



Aspects of impulsivity are differentially associated with risky sexual behaviors



Alex Birthrong¹, Robert D. Lutzman*

Department of Psychology, Georgia State University, United States

ARTICLE INFO

Article history:

Received 21 June 2013

Received in revised form 5 September 2013

Accepted 6 September 2013

Available online 29 September 2013

Keywords:

Risky sexual behaviors

Sexual risk taking

Impulsivity

ABSTRACT

Risky sexual behavior (RSB) greatly increases the risk of contracting sexually transmitted infections, including HIV, as well as a host of other negative outcomes. Recent advances in personality research have defined multiple and separate dispositions to engagement in impulsive behaviors, including RSB. Little is known concerning the ways in which aspects of impulsivity place individuals at risk for various types of RSB. The purpose of the current study, therefore, was to further clarify the unique ways in which aspects of impulsivity were differentially associated with various forms of RSB within a large, diverse sample of university students ages 18-to-24 years ($N = 917$). Results suggest low self-control confers a general risk while a tendency toward impulsive behavior in the context of intense emotion confers a more specific risk as for various types of RSB. The current study confirms the importance of focusing on both various pathways to impulsive behaviors as well as specific types of RSB.

© 2013 Elsevier Ltd. All rights reserved.

1. Introduction

Sex is a universal human behavior (Wellings, 2006). Sexual behavior, however, can vary greatly among individuals in terms of risk of harm and related health outcomes. Risky sexual behavior (RSB), or sexual behavior potentially harmful to one's physical or mental health, has been shown to greatly increase the risk of contracting sexually transmitted infections (STIs), including HIV/AIDS (World Health Organization, 2002). Considering the substantive impact of these consequences, it is important to identify risk factors associated with this type of high-risk behavior. Empirical and theoretical findings suggest that one promising avenue for investigation is personality, in general, and impulsivity, in particular (Horvath & Zuckerman, 1993). Advances in personality research have defined multiple and separate dispositions to engagement in risky behavior, including RSB. However, with the exception of Sensation Seeking, findings within the extant literature have yielded no clear consensus as to which pathways to impulsivity provide the most utility in predicting RSB. These varied findings are likely due to methodological differences, as the few existing studies examining this association have utilized varied and often narrowed definitions of RSB (Deckman & DeWall, 2011). As no existing studies have specifically examined the associations

between various impulsivity-related pathways and specific types of RSB among university students – a demographic known to frequently engage in unsafe sexual practices (LaBrie & Earleywine, 2000; Staton et al., 1999), there is a need for further clarification of these relations within this population. The purpose of the current study, therefore, was to address equivocal findings within the extant literature by further clarifying the unique ways in which facets of impulsivity differentially predict RSB as defined both as a broad, unidimensional construct, as well as more narrowly, as specific types of behaviors, within a large sample of university students. Participants were university students because of the heightened likelihood of risky sexual practices within this population (LaBrie & Earleywine, 2000; Staton et al., 1999).

1.1. Risky sexual behaviors (RSB)

High-risk sexual behavior includes behaviors such as having a large number of sexual partners, failure to use birth control or contraceptive devices, and having sex after consuming alcohol or drugs (Aral, 2001; Cook & Clark, 2005), among others. Although not always leading to negative health outcomes, these behaviors have been shown to significantly increase the likelihood of, among other potential outcomes, unplanned pregnancy and contracting or transmitting sexually transmitted infections (STIs) (WHO, 2002; Aral, 2001).

With regard to RSB, university students occupy a particularly risky demographic. For example, LaBrie and Earleywine (2000) found that 65% of an undergraduate sample reported engaging in sex without a condom – a common and unsafe sexual behavior.

* Corresponding author. Address: Department of Psychology, Georgia State University, PO Box 5010, Atlanta, GA 30307, United States. Tel.: +1 404 413 6304.

E-mail address: rlutzman@gsu.edu (R.D. Lutzman).

¹ Alex Birthrong is now with the Department of Psychology, University of North Carolina, Greensboro.

Moreover, treatment of STIs for US youth ages 15-to-24 years has increased to more than \$6.5 billion (Chesson, Blandford, Gift, Tao, & Irwin, 2004). This is particularly concerning, as recent estimates indicate that while in the US 15-to-29 year olds account for only 21% of the population, individuals in this age range account for 39% of new HIV/AIDS infections (CDC, 2012). Additionally, of those newly infected young people, nearly 60% of these infections occur in African Americans (CDC, 2012). Considering the prevalence of RSB and related health outcomes within this demographic, diverse university students are a particularly pertinent group within which to examine pathways to RSB.

1.2. Impulsivity

Whiteside and Lynam's (2001) UPPS model of impulsivity is one of the most widely-used conceptualizations of the impulsivity construct. This model posits four constructs associated with impulsive behavior: Sensation Seeking, a tendency to engage in rash action; Urgency, a tendency toward rash action during periods of intense affect; (lack of) Premeditation, characterized by a poor ability to think through the consequences of one's actions; and (lack of) Perseverance, characterized by difficulty in following through with tasks from beginning to end. Subsequent research has since demonstrated the importance of separating Urgency into Positive and Negative Urgency, based on differing temperamental tendencies toward rash action during periods of intense positive and negative affect, respectively (Cyders & Smith, 2007, 2008). Various aspects of impulsivity have consistently been found to be associated with various externalizing behaviors, including aggression (Lutzman, Vaidya, Watson, & Clark, 2011), substance use and misuse (Whiteside & Lynam, 2003), and risky sexual behavior (Deckman & DeWall, 2011; Miller, Flory, Lynam, & Leukefeld, 2003). Taken together, these associations clearly evidence the importance of impulsivity-related behavior in explicating a variety of problematic behavioral outcomes.

1.3. Impulsivity and RSB

As alluded to earlier, engaging in RSB may result, at least in part, from a failure to inhibit one's urges during moments of arousal (Cyders & Smith, 2007, 2008). Extant research has identified aspects of impulsivity as differentially predicting RSB; however, there is little empirical data regarding associations with distinct forms of RSB. Various studies, using the UPPS model, have taken together, found all five dimensions of impulsivity to be related to unidimensional assessments of RSB, or aspects of RSB, in both student and community samples of young adults (e.g., Donohew et al., 2000; Miller et al., 2003).

Sensation Seeking is one pathway that has been shown to be associated with risky behavior, including RSB. Deckman and DeWall (2011), for example, recently found Sensation Seeking to be associated with RSB within a sample of undergraduate university students across one semester. They found that, regardless of whether alcohol and drug use were controlled for, Sensation Seeking remained a significant predictor of RSB. Additionally, several other lines of research have shown Sensation Seeking to be related to RSB, underscoring the critical role of this trait in risky sexual activity (e.g., Donohew et al., 2000; Miller et al., 2003).

Further, the facet of Urgency, more recently separated into Positive and Negative Urgency, has also been shown to be associated with RSB (e.g., Deckman & DeWall, 2011; Zapolski, Cyders, & Smith, 2009). For example, two recent studies found Negative Urgency to predict RSB when controlling for alcohol and drug use (Deckman & DeWall, 2011) and alcohol and marijuana use (Simons, Maisto, & Wray, 2010). Less is known concerning associations with Positive Urgency, although the two studies that have been conducted to

date have found Positive Urgency to be associated with RSB (Deckman & DeWall, 2011; Zapolski et al., 2009). Given the large amount of shared variance between these two traits, however, the specificity of these associations remains unclear. Nonetheless, considering these initial findings, as well as documented associations between intense positive affect and risky behaviors such as substance use (Zapolski et al., 2009) and pathological gambling (Cyders et al., 2007), it is likely that the distinction between Positive and Negative Urgency is important to consider in predicting different types of RSB. For example, although some individuals may be likely to engage in various forms of RSB during periods of intense positive affect or elation, or even as a means of seeking excitement, others may be more prone to such behavior when experiencing strong negative affect or distress (Cyders & Smith, 2007; Cyders et al., 2007).

The relation between (lack of) Perseverance and RSB has been more equivocal. Deckman and DeWall (2011), for example, found that, (lack of) Perseverance did not predict lifetime RSB among university students after controlling for alcohol and drug use. Contrastingly, Miller and colleagues (2003) found that (lack of) Perseverance prospectively predicted RSB in young adulthood, predicting age of sexual debut (positively) and number of sexual partners (negatively). Additionally, two studies have found (lack of) Premeditation to be predictive of RSB (Deckman & DeWall, 2011; Miller et al., 2003).

As many types of disparate sexual behaviors may be considered risky, the specificity provided by examining different forms of RSB could provide critical information regarding mechanisms underlying an individual's likelihood of engaging in various forms of RSB. To date, although broad models of personality have been examined in relation to various forms of RSB (for a review see Hoyle, Fejfar, & Miller, 2000), research has yet to examine associations between various pathways to impulsive behaviors and a factor-analytically-derived, multidimensional conceptualization of RSB within university students. The lack of empirical data regarding these associations (for exceptions, see Deckman & DeWall, 2011; Zapolski et al., 2009) underscores the need for further examination using a multidimensional measure of RSB and the inclusion of Positive Urgency.

1.4. Current study

The current study examined cross-sectional data on relations between five pathways to impulsive behavior and various factor-analytically derived presentations of RSB among a large, diverse sample of university students. Given the dearth of research on specific types of RSB within this context, findings from the current study should contribute to a greater understanding of the ways in which impulsivity pathways are related to specific types of RSB. In addition to examining associations with RSB as a unitary construct, the current study assessed how various types of risky sexual behavior are uniquely associated with pathways to impulsive behavior. Such an examination provides greater specificity in identifying which pathways are most contributory to high-risk sexual behaviors. Moreover, the inclusion of Positive Urgency provides additional insight into these relations.

Foremost, we expected to find differential associations between aspects of impulsivity and various presentations of RSB. Specifically, because of previous convergent findings of significant associations between RSB, assessed unidimensionally, and Urgency and Sensation Seeking (e.g., Deckman & DeWall, 2011; Donohew et al., 2000; Miller et al., 2003), we expected both Positive and Negative Urgency, as well as Sensation Seeking, to be uniquely associated with overall RSB, in general, and the Risky Sex Acts subscale, in particular. Further, as risky sexual behaviors often involve spontaneity and impulsive action with little thought of

future consequences, particularly behaviors captured by the Impulsive Sexual Behaviors scale, we expected RSB to be associated with (lack of) Premeditation, an aspect of impulsivity characterized by difficulties with self-control (Latzman & Vaidya, 2013) and a tendency toward spontaneity and lack of planning (Whiteside & Lynam, 2001).

2. Method

2.1. Participants

Participants were 917 undergraduate students ages 18–to-24 years ($M_{\text{age}} = 19.5$; 74.5% female) who completed an online survey in partial fulfillment of a research exposure requirement for an introductory psychology course at a large public Southeastern university. The sample was racially diverse with 39% of participants self-identifying as Black/African-American, 32% as White, and 14% as Asian/Asian-American. Half the sample (50.1%) reported being in a romantic relationship.

2.2. Measures

2.2.1. UPPS-P Impulsivity Scale

The UPPS-P Impulsivity Scale (UPPS-P; Whiteside & Lynam, 2001; Cyders et al., 2007) is a 59-item instrument designed to assess distinct personality pathways to impulsive behavior. The UPPS-P has been found to have good reliability and discriminant validity (Whiteside & Lynam, 2001; Cyders et al., 2007). The five subscales that comprise the UPPS-P are Negative Urgency, Positive Urgency, Sensation Seeking, (lack of) Premeditation, and (lack of) Perseverance. Participants respond to items using a 5-point Likert scale ranging from “Strongly Agree” to “Strongly Disagree”. In the current sample, internal consistencies ranged from .95 for Positive Urgency to .84 for (lack of) Perseverance.

2.2.2. Sexual Risk Survey

The Sexual Risk Survey (SRS; Turchik & Garske, 2009) is a 23-item instrument designed to assess a broad range of sexual behaviors within the last six months. The SRS has been shown to demonstrate good reliability and convergent validity (Turchik & Garske, 2009). In addition to a total score, the SRS consists of five factor-analytically derived subscales: Sexual Risk Taking with Uncommitted Partners, Risky Sex Acts, Impulsive Sexual Behaviors, Intent to Engage in Risky Sexual Behaviors and Risky Anal Sex Acts. Participants respond to items by indicating the number of times they have engaged in a particular behavior during the last six months. In the current sample, the internal consistency for the total score was .79 and internal consistencies of subscales ranged from .63 for Risky Anal Sex Acts to .72 for Sexual Risk Taking with Uncommitted Partners.

2.3. Analyses

To account for positive skewness, and consistent with previous RSB research (Turchik & Garske, 2009), RSB data were logarithmically (i.e., \log_{10}) transformed prior to analyses (Howell, 2007). We first conducted zero-order correlations to examine bivariate associations among all study variables. Next, hierarchical multiple linear regression analyses were conducted to investigate unique contributions of various pathways to impulsive behaviors to RSB. In addition to impulsivity, only those demographic variables (gender [0 = male, 1 = female], race [1 = White, 0 = Other], and relationship status [0 = single, 1 = in a relationship]) significantly associated with each dependent variable were included as covariates in Step 1 when appropriate. Given the large number of analyses

conducted, to guard against Type I error, a p value of .01 was used as a cut-off for statistical significance.

3. Results

3.1. Interrelations among aspects of impulsivity and RSB

Interrelations among impulsivity and RSB are presented in Table 1. All aspects of impulsivity were significantly positively correlated with each other with the exception of associations between Sensation Seeking and (lack of) Premeditation which were uncorrelated and Sensation Seeking and (lack of) Perseverance that evidenced a small, negative association ($r = -.07$). Additionally, all forms of RSB were moderately to highly correlated with each other ($Mdn r = .33$) and with the total RSB score. Further, consistent with expectations, in general, impulsivity was associated with all forms of RSB as well as total RSB. With few exceptions, the magnitude of associations for all forms of RSB were largely equivalent with all aspects of impulsivity ($Mdn r = .15$; ranging from .03 for Sensation Seeking with Risky Anal Sex Acts to .24 for Positive Urgency and Impulsive Sexual Behavior). Prior to conducting multiple regression analyses, we examined the degree to which predictors are correlated. Variance Inflation Factor (VIF) and Tolerance indices of all five UPPS-P subscales confirmed our data did not have issues related to multicollinearity ($Mean VIF = 1.99$ and $Mean Tolerance = .55$; Cohen, Cohen, West, & Aiken, 2003).

3.2. Predicting RSB from aspects of impulsivity

Six hierarchical multiple regressions were performed to examine the unique contributions of various aspects of impulsivity in the explanation of the five forms of RSB as well as the total RSB score. As described earlier, age, race, and gender were included in all models to assess the contribution of impulsivity after controlling for demographic variables.

Table 2 presents results of the regression analyses across all forms of RSB and the total RSB score. In Step 1, demographics produced significant main effects in the explanation of all forms of RSB as well as the total RSB score. Specifically, with the exception of Risky Sex Acts, gender was significantly associated with all forms of RSB including the total score (all $\beta s > |.08|$, all $t s > |2.57|$, all $p s < .01$) with males being more likely to engage in RSB than females. The strongest association with gender was for Intent to Engage in RSB. Additionally, race was significantly associated with Risky Sex Acts and RSB total score ($\beta s > |.11|$, $t s > |3.48|$, $p s < .01$), with Whites evidencing higher rates than non-Whites. Age was positively associated with Risky Sex Acts and Sexual Risk Taking with Uncommitted Partners ($\beta s > |.10|$, $t s > |3.12|$, $p s < .01$).

In Step 2, impulsivity significantly accounted for an additional 3–7% increase in variance explained beyond demographics for all forms of RSB. Specifically, with the exception of Risky Anal Sex Acts and Intent to Engage, (lack of) Premeditation evidenced significant main effects in the explanation of all forms of RSB as well as total RSB (all $\beta s > .14$, all $t s > 3.34$, all $p s < .01$). Further, Positive Urgency was uniquely positively associated with Intent to Engage ($\beta = .14$, $t = 2.92$, $p < .01$). Negative Urgency was uniquely associated with Risky Sex Acts and Total RSB ($\beta s > .12$, $t s > 2.53$, $p < .01$). Sensation Seeking was not significantly associated with any RSB scales.

4. Discussion

Although various forms of impulsivity have been broadly linked to RSB, there has been a surprising lack of empirical research on associations between impulsivity and specific types of RSB. This is likely due, in part, to the heterogeneous nature of RSB, a

Table 1
Bivariate correlations among impulsivity and risky sexual behaviors.

	Impulsivity					Risky sexual behaviors					
	Neg Urge	(lack of) Premed	(lack of) Persev	Sen seeking	Pos Urge	Risky Anal	Intent to Engage	Impulsive behavior	Risky Sex Acts	Uncomm partners	RSB Total
<i>Impulsivity</i>											
Neg Urgency (lack of) Premed	.88										
(lack of) Persev	.33*	.86									
Sen seeking	.43*	.66*	.84								
Pos Urgency	.23*	.05	-.11	.86							
	.73*	.32*	.41*	.29*	.95						
<i>Risky sexual behaviors</i>											
Risky Anal	.14*	.07	.08*	.03	.17*	.63					
Intent to Engage	.15*	.14*	.12*	.15*	.22*	.30*	.65				
Impulsive behavior	.20*	.20*	.14*	.15*	.24*	.38*	.61*	.71			
Risky Sex Acts	.12*	.17*	.09*	.06	.04	.37*	.22*	.34*	.68		
Uncomm partners	.15*	.19*	.13*	.07	.18*	.43*	.45*	.63*	.47*	.72	
Total RSB	.16*	.21*	.12*	.10*	.11*	.50*	.41*	.58*	.94*	.66*	.79
Relationship status	-.03	-.03	.03	.01	-.07	.07	-.07	.01	.35*	.06	.28*
Age	-.03	-.03	.03	.01	-.07	.06	.07	.01	.16*	.12*	.16*
Race	.02	-.03	.02	.09*	-.02	.02	.09*	.06	.15*	-.01	.14*
Gender	-.01	-.03	-.07	-.19*	-.15*	-.08*	-.33*	-.16*	.00	-.09*	-.07*
Mean	25.48	20.67	19.17	32.71	27.44	.19	3.73	10.99	37.21	16.30	5.26
SD	6.68	5.33	4.94	7.02	9.71	.55	7.61	21.01	72.92	40.72	13.67
Range	11–44	11–44	10–35	12–48	14–56	0–248	0–140	5–361	0–745	3–1157	2–2207

Note: N = 917. Internal consistencies (Cronbach's alpha) are shown in **boldfaced italics** along the diagonal. Neg Urgency = Negative Urgency; (lack of) Premed = (lack of) Premeditation; (lack of) Persev = (lack of) Perseverance; sen seeking = sensation seeking; Pos Urgency = Positive Urgency; Risky Anal = Risky Anal Sex Acts; Intent to Engage = Intent to Engage in Risky Sexual Behavior; impulsive behavior = Impulsive Sexual Behavior; uncomm partners = sexual risk taking with uncommitted partners; RSB = risky sexual behaviors.

* p < .01.

Table 2
Predicting risky sexual behavior from impulsivity pathways.

	Risky Anal Sex Acts		Intent to Engage in RSB		Impulsive Sexual Behavior		Risky Sex Acts		Sexual Risk taking with uncommitted partners		Total RSB	
	β	t	β	t	β	t	β	t	β	t	β	t
<i>Demographics</i>												
R ²	.01		.12		.03		.03		.13		.12	
Age	-.	-.	.07	2.11	-.	-.	.13	4.20*	.10	3.12*	.13	4.22
Race	-.	-.	.07	2.08	-.	-.	.12	3.97*	-.	-.	.11	3.48*
Gender	-.09	-2.75*	-.32	-10.37*	-.18	-5.40*	-.	-.	-.08	-2.57*	-.09	-2.92*
Relationship Status	.08	2.48*	-.05	-1.45	-.	-.	.33	10.84*	-.	-.	.27	8.46*
<i>Impulsivity</i>												
ΔR ²	.03		.04		.07		.04		.05		.05	
Negative Urgency	.04	.73	.01	.21	.06	1.21	.14	3.07*	.01	.18	.12	2.53*
(lack of) Premed	.02	.33	.10	2.41	.16	3.72*	.14	3.34*	.19	4.29*	.17	4.17*
(lack of) Persev	-.02	-.33	-.03	-.58	-.05	-1.03	-.04	-.99	-.06	-1.23	-.06	-1.39
Sensation seeking	-.04	1.00	.03	.83	.05	1.48	.01	.32	-.01	-.21	.01	.41
Positive Urgency	.15	3.01*	.14	2.92*	.13	2.73*	-.05	-1.01	.14	2.81	.02	.49

Note: N = 917. (lack of) Premed = (lack of) Premeditation; (lack of) Persev = (lack of) Perseverance; RSB = risky sexual behaviors. Final step shown. F-test of change from Step 1 to Step 2 significant for all regressions (p < .001).

* p < .01.

construct that is most commonly measured as a unitary construct using a number of different approaches. Considering the broad public health impact of RSB with regard to sexually-transmitted diseases including HIV/AIDS (e.g., CDC, 2012) and other physical and mental health concerns (WHO, 2002), elucidating both general and specific risk factors associated with RSB is critical. To begin to further characterize common and distinct associations between impulsivity and RSB, the current study aimed to clarify the unique associations between facets of impulsivity and RSB within a large, diverse sample of university students. Specifically, we employed a factor-analytically derived multidimensional assessment of

impulsivity pathways and RSB. Results of bivariate and multivariate analyses suggest both common and distinct associations between pathways to impulsive behavior and various types of RSB. Results suggest (lack of) Premeditation, an indicator of low self-control (Lutzman & Vaidya, 2013), significantly explains various types of RSB, and that Positive Urgency, a tendency toward impulsive behaviors during periods of positive emotion, is related to intentions of engaging in RSB. Nonetheless, both general and specific associations emerged.

Specifically, consistent with expectations, with the exception of Risky Anal Sex and Intent to Engage, (lack of) Premeditation

emerged as a significant unique (positive) predictor of all types of RSB as well as overall RSB. Positive Urgency was found to be uniquely associated with Intent to Engage in RSB. In addition to evidence for more general associations, results suggest specificity as well. Negative Urgency was uniquely associated with both Risky Sex Acts and Total RSB. Contrary to expectations and previous research, neither Sensation Seeking nor (lack of) Perseveration evidenced unique associations with any type of RSB or overall RSB. The lack of significance between Sensation Seeking and RSB in this sample was particularly surprising given that Sensation Seeking has been repeatedly found to be uniquely associated with RSB (Hoyle et al., 2000). Nonetheless, this could be a result of the strength of the association between RSB and other aspects of impulsivity (e.g., Urgency) accounting for increased shared variance as we did find a significant, albeit relatively small, association between Sensation Seeking and RSB at the bivariate level. Regardless, taken together, in addition to confirming the importance of examining lower-order facets of the multidimensional impulsivity construct, results underscore the need to study specific types of RSB rather than simply taking a heterogeneous, single-index approach to the assessment of this form of behavior.

As just noted, Positive Urgency, emerged as a significant predictor of Intent to Engage in RSB. Along with previous research (e.g., Deckman & DeWall, 2011; Zapolski et al., 2009), the association found in the current study between Positive Urgency, the tendency toward rash action during periods of intense positive emotion, and Intent to Engage in Risky Sexual Behavior provides further evidence for the role of heightened emotionality in RSB. This is also consistent with previous research that has found associations between intense positive affect and other risky behaviors including substance use (Zapolski et al., 2009) and pathological gambling (Cyders et al., 2007). In addition to providing evidence of the role of strong emotional states in RSB, these results also strongly underscore the importance of differentiating Positive and Negative Urgency when examining RSB specifically (Cyders et al., 2007), and risky behaviors more broadly.

4.1. Limitations

The cross-sectional, correlational nature of our data does not allow for causal inferences. Thus, it will be important for future research to prospectively examine the contribution of impulsivity to the prediction of various types of RSB. Our use of all self-report questionnaires results in potential concerns regarding common method variance. Future research using multi-informant and multi-method approaches is needed. Additionally, although sex was included as a covariate in our multivariate models, the use of a predominantly female undergraduate sample may limit the generalizability of our findings. Although outside the scope of the current study, future research should explicitly examine sex-differences in associations within a more mixed sample. Further, all we were not able to examine sexual-orientation in the current study, future studies should include this potentially important variable. Nonetheless, the racially diverse nature of our sample relative to the majority of samples reported in the literature represents a significant strength.

Although we used a factor-analytically derived multidimensional instrument to assess RSB, other rationally-derived conceptualizations have been used previously (e.g., Hoyle et al., 2000). As such, there may be other types of RSB that we failed to assess that also may have differential relations with impulsivity. Specifically, RSB in the current study was conceptualized as any behavior that may prove harmful to one's physical or mental health. It may be important to expand definitions of RSB in future research to include behaviors that could, for example, affect one's reputation, employment, or social relationships (Deckman & DeWall, 2011).

Additionally, it is important to note that although impulsivity was found to capture a relatively small amount of variance in RSB (3–7%), this still represents an important contribution given the significant public health burden associated with these types of behavior.

4.2. Conclusions

Limitations notwithstanding, results of the current study confirm the broad dimension of impulsivity as representing a general diathesis to RSB with lower-order components conferring more specific risks for particular forms of RSB, underscoring the assertion that individuals engage in RSB for a variety of numerous and diverse reasons. These findings confirm the importance of focusing on both lower-order components of impulsivity as well as specific types of RSB in future research. Further, results of the current study suggest potential impulsivity-based avenues through which targeted intervention and prevention efforts may be most influential for individuals engaging in specific types of RSB. Such an effort is particularly important among young people in general, and young minorities more specifically, a section of the population that accounts for the largest proportion of new HIV infections in the US (CDC, 2012).

References

- Aral, S. (2001). Sexually transmitted diseases: Magnitude, determinants and consequences. *International Journal of STD & AIDS*, 12, 211–215. <http://dx.doi.org/10.1258/0956462011922814>.
- Chesson, H. W., Blandford, J. M., Gift, T. L., Tao, G., & Irwin, K. L. (2004). The estimated direct medical cost of sexually transmitted diseases among American youth, 2000. *Perspectives on Sexual and Reproductive Health*, 36, 11–19. <http://dx.doi.org/10.1363/3601104>.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences*. New Jersey: Lawrence Erlbaum Associates.
- Cook, R. L., & Clark, D. B. (2005). Is there an association between alcohol consumption and sexually transmitted diseases? A systematic review. *Sexually Transmitted Diseases*, 32(3), 156–164. <http://dx.doi.org/10.1097/01.olq.0000151418.03899.97>.
- Cyders, M. A., & Smith, G. T. (2007). Mood-based rash action and its components: Positive and negative urgency. *Personality and Individual Differences*, 43(4), 839–850. <http://dx.doi.org/10.1016/j.paid.2007.02.008>.
- Cyders, M. A., & Smith, G. T. (2008). Emotion-based dispositions to rash action: Positive and negative urgency. *Psychological Bulletin*, 134(6), 807–828. <http://dx.doi.org/10.1037/a0013341>.
- Cyders, M. A., Smith, G. T., Spillane, N. S., Fischer, S., Annus, A. M., & Peterson, C. (2007). Integration of impulsivity and positive mood to predict risky behavior: Development and validation of a measure of positive urgency. *Psychological Assessment*, 19(1), 107–118. <http://dx.doi.org/10.1037/1040-3590.19.1.107>.
- Deckman, T., & DeWall, C. (2011). Negative urgency and risky sexual behaviors: A clarification of the relationship between impulsivity and risky sexual behavior. *Personality and Individual Differences*, 51(5), 674–678. <http://dx.doi.org/10.1016/j.paid.2011.06.004>.
- Donohew, L., Zimmerman, R., Cupp, P. S., Novak, S., Colon, S., & Abell, R. (2000). Sensation seeking, impulsive decision-making, and risky sex: Implications for risk-taking and design of interventions. *Personality and Individual Differences*, 28(6), 1079–1091. [http://dx.doi.org/10.1016/S0191-8869\(99\)00158-0](http://dx.doi.org/10.1016/S0191-8869(99)00158-0).
- Horvath, P., & Zuckerman, M. (1993). Sensation seeking, risk appraisal, and risky behavior. *Personality and Individual Differences*, 14(1), 41–52. [http://dx.doi.org/10.1016/0191-8869\(93\)90173-Z](http://dx.doi.org/10.1016/0191-8869(93)90173-Z).
- Howell, D. C. (2007). *Statistical methods for psychology* (6th ed.). Boston, MA US: PWS-Kent Publishing Co..
- Hoyle, R. H., Fejfar, M. C., & Miller, J. D. (2000). Personality and sexual risk taking: A quantitative review. *Journal of Personality*, 68, 1203–1231. <http://dx.doi.org/10.1111/1467-6494.00132>.
- LaBrie, J. W., & Earleywine, M. (2000). Sexual risk behaviors and alcohol: Higher base rates revealed using the unmatched-count technique. *Journal of Sex Research*, 37, 321–326. <http://dx.doi.org/10.1080/00224490009552054>.
- Lutzman, R. D., & Vaidya, J. G. (2013). Common and distinct associations between aggression and alcohol problems with trait disinhibition. *Journal of Psychopathology and Behavioral Assessment*, 35, 186–196. <http://dx.doi.org/10.1007/s10862-012-9330-5>.
- Lutzman, R. D., Vaidya, J. G., Watson, D., & Clark, L. A. (2011). Components of Disinhibition (vs. Constraint) differentially predict aggression and alcohol use. *European Journal of Personality*, 25, 477–486. <http://dx.doi.org/10.1002/per.821>.

- Miller, J., Flory, K., Lynam, D., & Leukefeld, C. (2003). A test of the four-factor model of impulsivity-related traits. *Personality and Individual Differences*, 34, 1403–1418. [http://dx.doi.org/10.1016/S0191-8869\(02\)00122-8](http://dx.doi.org/10.1016/S0191-8869(02)00122-8).
- Simons, J. S., Maisto, S. A., & Wray, T. B. (2010). Sexual risk taking among young adult dual alcohol and marijuana users. *Addictive Behaviors*, 35(5), 533–536. <http://dx.doi.org/10.1016/j.addbeh.2009.12.026>.
- Staton, M., Leukefeld, C., Logan, T. K., Zimmerman, R., Lynam, D., Milich, R., et al. (1999). Risky sex behavior and substance use among young adults. *Health & Social Work*, 24(2), 147–154. <http://dx.doi.org/10.1093/hsw/24.2.147>.
- Turchik, J. A., & Garske, J. P. (2009). Measurement of sexual risk taking among college students. *Archives of Sexual Behavior*, 38(6), 936–948. <http://dx.doi.org/10.1007/s10508-008-9388-z>.
- Wellings, K. (2006). Sexual behaviour in context: A global perspective. *Lancet*, 368(9548), 1706–1728. [http://dx.doi.org/10.1016/S0140-6736\(06\)69479-8](http://dx.doi.org/10.1016/S0140-6736(06)69479-8).
- Whiteside, S. P., & Lynam, D. R. (2001). The Five Factor Model and impulsivity: Using a structural model of personality to understand impulsivity. *Personality and Individual Differences*, 30(4), 669–689. [http://dx.doi.org/10.1016/S0191-8869\(00\)00064-7](http://dx.doi.org/10.1016/S0191-8869(00)00064-7).
- Whiteside, S. P., & Lynam, D. R. (2003). Understanding the role of impulsivity and externalizing psychopathology in alcohol abuse: Application of the UPPS Impulsive Behavior Scale. *Experimental and Clinical Psychopharmacology*, 11(3), 210–217. <http://dx.doi.org/10.1037/1064-1297.11.3.210>.
- World Health Organization (2002). *Estimation of the incidence and prevalence of sexually transmitted infections*. Geneva: WHO.
- Zapolski, T. B., Cyders, M. A., & Smith, G. T. (2009). Positive urgency predicts illegal drug use and risky sexual behavior. *Psychology of Addictive Behaviors*, 23(2), 348–354. <http://dx.doi.org/10.1037/a0014684>.
- CDC (November, 2012). *HIV among Youth*. Morbidity and Mortality Weekly Report (MMWR). National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Divisions of HIV/AIDS Prevention, Centers for Disease Control and Prevention.