CHAPTER SEVEN

Mindfulness and Problem Gambling

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Emerging research demonstrates that mindfulness can be very helpful to people with gambling problems by showing them a way to step out of "automatic pilot" (going through a routine without full awareness of what they are doing) and cultivate greater awareness of the thoughts and emotions that lead them to gamble. Their attention may be divided amongst multiple things at once, such as when driving a car and simultaneously having thoughts about their day. By cultivating presence and moment-to-moment awareness of their experience as it unfolds, clients are in a better position to make more skillful choices, especially when being triggered to gamble. This chapter provides a general overview of the Mindfulness-Based Relapse Prevention for Problem Gambling program (MBRPPG; Chen et al., 2017) as well as the evidence supporting the use of mindfulness for problem gambling. Two studies we conducted at the Centre for Addiction and Mental Health (CAMH; Chen et al., 2014; Martin et al., 2018; Turner et al., 2017) will be discussed in detail, along with information on specific ways to apply mindfulness in clinical practice working with people with problems related to gambling.

What Is Mindfulness Meditation?

Mindfulness meditation (Bishop et al., 2004) is a mental training practice that aims to develop what is now commonly known as mindfulness. Mindfulness refers to an awareness and acceptance of the present moment experience (Germer et al., 2005), including emotions, thoughts, and bodily sensations. Rather than

avoidance or distraction from them, mindfulness turns toward them by cultivating a friendly, non-judgmental awareness of moment-to-moment experience.

There are two key components of this practice: (1) self-regulation of attention so that it is maintained on immediate experience, thereby allowing for increased recognition of mental events in the present moment, and (2) adopting a particular orientation towards one's experiences in the present moment that is characterized by curiosity, openness, and acceptance.

Someone who is practicing mindfulness meditation may be aware of the content of their thoughts, but not consumed or compelled by them, instead considering thoughts as passing mental events and not necessarily the truth of things.

The Origin of Mindfulness

As widely taught and practiced in health care settings today, mindfulness has its roots in Buddhist contemplative practices dating back over 2500 years. The practice was born from a quest to end suffering, and in recent years, this acquired wisdom has been increasingly integrated into various Western health care settings for both physical and mental health problems.

The word mindfulness comes from the English translation of a Pali (the language of the Buddha) word *Sati*, which conveys the meaning of awareness, attention and remembering. This meaning has been modified somewhat for practically usefulness in treating modern day clinical conditions (Siegal et al., 2009), to include the concepts of non-judgment, acceptance and compassion.

As stated by Fabrizio (2009), the suffering of depression and anxiety can often be attributed to the relationship that people have to the present moment developed with their own personal experience. One of the core teachings of mindfulness-based programs like MBSR (Kabat-Zinn, 1990) and MBCT (Segal et al., 2002) is the idea that you are not your thoughts.

The Introduction of Mindfulness into Western Medicine

Four decades ago, Jon Kabat-Zinn (1990) introduced mindfulness to Western medicine through the creation of the Mindfulness-Based Stress Reduction (MBSR) program. His focus was on treating patients with chronic pain and various other medical issues, including HIV and heart disease at the University of Massachusetts Medical Center. The patients referred to his program were seeking alternative treatments because contemporary medicine was not helping them. His focus with the mindfulness-based stress reduction approach was on an individual's relationship to their present-moment experience and improving their quality of life.

The MBSR approach teaches clients "to become aware of and accept, without judgment, their present moment experience and to learn to see thoughts and emotions as passing mental events" (Chen et al., 2014). The goal is not to change the experience or thoughts, but simply to "pay attention in a particular way: on purpose, in the present moment, and non-judgmentally" (Kabat-Zinn, 1994, as cited in Bowen et al., 2011, p. 46). Participant in mindfulness groups are encouraged to cultivate attitudes of non-judgmental awareness, friendliness, openness, curiosity, and acceptance of being in the present moment. Mindfulness encourages people to allow their thoughts into awareness without getting upset by non-judgmentally letting those them be. These attitudes are emphasized in "Kabat-Zinn's Nine Attitudes of Mindfulness:" beginner's mind, non-judging, acceptance, letting go, trust, patience, non-striving, gratitude, and generosity (Bowen et al., 2011).

Applications of Mindfulness in Healthcare

There are three main approaches in the field of psychotherapy: psychodynamic, humanistic, and cognitive. The initial work of Kabat-Zinn sparked a new wave of treatment approaches integrating

mindfulness, called mindfulness and acceptance-based therapies, as part of what has been called the third wave of behaviour therapy interventions. The third wave is in response to cognitive therapy and a shift away from a focus on what we think and feel to change behaviours with a focus instead on how we relate to what we think and feel. Third wave therapies are interested in helping clients be at greater ease with oneself and the world. The following is a brief description of these mindfulness-based approaches:

- Acceptance and Commitment Therapy (ACT; Hayes et al., 1999) uses acceptance and mindfulness strategies along with commitment and behaviour change strategies to increase psychological flexibility.
- Dialectical Behaviour Therapy (DBT; Linehan, 1993) was originally developed to treat people diagnosed with borderline personality disorder. It has been shown to be effective for people struggling with emotional regulation and self-destructive and self-harming behaviours.
- Mindfulness-Based Relapse Prevention (MBRP; Bowen et al., 2011) integrates mindfulness practices with cognitive and behaviour-based relapse prevention strategies to help people recovering from substance use.
- Mindfulness-Based Cognitive Therapy (MBCT; Segal et al., 2002, 2013) was designed to help people who have experienced repeated bouts of depression to prevent relapse. It combines mindfulness practices and cognitive therapy.

These programs (i.e., MBSR, MBCT, MBRP) typically follow an eight-week group protocol that includes extensive mindfulness meditation training in practices such as the body scan, sitting meditation (i.e., mindfulness of the breath, the body, thoughts, sounds, and emotions), mindful eating, yoga, and mindful walking in order to cultivate the capacity to apply mindfulness when faced with challenging situations. Besides formal practice, they also teach cultivating mindfulness in daily living (e.g., while

showering, brushing teeth, cooking, and washing dishes). The key is that whatever you do, you should do it mindfully.

Later in this chapter we will describe an example of an eight-week group protocol that has been applied to problem gambling (Chen et al., 2017; see also Gambling Research Exchange Ontario, 2020).

The Nine Attitudes of Mindfulness and How They Complement Practice

The second key component of a mindfulness practice involves adopting an orientation characterized by curiosity, openness, and acceptance. Jon Kabat Zinn (1990) expanded on this orientation to include the Nine Attitudes of Mindfulness. These attitudes invite a richer perspective from which to approach all life situations, but especially challenging ones, and can be applied to the treatment of problem gambling. It is important to note that these attitudes are also intimately connected and inter-related.

1. *Beginner's mind* refers to approaching each experience without the filter of prior beliefs, assumptions, expectations or desires, but with a direct observation of everything we encounter as if for the first time (Bishop et al., 2004). Zen Master Shunryu Suzuki once said, "in the beginner's mind there are many possibilities, but in the expert's there are few" (Suzuki, 1970, p. 21). When clients are triggered to gamble, they don't have to react in old patterns and can respond with new possibilities.

2. *Non-judging***:** We are not trying to get rid of all judgment, but cultivate awareness of our judging nature so that we are not compelled to act on it while on automatic pilot. See cravings as they are: thoughts, feelings, and bodily sensations that are neither good nor bad but passing mental events that don't need to be acted on.

3. *Acceptance* refers to accepting the way things are and not the way you want them to be. Resisting the way things are creates more challenges. Accept cravings as they arise without trying to push them away, knowing that they are temporary.

4. *Letting go***:** Instead of clinging and grasping, allow cravings to be as they are: bodily sensations, feelings, and thoughts that don't have to be acted on. Clients may feel that they need to satisfy cravings to

get rid of them, not realizing that cravings arise and subside on their own. The "urge surfing" technique can be applied here, which uses the analogy of surfing a wave as a way of coping with urges to gamble. The urge to gamble is like the wave of an ocean with the client riding on the surfboard. The client maintains focus on the breath to maintain balance, keeping the focus away from thoughts that fuel the urge, while at the same time knowing that urges (like waves) are impermanent.

5. *Trust:* refers to someone learn to trust themself, honor their feelings, and trust in their abilities to meet challenges as they arise.

6. *Patience* refers to being here and now and not always trying to get to the next moment. We are always in such a rush to get to the next thing that we never appreciate where we are now. Patience can protect us from getting angry and help us to keep calm under pressure by accepting what is, allowing things to unfold in their own way.

7. *Non-striving* refers to cultivating being and non-doing, not having to get anywhere or change anything, letting things be as they are, and going with the flow of life.

8. *Gratitude* refers to being grateful for what you have and not focusing on what you don't have. This can protect against maladaptive negativity.

9. *Generosity* refers to serving others without expecting anything in return and cultivating an attitude of giving rather than clinging. The greatest gift that you can give anyone is your non-judgmental presence.

Mindfulness, Trauma, and Problem Gambling

Traumatic events can shape all aspects of one's life. Whether it's from adversity experienced in childhood or as an adult, trauma can change how people view themselves and the world. It is not uncommon for clinicians to work with people with both traumatic experience and a behavioural addiction, and there is very often a connection between them (Jindani et al., 2015).

According to Maynard, et al. (2018), mindfulness-based interventions target experiential avoidance—the unwillingness to experience a private event such as a memory, urge, or thought and avoid,

escape or dissociate from it as a way of coping. Avoidance may include addictive behaviours like gambling and is a "core mechanism in the development and course of a range of psychological disorders including gambling" (p. 356). Mindfulness is an alternative coping strategy that uses awareness of the present moment, muscle relaxation, "active imagining" (Maynard et al., 2018, p. 349), and non-judgmental awareness to help the individual deal with unwanted memories, thoughts, and urges. Instead of fighting the thoughts, they allow those thoughts to occur while relaxing and focusing on their breathing, and then letting them pass out of consciousness (Sobczak & West, 2013). This alternative approach is a more constructive way of dealing with traumatic and intrusive thoughts.

Emotional trauma manifests in various ways that are unique to the individual and can include vast emotional and physical symptoms including physical pain, flashbacks, difficulty sleeping, and stressful relationships (Van der Kolk, 2014).

The empirical evidence on mindfulness interventions for individuals with trauma is mixed. On one hand, trauma can cause changes in the brain that can be seen using brain imaging techniques like MRI, and areas of the brain associated with memory and learning difficulties have been found to include more reactive and weaker neural connections between the left and right hemispheres in people with trauma (Perry & Szalavitz, 2006; Badenoch, 2008). Over time, mindfulness meditation practice can develop these connections and increase awareness of the body (Siegel, 2010), improving emotional regulation and capacity to enhance one's self-efficacy associated with the daily challenges of life (Jindani et al., 2015). Greater body awareness has been demonstrated to strengthen areas of the brain associated with emotions and bodily sensations that strengthen empathy toward oneself and others (Jindani, 2015; Jindani, 2015; Siegel, 2010).

On the other hand, it is not always possible to know how someone will respond to mindfulness practices, and it is important to choose practices that fit individual learning styles and tolerance levels. Findings also suggest that for some people with post-traumatic stress or trauma, paying attention to internal experiences can create or trigger traumatic stimuli like physical sensations, thoughts, images and memories

that may intensify symptoms of traumatic stress and even lead to re-traumatization (Treleaven, 2018). This is also true of people who are experiencing problem gambling.

For instance, it may be challenging for someone with gambling problems to sit still for long periods, so starting with very short mindfulness or focused attention sessions may be one approach to supporting clients with trauma histories. Van der Kolk (2014) suggests that because trauma is held in the body, movement like yoga can support those with trauma. Jindani (2015, 2015) found that participants of a mindfulness-based yoga program who had post-traumatic stress histories benefitted from learning ways to withstand triggering situations through short, movement postures focused on breathing. Chen et al. (2017) also included a yoga component in their manual, *Mindfulness-Based Relapse Prevention for Problem Gambling* (MBRPPG), because movement, mindful walking, or any life activity done with awareness may encourage one to live in the moment.

Mindfulness Research

Since 1990, mindfulness has been incorporated into numerous Western medicine programs for people suffering from physical and mental health issues, including addiction. Research has also grown exponentially in these areas. It is important for practitioners to have a good understanding of the research when teaching mindfulness to clients because, as outlined by Wolf and Serpa (2015), it can:

1. Demonstrate the practitioner's knowledge and expertise.
2. Assist practitioners in skillfully responding to the many questions clients may have.
3. Allow practitioners to promote care that is based in evidence and not speculation.
4. Provide clinicians with confidence that they are engaging in a method with a proven track record of success.

This section provides some background into the nature of mindfulness and problem gambling and the research connected to it. This research demonstrates that mindfulness is an evidence-based form of treatment with applications to treating problem gambling.

Cognitive Research on Mindfulness

Studies have found that brief mindfulness meditation can improve various cognitive faculties. Leverty (2012) found it to improve attention, problem solving, and working memory in students, but with no improvement on cognitive test performance. Jha et al. (2007) observed it to improve cognitive functioning, including orientation and alerting attention. Zeidan et al. (2010) found that just four days of 20-minute mindfulness sessions improved working memory, executive functioning, and visuospatial processing. Carmody and Baer (2008) reported a positive relationship between cognitive benefits and the amount of daily mindfulness meditation practice one engages in.

Moore et al. (2012) reported that regular, brief mindfulness meditation practice improved electrophysiological markers of attentional control. This study, used a longitudinal randomized control design on the effect of mindfulness on EEG patterns. Their results suggested that mindfulness meditation might alter the efficiency of allocating cognitive resources, and in turn lead to improved self-regulation of attention.

Finally, Lykins (2009) compared the cognitive and emotional functioning of people with experience as meditators with a control group of people without using a battery of tests measuring attention, learning, memory, cognitive and emotional biases, and self-regulation. They reported significantly better short-term memory, long-term memory, and self-regulation for the meditators. In addition, within the non-meditator control groups, individuals who self-reported mindfulness also self-reported better psychological well-being. Together these studies suggest that mindfulness has a real cognitive benefits, especially for attention and memory, but more research is needed.

Research on Mindfulness and Problem Gambling

There is a small but growing research base on the relationship between mindfulness and gambling disorders (de Lisle et al., 2012; Shonin et al., 2013b; Chen et al., 2015). According to de Lisle et al. (2012), an inverse relationship exists between psychological distress and dispositional mindfulness wherein people who are more mindful feel less psychological distress. This relationship can be affected by emotional, cognitive, and behavioural factors.

In addition, two studies by Lakey et al. (2007) found negative relationships between mindfulness and gambling problems. In their second study, dispositional mindfulness was partially related to better performance on risk-taking tasks measuring overconfidence, risky bets, and shortsighted focus on reward. The authors speculated that "greater attention to and awareness of ongoing internal and external stimuli that characterizes mindfulness may represent an effective means of mitigating the impulsive and addictive responses and intemperate risk-attitudes of individuals with [problem gambling]" (p. 1708). These findings suggest that mindfulness is related to better decision-making.

Several studies have had similar findings. A review study by de Lisle and colleagues (2012) found a mindful disposition to be negatively correlated with gambling urges, pre-occupation, expenditure, frequency, and overall severity of problem gambling. Another study by Riley (2012) reported problem gambling to be positively related thought suppression and negatively related to mindfulness, validating the idea that nonjudgmental acceptance of unwanted thoughts as transient events works better than attempting to suppress those thoughts.

In an attempt to understand how mindfulness works, de Lisle et al. (2012) reviewed numerous theoretical models of the link between mindfulness and problem gambling. They reviewed the evidence for several different mechanisms including shortsighted focus on reward, rumination, psychological distress, and thought suppression, as well as emotional, cognitive, and behavioural flexibility, concluding that the

relationship between mindfulness and problem gambling behaviour is probably very complicated (de Lisle et al., 2012, p. 731), and noted that mindfulness is itself a complex construct.

A meta-analysis by Goyal et al. (2014) found identified 47 clinical trials of mindfulness with a total of 3515 participants. They reported that mindfulness meditation programs had moderate effect sizes at eight weeks for reducing anxiety ($d = 0.38$), depression ($d = 0.30$) and pain ($d = 0.33$), and smaller effects at three to six months for anxiety ($d = 0.22$) and depression ($d = 0.23$). These findings indicate that mindfulness can be a helpful therapeutic method. Given that only 47 clinical trials were identified out of 18753 citations for mindfulness in the literature, the authors argue for stronger and more consistent research designs to help determine the effectiveness of meditation programs for mental health and gambling problems.

Clinical Evaluations of Mindfulness-Based Relapse Prevention

In recent years, several studies have examined the use of mindfulness across several disciplines and have found it to be clinically effective for relapse prevention. A literature review by Baer (2003) found that mindfulness-based interventions were effective in various populations and with several different disorders including chronic pain, stress, anxiety, and depression. Kuyken et al. (2015) reported that MBCT was as effective and as cost effective as antidepressants in preventing relapse.

A small number of studies have evaluated the clinical application of mindfulness for problem gambling (Chen et al., 2014; Maynard et al., 2018; van der Tempel et al., 2020). The results are largely positive but limited by the number and quality of eligible studies, and differing conceptualizations of mindfulness (Maynard et al., 2018). Many of the papers reviewed by Maynard et al. (2018) only include some aspects of mindfulness (e.g., imaginal desensitization) as part of the program. The two case studies published on the use of mindfulness (see de Lisle et al., 2012) found it to be successful in helping the client toward recovery.

Two other studies have examined the prospect of using dialectical behaviour therapy (DBT), which includes a component of mindfulness in its treatment framework. The first of these (Korman et al., 2008)

used a DBT model as an integrated treatment for anger, substance abuse, and problem gambling, finding that it reduced substance use, but with no effects specifically related to mindfulness skills. These results are promising, but it is not clear if the effectiveness of the program was due to mindfulness or because of the integrated nature of the treatment (e.g., including anger management, problem gambling, and substance use treatment). The second (Christensen et al., 2013), evaluating a modified DBT approach with 14 treatment resistant problem gamblers by measuring changes in mindfulness, emotion dysregulation, distress tolerance, and negative relationships before and after the nine-week program. Participants reported statistically and clinically significant improvements in psychological distress, distress tolerance, and mindfulness. While 83 percent of participants were abstinent or had reduced their gambling expenditure post-treatment without increasing alcohol or other substance use as a substitute, this decrease was not statistically significant.

Chen et al. (2014) evaluated an 8-week mindfulness group program (n = 17; 15 male, 2 female) using questionnaires distributed before the first session and after the last, with a mixed design including qualitative and quantitative data. All participants showed an improvement in their levels of mindfulness after program, with increased scores on the Mindfulness Attention Awareness Scale (MAAS) 3.65 (SD = 1.01) to 4.40 (SD = 0.78). Qualitative feedback about the group also highlighted several life improvements including being more in control, relaxed and able to stay in the present moment. The results indicate that mindfulness was successfully taught to the participants during the 8-week group program.

Another study by McIntosh et al. (2016) compared the effectiveness of three interventions to treat problem gambling: (1) case formulation driven cognitive behavioural therapy (CBT), (2) a manualised CBT, and (3) mindfulness-based treatment. All three produced improvements with a large effect size at post treatment, and at both 3- and 6-month follow-ups. They argue that a brief mindfulness intervention may be a useful supplement to traditional CBT treatments because mindfulness intervention addresses processes such as rumination and thought suppression.

Van der Tempel et al. (2020) conducted a small feasibility study ($n = 9$) with women with gambling disorder. The mindfulness-based Intervention was associated with clinically and statistically significant decreases on measures of obsessive-compulsive disorders, gambling cravings, and depression, and they had more consistent attention to negative affective words on an emotional Stroop task.

A systematic review by Maynard et al. (2018) of randomized controlled trials (RCTs) for gambling that included some component of mindfulness also found evidence that supports its utility for treating disordered gambling. Of the 3331 papers examined, only seven were RCTs that met the inclusion criteria. Nonetheless, in summarizing the results of those 7 papers they found moderate to large effect sizes for gambling behaviours/symptoms ($g = 0.68$, 95% CI [0.39, 0.98]), gambling urges ($g = 0.69$, 95% CI [0.18, 1.20]), and financial outcomes ($g = 0.75$, 95% CI [0.24, 1.26]; p. 348). Both Goyal et al. (2014) and Maynard et al. (2018) note that the results of their reviews were limited by the small number eligible trials with varied quality and different conceptualizations of mindfulness. They conclude that approaches including imaginal, attention focusing, awareness, and mindfulness may be effective in reducing gambling behaviours, symptoms, urges, and financial losses. While these results are encouraging, stronger and more consistent research designs are needed to establish the effectiveness of meditation programs for gambling problems (Maynard et al., 2018).

Mindfulness-Based Relapse Prevention for Problem Gambling

This section looks at the application of mindfulness in addiction programs with a specific focus on problem gambling. The 8-week Mindfulness-Based Relapse Prevention for Problem Gambling (MBRPPG) group protocol (Chen et al., 2017) is outlined below along with the results of an evaluation study of its benefits.

The Origins of Mindfulness and Relapse Prevention

One of the first addiction researchers to understand the potential for mindfulness to be applied to substance use treatment was Alan Marlatt (1985), who recognized that the greatest challenge for those with substance use disorders was not quitting but staying sober. He also posited that practicing mindfulness could help reduce stress and achieve life-balance, amongst other benefits. And he saw the utility of meditation as a strategy to help people who were at risk for relapse:

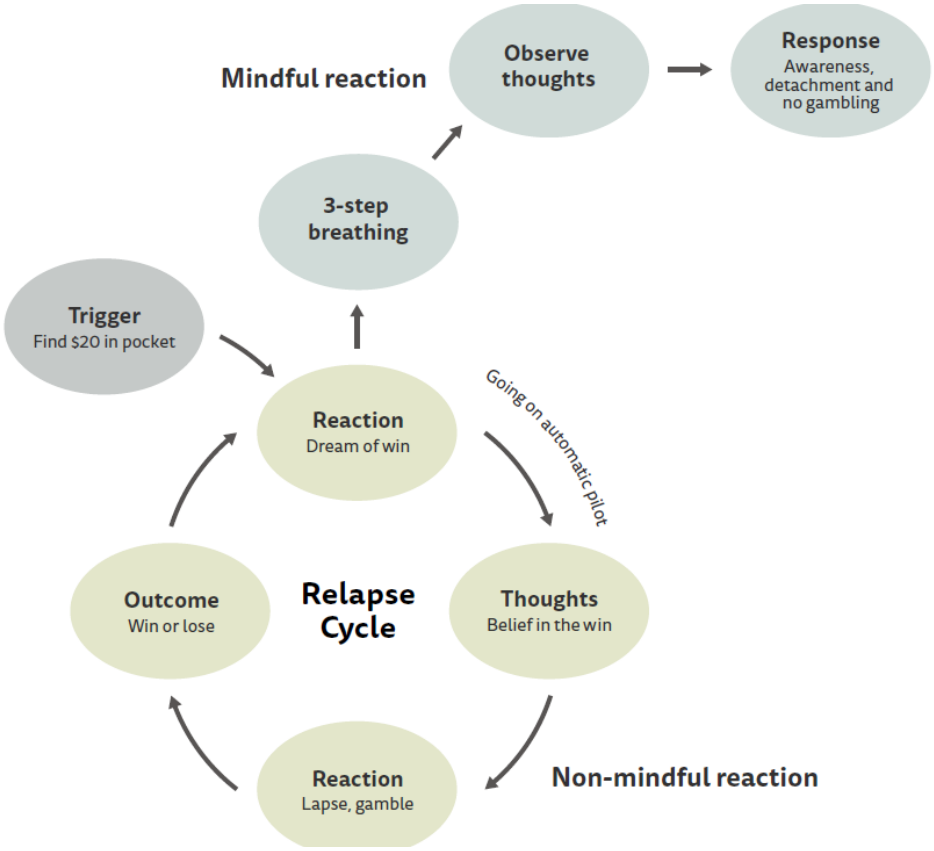
> [O]ne of the most significant effects of regular meditation practice is the development of mindfulness—the capacity to observe the ongoing process of experience without at the same time becoming 'attached' or identifying with the content of each thought, feeling, or image. Mindfulness is a particularly effective cognitive skill for the practice of RP. If clients can acquire this ability through the regular practice of meditation, they may be able to 'detach' themselves from the lure of urges, cravings, or cognitive rationalizations that may otherwise lead to a lapse. (Marlatt, 1985, p. 319)

The Relapse Process

Figure 1 outlines how mindfulness can be helpful for coping with gambling triggers and urges. Moving left to right in the diagram, the process begins with an event that could trigger the client to gamble such as a credit card statement in the mail or coming across money that the client did not know they had. The client may then have thoughts about the event that could potentially trigger an urge to gamble. The process can then unfold in one of two ways: they may feel overwhelmed by the credit card debt, and become convinced that their only option is to gamble in the hope of winning to pay it, or they could practice techniques they learned in the MBRPPG group to manage the urge through mindful awareness (e.g., the 3-step breathing space or urge surfing)e. This would allow them the space to mindfully observe their thoughts without the need to act on them, thus breaking the cycle that could lead to a lapse.

Figure 1

The Relapse Process



Implementing the Mindfulness Groups at CAMH

We have been running mindfulness groups for problem gambling at CAMH for almost 10 years, which has given us the opportunity to conduct first-hand evaluative research. Two studies have been conducted to evaluate the efficacy of mindfulness in this program. Chen et al. (2014) evaluated groups run at CAMH for the previous 2 years, asking participants to fill out an anonymous 2-page evaluation form that included the 15-item Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan, 2003), rating scales about the service, and open-ended qualitative questions about what they liked/disliked and what techniques

they would continue to use in their daily lives. The results showed that teaching problem gambling clients about mindfulness meditation as part of regular treatment for problem gambling was feasible.

Qualitative analysis of the open-ended survey questions revealed several improvements in the clients' lives:

- They were staying in the here-and-now by using the Stop, Observe, Breathe, Expand and Respond method (SOBER), and other mindfulness techniques.
- They noted improved ability to cope with stress and awareness of their gambling triggers.
- They reported feeling more relaxed, calm, and patient.
- They reported having developed better self-discipline and control over their gambling behaviour.
- They reported that mindfulness had improved their ability to listen to other people and other interpersonal skills.
- They reported having more positive experiences in their lives.
- They also reported some barriers to meditation including a lack of time and having too much homework during the program.

Based on these results, it appears that the clients in the groups were using the mindfulness techniques to control their gambling urges, increase their self-control, and improve their ability to calm down and cope with stress. However, because the study did not include any long-term follow-up it is not known if the program improved the clients' ability to resist relapse.

In 2017, Turner and associates (Turner et al., 2017; Martin, et al., 2018) conducted a second study that expanded the number of measures used to assess mindfulness, including cognitive and neural measures. Turner et al. (2017; see also Martin et al., 2018) replicated the results of Chen et al. (2014) with 28 clients (78.5% male). As with their earlier study, Turner et al. (2017) reported that MAAS scores increased from a pre-test score of 3.56 (*SD* = 1.00) to a post-test score of 4.16 (*SD* = 0.81), indicating great mindfulness. Urges to gamble also decrease from *M* = 3.50 (2.44) to post-test 2.65 (*SD* = 2.14). They also measured

resting-state electroencephalography (rsEEG) to explore possible neural mechanisms in mindfulness as related to problem gambling (Martin et al., 2018; Turner et al., 2017). Electroencephalography (EEG) detects several types of brain waves (alpha, beta, delta, theta) through electrodes on the head, where alpha waves are associated with relaxation (McGill Physiology Virtual Lab, 2021), resting, mental coordination, calmness, and learning. According to EEG research by Cahn and Polich (2006), healthy individuals show increased alpha power and decreased alpha frequency, which is associated with being more relaxed after learning mindfulness meditation. Martin et al. (2018) found that people with a gambling disorder showed increased in alpha power and decreased alpha peak frequency after the 8-week mindfulness intervention, with the largest changes in the frontal and temporal lobes, which are areas sensitive to reward and sensory processing. These results suggest that mindfulness may reduce reactivity to stress, however more research is needed to understand the complex nature of alpha rhythms and mindfulness.

Future studies are needed to examine the long-term impact of mindfulness sessions in terms of cognitive changes, stress responses and neurological changes. In the next section, we will go into further detail about the protocol of the 2017 MBRPPG group discussed above.

The Eight-Week MBRPPG Group Protocol

Mindfulness has been increasingly implemented in addiction programs, including those for problem gambling. The Problem Gambling and Technology Use Treatment Service at the CAMH introduced mindfulness groups as a regular part of their treatment program in 2010.

The MBRPPG program at CAMH was for clients attending problem gambling treatment who were in the action or maintenance stages of change. Their gambling behaviour needed to be stabilized, meaning that the person had goals of abstinence or moderation.

The development of this program was based on the structure and format of MBSR, MBCT and MBRP, but tailored for people experiencing problems with gambling. The following is a brief week-by-week description of the eight-week MBRPPG group program.

Session One: Stepping Out of Automatic Pilot

This session involves learning how to slow oneself down and be more present through practices such as paying attention to the body and mindful eating. This first session helps group members to recognize when they are in automatic pilot (which can lead to gambling), how to step out of it, and how to become more present in whatever they are doing.

Session Two*: *Developing Awareness and Coping with Cravings/Barriers to Practise

This session aims to develop greater awareness of triggers that lead to gambling urges and how to respond to those triggers with mindful awareness. In addition, this session examines common barriers to meditation and how to work through them.

Session Three*: *Bringing Mindfulness to Everyday Activities

This session aims to instil greater mindful awareness to everyday activities like eating, brushing teeth, cooking, showering, and walking. As clients learn to bring mindfulness into their everyday lives, they may also be in a better position to manage triggers as they arise without being caught off guard and/or in automatic pilot.

Session Four*: *Being Mindful When at Risk of Gambling

This session involves participants experientially exploring how to cope when they are in high-risk situations for gambling. According to Turner et al. (2012), high-risk situations for

gambling fall under ten categories as described in the Inventory of Gambling Situations (IGS): (1) pleasant emotions, (2) negative emotions, (3) social pressure to gamble, (4) conflict with others, (5) need for excitement, (6) worry about debts, (7) confidence in skill, (8) testing personal control, (9) winning and chasing, and (10) urges and temptations.

***Session Five**: Cultivating a Different Relationship to Experience Through Acceptance and Clear Seeing*

This session involves understanding the role of acceptance in coping with difficult situations instead of gambling and making more skillful choices. Acceptance is one of the nine attitudes of mindfulness outlined above.

***Session Six**: Seeing Thoughts As Passing Mental Events*

This session explores participants' relationship to experience and how mindful awareness of experience can help one become less overwhelmed during challenging moments. Relating differently to one's experience can be achieved through the incorporation of the nine mindfulness attitudes in mindfulness practice.

***Session Seven**: Being Good to Yourself*

This session involves developing greater kindness and compassion toward oneself and others, which is another key aspect of learning mindfulness besides cultivating greater awareness. The circle of compassion must include the self to be complete.

***Session Eight**: Maintaining Practice After Group Ends*

In this session, participants reflect on the previous seven sessions to consolidate their learning and moving forward. Cultivating mindful awareness does not end when the group ends, but becomes a life-long process for whoever choose to commit to the practice.

How Members in the MBRPPG Group Benefitted

The following six themes came out of an evaluation study on a few of the mindfulness-based relapse prevention groups such as the one at CAMH in 2011 outlined above (Chen et al., 2014). The following includes some direct quotes from participants.

1. Mindfulness Techniques. Clients most frequently reported the techniques that they learned in the groups as benefits:

- Non-judgmental detachment: *"Now I can recognize what is happening internally and separate myself from what I'm thinking."*
- 3-Step Breathing Space: *"How important it is to breathe and slow down."*
- Staying in the moment*: "My brain is very busy but in this course, I learned how to stay on NOW, in this moment."*
- Aware of the moment*: "I have become more aware of the present moment. I have become more mindful and conscious about the present moment, learning to take things one step at a time."*

2. Increased Awareness of Triggers and Ability to Cope. The second most common benefit reported was becoming more aware of triggers and how to better cope with them:

- Aware of triggers: *"To become more aware of life situations and how to deal with them. Mindfulness/awareness of warning signs and triggers is my main tool to not returning to coping via gambling."*
- Able to deal with life situations: *"I had a bit of a crisis while I took this course and it got me through by practicing mindfulness and journaling."*

3. Feeling More Calm, Relaxed and Patient. The third most common theme of benefits reported by group participants was feeling calmer, more relaxed and more patient:

- Patient and calm: *"Learn how to calm down by using the 3-step breathing meditation. I have more patience and am aware of my heartbeat."*
- Taking time on a task: *"Learnt about taking your time on something without stressing yourself."*
- Less anxiety**:** *"Learn how to calm down – Less anxiety."*

4. Improved Self-Discipline and Control. The fourth theme comprised group participants feeling a greater degree of control over their gambling:

- Self-discipline: *"Stop and think before I do any harm or damage to myself. I learned to discipline myself better."*
- Avoid auto pilot: *"To be able to control going into auto pilot."*

5. Better interpersonal skills: The fifth theme of benefits reported by participants was about feeling better able to relate to others by becoming better listeners, non-judging and less reactive:

- Improved relationships: *"Learn not to judge people so fast."*
- Better at listening: *"Much better listener and not affected by small things. Conflicts are less severe when you don't react right away."*

6. Positive experiences in their lives. The sixth theme of benefits was an overall positive impact on their lives from the mindfulness techniques, improved self-confidence, clearer thinking, and overall better physical and mental health:

- *"Learned how I sometimes get rid of bad thinking and be relaxed."*
- *"Helping with my job/career."*
- *"Become a better person*."
- *"Mental and physical health has improved greatly."*
- *"Always brightened my mood. Feel more positive*."

Applying a Mindfulness-Based Approach to Problem Gambling Recovery

This section explores in greater detail the mechanisms of action of a mindfulness approach and the variety of ways it can be useful for clients. Due to the relationship between problem gambling, cognitive distortions and emotion regulation, those treating problem gambling should familiarize themselves with how mindfulness can help to address these distortions and automatic pilot. The following techniques and outcomes of using mindfulness for problem gambling recovery could be incorporated into the group structure or reinforced throughout, adding a deeper level to the mindfulness treatment.

Cultivating Awareness of Cognitive Distortions and Stepping Out of Automatic Pilot

Erroneous beliefs related to the concept of randomness are common in people with gambling problems, can make it more difficult for a gambler to control their urge to gamble, and are linked to the behaviours leading to problem gambling (Kahneman & Tversky, 1982; Petry, 2005; Toneatto et al., 1997; Toneatto, 1999; Turner, 1998; Turner et al., 2006). For example, chasing (continuing to gamble attempting to win back losses) is partly based in a mistaken belief that the chances of winning increase after losses because they are "due" for a win (Turner, 1998). Even if people are taught the concept of the independence

of random events, the urge to gamble itself can override what they have learned (Benhsain et al., 2004; Sevigny & Ladouceur, 2003). In addition, people with problem gambling report sometimes going into a trance-like state while gambling—sometimes even totally disassociating from their physical body, watching themself gamble away their money as a passive observer. This aligns with the concept of autopilot where problem gambling often involves automatic thoughts that take place outside of awareness (Gupta & Derevensky, 1998; Jacobs, 1988).

Strategies to help people with gambling problems by educating them about the true nature of randomness have proven ineffective (Ariyabuddhiphongs, 2013) because a key issue is that when they gamble, they operate on autopilot. According to Toneatto et al. (2007):

> Distinguishing mental events from the responses to them provides a choice to the gambler regarding how best to respond, rather than react, to gambling related cognition. It is argued that improving gambler's mindfulness can help them overcome the erroneous beliefs and automatic behaviours associated with problem gambling. Learning to relate differently to gambling cognitions may be as important as, if not more important than, challenging the specific content of the thoughts. (p. 94)

Problem gamblers might therefore benefit from cultivating greater awareness of their present moment experience to avoid going into autopilot and being motivated by maladaptive thoughts and intuitions (Bien, 2009). Mindfulness can deal with erroneous cognitions by bringing increasing awareness of those thoughts and their automatic nature (Brewer et al., 2010 so can recognize them as just thoughts and not act on them, which they may do while on autopilot, even if they know these thoughts to be inaccurate We believe mindfulness may be a means of breaking out of that cycle by helping to avoid autopilot.

Seeing Thoughts, Emotions and Urges as Temporary Mental Events

Learning how to cultivate non-judgmental awareness of thoughts and emotions by practicing mindfulness can enable problem gamblers to overcome cravings and urges that can lead to relapse by preventing autopilot. Urge surfing is one useful method to help people learn to accept their urges without being ruled by them (Bien, 2009).

The key learning here is the impermanence of all experience and seeing urges as passing mental events that do not have to be acted on or resisted. One can simply accept the urge as nothing more than thoughts, feelings, and bodily sensations, and let it be in present moment awareness and then pass.

Building Tolerance for Discomfort

Practicing formal mindfulness meditation involves sitting still and observing the breath while cultivating non-judgmental awareness of present moment experience. As one does this, they may notice discomfort arising from boredom, impatience, frustration from sitting still as it is not a common practice for many, yet they are encouraged to cultivate non-judgmental awareness of the discomfort. The nine attitudes of mindfulness discussed earlier (beginner's mind, non-judging, acceptance, letting go, trust, patience, non-striving, gratitude and generosity) can also be integrated into the practice. This practice can help develop greater tolerance for discomfort and in turn, greater control of urges and cravings (Liu et al., 2012; Kingston et al., 2006; Lotan et al., 2013; Forsyth & Hayes, 2014).

Cultivating a Different Relationship to Experience

In some cases, people may repeatedly turn to substance use and other behaviours such as gambling to suppress or avoid whatever stressors they are experiencing (Riley, 2012). This can have negative consequences including a lack of resilience and inability to adapt to changing and stressful situations (Hayes et al., 2006).

Practicing mindfulness can help to develop greater acceptance for what is, good or bad. They do not need to change what they are experiencing, only how they relate to it through acceptance and non-judgmental awareness (Brewer et al., 2014). Therefore, teaching mindfulness to clients can help them learn to unhook from triggers and urges to gamble by accepting them without acting on them as they lessen in intensity.

Increasing Self-Compassion

People who experience problems with gambling can often feel stigmatized (Carroll et al., 2013) and be extremely critical of themselves. The practice of mindfulness has been shown to improve one's self-compassion, which correlates with more healthful behaviours and attitudes toward oneself (Raab, 2014; Yadavaia et al., 2014).

Research on self-compassion has been growing rapidly and has been recognized as a factor associated with emotional wellbeing, resilience, improvements in anxiety and depression, healthy habits like good diet and exercise, increased satisfaction, and caring relationships (Center for Mindful Self-Compassion, 2019). Having self-compassion means caring for ourselves as we would someone close to us and is possible for everyone. Kristin Neff (2011), a leading expert and pioneer in self-compassion research that shows motivating oneself with kindness is more effective than shame and self-criticism.

The Sensory, Affective, and Cognitive Components of Cravings

Through mindfulness, people can learn to take the judgment out of gambling cravings by breaking them down into its sensory, affective, and cognitive components (Li et al., 2017; Desbordes et al., 2015) like sweaty palms, racing heartbeat, tightness in chest, sensations of anxiety or excitement, and thoughts of gambling. The person can thereby see their cravings as impermanent mental and physiological events, which can help to make unhooking from the judgment-filled storyline less overwhelming.

Screening Clients for Appropriateness of Referral to a Mindfulness Group

Clients need to be screened for appropriateness of MBRPPG groups because they were developed for people in the action and maintenance stages of change. Exclusion criteria are not unlike those for other types of treatment groups and may include active suicidal ideation, untreated psychosis, untreated major depression, and active trauma responses (e.g., clients with dissociation, difficulty with affect regulation etc.)—anything that would make sitting in quiet meditation for at least 20 minutes difficult.

Prior to the start of the 8-week group, the group facilitator may want to briefly discuss expectations of individuals in the group including any prior experience with mindfulness, although this is not necessary for attendance. What is important is that they have an interest in learning about a different way of being. There may be greater flexibility as to how much to introduce mindfulness in any given session when working with clients individually. Therapists who have their own mindfulness practice would bring an embodiment of the qualities of the practice to the sessions, even if mindfulness is not specifically discussed.

Navigating Health Equity Barriers to Mindfulness Treatment

Working With Diverse Populations

Anyone can practice mindfulness by cultivating present-centred awareness in a non-judgmental manner, but there are specific recommendations and best practices to keep in mind to address the needs of a diverse population when facilitating mindfulness groups. This section outlines these recommendations and challenges that may arise when working with diverse community groups, including those from underserved and marginalized populations (Sobczak & West, 2013).

Turning Toward Rather than Away: Promoting Acceptance of a Different Approach

One of the core tenets of mindfulness is that is an acceptance-based approach, and this could pose a challenge for many including those from underserved and marginalized groups. The suggestion to turn toward difficult emotions or an unpleasant experience may not be something that people are accustomed to doing, much less want to do. Difficult emotions such as those resulting from abuse, violence, racism, and discrimination (Sobczak & West, 2013) may be the very thing that they have been avoiding, and psychoeducation on the benefits of awareness rather than distraction or suppression can therefore be valuable. People with such experiences may often feel that they do not have choice in what has happened to them throughout their lives or in their treatment or may prefer to feel in control of their experiences and participation, and so they should be invited to practice mindfulness while understanding it as a choice and not mandatory.

Promoting the Therapeutic Benefits of Mindfulness as a Secular Practice

There may be perceptions about what mindfulness is that pose barriers for some. For example, some may consider mindfulness a religious practice based in Buddhism and believe that it will be a deviation from their own religious practice. Using secular language when teaching mindfulness can therefore be more welcoming to an audience with a variety of different religious beliefs.

Practicing mindfulness does not depend on following any religious belief or approach. Mindfulness is simply a method for learning to be fully present in any given moment leading to cultivating greater self-awareness and insight. By reinforcing this utilitarian, secular goal while introducing clients to mindfulness, you will help them understand its main concepts without their religious views being relevant.

At the same time, people who consider themselves religious or spiritual may be able to connect mindfulness to their existing belief systems. Many religious traditions promote contemplation as a practice for cultivating stillness and presence (University of Oslo, 2014), which can align well with mindfulness

principles. Some prayers, also contain similar elements to lovingkindness meditation. Eckhart Tolle (2006) described spirituality as the relationship one has with the present moment and not about any belief system. Mindfulness can therefore help enhance the aspects of contemplation that clients may already be using and familiar with, which could enhance engagement.

Allowing Practice to be the Teacher

Teaching mindfulness is an experiential approach where students learn by doing and realize the benefits that emerge from the practice. The mindfulness teacher's role is to be a guide for the student to navigate through the practice, while the student is seen as an expert on their own situation. Students learn from doing the practice for themselves and not by the teacher telling them what they should be learning.

Promoting Empowerment

Through mindfulness, one can learn to separate their narratives about themselves from their true nature by developing an acceptance and awareness of their story but from a non-reactive stance. This helps to relax and be non-reactive to external factors such as racism and oppression, while acknowledging their presence. In this way, people can make skillful choices that are consistent with their values.

Self-acceptance of identity, values, and sense of meaning can lend to a fuller understanding and appreciation of how experience and perspective affect emotions and behaviours. Irrespective of differences, this can be an empowering experience for anyone. Honouring and accepting one's own experience can translate into a greater sense of awareness and compassion towards self and

others (Sobczak & West, 2013). Awareness through mindfulness practice thereby offers an opportunity for healthy self-development.

People can learn to become aware of their gambling triggers and learn tools for processing and sitting with those reactions. Mindfulness is synonymous with embodied self-reflection, and emotions are at the root of self-reflection. By learning to become aware of emotions and physical attributes associated with behaviour, mindfulness teaches skills for compassion toward self and others.

Because it is a skill-based treatment intervention, mindfulness can help problem gamblers of any background learn to become aware of and observe their physiological and emotional experiences with curiosity and non-judgment.

Clients with Developmental/Cognitive Disabilities or Severe Psychosis

There is little to no research regarding teaching mindfulness practices to people with developmental or cognitive disabilities or severe symptoms of psychosis. While anyone can learn mindfulness, teaching it to people with these issues would need to be adapted based on individual needs (Pinto, 2009).

There are many ways to teach someone to cultivate mindful presence beyond the formal methods of the body scan or minding the breath. For example, although people with certain conditions like ADHD may have a shorter attention span, the research shows that mindfulness can still be practised and can be very useful for them (Mitchell et al., 2015; Zylowska et al., 2008; Zylowska et al., 2009), if properly adapted to their individual situation.

Some clients with significant mental illness may benefit from treatment prior to starting mindfulness for their problem gambling, as the symptoms of their mental illness can pose a barrier

to their attendance and adherence to treatment. For example, someone with depression may find it difficult to sit quietly during a mindfulness practice without getting carried away by negative thoughts and exacerbating their depression. It may therefore be helpful to treat their depression first to place them in a better position to fully benefit from mindfulness practice.

Mindfulness Training for Therapists and Group Facilitators

Shonin and Gordon (2015) insist that mindfulness teachers need to have a personal mindfulness practice to teach from an experiential understanding of the concepts, and not just a theoretical framework or reading from a manual or script. In other words, mindfulness teachers should lead by example. Research indicates the benefits of this way of teaching by comparing outcomes of non-meditating family members rather with participants in a group that received mindfulness training (Singh et al., 2013, 2014).

Specific training for facilitating mindfulness groups or teaching it in a clinical setting is recommended (Crane et al., 2010; Shonin & Gordon, 2015). Mindfulness groups are different from other types of groups in clinical settings like psychotherapy groups because thoughts and feelings are not processed, only observed and accepted. The aim of MBRPPG groups is to teach the skill and concept of mindfulness and its utility in relapse prevention.

Bringing mindfulness to individual sessions with clients and teaching it in a group setting are similar because the meditation practices and attitudes of mindfulness are the same. However, as in most group settings, the group members can also learn from each other, receive peer support, and hear about others' experiences of the practice with the understanding that everyone's experience is different.

In individual sessions, the therapist can decide how and when to use mindfulness with clients. Most importantly, it is recommended that therapists who want to teach mindfulness have their own experience with the practice (Crane et al., 2010), as this allows them to be more attuned with their clients (Davis & Hayes, 2011; Campbell & Christopher, 2012; Keane, 2014). Therapists who practice mindfulness and have some training will embody and model the nine attitudes of mindfulness, while demonstrating the qualities of presence.

Conclusion

In this chapter, we have discussed the theory and research that supports the use of mindfulness in many health care domains. Applications have included pain management, dealing with cancer, stress reduction, depression, substance abuse, all of which indicate that mindfulness is useful in helping people cope. According to the current, expanding evidence base, we believe that mindfulness is effective for managing relapse prevention. Mindfulness is particularly relevant to problem gambling due to the important role played by erroneous beliefs (e.g., Toneatto et al., 1997, 2007; Turner et al., 2006) and automatic thinking (e.g., Benhsain et al., 2004; Gupta & Derevensky, 1998; Jacobs, 1988). Mindfulness has the potential to improve clients' awareness of their thoughts, and this should improve their ability to resist gambling urges. According to studies by Chen and associates (Chen et al., 2014; Martin, et al., 2018; Turner et al., 2017), our MBRPPG treatment program was successful at teaching people with a gambling disorder how to engage in the practice of mindfulness. Mindfulness is also adaptable to a diverse population. Further study is needed to determine the long-term effect of mindfulness on reducing relapse and improving treatment outcomes. As well, Shonin et al. (2013b) have also suggested that other Buddhist-derived interventions might also be beneficial for people with addictions problems.

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