

Psychopathy and Occurrence of Gambling Problems: The Role of Gambling Protective Strategies and Urgency

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Abstract

Background: Psychopathy has been an increasing area of clinical and personality research and is associated with numerous problematic outcomes, including pathological gambling, though this area of research is limited. The most common conceptualization of psychopathy is a two-factor model of primary and secondary psychopathy, with primary psychopathy comprising more interpersonal traits and secondary psychopathy encompassing more antisocial behaviors. Previous research has linked psychopathy to greater urgency and lower utilization of harm reduction strategies.

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Objectives: The current study examines the relationship between primary psychopathy, secondary psychopathy, and problematic gambling, as well as the possible mechanisms of these relationships.

Method: College student gamblers ($n = 308$) completed surveys on psychopathy, impulsivity, protective behavioral strategies regarding gambling, and possible gambling problems.

Results: Primary psychopathy was inversely related to gambling protective behavioral strategies (PBS) and secondary psychopathy was positively associated with higher levels of urgency. Secondary psychopathy, via urgency, was a strong predictor of whether an individual will experience gambling problems, while primary psychopathy via PBS better predicts the number of gambling problems one experiences.

Conclusion: This study extends an overall under-researched area of gambling and personality and highlights the importance of delineating different factors of psychopathy regarding problematic gambling outcomes.

Keywords

Psychopathy, gambling, gambling protective behavioral strategies, urgency, gambling problems

Introduction

The current conceptualization of psychopathy was introduced over 75 years ago (Cleckley, 1941), and has steadily gained interest in mental health research (Patrick, 2006). Broadly, psychopathy is a constellation of affective, interpersonal, and behavioral traits, including callousness, superficial charm, manipulativeness, impulsive actions, and antisocial behaviors (Hare & Neumann, 2008; Karpman, 1941). While there has been consistent discussion on the factors that comprise psychopathy, the most widely accepted conceptualization of psychopathy views it as consisting of two variants: primary psychopathy and secondary psychopathy (also referred to as Factor 1 and Factor 2, respectively; Hare, 2003; Hicks et al., 2004; Karpman, 1948; Lee & Salekin, 2010; Lilienfeld & Andrews, 1996). Primary psychopathy is generally described as consisting of interpersonal and affective aspects of psychopathy, such as lying, cheating, aggression, callous behavior, and an overall lack of empathy and heightened grandiosity (Hare, 2003; Lilienfeld & Andrews, 1996; McHoskey et al., 1998), while secondary psychopathy is described as more behaviorally based, with core components of impulsivity and thrill-seeking (Hare, 2003; Lilienfeld & Andrews, 1996; Poythress & Hall, 2011). Furthermore, both facets of psychopathy have been linked to numerous deleterious outcomes (Widiger, 2006), including problematic gambling (Mishra et al., 2017).

Psychopathy and gambling

While there is an impressive body of research on elements of psychopathy (i.e., antisocial behavior and impulsivity) and gambling outcomes, there is less research on psychopathy specifically, particularly the primary and secondary variants and how they relate to gambling problems. Indeed, research has found a consistent relationship between problematic gambling behavior and antisocial personality disorder and narcissistic personality disorder (see Dowling et al., 2015 for a systematic review). However, there is a growing body of research that suggests psychopathy is not as neatly akin to antisocial behavior as it may seem. Coid and Ullrich (2010) found evidence for psychopathy being a far end of the antisocial spectrum. Furthermore, the description of antisocial personality disorder in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5; American Psychiatric Association, 2013) is more behaviorally based (Wall et al., 2015), while the construct of psychopathy includes distinct, personality aspects (Berg et al., 2013), which are necessary when considering the construct of psychopathy (Lilienfeld, 1994).

One of the most consistently found aspects of psychopathy, particularly the secondary variant, is impulsivity (Blackburn, 1969; Dean et al., 2013; Levenson et al., 1995; Miranda et al., 2009). Within the Urgency, Perseverance, Premeditation, Sensation Seeking, and Positive Urgency (UPPS-P) model of impulsivity, urgency is of particular interest as it is comprised of acting rashly on one's impulses, often with "regrettable actions" (Whiteside & Lynam, 2001, p. 677), with "negative" and "positive" used to differentiate emotional states of an individual (Coskunpinar et al., 2013; Whiteside & Lynam, 2003). Furthermore, there is evidence to indicate that positive and negative urgency load onto a single urgency factor (Cyders & Smith, 2007). Regarding secondary psychopathy, impulsivity has been a key component (Anestis et al., 2009; Gray et al., 2019; Hare, 2003). Indeed, Anestis and colleagues (2009) found negative urgency to be more strongly correlated to secondary psychopathy than primary psychopathy among a sample of college students (as measured by the Levenson Self-Report Psychopathy Scale). Gray and colleagues (2019) expanded on this research, finding Factor 2 (i.e., secondary) psychopathy, as measured via the Psychopathy Checklist-Revised, to be positively associated with positive and negative urgency, while Factor 1 (i.e., primary) psychopathy was not significantly correlated with positive or negative urgency.

Urgency has been associated with numerous negative health outcomes including pathological gambling (Fischer & Smith, 2008). Regarding gambling, high urgency has been shown to predict problem gambling in a community sample (Canale et al., 2015; Fischer & Smith, 2008), as well as longitudinal increases in gambling behavior among college students (Cyders & Smith, 2008). While these results suggest urgency may be the mechanism by which secondary psychopathy is associated with experiences of problematic gambling behavior, it is important

to note that secondary psychopathy and impulsivity are not synonymous, identical constructs and that there is no known study specifically testing this hypothesis.

Unlike secondary psychopathy and corresponding traits, there is far less research regarding primary psychopathy and gambling. As noted, primary psychopathy is associated with deleterious interpersonal behaviors. Interestingly, primary psychopathy has also been linked to reduced engagement in harm reduction strategies (Levenson et al., 1995), including protective behavioral strategies (PBS) for alcohol (Kramer et al., 2017). Specifically, Kramer and colleagues (2017) found that individuals who endorsed higher levels of primary psychopathy also endorsed utilizing less PBS and subsequently experienced greater alcohol consumption and problems. Narcissism, which includes grandiosity (a core piece of primary psychopathy) and has been found to be positively correlated with primary psychopathy (Miller et al., 2008) has also been found to be inversely associated with PBS for alcohol (Kramer et al., 2019). Thus, PBS use appears to be an important factor linking psychopathy to problem outcomes in alcohol use. However, it remains to be seen if the same associations are present for problem gambling when considering gambling-specific PBS.

Gambling PBS

Gambling protective behavioral strategies are behavioral strategies an individual can engage in to help reduce negative outcomes specific to gambling (Lostutter et al., 2014). Based on previous research involving PBS for alcohol use, which has shown PBS to minimize problems associated with drinking alcohol (Martens et al., 2004), it was hypothesized that gambling PBS would have similar outcomes (Lostutter et al., 2014). Thus, the Gambling Protective Behaviors Scale (GPBS) was developed (Lostutter et al., 2014). Lostutter et al. (2014) found that gambling PBS separated into two categories: avoidance strategies (e.g., avoid gambling when feeling down or depressed) and harm reduction strategies (e.g., leaving the gambling venue before running out of money). They also found participants that utilized harm reduction strategies reported experiencing lower gambling quantity (i.e., monetary cost of gambling) and lower gambling problems, whereas individuals who engaged in avoidance strategies reported less gambling frequencies (Lostutter et al., 2014).

Additionally, there is evidence that elements of impulsivity are inversely related to PBS use (Pearson et al., 2012), at least within the realm of alcohol PBS. Specifically, Pearson and colleagues (2012) found both negative and positive urgency to be negatively associated with manner of drinking PBS (i.e., how an individual goes about consuming alcohol, such as taking shots of liquor), and that serious harm reduction PBS (i.e., behaviors to reduce risk from alcohol consumption, such as not drinking and driving) was negatively associated with positive urgency. Given that impulsivity writ large, and urgency specifically, are

considered a cornerstones of secondary psychopathy (Anestis et al., 2009), it is possible that secondary psychopathy would also be inversely associated with gambling PBS. However, despite research investigating gambling PBS, as well as psychopathy and core features of psychopathy (e.g., narcissism, impulsivity) in relation to alcohol PBS, there is no research examining the role of psychopathic traits with gambling PBS.

Study overview

Given the general paucity of research regarding psychopathy and gambling, specifically regarding the different facets of psychopathy, the present study examines the association between psychopathic traits, gambling PBS, urgency, and the occurrence of problematic gambling outcomes. Specifically, we hypothesize that primary psychopathic traits will be associated with decreased gambling PBS engagement (H1), which in turn will be associated with increased likelihood of experiencing gambling problems (H2a) and increased number of problems experienced (H2b). Given previous researching linking lower PBS to higher impulsivity, and the relationship between secondary psychopathy and impulsivity, we also hypothesize that secondary psychopathy will be associated with decreased gambling PBS engagement (H3a) and increased levels of urgency (H3b), and that these will subsequently be associated with an increased likelihood of experiencing gambling problems (H4a) and increased number of problems experienced (H4b).

Method

Participants and procedure

Participants were $n = 308$ (36.36% female) college students from a southern public university. Participants' ages ranged from 18 to 56 ($M = 20.92$, $SD = 5.89$). Participants were predominantly White, with 73.38% identifying as White/Caucasian, while 10.39% identified as Black/African American, 0.97% identified as American Native or American Indian, 6.17% identified as Asian, 0.65% identified as Native Hawaiian or other pacific islander, and 8.43% identified as "other" or multiple racial categories. Additionally, 19.48% identified as Hispanic.

Participants were recruited in the fall 2017 semester for an online study titled "Gambling Perceptions and Tendencies among College Students" through the university psychology research pool and received course credit for completion of the survey. Informed consent was obtained at the beginning of the survey. All surveys were conducted anonymously through Qualtrics, a secure online server. The study was approved by the university's IRB, and all participants were treated in accordance with APA guidelines (Sales & Folkman, 2000).

Measures

Gambling quantity. Gambling quantity was measured using the Gambling Quantity and Perceived Norms Scale (GQPN), an 18-item measure assessing gambling amount (e.g., amount spent on gambling compared to income) and gambling norms (e.g., perceived percentage of college students who gamble at the university; Neighbors et al., 2002). Previous research has shown the GQPN to be valid and reliable in a college sample (Neighbors et al., 2002), with the current sample showing adequate internal consistency ($\alpha = .87$). Only the second item ($M = 2.93$, $SD = 1.43$; “Approximately how often do you gamble?”) was used to ensure students who endorsed engaging in gambling behaviors at least once per year would be included in the analyses.

Psychopathic traits. Psychopathic traits were assessed using the 26-item Levenson Self-Reported Psychopathy Scale (LSRP). Responses are on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The LSRP is used to measure psychopathic traits in noninstitutionalized individuals and was created using a college student sample (Levenson et al., 1995). The LSRP assesses both primary and secondary psychopathy, and includes negative characteristics (e.g., “I tell other people what they want to hear so that they will do what I want them to do”) as well as positive characteristics (e.g., “Cheating is not justified because it is unfair to others”). Previous research has found good reliability and validity for the LSRP among college students (Levenson et al., 1995; Lynam et al., 1999; Salekin et al., 2014) as well as support for the LSRP factors to be capturing core aspects of primary and secondary psychopathy (Miller et al., 2008). Internal consistency in the present sample for both primary ($\alpha = .83$, $M = 2.08$, $SD = 0.52$) and secondary ($\alpha = .76$, $M = 1.96$, $SD = 0.54$) psychopathic traits were sufficient.

Gambling protective behavioral strategies. Gambling PBS was assessed using the Gambling Protective Behavioral Strategies Scale (GPBSS; Lostutter et al., 2014), which is based on the framework of the PBSS for alcohol use (Martens et al., 2004). The GPBSS is a 16-item scale with responses on a 5-point Likert scale, ranging from 0 (never) to 4 (always). Behaviors include planning to gamble so it will not interfere with school and work priorities, having a friend let the individual know when it is time to stop gambling, and to avoid drinking alcohol while gambling. The GPBSS has been found to be valid and reliable in decreasing gambling consequences in a college sample (Lostutter et al., 2014), and the present sample showed strong internal consistency ($\alpha = .91$, $M = 3.65$, $SD = 0.96$).

Urgency. Urgency was measured via the urgency subscales of the UPPS-P scale. While the entire UPPS-P is comprised of 59 items, 26 of the items relate to the

positive (e.g., “When I’m happy, I can’t seem to stop myself from doing things that have bad consequences”) and negative (e.g., “When I feel bad, I will often do things I later regret in order to make myself feel better now”) urgency subscales. Previous research has shown positive and negative urgency to load onto an overarching “urgency” factor, and that the UPPS-P is a valid and reliable measure for urgency (Cyders & Smith, 2007). Internal consistency in the present sample was good ($\alpha = .95$, $M = 1.99$, $SD = 0.64$).

Gambling problem severity. Gambling-related problems were measured using the Problem Gambling Severity Index (PGSI), a 9-item questionnaire measuring severity of problematic gambling from the Canadian Problem Gambling Inventory (Ferris & Wynne, 2001; Holtgraves, 2009). Responses are on a 4-point scale from 0 (never) to 3 (almost always) answering questions about consequences of gambling (e.g., “Has your gambling caused any financial problems for you or your household?”; “Has gambling caused you any health problems, including stress or anxiety?”). Total scores are out of 27, where scores of 0 indicate non-problem gambling, scores of 1–2 suggests low gambling problems with few or no consequences, scores of 3–7 suggests moderate gambling problems leading to consequences, and scores of 8 and higher indicate a possible loss of control with negative consequences. The PGSI has been found to be reliable and valid (Currie et al., 2013; Ferris & Wynne, 2001). Internal consistency in this sample was good ($\alpha = .92$, $M = 2.74$, $SD = 4.66$).

Data preparation and analysis overview

The full dataset contained observations from $n = 1,620$ (60.12% female) participants. However, $n = 1,312$ (65.70% female) of the sample did not endorse engaging in gambling at least once per year, resulting in a final sample of $n = 308$ (36.36% female) college students. Of these individuals, $n = 180$ (32.22% female) endorsed experiencing problems from their gambling.

To test the hypotheses, we specified a negative binomial hurdle model with primary psychopathy predicting gambling PBS, which in turn predicted gambling problems (both likelihood of experiencing problems and number of problems experienced). Similarly, secondary psychopathy predicted both the likelihood of experiencing gambling problems and number of problems experienced, though this was via urgency and gambling PBS.

Results

Descriptive statistics

Descriptive statistics and bivariate correlations can be found in Table 1. There were significant gender differences regarding primary psychopathy, such that

Table 1. Descriptive statistics and bivariate correlations.

Variable	1	2	3	4	5	6	7
1. Age	–						
2. Sex	0.17*	–					
3. Primary psychopathy	–0.29**	–0.19*	–				
4. Secondary psychopathy	–0.15*	–0.08	0.56**	–			
5. Gambling PBS	0.01	–0.04	–0.18*	–0.15*	–		
6. Urgency	–0.17*	–0.09	0.38**	0.45**	–0.25**	–	
7. Gambling problems	–0.10	–0.02	0.39**	0.49**	–0.07 ¹	0.17*	–
Mean	20.91	1.36	2.08	1.96	3.65	1.99	2.74
SD	5.88	0.48	0.52	0.54	0.96	0.64	4.66
Range	18–56	1–2	1–3.33	1–3.71	1–5	1–3.88	0–27

Note: All values are unstandardized. Sex is coded as 1 = males, 2 = females.

¹The nonsignificant correlation between gambling PBS and gambling problems is due to an excess of zeros regarding endorsement of gambling problems. To address this, we performed a log transformation on gambling problems, which then was significantly inversely correlated with gambling PBS ($r = -0.22$, $p = .003$).

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

men ($M = 0.61$, $SD = 0.04$) endorsed greater levels of primary psychopathy than women ($M = 0.42$, $SD = .05$; $t(304) = 3.15$, $p < .002$). No other significant gender differences were found.

Primary analysis

All participants in the analysis endorsed gambling in the past year, thus, the analysis focused on predicting gambling problems. In the overall model (Figure 1), frequency of gambling problems was treated as a count variable. The data were analyzed using a negative binomial hurdle model. The negative binomial hurdle model is a class of two-part models that simultaneously allow for the prediction of the likelihood of an event (the hurdle) in a logistic portion of the model as well as the frequency of event occurrence (negative binomial count) among those that clear the hurdle (i.e., those who endorse at least 1 gambling problem). Thus, this model allows for the prediction of (a) the likelihood of experiencing *any* gambling problems (via the logistic portion of the model) as well as the (b) number of problems by modeling the frequency of problems among those that experience problems (via the count portion of the model). Below we present standardized model coefficients for linear associations (indicated as β), odds ratios (OR) for the logistic portion of model, and incident rate ratios (IRR) for the count portion of the model.

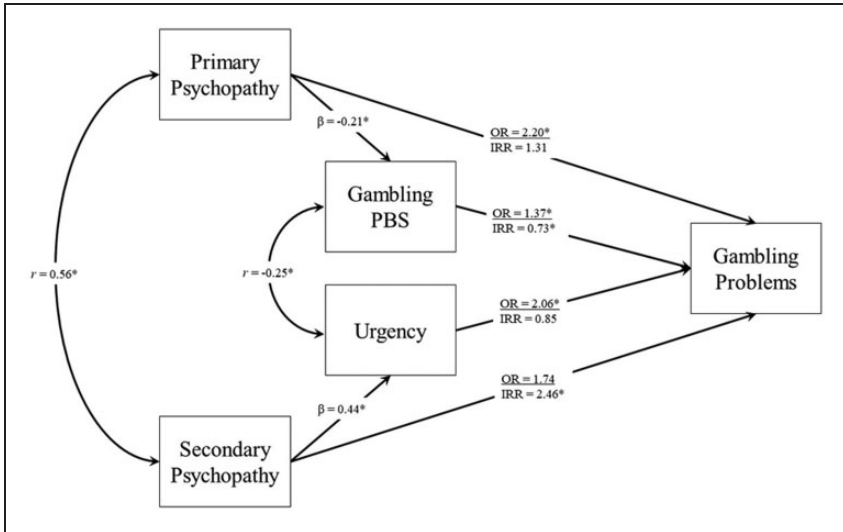


Figure 1. Final model of primary and secondary psychopathy onto gambling problems via gambling PBS use and urgency. *Note.* Above vinculum includes sample of all individuals that endorsed gambling in the past year ($n = 308$); below vinculum references portion of sample that experienced gambling problems ($n = 180$). $*p < .05$.

Logistic portion

The logistic model examined primary and secondary psychopathic traits as predictors of gambling PBS use and urgency, which in turn predict likelihood of experiencing a gambling problem. As predicted, primary psychopathy was inversely related to gambling PBS ($\beta = -0.21, p < .001$) and secondary psychopathy was positively related to urgency ($\beta = 0.44, p < .001$). Secondary psychopathy was not related to gambling PBS ($\beta = -0.07, p = .285$). This path was subsequently dropped to allow for a more parsimonious model. Age was also added as a covariate into the model. The final model showed an inverse relationship between primary psychopathy and age ($\beta = -0.27, p < .001$) and secondary psychopathy and age ($\beta = -0.14, p = .001$). Age was also inversely associated with urgency ($\beta = -0.10, p = .007$).

The association between primary psychopathy and gambling problems (OR = 2.20, $p = .013$) was partially mediated by PBS. The association between secondary psychopathy (OR = 1.74, $p = .085$) was fully mediated by urgency. Furthermore, both gambling PBS (OR = 1.37, $p = .043$) and urgency (OR = 2.06, $p = .003$) significantly predicted the likelihood of experiencing gambling problems. However, the path from primary psychopathy \rightarrow gambling PBS \rightarrow gambling problems was not significant ($p = .103$); while the path from secondary psychopathy \rightarrow urgency \rightarrow gambling problems was significant

Table 2. Effects from psychopathy to gambling problems in logistic and count models.

Parameter	Effects	
	Estimate (SE)	95% CI
Paths in logistic portion		
PP → GPBS → GP	-0.12 (0.08)	-0.27, 0.02
SP → Urgency → GP	0.37 (0.14)*	0.09, 0.65
Paths in count portion		
PP → GPBS → GP	0.12 (0.06)*	0.01, 0.23
SP → Urgency → GP	-0.08 (0.09)	-0.26, 0.09

Note. PP = primary psychopathy, SP = secondary psychopathy, GPBS = gambling protective behavioral strategies, GP = gambling problems. All estimates are unstandardized.

* = significant path ($p < .05$).

($p = .009$). Thus, secondary psychopathy via urgency is a strong predictor of the likelihood of *any* gambling problems, while primary psychopathy via gambling PBS is marginal at best (see Table 2).

Count portion

In the count portion of the model, primary psychopathy was fully mediated by gambling PBS (IRR = 1.31, $p = .276$), while secondary psychopathy had a robust direct association with increased frequency of gambling problems (IRR = 2.46, $p < .001$). Gambling PBS showed a negative association with gambling problems (IRR = 0.73, $p = .008$), while urgency was not significant (IRR = 0.85, $p = .350$). Regarding indirect paths, primary psychopathy → gambling PBS → gambling problems was significant ($p = .029$), while the indirect path from secondary psychopathy → urgency → gambling problems was not ($p = .349$). Thus, it seems that primary psychopathy via gambling PBS and secondary psychopathy directly are associated with predicting the frequency of gambling problems among those that experienced *any* problems.

Discussion

The current study examined primary and secondary psychopathy as predictors of urgency, gambling protective behavioral strategies, and gambling problems. This is the first study of its kind to investigate the relationships between these variables. Support for hypotheses were mixed, with effects being nuanced based on the prediction of likelihood vs. frequency of gambling problems. While results suggest that primary psychopathy is inversely related to gambling PBS, this relationship did not significantly predict the logistic portion of the model (i.e., whether or not an individual experiences gambling problems).

However, primary psychopathy, via gambling PBS, fully predicted the count portion of the model (i.e., the likelihood of an individual experiencing more gambling problems). Results for secondary psychopathy suggest that the relationship between secondary psychopathy and urgency predicted the logistic portion of the model, but not the count portion. However, secondary psychopathy was directly related to gambling problems in the count portion of the model.

Previous research has linked primary psychopathy to a lack of harm reduction behaviors (Levenson et al., 1995) including lower PBS use for alcohol consumption (Kramer et al., 2017). The current study extends the literature by showing primary psychopathy is inversely related to gambling PBS. Furthermore, the present findings suggest that primary psychopathy is more strongly related to the number of gambling problems an individual experiences rather than if an individual experiences any gambling problems. Conceptually, this could be explained by the combination of sensation seeking and reduced harm reduction seen in the primary psychopathy literature (Levenson et al., 1995; Poythress & Hall, 2011). While not all individuals with primary psychopathy engage in gambling, those who do may forego using gambling PBS and may take greater risks when gambling, leading to more problems when gambling than the sheer likelihood of experiencing problems. That primary psychopathy is only associated with problems among those experiencing *any* problems seems to indicate that consideration of primary psychopathy may be especially important for more problematic gamblers.

Comparatively, secondary psychopathy is viewed as more impulsive, and thrill-seeking (Karpman, 1948; Lee & Salekin, 2010). Previous research has found strong relationships between secondary psychopathy and various facets of impulsivity (Poythress & Hall, 2011), including urgency (Anestis et al., 2009). The present study found that secondary psychopathy, via urgency, predicted the likelihood of experiencing gambling problems. Additionally, secondary psychopathy, independent of urgency, predicted the frequency of gambling problems an individual may experience among those experiencing problems (i.e., more problematic gamblers). This finding is particularly interesting. Previous research has shown that urgency is positively associated with gambling problems (Canale et al., 2015; Cyders & Smith, 2008; Fischer & Smith, 2008). However, these results suggest that urgency is only important in the prediction of the likelihood of experiencing problems versus not. This suggests that urgency may not play a prominent role in more problematic gambling (i.e., the experience of higher rates of problem severity among those who experience any problems). Thus, urgency appears to be important in the development of gambling problems but not for the progression or maintenance of more problematic gambling patterns. This finding also helps illustrate that, while a prominent feature of secondary psychopathy is impulsivity, there is more to secondary psychopathy than only impulsivity (i.e., anxious/neurotic aspects; Lykken, 1995).

Future research should examine secondary psychopathy and these other features when investigating outcomes such as problematic gambling behaviors.

Limitations

The results of the present study should be interpreted within the confines of its limitations. Though the sample size was sufficiently large, the demographics of the participants were rather homogenous in both ethnicity and age which limits the generalizability of the results towards other populations. Additionally, the sample collected was from college students who endorsed overall mild levels of problematic gambling. Future research on this topic should be conducted with a more diverse sample (i.e., greater representation of minorities, broader age range) as well as more clinical samples with a greater severity of problematic gambling in order to gain a more nuanced understanding of the relationship between psychopathy, urgency, problematic gambling, and the use of PBS. It should also be noted that the data are cross-sectional in nature. Future research should examine this research question longitudinally to better examine possible causal relationships. Finally, past research has found negative affect to be positively associated with gambling severity (Atkinson et al., 2012). As such, future research should investigate the role of negative affect in conjunction with personality variables and protective strategies regarding gambling problems. Despite these limitations, the present study provides a first step to shed light on the mechanisms of the relationship between primary and secondary psychopathy and problematic gambling outcomes.

Conclusion

The present study examined the relationship between primary and secondary psychopathy and problematic gambling outcomes as a function of gambling protective behavioral strategies and urgency in a negative binomial hurdle model. Results indicate that secondary psychopathy, via urgency, best predicts the likelihood of an individual experiencing gambling problems, while primary psychopathy via PBS best predicts how many problems an individual may experience. Secondary psychopathy also predicted gambling problems in the count portion of the model, but not via urgency. This study provides evidence that the two different factors of psychopathy play different roles in problematic gambling outcomes. Future research should examine this relationship with other deleterious outcomes (e.g., substance problems) to see if this expands beyond gambling.


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