



Overcoming Barriers to Seeking Help

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Abstract

A substantial proportion of people with gambling problems fail to take action to change their behaviour. As such, there exists a great need to understand what motivates gamblers to take action to quit or cut down on their gambling, in addition to how to overcome known barriers to change. We addressed this gap in knowledge in the current research by focusing on the potential behaviour change utility of gambling induced self-discontinuity (i.e., the feeling that the self has undergone fundamental changes). In Chapter 1, we report the results of a longitudinal study that examined whether self-discontinuity among problem gamblers (N=195) predicts behavioural change over the course of six months, of which 76 (39%) completed the follow-up. Importantly, we also tested whether self-discontinuity would predict change when controlling for feelings of shame and guilt about one's gambling, as well as self-stigma as a problem gambler (i.e., known barriers to change). As hypothesized, the likelihood that self-help was attempted increased to the extent participants reported feeling self-discontinuous – an effect that remained significant when controlling for shame, guilt, and self-stigma. In Chapter 2, we manipulated gambler's (N=181) sense of self-discontinuity to test the idea that behavioural change can be motivated by experimentally heightening feelings of self-discontinuity. We also assessed whether this effect would be mediated by nostalgic reverse for the pre-problem gambling self. Results showed that one month after the discontinuity-induced nostalgia predicted attempts to quit or cut down on gambling, but only among gamblers high in problem gambling severity. Results of both studies suggest that feelings of self-discontinuity (both measured and manipulated) increase the likelihood of problem gamblers taking action to change their problematic gambling behaviours. As rates of behavioural change are alarmingly low among this population, these results hold significance for both researchers and treatment providers.

Keywords: disordered gambling, self-discontinuity, nostalgia, behavioural change, barriers to change

Chapter 1: When Do Problem Gamblers Help Themselves? Self-Discontinuity Increases Self-Help Behaviour Over Time*

Most problem gamblers fail to engage in behavioural change despite the array of harms their gambling can inflict (DiClemente et al., 1991). To help increase the rates of treatment seeking, researchers have primarily focused attention on psychological barriers that prevent problem gamblers from seeking professional assistance (see Pulford et al., 2009). Stemming from this research, shame, guilt, and self-stigma, have been identified as central factors that hinder treatment seeking (Bellringer, Pulford, Abbott, DeSouza, & Clarke, 2008; Evans & Delfabbro, 2005; Suurvali, Cordingley, Hodgins, & Cunningham, 2009). Although informative, it is important to note that the majority of problem gamblers recover without formal assistance (Hodgins & el-Guebaly, 2000; Slutske, 2006) – the problem gambler engages in self-help activities (e.g., setting time and money limits). Yet, a paucity of research has been directed toward understanding psychological factors that predict whether self-help will be attempted.

In the present research, we tested the idea that feeling disconnected from the pre-addicted self (i.e., feeling a sense of self-discontinuity between the present gambling self and past nongambling self; Chandler, 1994), will motivate problem gamblers to engage in self-help. It is already known that feelings of self-discontinuity increase problem gambler's readiness to change (Kim & Wohl, 2015). However, it is unknown whether self-discontinuity translates to taking action to overcome one's gambling problems. The aim of the present research was to fill this gap in knowledge. Importantly, we also tested whether self-discontinuity motivates self-help activities in the face of barriers to change (shame, guilt, and self-stigma).

Predicting Self-Help

The estimated percent of problem gamblers seeking treatment is typically less than 10% (see Hodgins, Stea, & Grant, 2011; Slutske, 2006; Suurvali et al., 2009; Volberg, 1999). This situation is compound by the fact that, according to the Productivity Commission (1999), only 0.38% of people who indicate that they need treatment follow through and seek the needed care (others are typically forced into treatment by friends, relative or the judicial system). Instead, problem gamblers typically report wanting to handle their problems by themselves (Suurvali et al., 2009). Indeed, when action is taken to overcome their gambling problems, the majority of problem gamblers do so via self-help (Hodgins & el-Guebaly, 2000; Slutske, 2006). In fact, selfchange is the preferred method of change for problem gamblers (Hing, Nuske, & Gainsbury, 2011). Unfortunately, there is a distinct lack of empirical investigations that have examined the likelihood that problem gamblers will engage in self-help using a prospective design (for an exception see Kowatch & Hodgins, 2015), let alone factors that might predict whether a gambler will take action. This represents a significant gap in the literature as research has shown self-help can lead to significant reduction of gambling problems, with the changes being maintained over time (for a review see Raylu, Oei, & Loo, 2008).

Herein, we put forth the proposition that engaging in self-help is likely a function of the extent to which problem gamblers perceive their gambling behaviour has fundamentally changed their sense of self. Providing anecdotal evidence for this contention, Nuske and Hing (2013) reported that problem gamblers in treatment tend to report disliking their current addicted self. Specifically, clients reported there was dissimilarity between who they were before becoming a problem gambler and who they are now. Furthermore, motivation to change was a function of the extent to which clients wanted to re-connect or reclaim the pre-addicted self – sentiments reminiscent of Chandler's (1994) concept of self-continuity.

According to Chandler (1994), despite life experience and change, people are motivated to achieve and maintain that core aspects of the 'self' that remains unchanged. When people hold such a view, they are said to have a sense of self-continuity. Previous research has found

that self-continuity is psychologically adaptive (see Sani, 2008) and thus self-discontinuity is something to be avoided (Milligan, 2003). That said, a sense of self-discontinuity has been shown to have a bright side among people living with addiction. Kim and Wohl (2015), for example, showed that problem gamblers express greater readiness to change to the extent that they felt their addiction had created self-discontinuity (i.e., gambling has altered the self). This is because self-discontinuity triggers nostalgic reverie for the past (see Sedikides, Wildschut, Arndt, & Routledge, 2008; Sedikides, Wildschut, Routledge, & Arndt, 2015) – in the case of the gambler, the self before the gambling addiction, which motivates the desire to take action to regain this past self. However, Kim and Wohl (2015) stopped short of examining whether behaviour change was initiated. In other words, they did not assess whether a readiness to change translated into action. In the current research, we take this next step by testing whether feelings of self-discontinuity among problem gamblers predict engagement in self-help activities.

Importantly, we also examined whether self-discontinuity predicts self-help activities over and above known barriers to change. For example, Bellringer and colleagues (2008) found that a sizable proportion of problem gamblers feel ashamed of their gambling behaviours, which undermines efforts to engage in behavioural change (Evans & Delfabbro, 2005). This is because shame involves negative evaluations of the self that take a dispositional form (i.e., “I am a bad person”; Tangney & Dearing, 2003), which are difficult to overcome (Luoma, Kohlenberg, Hayes, & Fletcher, 2012). As such, gamblers who feel ashamed of their gambling should also be reluctant to engage in self-help activities, as they may believe that no amount of change can absolve them of their character. Guilt, on the other hand, is experienced when the self is perceived to have engaged in a specific misdeed that can be corrected (Tangney & Dearing, 2003). That is, guilt as opposed to shame motivates reparative action, which may manifest in self-help activities. However, guilt only motivates reparative action if it is believed that repair is possible (see Brehm, 1999; Brehm & Self, 1989; Schmitt, Miller, Branscombe, & Brehm, 2008). Unfortunately, many of the harms that result from gambling cannot easily be repaired (e.g., financial loss, broken relationships). As such, guilt may not be a sufficient motivator for engagement in behavioural change, including self-help.

Lastly, we examined self-stigma as a barrier to self-help. Stigma is a societal attitude toward an identity that discredits a person, reducing that person from a whole individual to a tainted, devalued one. Society collectively accords inferior status, relative powerlessness, and negative regard to those that possess discrediting identities (Herek, 2009). Importantly, stigma is a powerful barrier in seeking treatment (Cunningham, Sobell, Sobell, Agrawal, & Toneatto, 1993), which might become even more problematic when societal stigma is turned on the self (i.e., selfstigma, which also hinders change; see Hing, Nuske, Gainsbury, & Russell, in press). Specifically, some gamblers internalize (perceived) widely endorsed stigmatizing ideas about gamblers, thus believing that they are less valued because of their disorder. Among such people, self-esteem suffers along with confidence in one’s future (see Holmes & River, 1999). The net result is a lack of motivation to better the self (Link, Struening, Rahav, Phelan, & Nuttbrock, 1997), which may translate to a lack of self-help activities among problem gamblers.

Overview of Present Research

The aim of the present research was to assess whether self-discontinuity predicted self-help activities in a non-treatment seeking sample of problem gamblers recruited from the community. To this end, problem gamblers were recruited from two large Canadian cities to complete a survey that assessed problem gambling severity, self-discontinuity, shame, guilt, and self-stigma. They were then re-contacted six-months later to assess whether any self-help activities had been initiated. It was hypothesized that self-discontinuity would increase the likelihood that a gambler engaged in self-help activities in the following six months, and remain significant when controlling for shame, guilt, and self-stigma (i.e., known barriers to change).

Methods

Participants

A total of 195 participants (99 males, 93 females, 4 unknown; $M_{age} = 54.25$, $SD_{age} = 16.40$) were recruited from two large Canadian cities. A multi-method recruitment approach was taken due to gamblers being a traditionally difficult sample to recruit (see Wohl & Sztainert, 2011), and to ensure sufficient power. To calculate power we relied on Cohen's (1992) guidelines. We used these guidelines because, to our knowledge, there is no research that has assessed the relationship between self-discontinuity and behavioural change. Thus, we had no effect sizes on which to conduct a more nuanced power calculation. According to Cohen (1992), a sample size of 85 is needed for binomial distributions of non-parametric test (e.g., binary logistic regression) for a medium effect size at $p < .05$ with a minimum power of .80. Accounting for the attrition rate of 50%, an a priori sample size was set at 170 participants. The first method of recruitment involved a random-digit-dialing of telephones (including cellphones) of residents in a large Canadian city, who were over the age of 18 ($n = 56$). The second and third methods involved recruiting gamblers at the main lobby of casinos in two large Canadian cities ($n = 93$). Finally, we posted online advertisements (e.g., Kijiji) in one of the cities to recruit interested participants ($n = 46$).

Procedure

The procedure for the present research was identical across the recruitment methods. Specifically, in an initial screen, respondents were asked if they had ever (i.e., in their lifetime) spent more than \$100 on any kind of gambling activity. If yes, participants were presented with the NODS-Clip (Toce-Gerstein, Gerstein, & Volberg, 2009), which assesses control, lying, and preoccupation in relation to gambling. This was done to ensure our sample consisted of gamblers who may be in need of behavioural change (i.e., gamblers endorsing pathology). If participants screened positive on any of the items, we then proceeded to the core survey. A score of 1 or more on the NODS-Clip has been found to be a reliable indicator of problem and pathological gambling as assessed by the original NODS (Toce-Gerstein et al., 2009). The NODS has been shown to have strong psychometric properties (Wickwire, Burke, Brown, Parker, & May, 2008) and has been validated for use in Canada (Hodgins, 2004).

It should be noted that while the procedure was identical across the recruitment method, the recruitment and assessment procedures varied depending on the source. Specifically, for participants recruited through random digit telephone dialing, the Carleton University Survey Center (CUSC) was contracted to recruit a sample of Manitoba residents (as required by MGRP). The CUSC has experience carrying out national, regional and local telephone surveys and uses Computer Assisted Telephone Interviewing technology and interviewers are closely supervised by to maintain a high standard of quality. Interested participants completed the questionnaire on the telephone with the CUSC.

The second and third methods of recruitment took place at two large Casinos in Winnipeg (Club Regent) and Ottawa (Rideau Carleton Raceway). Permission was sought from the respective provincial lottery corporations (Manitoba Liquor and Lotteries and Ontario Lottery Corporation) to recruit interested participants at the lobby of the casinos. The recruitment was conducted by members of the research team (D.S. in Winnipeg and M.S. in Ottawa) and accompanied by trained research assistants. Casino patrons who provided informed consent to participate in the study completed the survey via in-person interview with the trained research assistants. The last recruitment method involved posting online advertisements on Kijiji

(Winnipeg). Interested participants completed the survey online, which contained a direct transcript of the survey administered via phone and in-person interviews.

Participants who met the eligibility criteria were presented with the core survey. They were then debriefed (taking care not to fully disclose the hypothesis and nature of the research) and compensated with a \$5 gift card to an international coffee shop. Importantly, permission was sought to re-contact participants six months later in order to assess whether participants engaged in self-change in the intervening months. Of the 195 participants, 147 (75.38%) provided informed consent for the follow-up and were re-contacted by telephone up to five times. A trained research assistant, regardless of the initial source of recruitment, conducted all follow-up assessments over the telephone. Upon providing informed consent, participants were asked if they had engaged in self-change in the last six months (i.e., since the initial session). Participants were then fully debriefed and provided an additional \$5 gift card to an international coffee shop for remuneration.

An Ethics Certificate was obtained to conduct this study from the Research Ethics Board at both the second and fourth authors' University institutions.

Measures

Given the nature of recruitment (e.g., telephone surveys, casino patrons) we assessed our variables of interest using brief items. This was done to maximize participation amongst the community-recruited gamblers.

Shame. Shame was assessed using two items adapted from Tangney, Dearing, Wagner and Gramzow (2000), "Would you feel ashamed if you had a gambling problem?" and "Would you feel like a bad person if you had a gambling problem?" ($r = .54$). The items were anchored at 1 (*not at all*) and 4 (*very much*).

Guilt. Similarly, two items adapted from Tangney and colleagues (2000) assessed guilt. Specifically, "Would you feel as if you had done something wrong if you had a gambling problem?" and "Would you feel guilt or remorse if you had a gambling problem?" ($r = .64$). The items were once again anchored at 1 (*not at all*) and 4 (*very much*).

Self-Stigma. Self-stigma was assessed using "I think most problem gamblers get themselves into trouble" and "I think most problem gamblers have no self-control" ($r = .50$). These items were anchored at 1 (*strongly disagree*) and 4 (*strongly agree*) and were adapted from Corrigan, Watson, and Barr (2006).

Self-Discontinuity. Self-discontinuity was assessed with two items used by Kim and Wohl (2015). These items were: "Gambling has changed who I am" and "The person I was before I started gambling is different from the person I am now" ($r = .62$). Response options were anchored at 1 (*strongly disagree*) and 4 (*strongly agree*).

Self-Help. Self-help was assessed using a face valid item, "Have you tried to help yourself with your gambling behaviour (not including professional treatment)?" Response options were "Yes" and "No" and were also asked to indicate specific self-help strategy used.

Results

Preliminary Analysis

Of the 147 participants who provided consent to be re-contacted, 76 (39%) completed the follow-up survey. One-way analysis of variance was conducted to assess whether systematic differences existed between participants who completed the follow-up compared to those who did not complete the follow-up on measured variables. Results showed that there were no between group differences on any of these variables, $ps > .064$. Conversely, significant differences were found among methods of recruitment on self stigma, $p = .001$, guilt, $p = .012$

and self-discontinuity, $p < .001$. As such, we controlled for method of recruitment in our analysis (see Table 1.1 for *Ms* and *SDs* for all measured variables by recruitment method. Table 1.2 contains *Ms* and *SDs* as well as correlations collapsed across method of recruitment).

Of the 76 participants who completed the follow up, 37 (50%) reported engaging in self-help in the intervening six months. The most common method of self-help was limiting the amount time and money spent gambling ($n = 25$), followed by the complete cessation of gambling (without the aid of others; $n = 5$), finding alternative activities that occupy the time previously spent gambling ($n = 2$), reading self-help literature ($n = 1$), using self-exclusion programs offered by gambling operators ($n = 1$), and talking to family and friends ($n = 1$). Two participants indicated “other” for their method of self-help.

Main Results

To assess whether self-discontinuity predicted self-help, separate binary logistic regressions were conducted with engagement in self-help as the dependent variable (coded 0 = No; 1 = Yes) and either shame, guilt, self-stigma, or self-discontinuity as the predictor variable.

Shame. Regression analysis revealed that shame did not significantly predict whether participants engaged in self-help over time, Wald's $\chi^2(1) = 2.82$, $p = .093$, $B = .42$, $SE = .25$, $OR = 1.53$, 95% CI = [.93, 2.50].

Guilt. Contrary to our hypothesis, guilt was a significant predictor of self-help, Wald's $\chi^2(1) = 3.85$, $p = .05$, $B = .55$, $SE = .28$, $OR = 1.72$, 95% CI = [1.00, 2.97]. Gamblers who reported heightened feelings of guilt at Time 1 were 1.7 times more likely to have engaged in self-help.

Self-Stigma. The results showed that self-stigma did not predict whether self-change occurred over the past six-months, Wald's $\chi^2(1) = .07$, $p = .798$, $B = -.10$, $SE = .39$, $OR = .90$, 95% CI = [.42, 1.96].

Self-Discontinuity. As hypothesized, self-discontinuity significantly predicted whether a gambler had engaged in self-help in the intervening months, Wald's $\chi^2(1) = 8.24$, $p = .004$, $B = .96$, $SE = .34$, $OR = 2.62$, 95% CI = [1.36, 5.05]. We then proceeded to test whether self-discontinuity predicted self-help while controlling for shame, guilt, and self-stigma. Although shame and self-stigma did not predict self-help on their own, we included them as control variables due to our a priori hypothesis. As predicted, self-discontinuity remained a significant predictor of self-change even when known barriers were included in the regression equation, Wald's $\chi^2(1) = 7.36$, $p = .007$, $B = 1.02$, $SE = .38$, $OR = 2.76$, 95% CI = [1.33, 5.76]. Additionally, none of the known barriers were significant in this model, $ps > .31$. In other words, self-discontinuity was the only unique predictor of self-help activities (see Table 1.3).

Discussion

There is a plethora of avenues problem gamblers can take to help them overcome their problematic behaviour (e.g., Lubman et al., 2013). Of course, one avenue is to seek professional treatment. However, the majority of problem gamblers engage in self-help (Slutske, 2006). Unfortunately, there is a paucity of literature that has examined what motivates problem gamblers to take the self-help road. The present research filled this empirical gap by assessing a novel facilitator of self-change – feeling disconnected from the past non-gambling self. In line with predictions, gamblers who reported a heightened sense of self-discontinuity were more approximately 2.5 times more likely to have engaged in self-change when assessed six months later. Importantly, self-discontinuity remained a significant predictor when controlling for known barriers to change (shame, guilt and self-stigma), suggesting self-discontinuity has significant power to push problem gamblers toward taking action to reduce or eliminate gambling from their behavioural repertoire.

Limitations

A few limitations of the present research should be noted. First, there was a relatively modest retention rate (i.e., 39%) from the initial session to the follow-up. It is possible that those who completed the follow-up survey are psychologically different than those who did not (see Wohl & Sztainert, 2011). The preliminary results showed, however, that the two groups did not significantly differ on our variables of interest, providing a degree of confidence in our findings. That said given the relatively small sample size of the final analysis ($n=76$), the results should be viewed with this limitation in mind. Indeed, replication of our results with larger samples would prove highly informative.

A second limitation that should be noted is the use of brief measures. Indeed, while brief measures have the benefit of reducing participant fatigue, they tend to have lower psychometric properties than their longer counterparts. Having said that, the correlations between our measures were of large magnitude, providing some confidence in our finding. A further limitation is the method of recruitment used in the present research. Specifically, a multi-method recruitment approach was used in order to ensure sufficient sample size. As a result, some participants completed the initial interview over the phone (e.g., random digit telephone dialing), while other participants completed the assessment in person (casino patrons) and online (community gamblers). Importantly, however, it should be noted that the results supported our hypothesis even when entering source of recruitment as a co-variate in our multivariate analysis, suggesting self-discontinuity may be a powerful motivator of behavioural change.

Lastly, it should be noted that the data was collected using self-reports. The confidence in our results would be strengthened if corroborated with more objective measures. However, while the results are based on self-report, it does not lessen the findings that self-discontinuity was the only significant behaviour of change. Indeed, while using self-report does introduce measurement error, their use cannot completely account for our findings. Moreover, it is hard to imagine why self-reports would create the observed effects. Lastly, behavioural change is likely driven by gambler's perceptions of their lived experiences. That said, future research would do well to assess more objective measures of behavioural change, and more nuanced assessment of change including days and dollars gambled.

Implications

The aforementioned limitations withstanding, the results of the present research may have some important implications in the treatment of disordered gambling. For example, clinical observations (Nuske & Hing, 2013) have demonstrated that problem gamblers exhibit themes of self-discontinuity during their recovery process. Specifically, problem gamblers come to dislike their current, addicted self and view their past, non-addicted self more favourably. Importantly, perceiving such a discrepancy between the past and present self was found to be a critical point on the pathway to recovery. Clinicians may do well to highlight themes of discontinuity with their clients and discuss how gambling has changed core aspects of the self. As our findings suggest, problem gamblers who feel self-discontinuous as a result of their gambling may be more motivated to attempt behavioural change and overcome their problematic gambling behaviours.

Although the current findings do not directly focus on treatment outcomes, self-help activities have been shown to be an effective method of treating problem gambling (Lubman et al., 2013; Raylu et al., 2008). In fact, self-help activities hold several advantages over professional treatment, including among other things, availability (i.e., self-help activities are not bound by the schedule of a treatment provider), accessibility (i.e., self-help activities can often be done at home whereas travel to a treatment provider is typically necessary) and financial costs (i.e., self-help activities are typically less expensive than treatment offered by a professional). Future research should examine ways to facilitate a sense of self-discontinuity in

problem gamblers. If shown to effectively motivate behavioural change, manipulations of self-discontinuity may prove useful to increase the rates of change among problem gamblers.

Importantly, previous research has shown that self-discontinuity can be experimentally heightened amongst problem gamblers (see Kim & Wohl, 2015 and Chapter 2 of this report). Thus, there is potential for targeted advertisements (e.g., messages on electronic gaming machines, social media) to bring awareness of the disconnect between the present non-addicted self and past-addicted self. Indeed, heightening a sense of discontinuity may help gamblers take the first step to overcome their gambling problems, even in the face of known barriers to change. Having said that, the manipulation used to highlight a sense of self-discontinuity in Kim and Wohl (2015) was rather long and involved participants reading a summary of a fictitious research report. Thus, it would behoove future research to assess whether shorter messages can be used to reliably heighten a sense of self-discontinuity amongst gamblers in need of change.

Conclusion

Change is difficult. This is especially true when the behaviour is addictive in nature as is the case with gambling. Fortunately, there are a myriad of self-help strategies at the gambler's disposal to help them succeed. As evidenced by the current research, problem gamblers can be motivated to take action when the current self is perceived as being different from the past non-addicted self. Indeed, doing so may forge a path towards recovery from a gambling addiction.

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Tables

Table 1.1

Means and Standard Deviations for Variables of Interest by Recruitment Condition

Source	Shame		Guilt		Self-Stigma		Self-Discontinuity	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Phone	2.98 ^a	1.03	3.25 ^a	.96	3.35 ^a	.53	1.98 ^a	.88
Casino (A)	2.53 ^a	.95	2.66 ^b	.98	3.33 ^a	.59	1.87 ^a	.57
Casino (B)	2.63 ^a	1.00	2.80 ^{ab}	.93	2.96 ^b	.86	2.19 ^{ab}	.87
Community	2.87 ^a	.90	2.93 ^{ab}	.90	2.91 ^b	.73	2.64 ^b	.71

Note. Different superscripts denote significant differences. Casino names have been blinded for peer-review process

Table 1.2

Means, Standard Deviations and Correlation Matrix between Variables of Interest Collapsing Across Recruitment Condition

Variable	<i>M</i>	<i>SD</i>	Shame	Guilt	Self-Stigma	Self-Discontinuity
Shame	2.76	.98	-			
Guilt	2.92	.97	.78**	-		
Self-Stigma	3.16	.69	.12	.19**	-	
Self-Discontinuity	2.15	.85	.20**	.12	-.03	-

Note: **, $p < .01$.

Table 1.3

Multiple Binary Logistic Regression for Predictors of Self-Help, Controlling for Source of Recruitment

Variable	Wald's χ^2	<i>p</i>	<i>B</i>	<i>SE</i>	<i>OR</i>	95% CI	
						LL	UL
Shame	.09	.764	-.12	.40	.89	.41	1.93
Guilt	.67	.414	.33	.41	1.40	.63	3.10
Self-Stigma	1.03	.309	-.44	.43	.65	.28	1.50
Self-Discontinuity	8.20	.004	1.03	.36	2.80	1.38	5.64

Note. We controlled source of recruitment by entering it as a co-variate in our multiple binary logistic regression model in block 1 with the independent variables.

Chapter 2: Self-Discontinuity, Nostalgia, and Behavioural Change among Gamblers: Reflecting on the Past Self Motivates Attempted Change

People feel comfort in the belief that the self – at its core – remains unchanged despite negative life events (Chandler, 1994; Sani, 2008). Indeed, a sense of self-continuity provides a person with coherence, especially during times of stress. In this light, it has been argued that self-continuity should be cultivated to improve health and well-being (Dunkel, 2005; Lampinen, Odegard, & Leding, 2004) and conversely, self-discontinuity (i.e., a sense that the current self is fundamentally different than the past self) should be avoided (Chandler & Proulx, 2008; Milligan, 2003). However, people can and do undergo radical change – change that may not be for the betterment of the self. For example, addictive behaviours (e.g., problem gambling) can yield fundamental psychological as well as physiological changes to the self (Shaffer & Albanese, 2005; Shinohara et al., 1999). In this context, a sense that the self has remained unchanged by an addictive behaviour may be an impediment to change: why should the individual change, if the self is unaffected by the addictive behaviour?. Conversely, belief that an addictive behaviour has resulted in fundamental negative self-change may motivate a desire to reclaim the favorable past self – reclamation that may be achieved through behavioural change.

To be sure, behavioural change is hard. Every year, millions, if not billions, of people plan to change their behaviour. They resolve to, for example, lose weight, stop drinking, or quit gambling. Unfortunately, the majority of these resolutions fail to produce a single change attempt (DiClemente et al., 1991). Indeed, Miller & Rollnick (2002) reported that only 15% of people take the necessary steps to remove a problematic behaviour from their behavioural repertoire. This rate remains low despite the array of negative consequences associated with potentially problematic behaviours such as drinking or gambling (e.g., physical, psychological, and interpersonal problems; Amato & Rogers, 1997; Hall & Solowiji, 1998; Lesieur & Custer, 1984).

Self-Discontinuity as Motivator for Change

A cue for how to induce behavioural change may be found in clinical practice. According to the Motivational Interviewing framework (MI; Miller & Rollnick, 2002, 2013), people are ambivalent about changing potentially problematic behaviours. Within MI, a fundamental means to build momentum toward change is to make salient and amplify self-relevant inconsistencies or discontinuities. Providing anecdotal support for the MI framework, Nuske and Hing (2013) reported that clients in treatment for disordered gambling were more likely to initiate behavioural change when they became cognizant of the discontinuity between the past, non-addicted and their present, addicted self. This is likely because self-discontinuity is an aversive psychological state (Chandler & Proulx, 2008; Milligan, 2003; Sadeh & Karniol, 2012) – it results in anxieties, insecurities and discontent with the self (Davis, 1979; Sedikides, Wildschut, Gaertner, Routledge, & Arndt, 2008). These feelings are used by the MI practitioner as leverage to motivate clients to (re)claim their perceived true self (Miller & Rollnick, 2002, 2013). However, the clinical literature has been silent on the mechanism by which self-discontinuity motivates change.

In the social psychological literature, there is a growing body of evidence that one outcome of self-discontinuity is nostalgic reverie (i.e., a sentimental longing) for an earlier self (Best & Nelson, 1985; Milligan, 2003; Sedikides, Wildschut, Routledge, & Arndt, 2015; Sedikides et al., in press). Specifically, people who experience self-discontinuity often find comfort in thoughts about the past. Importantly, these thoughts typically take an appreciative stance toward an earlier self. Indeed, nostalgia increases positive affect and self-regard (Wildschut, Sedikides, Arndt, & Routledge, 2006; Vess, Arndt, Routledge, Sedikides & Wildschut, 2012) and creates a strong sense of social belonging (Wildschut et al., 2006; Wildschut, Sedikides, Routledge, Arndt, & Cordaro, 2010) – factors known to increase the success of treatment for addiction (Kelly, Stout, Greene, & Slaymaker, 2014; Stevens, Jason, Ram, & Light, 2014; Taylor & Marshall, 1977). More recently, Kim and Wohl (2015) found that

disordered gamblers who were high in self-discontinuity expressed greater readiness to change than those who were low in self-discontinuity. They also manipulated self-discontinuity among disordered gamblers (Study 2) as well as problem drinkers (Study 3) and showed that induced self-discontinuity (compared to self-continuity) increased readiness to change. This effect was mediated by nostalgia for the pre-addicted self. Thus, self-discontinuity might facilitate behavioural change via nostalgia.

Still, there is often a large chasm between recognition that behavioural change is needed and making a change attempt (Ajzen & Fishbein, 1977; DiClemente & Prochaska, 1982; Prochaska & DiClemente, 1983). A defining characteristic of addiction is the failure to change despite the understanding that change is both possible and in one's best interest (American Psychiatric Association, 2013). As DiClemente (2006, p. 4) argued, "change is the antithesis of addiction." However, people who engage in addictive behaviours can and do change for the better. Our key objective is to assess a novel avenue for motivating behavioural change among those engaging in addictive behaviours, specifically disordered gambling: nostalgia for the pre-addicted self.

We tested the idea that discontinuity-induced nostalgia not only readies those who are in need of change (e.g., people who are having problems as a result of a particular behaviour), but it also increases the probability that they will also attempt change. However, discontinuity-induced nostalgia is unlikely to have this effect on people who are not having problems as a result of a particular behaviour – there is, after all, no problematic behaviour to change and thus nostalgia for the past should be low. To this end, we manipulated self-discontinuity among a community sample of gamblers and measured nostalgia for the self that existed before gambling entered their life. One month later, we re-contacted participants to assess whether they had made a quit attempt in the intervening 30 days. We hypothesized that readiness to change and the subsequent odds of making a quit attempt would be higher among gamblers in the self-discontinuity condition (compared to the self-continuity condition) – an effect that would be mediated by nostalgia. Importantly, we also hypothesized that this mediational model would only hold among gamblers with high problem gambling severity, that is, those for whom change in gambling behaviour is most needed (and for whom nostalgia for the past self would be strongest; Figure 1).

Method

Participants

Participants were 181 community gamblers (112 males, 66 females, 3 unreported) recruited from Amazon.com's Mechanical Turk (Mturk). MTurk allows "workers" to complete small tasks for monetary compensation. Research by Buhrmester, Kwang and Gosling (2011), as well as others (e.g., Rouse, 2014) has shown that MTurk is an inexpensive, high quality data source and that data collected via MTurk mimics those obtained using traditional sources. Importantly, Kim and Hodgins (2016) have recently shown that MTurk provides reliable data from clinical populations.

Participants ranged in age from 18 to 67 years ($M = 35.818$, $SD = 11.078$, 11 unreported). Participation was limited to those who were engaged in gambling activities (e.g., slot machines, poker, blackjack, roulette, sports betting) or had been so within the past 12 months. Given that we focused on gamblers who had yet to take action to change their behaviour, we excluded those who had already taken such action (e.g., gamblers in treatment for disordered gambling or who had previously sought treatment for disordered gambling). Sample size was based on providing sufficient power (.80) to detect a moderate effect size, $d = .50$, as significant ($p < .05$, two-tailed; Cohen, 1992). We determined that the number of participants per condition should be 64 and thus the total sample size should be 128. However, due to the longitudinal component, we needed to take attrition into account. Based on our previous longitudinal research with gamblers, we anticipated 30% attrition after one month. To account for attrition, we determined that the ideal sample size for the initial session be 180. A research assistant, however, opened 200 slots on Mturk. By the time this was identified, data from 181 participants had been collected. Data collection was stopped at that juncture.

At recruitment, we mentioned that we would seek permission for a brief follow-up session that would occur one month after the day of participation. We informed them that they would earn \$0.75 for

the initial session (approximately 15 minutes in duration) and an additional \$1.00 for the follow-up session. Remuneration was based on normative rates for conducting such a study on MTurk (see Mason & Surim 2012). Remuneration tends to be low because people on MTurk participate in research out of interest or to pass the time rather than for the sake of monetary compensation, making MTurk a good source of data (Buhrmester et al., 2011).

We re-contacted all 181 participants from the initial session 30 days later to take part in the follow-up session. A total of 115 gamblers (70 males, 43 females, 2 unreported) completed the follow-up survey (63.5% of the sample from the initial session). These participants ranged in age from 21 to 66 years ($M = 36.37$, $SD = 11.33$).

An Ethics Certificate was obtained to conduct this study from the Research Ethics Board at both the second and fourth authors' University institutions.

Procedure and Measured Variables

After signing the consent form, participants indicated their age and gender. They then completed the Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001). The PGSI is a 9-item measure, which categorizes four types of gamblers based on the participant's total score. The PGSI contains items assessing problem gambling behaviour (e.g., "Have you bet more than you could really afford to lose?") and the consequences of gambling (e.g., "Has gambling caused you any health problems, including stress or anxiety?"). Responses were anchored at 0 (*never*) and 3 (*almost always*), with possible scores ranging from 0 to 27. Higher scores represent greater problem gambling severity.

We then randomly assigned participants to either a self-discontinuity or a self-continuity condition (adapted from Iyer & Jetten, 2011; see also Kim & Wohl, 2015). In the self-discontinuity condition, participants read:

Recent studies published in New England Journal of Medicine suggests that, along with the potential negative consequences associated with heavy gambling (e.g., financial, interpersonal problems), heavy gambling can also result in losing your sense of self. That is, people who gamble heavily report having undergone fundamental negative changes to their behaviours and moods and begin to dislike the person they have become compared to the person they were before engaging in gambling activities. We would like to see how this is true for you.

They were then asked to:

Please take a moment to reflect and indicate in the space provided below, how gambling has changed your behaviours, moods, attitudes and sense of self. That is, how you are a different person now that you are gambling compared to the person you were before engaging in gambling activities.

Participants in the self-continuity condition read:

Recent studies published in New England Journal of Medicine suggests that, despite heavy gambling leading to an array of negative consequences (e.g., financial, interpersonal problems), gambling does not change people's personalities and behaviours. That is, people who gamble are the same person today, compared to the person they were before engaging in gambling activities. We would like to see how this is true for you.

They were then asked to:

Please take a moment to reflect and indicate in the space provided below, how you have remained the same. That is, how you are the same person now despite engaging in gambling activities compared to before when you were not gambling.

All participants provided a response. We provide examples as online supplemental materials.

As a check on the manipulation, participants completed the following item: "Right now, I feel like my gambling has changed who I am" (1 = *strongly disagree*, 7 = *strongly agree*). They then completed a three-item measure of nostalgia ($\alpha = .73$; adapted from Iyer & Jetten, 2011): "I sometimes feel nostalgic for the life I had before I started gambling," "I never miss the life I had before I started gambling" (reverse-coded), and "I sometimes long for the life I had before gambling" (1 = *strongly disagree*, 7 = *strongly agree*).

Lastly, participants completed Biener and Abrams' (1991) pictorial contemplation ladder, adapted for problem gambling. This continuous readiness to change measure is anchored at 0 (*no thought of changing*) and 10 (*taking action to change*). A score of 0 to 3 corresponded with DiClemente and colleagues' (1991) pre-contemplation stage of change (i.e., not thinking about change), a score of 4 to 6 corresponded with the contemplation stage (i.e., thinking about change), a score of 7 or 8 corresponded with the preparation stage of change (i.e., preparing to change within the next 30 days), and a score of 9 or 10 was indicative of the action and maintenance stage, respectively (i.e., actively modifying unhealthy behaviour).

In the interests of transparency, we note that a number of other measures were collected after the variables of interest were assessed. These were included for exploratory purposes (i.e., for preliminary data for subsequent research). These measures assessed: self-regard (e.g., "I feel good about myself."), exploration of the self (e.g., "I want to more deeply explore who I really am."), meaning in life (e.g., "I feel life is meaningful."), self-forgiveness (e.g., "I forgive myself for gambling."), guilt and shame (e.g., "I feel ashamed about my gambling behaviour."), desire for self-discontinuity (e.g., "I feel a need to re-connect with my past life."), method of change if change was to be undertaken (e.g., "formal treatment", "self-help"), and self-clarity (e.g., "When thinking about the person you were before starting to gamble, how clearly can you picture this person?").

Subsequently, we asked participants for their consent to be re-contacted in 30 days for a brief follow-up session. We redirected them to an abbreviated debriefing, in which we did not disclose the specific purpose of the research. Instead, we told them that the study assessed possible associations between how people feel about themselves, their thoughts about gambling, and their gambling behaviour.

One month after the initial session, we emailed participants a link to the follow-up session. If participants did not complete the study within 24 hours, we sent a second invitation. If they did not complete the study within 24 hours of the second invitation, we sent a third and final invitation. We directed participants who accepted the invitation to a consent form and asked them: "Have you made an attempt to quit or cut down on your gambling in the last month?" Response options were "yes" or "no." Next, we requested permission to link their information collected in the follow-up session to their initial session with their Mturk Worker ID number. Participants granted permission by providing their ID number. Finally, we fully debriefed participants and requested permission to use their data. All participants complied with both of these requests.

Results

Preliminary Analysis

From the original sample of 181 participants, we identified 34 participants as recreational gamblers (13 males, 19 females, 2 unreported), who ranged in age from 24 to 67 years ($M = 42.059$, $SD = 11.431$). We identified 55 as low problem gamblers using the PGSI (31 males, 24 females), who ranged in age from 20 to 61 years ($M = 35.509$, $SD = 10.378$). Lastly, we identified 92 moderate and problem gamblers using the PGSI (68 males, 23 females, 1 unreported), who ranged in age from 18 to 66 years ($M = 35.696$, $SD = 10.597$). There was no between-condition difference in problem gambling severity, $F(1, 168) = .02$, $p = .888$, $\eta_p^2 < .001$: Problem gambling severity in the self-discontinuity condition ($M = 3.593$, $SD = 3.559$) was comparable to that reported in the self-continuity condition ($M = 3.674$, $SD = 3.965$) (Table 2.1). Of the 115 gamblers who completed the follow-up session, we identified (a) 21 participants as recreational gamblers (9 males, 19 females, 2 unreported), who ranged in age from 24 to 63 years ($M = 41.476$, $SD = 11.272$); (b) 32 participants as low problem gamblers (15 males, 17 females), who ranged in age from 21 to 61 years ($M = 35.844$, $SD = 10.51$), and (c) 62 moderate and problem gamblers (46 males, 16 females), who ranged in age from 22 to 66 years ($M = 34.919$, $SD = 11.432$).

We found no significant differences between those who did and those who did not complete the follow-up session on any of the measured variables. Specifically, participants who completed the follow-up session ($M = 3.817$, $SD = 3.933$) did not differ on problem gambling severity relative to those

who only completed the initial session ($M = 3.364$, $SD = 3.64$), $F(1, 179) = 0.589$, $p = .444$, $\eta_p^2 = .003$. Similarly, participants who completed the follow-up session ($M = 2.75$, $SD = 1.019$) did not differ in the extent to which they felt nostalgic compared to those who only completed the initial session ($M = 2.697$, $SD = .828$), $F(1, 168) = 0.113$, $p = .737$, $\eta_p^2 = .001$. Likewise, participants who completed the follow-up session ($M = 1.667$, $SD = 2.592$) did not differ in readiness to change from those who only completed the initial session ($M = 1.091$, $SD = 1.746$), $F(1, 167) = 2.223$, $p = .138$, $\eta_p^2 = .013$.

We proceeded to test the effectiveness of the manipulation using the self-discontinuity manipulation check item. The manipulation was successful. Participants in the self-discontinuity condition ($M = 2.654$, $SD = 1.574$) reported that gambling had changed the self more than those in the self-continuity condition ($M = 1.663$, $SD = .976$), $F(1, 168) = 24.812$, $p < .001$, $\eta_p^2 = .129$.

In Table 2.1, we present the correlation between variables as well as the overall mean and standard deviation of each variable. In Table 2.2, we present the mean and standard deviation for each measured variable by condition.

Readiness to Change

We first tested the hypothesized moderated-mediation model in which self-discontinuity (the predictor variable; 0 = self-continuity; 1 = self-discontinuity) increases readiness to change (the outcome variable) via nostalgia (the mediating variable; mean-centered), but only for those who report high problem gambling severity (the moderating variable; mean-centered). To do so, we relied on Hayes' (2013) PROCESS macro (Model 7) for SPSS version 21. We used bootstrapping with 5000 iterations to obtain bias corrected 95% confidence intervals (Cis; see Hayes, 2013). We obtained a significant main effect of both self-discontinuity, $b = .265$, $SE = .119$, 95% CI [.03, .500], and problem gambling severity on nostalgia, $b = .148$, $SE = .016$, 95% CI [.116, .179]. However, these main effects were qualified by a significant Self-Discontinuity \times Problem Gambling severity interaction, $b = .10$, $SE = .032$, 95% CI [.037, .164]. When problem gambling severity was high (+1 SD), participants in the self-discontinuity (compared to self-continuity) condition experienced heightened nostalgia for the pre-addicted self, $b = .643$, $SE = .17$, 95% CI [.307, .978]. When problem gambling severity was low (-1 SD), however, the self-discontinuity manipulation did not significantly affect nostalgia, $b = -.102$, $SE = .167$, 95% CI [-.431, .228]. We also found that nostalgia, $b = 1.516$, $SE = .15$, 95% CI [1.219, 1.813], but not the self-discontinuity manipulation, $b = .176$, $SE = .288$, 95% CI [-.393, .745], predicted readiness to change.

Importantly, as predicted, self-discontinuity significantly increased readiness to change via nostalgia when problem gambling severity was high (+1 SD), $b = .974$, $SE = .378$, 95% CI [.253, 1.71]. However, mediation was absent when problem gambling severity was low (-1 SD), $b = -.154$, $SE = .245$, 95% CI [-.665, .321]. Thus, we obtained support for the hypothesized moderated-mediation model. The index of moderated-mediation was significant ($p < .05$), $index = .152$, $SE = .07$, 95% CI [.018, .288].

Attempted Change

We then proceeded to test the central hypothesis: self-discontinuity (the predictor variable; 0 = self-continuity; 1 = self-discontinuity) increases the odds of a change attempt (the outcome variable; coded 0 = no attempted change; 1 = attempted change) via nostalgia (the mediating variable; mean-centered), but only for those who report high problem gambling severity (the moderating variable; mean-centered). Again, we used Hayes' (2013) PROCESS macro (Model 7, 5,000 bootstraps) for SPSS version 21. As with readiness to change, nostalgia, $b = .581$, $SE = .217$, 95% CI [.156, 1.006], but not self-discontinuity, $b = -.228$, $SE = .443$, 95% CI [-1.098, .642], predicted whether participants made a change attempt or not.

As hypothesized, self-discontinuity significantly increased the odds that participants made a change attempt via nostalgia when problem gambling severity was high (+1 SD), $b = .353$, $SE = .231$, 95% CI [.01, .943], but not when problem gambling severity was low (-1 SD), $b = -.137$, $SE = .139$,

95% CI [-.503, .068]. Lastly, the index of moderated mediation was significant ($p < .05$), $index = .065$, $SE = .042$, 95% CI = [.0004, .179].

Discussion

We proposed that heightened self-discontinuity would motivate people living with addiction to attempt behavioural change. Specifically, discontinuity between one's past and present motivates a desire to avoid the stimulus that has created it. For the person living with addiction, this process may manifest as a desire to avoid the addictive behaviour. Among problem gamblers, for example, a sense that gambling has changed the self for the worse should motivate a desire to avoid gambling – a sentiment observed among gamblers in treatment for disordered gambling (Nuske & Hing, 2013). Additionally, we hypothesized that self-discontinuity influences willingness to change as well as attempted change via nostalgia for one's past self, a self that existed prior to gambling.

In line with research by Sedikides and colleagues (2015), as well as Kim and Wohl (2015), we found that self-discontinuity triggered nostalgic reverie for one's past self, which, in turn, predicted increased readiness to change. However, this was only true for those high in problem gambling severity. One month later, we re-contacted participants to assess whether they made a change attempt during the intervening 30 days. As hypothesized, experimentally induced self-discontinuity (compared to self-continuity) increased the odds that people high in problem gambling severity made a change attempt. This effect was mediated by nostalgic reverie for the pre-addicted self.

Interestingly, there was no direct effect of the self-discontinuity manipulation on the odds of a change attempt. Although a direct effect was hypothesized, according to Kenny and Judd (2014) the power to detect a direct effect can be dramatically smaller than the power for the test of the indirect effect. One such situation is when the central research question is whether a randomized intervention is efficacious and there is a good understanding of the mechanism. Under such conditions, there is benefit in testing ab over c . The current research fits these criteria – there was a randomized intervention to assess the behavioural change utility of a self-discontinuity manipulation and there is a good understanding in the literature that self-discontinuity elicits nostalgia.

These findings have both basic and applied significance for two literatures. First, the social psychological literature on self-discontinuity and nostalgia has only theorized about their behavioural consequences. However, as of yet, no research has demonstrated whether discontinuity-induced nostalgia manifests in behavioural change. Second, motivating people who engage in addictive behaviours (e.g., cigarette smoking, problem drinking, problem gambling) to quit or cut back has posed a virtually insurmountable challenge. Indeed, those living with addiction are hard to reach and engage (DiClemente, 1993). Objectively, persons living with addiction and the associated negative consequences should be highly motivated to change their behaviour. However, they do not readily engage in behavioural change despite the consequential harm (e.g., physical, psychological, interpersonal; Amato & Rogers, 1997; Hall & Solowiji, 1998; Lesieur & Custer, 1984). In fact, it is estimated that only 15% of persons living with addiction take the necessary steps to change problematic behaviours (Miller, 2002). As such, researchers and treatment providers alike have searched for effective means to motivate these persons to attempt change. Our findings demonstrate that heightening a sense that the addictive behaviour has resulted in a discontinuity between the current and past self motivates change. Importantly, self-discontinuity exerts this motivating power by virtue of its capacity to elicit nostalgia for the self that existed before the addictive behaviour entered one's life.

Limitations and Future Directions

We note some limitations of our research. First, we focused only on gamblers and their motivation to change their gambling behaviour (as well as attempted change). It is possible that persons living with other addictions may not be similarly impacted by our self-discontinuity manipulation. However, we see no reason why self-discontinuity induced nostalgia would have a different effect on concomitant change attempts among individuals living with other forms of addiction.

According to Leeman and Potenza (2012), there are multiple similarities between problem gambling and substance use disorders (e.g., poor performance on neurocognitive tasks). Understanding these similarities may facilitate treatment across addictions. We argue one such similarity may be a willingness to change their addictive behaviour as a result of self-discontinuity induced nostalgia. This is a worthy direction for future research. Second, although self-discontinuity increased change attempts, we do not know if such attempts are likely to result in sustained change. Future research could follow participants for an extended period of time (perhaps with booster sessions) to observe whether self-discontinuity induced nostalgia has long-term benefits. Lastly, we do not know what events transpired in the days and weeks that followed the initial session (and before the follow-up session). It is possible that the self-discontinuity manipulation influenced other attitudes or behaviours that we did not assess, which contributed to the between-group difference in reported change attempt. In this light, it may be prudent to conduct a daily diary study to assess more fully the longitudinal impact of the self-discontinuity manipulation.

Concluding Remarks

Nostalgia has traditionally been regarded as unhealthy – a feeling that contributes to psychiatric disorders (for a review, see Sedikides, Wildschut, & Baden, 2004). In contrast, there is increasing evidence that discontinuity-induced nostalgia serves a positive, approach motivating function (Sedikides et al., 2015; Kim & Wohl, 2015). That is, self-discontinuity, via nostalgia, motivates the individual to recapture the positive past on which they are reflecting. Crucially, our research indicates that self-discontinuity, via nostalgia, serves to motivate individuals living with addiction to make an attempt to change their behaviour. Nostalgia is an emotion that could be nurtured (via experienced self-discontinuity) to produce favorable outcomes among those living with addiction.

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Tables

Table 2.1

Correlation Between All Variables with Variable Means and Standard Deviations in Parentheses on the Diagonal

	1.	2.	3.	4.	5.
1. Self-Discontinuity Manipulation	-				
2. Problem Gambling Severity	-.011	3.652 (3.825)			
3. Nostalgia	.128	.549**	2.733 (.959)		
4. Readiness to Change	.117	.610**	.622**	1.479 (2.361)	
5. Attempted Change ^a	-.029	.414**	.267**	.216**	.27 (.446)

Note: ^a Yes = 1, No = 0; ** $p < .01$

Table 2.2

Means and Standard Deviations of Dependent Measures by Condition

	Self-Discontinuity		Self-Continuity	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Problem Gambling Severity	3.593	3.559	3.674	3.965
Nostalgia	2.858	1.011	2.612	0.903
Readiness to Change	1.765	2.585	1.216	2.114
Attempted Change ^a	0.250	0.437	0.276	0.451

Note: ^aYes = 1, No = 0; No between-condition effects were significant. All *ps* > .05

Figures

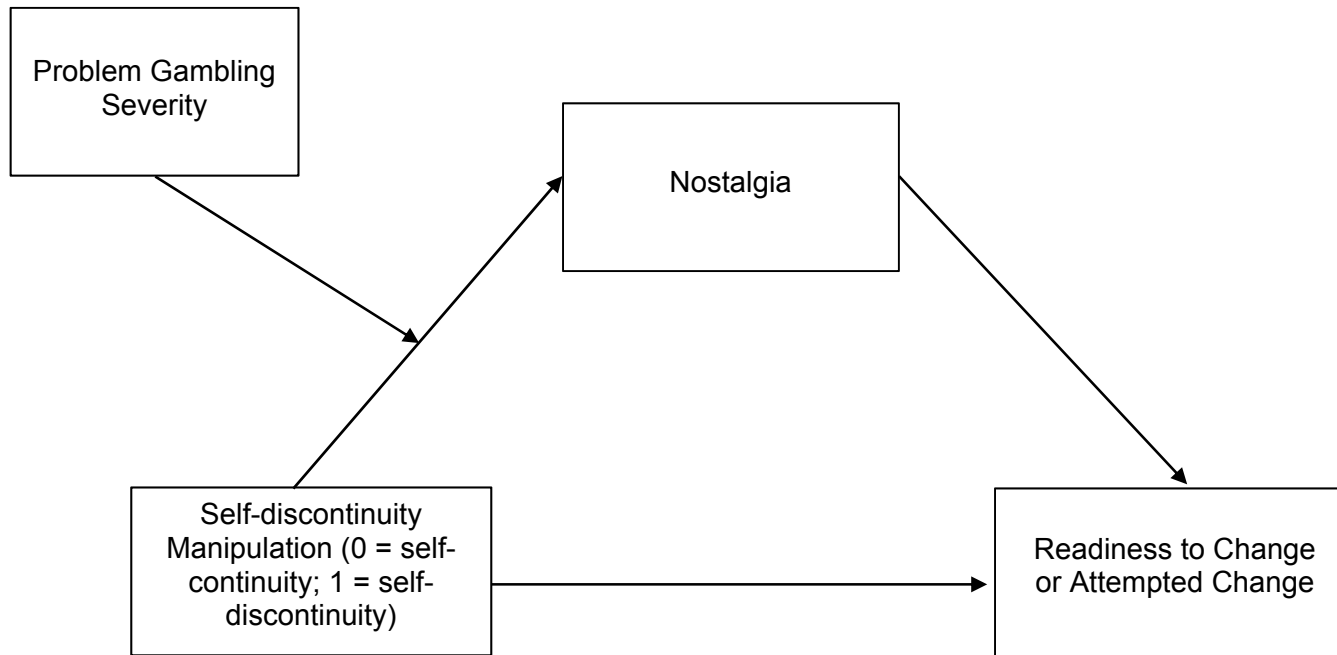


Figure 2.1. Hypothesized moderated-mediation model: Self-discontinuity manipulation predicts attempted change (or readiness to change), via nostalgia, but only among those high in problem gambling severity