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The Four Es 1-Year Later: A Tool for Predicting the  
Development of Gambling Problems

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## Abstract

The Four Es is a 40-item scale measuring psychological risk for the development of problem gambling behavior. One-year follow-up interviews ( $n = 395$ ) from a previously reported phone survey in Queensland, Australia ( $n = 2,577$ ) (Rockloff, M. J. & Dyer, V., 2006) tested the ability of the Four Es instrument to prospectively identify persons who would later develop gambling problems. Two groups of participants were selected for the 1-year follow-up interviews, including 1) persons who had gambling problems, high-risk alcohol abuse problems, and/or substance abuse problems (abuse group); and 2) a random selection of other persons from the original survey (random group). The results indicated that the "Excess" trait, which measures impulsive behavior, was predictive of relative increases in gambling problems for both groups over the 1-year period. Additionally, the Four Es questionnaire showed good psychometric properties in the surveys, with a test-retest reliability of  $r = .70$  and a Cronbach's alpha reliability of  $\alpha = .90$  and  $.92$  in the original and follow-up interviews, respectively.

The Four Es 1-Year Later: Forecasting the Development of  
Gambling Problems

The Four Es is a Likert-instrument designed to measure psychological risk for the development of problem gambling behavior (Rockloff, M. J. & Dyer, V., 2006). The Four Es comprise a 40-item scale in total, including 10 items separately measuring the constructs of Escape, Esteem, Excess and Excitement. These 4 psychological traits make some people acutely vulnerable to the development of gambling problems. The measurement instrument is decontextualized such that the items on the scale make no specific mention of gambling behavior. Instead, the scale measures enduring predispositions to a range of behaviors and thought patterns consistent with the 4 constructs. Escape is the motivation to avoid aversive social interactions. Esteem is the need to bolster a fragile self-image. Excess is the inability or unwillingness to inhibit or think about the consequences of destructive behaviors. Lastly, Excitement is the drive to alleviate enduring feelings of boredom.

Researchers have developed measures to identify the prevalence of gambling problems in studies on clinical (Lesieur, H. R. & Blume, S. B., 1987) and population-level groups (Ferris, J. & Wynne, H., 2001). Less attention has been devoted to theory-based measurement of factors that predispose some people to risk for gambling

problems (Sharpe, L., 2002). Most of the past literature instead has focused on issues of comorbidity, including other forms of psychiatric disorders (Ibanez, A. et al., 2001). The Four Es is designed to specifically identify psychological trait-based risk for problem gambling. In past research psychological traits, notably impulsivity, sensation-seeking and locus-of-control, have been associated with problem gambling behavior (Clarke, D., 2004; Moore, S. M. & Ohtsuka, K., 1997; Whiteside, S. P., Lynam, D. R., Miller, J. D., & Reynolds, S. K., 2005). To our knowledge; however, no specific previous effort has been made to tailor a scale of trait measurements to predict the development of problem gambling behavior.

Rockloff and Dyer (2006) outline supportive evidence for the validity of the Four Es scale. The Four Es have demonstrated key properties, including: 1) high internal consistency (reliability of  $\alpha = .90$ ), 2) the ability to predict concurrent gambling problems (people who score in the top 5% on the scale are 9 times more likely to also have gambling problems), 3) specificity: the Four Es scale distinguishes people with gambling problems from people with alcohol abuse problems. This present work adds to this body of evidence by reporting on a follow-up survey linking the Four Es to increases in problem gambling behavior over time.

### The Four Es Constructs

The Four Es were developed with the help of a focus group discussion with Reno, Nevada members of Gamblers Anonymous (GA) (Rockloff, M. J. & Dyer, V., 2006). Discussion questions focused on the motivations behind GA members' gambling behavior. An analysis of the answers was sorted into the 4 broad categories ultimately composing the Four Es constructs. These individual explanations for problem gambling behavior; however, are not entirely new. Past research and theorizing are broadly supportive of the existence of these 4 factors as components of psychological risk.

Escape. The use of gambling as an escape from social adjustment problems is one of the criteria used to diagnose pathological gambling in clinical settings (American Psychiatric Association, 1994; Lesieur, H. R. & Rosenthal, R. J., 1991). Gambling may be subjectively functional in the short term by serving as a temporary distraction from a persistent state of aversive arousal (Jacobs, D. F., 1986). Due to the negative expected return for most forms of gambling, persistence in betting over long periods will inevitably lead to financial losses. The social adjustment problems resulting from these losses can add to aversive arousal and ironically reinforce gambling behavior. This failure in the beneficial self-regulation of behavior is not likely the

result of self-destructive motives (Baumeister, R. F., 1997). Instead, it is probable that emotional distress resulting from social adjustment difficulties will lead people to disregard risks and impulsively pursue gambling for the possibility of short term rewards despite the long term consequences.

Esteem. Problem gambling has been linked with both comorbid psychiatric depression (Blaszcvznski, A. P. & McConaghy, N., 1989) and feelings of low self-esteem (Derevensky, J. L. & Gupta, R., 1998). In the short term, gambling may be a way to bolster fragile self-esteem by providing monetary reward and social recognition. In support of this contention, Smith & Abt (1984) suggest that being defined as a "gambler" contributes to higher esteem among peers. Ultimately; however, the financial losses that inevitably accrue from long-term gambling involvement lead to downward revisions in self-esteem. Ironically, problems with self-esteem maintenance may both be a cause and a symptom of problem gambling behavior, resulting in a self-perpetuating cycle of maladaptive behavior.

Baumeister (1997) suggests that fragile self-esteem creates vulnerability to a range of self-defeating behavior - including problem gambling. In his view, an inflated but unstable positive self-image will be particularly vulnerable to external threats of negative

evaluation. Most people have some dimensions of the self which they regard positively. Threats to self-esteem; including those stemming from arguments with friends, family or co workers; can lead to downward revisions in self-esteem which may be symbolically redeemed from short-term winnings, or escaped temporarily in the pursuit of gambling.

Excess. Problem gambling is often associated with measures of impulsivity (Vitaro, F., Arseneault, L., & Tremblay, R. E., 1999). Chambers & Potenza (2003) propose that the well-documented elevation in problem gambling prevalence among adolescents and young adults may be due to immaturity of the brain. This immaturity in neural circuitry leads to impulsive behaviors, including disordered gambling. Hollander & Evers (2001) further argue that a host of evidence in animal models suggests that impulsivity has an identifiable neurological basis. Support for the Excess trait as a component of risk for disordered gambling is also found in the clinical classification of pathological gambling as an impulse control disorder (American Psychiatric Association, 1994).

Excitement. Excitement is often identified as one of the key motivating factors for problem gambling (Boyd, W. H., 1976; Steiner, J., 1970). Learning theories suggest that the excitement generated by wins - or even near

misses - have a reinforcing effect on future behavior (Brown, R. I., 1986). Furthermore, the patterns of wins and losses on Electronic Gaming Machines (EGMs) follow a variable ratio schedule, which experimentally produces both high rates of responding and resistance to extinction. There are some arguments in how arousal mediates gambling behavior for people who are already experiencing problems (Brown, S. L., Rodda, S., & Phillips, J. G., 2004). Nevertheless, there is clear evidence of positive-valance changes in arousal as a result of winning for gamblers who have not (yet) developed problems.

#### Practical importance of the Four Es instrument

There is a need for new research that addresses in a systematic and quantitative approach the psychological determinants of problem gambling behavior. Although several theoretical approaches have been offered to explain problem gambling, including for instance Jacobs' General Theory of Addiction (1988), there is little work that directly links theory with a rigorous quantitative measures or methodologies that make these theories falsifiable. The Four Es questionnaire provides a means of testing the relative merits of the 4 constructs in explaining risk for the development of gambling problems. Understanding the importance of these risk components is important for advancing theory development, and for



creating practical applications in the domains of both treatment and protection.

### Aims of the Current Study

The current project involved re-interviewing a select subset of subjects from a previously reported survey (Rockloff, M. J. & Dyer, V., 2006) to help further validate the Four Es scale. These re-interviews served two purposes: 1) the follow-up survey was important for demonstrating the test-retest reliability of the scale, and 2) the re-interviews allowed for a test of whether the Four Es constructs are able to predict increases in gambling problems over time. This second property is important, because it helps to demonstrate that the Four Es constructs are not an epiphenomenal product of gambling, but are at least supportable as possible causative factors in producing problem gambling behavior.

### Method

#### Participants

As previously reported by Rockloff and Dyer (2006), a Queensland, Australia phone survey of 2,577 persons, 940 males and 1,637 females, with ages ranging from 18 to 100 years ( $M = 46.1$ ,  $SD = 16.2$ ) was conducted during October and November 2003 (hereafter called "Time 0"). The cultural identities of the respondents included: Australian (2,161 or 83.9%); English (149 or 5.8%);

Indigenous (46 or 1.8%); and others identities (221 or 8.6%) which each represented 1% or less of the sample.

This report compares the results of this first survey to a select 1-year follow-up survey of 395 persons between July and August 2004 (hereafter called "Time 1"), including 242 female and 153 male participants aged 19 to 87 ( $M = 46.8$ ,  $SD = 15.6$ ). The selection criteria for these follow-up interviewees are summarized below.

### Materials

Both the original and follow-up surveys included the Four Es scale (Rockloff, M. J. & Dyer, V., 2006), the Alcohol Use Disorders Identification Test (AUDIT, Saunders, J. B., Aasland, O. G., Babor, T. F., De La Fuente, J. R., & Grant, M., 1993), the Severity of Dependence scale for substance abuse (Gossop, M. et al., 1995), and the 9-item scoreable portion of the Canadian Problem Gambling Index (CPGI, Ferris, J. & Wynne, H., 2001).

The Four Es questionnaire is reproduced in the article appendix. By design, none of the items on the scale make specific reference to gambling activities, but instead measure psychological predisposition to risk for developing a problem gambling disorder.

### Design and Procedure

Households for the first survey were selected in a stratified random sample from phone book records across

the 11 regions in Queensland, Australia. Participants were selected at random from an enumeration of adults aged 18 and over living within each household. Interviews of 2,577 persons in the original survey took place between July and October 2003 representing a 53.2% completion rate.

The second survey selected two groups of persons from the original survey for 1-year follow-up interviews conducted between July and August 2004. The first group selected for re-interview, the so-called "abuse group," included all persons originally scoring at high-risk on the Alcohol Use Disorder Identification Test (AUDIT, 16 or greater, Saunders, J. B. et al., 1993), and/or the Severity of Dependence Scale (5 or greater, Gossop, M. et al., 1995), and/or those who had at least some gambling problems on the Problem Gambling Severity Index (CPGI, 1 or greater, Ferris, J. & Wynne, H., 2001). The composition of the random group included: 42 people (56%) with exclusive gambling problems; 19 (25%) with exclusive alcohol abuse problems; 5 (7%) with both alcohol abuse and gambling problems; 4 (5%) with substance abuse problems; 4 (5%) with some gambling problems and substance abuse; and 1 person with a combination of gambling, alcohol and substance abuse problems. The second set of interviewees, the so-called "random group," was a 500 person random selection of the remaining

participants from the original survey. The completed re-interviews included 75 persons in the abuse group (48.4% completion rate, 44 males and 31 females, Mean age = 43.3 yrs), and 320 in the random group (64.0% completion rate, 109 males and 211 females, Mean age = 47.7 yrs).

## Results

### Psychometric Properties

Four Es Reliabilities. The Cronbach's Alpha reliability of the 40 item Four Es scale was high at  $\alpha = .90$  in the original survey and  $\alpha = .92$  in the follow-up interviews. The Cronbach's Alpha reliabilities for the subscales in the original survey were ( $n = 2,577$ , see Rockloff, M. J. & Dyer, V., 2006): .82 for Escape, .72 for Esteem, .78 for Excess and .76 for Excitement. The Cronbach's Alpha reliabilities for the follow-up survey ( $n = 395$ ) were: .86 for Escape, .78 for Esteem, .81 for Excess and .76 for Excitement.

The 1-year test-retest reliability for the 40 item scale was high at  $r(390) = .70$ ,  $p < .001$ . The 1-year test-retest reliabilities for the subscales were ( $n = 395$ ): .62 for Escape, .62 for Esteem, .62 for Excess and .64 for Excitement,  $p < .001$ .

Reliabilities of CPGI, AUDIT and Severity of Dependence. The Cronbach's Alpha reliability of the 9 item scoreable CPGI was  $\alpha = .89$  in the original survey and  $\alpha = .87$  in the follow-up. Test-retest reliability

for the scoreable CPGI was high at  $r(389) = .75$ ,  $p < .001$ . The Cronbach's Alpha reliability of the 10 item AUDIT was  $\alpha = .81$  in the original survey and  $\alpha = .79$  in the follow-up. Test-retest reliability was very high at  $r(385) = .84$ ,  $p < .001$ . Lastly, the 5 item Severity of Dependence scale had a Cronbach's Alfa reliability of  $\alpha = .80$  in the original survey and  $\alpha = .93$  in the follow-up, while test-retest reliability was low at  $r(388) = .19$ ,  $p < .001$ .

Mean Values. Table 1 shows means, standard deviations, and mean-change scores for the Four Es factors, as well as the CPGI, AUDIT and Severity of Dependence scales. The results are provided separately for the abuse-group (top half of Table 1) and the random-group (bottom half of Table 1). Using paired t-tests, there were significant lower Excitement scores in the follow-up survey for both the abuse-group and random-group. The CPGI scores decreased in the abuse-group, but increased slightly in the random group. Lastly, AUDIT scores decreased in the abuse-group, but were not significantly different between surveys for the random-group.

Table 1.

Means for Four Es, CPGI, AUDIT and Severity of Dependence by Group (abuse vs. random)

	Time 0: Original Survey		Time 1: Follow- up Survey		Mean Change
	M	SD	M	SD	
Abuse Group ( <u>n</u> = 75):					
Escape	2.05	0.78	2.12	0.97	0.07
Esteem (low)	2.18	0.61	2.18	0.72	0.00
Excess	2.38	0.79	2.25	0.74	-0.13
Excitement	2.76	0.82	2.55	0.79	-0.21 *
CPGI	3.36	3.89	2.00	3.59	-1.36 ***
AUDIT	9.68	7.68	8.52	7.56	-1.16 *
Sev. of Dep.	1.07	2.58	0.47	1.48	-0.60
Random Group ( <u>n</u> = 320):					
Escape	1.63	0.63	1.60	0.68	-0.03
Esteem (low)	1.80	0.54	1.75	0.60	-0.06
Excess	1.88	0.64	1.80	0.68	-0.07
Excitement	2.20	0.75	2.04	0.77	-0.16 ***
CPGI	0.02	0.15	0.08	0.41	0.06 **
AUDIT	3.33	3.12	3.41	3.33	0.08
Sev. of Dep.	0.04	0.33	0.09	0.95	0.05

Note: Significance shown for paired t-tests between Time 0 and Time 1 means.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Predicting Increases in Gambling Problems (Abuse Sample)

Table 2 focuses on the "abuse" group ( $n = 75$ ). It shows the results of a standard multiple regression analysis using the 1-year change in gambling symptoms (the difference in CPGI scores from year 0 to year 1) as the dependent variable and each of the four 10 item subscales of the Four Es instrument from the original survey (year 0) as the independent variables. Results showed that the Excess trait in year 0 was a significant predictor of increases in gambling problems over the 1-year period. Similarly, the year 0 Escape and Excitement traits were positively related to increases in gambling problems, although the beta-weights were non-significant. The year 0 Esteem trait was negatively related to increases in gambling symptoms, although the results were likewise non-significant. The variance inflation factor (VIF) for each independent variable (see Table 2) confirmed that multicollinearity did not pose a substantial concern. Simple correlations between CPGI change scores and the Four Es subscales were largely consistent with the regression results ( $r_{\text{cpgi}\Delta, \text{escape}} = .09$ ,  $p = .23$ , ns;  $r_{\text{cpgi}\Delta, \text{esteem}} = .01$ ,  $p = .48$ , ns;  $r_{\text{cpgi}\Delta, \text{excess}} = .22$ ,  $p = .03$ ; and  $r_{\text{cpgi}\Delta, \text{excitement}} = .12$ ,  $p = .16$ , ns; one-tailed).

Table 2

Regression Analysis Summary for 4Es variables Predicting  
Change in Gambling Symptoms (CPGI) over 1-Year  
(Abuse Sample)

Variable	<u>B</u>	<u>SEB</u>	<u>β</u>	<u>VIF</u> <sup>1</sup>
Escape	.10	.54	.03	1.50
Esteem (low)	-.65	.69	-.13	1.53
Excess	.84	.51	.23 *	1.38
Excitement	.24	.52	.07	1.61

Note: n = 75; F(4,70) = 1.09, p = .37; r<sup>2</sup> = .06

\*p < .05 (one-tailed).

<sup>1</sup> Variance Inflation Factor.

Predicting Increases in Gambling Problems (Random Sample)

Table 3 shows results for the "random" group of re-interviews (n = 320). The results were very similar to those obtained for the abuse-group. The Excess trait (year 0) significantly predicted increases in gambling problems over the 1-year period. The year-0 Escape and Excitement traits were positively related to increases in gambling symptoms, but the results were not reliable. The Esteem trait (year 0) was negatively associated with increases in gambling problems, but again the relationship was not significant. The variance inflation



factor (VIF) for each independent variable did not present substantial concerns about multicollinearity influencing the results (see Table 3). Simple correlations between CPGI change scores and the Four Es subscales were largely consistent with the regression results ( $r_{\text{cpgi}\Delta, \text{escape}} = .05$ ,  $p = .18$ , ns;  $r_{\text{cpgi}\Delta, \text{esteem}} = -.01$ ,  $p = .45$ , ns;  $r_{\text{cpgi}\Delta, \text{excess}} = .09$ ,  $p = .05$ ; and  $r_{\text{cpgi}\Delta, \text{excitement}} = .05$ ,  $p = .18$ , ns; one-tailed).

Table 3

Regression Analysis Summary for 4Es variables Predicting Change in Gambling Symptoms (CPGI) over 1-Year (Random Sample)

Variable	<u>B</u>	<u>SEB</u>	<u><math>\beta</math></u>	<u>VIF<sup>1</sup></u>
Escape	.03	.05	.04	1.77
Esteem (low)	-.08	.06	-.10	1.77
Excess	.07	.04	.11 *	1.42
Excitement	.02	.04	.04	1.44

Note:  $n = 320$ ;  $F(4, 308) = 1.19$ ,  $p = .32$ ;  $r^2 = .02$

\* $p < .05$  (one-tailed).

<sup>1</sup> Variance Inflation Factor.

Predicting Changes in AUDIT and Severity of Dependence Scores Using Four Es Traits

For the abuse-group, changes in AUDIT scores were positively related to the Four Es factors, although none of the correlations proved significant ( $r_{\text{AUDIT}\Delta, \text{Escape}} = .11$ ,  $p = .37$ , ns;  $r_{\text{AUDIT}\Delta, \text{Esteem}} = .15$ ,  $p = .19$ , ns;  $r_{\text{AUDIT}\Delta, \text{Excess}} = .14$ ,  $p = .25$ , ns;  $r_{\text{AUDIT}\Delta, \text{Excitement}} = .00$ ,  $p = .99$ , ns). Likewise, for the random-group, changes in AUDIT scores had positive, though non-significant, correlations with the Four Es factors ( $r_{\text{AUDIT}\Delta, \text{Escape}} = .05$ ,  $p = .38$ , ns;  $r_{\text{AUDIT}\Delta, \text{Esteem}} = .03$ ,  $p = .61$ , ns;  $r_{\text{AUDIT}\Delta, \text{Excess}} = .01$ ,  $p = .82$ , ns;  $r_{\text{AUDIT}\Delta, \text{Excitement}} = .02$ ,  $p = .73$ , ns). For the abuse-group, there was a significant and unexpected negative correlation between Changes in Severity of Dependence (substance abuse) and the Escape factor,  $r = -.28$ ,  $p = .02$ . However, changes in Severity of Dependence were not significantly correlated to the remaining Four Es in the abuse-group ( $r_{\text{Sev. of Dep.}\Delta, \text{Esteem}} = .01$ ,  $p = .96$ , ns;  $r_{\text{Sev. of Dep.}\Delta, \text{Excess}} = -.17$ ,  $p = .16$ , ns;  $r_{\text{Sev. of Dep.}\Delta, \text{Excitement}} = -.12$ ,  $p = .30$ , ns). Lastly, changes in Severity of Dependence were not significantly correlated to the Four Es in the random-group ( $r_{\text{Sev. of Dep.}\Delta, \text{Escape}} = .08$ ,  $p = .15$ , ns;  $r_{\text{Sev. of Dep.}\Delta, \text{Esteem}} = .03$ ,  $p = .57$ , ns;  $r_{\text{Sev. of Dep.}\Delta, \text{Excess}} = .02$ ,  $p = .68$ , ns;  $r_{\text{Sev. of Dep.}\Delta, \text{Excitement}} = .01$ ,  $p = .93$ , ns).

## Discussion

The Four Es scale demonstrated high internal consistency in both the original and follow-up survey, and had good test-retest reliability over the 1-year timeframe. As such, the current results lend support to the scale as a psychometrically sound measurement instrument. A scale must be reliable to be valid, but reliability is no guarantee that the constructs being measured have relevance for understanding problem gambling behavior. Instead, these theoretical constructs should be meaningfully related to both the occurrence and development of disordered gambling. While past work (Rockloff, M. J. & Dyer, V., 2006) has shown that the Four Es are predictive of concurrent gambling problems, this study showed that the Excess trait additionally was a reliable predictor of relative increases in problem gambling symptoms over the 1-year period for both the "abuse" and "random" group of interviewees. Further, this result suggests that the Four Es are not simply the psychological consequence of problem gambling behavior, but at least supportable as the antecedent conditions leading to the development of disordered gambling.

Some caution should be exercised in interpreting the results; however, as the Excess trait was only a significant predictor of gambling problems in a 1-tailed test. In addition, the Omnibus test for both groups was

non-significant. The similarity of the regression analyses on 2 separate samples (the abuse and random group), and the agreement of the correlational analyses, nevertheless reinforce our confidence in the reliability of the results for the Excess trait.

The other 3 constructs (Escape, Esteem and Excitement) did not reliably predict increases in gambling symptoms for either group of respondents (abuse or random). However, the samples used were relatively small (abuse group,  $n = 75$ ; random group,  $n = 320$ ), and measurement error in Likert instruments for these constructs is likely high. As such, it would not be appropriate to assume that these other factors are not important for the development of gambling problems. More likely, the current results reflect the relative importance of the Excess factor in the development of problem gambling, and/or a better measurement of this construct.

One year changes in mean values for all scales, including the subscales of the Four Es, are shown in Table 1. Excitement scores decreased in both the abuse-group and random-group, although the magnitude of the decrease was not large. The reason for decreasing Excitement (boredom proneness) is unclear; however, it may have reflected a self-presentation motivation by participants to show that their circumstances had

improved during the year. CPGI scores decreased substantially in the abuse-group, and this result is consistent with the spontaneous recovery often observed in clinical samples. In contrast, CPGI measured problems in the random-group increased over the year. This increase, although slight, may have illustrated some replacement of other persons who had recovered, which ultimately maintains (or increases) overall prevalence rates in the population. Lastly, AUDIT scores decreased in the abuse-group, again likely as a result of spontaneous recovery; although no significant increase in AUDIT scores was noted in the random-group.

The Four Es scale was designed to be a specific predictor of gambling-related problems, although previous evidence has shown that it also predicts concurrent alcohol abuse problems (Rockloff, M. J. & Dyer, V., 2006). Correlational analysis confirmed that the Four Es generally did not predict changes in either AUDIT or Severity of Dependence scores. One anomalous finding was a negative correlation between changes in Severity of Dependence and the Escape factor, although this result may be spurious and needs replication.

#### Conclusion

The Four Es scale is a highly reliable and stable measurement instrument. The constructs of the Four Es comprise a prototype psychological theory explaining the

development of problem gambling behavior. People develop gambling problems in part because Escape, Esteem, Excess and Excitement are facilitating psychological traits. In the presence of an accommodating environment, these traits lead to greater gambling involvement and the prospect of gambling-related harm.

The present results show that the Excess trait is predictive of relative increases in gambling problems over time. As such, the Excess trait may be an important target for treatment and harm minimization efforts. Encouraging gamblers to think clearly about the consequences of their choices, particularly in how they handle their money, could be an effective means of preventing the progression to more severe gambling-related problems.

Appendix

Questionnaire: The 4Es of Problem Gambling

Question	Strongly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Strongly agree
1. I would like to just disappear.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I sometimes wish that I would not feel anything.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I wish that nobody knew who I was.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I feel that I am already living in a prison.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I wish that I could take the next flight or bus out of my town.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Running away from my problems may be the only solution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Sometimes I think life is too much to handle.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. It would be good to get away to some place where no one knows me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I often make excuses to avoid dealing with others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix

Questionnaire: The 4Es of Problem Gambling

Question	Strongly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Strongly agree
10. When walking, I often change direction to avoid speaking with others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. The things I say and do are foolish.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. I am miserable to be around.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I can be gloomy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I am an irritable person.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. I feel completely worthless.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I am often incompetent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. I am often embarrassed by the stupid things I say or do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. I usually feel guilty for something I've said or done.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. I rarely live up to my own values or standards.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. I make good decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. I am careful in my decision making.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Appendix

Questionnaire: The 4Es of Problem Gambling

Question	Strongly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Strongly agree
22. I usually get into trouble because I don't stop to think.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. I carefully think out all my options before acting.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Before deciding to do something important, I will thoroughly think it through.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. I am never careless with my money.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. I speak without thinking.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. My family never has to worry about how I handle money.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. I commonly say and do things that I regret later.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. I often buy things without thinking about whether I really need them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. I seldom spend more money than I should.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix

Questionnaire: The 4Es of Problem Gambling

Question	Strongly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Strongly agree
31. There are times when I get bored with day to day life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. I often cannot think of things to keep my mind occupied.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. I get very anxious when there is nothing to do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. I am a restless and fidgety person.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. Often times I find myself feeling restless.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. I usually have too much time on my hands.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. I am nearly always looking for things to do that keep me from being bored.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38. I often find it hard to concentrate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39. I worry about other things while at work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix

Questionnaire: The 4Es of Problem Gambling

Question	Strongly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Strongly agree
40. I hate quite places, like libraries.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: Scores are calculated as an average across items on a scale of 1 to 5: 1 = Strongly disagree, 2 = Slightly disagree, 3 = Neither agree nor disagree 4 = Slightly agree, 5 = Strongly agree. In calculating risk, items 20, 21, 23, 24, 25, 27 and 30 are reverse-scored. Sub-scales for Escape, Esteem, Excess and Excitement are calculated based on items 1-10, 11-20, 21-30 and 31-40, respectively.

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