

JGI Scholar's Award, Category B

Perfectionism Predicts Disordered Gambling Via Financially Focused Self-Concept

Nassim Tabri,¹ Kaitlyn M. Werner,¹ Marina Milyavskaya,¹ & Michael J.A. Wohl¹

¹ Department of Psychology, Carleton University, Ottawa, Ontario, Canada

Abstract

Perfectionism has been implicated in several psychiatric disorders, including eating disorders, anxiety disorders, and depression. In the current research, we extended the analysis of perfectionism to understand disordered gambling. Unlike other life domains in which people with perfectionistic tendencies can objectively control outcomes (e.g., dieting to control one's body shape or weight in eating disorders), perfectionism in the gambling context is unique because there is little to no objective control over gambling outcomes (i.e., winning money). We hypothesized that gamblers with perfectionistic tendencies may set themselves a high standard within the financial success domain, which would manifest in more severe disordered gambling symptoms. We also hypothesized that having a self-concept that is focused on financial success would mediate the relation between perfectionistic tendencies and disordered gambling severity. To test this mediation model, we asked a community sample of gamblers ($n = 258$) to complete measures that assessed perfectionistic tendencies, financially focused self-concept, and disordered gambling severity. In line with expectations, there was a moderate positive relation between perfectionistic tendencies and disordered gambling severity, which was further mediated by financially focused self-concept. These findings suggest that perfectionistic tendencies among gamblers are associated with disordered gambling because such tendencies result in a self-concept that is focused on financial success. The findings also suggest that targeting gamblers' perfectionistic tendencies in prevention and treatment interventions may be instrumental in alleviating their financial focus, which would help curtail the development and maintenance of disordered gambling.

Keywords: perfectionism, self-concept, disordered gambling, money

Résumé

On a établi que le perfectionnisme entrain en ligne de compte dans plusieurs troubles psychiatriques, entre autres les troubles de l'alimentation, les troubles anxieux et la

dépression. Dans la présente recherche, nous avons étendu l'analyse du perfectionnisme pour comprendre le jeu compulsif. Contrairement aux autres domaines de la vie où les personnes ayant des tendances perfectionnistes peuvent contrôler objectivement les résultats (p. ex., suivre un régime pour contrôler sa silhouette ou son poids), le perfectionnisme dans le contexte du jeu est unique parce qu'il y a très peu ou pas de contrôle sur les résultats (c'est-à-dire gagner de l'argent). Nous avons avancé l'hypothèse que les joueurs ayant des tendances perfectionnistes pouvaient fixer un niveau élevé de réussite financière, ce qui se traduirait par des symptômes de jeu compulsif plus sévères. Nous avons également émis l'hypothèse que le fait d'avoir une image de soi centrée sur la réussite financière permettait d'établir un lien entre les tendances perfectionnistes et la gravité du jeu compulsif. Pour tester ce modèle de médiation, un échantillon communautaire de joueurs ($n = 258$) a complété des mesures évaluant les tendances perfectionnistes, une image de soi axée sur les finances et la gravité du jeu compulsif. Conformément aux attentes, il existait une relation positive modérée entre les tendances perfectionnistes et la gravité du jeu compulsif qui était davantage liée avec une image de soi axée sur les finances. Ces résultats laissent entendre que les tendances perfectionnistes chez les joueurs sont associées au jeu compulsif parce que de telles tendances aboutissent à une image de soi axée sur la réussite financière. Les résultats suggèrent également que le ciblage des tendances perfectionnistes des joueurs dans les interventions de prévention et de traitement peut contribuer à alléger leur orientation financière, ce qui contribuerait à freiner le développement et le maintien du jeu compulsif.

Introduction

Most people tend to pursue achievement in multiple life domains (e.g., health, sports, work, school, appearance, financial success). People with perfectionistic tendencies, however, pursue a self-imposed high standard of achievement across multiple domains (Stoeber & Stoeber, 2009) because they have deep-seated feelings of uncertainty and incompetence and thus focus on life domains that may offer them a sense of control and achievement in their lives (Egan, Wade, Shafran, & Antony, 2014). Problems may arise when people with perfectionistic tendencies base their self-worth on their (perceived) ability to achieve a high standard in a focused domain (Egan et al., 2014; Shafran, Cooper, & Fairburn, 2002). For example, people with perfectionistic tendencies who focus on their appearance are at heightened risk for disordered eating (Fairburn, Cooper, & Shafran, 2003) because having these tendencies in the appearance domain is a risk factor for the development of an appearance-focused self-concept—the core psychopathology that maintains disordered eating. Although in many cases perfectionists seek to attain objective, controllable outcomes (e.g., one's body shape/weight), what happens when this is not possible? In the context of gambling, outcomes are typically not

objectively controllable. Thus, will a person in this context still attempt to control events related to financial success, even though outcomes are based on chance?

In the current study, we examined the role that perfectionism may play in disordered gambling. We hypothesized that some gamblers with perfectionistic tendencies are more likely to have gambling problems. The rationale is that gamblers with perfectionistic tendencies who set themselves a high standard within the financial success domain may be more likely to gamble for financial gain and to cope with stress—two well-known gambling motives implicated in the development and maintenance of disordered gambling. We also examined a possible mechanism by which perfectionistic tendencies among gamblers may be associated with disordered gambling. We reasoned that the perfectionistic tendencies of some gamblers shape their self-concept to focus on financial success, therefore leading these gamblers to derive their self-worth from the amount of money they have in their possession. In other words, having more severe perfectionistic tendencies may focus the self-concept of those who gamble on their financial success. A consequence of a financially focused self-concept among gamblers is increased motivation to gamble for financial gain, as well as gambling to cope with stress, both of which increase the risk of disordered gambling (Tabri, Wohl, Eddy, & Thomas, 2017). We tested these ideas in a sample of community-based gamblers.

Perfectionism and Disordered Gambling

There has been considerable debate in the literature about the nature of perfectionism, specifically regarding the extent to which perfectionism is a unidimensional versus a multidimensional construct (there is also a debate about the specific dimensions, but that is beyond the scope of the current research). In the multidimensional camp, Hewitt and Flett (1991) conceptualize perfectionism as having three dimensions: self-oriented (demanding perfection of oneself), socially prescribed (perceiving others as demanding perfection of oneself), and other oriented (demanding perfection from others). Similarly, Frost, Marten, Lahart, and Rosenblate (1990) conceptualize perfectionism as including personal standards, concern over mistakes, doubts about actions, parental expectations, parental criticism, and organization dimensions. Factor analytic studies, however, have shown the existence of two interrelated higher order dimensions of perfectionism: personal standards and evaluative concerns (for a review, see Dunkley, Blankstein, Masheb, & Grilo, 2006). More recently, though, evidence has emerged in favour of the unidimensional camp. Specifically, Smith and Saklofske (2017) showed that these higher order dimensions reflect a single general perfectionism factor. In the current paper, for parsimony, we adhere to Smith and Saklofske's understanding of perfectionism as a single general factor.

Nonetheless, a considerable body of research has shown that the lower order dimensions of perfectionism (i.e., self-oriented, socially prescribed, personal standards, and concern over mistakes) are related to various unique forms of psychopathology, including eating disorders, anxiety disorders, and depression (for a review, see Egan,

Wade, & Shafran, 2011). In response to such associations, Shafran and colleagues (2002) proposed a cognitive-behavioural theory of “clinical perfectionism,” which they defined as overvaluing the importance of striving to meet standards and reacting to perceived failure to meet standards with self-criticism. Although these two aspects of clinical perfectionism conceptually correspond to the two higher order perfectionism constructs of personal standards and evaluative concerns, respectively (e.g., Dunkley et al., 2006; Stoeber & Damian, 2014), Shafran and colleagues (2002) conceptualized clinical perfectionism as a unidimensional construct. We contend that, akin to the notion that perfectionism is a single general factor (e.g., Egan et al., 2016; Smith & Saklofske, 2017), clinical perfectionism is best understood as a single factor that reflects an overreaching desire to meet high standards and self-criticism in response to failing to meet those standards.

According to the cognitive-behavioural theory of clinical perfectionism (Egan et al., 2014; Shafran et al., 2002), people with perfectionistic tendencies set and pursue a high standard of achievement in domains that they believe provide them with a sense of control and achievement in their lives. They also base their self-worth on their ability to achieve a high standard in their focused domains. When a high standard is not met, people with perfectionistic tendencies react to their failure with self-criticism and evaluate their self-worth negatively. Failure also reinforces people with perfectionistic tendencies to base their self-worth on their ability to meet the high standard. Moreover, according to the cognitive-behavioural theory of perfectionism, people with perfectionistic tendencies quickly discount their achievements, regardless of whether their high standard is met temporarily or permanently. They also tend to set even higher standards and base self-worth on their ability to achieve these higher standards. In this way, basing self-worth on the ability to achieve a high standard in a domain is the core problem that drives and maintains the vicious cycle of perfectionism.

Critically, in their pursuit of high standards, people with perfectionistic tendencies engage in behaviours that harm their mental and physical health (Egan et al., 2014; Shafran et al., 2002). Indeed, perfectionism motivates extreme maladaptive behaviours aimed at attaining a high standard in a given domain. Perfectionism, for instance, is a well-known risk factor for eating disorders (Fairburn et al., 2003). In Western societies, there is a standard for women to have a thin body (Thompson & Stice, 2001). Women with more severe perfectionistic tendencies are more likely to internalize this standard, which places them at risk for eating disorders (Boone, Soenens, & Braet, 2011). Specifically, some people with perfectionistic tendencies attempt to achieve the thin body standard via controlled eating (e.g., extreme dieting). The outcome is typically an array of adverse health consequences (e.g., being significantly underweight). Research supports this view in that a moderate and positive association has been shown between perfectionistic tendencies and disordered eating (e.g., Joyce, Watson, Egan, & Kane, 2012), and having more severe perfectionistic tendencies prospectively predicts the development of disordered eating (e.g., Smith et al., 2017).

People with perfectionistic tendencies may also have poor mental and physical health because of their engagement in self-defeating, harmful behaviours used to help them

to cope with stress. For example, college students with perfectionistic tendencies are more likely to have alcohol-related problems because of drinking to cope with stress (e.g., Rice & Van Arsdale, 2010). Similarly, people with perfectionistic tendencies are more likely to binge eat to cope with distress related to their appearance (compared with those without perfectionistic tendencies; e.g., Heatherton & Baumeister, 1991). Such coping behaviours are antithetical to the goals of those with perfectionistic tendencies and thus help to maintain perfectionism and its negative consequences (Mushquash & Sherry, 2012). Lastly, having perfectionistic tendencies may have lethal consequences—people with perfectionistic tendencies have a heightened risk of suicide (for a review, see Flett, Hewitt, & Heisel, 2014).

Applied to the context of gambling, some players with perfectionistic tendencies may develop gambling problems when financial success—a societal ideal, especially in Western societies (e.g., Grouzet et al., 2005)—becomes a primary goal of play, as gambling for financial gain is a known risk factor for disordered gambling (see Lister, Nower, & Wohl, 2016; Tabri, Dupuis, Kim, & Wohl, 2015). Other players with perfectionistic tendencies may develop gambling problems when they gamble as a means to cope with stress in their lives—another well-established risk factor for disordered gambling (for a review, see Milosevic & Ledgerwood, 2010). Accordingly, we posit that gamblers with perfectionistic tendencies (relative to those who do not) should also have more severe gambling problems.

The Mediating Role of Financially Focused Self-Concept

Thus far, we have proposed that perfectionism may be associated with disordered gambling because of financial and coping gambling motives. However, a more fundamental factor that engenders both of these gambling motives is the extent to which people view the amount of money that they have in their possession as a core aspect of their self-concept and thus a major source of self-worth (Tabri, Wohl, et al., 2017). Gamblers with perfectionistic tendencies may be more likely to have a financially focused self-concept because they likely set themselves a high standard of financial success, which manifests as trying to win money frequently (if not constantly). However, because the odds of winning are not in the gambler's favour, gamblers with perfectionistic tendencies may invest more of their money (and time) into gambling, to the point that financial success becomes a core part of their self-concept. This is consistent with theory and research in other life domains. For example, according to the transdiagnostic cognitive-behavioural theory of eating disorders (Fairburn et al., 2003), having perfectionistic tendencies is a risk factor for developing an appearance-focused self-concept. Thus, perfectionistic tendencies may cultivate a domain-focused self-concept.

Notably, players high in financial focus (relative to those low in financial focus) are likely to have gambling problems because they tend to gamble for financial gain and to cope with stress (Tabri, Wohl, et al., 2017)—two well-known gambling motives implicated in the development of disordered gambling. The negative consequences of having a financially focused self-concept are also consistent with theory and research

in other life domains (Veale, 2002). For example, having a self-concept that is focused on appearance is the core psychopathology that maintains disordered eating (Fairburn et al., 2003; Tabri, Murray, et al., 2015). Accordingly, having a self-concept that is focused on a specific domain—in our case, financial success—may lead to disordered behaviours. Thus, we contend that the relation between perfectionism and disordered gambling is indirect. People who gamble and have perfectionistic tendencies are likely at heightened risk of disordered gambling because they are apt to define their self-concept by financial success (i.e., winning).

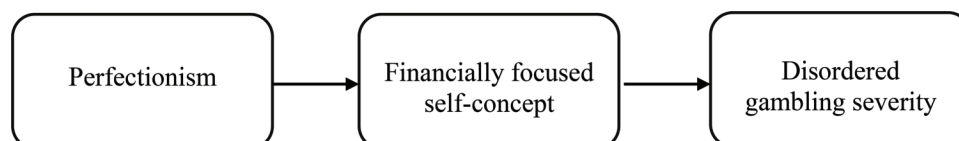


Figure 1. Mediation model with perfectionism as the independent variable, financially focused self-concept as the mediator variable, and disordered gambling severity as the dependent variable.

Overview of the Current Research

The aim of the present research was to examine the relation between perfectionistic tendencies and disordered gambling. We hypothesized that having a financially focused self-concept is a mechanism by which having perfectionistic tendencies may lead to gambling problems. To examine this hypothesis, we tested a mediation model (see Figure 1). In this model, greater perfectionistic tendencies predict disordered gambling severity via a financially focused self-concept.

Method

Participants

A total of 296 community gamblers residing in the United States participated in the current research via Amazon.com's Mechanical Turk (MTurk)—a crowdsourcing Internet-based marketplace increasingly used by social scientists as a place to recruit people to complete short online surveys or experiments. Studies indicate that MTurk is a good source of data that is both reliable and valid for conducting clinical research (Chandler & Shapiro, 2016), as well as for research on various addictive behaviours, including gambling (Kim & Hodgins, 2017).

The data of 38 participants were excluded because they failed one or more attention checks ($n = 23$), did not complete one or more questionnaires in the present research ($n = 14$), or withdrew from the study ($n = 1$). Thus, 258 participants (132 men and 126 women) were included in the analyses. Participants ranged in age from 18 to 71 years ($M=37.23$, $SD=11.76$).

Statistical power considerations for the current research were based on Fritz and MacKinnon's (2007) power table for a simple mediation model. According to this table, a minimum of 71 participants would be needed to detect a moderate indirect

effect with 80% power, using the bias-corrected bootstrap confidence interval method with 2,000 resamples. Thus, the current research was adequately powered.

The research protocol was reviewed and cleared by the lead author's institutional research ethics board. All participants provided informed consent prior to completing the survey.

Procedure and Measures

As in Tabri, Wohl, and colleagues (2017), participants responded to a recruitment notice that indicated we were seeking participants who engaged in at least one form of gambling and who had spent at least \$100 on their gambling activities in the last 12 months. Participants were compensated \$0.50 USD for their time. After providing informed consent, they completed the following questionnaires. Responses for each questionnaire were combined such that higher scores reflect more of each construct.

All materials and data from this research (including items and scales not considered in the present research), as well as supplemental analyses (see footnotes), are publically available via the Open Science Framework (OSF): <https://osf.io/b8mt6>

Perfectionism. The clinical perfectionism questionnaire (Egan et al., 2016) was used to assess perfectionism ($\alpha = .77$). This questionnaire includes 12 items that assess the extent to which participants overvalue the importance of striving to meet standards (e.g., “Have you judged yourself on the basis of your ability to achieve high standards?”) and react to perceived failure to meet standards with self-criticism (e.g., “Have you felt a failure as a person because you have not succeeded at meeting your goals?”). Participants rated each item over the past 28 days and responses were anchored at 1 (*not at all*) and 4 (*always*). Akin to previous research (Egan et al., 2016), the 12 items were averaged to form a single index of perfectionism.¹

Financially focused self-concept. The financially focused self-concept scale (Tabri, Wohl, et al., 2017) was used to measure the extent to which participants' self-concept is focused on financial success ($\alpha = .95$). This questionnaire consists of 20 items that measure the perceived importance of money for self-views (e.g., “Money is a large part of who I am”), feelings (e.g., “My ability to feel happy depends on the amount of money I have”), interpersonal relationships (e.g., “The opinion others have of me is based on the amount of money I have”), and achievements (e.g., “The amount of success I have in my (future) job or career depends largely upon the amount of money I have”). Responses were anchored at 0 (*not at all*) and 4 (*extremely*). Like Tabri, Wohl, et al. (2017), we found that averaging all 20 items into a single score best represented the financially focused self-concept construct.²

¹See OSF for a summary of the exploratory factor analysis and parallel analysis.

²See OSF for a summary of the principal components analysis and parallel analysis.

Table 1
Descriptive Statistics and Correlations Between All Variables

Variable	<i>M</i>	<i>SD</i>	1	2	3
1. Perfectionism	2.452	0.493	—		
2. FFS	2.134	0.931	.461**	—	
3. PGSI	5.287	5.519	.292**	.386**	—

Note. *n* = 258. FFS = Financially Focused Self-concept; PGSI = Problem Gambling Severity Index.

***p* < .01.

Disordered gambling severity. The Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001) was used to measure disordered gambling severity ($\alpha = .92$). The PGSI includes nine items that measure the extent of problem gambling behaviours (e.g., “Have you gone back another day to try and win back the money you lost?”) and the consequences of engaging in problem gambling behaviours (e.g., “Has your gambling caused any financial problems for you or your household?”). Participants responded by indicating how frequently they engaged in problem gambling behaviours and experienced consequences due to their gambling behaviour over the last 12 months. Responses were anchored at 0 (*never*) and 3 (*almost always*) and summed into a total score.³

Results

Descriptive and Bivariate Analyses

Descriptive statistics and correlations between perfectionism, financially focused self-concept, and PGSI are reported in Table 1. In line with expectations, participants with greater perfectionistic tendencies were more focused on financial success ($r = .461, p < .001$) and had more severe gambling problems ($r = .292, p < .001$). Greater financial focus was also associated with having more severe gambling problems ($r = .386, p < .001$). The magnitudes of these associations were moderate.

Mediation Analysis

We conducted a mediation analysis to examine our hypothesis that perfectionism indirectly fosters gambling problems via having a financially focused self-concept. We used Model 4 in the PROCESS macro (Hayes, 2013) for SPSS to test our mediation hypothesis. The statistical significance of the indirect effect was assessed by using the 95% bias-corrected bootstrapped confidence interval (BC-CI) that was based on 5,000 resamples.

³Virtually the same results were observed when we excluded participants who were non-problem gamblers. See OSF for a summary of the results.

Table 2
Results From the Mediation Analysis

Path	<i>B</i>	95% CI
Perfectionism → FFS (path a)	0.871**	[0.665, 1.077]
FFS → PGSI, controlling for perfectionism (path b)	1.893**	[1.141, 2.646]
Perfectionism → PGSI, controlling for FFS (path c')	1.621*	[0.200, 3.042]
Perfectionism → PGSI (path c; total effect)	3.270**	[1.953, 4.588]

Note. $n = 258$. CI = Confidence Interval; FFS = Financially Focused Self-concept; PGSI = Problem Gambling Severity Index.
 * $p < .05$. ** $p < .01$.

Unstandardized regression coefficients from the mediation analysis are reported in Table 2. As expected, having greater perfectionistic tendencies predicted greater financial focus and greater disordered gambling severity. Greater financial focus in turn predicted having more severe disordered gambling. Notably, there was a statistically significant indirect effect of perfectionistic tendencies on disordered gambling severity via financially focused self-concept; *indirect effect* = 1.650, 95% BC-CI [0.954, 2.555]. The standardized regression coefficient for the indirect effect was 0.147, 95% BC-CI [0.088, 0.224]. Thus, in line with our hypothesis, gamblers with greater perfectionistic tendencies reported more severe gambling problems via having a financially focused self-concept. The indirect effect accounted for approximately 7% of the total variance in disordered gambling severity ($R^2 = .069$). In sum, the mediation model explained moderate-to-large portions of the total variance in financially focused self-concept ($R^2 = .213$) and disordered gambling severity ($R^2 = .166$).

Discussion

Perfectionism is implicated in the etiology, maintenance, and course of various psychiatric disorders, including eating disorders, anxiety disorders, and depression (Egan et al., 2011). Herein, we extended the transdiagnostic utility of perfectionism to understand disordered gambling. We hypothesized and found that gamblers high in perfectionistic tendencies report more symptoms of disordered gambling than do those low in perfectionistic tendencies. Consistent with our hypothesis, we also found an indirect link between perfectionistic tendencies and disordered gambling. These findings suggest that having perfectionistic tendencies among players focuses their self-concept on financial success, which in turn predicts disordered gambling symptoms.

The findings observed in the present research are consistent with theory and research on eating disorders that has demonstrated that having perfectionistic tendencies is a risk factor for developing an appearance-focused self-concept, which leads to disordered eating (e.g., Joyce et al., 2012). Although there appears to be symmetry in the negative implications of perfectionistic tendencies and having a focused self-concept on both disordered gambling and eating, what makes the observed

association in the current study unique is that the outcome of a bet is objectively uncontrollable (at least legally). Being a perfectionist about one's appearance can lead to eating disorders because of the desire to control one's eating (to manipulate one's appearance). No degree of control can be exerted, however, on the outcome of games of pure chance (e.g., slot machines). Of course, many gamblers maintain the belief that they have the skill or ability to maximize outcomes in such games (see Langer, 1975; Wohl & Enzle, 2002). It is possible that illusory perceptions of control interact with perfectionistic tendencies to heighten the risk of developing disordered gambling. It would behoove researchers to replicate and extend the current research by investigating the moderating role played by the illusion of control.

We showed that perfectionistic tendencies among gamblers was moderately associated with having a financially focused self-concept. This is important because an emerging body of research suggests that having a financially focused self-concept may be a risk factor for developing disordered gambling. More specifically, gamblers with higher financial focus are less likely to pre-commit the amount of time and money they spend gambling, to be honest with family or friends about their gambling activities, to take responsibility for their gambling, and to be knowledgeable about the odds of winning, which are key elements of responsible gambling (see Wood, Wohl, Tabri, & Philander, 2017). Gamblers with a higher financial focus are also more likely to develop gambling problems because they gamble for financial gain and to cope with stress (Tabri, Wohl, et al., 2017). In addition, they may be more vulnerable to developing disordered gambling because of their greater tendency to delay discount monetary rewards (have a greater preference for smaller immediate rewards relative to larger delayed rewards) in response to feeling financially deprived (Tabri, Shead, & Wohl, 2017). Accordingly, reducing perfectionistic tendencies may help to alleviate a financially focused self-concept and thus disordered gambling.

We also contend that the results of this research may shed light on the process by which gamblers become trapped in a vicious cycle of chasing—a cardinal feature of disordered gambling. Gamblers with perfectionistic tendencies may base their self-worth on financial success and pursue financial success via gambling. Thus, because the odds of winning money are not in the gambler's favour, the self-worth of gamblers with perfectionistic tendencies will be harmed because of mounting losses. To protect their self-worth, gamblers with perfectionistic tendencies may invest even more money in gambling to try to recoup their mounting losses. This cycle of chasing that likely stems from perfectionistic tendencies may then cultivate a self-concept that is focused on financial success, which may also be mechanism of action that maintains chasing behaviour (see Tabri, Wohl, et al., 2017).

Lastly, the results may have significant implications for the treatment of disordered gambling because having a self-concept that is focused on a life domain has been shown to be difficult to address in treatment. For example, in the field of eating disorders, having an appearance-focused self-concept is a known predictor of relapse among people with an eating disorder (e.g., Grilo, White, Gueorguieva, Wilson, & Masheb, 2013). Although no treatment outcome research has targeted financially

focused self-concept among disordered gamblers, treatment-seeking disordered gamblers view winning money at gambling as enhancing their sense of self-worth (Morasco, Weinstock, Ledgerwood, & Petry, 2007). They also indicate optimism about winning money and the need to make money as major reasons for their gambling relapses (Hodgins & El-Guebaly, 2004). Thus, we suspect that a financially focused self-concept may also be difficult to alleviate with treatment and may contribute to relapse.

However, the findings of the present research suggest that targeting perfectionistic tendencies in prevention and treatment interventions may be instrumental in helping to alleviate a financially focused self-concept and thus disordered gambling. This is consistent with the transdiagnostic cognitive-behavioural theory of eating disorders (Fairburn et al., 2003) in which perfectionism is a proximal risk factor for the development of an appearance-focused self-concept that maintains disordered eating. Accordingly, health care providers can use techniques from the cognitive-behavioural therapy of perfectionism (Egan et al., 2014) to address their clients' perfectionistic tendencies. Specifically, health care providers can provide clients with psychoeducation and treatment for maladaptive thinking styles (e.g., excessive self-criticism in response to losing at gambling) and self-evaluation (e.g., "losing money at gambling makes me feel like a failure") underlying perfectionism. Doing so may help clients with gambling problems to modify their financial focus in a way that reduces the importance they attach to financial success as a core aspect of their self-concept and thus self-worth, which would help reduce disordered gambling.

Limitations

Some limitations of the present research should be noted. First, we used a correlational design, which limits our ability to draw causal inferences. Longitudinal research is thus needed to support the directionality of the effects. It is likely that perfectionistic tendencies among gamblers fosters a financially focused self-concept, which leads to disordered gambling. This is consistent with theory research on eating disorders (e.g., Fairburn et al., 2003; Joyce et al., 2012). Nevertheless, it would behoove researchers to examine whether having more severe perfectionistic tendencies predicts having a financially focused self-concept and disordered gambling over time.

Another related limitation concerns the exclusive use of self-report questionnaires in the current research. We suggest that future research assess the influence of perfectionism and financially focused self-concept on gambling *behaviour*. That is, instead of measuring self-reported disordered gambling severity, researchers should examine whether players with greater perfectionism and financial focus are more apt to chase losses or exceed their financial limit, among other problematic behaviours.

A third limitation relates to our method of recruitment. We recruited a convenience sample of gamblers by using MTurk. Some research has shown that MTurk samples are not representative of the American general population—these samples tend to be

younger, more educated, and lower on the income scale (for a review, see Keith, Tay, & Harms, 2017). That said, samples drawn from MTurk are more demographically diverse and representative of the general population than student-based samples are (Buhrmester, Kwang, & Gosling, 2011). Notably, MTurk samples have been shown to yield valid and reliable data for clinical research (for a review, see Chandler & Shapiro 2016), as well as research on disordered gambling (Kim & Hodgins, 2017). Nevertheless, future research should examine whether the findings of the present study can be replicated with a probability sample recruited from the general population.

Conclusions

Perfectionism is a significant predictor of various psychiatric disorders, including eating disorders, anxiety disorders, and depression. This occurs because people with perfectionistic tendencies set a high standard for themselves in particular domains (e.g., appearance, financial success, sports) that is difficult to achieve. We extended the transdiagnostic perspective of perfectionism to understand disordered gambling—a context in which it is difficult to achieve great success. We found a moderate and positive association between perfectionistic tendencies and disordered gambling tendencies. We also found that having a self-concept that is focused on financial success mediated this association. These findings provide a novel perspective on why some people who gamble develop gambling disorder and could help identify those at risk of developing such a disorder.

References

- Boone, L., Soenens, B., & Braet, C. (2011). Perfectionism, body dissatisfaction, and bulimic symptoms: The intervening role of perceived pressure to be thin and thin ideal internalization. *Journal of Social and Clinical Psychology, 30*, 1043–1068. doi:10.1521/jscp.2011.30.10.1043
- Buhrmester, M., Kwang, T., & Gosling, S.D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science, 6*, 3–5. doi:10.1177/1745691610393980
- Chandler, J., & Shapiro, D. (2016). Conducting clinical research using crowdsourced convenience samples. *Annual Review of Clinical Psychology, 12*, 53–81. doi:10.1146/annurev-clinpsy-021815-093623
- Dunkley, D. M., Blankstein, K. R., Masheb, R. M., & Grilo, C. M. (2006). Personal standards and evaluative concerns dimensions of “clinical” perfectionism: A reply to Shafran et al. (2002, 2003) and Hewitt et al. (2003). *Behavior, Research, and Therapy, 44*, 63–84. doi:10.1016/j.brat.2004.12.004
- Egan, S. J., Shafran, R., Lee, M., Fairburn, C. G., Cooper, Z., Doll, H. A., ... Watson, H. J. (2016). The reliability and validity of the clinical perfectionism questionnaire

- in eating disorder and community samples. *Behavioural and Cognitive Psychotherapy*, *44*, 79–91. doi:10.1017/S1352465814000629
- Egan, S. J., Wade, T. D., & Shafran, R. (2011). Perfectionism as a transdiagnostic process: A clinical review. *Clinical Psychology Review*, *31*, 203–212. doi:10.1016/j.cpr.2010.04.009
- Egan, S. J., Wade, T. D., Shafran, R., & Antony, M. M. (2014). *Cognitive-behavioral treatment of perfectionism*. New York, NY: Guilford Press.
- Fairburn, C.G., Cooper, Z., & Shafran, R. (2003). Cognitive behaviour therapy for eating disorders: A “transdiagnostic” theory and treatment. *Behavior, Research, & Therapy*, *41*, 509–528. doi:10.1016/S0005-7967(02)00088-8
- Ferris, J., & Wynne, H. (2001). *The Canadian Problem Gambling Index*. Ottawa, Ontario: Canadian Centre on Substance Abuse.
- Flett, G. L., Hewitt, P. L., & Heisel, M. J. (2014). The destructiveness of perfectionism revisited: Implications for the assessment of suicide risk and the prevention of suicide. *Review of General Psychology*, *18*, 156–172. doi:10.1037/gpr0000011
- Fritz, M. S., & MacKinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological Science*, *18*, 233–239. doi:10.1111/j.1467-9280.2007.01882.x
- Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research*, *14*, 449–468.
- Grilo, C. M., White, M. A., Gueorguieva, R., Wilson, G. T., & Masheb, R. M. (2013). Predictive significance of the overvaluation of shape/weight in obese patients with binge eating disorder: Findings from a randomized controlled trial with 12-month follow-up. *Psychological Medicine*, *43*, 1335–1344. doi:10.1017/S0033291712002097.
- Grouzet, F. M., Kasser, T., Ahuvia, A., Dols, J. M., Kim, Y., Lau, S, . . . Sheldon, K. M. (2005). The structure of goal contents across 15 cultures. *Journal of Personality and Social Psychology*, *89*, 800–816. doi:10.1037/0022-3514.89.5.800
- Hayes, A. (2013). *Introduction to mediation, moderation, and conditional process analysis*. New York, NY: Guilford Press.
- Heatherton, T. F., & Baumeister, R. F. (1991). Binge eating as escape from self-awareness. *Psychological Bulletin*, *110*, 86–108. doi: 10.1037/0033-2909.110.1.86
- Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology*, *60*, 456–470. doi: 10.1037/0022-3514.60.3.456

- Hodgins, D.C., & El-Guebaly, N. (2004). Retrospective and prospective reports of precipitants to relapse in pathological gambling. *Journal of Consulting and Clinical Psychology, 72*, 72–80. doi:10.1037/0022-006X.72.1.72
- Joyce, F., Watson, H. J., Egam, S. J., & Kane, R. T. (2012). Mediators between perfectionism and eating disorder psychopathology in a community sample. *Eating Behaviors, 13*, 361–365. doi:10.1016/j.eatbeh.2012.07.002
- Keith, M. G., Tay, L., & Harms, P. D. (2017). Systems perspective of Amazon Mechanical Turk for organizational research: Review and recommendations. *Frontiers in Psychology, 8*, 1359. doi:10.3389/fpsyg.2017.01359
- Kim, H. S., & Hodgins, D. C. (2017). Reliability and validity of data obtained from alcohol, cannabis, and gambling populations on Amazon's Mechanical Turk. *Psychology of Addictive Behaviors, 31*, 85–94. doi:10.1037/adb0000219
- Langer, E. J., (1975). The illusion of control. *Journal of Personality and Social Psychology, 32*, 311–328. doi:10.1037/0022-3514.32.2.311
- Lister, J. J., Nower, L., & Wohl, M. J. A. (2016). Gambling goals predict chasing behavior during slot machine play. *Addictive Behaviors, 62*, 129–134. doi:10.1016/j.addbeh.2016.06.018
- Milosevic, A., & Ledgerwood, D. M. (2010). The subtyping of pathological gambling: A comprehensive review. *Clinical Psychology Review, 8*, 988–998. doi:10.1016/j.cpr.2010.06.013
- Morasco, B. J., Weinstock, J., Ledgerwood, D. M., & Petry, N. (2007). Psychological factors that promote and inhibit pathological gambling. *Cognitive and Behavioral Practice, 14*, 208–217. doi:10.1016/j.cbpra.2006.02.005
- Mushquash, A. R., & Sherry, S. B. (2012). Understanding the socially prescribed perfectionist's cycle of self-defeat: A 7-day, 14-occasion daily diary study. *Journal of Research in Personality, 46*, 700–709. doi:10.1016/j.jrp.2012.08.006
- Rice, K. G., & Van Arsdale, A. C. (2010). Perfectionism, perceived stress, drinking to cope, and alcohol-related problems among college students. *Journal of Counseling Psychology, 57*, 439–450. doi:10.1037/a0020221
- Shafran, R., Cooper, Z., & Fairburn, C. G. (2002). Clinical perfectionism: A cognitive-behavioural analysis. *Behaviour, Research, and Therapy, 40*, 773–791. doi:10.1016/S0005-7967(01)00059-6
- Smith, M. M., Sherry, S. B., Gautreau, C. M., Stewart, S. H., Saklofske, D. H., & Mushquash, A. R. (2017). Are perfectionistic concerns an antecedent of or a

consequence of binge eating or both? A short-term four-wave longitudinal study of undergraduate women. *Eating Behaviors*, *26*, 23–26. doi:10.1016/j.eatbeh.2017.01.001

Smith, M. M., & Skalofske, D. H. (2017). The structure of multidimensional perfectionism: Support for a bifactor model with a dominant general factor. *Journal of Personality Assessment*, *99*, 297–303. doi:10.1080/00223891.2016.1208209

Stoeber, J., & Damian, L. E. (2014). The Clinical Perfectionism Scale: Further evidence for two factors capturing perfectionistic strivings and concerns. *Personality and Individual Differences*, *61–62*, 38–42. doi:10.1016/j.paid.2014.01.003

Stoeber, J., & Stoeber, F. S. (2009). Domains of perfectionism: Prevalence and relationships with perfectionism, gender, age, and satisfaction with life. *Personality and Individual Differences*, *46*, 530–535. doi:10.1016/j.paid.2008.12.006

Tabri, N., Dupuis, D. R., Kim, H. S., & Wohl, M. J. A. (2015). Economic mobility moderates the effect of relative deprivation on financial gambling motives and disordered gambling. *International Gambling Studies*, *15*, 309–323. doi:10.1080/14459795.2015.1046468

Tabri, N., Murray, H. B., Thomas, J. J., Franko, D. L., Herzog, D. B., & Eddy, K. T. (2015). Overvaluation of body shape/weight and engagement in non-compensatory weight-control behaviors in eating disorders: Is there a reciprocal relationship? *Psychological Medicine*, *45*, 2951–2958. doi:10.1017/S0033291715000896

Tabri, N., Shead, N. W., & Wohl, M. J. A. (2017). Me, myself, and money II: Relative deprivation predicts disordered gambling severity via delay discounting among gamblers who have a financially focused self-concept. *Journal of Gambling Studies*, *33*, 1201–1211. doi:10.1007/s10899-017-9673-7

Tabri, N., Wohl, M. J. A., Eddy, K. T., & Thomas, J. J. (2017). Me, myself, and money: Having a financially focused self-concept and its consequences for disordered gambling. *International Gambling Studies*, *17*, 30–50. doi:10.1080/14459795.2016.1252414

Thompson, K. J., & Stice, E. (2001). Thin-ideal internalization: Mounting evidence for a new risk factor for body image disturbance and eating pathology. *Current Directions in Psychological Science*, *10*, 181–183. doi:10.1111/1467-8721.00144

Veale, D. (2002). Over-valued ideas: A conceptual analysis. *Behaviour Research and Therapy*, *40*, 383–400. doi:10.1016/S0005-7967(01)00016-X

Wohl, M. J. A., & Enzle, M. E. (2002). The deployment of personal luck: Sympathetic magic and illusory control in games of pure chance. *Personality and Social Psychology Bulletin*, *28*, 1388–1397. doi:10.1177/014616702236870

Wood, R. T. A., Wohl, M. J. A., Tabri, N., & Philander, K. (2017). Measuring responsible gambling amongst players: Development of the Positive Play Scale. *Frontiers in Psychology*, 8, 227. doi:10.3389/fpsyg.2017.00227.

Submitted May 12, 2017; accepted November 5, 2018. This article was peer reviewed. All URLs were available at the time of submission.

For correspondence: Nassim Tabri, PhD, Department of Psychology, Carleton University, 1125 Colonel By Drive, Ottawa, ON, K1S 5B6 Canada.
E-mail: nassim.tabri@carleton.ca

Competing interests: None declared (all authors).

Ethics approval: Carleton University Research Ethics Board - B approved on August 27, 2015, the research project “Overvaluation as a Pathway to Gambling and Eating Disorders” (certificate number 15-136).

Acknowledgements: This research was funded by an Ontario Problem Gambling Research Centre Research Grant [#3409] to MJAW.