Psychology of Addictive Behaviors
2010, Vol. 24, No. 3, 548–554

0893-164X/10/$12.00 DOI: 10.1037/a0019946

The Association Between Childhood Maltreatment and Gambling Problems in a Community Sample of Adult Men and Women

David C. Hodgins
University of Calgary

Don P. Schopflocher
University of Alberta

Nady el-Guebaly and David M. Casey
University of Calgary

Garry J. Smith
University of Alberta

Robert J. Williams and Robert T. Wood
University of Lethbridge

The association between childhood maltreatment and gambling problems was examined in a community sample of men and women ($N = 1,372$). As hypothesized, individuals with gambling problems reported greater childhood maltreatment than individuals without gambling problems. Childhood maltreatment predicted severity of gambling problems and frequency of gambling even when other individual and social factors were controlled including symptoms of alcohol and other drug use disorders, family environment, psychological distress, and symptoms of antisocial disorder. In contrast to findings in treatment-seeking samples, women with gambling problems did not report greater maltreatment than men with gambling problems. These results underscore the need for both increased prevention of childhood maltreatment and increased sensitivity towards trauma issues in gambling treatment programs for men and women.

Keywords: childhood maltreatment, pathological gambling, sexual abuse, trauma, gambling problems

As with other psychiatric disorders, rates of childhood maltreatment appear high among individuals suffering gambling disorders. Childhood maltreatment is a broad term that includes both traumatic experiences such as physical and sexual abuse and physical neglect as well as deprivation experiences such as emotional neglect (Wegman & Stetler, 2009). Empirical data on the prevalence of such maltreatment in individuals suffering gambling disorders are limited but there have been a number of descriptive studies of small samples of gambling treatment-seekers in the United States. Taber, McCormick, and Ramirez (1987) found that 23% of men in an inpatient treatment program revealed physical or sexual trauma when queried during an intake interview. A mixed gender inpatient sample revealed a one-third prevalence of physical or sexual abuse (Specker, Carlson, Edmonson, Johnson, & Marcotte, 1996). Ciarrochi and Richardson (1989) reported rates separated by gender—82% of women and 32% of men in outpatient treatment responded positively to a questionnaire item. Similarly, prevalence was higher for the small number of women in a residential treatment sample—100% of females had experienced emotional, physical, or, sexual trauma versus 61% for males (Kausch, Rugle, & Rowland, 2006).

The largest study to date (Petry and Steinberg, 2005) described 149 male and female pathological gamblers in outpatient treatment using a validated multi-dimensional measure of childhood maltreatment, the Childhood Trauma Questionnaire (Bernstein & Fink, 1998). The pathological gamblers showed evidence of moderate to severe abuse overall compared with the general population norms and a sample of substance abusers. Women in the gambling sample reported more severe physical neglect, emotional abuse, and sexual abuse than did the men.

Many questions remain unanswered concerning the mechanisms that underlie the association of childhood maltreatment and subsequent maladjustment. The link between such adverse experiences and later substance abuse has been described in terms of mood regulation—heavy use of substances are a maladaptive way of coping with the negative affect of secondary maltreatment (Epstein, Saunders, Kilpatrick, & Resnick, 1998). A similar model has been described for gambling disorders (Lesieur & Blume, 1991). Another level of analysis is neurobiological with adverse experiences during critical developmental phases affecting neuro-

David C. Hodgins and David M. Casey, Psychology Department, University of Calgary; Don P. Schopflocher, Faculty of Nursing, University of Alberta; Nady el-Guebaly, Division of Addiction, Department of Psychiatry, University of Calgary; Garry J. Smith, Faculty of Extension, University of Alberta; Robert J. Williams, Faculty of Health Sciences, University of Lethbridge; Robert T. Wood, Department of Sociology, University of Lethbridge.

We would like to thank Audra McEwen and Aneta Filiciak for their assistance with data collection and Cayla Martin for her assistance with producing this paper. Funding for this study comes from the Alberta Gaming Research Institute (AGRI).

Correspondence concerning this article should be addressed to David C. Hodgins, Department of Psychology, University of Calgary, 2500 University Drive NW, Calgary, Alberta, Canada T2N 1N4. E-mail: dhodgins@ucalgary.ca

development through an impact on experience-dependent neurochemical signals (Andersen et al., 2008; Cicchetti, Rogosch, Gunnar, & Toth, 2010; Weiss & Wagner, 1998). From a psychological framework, Wright proposed that an individual's internal schema of the self and the self-in-relation may be significant mediators of the childhood maltreatment and adult maladjustment association (Wright, Crawford, & Del, 2009). A developmental psychopathology perspective (Yates & Wekerle, 2009) posits that different forms of abuse may lead to different types of maladjustment and that these effects may be gender specific. For example, Wekerle and colleagues (Wekerle et al., 2009) showed a link between childhood emotional abuse and later teen dating violence—males as perpetrators and females as victims. Finally, it is possible that "third factors" may cause both the maltreatment and the maladjustment. For example, factors such as poor parental monitoring, perhaps related to parental psychological or substance use disorders or even gambling problems, may allow abuse to occur and promote the development of maladjustment (Repetti, Taylor, & Seeman, 2002). However, a comprehensive review of research in substance abuse concluded that such third variables, although linked to substance abuse, do not account fully for the childhood maltreatment–maladjustment link (Simpson & Miller, 2002).

The recent studies of childhood trauma in gambling disorders have moved from establishing a link toward identifying correlates of childhood trauma. Kausch and colleagues (2006) found an association between alcohol and drug use histories and physical but not emotional or sexual trauma. A history of trauma was also associated with greater frequency of suicide attempts and greater psychiatric severity. Petry and Steinberg (2005) reported that childhood maltreatment was associated with earlier age of gambling and greater overall severity of gambling problems.

Petry and Steinberg (2005) acknowledged a number of limitations to their study which also apply to the other published research. First, longitudinal data are required to understand fully the etiological association between childhood maltreatment and the development of gambling problems. Retrospective reports by adults vary according to the objective specificity of the assessed factors and affective state of the respondent. Henry, Moffitt, Caspi, Langley, and Silva (1994) recommended that retrospective data are most useful in comparing subgroups (e.g., males versus females) rather than establishing the prevalence of specific occurrences or the timing of specific events. Petry and Steinberg (2005) also acknowledged the need to replicate their results in non-treatment-seeking samples because treatment-seeking samples may not be representative of all individuals with gambling disorders. Only a small proportion of individuals with gambling disorders seek treatment (Cunningham, 2005). Moreover, the Petry and Steinberg (2005) sample involved soliciting volunteers to participate in the research, which further limits generalizability.

A review of the literature uncovered only two studies of the childhood maltreatment and gambling disorders association in nonclinical samples, one that studied women and one that studied men. An Australian study of alcohol problems in community women ($N = 710$) included one questionnaire item assessing self-perception of having a gambling problem (Fleming, Mullen, Sibthorpe, & Bammer, 1999), and the prevalence among the women reporting childhood sexual abuse was 3% versus 1% in those reporting no abuse ($p < .08$). Interesting, a strong relationship between childhood sexual abuse and mental health problems also became nonsignificant when family and social background factors were included as covariates. The study of men involved a subsample ($N = 1675$) of the Vietnam Era Twin Registry who were administered a checklist of childhood traumatic events as well as the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (*DSM-IV*) symptoms of pathological gambling (Scherrer et al., 2007). After adjusting for demographic and psychiatric covariates, physical abuse and neglect, but not molestation, were associated with pathological gambling.

Together the findings of these two studies underscore the importance of multivariate analyses of community samples. The purpose of the current study was to examine the association between childhood maltreatment and gambling disorders in a community sample. The baseline assessment wave from an ongoing longitudinal study of gambling (Leisure Lifecycle and Lifestyle project, LLLP) provides data that can be used to examine this question (el-Guebaly et al., 2008). The correlates that have been identified in previous research were assessed in this cohort and the Childhood Trauma Scale was used as an estimate of childhood maltreatment. It was hypothesized that women and individuals with gambling problems would report greater childhood maltreatment. We also hypothesized that childhood maltreatment would predict severity of gambling problems and frequency of gambling even when other individual and social factors are controlled. Based upon previous research, symptoms of alcohol and other drug use disorders, family environment, psychological stress, and symptoms of antisocial disorder were included as potential covariates. We were also interested to explore whether gender and gambling problems would interact with women problem gamblers showing greater childhood maltreatment than men problem gamblers.

Method

Participants

Random digit dialing was used to recruit five age cohorts for a 5-year longitudinal study of gambling involvement in the province of Alberta, Canada. Details of the LLLP design and recruitment are provided in el-Guebaly et al. (2008). In this report, the four adult age cohorts are included ($N = 1,372$). To assess the retest reliability of the childhood maltreatment measure, responses of the 1,145 adult participants who also completed that measure at the second wave 18 months later were analyzed.

Instruments

Participants provided detailed history of gambling involvement using questions drawn from the Canadian Problem Gambling Index (Ferris & Wynne, 2001) and the Composite International Diagnostic Interview (CIDI) pathological gambling module (World Health Organization, 1997). Problem gambling severity over the past year was estimated using the Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001) that provides a continuous score and categorizes individuals into nongambler, nonproblem gambler, low risk, moderate risk, and problem gambler categories. Reliability and validity have been established in Canadian general population samples. Gambling frequency was assessed by the following question: Roughly how often do you do one or more of those activities in a typical month (e.g., Sports

Select; slot machines; video lottery terminal (VLT)s; casino table games; horse race betting; bingo; betting on sports with a bookie; Internet gambling; or betting against other people on games such as pool, darts, video games, board games, cards, etc.)? Would you say: daily, almost every day, several times a week, a few times a week, once a week, a couple times a month, once a month, less than once a month, or never? The Personality Assessment Inventory (Morey, 1991) was used to assess psychological stress and antisocial features. Both of these continuous subscales show good internal and test–retest reliability and validity in clinical samples (Morey & Hopwood, 2006). Lifetime alcohol and other drug problems were assessed using questions from the Canadian Community Health Survey, which were based upon the CIDI. Total scores reflect the number of DSM symptoms endorsed. The Family Environment scale (Moos & Moos, 2002) provided indicators of family functioning across ten subscales. For purposes of this study, three summary subscales were derived through principal component analyses. Three factors with Eigenvalues greater than one

Table 1
Descriptive Characteristics of Sample

	Men	Women	Total	ρ
Number of participants (unweighted)	602	770	1372	
Caucasian (%)	89	89	89	.95
Marital status (%)				.0001
Single, never married	56	50	53	
Married, common-law	39	38	38	
Divorced	5	10	8	
Widowed	0.4	2	1	
Age (%)				.804
18–20 years	30	30	30	
23–25 years	30	28	29	
43–45 years	26	27	26	
63–65 years	14	14	14	
Education (%)				
High school completed	92	94	93	.05
University completed	24	25	25	.75
Employment (%)				.0001
Not	30	29	29	
Part-time	20	31	25	
Full-time	51	40	46	
Urbanicity				.87
Urban	87.4	88.5	87.9	
Rural	12.6	11.5	12.1	
Gambling frequency (%)				.0001
Never	45	57	51	
Less than monthly	9	13	11	
Monthly	9	10	9	
Twice a month	15	8	12	
Weekly	11	7	9	
Few times per week	6	3	4	
Several times per week	2	1	2	
Almost daily/daily	2	2	2	
Problem gambling severity (%)				.0001
Nongambler	25.4	30.9	28.1	
Non-problem gambler	47.6	53.9	50.7	
Low risk	18.9	11.6	15.2	
Moderate risk	7.2	3.0	5.1	
Problem gambler	1.0	0.7	0.8	
Childhood trauma, *M*(*SD*)				
Emotional abuse	7.8 (3.3)	8.8 (4.4)	8.3 (3.9)	.0001
Sexual abuse	5.7 (2.2)	6.9 (4.0)	6.3 (3.3)	.0001
Emotional neglect	8.8 (3.8)	8.4 (3.9)	8.6 (3.9)	.06
Physical neglect	6.4 (2.2)	6.2 (2.4)	6.3 (2.3)	.23
Physical abuse	6.7 (2.4)	6.7 (3.2)	6.7 (2.8)	.73
Total	35.3 (10.7)	37.1 (14.4)	36.2 (12.7)	.007
PAI–psychological stress, *M*(*SD*)	5.9 (4.3)	5.9 (4.3)	5.9 (4.3)	.95
PAI–antisocial features, *M*(*SD*)	20.3 (11.1)	14.4 (8.9)	17.4 (10.4)	.0001
Alcohol dependence, *M*(*SD*)	0.80 (1.5)	0.65 (1.4)	0.73 (1.5)	.06
Drug dependence, *M*(*SD*)	0.28 (.82)	0.19 (.74)	0.22 (.78)	.11
FES 1, *M*(*SD*)	24.7 (6.3)	25.8 (6.2)	25.3 (6.3)	.0001
FES 2, *M*(*SD*)	19.4 (5.6)	19.6 (5.5)	19.5 (5.5)	.43
FES 3, *M*(*SD*)	13.8 (2.9)	13.6 (3.1)	13.7 (3.0)	.36

Note. PAI = Personality Assessment Inventory; FES = Family Environment scale. Weighted sample.

Table 2
Retest Reliability of the Childhood Trauma Questionnaire

Scale	*M*(*SD*) Time 1	*M*(*SD*) Time 2	*t*(1242)	Pearson *r*	ICC
Physical abuse	6.59 (2.66)	6.67 (2.70)	2.1	.86	.86
Emotional abuse	8.20 (3.82)	8.56 (4.08)	5.4	.82	.82
Sexual abuse	6.22 (3.21)	6.36 (3.52)	2.2	.79	.79
Physical neglect	6.27 (2.26)	6.42 (2.42)	3.3	.77	.77
Emotional neglect	8.54 (3.78)	9.08 (4.15)	7.2	.82	.82
Total score	35.82 (12.33)	37.69 (13.20)	6.6	.86	.86

Note. ICC = intraclass correlation coefficient. N = 1,145, weighted N = 1,243.

acounted for 58% of the variance and varimax rotation revealed a clear structure that was used to derive three summed scores; FES1 (active-recreational, intellectual-cultural, expressive and cohesive, $\alpha = .74$); FES2 (control, moral-religious orientation, organization and achievement, $\alpha = .53$) and FES3 (independence and conflict reverse scored, $\alpha = .43$). Finally, childhood and adolescence physical and sexual abuse and neglect were assessed with the Childhood Trauma Questionnaire (CTQ; Bernstein, Ahluvalia, Pogge, & Handelsman, 1997). This 28 item self-completion scale provides five internally reliable subscales as well as a total score. Retest reliability over 3.6 months was good, and validity and interpretation guidelines have been independently established in a number of community and clinical samples (Bernstein et al., 1997; Bernstein & Fink, 1998; Scher, Stein, Asmundson, McCrearly, & Forde, 2001).

Data Analysis

Survey weights were used to compensate both for the complex sampling design of the LLLP, and for the differences between the sampling plan and the collected sample. The weighting process consisted of the combination of three factors: an age-sex-geography factor, an adjustment based upon the number of individuals in the same age-sex grouping residing in the household as derived from the survey, and a factor to account for the oversampling of at-risk gamblers (el-Guebaly et al., 2009). Although the recruitment rate was low (5% to 10% depending on definitions), the weighted sample is broadly representative of the provincial population (el-Guebaly et al., 2008). Finally, bootstrap weights (Yeo, Mantel, & Liu, 1999) were generated to facilitate regression analysis of the data within this complex survey design.

Although the major analyses for this report used the baseline assessment data of the LLLP, CTQ retest reliability was estimated using weighted data by comparing participants responses from the baseline assessment with responses to the wave 2 assessment (N = 1,145). Retest reliability was estimated using Pearson and intraclass correlation coefficients and within-subject t-tests comparing wave 1 and wave 2 mean scores. An analysis of variance (ANOVA) on the weighted data was used to examine gender (male, female) and level of problem gambling severity (nongambler, nonproblem gambler, low risk, moderate risk, problem gambler) differences in CTQ scores. As well as ANOVA of the total CTQ score, separate analyses were conducted for each of the five CTQ subscale scores, using a Bonferroni corrected alpha level (.05/5 = .01). Following Petry and Steinberg (2005), multiple regression was conducted to examine CTQ total score and social and individual factors as predictors of problem gambling severity and gambling frequency. Bootstrapped weights were used in these analyses. To improve the normality of the distribution of scores, logarithmic transformations were performed on CTQ total scores, PGSI, psychological stress, and alcohol and drug dependence symptom scores. Because one participant had missing scores for the FES scales, her scores for the FES completed at the second wave were substituted.

Results

Table 1 shows descriptive characteristics for the total sample and for men and women separately. As expected, a number of gender differences were significant. An unexpected difference was found in marital status, with a greater number of single men versus women. CTQ total and subscale score retest reliability is presented in Table 2. Both Pearson and intraclass correlation coefficients showed excellent reliability (Cicchetti, 1994). The mean scores at the second wave were significantly higher, although the differences were small.

Separate ANOVAs revealed that the main effect of problem gambling severity was statistically significant after Bonferroni correction for the total and subscales with the exception of physical abuse (Table 3). CTQ means are plotted by problem gambling severity in Figure 1. Post hoc comparisons (not reported) showed higher scores for participants in the problem gambling group compared with the moderate or lower risk groups. According to interpretation guidelines (Bernstein & Fink, 1998), mean scores for the problem gambling group fell in the low to moderate range for emotional and physical abuse and physical neglect and moderate to severe range for sexual abuse and emotional neglect. The moderate risk gambling group scores were significantly higher than those of the nongamblers and nonproblem gamblers. Significant effects of gender were found for emotional abuse and sexual abuse, with women reporting higher scores than men (means reported in Table 1). None of the problem gambling severity by gender interactions was significant.[1]

Table 4 reports the multiple regressions predicting problem gambling severity and gambling frequency. Both models were significant, $F(9, 1467) = 22.6$, adjusted $R^2 = .12$, $p < .0001$ and

[1] Because the sample only included 10 male problem gamblers and 9 female problem gamblers, we reran the ANOVAs combining the moderate problem and problem gambling groups. Results were unchanged in terms of the significance of the main effects and interactions.

Table 3
Analysis of Variance of Childhood Trauma Scores by Gender and Problem Gambling Severity

Dependent variable	Effect	MS	*df*	*F*	*p*	Partial η^2
Physical abuse	Gambling	23.5	4	2.8	.03	.008
	Gender	18.3	1	2.1	.14	.002
	Gambling × Gender	18.7	4	2.2	.07	.006
Emotional abuse	Gambling	123.4	4	7.8	.0001	.022
	Gender	213.3	1	13.5	.0001	.015
	Gambling × Gender	30.1	4	2.0	.10	.006
Sexual abuse	Gambling	51.1	4	4.6	.001	.013
	Gender	169.2	1	15.1	.0001	.011
	Gambling × Gender	14.6	4	1.3	.27	.004
Physical neglect	Gambling	39.1	4	7.0	.0001	.022
	Gender	1.9	1	0.34	.56	.000
	Gambling × Gender	5.8	4	1.0	.39	.003
Emotional neglect	Gambling	71.6	4	4.5	.001	.013
	Gender	6.1	1	0.4	.53	.000
	Gambling × Gender	17.8	4	1.1	.34	.003
Total[a]	Gambling	0.13	4	8.6	.0001	.025
	Gender	0.09	1	5.9	.02	.004
	Gambling × Gender	0.04	4	2.3	.06	.007

Note. Bonferroni $\alpha = .05/5 = .01$. MS = mean square.
[a] Transformed.

$F(9, 1371) = 9.2$, adjusted $R^2 = .05$, $p < .0001$, respectively. In both, CTQ score emerged as a significant independent predictor. Compared with gambling frequency, a greater number of other variables were significant independent predictors of gambling problems, based upon bootstrapped standard errors.

Discussion

Our primary hypotheses were supported. Consistent with other population surveys (Finkelhor, Hotaling, Lewis, & Smith, 1990; MacMillan et al., 1997), women reported higher levels of emotional abuse and sexual abuse and marginally higher overall maltreatment. Rates of physical abuse, and neglect and emotional neglect did not vary by gender. We also found, as hypothesized, that greater childhood maltreatment was associated with higher frequency of gambling and greater likelihood of gambling problems. This latter association was stronger and was consistent across all the subcategories of abuse. The effect sizes are small (Cohen, 1988) but reliable.

Of interest, we did not uncover an interaction between gender and gambling problems—women with gambling problems did not report relatively greater childhood maltreatment than men with gambling problems. Given that this finding differs from previous research with treatment-seeking samples (Ciarrocchi & Richardson, 1989; Kausch et al., 2006; Petry & Steinberg, 2005), it may be that women with more severe trauma histories may be more likely to seek treatment than women with less severe histories. Women, until very recently, have been under represented in gambling treatment programs (Lesieur & Blume, 1991) and women who do seek treatment tend to do so at an earlier stage in the progression of the disorder than do men (e.g., Blanco, Hasin, Petry, Stinson, & Grant, 2006; Tavares, Zilberman, Beites, & Gentil, 2001; Grant & Kim, 2002). The idea that women with trauma histories are more

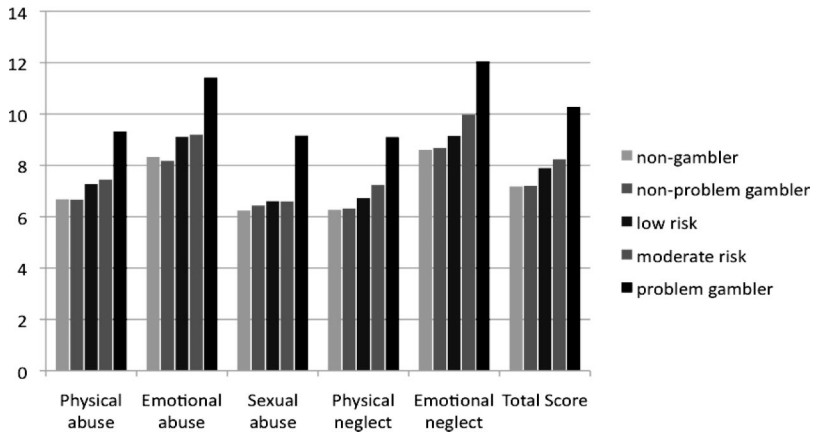

Figure 1. Childhood Trauma mean subscale and total scores by gambling severity.

Table 4
Regression Analysis Predicting Problem Gambling Severity and Gambling Frequency

Variables	*B*	*SE*	*B*	*t*
Problem gambling severity				
Gender	−.058	.017	−.10	−3.4*
FES 1	−.003	.0018	−.06	−2.2*
FES 2	.002	.0015	.04	1.3
FES 3	.005	.0036	.05	1.4
Antisocial features	.004	.0011	.13	3.6*
Stress	.065	.028	.08	2.3*
Alcohol dependence	.102	.034	.12	3.0*
Drug dependence	.099	.059	.07	1.7
CTQ total	.166	.082	.07	2.0*
(Constant)	−.447	.158	—	2.8*
Gambling frequency				
Gender	−.581	.138	−.15	−4.2*
FES 1	.008	.011	.03	0.7
FES 2	−.017	.011	−.05	−1.5
FES 3	.047	.020	.08	2.4*
Antisocial features	.0001	.007	.003	0.01
Stress	.019	.174	.004	0.1
Alcohol dependence	.597	.189	.11	3.2*
Drug dependence	.303	.316	.03	1.0
CTQ total	1.419	.556	.09	2.6*
(Constant)	.706	1.07	—	0.66

Note. FES = Family Environment scale; CTQ = Childhood Trauma Questionnaire.
* $p < .05$.

likely to seek treatment than women without these histories has some support in the substance abuse field (Simpson & Miller, 2002). Nonetheless, this finding reinforces the importance of assessment and treatment of trauma concurrent with treatment of gambling problems in both genders. Although there is evidence that childhood abuse predicts poorer treatment outcome in substance abuse (Rosen, Ouimette, Sheikh, Gregg, & Moos, 2002), this link is unexplored in gambling treatment.

The association between childhood maltreatment and gambling frequency and gambling problems was significant even when a variety of other individual and social factors were controlled. As a group, these variables were more strongly predictive of gambling problems than they were of gambling frequency, which may reflect the fact that social gambling has become normative in our society and is less tied to other aberrant individual characteristics and activities. Independent predictors of greater problem gambling severity included being male, having more antisocial features, more stress, lower scores on a family environment dimension reflecting cohesion, expressiveness and active-recreational, intellectual-cultural orientations and more alcohol dependence symptoms. These findings are consistent with previous research as well as the finding of high rates of comorbid psychiatric problems in gambling disorders (Petry, Stinson, & Grant, 2005; Welte, Barnes, Wieczorek, Tidwell, & Parker, 2001). Childhood maltreatment, although possibly also linked to these predictors, was independently linked with gambling problems. Future research needs to focus on mechanisms that explain this link. For example, McCormick (1994) found a relationship between gambling problems and use of emotion focused coping strategies. Use of emotional focused coping may be a byproduct of child abuse that mediates the link with gambling problems as well as other psychological disorders. Perhaps certain types of gambling, such as electronic gaming machines, are particularly attractive to individuals needing to dampen emotional arousal. However, one study found that impulsive personality moderated the relationship between emotionally focused coping and gambling. The link was strongest for nonimpulsive men (Lightsey Jr. & Hulsey, 2002). Clearly, the interaction of a variety of individual and environmental factors will be involved in linking childhood maltreatment with gambling problems.

A strength of this report is the use of a multi-item assessment of childhood maltreatment. As shown in previous samples, these participants showed excellent retest reliability over an 18-month period. Given the lengthy interval, memory about responses at baseline is unlikely to have affected responses at the second wave. Participants did report slightly greater scores on their second report. This find may reflect an increasing comfort with participation in the study over time but it also is consistent with the suggestion that it is difficult to use retrospective reports to estimate the absolute prevalence of childhood maltreatment. Although more research on the validity of the CTQ would be helpful, this research supports the value of this instrument.

Other strengths of this research are the large sample size and the use of psychometrically strong measures for the covariates assessed. The sample did suffer from a low recruitment rate although it was weighted to be representative of the population. A further limitation is that the covariates were primarily measures of current functioning, mostly defined as the past year. Although reporting may be more valid for proximal functioning, this cross sectional perspective on functioning fails to incorporate participants' rich history of experience.

References

Andersen, S. L., Tomada, A., Vincow, E. S., Valente, E., Polcari, A., & Teicher, M. H. (2008). Preliminary evidence for sensitive periods in the effect of childhood sexual abuse on regional brain development. *Journal of Neuropsychiatry and Clinical Neurosciences, 20,* 292–301.

Bernstein, D. P., Ahluvalia, T., Pogge, D., & Handelsman, L. (1997). Validity of the Childhood Trauma Questionnaire in an adolescent psychiatric population. *Journal of the American Academy of Child & Adolescent Psychiatry, 36,* 340–348.

Bernstein, D. P., & Fink, L. (1998). *Childhood trauma questionnaire (CTQ): A retrospective self-report* San Antonio, TX: The Psychological Corporation.

Blanco, C., Hasin, D. S., Petry, N., Stinson, F. S., & Grant, B. F. (2006). Sex differences in subclinical and DSM-IV pathological gambling: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Psychological Medicine, 36,* 943–953.

Ciarrocchi, J., & Richardson, R. (1989). Profile of compulsive gamblers in treatment: Update and comparison. *Journal of Gambling Behavior, 5,* 53–65.

Cicchetti, D., Rogosch, F. A., Gunnar, M. R., & Toth, S. L. (2010). The differential impacts of early physical and sexual abuse and internalizing problems on daytime cortisol rhythm in school-aged children. *Child Development, 81,* 252–269.

Cicchetti, D. V. (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment, 6,* 284–290.

Cohen, J. (1988). *Statistical power for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cunningham, J. A. (2005). Little use of treatment among problem gamblers. *Psychiatric Services, 56,* 1024–1025.

el-Guebaly, N., Casey, D. M., Hodgins, D. C., Smith, G. J., Williams, R. J., Schopflocher, D. P., et al. (2008). Designing a longitudinal cohort study of gambling in Alberta: Rationale, methods, and challenges. *Journal of Gambling Studies, 24,* 479–504.

Epstein, J. N., Saunders, B. E., Kilpatrick, D. G., & Resnick, H. S. (1998). PTSD as a mediator between childhood rape and alcohol use in adult women. *Child Abuse and Neglect, 22,* 223–234.

Ferris, J., & Wynne, H. (2001). *The Canadian Problem Gambling Index: Final report.* Ottawa, Ontario: Phase II final report to the Canadian Inter-Provincial Task Force on Problem Gambling.

Finkelhor, D., Hotaling, G., Lewis, I. A., & Smith, C. (1990). Sexual abuse in a national survey of adult men and women: Prevalence, characteristics, and risk factors. *Child Abuse and Neglect, 14,* 19–28.

Fleming, J., Mullen, P. E., Sibthorpe, B., & Bammer, G. (1999). The long-term impact of childhood sexual abuse in Australian women. *Child Abuse and Neglect, 23,* 145–159.

Grant, J. E., & Kim, S. W. (2002). Gender differences in pathological gamblers seeking medication treatment. *Comprehensive Psychiatry, 43,* 56–62.

Henry, B., Moffitt, T. E., Caspi, A., Langley, J., & Silva, P. A. (1994). On the remembrance of things past: A Longitudinal evaluation of the retrospective method. *Psychological Assessment, 6,* 92–101.

Kausch, O., Rugle, L., & Rowland, D. (2006). Lifetime histories of trauma among pathological gamblers. *The American Journal on Addictions, 15,* 35–43.

Lesieur, H. R., & Blume, S. B. (1991). Evaluation of patients treated for pathological gambling in a combined alcohol, substance abuse and pathological gambling treatment unit using the Addiction Severity Index. *British Journal of Addiction, 86,* 1017–1028.

Lightsey Jr., O. R., & Hulsey, D. (2002). Impulsivity, coping, stress, and problem gambling among university students. *Journal of Counseling Psychology, 49,* 202–211.

MacMillan, H. L., Fleming, J. E., Trocme, N., Boyle, M. H., Wong, M., Racine, Y. A., et al. (1997). Prevalence of child physical and sexual abuse in the community: Results from the Ontario Health Supplement. *Journal of the American Medical Association, 278,* 131–135.

McCormick, R. A. (1994). The importance of coping skill enhancement in the treatment of the pathological gambler. *Journal of Gambling Studies, 10,* 77–87.

Moos, R. H., & Moos, B. S. (2002). *Family Environment Scale manual: Development, applications, research* (3rd ed.). Palo Alto, CA: Mind Garden, Inc.

Morey, L. C. (1991). *The Personality Assessment Inventory: Professional manual.* Odessa, FL: Psychological Assessment Resources Inc.

Morey, L. C., & Hopwood, C. J. (2006). The Personality Assessment Inventory and the measurement of normal and abnormal personality consturcts. In S. Strack (Ed.), *Differentiating normal and abnormal personality* (2nd ed., pp. 451–471). New York: Springer Publishing.

Petry, N. M., & Steinberg, K. L. (2005). Childhood maltreatment in male and female treatment-seeking pathological gamblers. *Psychology of Addictive Behaviors, 19,* 226–229.

Petry, N. M., Stinson, F. S., & Grant, B. F. (2005). Comorbidity of DSM-IV pathological gambling and other psychiatric disorders: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Clinical Psychiatry, 66,* 564–574.

Repetti, R. L., Taylor, S. E., & Seeman, T. E. (2002). Risky families: Family social environments and the mental and physical health of offspring. *Psychological Bulletin, 128,* 330–366.

Rosen, C. S., Ouimette, P. C., Sheikh, J. I., Gregg, J. A., & Moos, R. H. (2002). Physical and sexual abuse history and addiction treatment outcomes. *Journal of Studies on Alcohol, 63,* 683–687.

Scher, C. D., Stein, M. B., Asmundson, G. J. G., McCrearly, D. R., & Forde, D. R. (2001). The Childhod Trauma Questionnaire in a community sample: Psychometric properties and normative data. *Journal of Traumatic Stress, 14,* 843–857.

Scherrer, J. F., Xian, H., Krygiel Kapp, J. M., Waterman, B., Shah, K. R., Volberg, R., et al. (2007). Association between exposure to childhood and lifetme tramautic events and lifetime pathological gambling in a twin cohort. *Journal of Nervous & Mental Disease, 195,* 72–78.

Simpson, T. L., & Miller, W. R. (2002). Concomitance between childhood sexual and physical abuse and substance use problems: A review. *Clinical Psychology Review, 22,* 27–77.

Specker, S. M., Carlson, G. A., Edmonson, K. M., Johnson, P. E., & Marcotte, M. (1996). Psychopathology in pathological gamblers seeking treatment. *Journal of Gambling Studies, 12,* 67–81.

Taber, J. I., McCormick, R. A., & Ramirez, L. F. (1987). The prevalence and impact of major life stressors among pathological gamblers. *The International Journal of the Addictions, 22,* 71–79.

Tavares, H., Zilberman, M. L., Beites, F. J., & Gentil, V. (2001). Gender differences in gambling progression. *Journal of Gambling Studies, 17,* 151–159.

Wegman, H. L., & Stetler, C. (2009). A meta-analytic review of the effects of childhood abuse on medical outcomes in adulthood. *Psychosomatic Medicine, 71,* 805–812.

Weiss, M. J., & Wagner, S. H. (1998). What explains the negative consequences of adverse childhood experiences on adult health? Insights from cognitive and neuroscience research. *American Journal of Preventive Medicine, 14,* 356–360.

Wekerle, C., Leung, E., Wall, A. M., MacMillan, H., Boyle, M., Trocme, N., et al. (2009). The contribution of childhood emotional abuse to teen dating violence among child protective services-involved youth. *Child Abuse and Neglect, 33,* 45–58.

Welte, J., Barnes, G., Wieczorek, W., Tidwell, M., & Parker, J. (2001). Alcohol and gambling pathology among U.S. adults: Prevalence, demographic patterns and comorbidity. *Journal of Studies on Alcohol, 62,* 706–712.

World Health Organization. (1997). *The Composite International Diagnostic Interview–Version 2.1.* Geneva: World Health Organization.

Wright, M. O., Crawford, E., & Del, C. D. (2009). Childhood emotional maltreatment and later psychological distress among college students: The mediating role of maladaptive schemas. *Child Abuse and Neglect, 33,* 59–68.

Yates, T. M., & Wekerle, C. (2009). The long-term consequences of childhood emotional maltreatment on development: (Mal)adaptation in adolescence and young adulthood. *Child Abuse and Neglect, 33,* 19–21.

Yeo, D., Mantel, H., & Liu, T. P. (1999). Bootstrap variance estimation for the National Population Health Survey, Proceedings of the Survey Research Methods Section, American Statistical Association. Retrieved from http://www.amstat.org/Sections/Srms/Proceedings/papers/1999_136.pdf

Received January 13, 2010
Revision received March 25, 2010
Accepted March 26, 2010 ■