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Dispositional Mindfulness as a Predictor of the Severity of Gambling Outcomes

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Abstract

Two studies were conducted to test and explain the relation of mindfulness to the severity of gambling outcomes among frequent gamblers. In both studies, dispositional mindfulness related to less severe gambling outcomes as measured by a DSM-IV-based screen for pathological gambling, even after controlling for gambling frequency and dispositional self-control. Study 2 extended this finding in showing that the association between mindfulness and lower pathological gambling was partially mediated by better performance on two risk-taking tasks that capture overconfidence, risky bet acceptance, and myopic focus on reward. These studies suggest a role for mindfulness in lessening the severity of gambling problems and making adaptive decisions, especially in risk-relevant contexts.

Keywords

MINDFULNESS; OVERCONFIDENCE; RISK-TAKING; GAMBLING; DECISION-MAKING

Many individuals take harmless pleasure in the risk-taking of gambling, owing to the feelings of excitement, entertainment, and challenge it affords (Neighbors & Larimer, 2004). For others, a heightened susceptibility to judgment and decision-making biases, such as intemperate risk-willingness, can lead to gambling-related problems, typified by pathological gambling (PG). PG is a clinical disorder characterized by symptoms such as preoccupation with gambling, the perceived need to gamble with increasing amounts of money to achieve the desired excitement, restlessness or irritability when attempting to reduce gambling, and “chasing” losses. Its classification as an impulse-control disorder depicts the integral role self-control plays in the development of PG, although it is widely noted to possess salient similarities to addictive disorders. With the range of deleterious consequences that accompany PG, and the recent expansion of opportunities for individuals to gamble (e.g., internet gambling sites), there is concern over the potential increase in the incidence of this disorder (Petry, 2005). Accordingly,

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it is important to understand specific variables that could facilitate adaptive decision-making and thereby avert severe gambling outcomes. In this research, we propose that a dispositional quality of consciousness called *mindfulness* might inhibit gambling-related problems and the biased judgment and decision-making processes that support them.

Mindfulness has been defined as a conscious attention to and awareness of the internal and external stimuli that accompany one's immediate experience (Brown & Ryan, 2003). Mindful attunement to current experience is accomplished by processing both internal and external information in an unbiased, non-distorted manner (Brown & Ryan, 2004b), allowing individuals to meet situational demands with adaptive responses instead of automatic, rote, and habitual reactions (Bishop et al., 2004). Mindfulness is an inherent human capacity, though individuals vary in the extent to which it is expressed. As a modern psychological construct, mindfulness was originally derived from Buddhist psychology, although it shares conceptual kinship with experiential modes of processing described by a variety of Western philosophical and psychological traditions (Brown, Ryan & Creswell, in press). Indeed, it is the experiential basis of mindfulness that distinguishes it from analytic modes of processing (Teasdale, 1999), including those reflected in concepts such as private self-consciousness, rumination, self-monitoring, and the need for cognition (Brown & Ryan, 2003). Although empirical research on mindfulness is nascent, researchers have tied dispositional mindfulness to various markers of self-regulation and psychological well-being, including better self-control, higher emotional intelligence, and lower depressive symptoms, anxiety, neuroticism, and rumination (Brown et al., in press).

Several lines of evidence suggest that mindfulness may also contribute to understanding risk-taking behavior, and attenuating the severity of gambling outcomes. First, mindfulness is fundamentally an attentional construct involving the ability to attend to specific stimuli, including one's overt actions, while simultaneously avoiding ensnarement in unwanted thought patterns, emotional reactions, and sensory distractions. This link between mindfulness and attention is noteworthy given demonstrated associations between attentional and self-control difficulties (e.g., attention deficit disorder), risk-taking, and gambling problems (e.g., Specker, Carlson, Christenson, & Marcotte, 1995). Second, mindfulness concerns non-evaluative, or objective attention and awareness. The ability to observe and act without biased judgment suggests enhanced emotion regulation (Brown & Ryan, 2004a; Hayes & Feldman, 2004), which serves to attenuate the occurrence of maladaptive, unwanted, and affect-laden preconceptions and behaviors through enhanced self-regulation capabilities (Creswell, Way, Eisenberger, & Lieberman, in press; Shapiro & Schwartz, 2000). Accordingly, mindful awareness may enable self-controlled and proactive behavioral responses, rather than the impulsive and avoidant reactivity that often accompanies PG. Third, evidence suggests that mindfulness enhancement contributes productively to the treatment of disorders that tend to co-occur with PG, including depression (Teasdale, 1999), anxiety (Kabat-Zinn et al., 1992), and self-control disorders (Witkiewitz, Marlatt, & Walker, 2005). Importantly, increasing gamblers' objective awareness of the cognitive, behavioral, and affective components that relate to PG is central to many clinical approaches to its treatment (Petry, 2005). Collectively, these considerations suggest that mindfulness may inhibit the impulsive and addictive components of PG.

In the present research, we extend the exploration of the personal, social, and clinical relevance of mindfulness by examining its relation to the severity of gambling outcomes and the judgment and decision-making processes that accompany them. In Study 1 we examined the relation between dispositional mindfulness and PG, and assessed whether this relation remained when controlling for other relevant variables, including general self-control capacity and frequency of gambling activity. In Study 2 we examined potential judgment and decision-making mechanisms that could explain the relation between mindfulness and PG, specifically mediated

through performance on two laboratory-based risk-taking tasks. To better represent individuals with active gambling-related pathology and increase the ecological validity of this research, we sampled frequent gamblers in both studies.

Study 1

Method

Participants—Undergraduate participants (*N*=185; 60 female) from a large university completed this study for partial fulfillment of course requirements. They responded to a notice seeking participants who gamble at least weekly. Ages ranged from 18-23 (*M*=19.44, *SD*=1.19).

Measures and Procedures—After giving consent, all participants completed a demographic questionnaire and measures of trait mindfulness and self-control. To assess mindfulness, we used Brown and Ryan's (2003) Mindful Attention Awareness Scale (MAAS). These authors report satisfactory reliability and a number of studies that attest to its validity. We chose the MAAS because it assesses the receptive attentional presence to one's on-going experience that Brown and Ryan (2003; 2004b; Brown et al., in press) argue captures the central quality of mindfulness, whereas other recently developed measures of mindfulness appear to more appropriately assess mindfulness *skills* (e.g., describing or labeling experience) that may be developed in therapeutic or meditative contexts. Using a 6-point Likert-scale (1=*Almost Always*, 6=*Almost Never*), responses to 15 questions (e.g., I find myself doing things without paying attention.) were averaged such that higher scores reflected greater mindfulness. Cronbach's alpha (α) for the MAAS was .85.

We used Tangney, Baumeister, and Boone's (2004) short-version 13-item Self-Control Scale (SCS) to measure self-control. These authors report adequate reliability and validity, including, for example, inverse relations with alcohol abuse. Participants responded to questions (e.g., *I am good at resisting temptation.*) using a 7-point Likert-scale. Higher summed values reflected greater self-control (α=.86).

All participants then completed Winters, Specker, and Stinchfield's (2002) Diagnostic Interview for Gambling Severity (DIGS), a reliable and valid PG screen that assesses the severity of individuals' gambling involvement with direct reference to the ten DSM-IV criteria. Participants responded to two questions relating to each criterion (e.g., Do you gamble as a way to escape personal problems?) with one of three responses (*Very True*, *Somewhat True*, *False*). We assigned a point for a response of *Very True* or *Somewhat True* for either or both of the questions referencing a particular DSM-IV criterion. Higher summed values reflected more severe gambling involvement, with possible scores ranging from 0 to 10 (α=.87). The DIGS also includes questions in 5-point scale format concerning the frequency (ranging from *none at all* to *daily*) with which respondents engaged in 11 specific gambling modalities in the past year (e.g., *Played slot/poker/gambling machines?*). Higher summed totals reflected greater gambling frequency (α=.77).

Results

The means of the DIGS (*M*=3.03; *SD*=2.05) and gambling frequency (*M*=90.83; *S*D=133.95) suggested a wide range of gambling-related problems and gambling involvement. Of the 185 participants, 127 scored four or less on the DIGS, while 58 scored five or higher, indicating PG (Winters et al., 2002). The means of the MAAS (*M*=3.56; *SD*=.69) and SCS (*M*=38.65; *SD*=8.03) were comparable to, though slightly lower than, means reported with normative student samples (e.g., Brown & Ryan, 2003 and Tangney et al., 2004, respectively). Prior to further analysis, we examined the measures for outliers and assumptions of normality. The

measure of gambling frequency was skewed, so we conducted a square root transformation for this variable to normalize its distribution; we also centered each predictor variable to reduce all non-essential multicollinearity (Cohen, Cohen, West, & Aiken, 2003). See Table 1 for correlations among these variables.

Of central importance to this investigation is the extent to which the MAAS significantly predicted DIGS, after controlling for gambling frequency and SCS. We tested this hypothesis by simultaneously regressing DIGS onto gambling frequency, SCS, and MAAS. As hypothesized, MAAS significantly predicted DIGS (β=-.24, t=-3.27, p<.01). Gambling frequency was also predictive (β=.33, t=4.95, p<.01), but SCS was not (p>.26).

Brief Discussion

These results provide initial evidence that mindfulness relates to lower gambling-related pathology, even when controlling for gambling frequency and trait self-control. These results also suggest that gambling's ill effects may not be reducible to self-control deficits *per se*; rather, the present centered awareness and subsequent adaptive behavioral choices facilitated by mindfulness may be more important to determining the severity of gambling outcomes. However, this relation requires replication. Additionally, the specific mechanism(s) explaining the relation are unknown. We conducted another study to test the role of mindfulness in ameliorating the judgment and decision-making biases that contribute to the development of PG.

Study 2

In Study 2, we examined potential channels through which mindfulness is associated with lower degrees of gambling pathology. For example, mindfulness may foster better calibration of risk-taking assessments. This possibility is important, given well-established empirical links between judgment and decision-making deficits and PG (Ladouceur, 2004; Toneatto, 1999). In particular, judgment and decision-making deficits reflected in the Georgia Gambling Task (GGT; Goodie, 2003), which measures overconfidence and risk-willingness, and the Iowa Gambling Task (IGT; Bechara, Damasio, Damasio, & Anderson, 1994), which measures myopic focus on reward, have demonstrated relevance in determining the severity of gambling outcomes (Bechara, 2001; Goodie, 2005; Lakey, Goodie, & Campbell, in press). In this study, we used these two behavioral assessments to assess different forms of gambling-related risk-taking.

In the GGT, participants first complete a confidence calibration task by answering 100 two-alternative general knowledge questions and assessing their confidence in each answer using a 50% to 100% scale. Confidence is assessed such that, among answers in which one expresses 80% confidence, 80% should turn out to be correct. If this is achieved, the average confidence over all trials equals the proportion of questions answered correctly. Overconfidence is calculated as the difference between average confidence and accuracy across the question set. In the next phase, participants accept or reject a bet on each answer that is fair (having zero average value) if confidence is well calibrated. For example, if participants express 80% confidence in an answer, the offered bet would award 100 points if correct, but penalize 400 points if incorrect. If participants are overconfident, accepting bets systematically results in negative point totals. Previous research has established the relevance of GGT performance to the severity of gambling outcomes, where higher reports of PG relate directly to overconfidence and bet acceptance, and inversely with point totals (Goodie, 2005; Lakey et al., in press).

The IGT is a contingency card-choice task in which participants choose from among four decks. Two decks offer large wins, which intermittently are accompanied by even larger losses, leading to negative average outcomes. The other two decks offer smaller gains, which

sometimes are accompanied by even smaller losses, leading to positive average outcomes. Initially, Bechara et al. (1994) found that patients with ventromedial prefrontal cortex damage continually chose from the disadvantageous decks, whereas non-lesioned controls learned over 100 trials to avoid those decks. Successful performance is contingent upon learning to avoid the risky decks and choosing from the safe decks, which is accomplished through the aversive emotional responses tied to the large losses associated with the disadvantageous decks (Bechara, Damasio, & Damasio, 2000). The interpretation of perseveration among non-lesioned participants is that they are willing to continue choosing from disadvantageous decks because of a myopic focus towards large wins. Researchers have used this task to delineate among groups with heightened risk-taking propensities, including those with substance addiction disorders (e.g., Bechara & Damasio, 2002), and individuals with PG (Lakey et al., in press).

Clearly, the GGT and IGT are not designed to assess gambling *per se*, as neither involves wagers for real money. Instead, these tasks measure differences in cognitive processes that underlie gambling and other risky activities. Indeed, in the Lakey et al. (in press) study of frequent poker players, those who frequently opted for risky decks on the IGT also displayed greater overconfidence, accepted more bets, and ultimately earned fewer points on the GGT. Moreover, both of these tasks uniquely predicted higher reports of PG. To date, no research has documented a link between mindfulness and performance on the GGT and IGT. We argue, however, that such a link is plausible. As mindfulness entails enhanced attentional and self-regulatory capabilities that facilitate meeting situational demands adaptively (Brown et al., in press), the biased judgments that lead to overconfidence and risk-willingness captured by the GGT, and the tendency to maintain an indiscriminate focus on reward in the IGT, suggest lower levels of dispositional mindfulness are operative. With this in mind, we hypothesized that the relation between mindfulness and PG would be accounted for (i.e., mediated), at least in part, by participants' performance on these tasks.

Method

Participants—Undergraduate frequent gamblers (*N*=309; 101 female) from a large university completed this study for partial fulfillment of course requirements. Ages ranged from 18-25 (*M*=19.23, *SD*=1.31).

Measures and Procedures—As in Study 1, participants completed the MAAS (α=.81), the SCS (α=.86), and the DIGS to assess gambling pathology (α=.91) and gambling frequency (α=.81). Participants then completed computer-administered versions of the GGT and IGT, in counterbalanced order. To assess performance on the GGT, we used total points won or lost (GGT Points) as the variable of interest, as this reflects both individuals' confidence calibration (i.e., overconfidence) and the proportion of times participants accepted bets based on their level of confidence. To gauge performance on the IGT, we used the total number of times participants chose from the advantageous, safe decks over 100 trials (IGT Total).

Results

The means of the MAAS (*M*=3.62; *SD*=.73), SCS (*M*=40.28; *SD*=11.69), DIGS (*M*=3.73; *SD*=2.33) and gambling frequency (*M*=113.51; *SD*=123.65) variables were consistent with those found in Study 1. Of the 309 participants, 199 scored four or less on the DIGS, while 110 scored five or higher, indicating PG. The means of GGT Points (*M*=-24636; *SD*=22504) and IGT Total (*M*=58.65; *SD*=17.55) are consistent with those found in other samples of frequent gamblers (e.g., Lakey et al., in press). Again, we centered all predictor variables and subjected gambling frequency to a square root transformation to correct skewness. Correlations of the study variables appear in Table 2.

In an attempt to replicate the results of Study 1, we simultaneously regressed DIGS onto MAAS, SCS, and gambling frequency. As before, a significant relation with MAAS score emerged (β=-.26, t=-4.71, p<.01). Gambling frequency also was a significant predictor (β=.40, t=8.14, p<.01), but SCS was not (p>.06). Having again established the relation between mindfulness and gambling severity, we analyzed the relation between mindfulness and the prospective mediating variables — GGT Points and IGT Total. We first simultaneously regressed GGT Points onto MAAS, again controlling for SCS and gambling frequency. MAAS score was a significant predictor (β=.23, t=3.76, p<.01), whereas gambling frequency and SCS were not (both ps>.45). We then regressed IGT Total onto MAAS, controlling for gambling frequency and SCS. Neither gambling frequency nor SCS were statistically significant (both ps>.64), whereas MAAS score was highly significant (β=.23, t=3.79, p<.01). Figure 1 depicts GGT and IGT performance as a function of MAAS scores.

To determine whether performance on these tasks accounted for a significant portion of the shared variance between mindfulness and DIGS, we simultaneously regressed DIGS onto MAAS, both posited mediating variables, and the covariates gambling frequency and SCS. Importantly, both GGT Points (β=-.14, t=-2.60, p<.05) and IGT Total (β=-.13, t=-2.36, p<.05) were significant predictors of DIGS scores. The direct relation of MAAS also remained significant (β=-.16, t =-2.77, p<.01). Figure 2 displays the mediation model and results.

Given concerns regarding mediation tests that do not use formal significance tests of mediation relations (e.g., MacKinnon, Lockwood, Hoffman, West, & Sheets 2002), we tested the significance of both the total direct relation of mindfulness, and the specific indirect relations of GGT Points and IGT Total using Preacher and Hayes' (submitted) bootstrapping technique for multiple mediator models. In comparison to other proposed mediation methods, this method has greater power to detect significant mediation without imposing questionable distributional assumptions on the data (MacKinnon et al., 2002). To reveal the precise nature of the mediation, Preacher and Hayes' technique produces point estimates and bias-corrected and accelerated confidence intervals (see Effron, 1987) for each of the proposed indirect relations, and a point estimate of the remaining direct relation. For the indirect relation tests, confidence intervals that do not include zero suggest significant mediation.

The total indirect relation of MAAS on DIGS through both of the mediating variables was significant (point estimate=-.0129; 95% CI:-.0056 to -.0239). Importantly, examinations of the specific indirect relations revealed that both mediating variables also were uniquely significant. Specifically, the GGT Points point estimate was -.0067 (95% CI:-.0016 to -.0160), and the IGT Total point estimate was -.0062 (95% CI:-.0014 to -.0150). The remaining direct relation of MAAS was significant (point estimate=-.0345), indicating partial mediation.

Brief Discussion

These results demonstrated again that mindfulness was related to less severe gambling outcomes. Also, we found significant relations between mindfulness and performance on two risk-related judgment and decision-making tasks. Specifically, mindfulness predicted better performance on the GGT, where points are contingent upon better calibration between judgments of confidence and accuracy and less bet acceptance, and the IGT, which assesses myopic focus on reward. Better performance on both tasks related to less gambling-related pathology, and most importantly, performance on these tasks partially explained why more mindful individuals evidenced less severe gambling outcomes.

General Discussion

Gambling in excess can engender manifold intrapersonal and interpersonal problems, and it is important to isolate specific individual difference variables that might promote adaptive

behavioral choices and thereby protect people at risk of developing PG. As such, we examined the hypothesis that dispositional mindfulness is associated with less severe gambling outcomes and the biased judgment and decision-making processes that help to uphold them. Two studies found that although more mindful individuals gamble with equal frequency as those less mindful, there were significant inverse relations between mindfulness and reports of PG, even after controlling for gambling frequency and dispositional self-control. In addition to its implications for PG, this finding supports theory and past research on the role of mindfulness in supporting adaptive behavioral choices more generally (Brown et al., in press; Brown & Ryan, 2003; 2004a).

Study 2 extended this basic finding by examining the role of risk-related judgment and decision-making in explaining the inverse relation between mindfulness and gambling severity. This study revealed two potential mechanisms by which mindfulness may inhibit severe gambling outcomes, as demonstrated by behavioral performance in two gambling paradigms that assessed different forms of risk-taking. First, perhaps as a function of their heightened awareness and attention to present events and experiences, more mindful individuals displayed greater accuracy when answering general knowledge questions on the GGT. Moreover, they exhibited better calibration between their confidence and accuracy (i.e., less overconfidence). As seen in Figure 1a, mindful participants revealed calibration curves consistently closer to the normative identity line where confidence equals accuracy. As such, coupling these more adaptive judgment processes with less frequent risk-taking decisions, more mindful individuals objectively outperformed those less mindful in points earned. The fact that mindful individuals were more accurate suggests that mindfulness may inhibit distraction from intrusive thoughts, allowing for deeper processing of relevant stimuli. This may have led to greater recognition of risk, resulting in lower bet acceptance.

Second, more mindful individuals implicitly learned mixed reward and punishment contingencies better than less mindful individuals, as depicted in Figure 1b by their higher selection from advantageous decks on the IGT. This finding suggests that the heightened awareness to internal and external stimuli that denotes mindful attunement may facilitate a subsequent consonance between individuals' behaviors and the affective consequences associated with particular stimuli. Specifically, higher mindfulness may have allowed for better attunement to internal affective states caused by the reward and punishment contingencies associated with the risky decks. Presumably, this decreased the myopic focus on potential reward that obscures the recognition of potential loss, which in turn may have increased inhibition and tempered individuals' impulsivity. Detailed investigation of these processes awaits further research.

The lack of observed relation between mindfulness and gambling frequency, and the inverse correlation between mindfulness and PG suggests that mindfulness may promote successful gambling experiences by fostering less overconfidence, less risk-taking, and less myopic focus on reward. Future research is needed to examine these potential processes more closely. However, given that performance on these risk-taking tasks only partially mediated the relation between mindfulness and gambling severity, it will be important to explore other potential mediators. One possibility is to examine mechanisms related to psychological distress. Specifically, mindfulness might serve to inoculate individuals from symptoms such as depression or neuroticism, which often arise in conjunction with PG (Petry, 2005). Another possibility is to examine mechanisms related to gamblers' ego-involvement. Certain PG symptoms, such as preoccupation with gambling, suggest that imbuing gambling experiences with heightened self-relevance fosters egoic attachment to gambling outcomes, which may undermine gambling's harmless nature. In both of these cases, mindfulness may serve to mitigate ego-involvement in gambling by inhibiting such attachment and by decreasing the likelihood of using gambling as a means of escape from challenging personal realities.

Given the links between mindfulness, judgment and decision-making biases, and PG, future research may also explore the gambling-related effects of interventions designed to enhance mindfulness. Cognitive-behavioral therapy for gamblers targets, in part, increasing objective recognition of cravings and potential gambling-related triggers, and mitigating the cognitive biases that exacerbate gambling problems (Petry, 2005). Based on our findings, the capacity for mindfulness may help facilitate such self-regulation, and may prove useful for designing interventions. Mindfulness is a quality of consciousness that may be enhanced through training (Brown et al., in press), and such training has demonstrated effectiveness in treating self-control related disorders (e.g., Witkiewitz et al., 2005).

Limitations and Other Future Directions—Mindfulness related to less severe gambling tendencies in two independent samples of frequent gamblers. However, the causal direction of this relation is uncertain in these studies. While a broad-based disposition (mindfulness) is more likely to influence a specific behavioral tendency (gambling) than the converse, experimental research is warranted, possibly using mindfulness induction (e.g., Broderick, 2005). Finally, the risk-taking tasks we employed did not offer wagers for real money, and differed from real gambling in other ways. These tasks do, however, mimic real-world risk-taking in important ways, and capture differences in basic cognitive processes that underlie gambling and other risky activities. To the extent that these measures mediate the link between mindfulness and gambling pathology, they may play a similar role in other forms of risky behavior.

Conclusions—These studies demonstrated that mindfulness is associated with less severe gambling outcomes, and revealed that better attuned risk-taking judgments and decisions helped to explain this relation. These findings are hopeful in suggesting that the 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 PG. Indeed, mindfulness has been considered a self-regulatory capacity, and heightened awareness of events and experiences is a necessary antecedent to reflectively considered choices. In this light, mindfulness may help to lessen the grip of automatic thoughts, affective reactions, and behavior patterns, thereby facilitating adaptive behavioral regulation.

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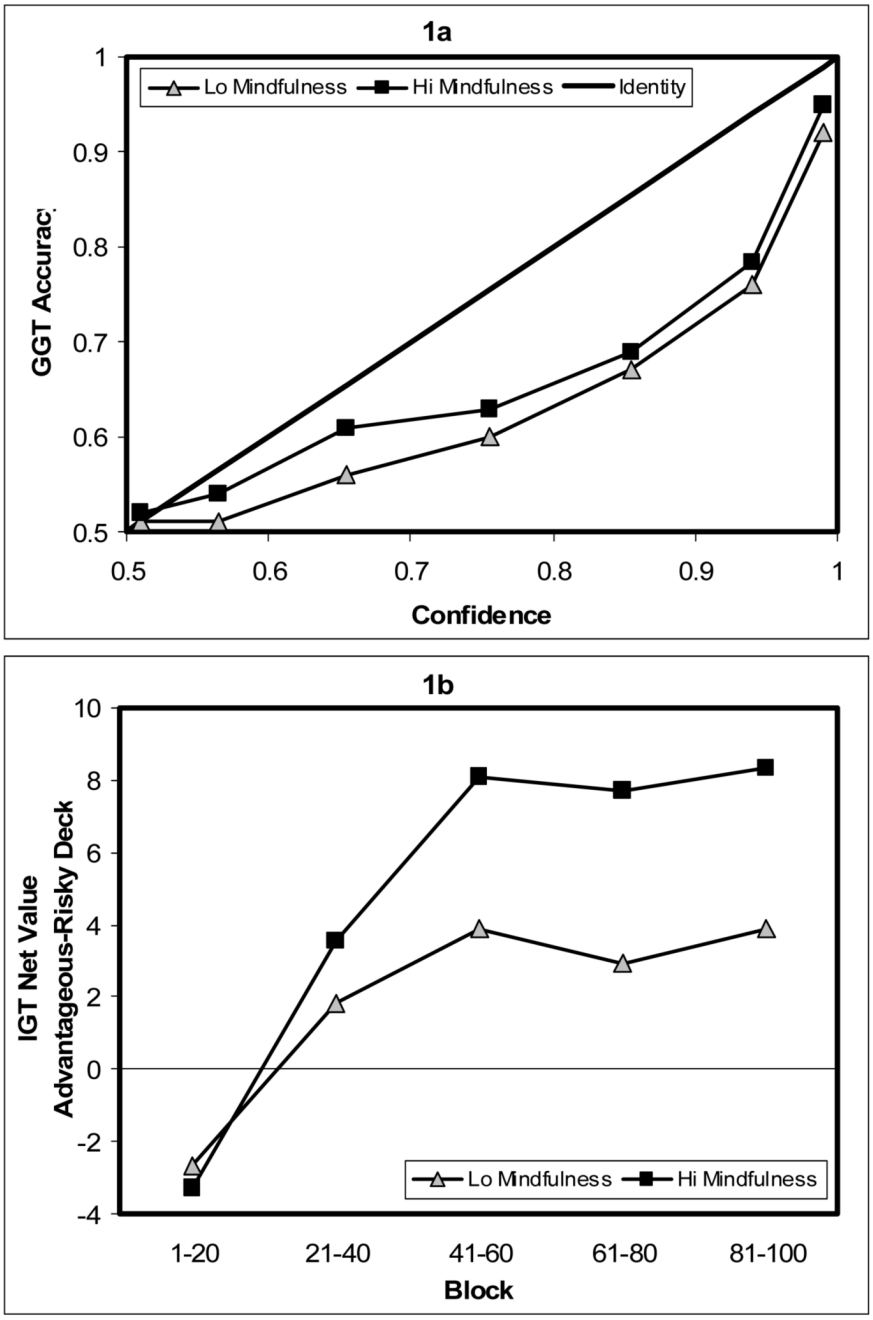

Figure 1.
Results using a median split of high and low MAAS scores for (a) GGT confidence calibration, showing accuracy as a function of confidence, and (b) IGT deck choice, showing the average difference between advantageous and risky choices for each block of 20 trials.

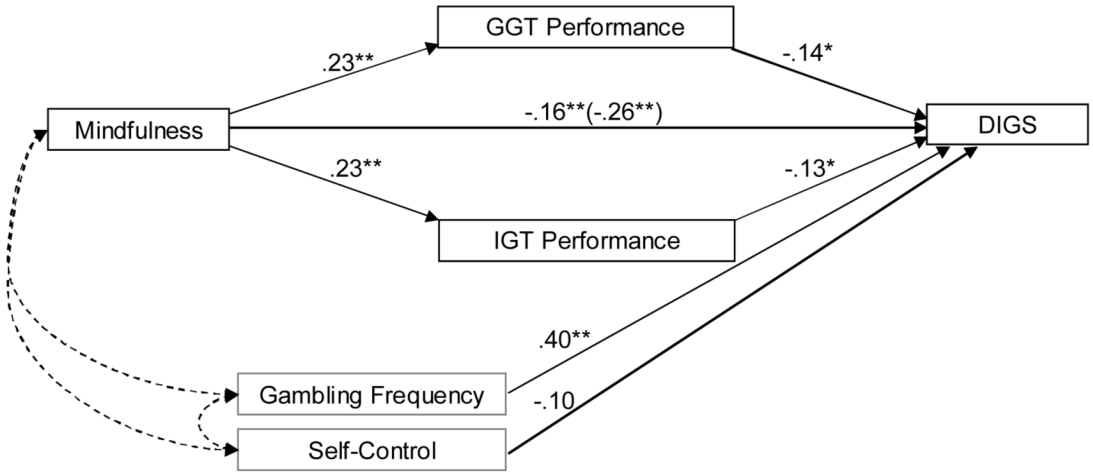

Figure 2.
Model of relations between mindfulness, GGT and IGT performance, and pathological gambling (DIGS), controlling for gambling frequency and self-control.
Note. Values represent standardized regression coefficients. Value in parentheses represents the mindfulness and DIGS relation preceding the inclusion of the mediating variables. *p<.05,**p<.01.

Table 1

Bivariate Correlations among Study 1 Variables

Measure	1	2	3	4
1. DIGS	---			
2. MAAS	-.29**	---		
3. SCS	-.22**	.40**	---	
4. Gambling frequency	.36**	-.07	-.14†	---

Note. DIGS= Diagnostic Interview for Gambling Severity; MAAS= Mindful Attention Awareness Scale; SCS= Self-Control Scale.

† $p<.10$

** $p<.01$.

Table 2

Bivariate Correlations among Study 2 Variables

Measure	1	2	3	4	5	6	7	8	9	10
1. DIGS	---									
2. MAAS	-.26**	---								
3. SCS	-.19**	.37**	---							
4. Gambling frequency	.41**	-.01	-.10†	---						
5. GGT Confidence	.14*	-.05	-.07	.09	---					
6. GGT Accuracy	-.04	.16*	-.04	-.02	.53**	---				
7. GGT Overconfidence	.16**	-.22**	-.01	.06	.34**	-.62**	---			
8. GGT Bet Acceptance	.18**	-.10†	-.12*	.11*	.44**	.31**	.08	---		
9. GGT Points	-.20**	.23**	.09	-.09	-.32**	.20**	-.52**	.29**	---	
10. IGT Total	-.17**	.22**	.10†	.00	-.02	.15*	-.19**	-.12*	.20**	---

Note. DIGS= Diagnostic Interview for Gambling Severity; MAAS= Mindful Attention Awareness Scale; SCS= Self-Control Scale; GGT= Georgia Gambling Task; IGT= Iowa Gambling Task.

† $p<.10$

* $p<.05$

** $p<.01$.