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Clarifying the role of personality dispositions in risk for increased gambling behavior

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Abstract

The current study clarifies the role of personality for increased gambling behaviors. The authors compared five traits, each involving a different disposition to rash action, predicting increased gambling behavior across the transition into college life. The authors sampled 418 college students (75% female; median age 18.0 years) across their freshman year. Participants completed the UPPS-P scale and measures to assess gambling and risky behavior participation. SEM analyses showed that although the disposition to engage in rash action when in an unusually positive mood (positive urgency), lack of planning, and sensation seeking all related to both gambling behavior and general risky behavior (e.g., mountain climbing) cross-sectionally, only positive urgency predicted longitudinal increases in gambling behavior and only sensation seeking predicted longitudinal increases in general risky behaviors. Beginning college students high in positive urgency are at increased risk to increase their gambling behavior in college.

Keywords

Emotion; Gambling; Risky behavior; Longitudinal; Impulsivity

1. Introduction

This report describes a longitudinal study clarifying the role of dispositional contributions to risk for increased gambling behavior during the first year of college. First we discuss the problem of college gambling behavior. We then consider the influence personality has on behaviors during the transition into college, along with recent advances in personality theory that may help explain the gambling risk process. Our specific empirical test is whether increased gambling behavior can be predicted by a need to seek stimulation, or, by a tendency to act rashly when experiencing intense mood states.

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1.1. College student gambling

Estimates of college gambling indicate that up to 42−85% of college students gamble in a given year and 2.6−23% gamble at least weekly (LaBrie, Shaffer, LaPlante, & Wechsler, 2003; Lesieur et al., 1991) and that gambling leads to higher rates of subclinical and problematic levels of pathological gambling behaviors (Shaffer, Hall, & Vander-Bilt, 2001). Although most students do not report large financial consequences from gambling (Winters, Bengston, Door, & Stinchfield, 1998), college gambling is a matter of serious concern. Early gambling by college students may lead, subsequently, to increased involvement in high-stakes gambling and risky ventures (Winters, Stinchfield, & Kim, 1995); early gambling experiences presage future problems for some individuals (Winters et al., 1998). A recent meta-analysis estimated lifetime prevalence rates among college students for subclinical (11%) and pathological (6%) gambling to be higher than the rates for either adults or adolescents (Shaffer et al., 2001).

1.2. The importance of personality for risk among college students

Risk for problem gambling is presumably a function of personality disposition (Blaszczynski, Steel, & McConaghy, 1997), psychosocial learning (Walters & Contri, 1998), and other forces. Here we focus on personality during the life transition of college entry. According to Caspi and Moffitt (1993), the influences of individual differences in personality on behavior are likely to be especially pronounced during such transitions: in new situations, one has less information about how to behave adaptively and appropriately; therefore, one's dispositions play a larger role in shaping one's perceptions and responses (Caspi & Moffitt, 1993). This transitional period, then, may be a useful time to study the dispositional component of the risk process.

1.3. Findings concerning the role of personality in the risk process

Investigations into the personologic component of problem gambling risk have suggested that some form of “impulsivity” predicts gambling behaviors. A failure to plan before action has differentiated pathological gamblers from a normative sample cross-sectionally (Blaszczynski et al., 1997; Clarke, 2004) and predicted increased gambling across a four year longitudinal window (Vitaro, Arseneault, & Tremblay, 1999). Several studies have reported cross-sectional or longitudinal associations between sensation seeking and problem gambling (Ledgerwood & Petry, 2006; Slutske, Caspi, Moffitt, & Poulton, 2005; Voon et al., 2007), but Clarke (2004) failed to find such an association when controlling for lack of planning. Other studies also failed to find such a relationship, or, in one case, found a negative relationship (see Coventry & Constable, 1999). These apparently inconsistent results seem to be addressed well by recent findings clarifying personality's contribution to impulsive acts.

1.4. An advance in personality theory: the parsing of impulsivity

In recent years, it has become clear that measures of traits labeled “impulsivity” either combine separate constructs, or refer to different constructs altogether (Clarke, 2004; Depue & Collins, 1999; Evendon, 1999; Petry, 2001; Smith et al., 2007; Whiteside & Lynam, 2001). The same is true of measures labeled “disinhibition.” Whiteside and Lynam (2001), by factor analyzing of a large set of existing “impulsivity” measures, identified four separate, moderately related constructs; Cyders et al. (2007) identified a fifth construct.

Two of the five emphasize affect and are referred to as emotion-based dispositions: negative urgency (“urgency” in Whiteside & Lynam, 2001) is the tendency to act rashly when upset and positive urgency is the tendency to act rashly when experiencing an unusually positive mood (Cyders & Smith, 2007; Cyders et al., 2007). Two are related to low levels of conscientiousness: lack of planning involves a failure to plan ahead and lack of perseverance involves an inability to maintain vigilant attention on a task. The fifth disposition is sensation seeking: the tendency to seek out novel or thrilling experiences. Intercorrelations among the traits are moderate: the

two urgency traits tend to share approximately 25% of their variance, the two low conscientiousness traits tend to share approximately 10% of their variance, and correlations are significantly lower among the other traits. Each trait is related to a facet of the big five traits as measured by the NEO–PI–R (Costa & McC-rae, 1992). The urgency traits are related to the impulsiveness facet of Neuroticism, lack of planning is related to the deliberation facet of Conscientiousness, lack of perseverance is related to the self-discipline facet of Conscientiousness, and sensation seeking is related to the excitement seeking facet of Extraversion.

The different traits predict different aspects of risky behavior. Whereas sensation seeking correlates with frequency of risky behavior, including gambling and alcohol consumption, negative and positive urgency correlate with problematic levels of these behaviors (Anestis, Selby, Fink, & Joiner, 2007a; Anestis, Selby, & Joiner, 2007b; Cyders & Smith, 2007; Cyders et al., 2007; Fischer & Smith, in press; Miller, Flory, Lynam, & Leukefeld, 2003; Smith et al., 2007).

1.5. The current study

Based on recent cross-sectional findings an important issue is whether risk for increased college gambling behavior tends to be emotion-based, i.e., increased gambling follows intense mood states, or whether it reflects individual differences in sensation seeking. It does appear that some risky action, including gambling behavior, involves rash action that is undertaken during intense mood states. Emotions are, indeed, adaptive for functioning; they orient one to act to meet a current need (Frijda, 1986). However, at the same time, the experience of extreme emotions can deplete one's ability to control one's behaviors (Muraven & Baumeister, 2000; Tice, Bratslavsky, & Baumeister, 2001), and intense emotions tend to bias decision making in non-rational and non-advantageous directions (Bechara, 2004, 2005; Driesbach, 2006).

Consistent with these findings, positive urgency does prospectively predict alcohol use, drug use, and risky sexual practices among college students (Cyders et al., 2007; Zapolski, Cyders, Rainer, & Smith, 2007). For individuals high in positive urgency, intensely positive emotions may lead to reduced rationality and impulse control, which can lead to more impulsive and less advantageous decisions. Concerning gambling, this may involve betting more money, continuing gambling even if losing money, etc. On the other hand, based on previous research with sensation seeking and gambling, the experience of gambling may simply be recognized as the experience of thrilling stimulation, suggesting the possible prospective role of individual differences in sensation seeking.

The current paper sought to test these competing hypotheses. We did so by comparing the differential roles of sensation seeking, positive urgency and other rash action traits in the longitudinal prediction of gambling behavior and involvement in a sample of risky behaviors (e.g., mountain climbing, parasailing). Doing so enabled us to contrast the predictive roles of positive urgency and sensation seeking with respect to the two types of criteria.

2. Method

2.1. Participants

Participants were 418 first year students at a large mid-western university. Seventy-five percent of the sample was female. Age ranged from 18 to 32 (mean = 18.2, median = 18.0; SD = 0.76); 88% of the sample was Caucasian, 8% African American, 2% Asian American, 1% Hispanic American, and 2% Other. Of the 418 students who began the study, 370 (89%) completed a second wave after the first semester of college; of those, 293 (79%) completed all three phases of the study.

2.2. Measures

The UPPS-P (Lynam, Smith, Cyders, Fischer, & Whiteside, 2007). The UPPS-P is a 58 item Likert-type scale designed to assess lack of planning, lack of perseverance, negative urgency, positive urgency, and sensation seeking. It constitutes the earlier UPPS-R plus the measure of positive urgency. Items are assessed from 1 (*agree strongly*) to 4 (*disagree strongly*). The five scales have good convergent validity across assessment method and good discriminant validity from each other (Cyders & Smith, 2007; Smith et al., 2007). We removed two items from the sensation seeking scale to avoid overlap with the criterion of risk-taking behavior. Average internal consistencies ranged from .83 to .94 in the current study. Test–retest reliabilities over the lengthy three month period ranged from .62 to .81.

2.3. Gambling and risky behavior

Items were taken from an 83-item scale that assesses the frequency with which individuals participate in a wide range of risk-taking behaviors (Fischer & Smith, 2004). Items were coded on a 1−5 Likert scale, with 1 indicating never participating in the behavior and 5 indicating *often* participating in the activity. We assessed gambling behavior with a composite of four items judged to be of likely relevance to college student gambling: bet on a horse race, bet in a casino, bet on sports, and bet money you didn't know how you could pay back. Three month test-reliability was $r = .68$. We assessed risk-taking behavior with a composite of six items: mountain climbing, bungee jumping, skateboarding, scuba diving, parasailing, and parachuting. Three month test–retest reliability was $r = .63$.

2.4. Procedure

Participants were sampled at three time periods during their first year of college: at the beginning and end of the fall semester, and at the end of the spring semester. At each session, participants completed the above measures. They received course credit for a Psychology course and $10 for participation.

2.5. Data analysis

Because both the gambling behavior composite and the risky behavior composite were positively skewed, we conducted a square root transformation on those composite scores to reduce the skew and we present all analyses using those square root transformed scores (although results using non-transformed scores were equivalent).

We used structural equation modeling (SEM) to test our prospective model. In the prospective model, we included those personality traits that correlated, bivariately, with time 3 scores on the criterion variables. We represented each trait as a latent variable. We identified gambling and risk-taking behavior as measured variables. We also included a dichotomous measure of biological sex. We used three parcels of items as indicators for each trait we included.

To measure model fit, we relied on four fit indices: the comparative fix index (CFI), the non-normed fit index (NNFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). Overall evaluation of model fit is made by considering the values of each of the four fit indices. Rules of thumb are that CFI and TLI values of .90 represent good fit and values of .95 or greater represent excellent fit (Hu & Bentler, 1999; Kline, 2005). RMSEA values of .06 are thought to indicate a close fit, .08 a fair fit, and . 10 a marginal fit and SRMR values of approximately .09 tend to indicate good fit (Browne & Cu-deck, 1993; Hu & Bentler, 1999).

3. Results

3.1. Participant attrition

Individuals who participated in all three waves did not differ from those who participated in only the first wave, or from those who completed waves 1 and 2, on any demographic, drinking, or trait variable. Thus, there is no reason to believe that the missing participants differed in any meaningful way from those who remained in the study. We therefore imputed missing data using the expectation maximization (EM) procedure (Enders, 2006).

3.2. Descriptive statistics

Most individuals engaged in at least one form of gambling during their first year of college, a small number of individuals engaged in the highest risk gambling behavior of betting money they could not pay back, and the distribution of gambling scores was positively skewed (Table 1). Risky behaviors were engaged in with varying frequencies and were also positively skewed (Table 2).

Because of the skew, we transformed the composites by taking the square root of each. Although there was some remaining positive skew to each composite, the degree of skew was well within the range in which SEM can produce relatively unbiased parameter and standard error estimates (Lei & Lomax, 2005).

3.3. Bivariate, uncorrected correlations among the study variables

The five impulsivity traits were moderately inter-correlated, as predicted (Table 3). Positive urgency, lack of planning, and sensation seeking each correlated with gambling behavior and risky behavior at both time 1 and time 3; neither negative urgency nor lack of perseverance correlated with either criterion either cross-sectionally or longitudinally. For biological sex, higher scores referred to men. Being male was positively associated with positive urgency, lack of planning, and sensation seeking, and time 1 and 3 gambling, although the magnitude of the associations was small. Male sex was not associated with our sample of risky behaviors.

3.4. Prospective model of the prediction of gambling behavior and risk-taking behavior

Because neither negative urgency nor lack of perseverance correlated with either time 3 criterion variable, they were not included in the SEM model test. We tested a model in which sex, time 1 gambling, time 1 risky behavior, time 1 positive urgency, sensation seeking, and lack of planning all predicted time 3 gambling and risky behavior. All time 1 variables were allowed to inter-correlate, as were the two time 3 criterion variables. The model fit the data well: CFI = .98, NNFI = .97, RMSEA = .05 (90% confidence interval: .03−.06), SRMR = .04. Both the gambling behavior and the risky behavior composite were stable over time. Nonetheless, positive urgency predicted time 3 gambling behavior above and beyond the significant prediction from time 1 gambling behavior (Fig. 1). Positive urgency did not predict time 3 risky behaviors; only sensation seeking predicted time 3 risky behavior above and beyond time 1 risky behavior. Thus, although in cross-sectional analyses all three traits related to both types of behavior, only positive urgency uniquely predicted increased gambling behavior and only sensation seeking uniquely predicted increased risky behavior. Sex did not predict changes in either target behavior across the first year of college.

The path from time 1 sensation seeking to time 3 risky behavior was marginally significant ($p < .09$). We tested the model again, removing lack of planning as a predictor, because it did not predict change in the full model. This revised model produced similar fit indices (CFI = .98, NNFI = .96, RMSEA = .06, SRMR = .04), and sensation seeking then predicted time 3 risky behavior significantly ($p < .05$, $\beta = .11$).

4. Discussion

This study was the first longitudinal investigation comparing the five traits identified in the recent parceling of impulsivity in their prediction of increased gambling behavior during the first year of college. Because we controlled for biological sex, initial gambling behavior, and for initial levels of all five personality traits, these results help clarify the personologic component of the risk process for increased gambling during this important transitional period.

The findings suggest that individual differences in rates of college student gambling are not due to the need to pursue thrill or stimulation, as some previous research has suggested. Rather, increases in gambling are tied to positive affect. Variability in student gambling appears not to follow variability in rash acts during negative emotional states; rather, it appears to follow variability in rash acts during very positive emotional states. Perhaps some college students tend to act more rashly by gambling more heavily when they are in unusually positive mood states.

The current study has these implications. First, it adds important prospective support for our theory of risk-taking and emotion-based rash action. Second, it helps to clarify previous inconsistent findings of the role of impulsivity in regards to gambling behaviors. Third, these findings suggest that risk researchers ought to consider the possible role of very positive emotions in gambling risk processes.

Positive urgency and sensation seeking played different prospective roles in this study. Positive urgency predicted gambling behavior but not risky behaviors, and sensation seeking predicted risky behaviors but not gambling behavior. The differential prospective prediction further supports the view that gambling behavior operates differently from some other risky behaviors, such as mountain climbing, bungee jumping, and skateboarding.

The prospective findings may have implications for prevention or intervention. It does appear that the experience of extreme emotions can deplete one's impulse controls (Tice et al., 2001). In recent years, researchers have developed very successful interventions to help individuals avoid rash actions when experiencing intense negative affect, such as dialectical behavior therapy (Linehan, 1993). Perhaps it will be useful to develop intervention programs geared toward the safe management of very positive emotional states. Cognitive mediation training to help individuals maintain consideration of their long-term interests and avoid risk when experiencing very positive mood is one possibility.

These findings must be understood in the context of the study's limitations. First, we did not specifically measure pathological gambling, nor did we confirm participants' questionnaire responses with interviews. Therefore, we cannot know the degree to which these findings apply to increased levels of pathological gambling. Future research with clinically identified populations is clearly necessary. Although our measure of gambling behavior was geared toward the college population, a more comprehensive assessment of gambling would have been desirable. Second, a majority of our sample was female and Caucasian. It is important to investigate this risk model with more diverse samples. Third, our sample was limited to individuals making the transition to college. Although this population is important to study, we do not know whether the prospective relations we found will prove to be present for individuals of other ages or who face different life transitions. Fourth, our sample of risk-taking behaviors involved physical activities; we do not know to which other forms of risk-taking these results generalize. Fifth, we considered only the personologic component of the risk process for increased gambling. Comprehensive risk models that integrate dispositional factors, such as positive urgency, with psychosocial learning and other determinants are necessary.

In sum, it is important for researchers to develop specific theories and use specific measures when studying rash or risky behaviors. We found different roles for a positive mood-based disposition to rash action and a sensation seeking-based disposition to rash action. It is becoming increasingly clear that there are different dispositional pathways to risk and that the different pathways account for different types of maladaptive actions. It is essential that risk theories include precise statements of the nature of hypothesized dispositional risk processes.

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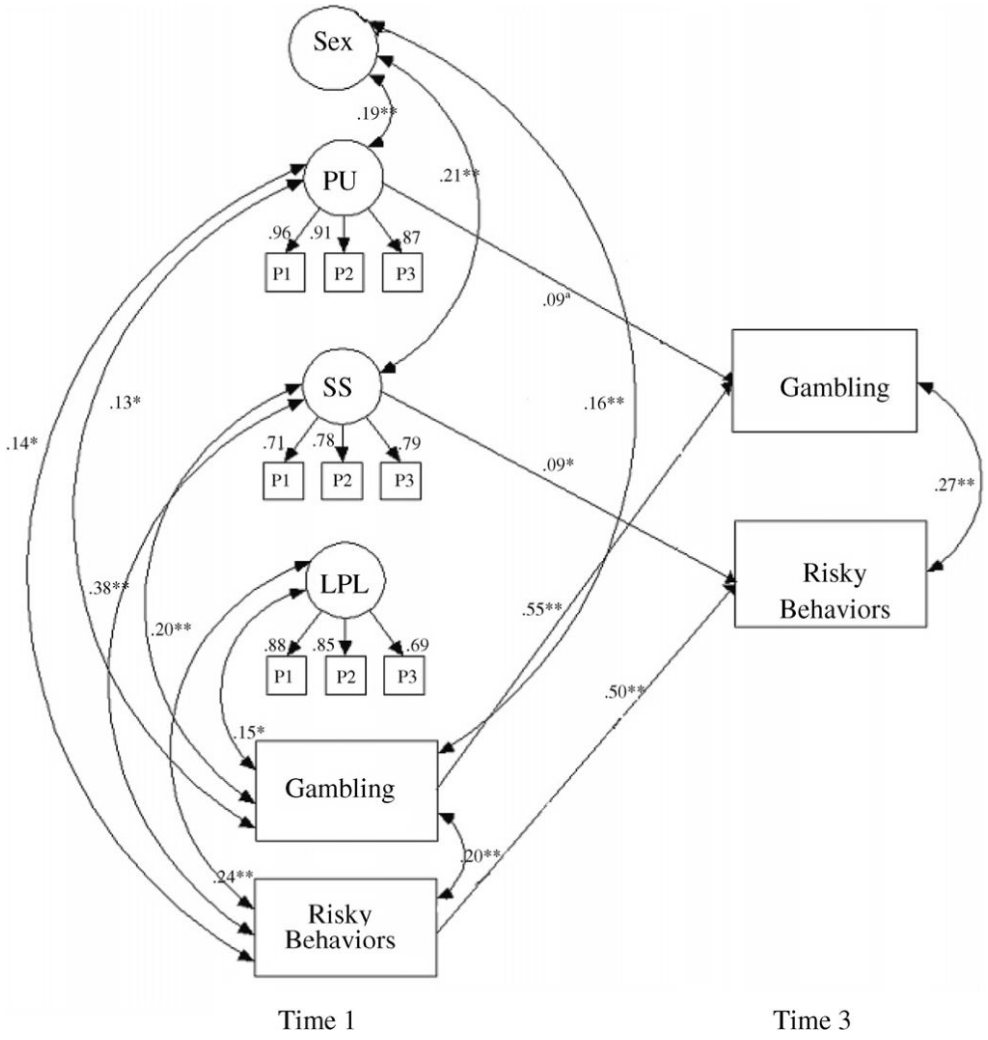

Fig. 1.

This figure depicts the longitudinal structural equation model of the relationships among sex, sensation seeking, positive urgency, lack of planning, gambling, and risky behaviors. The traits and target behaviors were measured at time one and the behaviors again at time 3. Circles reflect latent variables and squares reflect measured variables. The measured indicators of the latent traits are parcels of items: P1 stands for parcel 1 for a given factor. Straight arrows reflect factor loadings and prospective prediction pathways. Curved arrows reflect non-time lagged associations. Sex: biological sex; PU: positive urgency; SS: sensation seeking; LPL: lack of planning; Gambling: composite gambling score; Risky Behavior: composite risky behavior score. For ease of presentation, error variances are not depicted. $^{**}p < .01$, $^{*}p < .05$, ^{a}p = ns.

Table 1

Mean levels and frequencies of gambling behaviors of first-year college students

	Males (*n* = *x*)		Females (*n* = *X*)		Overall (*n* = 418)	
	Mean (SD)	**Frequency (%)**	**Mean (SD)**	**Frequency (%)**	**Mean (SD)**	**Frequency (%)**
Horse race						
Time 1	1.7 (1.0)	44.6	1.6 (0.85)	36.7	1.6 (0.88)	38.8
Time 3	1.7 (0.86)	70.3	1.8 (0.80)	64.6	1.7 (0.82)	66.3
Casino						
Time 1	1.2 (0.59)	15.8	1.2 (0.47)	11.5	1.2 (0.53)	12.5
Time 3	1.2 (0.41)	7.0 1	2 (0.40)	9.7	1.2 (0.42)	9.0
Sports event						
Time 1	1.7 (0.88)	47.5	1.3 (0.60)	22.6	1.4 (0.70)	28.7
Time 3	1.5 (0.68)	29.7	1.3 (0.52)	17.9	1.4 (0.58)	21.3
Bet money that you did not know how to pay back						
Time 1	1.1 (0.28)	4.9	1.0 (0.21)	2.3	1.0 (0.24)	3.2
Time 3	1.1 (0.44)	7.0	1.1 (0.22)	2.9	1.1 (0.32)	3.9
Total gambling scale						
Time 1	5.7 (2.0)	65.3	5.0 (1.5)	48.9	5.2 (1.7)	53.6
Time 3	5.7 (2.0)	77.2	5.3 (1.4)	69.5	5.5 (1.7)	71.8

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Table 2

Mean levels and frequencies of risky behaviors of first-year college students

	Males (*n* = X)		Females (*n* = X)		Overall (*n* = 418)	
	Mean (SD)	**Frequency (%)**	**Mean (SD)**	**Frequency (%)**	**Mean (SD)**	**Frequency (%)**
Mountain climbing						
Time 1	1.9 (1.0)	56.1	1.8 (0.92)	54.8	1.8 (0.94)	55.5
Time 3	2.2 (0.80)	80.2	1.8 (0.80)	65.6	1.9 (0.81)	69.4
Bungee jumping						
Time 1	1.2 (0.50)	14.9	1.2 (0.53)	11.5	1.2 (0.53)	12.2
Time 3	1.2 (0.53)	10.9	1.2 (0.39)	8.2	1.2 (0.42)	8.6
Skateboarding						
Time 1	1.7 (1.0)	45.5	1.4 (0.61)	33.8	1.5 (0.75)	36.6
Time 3	1.5 (0.59)	26.7	1.3 (0.44)	20.3	1.4 (0.49)	21.8
Scuba diving						
Time 1	1.2 (0.52)	16.8	1.3 (0.69)	17.4	1.3 (0.65)	17.0
Time 3	1.2 (0.46)	6.9	1.2 (0.48)	13.4	1.2 (0.49)	11.7
Parasailing						
Time 1	1.2 (0.48)	15.8	1.4 (0.75)	30.8	1.4 (0.69)	26.3
Time 3	1.3 (0.44)	9.9	1.4 (0.60)	25.2	1.4 (0.56)	21.3
Parachuting						
Time 1	1.1 (0.38)	4.0	1.1 (0.41)	4.9	1.0 (0.40)	4.5
Time 3	1.1 (0.38)	4.0	1.1 (0.43)	5.9	1.1 (0.43)	5.5
Total risky behavior scale						
Time 1	8.2 (2.2)	81.2	8.2 (2.2)	78.7	8.2 (2.20)	79.2
Time 3	8.3 (2.2)	87.1	8.1 (1.9)	81.3	8.1 (2.0)	82.8

Table 3

Bivariate correlations of study variables (n = 418)

	PU	LPL	SS	LPS	NU	RB1	GB1	RB3	GB3	SEX
PU		0.31**	0.25**	0.34**	0.62**	0.16**	0.09*	.10*	.16**	.15**
LPL			0.35**	0.39**	0.34**	0.19**	0.11*	.15**	.10*	−.02
SS				0.01	0.19**	0.37**	0.16**	.29**	.15**	.18**
LPS					0.36**	0.02	0.02	.05	.07	.13**
NU						0.05	0.03	.02	.06	.02
RB1							0.24**	.51**	.15**	.02
GB1								.19**	.56**	.17**
RB3									.38**	.06
GB3										.10*

Note: PU = positive urgency, LPL = lack of planning, SS = sensation seeking, LPS = lack of perseverance, NU = negative urgency, RB1 = time 1 risky behavior composite, GB1 = time 1 gambling behavior composite, RB3 = time 3 risky behavior composite, GB3 = time 3 gambling behavior composite, SEX = biological sex.

* $p < .05$.

** $p < .01$.