistics for each study			
	Hedges's g	Lower limit	Upper limit	p-Value
Dowling (2006)	1.22	0.28	2.17	0.01
Grant (2009)	0.92	0.43	1.42	0.00 *
Korman (2008)	0.60	-0.01	1.21	0.05
McConaghy (1983)	0.45	-0.52	1.42	0.37
Błazczyński (2005)	0.32	-0.48	1.11	0.44
McConaghy (1988)	0.21	-0.72	1.15	0.65
Grand Mean	0.68	0.39	0.98	0.00 *

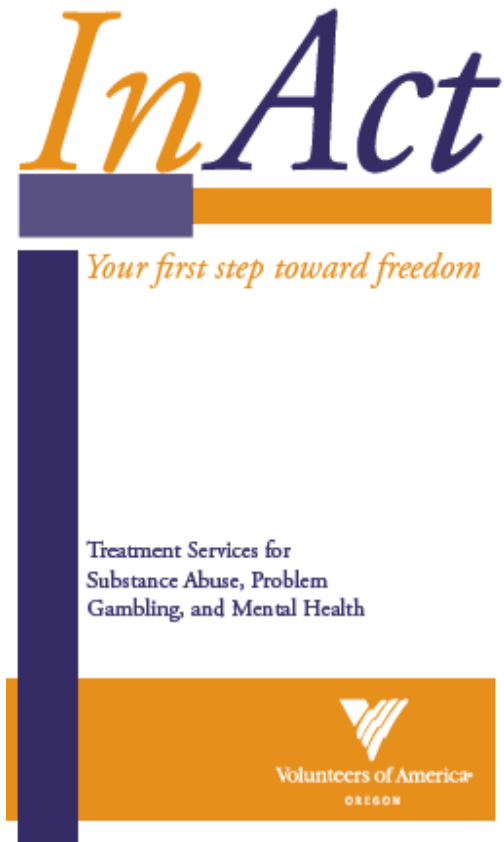
Hedges's g and 95% CI





# 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

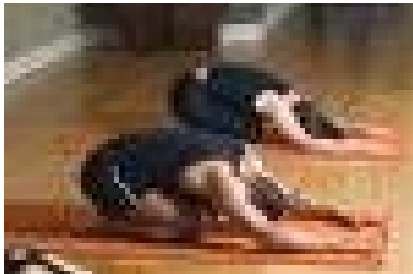


Body Scan



Sitting Meditation

Mindful Movement



“Lovingkindness” or “metta”



Walking Meditation

Mountain Meditation



# “Informal” Practices

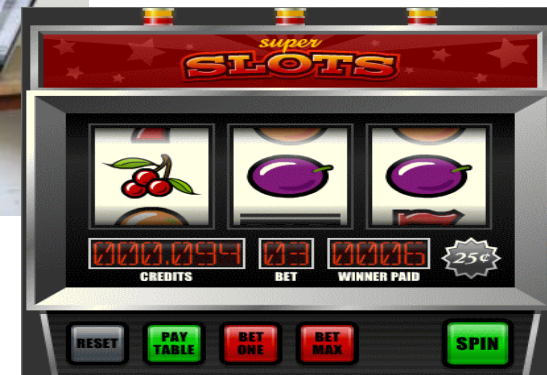
Mindfulness of daily activities



“Hourglass” breathing space



Urge surfing



# Pilot Study of MBRP-PG

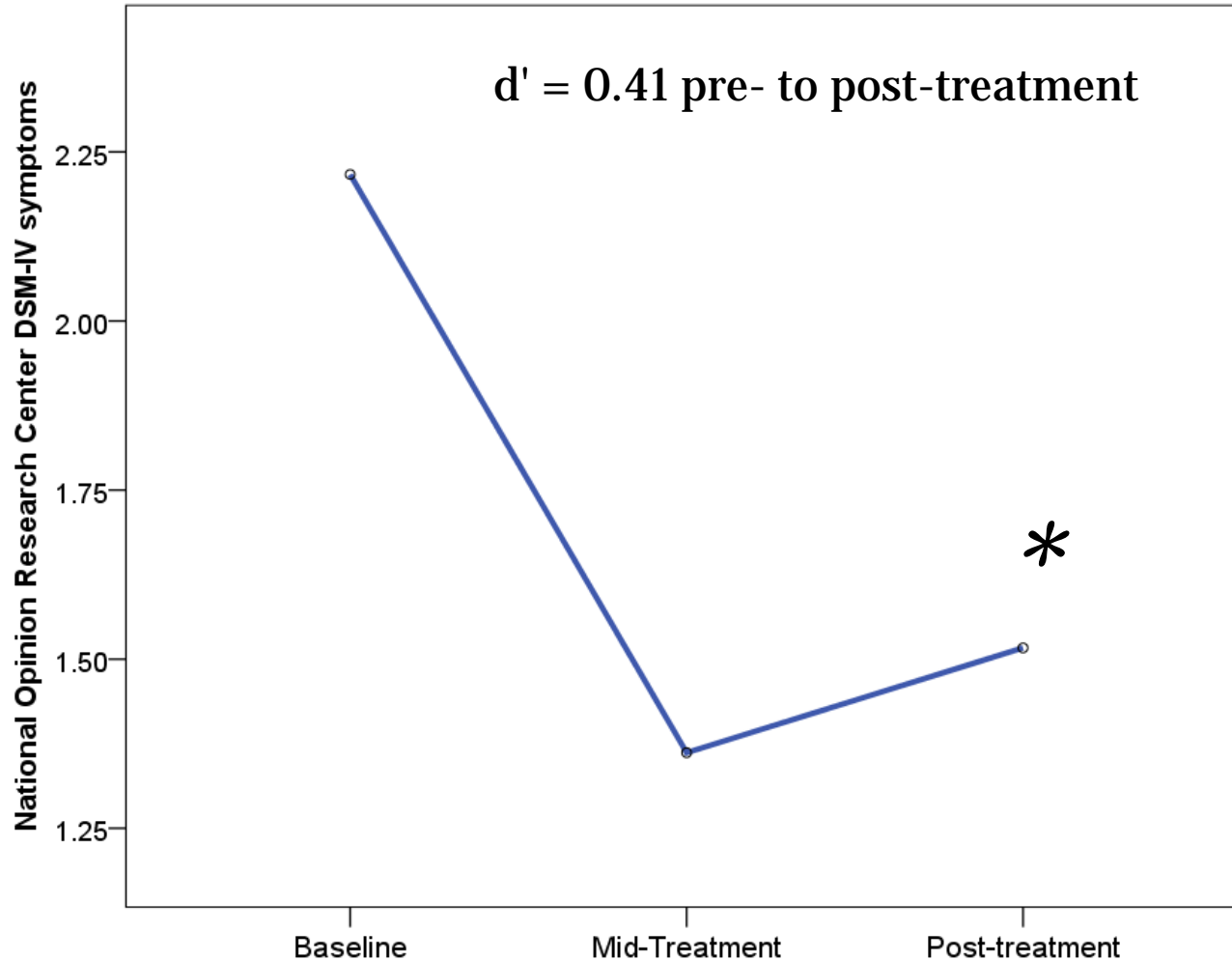
- **8-week MBRP program**
  - Assessments at baseline, 4-weeks, and 8-weeks.
- **Participants (n= 11) recruited from InAct**
  - 36.4% female
  - Average age = 53.1 (SD = 9.9), range 35-69
  - 8 enrolled in treatment (73%) and completed mid-treatment assessment
  - 6 completed treatment and post-treatment 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

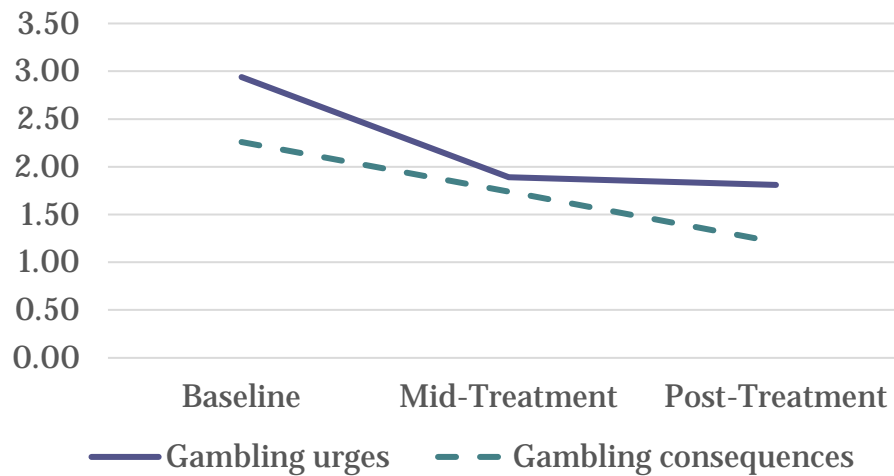


\*  $p < 0.05$

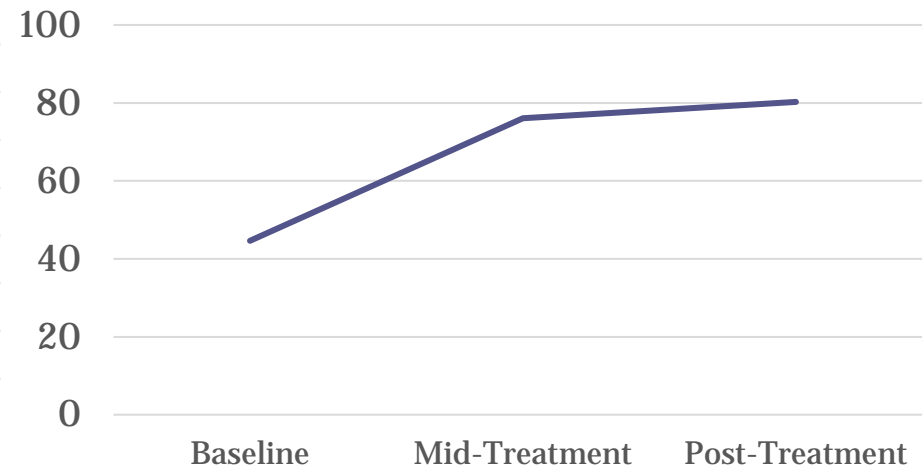
# Results

## Secondary outcomes

Changes in Gambling Urges  $d'=.74$   
and Consequences  $d'=1.23$

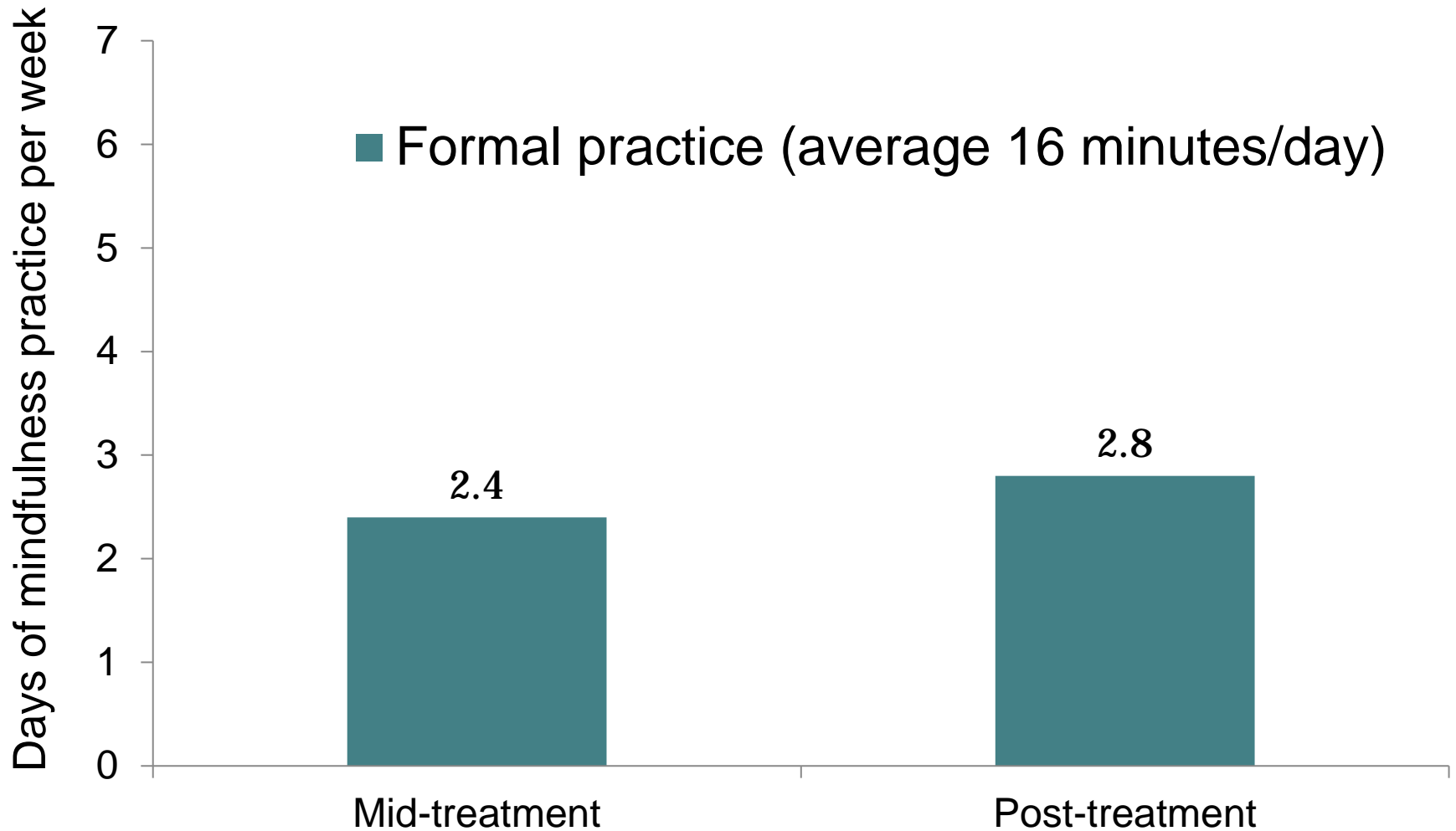


Changes in Self-efficacy  $d'=1.37$



# Results

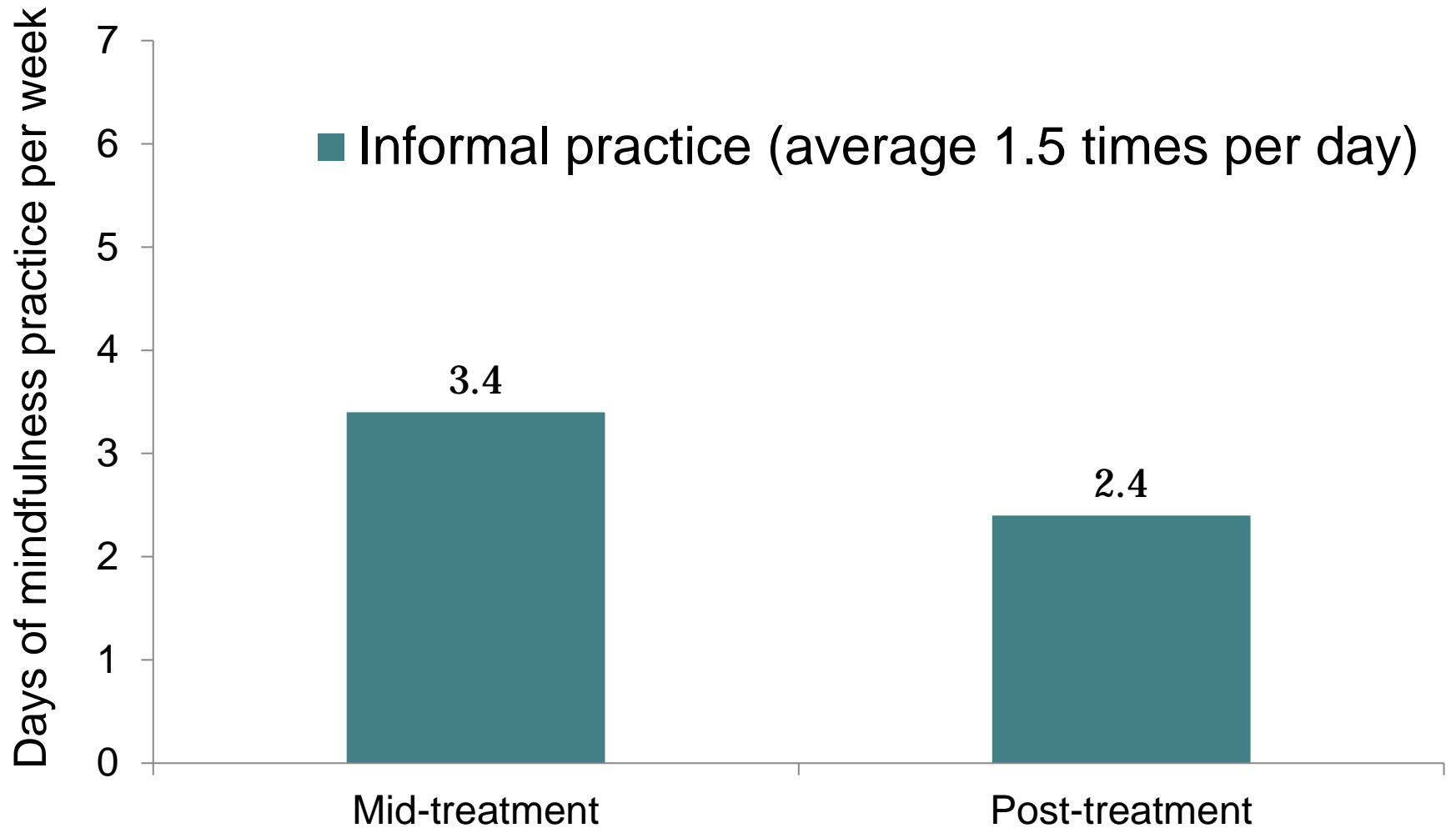
## Weekly "formal" mindfulness practice





# Results

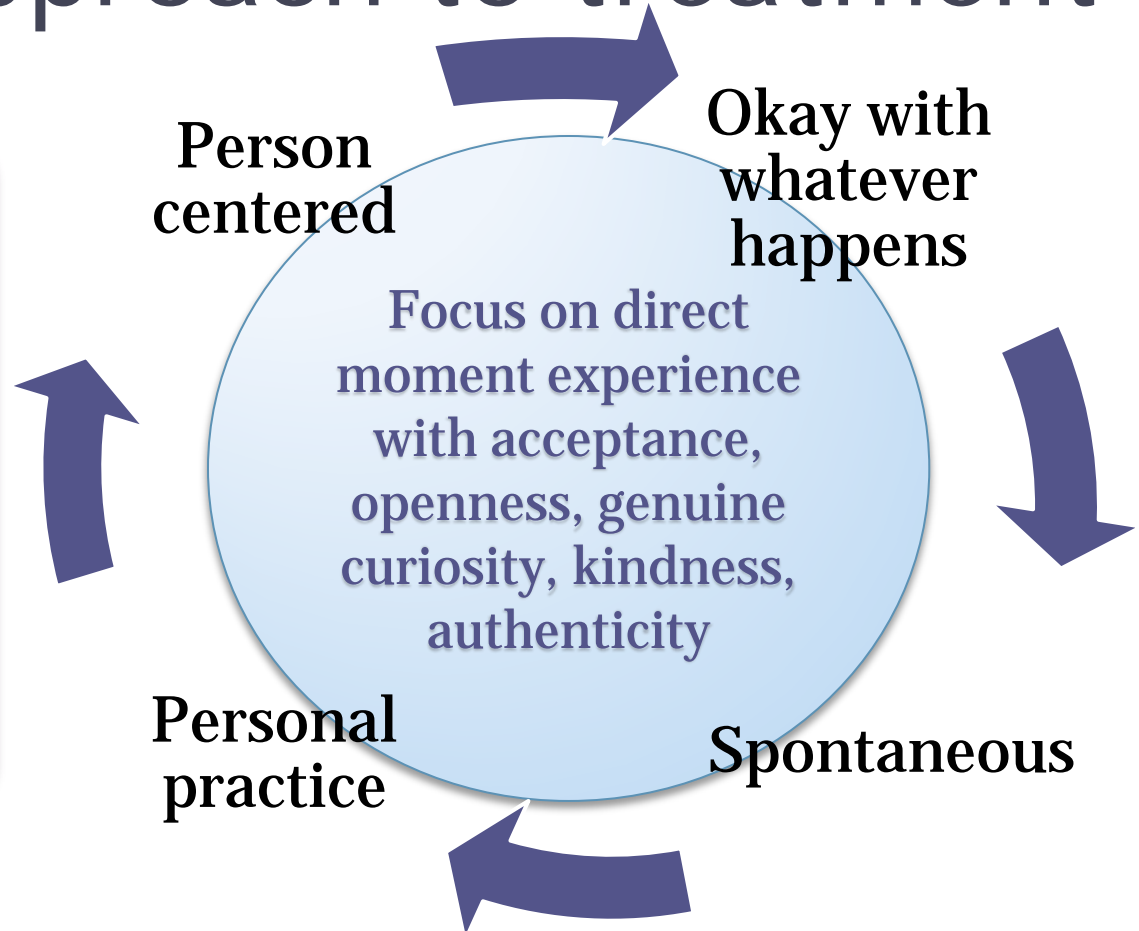
## Weekly “informal” mindfulness practice



# Limitations

- **Small sample size**
- **No control group**
- **No follow-up assessment**
- **Unable to examine effects by gender, race, or age**

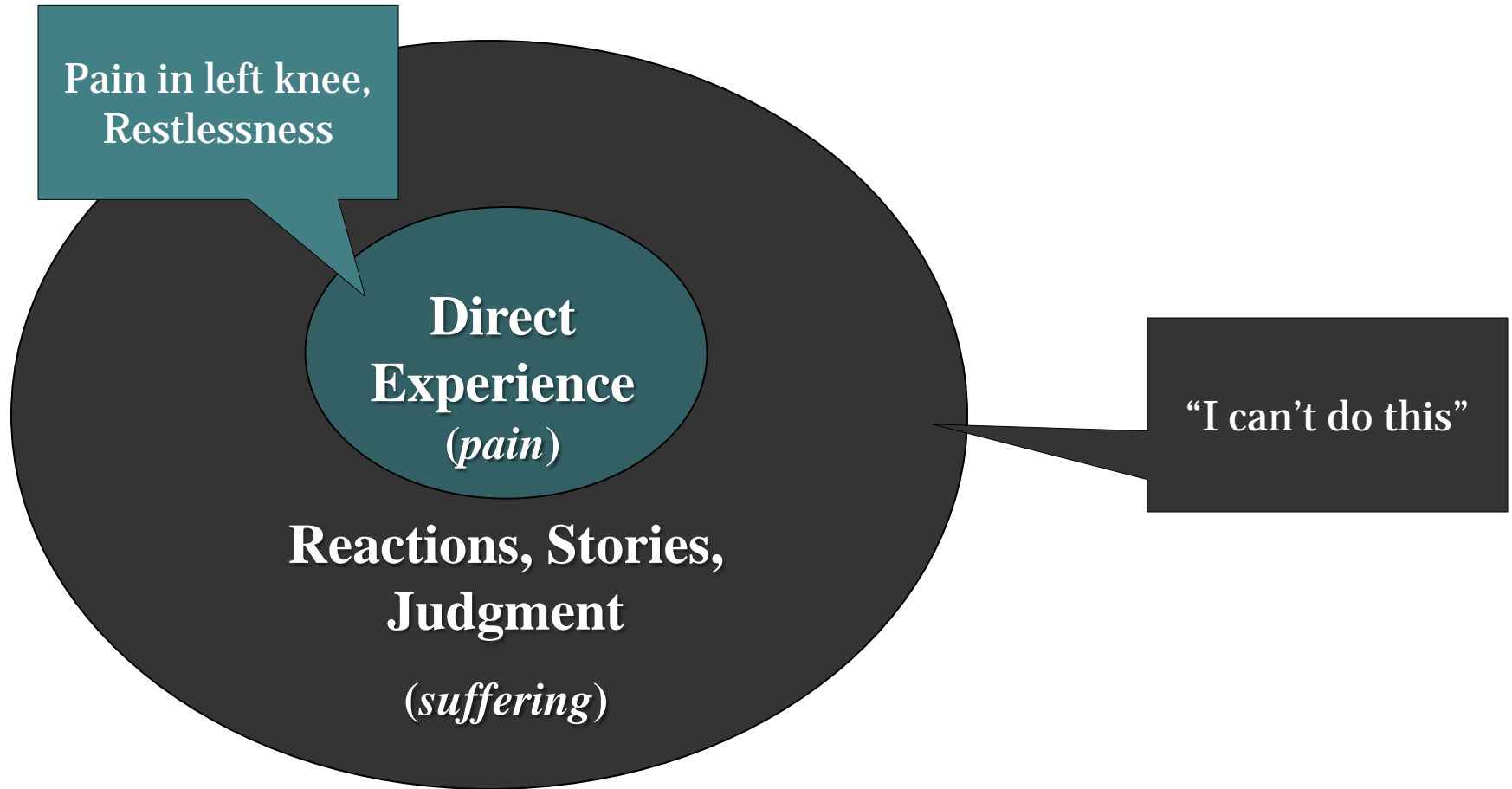
# Facilitating MBRP: Style and approach to treatment



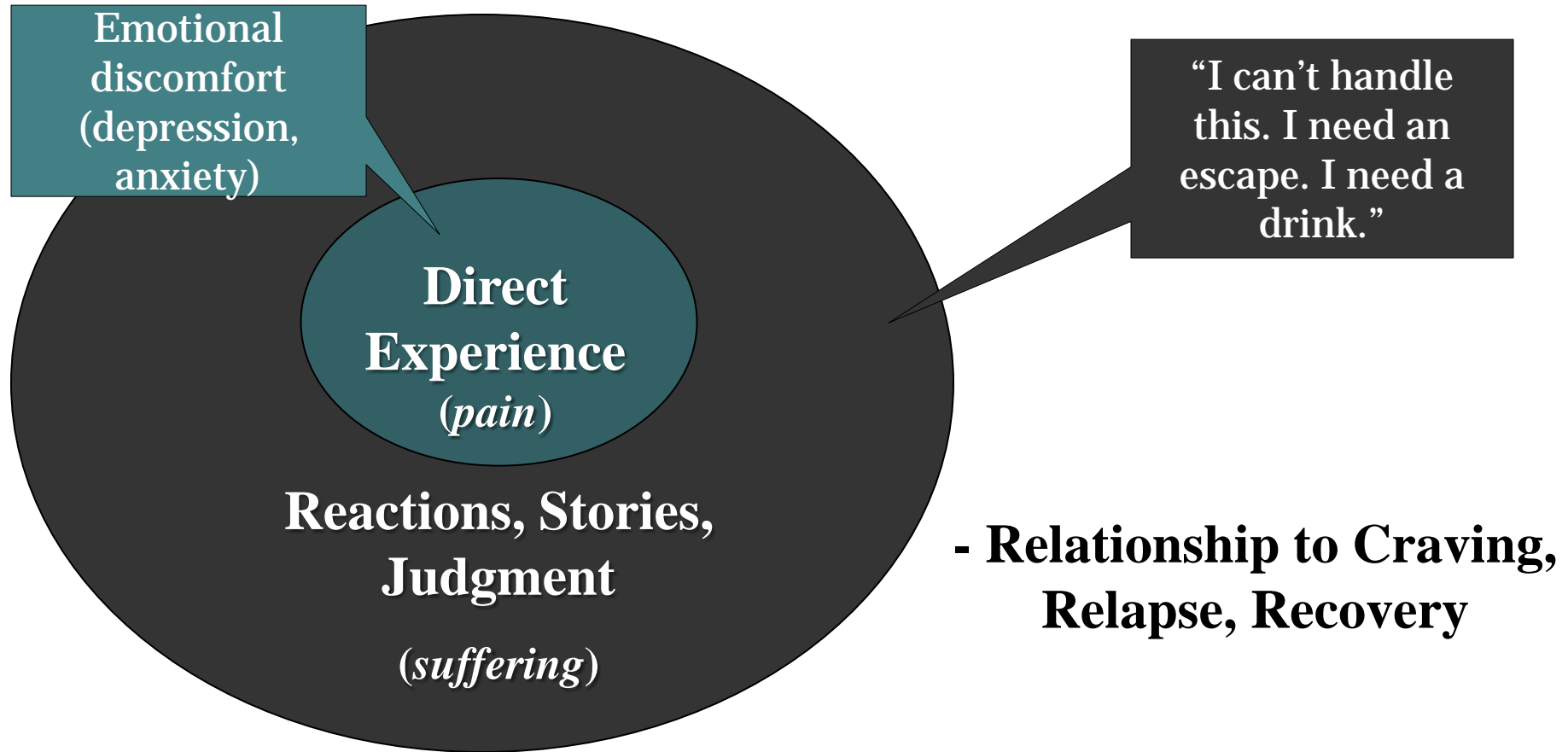
# Facilitating MBRP: Inquiry as “active ingredient”



# Facilitating MBRP: Inquiry as “active ingredient”



# Facilitating MBRP: Inquiry as “active ingredient”



# 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?**

# 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



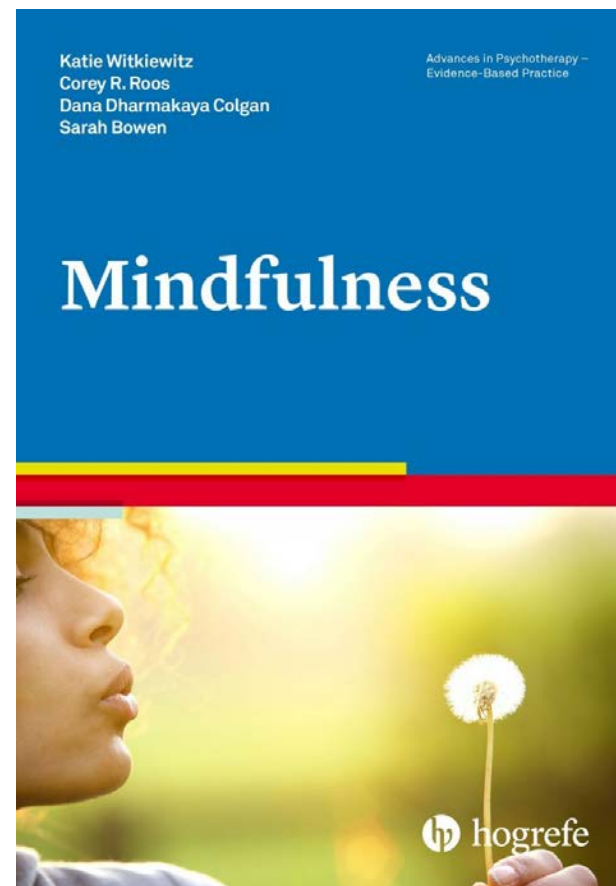
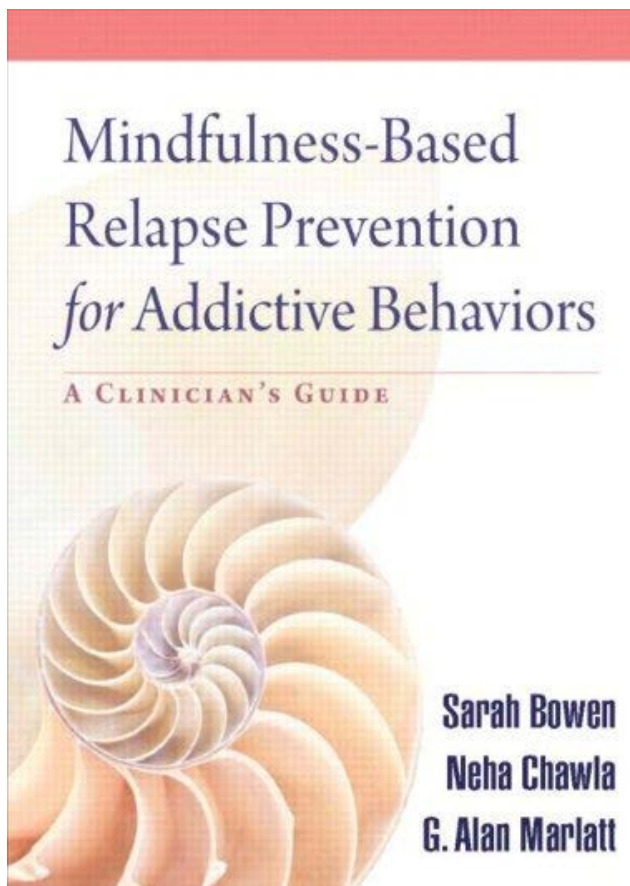
# Future directions and questions...



- 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](http://www.mindfulrp.com)



# With gratitude



Sarah Bowen



Neha Chawla



Denise Gour



Joel Grow

## Graduate Research Assistants



## Undergraduate Research Assistants



G. Alan Marlatt  
(1941-2011)



National Institute  
on Alcohol Abuse  
and Alcoholism



NATIONAL CENTER FOR  
RESPONSIBLE GAMING

# Thank you!

 @KatieWitkiewitz  
[katiew@unm.edu](mailto:katiew@unm.edu)