Positive Urgency Predicts Illegal Drug Use and Risky Sexual Behavior

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Abstract

There are several different personality traits that dispose individuals to engage in rash action. One such trait is positive urgency: the tendency to act rashly when experiencing extremely positive affect. This trait may be relevant for college student risky behavior, because it appears that a great deal of college student risky behavior is undertaken during periods of intensely positive mood states. To test this possibility, the authors conducted a longitudinal study designed to predict increases in risky sexual behavior and illegal drug use over the course of the first year of college (*n* = 407). In a well-fitting structural model, positive urgency predicted increases in illegal drug use and risky sexual behavior, even after controlling for time 1 (T1) involvement in both risky behaviors, biological sex, and T1 scores on four other personality dispositions to rash action. The authors discuss the theoretical and practical implications of this finding.

Keywords

impulsivity; risk; emotion; positive emotion; drug use; risky sex

This paper describes a longitudinal study that takes advantage of recent advances in personality theory to test a new, specific theory of the influence of personality on involvement in risky behaviors during the transitional first year of college. To introduce this study, we briefly consider the increased risk for involvement in two such behaviors: risky sex and illegal drug use, the nature of the risks those behaviors entail, and the research advances that we believe shed light on the risk process.

Risky Sex and Illegal Drug Use

For many individuals, the transition into college involves new levels of freedom and independence (Schulenberg, O'Malley, Bachman, Wadsworth, & Johnston, 1996). One consequence of this new independence is increased likelihood of engaging in risky behaviors. Indeed, several studies have confirmed that college student status is associated with higher rates of engaging in such behaviors. In this paper, we focus on two: risky sexual behaviors and illegal drug use (Butcher, Thompson, & O'Neal, 1991; Gledhill-Hoyt, Lee, Strote, & Wechsler, 2000). La Brie and Earleywine (2000) found that 65 percent of college students reported having sex without a condom (La Brie & Earleywine, 2000), and college presence predicts increased drug use (Goldberger, Graham, Nelson, Cadet, & Gould, 2007; Siebert & Wilke, 2007). Potential risks from these behaviors include contraction of sexually transmitted diseases (Weinstock, Berman, & Cates, 2004), physical harm to self and others from behaviors engaged

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in under the influence of drugs (Brookoff, Cook, Williams, & Mann, 1994; O'Malley & Johnston, 2003; Soderstrom, Dischinger, Kerns, & Triffillis, 1995), and suppressed immune system functioning from drug use (Friedman, Pross, & Klein, 2006).

Advances in Understanding the Risk Process

A comprehensive understanding of the risk process will no doubt include many factors, such as genes, personality, learning, and context. The focus of this investigation was on the role of personality in increasing risk. This focus is appropriate; several researchers have argued that individual differences in personality constitute one important component of the risk process (c.f. Sher & Trull, 1994; Simons, Gaher, Correia, Hansen, & Christopher, 2005; Smith & Anderson, 2001). Recent developments in personality research have begun to clarify the specific nature of personality-based risk; these advances highlight the importance of intense affect as a possible precursor to rash acts and risky behaviors.

First, it appears that affective lability may dispose individuals to involvement in a number of risky behaviors, including marijuana use, problem drinking, and bulimic behaviors (Anestis, Selby, Fink, & Joiner, 2007; Colder & Chassin, 1997; Simons et al., 2005; Stice, Barrera, & Chassin, 1998). It thus seems that significant departures from one's baseline mood level may increase the likelihood that one will engage in risky behaviors. Second and relatedly, it now seems clear that there are several different personality processes that dispose individuals to rash or ill-considered actions; two of those processes involve emotion-based dispositions to rash action. The possibility that there are personality-based tendencies to act rashly when experiencing intense emotion merits investigation. Recognition of such traits extends previous findings focusing on affective lability and may help clarify the relation between subjective distress and disorders of impulse control (Cyders & Smith, 2008a). We next briefly review the evidence for these traits.

A series of factor analytic and multitrait, multimethod studies have identified five different personality dispositions to rash action (Cyders & Smith, 2007, 2008a; Cyders, Smith, Spillane, Fischer, Annus, & Peterson, 2007a; Smith, Fischer, Cyders, Spillane, Annus, & McCarthy, 2007; Whiteside & Lynam, 2001). As noted above, two are emotion-based: positive and negative urgency refer to the tendencies to engage in rash acts when experiencing intensely positive or intensely negative emotion, respectively. They are substantially related: Correlations in prior studies ranged from .37 to .62 with a median of .48 (Cyders & Smith, 2007; Cyders et al., 2007a; Cyders, Flory, Rainer, & Smith, in press). Comparative confirmatory factor analyses indicated that positive and negative urgency are best understood as separate facets of an overall urgency domain (Cyders & Smith, 2007). The two traits do have different correlates consistent with theory. For example, positive urgency is associated with risky behaviors undertaken while in an extremely positive mood and negative urgency is associated with risky behaviors undertaken while in an extremely negative mood (Cyders & Smith, 2007).

Two other traits appear to be facets of an overall low conscientiousness domain: Lack of planning refers to the tendency to act without forethought and lack of perseverance refers to a failure to tolerate boredom or to remain focused despite distraction (Whiteside & Lynam, 2001). Correlations between them range from .31 to .34 and they have distinct external correlates (Cyders & Smith, 2007; Smith et al., 2007). The fifth trait is sensation seeking, or the tendency to seek out novel or thrilling experiences.

The five traits were not found to be facets of a common, higher-order impulsivity construct; rather, they appear to represent different pathways to risky behavior with different external correlates. When all the traits are studied together, sensation seeking correlates with stimulating behaviors such as alcohol use, sports gambling, and involvement in thrilling experiences such

as bungee jumping, but not with problem levels of involvement in those behaviors. In contrast, both positive and negative urgency correlate with behaviors such as problem drinking and pathological gambling, and with behaviors likely to lead to problems, such as binge eating, purging, and excessive shopping (Billieux, Rochat, Rebetez, & Van der Linden, 2008; Cyders & Smith, 2008b; Fischer, Smith, & Cyders, in press; Magid & Colder, 2007; Smith et al., 2007).

It thus appears that emotion-based dispositions to engage in rash action may be particularly important for the risk process. It is important to appreciate that positive and negative urgency do not refer to characteristic levels of affect, but rather to dispositions to act when experiencing intense affect (Cyders & Smith, 2008a). Although general negative affectivity contributes to increased risk (Sher & Trull, 1994; Stice, 2002) and general positive affectivity contributes to reduced risk (Wills, Sandy, & Yaeger, 2000), urgency theory focuses not on baseline affective level, but rather on the experience of intense emotions. In this way, urgency theory is consistent with research suggesting the importance of affective lability in the risk process (Anestis et al., 2007; Simons et al., 2005).

The Current Study

Virtually all of the initial work indicating that the urgency traits are particularly important for behaviors likely to lead to problems has been cross-sectional. We therefore conducted a longitudinal test of this hypothesis; we studied individuals across their first year of college. We tested whether the traits predicted increases in risky sex and illegal drug use, because those behaviors are likely to result in harm. We anticipated that positive urgency in particular would predict increases in those behaviors, because college students' risky behavior often appears to be associated with celebrations and positive affect. For example, students typically drink on days of celebration, often to enhance an existing positive mood (Cooper, Agocha, & Sheldon, 2000); that drinking tends to be associated with drunk driving, unwanted sexual intercourse, increased physical violence, and alcohol-related injuries and deaths (Del Boca, Darkes, Greenbaum, & Goldman, 2004). We therefore hypothesized that positive urgency would predict increases in risky sex and illegal drug use over the first year of college, and would do so over and above the other identified dispositions to rash action (i.e. sensation seeking, negative urgency, lack of planning, and lack of perseverance), initial levels of both behaviors, and biological sex.

Method

Participants

Participants were 407 first year students at a large, public mid-western university. Seventy-three percent of the sample ($n = 305$) was female and twenty-seven percent ($n = 102$) was male. Age ranged from 18 to 32 (mean = 18.5, SD = 8.1); 85.9% of the sample was Caucasian, 7.7% African American, 1.4% Asian American, .7% Hispanic American, and 1.4% Other. A total of 290 (71%) completed the second phase of the study.

Measures

The UPPS-P (Lynam, Smith, Cyders, Fischer, & Whiteside, 2007). The UPPS-P is a 59 item scale designed to assess lack of planning, lack of perseverance, negative urgency, positive urgency, and sensation seeking. 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). Estimates of internal consistency reliability for each scale are greater than .80.

Risky Behaviors Scale (RBS: Fischer and Smith, 2004)

The RBS is an 83 item scale designed to assess frequency of engagement in various risky behaviors. Items are assessed from 1 (*never*) to 5 (*often*). The measure is a composite of various risky behavior questionnaires. Specific items from the RBS were used for the study that assessed risky sex and illegal drug use; factor analyses from the parent measure confirmed a two-factor structure for these two domains (Katz, Fromme, & D'Amico, 2000). For illegal drug use, the seven items examined were five point scales assessing use of marijuana, cocaine, LSD, heroin, ecstasy, other illegal drugs, and misuse of prescription drugs. For risky sexual behaviors, the seven items examined were five point scales assessing: sex without a condom, anal sex, sex without birth control, more than one sexual partner at same time, sex in public/outside, sex with involved person, and number of sexual partners.

Procedure

Participants were recruited and sampled at the beginning of the fall semester of their first year of college, and again nine months later, at the end of the spring semester of that year. Participants volunteered for the first session and completed the above questionnaires by attending a group session on campus. They then provided contact information and consented to being contacted to complete the second session. Participants were contacted via telephone and email to schedule wave 2 sessions. For their participation, participants received course credit for an Introduction to Psychology course for the first session and $10 for the second session. This study was reviewed and approved by the Institutional Review Board at the University of Kentucky. Researchers strongly emphasized the confidential nature of participant responses, noting that responses would be kept in a separate location from participant names, which themselves would be kept in a locked file. Researchers also emphasized the ethical requirement that participant responses be treated as confidential. We took this step because of the sensitive nature of some of the study items and the risk of underreporting endorsement of such items.

Data Analysis

Distributions and inter-correlations of target variables—Distributions of the trait measures approximated normality, but there was significant positive skew to the distributions of both risky behavior measures. Use of square root transformations reduced the skew to levels for which structural equation modeling (SEM) has been shown to produce unbiased estimates of population parameters. Skew estimates were 1.16 for risky sex and 2.13 for illegal drug use; kurtosis estimates were 1.02 for risky sex and 3.30 for illegal drug use. Lei and Lomax (2005) found that maximum likelihood estimation produced relatively unbiased population estimates for similar skew and kurtosis values. (We conducted analyses using non-transformed scores and found equivalent results.) Correlations among the five traits were examined initially.

Tests of positive urgency's predictive role—SEM was used to test the fit of the prospective model. In the model, we included sex, the two risky behaviors measured at time 1 (T1), and each dispositional variable measured at T1 (i.e. sensation seeking, negative urgency, positive urgency, lack of planning, and lack of perseverance). We used the Satorra-Bentler correction to the maximum likelihood estimation procedure, because the criteria departed from normality (Satorra & Bentler, 2001). Because we understand the items measuring the five traits to be parallel indicators of a single construct, we represented each trait as a latent variable.

Three parcels (i.e., groups) of items were used as indicators for each trait. The rationale for doing so has been presented elsewhere (Smith et al., 2007): it involves improving the reliability and normal distribution approximation of construct indicators and facilitating tests of complex models represented by numerous individual items. Each trait we studied has been shown to be

unidimensional in independent, prior factor analyses (Cyders et al., 2007; Whiteside & Lynam, 2001), so the use of parcels was unlikely to have masked scale multidimensionality.

We treated the composite scores for the risky behaviors as measured variables, not as latent variables. We did so because the items contributing to the composites are not parallel indicators of a single, common construct. Neither risky sexual behavior nor illegal drug use is a homogeneous construct, for which each form of the behavior (e.g., sex without a condom and sex with multiple partners) is a parallel indicator. By summing the items to construct measured variables, we are providing a composite index of a category of risky behavior. We also included a dichotomous measure of biological sex.

To measure model fit, we relied on four standard 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). CFI and TLI values of .95 or greater, RMSEA values of .06 or lower, and SRMR values of .09 or lower are thought to represent good fit (Browne & Cudeck, 1993; Hu & Bentler, 1999; Kline, 2005). The statistical modeling program used to model fit was Mplus (Muthén & Muthén, 2004).

Results

Participation Attrition

Individuals who participated in both waves of the study did not differ from those who participated in only the first wave on any demographic, criterion, or trait variable. Therefore, it was concluded that data were missing at random. Missing data were therefore imputed using the expectation maximization (EM) procedure, which has been shown to produce more accurate estimates of population parameters than do other methods, such as deletion of missing cases or mean substitution (Enders, 2006).

Correlations Among the Five Dispositions to Rash Action

As anticipated, the five traits tended to be moderately correlated. The highest inter-correlations, as expected, were from traits identified as facets of a common higher-order construct. Maximum likelihood estimates of correlations ranged from $-.03$ (sensation seeking and lack of perseverance) to .67 (positive and negative urgency). The median correlation was .38, or 14.4% shared variance (see Table 1).

Prospective Model of the Prediction of Illegal Drug Use and Risky Sexual Behavior

Analyses using SEM were run to test a model in which biological sex, illegal drug use, risky sexual behaviors, positive urgency, negative urgency, sensation seeking, lack of planning, and lack of perseverance at T1 all predicted illegal drug use and risky sexual behaviors at time 2 (T2). All T1 variables were allowed to correlate, as were the two T2 criterion variables. Figure 1 presents the model, showing only significant paths of prediction for the criterion variables. The model fit the data well: CFI = .96, NNFI = .95, RMSEA = .05 (90% confidence interval: .04 –.06), SRMR = .04.

Examining the cross-sectional correlations at the start of college, there was little discrimination among the predictors. All five traits and male sex correlated with illegal drug use, and sensation seeking, negative urgency, and lack of planning correlated with risky sex.

Concerning prospective prediction, as Figure 1 shows, illegal drug use and risky sexual behaviors were relatively stable across the first year of college. To understand the nature of the stability and change, we examined frequencies of individual items for each behavior. For illegal drug use, the bulk of the change appears to have been due to increased marijuana use:

there was a 48% increase in the number of students who had used marijuana; changes in use of the other drugs tended to be smaller. For risky sex, the bulk of the change appears to have been due to increases in having sex without a condom (a 107% increase in having done so) and increases in number of sexual partners (a 29% increase in having had sex with 1–5 partners and a 67% increase in having had sex with 6–10 partners).

Despite the overall stability of the risky behaviors, sex nevertheless predicted change in both behaviors, even when controlling for T1 levels on the behaviors and on the five dispositions to rash action. Male gender was associated with greater increases in illegal drug use, whereas female gender was associated with greater increases in risky sex during this time period.

Our predictions concerning positive urgency were confirmed. Positive urgency predicted increased illegal drug use and risky sexual behavior at T2, after controlling for all T1 risky behaviors, sex, and the other traits. It was the only predictor of increased illegal drug use. Interestingly, both sensation seeking and lack of perseverance also predicted T2 risky sexual behaviors, again after controlling for biological sex, T1 risky behavior, and all the other traits. It thus appears that positive urgency, sensation seeking, and lack of perseverance each predict a portion of the increase in risky sexual behavior during the first year of college. Negative urgency did not predict any T2 criterion variables.

Thus, uncorrected cross-sectional associations between the five traits and the two risky behaviors revealed little discrimination in the predictive roles of the traits at T1. However, when the predictive role of each trait was corrected for its overlap with the other traits, only positive urgency predicted increases in both risky behaviors across the first year of college.

Discussion

The crucial contribution of this research is to highlight the role of rash responses to positive affect in risk for increased involvement in risky sex and illegal drug use. Individuals vary in the disposition to engage in rash acts when experiencing an extremely positive mood (Cyders et al., 2007a), and that variability predicts subsequent increases in two risky behaviors: risky sex and illegal drug use. Positive urgency predicted engagement in those behaviors at the end of the first year of college, even after controlling for (a) engagement in the behaviors at the start of college, (b) individual differences in sensation seeking, negative urgency, lack of planning, and lack of perseverance, (c) biological sex, and (d) engagement in another risky behavior at the start of college. It did so even though the target behaviors were themselves quite stable across the prospective interval. These findings, together with the demonstration by Cyders et al. (in press) that positive urgency predicted increased problem drinking during the first year of college, point clearly to the importance of positive mood-based rash action as one part of the risk process for this group.

The findings are important for theory. Individuals appear to vary in their ability to maintain awareness of their long-term interests when they are experiencing intense affect (Davidson, 2003). Although much of the focus in this area of research has been on negative mood states, the same process may apply to positive mood states. For example, the experience of intense sexual attraction, and the departure from baseline affect it brings, may undermine (a) one's ability to consider whether acting on the attraction is in one's long-term interests, or (b) one's ability to act on the attraction in a way that is consistent with one's long-term personal and health interests (e.g., use a condom). Perhaps variability in positive urgency reflects individual differences in this tendency to act on positive mood in ill-advised ways.

Concerning negative emotion, Muraven and Baumeister (2000) have argued that the effort necessary to regulate one's mood once it has departed significantly from one's baseline emotion can deplete one's cognitive resources, and hence one's ability to control one's behavior: rash

action becomes more likely when one is also working to regulate one's negative mood state. Whether a similar process operates with respect to extreme positive mood states, such that processing of one's extremely positive mood compromises self-control behaviors, has not yet been investigated.

The findings may also be important practically, because engagement in these behaviors has been shown to have profoundly negative health consequences, such as contraction of STDs, increased vulnerability to infection, and death. In recent years, researchers have developed very successful interventions to help individuals manage their negative affect, such as dialectical behavior therapy (Linehan, 1993). The present findings offer the interesting implication that there may be a need for intervention programs geared toward the safe management of very positive mood states. Perhaps some form of training designed to help high positive urgency individuals maintain consideration of their long-term interests, their health, and other factors when experiencing very positive mood would be useful.

Although our emphasis on positive urgency did not lead us to predict that sensation seeking and lack of perseverance would also predict increases in risky sexual behavior, those findings are not surprising. It is certainly plausible that both the tendency to engage in rash action when in a very positive mood, and the tendency to seek new, thrilling sensations, would predict increases in risky sexual behavior over time. It is also plausible that a failure to persevere on tasks might predict subsequent failure to use condoms, since condom use requires one to both follow through and purchase condoms and persist in using them, even when one (or one's partner) is not so inclined. Because failure to use condoms accounted for a substantial portion of the increase in risky sexual behavior, it may be that lack of perseverance primarily predicted that behavior.

We have, of course, only studied one component of a risk model. Ultimately, the role of positive urgency will need to be integrated with a number of other risk processes. For example, work is progressing on how best to integrate dispositional and psychosocial learning processes. In the alcohol literature, the acquired preparedness model of risk describes a process in which traits, such as positive urgency, both help shape the learning process and interact with what is learned (Smith & Anderson, 2001; Smith, Williams, Cyders, & Kelley, 2006). Integration of positive urgency with other risk factors as well, such as environmental circumstances or genetic dispositions specific to a given risky behavior, may also be fruitful for explaining why some individuals engage in these behaviors, while others do not.

The present findings must be understood in the context of the limitations of the study. First, positive urgency added only a small amount of incremental predictive variance for the two risky behaviors. We believe this limitation may not be a significant one, because the risky behaviors were stable across the longitudinal period studied and because of the tight statistical controls we employed. Nevertheless, it may be the case that positive urgency plays a bigger role in explaining the onset of some of these behaviors earlier in development. This possibility requires investigation.

Two other limitations of our study relate to the demographics of the sample observed. A majority of our sample was female. Perhaps with a larger male sample, the prospective role of gender might look different. This problem may not be a serious one, however. Our inclusion of 102 men made it possible to assess gender effects in a reliable way, and our cross-sectional findings were similar those of previous research. Studies have found higher prevalence rates of many risky behaviors among males than females (e.g., Staton et al., 1999). We found the same thing for illegal drug use, but not for risky sexual behavior at T1. Future research should investigate positive urgency's potential role in the risk process in larger samples of men.

Also, a majority of the sample identified themselves as Caucasian, with only 7.7 percent identifying as African American. Racial differences in drug use have been found among African American and Caucasian adolescents (Bachman, Wallace, O'Malley, Johnston, Kurth, & Neighbors, 1991). At present, we do not know whether positive urgency plays a similar role for African Americans or members of other minority groups. Nor do we know whether positive urgency interacts with other risk factors in similar ways for different minority groups. It is important to investigate these and other risk models using sufficiently large minority samples.

In sum, positive urgency did predict subsequent increases in two risky behaviors across the first year of college. These findings provide a clear indication of the need to investigate a relatively little-appreciated component of the risk process: the tendency to act rashly when experiencing extremely positive moods. Further investigation of this trait, its relation to affective lability and other important risk factors, and its possible role in other risky behaviors may prove worthwhile.

Acknowledgments

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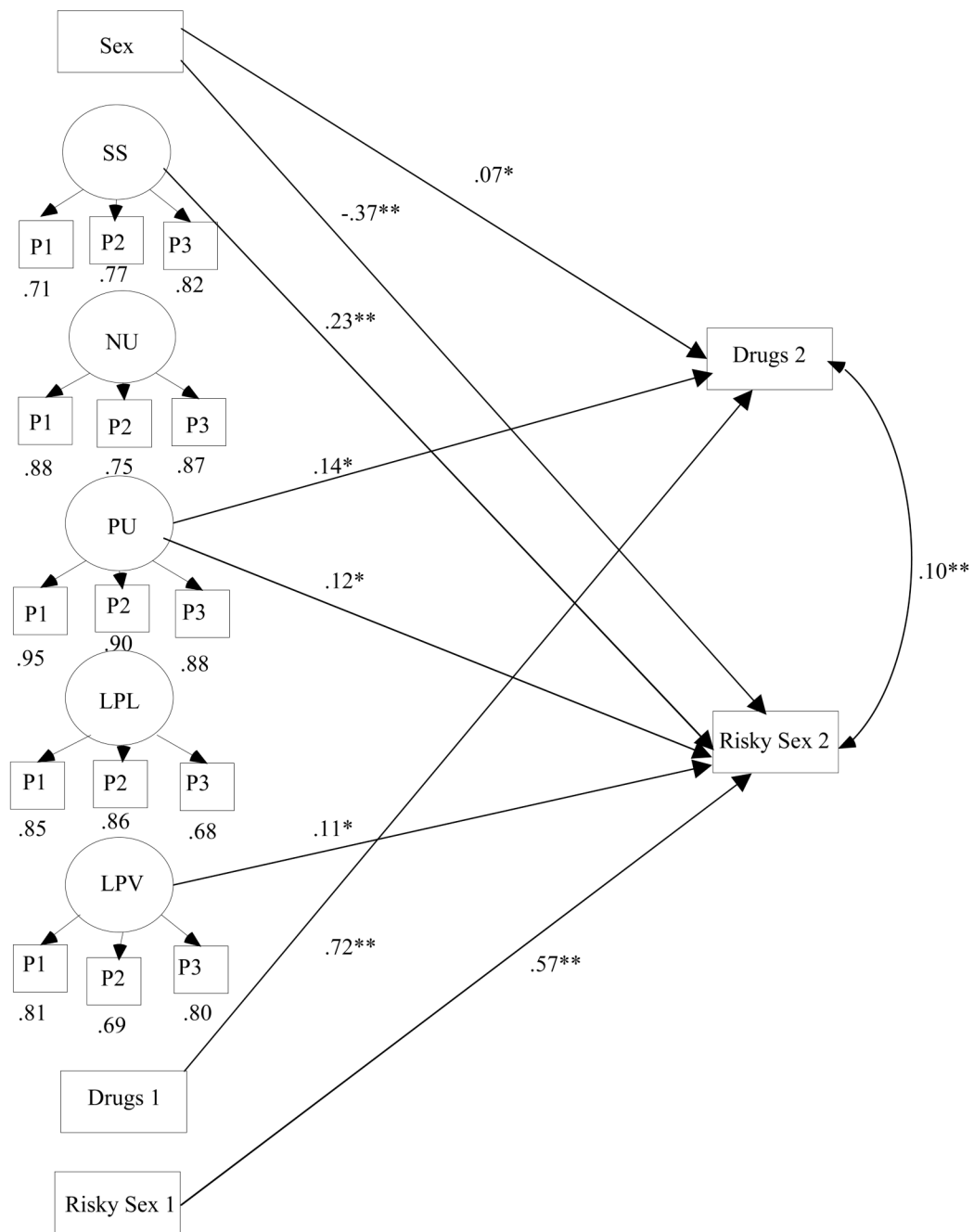
Figure 1.
This figure depicts the longitudinal structural equation model of the relationships among sex, sensation seeking, negative urgency, positive urgency, lack of planning, lack of perseverance, illegal drug use, and risky sexual behaviors. The traits and target behaviors were measured at time one and the behaviors again at T2. 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; SS: sensation seeking; NU: negative urgency; PU: positive urgency; LPL: lack of planning; LPV: lack of perseverance; Drugs: composite illegal drug use score; Risky Sex: composite risky

sexual behaviors score. For ease of presentation, error variances are not depicted. Additionally, all T1 variables were allowed to inter-correlate, as were the two T2 criterion variables. Figure 1 presents the model, showing only significant paths with standardized coefficients and omitting T1 cross-sectional correlations, which are presented in table 1.

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

Table 1

Associations of study variables at T1

	SS	NU	PU	LPL	LPV	ID1	RS1	SEX
SS		.22**	.28**	.45**	−.03	.27**	.09	.20**
NU			.67**	.38**	.39**	.30**	.20**	.10*
PU				.37**	.37**	.34**	.17**	.18**
LPL					.46**	.30**	.10*	.06
LPV						.21**	.08	.18**
ID1							.34**	.10*
RS1								.08
SEX								

Note: SS = sensation seeking, NU = negative urgency, PU = positive urgency, LPL = lack of planning, LPV = lack of perseverance, ID1 = T1 illegal drug use score, RS1 = T1 risky sexual behavior score, SEX = biological sex, with the higher value indicating male sex. Values are maximum likelihood estimates of T1 cross-sectional associations obtained from the SEM model test.

*
p<.05

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p<.01