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Negative Urgency: A Personality Predictor of Externalizing Behavior Characterized by Neuroticism, Low Conscientiousness, and Disagreeableness

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Abstract

Negative urgency, the tendency to act rashly when distressed, is characterized by high Neuroticism, low Conscientiousness, and low Agreeableness. Because of this set of characteristics, the authors hypothesized that (1) negative urgency (NU) is a particularly important predictor of externalizing dysfunction; (2) traits that reflect primarily high Neuroticism predict internalizing dysfunction and (3) traits that reflect primarily low Conscientiousness predict those types of externalizing dysfunction that include intense affect less strongly than does NU. In three studies, the authors showed that negative urgency concurrently predicted alcohol dependence symptoms in disordered women, drinking problems and smoker status in pre-adolescents, and aggression, risky sex, illegal drug use, drinking problems, and conduct disorder behavior in college students. High Neuroticism traits predicted internalizing dysfunction but predicted none of these externalizing criteria beyond negative urgency. Low Conscientiousness did not add to prediction from negative urgency, except in a few cases. The tendency toward affect-driven rash action may underlie many externalizing behaviors.

Externalizing dysfunction includes disorders such as alcohol dependence, drug use, aggression, and conduct disorders (Achenbach & Edelbrock, 1978; Krueger & Markon, 2006). As is true for internalizing disorders, such as depression, this set of disorders often involves subjective distress or Neuroticism (Clark, 2005; Sher & Trull, 1994; Widiger,

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2009), which likely explains the correlation between the two domains of dysfunction (Krueger & Markon, 2006). To date, it has not been clear why some individuals with high Neuroticism develop internalizing disorders whereas others develop externalizing disorders.

The aim of this paper is to offer one personality-based explanation for this phenomenon and to report empirical tests of our explanation in three samples. Our explanation is based on differences among traits within the Neuroticism domain of personality. Some lower level traits within the domain, such as trait anxiety and trait depression as measured by the NEO PI-R representation of the five factor model, are characterized primarily by negative emotionality; these Neuroticism traits are highly associated with internalizing dysfunction (Costa & McCrae, 1992). In contrast, the trait of negative urgency (or impulsiveness within the NEO PI-R representation of Neuroticism), which is the tendency to act rashly when experiencing intense negative affect, loads most highly on Neuroticism (loadings ranging from .47 to .61), but also loads substantially on Conscientiousness (loadings from $-.35$ to $-.41$) and Agreeableness (loadings from $-.21$ to $-.37$; Costa & McCrae, 1992; Cyders & Smith, 2008a; and Seibert, Killer, Pryor, Reidy, & Zeichener, 2010). That is, the trait of negative urgency shares variance with high Neuroticism, low Conscientiousness, and low Agreeableness: It thus may represent a personality process by which subjective distress leads to disagreeable rash action, or externalizing behaviors that disrupt the lives of others.

Negative Urgency and Externalizing Behavior

For many externalizing behaviors, it is often the case that individuals engage in them while experiencing intense affect. For example, emotional distress is associated with problem drinking (Fischer, Smith, Annus, & Hendricks, 2007; Sher & Trull, 1994), the use of illegal substances (Substance Abuse and Mental Health Services Administration, 2009), smoking (Conner, Grogan, Fry, Gough, & Higgins, 2009), risky sexual behavior (Trobst, Herbst, Masters, & Costa, 2002), and aggressive acts, at least in some cases (Moeller, Robinson, & Bresin, 2010). Emotional distress may not contribute heavily to other externalizing behaviors. For example, conduct disorder or psychopathic behaviors are often associated with low levels of subjective distress (Newman, MacCoon, Vaughn, & Sadeh, 2005).

There is good reason to believe that negative urgency is associated with those forms of externalizing dysfunction that are associated with emotional distress. Both cross-sectionally and longitudinally, negative urgency predicts quantity of alcohol consumed and problem drinking (e.g., Cyders & Smith, 2008a; Settles, Cyders, & Smith, 2010), as well as the frequency of gambling behaviors and problematic gambling (Cyders & Smith, 2008b). Negative urgency also concurrently predicts illegal drug use and risky sexual behavior (e.g., Verdejo-Garcia, Bechara, Recknor, & Perez-Garcia, 2007). When negative urgency has been compared to traits reflecting primarily low Conscientiousness (lack of planning/low deliberation, and lack of perseverance/low self-discipline), negative urgency predicts problem drinking, pathological gambling, and illegal drug use above and beyond prediction from these other traits. In contrast, the other traits do not predict externalizing behaviors beyond prediction by negative urgency (Cyders, Flory, Rainer, & Smith, 2007; Cyders & Smith, 2008b; Fischer, Stojek, & Collins, 2009; Settles et al., 2010).

Concerning aggression, when negative urgency, lack of planning, and lack of perseverance are considered together, only negative urgency is associated with aggression in both children and adults (Miller, Flory, Lynam, & Leukefeld, 2003; Zapolski, Stairs, Settles, Combs, & Smith, 2010). Likewise, negative urgency, but not measures of low Conscientiousness or low Agreeableness, predicts intimate partner violence, which has a strong affective component, whereas low Conscientiousness and not negative urgency predicts general violent behavior, which has less of an affective component (Derefinko, DeWall, Metze, Walsh, & Lynam, in press). However, Seibert et al. (2010) found no relationship between

negative urgency, low Conscientiousness traits, and aggressive responses in a laboratory paradigm.

There is some evidence that negative urgency explains variance in externalizing behaviors beyond that explained by other traits that load highly on Neuroticism; or, in some cases, in interaction with them. Concerning the latter effect, Fischer et al. (2007) found that among eating disordered women equally high in Neuroticism, negative urgency differentiated those who were also experiencing alcohol-related problems from those who were not. Additionally, Spillane & Smith (2007) found that Neuroticism explained no variance in problem drinking among American Indians and Caucasians, beyond that explained by negative urgency. In both of these studies, Neuroticism was measured without the impulsiveness facet included, in order to separate the roles of general Neuroticism and negative urgency. As noted above, negative urgency predicted intimate partner violence and other Neuroticism traits did not (Derefinko et al., in press).

Current Studies

We report on the results of three studies designed to evaluate this model. In the first study we compared negative urgency, two traits that load primarily on Neuroticism, and one trait that loads on high Neuroticism and low Agreeableness in their ability to differentiate among four groups: women diagnosed with primary alcohol dependence, women diagnosed with primary major depression, women with subclinical depression and/or subclinical alcohol dependence, and control women. We studied women because externalizing behaviors have been understudied in women. We also tested the incremental predictive power of each trait using regression models. When considering each trait's predictive power above and beyond the other traits, we anticipated that negative urgency would predict alcohol dependence incrementally and the other traits would not, and that the high Neuroticism traits would predict major depression incrementally and the other traits would not.

In part to rule out the possibility that pathoplastic effects explain the results of the first study, in the second study we compared negative urgency, negative affectivity, and two traits reflecting low Conscientiousness in the concurrent prediction of problem drinking, early onset smoking, and depression in a sample of 5th grade girls. We then conducted the same tests in a sample of 5th grade boys, to test whether the results generalize across sex. Again considering each trait's ability to predict beyond the other traits, we anticipated that negative urgency would predict the externalizing behaviors incrementally, but negative affectivity and the low Conscientiousness traits would not. We also expected that depression would be predicted incrementally by negative affectivity but not by either negative urgency or the low Conscientiousness traits. In the third study, we tested whether the processes observed in studies one and two applied to a wider range of externalizing behavior in a third age group. We compared negative urgency, negative affectivity, lack of planning and lack of perseverance in the concurrent prediction of aggression, risky sexual behavior, illegal drug use, problem drinking, and general delinquency in college freshmen. We anticipated that negative urgency would predict the aggression, risky sex, illegal drug use, and problem drinking criteria incrementally, but that lack of planning would predict general delinquency, which does not necessarily have a heavy affective component, incrementally.

Support for these hypotheses would provide evidence consistent with the claim that negative urgency, reflecting emotion-driven impulsive behavior, is an important personality contributor to certain forms of externalizing behaviors. Positive findings thus would help explain both the correlation between externalizing and internalizing dysfunction (shared negative emotionality) and what distinguishes externalizing dysfunction from internalizing dysfunction (the disposition to act impulsively and in ways that disrupt the lives of others, reflecting low Conscientiousness and low Agreeableness).

Study One

We first compared the alcohol dependent, depressed, subclinical, and control women on each variable individually. We hypothesized that measures of trait anxiety and trait depression (reflecting high Neuroticism) and trait hostility (high Neuroticism and low Agreeableness) would each differentiate between the three clinical/subclinical groups and the control group, but the three groups would not differ from each other on any of these traits. With respect to negative urgency, we hypothesized that (a) the three clinical/subclinical groups would be higher than the control group and (b) the alcohol dependence group would be higher than the depressed and subclinical groups.

Our hypotheses with respect to the prediction of alcohol and depression symptom counts were as follows: a) trait anxiety and/or trait depression would predict number of depression symptoms, and neither angry hostility nor negative urgency would predict significantly beyond those traits, and b) negative urgency would predict number of alcohol symptoms, and trait anxiety, trait depression, and angry hostility would not predict this criterion significantly beyond negative urgency.

Method

Participants

Participants were 111 females ranging from ages 22 to 56 ($M = 32.32$, $SD = 7.3$); 64.9% of the sample was Caucasian, 25.2% African American, 1.8% Asian American, 0.9% Hispanic American, and 2.7% other racial/ethnic groups. By diagnosis, participants were members of one of four groups: alcohol dependent ($n = 44$), depression ($n = 22$), control ($n = 22$), and subclinical ($n = 23$). The alcohol dependent group was comprised of women seeking treatment at an inpatient alcohol treatment center. The depression, control, and subclinical groups were comprised of women recruited from the community and from therapist referrals.

Measures

UPPS-P Measure, Negative Urgency Scale (Lynam, Smith, Cyders, Fischer, & Whiteside, 2007)—The UPPS-P Negative Urgency scale is a 12-item Likert-type scale to measure one's tendency to act rashly in response to intense negative mood states. The scale has consistently proven internally consistent and unidimensional (Cyders et al., 2007; Smith, Fischer, Cyders, Annus, Spillane, & McCarthy, 2007; Whiteside & Lynam, 2001).

NEO Personality Inventory-Revised, Neuroticism Scale (NEO PI-R, Costa & McCrae, 1992)—The NEO PI-R is a widely used personality inventory with considerable empirical data to support its internal and external validity (Costa & McCrae, 1992). We used the depression, anxiety, and angry hostility facets of the Neuroticism domain; each facet has been shown to be reliable and predictive in theoretically consistent ways in numerous previous studies (Costa & McCrae, 1995).

Structured Clinical Interview I for DSM-IV (SCID-I; First, Spitzer, Williams, & Gibbon, 1997)—The SCID-I is a semi-structured clinical interview used to assess the presence of DSM-IV criteria for Axis I disorders. The alcohol abuse and dependence scales for the SCID-I were used to assess the presence of alcohol use disorders and the Mood Episodes scale of the SCID-I was used to assess the presence of Major Depression. These scales have been demonstrated to have good inter-rater reliability and test-retest stability (Zanarini et al., 2000).

Procedure

All participants were administered clinical interviews by doctoral students in clinical psychology who were trained in SCID administration. Participants were assessed with the SCID I for alcohol dependence, alcohol abuse, and major depressive episodes. Interviews were taped for the purpose of assessing inter-rater reliability. Participants then completed all self-report measures. Participants who reported current alcohol abuse, alcohol dependence, or presence of a major depressive episode and were not receiving counseling were referred for counseling, and risk assessments were conducted on all participants who reported suicidal ideation at the time of the interview. Participants were paid \$30 for their participation.

Participants who had some missing data did not differ from other participants on any variable. We therefore concluded that data were missing at random, and used the expectation maximization procedure to impute missing data. This procedure provides more unbiased estimates of population parameters than traditional methods, such as case deletion or mean substitution (Enders, 2006).

Results

Reliability of Diagnoses

Twenty six taped interviews were rated by two of the trained raters to assess inter-rater reliability for diagnoses and symptoms counts. Inter-rater reliability for depression, alcohol abuse, and alcohol dependence diagnoses was 1.0 in each case. For depression and alcohol symptoms, inter-rater reliability was .99 and .97, respectively.

Sample Characteristics

Table 1 presents the mean endorsement levels of alcohol dependence and depression symptoms and each trait by group. Seven women in the sample met diagnostic criteria for both alcohol dependence and depression. They were placed in the alcohol group, because of the presence of this externalizing disorder. Ten women reported subclinical levels of both alcohol dependence and depression. These women typically met diagnostic criteria for alcohol abuse, most often because they reported having driven under the influence. They were judged not to have demonstrated significant externalizing dysfunction and were placed in the subclinical group. One woman met diagnostic criteria for depression and had one symptom of alcohol abuse; she was placed in the depressed group.

Table 2 presents the correlations among traits, demographic variables, and depression and alcohol symptom endorsement levels. The four groups differed significantly on education level ($F(3, 102) = 25.01, p < .001$), and age ($F(3, 105) = 6.17, p = .001$). Because education was significantly related to trait depression and negative urgency, we ran analyses controlling for education and on original scores. As we note below, the findings did not differ, so we report results from original scores. Age was not significantly related to any of the traits.

Diagnostic Group Comparisons

The depressed, alcohol, subclinical, and control groups differed significantly on both trait anxiety ($F(3, 107) = 3.67, p < .02$) and trait depression ($F(3, 107) = 8.11, p < .001$). Consistent with our hypotheses, in a set of planned contrasts we found that the three clinical/subclinical groups did not differ on either trait anxiety ($\eta^2 = .02$) or trait depression ($\eta^2 = .06$), and they were significantly higher on both traits than the control group. When trait depression was controlled for education, the same pattern emerged.

Counter to our hypothesis, the four groups did not differ significantly on angry hostility. Planned contrasts did indicate that the three clinical/subclinical groups were higher in angry hostility than the control group. No other contrasts were significant.

The four groups differed significantly on negative urgency ($F(3,107) = 13.64, p < .001$). The three clinical/subclinical groups had higher negative urgency scores than the control group. Also as hypothesized, the alcohol group had higher negative urgency scores than did the depressed and subclinical groups, and the latter two groups did not differ from each other. When controlling for education, the same pattern emerged. Table 1 provides the planned comparison values.

Prediction of Alcohol and Depression Symptoms

We next predicted symptom levels on an interval scale. For the prediction of depression symptoms, we entered education at step one, negative urgency at step two, and trait anxiety, trait depression, and angry hostility at step three. Education level predicted depression significantly, and negative urgency did not. At step three, only trait depression predicted the number of depression symptoms endorsed (see Table 3).

We next predicted the number of alcohol symptoms endorsed. In the first step, we entered education, and in the second step, we entered trait anxiety, trait depression, and angry hostility. In the third step, we entered negative urgency. Education was significantly and negatively associated with the number of alcohol symptoms. There was no significant prediction at step two. At step three, negative urgency did predict significantly (see Table 4).

Study One Discussion

Women diagnosed with depression, alcohol dependence, or subclinical levels of alcohol dependence and/or depression were higher than control women on trait anxiety, trait depression, and negative urgency. This presumably occurred because all three traits reflect, at least in part, Neuroticism. When the three distressed groups were compared, they did not differ on trait anxiety or trait depression, but the alcohol dependent women were higher on negative urgency than were the other two groups. This finding is consistent with our hypothesis that, because negative urgency reflects high Neuroticism, low Conscientiousness, and low Agreeableness, it differentiates women with certain kinds of externalizing disorders from women with internalizing disorders.

The results of the regression analyses were also consistent with our hypotheses. Only trait depression predicted depression symptoms; no other trait added incremental prediction. Only negative urgency predicted alcohol dependence symptoms; again, no other trait added incremental prediction. Angry hostility, which reflects Neuroticism and disagreeableness but not low Conscientiousness, did differentiate the distressed groups from the control group, but it did not differentiate among the distressed groups, nor did it predict either depression symptom count or alcohol dependence symptom count in the regression analyses.

There are four primary limitations to Study One. First, it is possible that variation on trait anxiety, trait depression, angry hostility, and negative urgency was, in part, a consequence of the ongoing experience of psychopathology in this sample. To rule out this possibility, it is necessary to conduct similar tests in individuals prior to the onset of diagnosable disorders. Second, we only compared negative urgency to traits reflecting high Neuroticism or high Neuroticism and low Agreeableness; we did not include other traits reflecting low Conscientiousness. Therefore, it is possible that low Conscientiousness is the basis for the group differences, not the combination of Neuroticism, low Conscientiousness, and low Agreeableness that is reflected in negative urgency. Third, we studied only one externalizing

behavior, alcohol dependence. To strengthen the basis for our inference that negative urgency contributes to many forms of externalizing dysfunction, it is necessary to study other such behaviors. Fourth, we studied only women. Although doing so is important, because externalizing behaviors have been understudied in women, we do not know whether the results generalize across sex. We addressed these problems in studies two and three.

Study Two

Study Two involved an investigation of 5th grade girls and boys. In these young children, we contrasted negative affect, low Conscientiousness, and negative urgency in the prediction of problem drinking, smoker status, and depression. To measure Neuroticism/negative affectivity in 5th grade girls and boys in Study Two, we used the negative affectivity scale from the Positive and Negative Affect Schedule for Children (PANAS-C: Laurent et al., 1999). We used the PANAS-C because its items measure subjective distress without a component of rash action (sample items include gloomy, upset, scared, miserable, and blue), and because using it provided a test of whether the effects observed in Study One generalize across measures of subjective distress. To measure low Conscientiousness, we used the child versions of the lack of planning and lack of perseverance scales from the UPPS-P (Whiteside & Lynam, 2001; Zapolski et al., 2010).

For girls and then for boys, we tested the differential roles of the PANAS-C representation of negative affectivity, lack of planning, lack of perseverance, and negative urgency in the concurrent prediction of problem drinking, smoker status, and depression symptoms. We chose problem drinking rather than simple drinker status to increase this study's similarity with Study One. We hypothesized that (a) negative affectivity would account for variance in each criterion variable; (b) negative urgency would concurrently predict problem drinking and smoker status above and beyond negative affectivity and low Conscientiousness, but negative urgency would not incrementally predict depression symptoms; and (c) negative affectivity would concurrently predict depression symptoms above and beyond negative urgency, lack of planning, and lack of perseverance, but would not explain additional variance in problem drinking or smoker status beyond that explained by negative urgency. We were unsure whether to anticipate any unique, incremental predictive power for lack of planning and lack of perseverance for problem drinking or smoker status. We did not expect the two low Conscientiousness traits to incrementally predict depression symptoms.

Method

Participants

Participants were 905 5th grade girls and 908 5th grade boys from urban, rural, and suburban backgrounds, all from public school systems. The ethnic breakdown of the female sample was as follows: 60.7% Caucasian, 17.6% African American, 6.3 % Hispanic/Latino, 4.0% Asian, and 11.4% other racial/ethnic groups. For the boys, the ethnic breakdown was: 62.76% Caucasian, 16.24% African American, 7.42% Hispanic, 2.09% Asian, Arabic, and 11.51% other racial/ethnic groups. The girls and boys did not differ in ethnic background.

Measures

UPPS-R-Child Version, Negative Urgency Scale (Whiteside & Lynam, 2001; Zapolski et al., 2010)—This scale is an 8-item, four-point Likert-type scale that proved reliable in this sample ($\alpha = .85$). The child measure of negative urgency has shown good convergence across assessment method, good discrimination from other, similar traits, and prediction of criteria consistent with theory (Zapolski et al., 2010).

Center for Epidemiologic Studies-Depression Scale (CES-D)—The CES-D is a 20 item measure of depression symptoms that is frequently used with children, adolescents, and adults (Radloff, 1977, 1991; Roberts et al., 1991). We used the scale to represent symptom level on an interval scale. Internal consistency of the scale in the current study was estimated at $\alpha = .77$ and numerous studies have provided evidence for the scale's validity, although it may lack discriminant validity in relation to measures of anxiety (Orme, Reis, & Herz, 1986).

Positive and Negative Affective Scale- Child Version (PANAS-C; Laurent et al., 1999)—The PANAS-C measures the dimensions of positive affectivity and negative affectivity in children. It was developed and validated on children in grades 4–8, based on the adult PANAS (Watson et al., 1988). Items were adapted from asking how one feels over “the past few weeks” to how one “generally” feels. We used the negative affectivity scale only ($\alpha = .90$, current sample).

Drinking Styles Questionnaire—(DSQ; Smith et al., 1995) was used to measure self-reported drinking. The problem drinking scale includes 14 items, ranging from more mild problems, such as “While drinking, I have said or done embarrassing things” and “I have felt very sick to my stomach or thrown up after drinking” to more significant problems, such as “I have gotten in trouble with school for drinking alcohol” and “I have gotten into fights while drinking alcohol.” The scale was internally consistent in this sample ($\alpha = .88$). Because the base rate of problems was low, we dichotomized the scale to reflect the presence or absence of one or more problems from drinking.

Smoking Behavior—Smoker status was defined as a positive, nonzero response to a question asking how often one has smoked cigarettes in the past six months.

The Pubertal Development Scale (PDS; Petersen et al., 1988)—This scale consists of five questions for boys and five questions for girls. Scores on the scale correlate highly with physician ratings and other forms of self-report (Brooks-Gunn et al., 1987; Coleman & Coleman, 2002). We used dichotomous classification, in which mean scores above 2.5 indicate pubertal onset.

Procedure

The questionnaires were administered in 23 public elementary schools.. A passive-consent procedure was used. Each family was sent a letter, through the U.S. Mail, introducing the study. Families were asked to return an enclosed, stamped letter or call a phone number if they did not want their child to participate. Out of 1,988 5th graders in the participating schools, 1,843 participated in the study (92.7%), although 30 did not report their sex and were excluded. A total of 56 (2.8% of the families approached) declined to participate, 42 students (2.1%) declined assent, and 47 students (2.3%) did not participate for a variety of other reasons, such as language disabilities that precluded completing the questionnaires. The procedure took 60 minutes or less. Upon completion, participants were provided with information about local intervention services. This procedure was approved by the University's IRB and by the participating school systems.

Questionnaires were administered in the children's classrooms during school hours. In most classrooms, the teachers remained in the room with the researchers and did their own work; teachers were not allowed access to children's responses and did not respond to children's questions during the assessment.

Data Analysis—Problem drinking and smoker status were measured dichotomously, so we predicted those criteria using binary logistic regression. We used CES-D scores for depression, and predicted those scores using ordinary least squares linear regression. Our hypotheses involved both predictions we expected to be significant and predictions we expected not to be significant. For that reason, we felt an extreme Bonferroni correction might inadvertently hide un-hypothesized but positive effects. At the same time, a liberal significance level might result in significant but not meaningful effects. To balance those considerations, we chose a significance level of $p < .01$. There were few missing data points, and participants who had missing data did not differ from others on any variable, so we again imputed data using the expectation maximization procedure.

Results

Sample Characteristics

The top half of Table 5 presents the mean levels of negative urgency, negative affectivity, and depression symptoms for the girls and the bottom half presents the same information for boys. Pubertal onset was experienced by 265 (29.3%) of the girls and by 238 (26.2%) of the boys in this sample. Of the 905 girls and 908 boys, 73 girls (8.07%) and 104 boys (11.45%) reported having consumed more than just a sip or taste of alcohol. Concerning the typical quantity consumed, 48 girls (5.3%) and 84 boys (9.3%) reported typically consuming the equivalent of one or fewer drinks; 6 girls (0.7%) and 7 boys (0.8%) reported typically having two to three drinks; and 5 girls (0.5%) and 2 boys (0.2%) reported typically having four or more drinks per occasion. Concerning problems from drinking, 42 girls (4.6%) and 50 boys (5.5%) reported at least one alcohol-related problem. There was no effect of gender or race/ethnicity for the frequency of consumption.

In regards to smoker status, 45 girls (5.0%) and 56 boys (6.2%) reported having consumed at least one full cigarette. There was no effect of gender for smoker status. Table 6 presents bivariate correlations among the study variables, with girls above the diagonal and boys below the diagonal.

Prediction of Problems from Drinking

A logistic regression analysis was conducted to predict problem drinking. Puberty was entered at step one and negative affectivity, lack of planning, lack of perseverance, and negative urgency were entered at step two. For both girls and boys, pubertal status predicted problem drinking at step one, and at step two, only negative urgency predicted problem drinking incrementally (Table 7 presents these results).

Prediction of Smoker Status

For girls, pubertal status predicted smoker status at step one ($OR = 4.33, p < .001$). At step two, only negative urgency had incremental predictive power ($OR = 3.25, p < .001$). The experience of drinking problems overlapped with smoker status: of the 42 girls who had problems from drinking, 23 had also smoked ($\chi^2 = 231.07, p < .001$). For that reason, we then including problem drinking as an additional predictor at step one. Both pubertal status and problem drinking predicted smoker status. At step two, negative urgency was again the only predictor with incremental validity (see Table 7).

For boys, pubertal status predicted smoker status at step one ($OR = 3.76, p < .001$). At step two, only negative urgency predicted significantly ($OR = 4.29, p < .001$). As was true with girls, problem drinking and smoker status overlapped heavily: of the 50 boys who had experienced problems from drinking, 18 had smoked ($\chi^2 = 81.38, p < .001$). Including problem drinking as an additional predictor at step one, we found that both pubertal status

and problem drinking predicted smoker status. Negative urgency was again the only significant predictor at step two (see Table 7).

Prediction of Depression Symptoms

We used multiple regression to predict depression. As before, pubertal status was entered at step one, and negative affectivity, lack of planning, lack of perseverance, and negative urgency were entered at step two. For girls, puberty accounted for 3.1% of the variance in depression symptoms. At step two, negative affectivity uniquely accounted for an additional 14.4 %, negative urgency uniquely accounted for an additional 5.7%, and lack of planning uniquely accounted for an additional 1%. The CES-D was mildly positively skewed (1.53) and kurtotic (2.54). We re-ran all analyses after square root transformations (which reduced both values to 1.11) and results were the same.

For boys, puberty accounted for 1% of the variance in depression symptoms. At step two, negative affectivity uniquely accounted for an additional 15.9 % and negative urgency uniquely accounted for an additional 2.2%. No other variable predicted depression significantly. As was true for girls, the CES-D was mildly positively skewed (1.39) and kurtotic (2.05). We again re-ran all analyses after square root transformations (which reduced the skew estimate to 1.02 and the kurtosis estimate to .80) and results were the same. Table 7 summarizes these results.

Study Two Discussion

As hypothesized, for both 5th grade girls and boys negative urgency was the only trait predictor of problem drinking and smoker status: neither negative affectivity nor the two low Conscientiousness traits predicted either externalizing behavior beyond prediction from pubertal status. This remained true when smoker status was controlled for its overlap with problem drinker status. This finding is consistent with what was observed in adult women with diagnosed disorders. It supports the hypothesis that negative urgency uniquely predicts some forms of externalizing behavior.

In the prediction of the internalizing behavior of depression, negative affectivity was the predominant predictor. It explained 2.5 times as much variance as negative urgency did for the girls and over seven times as much variance as negative urgency did for boys. However, it was true that negative urgency significantly predicted depression symptoms for both the girls and the boys, and lack of planning did for the girls. It may be the case that depression symptoms in children are not as exclusively associated with internalizing distress as they are in adults. It is also possible that for some children, depression symptoms were the result of having gotten in trouble for their actions, and thus reflect a consequence of negative urgency-driven behavior.

Study Two adds to Study One in three ways. First, negative urgency predicted some externalizing behavior early in life, and so the associations observed in Study One were not just a consequence of ongoing psychopathology. Second, negative urgency predicted externalizing behaviors above and beyond low Conscientiousness traits, but the reverse was not true; Study One had not included low Conscientiousness. Third, Study Two showed that, at least among pre-adolescents, the pattern of relationships was essentially the same for boys as it was for girls; the role of negative urgency appears not to be specific to one sex.

An important limitation to Studies One and Two is that the externalizing behaviors we studied were limited to addictive behaviors. Although Derefinko et al. (in press) showed the same pattern of relationships in the prediction of intimate partner violence, their study included only men. We address this limitation in Study Three.

Study Three

In Study Three, we tested whether the role of negative urgency applies to non-addictive types of externalizing behaviors. In a sample of college students, we compared negative affectivity, low Conscientiousness, and negative urgency in the concurrent prediction of general delinquent behavior, aggression, and risky sex, as well as illegal drug use and problem drinking. (We included these addictive behaviors in this sample to address the likelihood that the processes are similar for college students as for pre-adolescents and adults with psychiatric diagnoses). We anticipated that negative urgency would play the same role in relation to most of these behaviors, except that delinquency may often not have a heavy affective component, so we anticipated negative urgency may not be important for that criterion.

Method

Participants

Participants were 418 first year students at a large, public mid-western university. Seventy-five percent (313) of the sample was female. Age ranged from 18 to 32 (mean = 18.2, SD = 0.76); 88% of the sample was Caucasian, 8% African American, 2% Asian American, 1% Hispanic American, and 2% other racial/ethnic groups. The sample was somewhat diverse socioeconomically: 29.67% of students came from families where neither parent graduated college and 15.8% reported coming from families with incomes less than \$39,000, but over 57% of fathers and 53% of mothers did graduate from college, and 45.5% reported family incomes of \$80,000 or greater.

Measures

Measure of Negative Affectivity—We used a three-item measure taken from the Mood Based Questionnaire, which is used to assess both negative and positive mood states; validity evidence from prior studies has been strong (Cyders & Smith, 2007, 2010). The three items used a five-point Likert scale to ask how often one experiences a very bad mood, the intensity of one's typical bad mood, and frequency of extremely bad moods in a typical month.

The UPPS-P—We used the same measure of negative urgency, lack of planning, and lack of perseverance as in Study One.

The Risky Behavior Scale (RBS)—This scale inquires into a wide range of risky behaviors and has been used in numerous studies, which have provided good support for its validity (Fischer & Smith, 2004; Cyders & Smith, 2008b; Zapolski et al., 2009). As has been done in the past, we extracted indices of several externalizing behaviors from the RBS. We measured *General Delinquent Behavior* as the sum of five items that assess the frequency of these behaviors on a five point scale: shoplifting/stealing items under \$100 in value, shoplifting/stealing items over \$100 in value, trespassing, vandalizing, and number of times arrested. We measured *Aggressive Behavior* with a single item, assessing the frequency on a five point scale of starting fights. We measured *Risky Sex* with seven items of the same format assessing sex without a condom, anal sex, sex without birth control, more than one sexual partner at the same time, sex in public/outside, sex with a person involved with someone else, and number of sexual partners. Validity evidence for this subscale has been provided in the past (Zapolski et al., 2009). We measured *Illegal Drug Use* with seven items of the same format assessing use of marijuana, cocaine, LSD, heroin, ecstasy, other illegal drugs, and misuse of prescription drugs. Validity evidence for this subscale has also been provided in the past (Zapolski et al., 2009).

Drinking Styles Questionnaire (DSQ; Smith, McCarthy, & Goldman, 1995)—We used this scale to assess problem drinking, as we did in Study Two.

Procedure

Participants were undergraduate students at a large Midwestern university. They completed all measures in a group format, for which they received course credit. Each measure of externalizing behavior was moderately skewed and kurtotic. We performed square root transformations on each of the variables, which reduced skew and kurtosis to acceptable levels (skew and kurtosis values less than 2.0). Analyses with the transformed variables produced the same results as did analyses with the original, untransformed variables, so we report the results using the original variables. To assess negative urgency in relation to the other predictors, we conducted a multiple regression for each externalizing criterion, in which we entered sex at step one and then negative affectivity, lack of planning, lack of perseverance, and negative urgency at step two. There were very few missing values, and participants who were missing data points did not differ from others on any variable, so we again imputed data using the expectation maximization procedure.

Results

Descriptive Statistics

Table 8 presents correlations among all study variables.

Prediction of Externalizing Behaviors

General Delinquent Behavior—At step one, men reported more delinquent behavior. At step two, lack of planning had incremental predictive power and negative urgency almost did. All regression results are presented in Table 9.

Aggressive Behavior—At step one, men reported starting more fights than women. At step two, only negative urgency had incremental predictive power.

Risky Sex—Biological sex did not predict involvement in risky sexual behavior at step one. At step two, it was again true that only negative urgency predicted significantly. Results were the same when the criterion was sex without a condom, which we selected for individual analysis because sex without a condom brings risk to self and one's partner; the other items on this scale may or may not confer risk.

Illegal Drug Use—Men did report more illegal drug use than women at step one. At step two, negative urgency and lack of planning both predicted drug use significantly.

Problem Drinking—Sex was unrelated to problem drinking in this college sample. At step two, both negative urgency and lack of planning predicted this criterion significantly.

Study Three Discussion

Negative urgency significantly predicted four of five forms of externalizing behavior examined in study three. Other than biological sex, it was the sole predictor of risky sex and aggression (starting fights). Of course, some externalizing behaviors may not have a heavy affective component and negative urgency is unlikely to be as important for them. General delinquency may be one example: Negative urgency just missed statistical significance as an incremental predictor. We were unsure whether to expect negative urgency to predict delinquency at all, and its effect was small. Interestingly, lack of planning joined negative urgency in the concurrent prediction of illegal drug use and problem drinking among these

college students. Lack of planning had not added to negative urgency in the prediction of problem drinking for either disordered adults or pre-adolescent children, but it certainly seems possible that the tendency to act without forethought, in addition to the tendency to act rashly when distressed, contributes to engagement in these problematic behaviors.

Among the limitations to study three is that we did not assess internalizing dysfunction, so we did not replicate the differential prediction found in studies one and two and the sample was not clinical, unusually disordered, or selected for high risk. At the same time, it is useful to observe a very similar pattern of findings in this sample to the findings of the other samples, at least with respect to the differential prediction of externalizing behaviors.

General Discussion

Taken together, the results of these three studies support the following model: Some forms of externalizing dysfunction are associated with high levels of Neuroticism, as is internalizing dysfunction. However, internalizing dysfunction is related to traits that reflect high levels of Neuroticism alone, and some forms of externalizing dysfunction are related to the trait of negative urgency, which reflects high Neuroticism, low Agreeableness, and low Conscientiousness. Findings consistent with this model were obtained from an adult sample of women with psychiatric diagnoses, pre-adolescent girls, pre-adolescent boys, and college students. In study one, we contrasted alcohol dependence and depression in adult, diagnosed women. In study two, we contrasted early onset problem drinking and smoking with depression in pre-adolescent girls and boys. In study three, we did not study internalizing dysfunction, but we showed largely the same prediction pattern for aggression, risky sex, illegal drug use, and problem drinking. We next highlight several implications of these findings.

First, behaviors such as the heavy use of alcohol, early onset smoking, risky sexual behavior, starting fights, intimate partner violence, and use of illegal drugs often have an affective component (Zapolski et al., 2009). The findings described here indicate that it is not just subjective distress, but the inclination to act rashly when distressed that is associated with involvement in these behaviors. To understand the role that subjective distress plays in externalizing versus internalizing dysfunction, it is necessary to consider individual, lower level traits because of substantive differences among traits such as negative urgency, trait anxiety, trait depression, and angry hostility.

Second, these externalizing behaviors are not a simple function of low Conscientiousness. For most of the behaviors examined here, negative urgency was predictive and low Conscientiousness traits were not. It is not just low Conscientiousness, or the tendency to act without forethought, that underlies externalizing behaviors: The affective and disagreeable qualities that are also reflected in negative urgency appear to be quite important. Third, the same pattern of concurrent prediction was largely present for both sexes and across age/development. The findings were generally consistent for pre-adolescent children, college students, and adults with psychiatric diagnoses. The results were not exclusive to youth, nor do they appear to reflect the influence of ongoing psychopathology on current self-reports.

There has been some longitudinal work that has provided findings consistent with the data described here. Settles et al. (2010) found that negative urgency predicted increased drinking quantity across the first year of college, and Cyders, Flory, Rainer, and Smith (2007) found that negative urgency, but not lack of planning or lack of perseverance, predicted increased problem drinking across that same interval. Should the current findings be further supported by additional longitudinal research, there will be increasing reason to consider the importance of negative urgency when considering interventions for some externalizing

behaviors. Indeed, interventions which teach skills for managing intense negative affect and not acting impulsively have already proven useful for suicidal behavior (Linehan, 1993) and some forms of addictive behavior (Clyne & Blampied, 2004; Robins & Chapman, 2004).

Fourth, it is unlikely that negative urgency is highly relevant to all forms of externalizing behavior. Derefinko et al. (in press) found that, whereas negative urgency was associated with intimate partner violence, it was not associated with general violent behavior (lack of planning was). In study three, we found that negative urgency played a very small role in relation to general delinquent behavior; again, lack of planning was an important predictor. These findings are consistent with the observation that some externalizing behaviors are not associated with subjective distress (Newman et al., 2005). In addition, as suggested by the findings of study three, there is no reason that other deficits in Conscientiousness, like lack of planning, would not also contribute to externalizing behaviors.

The current findings might usefully be considered from the perspective of hierarchical models of personality (Markon et al., 2005). At a very broad, abstract level, personality has been described in terms of two factors: Alpha and Beta (Digman, 1997). Alpha, which summarizes Neuroticism, Agreeableness, and Conscientiousness, has been described as reflecting something of a broad failure of socialization, in that individuals high on that set of traits tend to be emotionally unstable, disagreeable, and comparatively unable to resist acting on their impulses (Digman, 1997). As noted by Cyders and Smith (2008a), perhaps negative urgency reflects a personality process that can contribute to that failure of the socialization process.

There are, of course, limitations to the research we have described here. In each study, both predictors and criteria were assessed by self-report. We do not know the degree to which the common method of assessment may have inflated associations among the variables. Each study was cross-sectional: We did not test time-lagged associations and the current data do not address the question of whether variation on the traits precedes and causes variation in internalizing or externalizing behavior. The ethnic minority representation in the study was insufficient for testing cultural or ethnic effects.

Despite these limitations, the findings of these three studies provide clear support for our model, which is based on drawing contrasts among lower level traits within the personality hierarchy and which emphasizes negative urgency, characterized by rash, disagreeable action when distressed, as one personality contributor to many forms of externalizing behavior.

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References

- Achenbach TM, Edelbrock CS. The classification of child psychopathology: A review and analysis of empirical efforts. *Psychological Bulletin*. 1978; 85:1275–1301.10.1037/0033-2909.131.3.361 [PubMed: 366649]
- Brooks-Gunn, J.; Warren, MP.; Rosso, J.; Gargiulo, J. Validity of self-report measures of girls' pubertal status; *Child Development*. 1987. p. 829-841.Retrieved from <http://www.jstor.org/stable/1130220>
- Clark LA. Temperament as a unifying basis for personality and psychopathology. *Journal of Abnormal Psychology*. 2005; 114:505–21.10.1037/0021-843X.114.4.505 [PubMed: 16351374]

- Clyne C, Blampied NM. Training in Emotion Regulation as a Treatment for Binge Eating: A Preliminary Study. *Behaviour Change*. 2004; 21(4):269–281.10.1375/bech.21.4.269.66105
- Coleman L, Coleman J. The measurement of puberty: a review. *Journal of Adolescence*. 2002; 25:535–550.10.1006/jado.2002.0494 [PubMed: 12234559]
- Conner M, Grogan S, Fry G, Gough B, Higgins AR. Direct, mediated and moderated impacts of personality variables on smoking initiation in adolescents. *Psychology and Health*. 2009; 24(9): 1085–1104.10.1080/08870440802239192 [PubMed: 20205047]
- Costa, PT.; McCrae, RR. Revised NEO personality inventory manual. Odessa, FL: Psychological Assessment Resources; 1992.
- Costa, PT.; McCrae, RR. Domains and facets: Hierarchical personality assessment using the revised NEO personality inventory; *Journal of Personality Assessment*. 1995. p. 21-50. Retrieved from: <http://www.ncbi.nlm.nih.gov/pubmed/16367732>
- Cyders, ML.; Flory, K.; Rainer, S.; Smith, GT. Prospective study of the integration of mood and impulsivity to predict increases in maladaptive action during the first year of college. Paper presented at the annual meeting of the Research Society on Alcoholism; Chicago, IL. 2007 July.
- Cyders MA, Flory K, Rainer S, Smith GT. The Role of Personality Dispositions to Risky Behavior in Predicting First Year College Drinking. *Addiction*. 2009; 104:193–202.10.1111/j.1360-0443.2008.02434.x [PubMed: 19149813]
- Cyders MA, Smith GT. Mood-based rash action and its components: Positive and negative urgency. *Personality and Individual Differences*. 2007; 43:839–850.10.1016/j.paid.2007.02.008
- Cyders MA, Smith GT. Emotion-based dispositions to rash action: Positive and negative urgency. *Psychological Bulletin*. 2008a; 134:807–828.10.1037/a0013341 [PubMed: 18954158]
- Cyders MA, Smith GT. Clarifying the role of personality dispositions in risk for increased gambling behavior. *Personality and Individual Differences*. 2008b; 45:503–508.10.1016/j.paid.2008.06.002 [PubMed: 19088857]
- Cyders MA, Smith GT. Longitudinal validation of the urgency traits over the first year of college. *Journal of Personality Assessment*. 2010; 92(1):63–69.10.1080/0022-3890.2009.03381825 [PubMed: 20013457]
- Cyders MA, Smith GT, Spillane NS, Fischer S, Annus AM, Peterson C. Integration of impulsivity and positive mood to predict risky behavior: Development and validation of a measure of positive urgency. *Psychological Assessment*. 2007; 19:107–118.10.1037/1040-3590.19.1.107 [PubMed: 17371126]
- Derefinko, K.; DeWall, CN.; Metze, AV.; Walsh, EC.; Lynam, DR. Do different facets of impulsivity predict different types of aggression?. *Aggressive Behavior*. (in press) Retrieved from: <http://onlinelibrary.wiley.com/doi/10.1002/ab.20387/pdf>
- Digman JM. Higher-order factors of the Big Five. *Journal of Personality and Social Psychology*. 1997; 73(6):1246–1256.10.1037/0022-3514.73.6.1246 [PubMed: 9418278]
- Enders C. A primer on the use of modern missing-data methods in psychosomatic medicine research. *Psychosomatic Medicine*. 2006; 68:427–736.10.1097/01.psy.0000221275.75056.d8 [PubMed: 16738075]
- First, M.; Spitzer, R.; Gibbon, M.; Williams, J. Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I), Clinical Version. Washington, DC: American Psychiatric Press; 1997.
- Fischer S, Smith GT. Deliberation affects risk taking beyond sensation seeking. *Personality and Individual Differences*. 2004; 36(3):527–537.10.1016/S0191-8869(03)00112-0
- Fischer S, Smith GT, Annus A, Hendricks M. The relationship of neuroticism and urgency to negative consequences of alcohol uses in women with bulimic symptoms. *Personality and Individual Differences*. 2007; 43:1199–1209.10.1016/j.paid.2007.03.011
- Fischer, S.; Stojek, M.; Collins, B. The effect of negative urgency and sexual assault on bulimic symptoms and direct harm over time. Paper presented at the annual meeting of the Association for Behavioral and Cognitive Therapy; New York. 2009 November.
- Kahn AA, Jacobson KC, Gardner CO, Prescott CA, Kendler KS. Personality and comorbidity of common psychiatric disorders. *British Journal of Psychiatry*. 2005; 186:190–196.10.1192/bjp.186.3.190 [PubMed: 15738498]

- Krueger RF, Markon KE. Reinterpreting comorbidity: A model-based approach to understanding and classifying psychopathology. *Annual Review of Clinical Psychology*. 2006; 2:111–133.10.1146/annurev.clinpsy.2.022305.095213
- Laurent J, Catanzaro SJ, Joiner TE Jr, Rudolph KD, Potter KL, Lambert S, Osborne L, Gathright T. A measure of positive and negative affect for Children: Scale development and preliminary validation. *Psychological Assessment*. 1999; 11:326–338. doi: 10.1037/1040-3590.11.3.326.
- Linehan, M. Cognitive-behavioral treatment of borderline personality disorder. New York, NY US: Guilford Press; 1993. Retrieved from PsycINFO database
- Lynam, D.; Smith, GT.; Cyders, MA.; Fischer, S.; Whiteside, SA. Unpublished technical report. 2007. The UPPS-P: A multidimensional measure of risk for impulsive behavior.
- Markon KE, Krueger RF, Watson D. Delineating the structure of normal and abnormal personality: An integrative hierarchical approach. *Journal of Personality and Social Psychology*. 2005; 88:139–157.10.1146/annurev.clinpsy.2.022305.095213 [PubMed: 15631580]
- Miller J, Flory K, Lynam D, Leukefeld C. A test of the four-factor model of impulsivity-related traits. *Personality and Individual Differences*. 2003; 34:1403–1418.10.1016/S0191-8869(02)00122-8
- Moeller SK, Robinson MD, Bresin K. Integrating trait and social-cognitive views of personality: Neuroticism, implicit stress priming, and neuroticism-outcome relationships. *Personality and Social Psychology Bulletin*. 2010; 36(5):677–689.10.1177/0146167210367487 [PubMed: 20371800]
- Newman JP, MacCoon DG, Vaughn LJ, Sadeh N. Validating a distinction between primary and secondary psychopathy with measures of Gray's BIS and BAS constructs. *Journal of Abnormal Psychology*. 2005; 114(2):319–323.10.1037/0021-843X.114.2.319 [PubMed: 15869363]
- Orme JG, Reis J, Herz EJ. Factorial and discriminant validity of the center for epidemiologic studies depression scale. *Journal of Clinical Psychology*. 1986; 42:28–33.10.1002/1097-4679(198601)42:1<28::AIDJCLP22704 20104>3.0.CO;2-T [PubMed: 3950011]
- Petersen AC, Crockett L, Richards M, Boxer A. A self-report measure of pubertal status: Reliability, validity, and initial norms. *Journal of Youth and Adolescence*. 1988; 17:117–133.10.1007/BF01537962
- Radloff LS. The CES-D scale: a self-report depression scale for research in the general population. *Applied Psychological Measurement*. 1977; 1:385–401.10.1177/014662167700100306
- Radloff LS. The use of the Center for Epidemiologic Studies Depression Scale in adolescents and young adults. *Journal of Youth and Adolescence*. 1991; 20:149–166.10.1007/BF01537606
- Roberts RE, Lewinsohn PM, Seely JR. Screening for adolescent depression: A comparison of depression scales. *Journal of the Academy of Child and Adolescent Psychiatry*. 1991; 30:58–66.10.1097/00004583-199101000-00009
- Robins, CJ.; Chapman, AL. Dialectical Behavior Therapy: Current Status, Recent Developments, and Future Directions; *Journal of Personality Disorders*. 2004. p. 73-89. Retrieved from: http://www.emp-dbt.com/articles/Robins_Chapman.pdf
- Sher KJ, Trull TJ. Personality and disinhibitory psychopathology: Alcoholism and antisocial personality disorder. *Journal of Abnormal Psychology*. 1994; 103:92–102.10.1037/0021-843X.103.1.92 [PubMed: 8040486]
- Settles RF, Cyders MA, Smith GT. Longitudinal validation of the acquired preparedness model of drinking risk. *Psychology of Addictive Behaviors*. 2010; 24:198–208.10.1037/a0017631 [PubMed: 20565146]
- Seibert LA, Miller JD, Pryor LR, Reidy DE, Zeichner A. Personality and laboratory-based aggression: Comparing the predictive power of the Five-Factor Model, BIS/BAS, and impulsivity across context. *Journal of Research in Personality*. 2010; 44:13–21.10.1016/j.jrp.2009.09.003
- Smith GT, Fischer S, Cyders MA, Annus AM, Spillane NS. On the validity of discriminating among impulsivity-like traits. *Assessment*. 2007; 14:155–170.10.1177/1073191106295527 [PubMed: 17504888]
- Smith, GT.; McCarthy, DM.; Goldman, MS. Self-reported drinking and alcohol-related problems among early adolescents: Dimensionality and validity over 24 months; *Journal of Studies on Alcohol*. 1995. p. 383-394. Retrieved from: <http://www.jsadcom.ezproxy.uky.edu/jsad/articles/56/4/42.html>

- Spillane, NS.; Smith, GT. Empirical support for a multifaceted model of American Indian Drinking. Paper presented at the annual international meeting of the Research Society on Alcoholism; Baltimore, MD. 2007 June.
- Substance Abuse and Mental Health Services Administration. Results from the 2008 National Survey on Drug Use and Health: National Findings. Office of Applied Studies; Rockville, MD: 2009. NSDUH Series H-36, HHS Publication No. SMA 09-4434 Retrieved from <http://www.oas.samhsa.gov/2k8nsduh/2k8results.cfm>
- Trobst KK, Herbst JH, Masters HL, Costa PT. Personality pathways to unsafe sex: Personality, condom use, and HIV risk behaviors. *Journal of Research in Personality*. 2002; 36(2):117–133.10.1006/jrpe.2001.2334
- Verdejo-García A, Bechara A, Recknor EC, Pérez-García M. Negative emotion-driven impulsivity predicts substance dependence problems. *Drug and Alcohol Dependence*. 2007; 91:213–219.10.1016/j.drugalcdep.2007.05.025 [PubMed: 17629632]
- Watson D, Clark LA, Tellegen A. Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*. 1988; 54:1063–1070.10.1037/0022-3514.54.6.1063 [PubMed: 3397865]
- Whiteside SP, Lynam DR. The five factor model and impulsivity: Using a Structural model to understand impulsivity. *Personality and Individual Differences*. 2001; 30:669–689.10.1016/S0191-8869(00)00064-7
- Widiger, TA. Neuroticism. In: Leary, MR.; Hoyle, RH., editors. *Handbook of individual differences in social behavior*. NY: Guilford; 2009. p. 129-146.
- Zanarini MC, Skodol AE, Bender D, Dolan R, Sanislow C, Schaefer E, Morey LC, Grilo CM, Shea MT, McGlashan TH, Gunderson JG. The Collaborative Longitudinal Personality Disorders Study: reliability of axis I and axis II Diagnoses. *Journal of Personality Disorders*. 2000; 14:291–299.10.1521/pedi.2000.14.4.291 [PubMed: 11213787]
- Zapolski TC, Cyders MA, Smith GT. Positive urgency predicts illegal drug use and risky sexual behavior. *Psychology of Addictive Behaviors*. 2009; 23(2):348–354.10.1037/a0014684 [PubMed: 19586152]
- Zapolski TCB, Stairs AM, Settles RF, Combs JL, Smith GT. The measurement of Dispositions to Rash Action in Children. *Assessment*. 2010; 17:116–125.10.1177/1073191109351372 [PubMed: 19955108]

Table 1

Study One: Mean levels of traits, education and age by group and group comparisons on traits

	Control (n = 22)		Depression (n = 22)		Alcohol (n = 44)		Subclinical (n = 23)	
	Mean (SD)		Mean (SD)		Mean (SD)		Mean (SD)	
Depsym	1.36 (2.11)		6.91 (1.48)		1.68 (2.67)		4.57 (3.53)	
AlcSYM	.18 (.39)		.36 (1.29)		15.00 (3.57)		3.96 (3.73)	
Anx	21.76 (3.44)		26.5 (4.76)		25.59 (3.93)		24.50 (5.23)	
Dep	19.46 (4.55)		26.99 (7.57)		27.41 (5.90)		23.43 (8.50)	
NU	24.81 (6.70)		28.05 (8.36)		35.06 (6.03)		29.17 (7.24)	
Host	21.00 (6.16)		25.48 (7.47)		24.63 (5.85)		22.17 (6.83)	
Age	28.38 (8.35)		31.00 (5.07)		35.98 (8.89)		29.70 (3.71)	
<i>Education</i>								
Not H.S.	0.0%		0.0%		15.9%		0.0%	
H.S.	31.8%		40.9%		77.3%		39.2%	
College	68.2%		59.1%		6.8%		60.8%	

Planned Contrasts

	1		2		3	
	t	r	t	r	t	r
Anx	3.04**	.28				
Dep	4.06**	.36				
NU	3.95**	.35	4.39**	.39	.55	.05
Host	1.95*	.18				

Note. Anx = trait anxiety, Dep = trait depression, NU = negative urgency, and Host = angry hostility. Means for the four personality variables here are uncorrected for the influence of education. Not H.S.: did not graduate from high school; H.S.: did graduate from high school but did not graduate from college; College: graduated from college. Values here include imputed values from total sample of $n = 111$. Contrast 1 = comparison of the three clinical/subclinical groups to the control group, Contrast 2 = comparison of the alcohol dependent group to the depression and subclinical group, Contrast 3 = comparison of the depression and subclinical groups. r is provided as the measure of magnitude for the contrasts.

* $p < .05$,

** $p < .01$.

Table 2

Bivariate Correlations Among Study One Variables

	Anx	Dep	NU	Host	Depsym	Alcsym	Age	Educ
Anx	--							
Dep	.70**	--						
NU	.31**	.54**	--					
Host	.33**	.49**	.58**	--				
Depsym	.41**	.40**	.04	.25**	--			
Alcsym	.17	.27**	.52**	.17*	-.33**	--		
Age	.02	.11	.10	.06	-.15	.28**	--	
Educ	-.12	-.22**	-.34**	-.07	.24**	-.61**	-.36**	--
Income	.01	-.13	-.07	-.07	.03	.09	.29*	.12

Note. n = 111;

* p < .05,

**

p < .01., Anx = trait anxiety, Dep = trait depression, NU = negative urgency, Host = angry hostility, Depsym = depression symptoms, Alcsym = alcohol symptoms, and Educ = education.

Table 3

Study One: Prediction of Depression Symptoms from Education, Negative Urgency, Trait Anxiety, Trait Depression, and Angry Hostility

	<i>b</i>	<i>R</i> ²
Step 1		.06*
Education	.26	
Step 2		.08*
Education	.32*	
Negative Urgency	.18	
Step 3		.29**
Education	.33**	
Negative Urgency	-.16	
Trait Anxiety	.18	
Angry Hostility	.11	
Trait Depression	.40**	

Note. *n* = 111;

*
p < .05;

**
p < .01

Table 4

Study One: Prediction of Alcohol Symptoms from Education, Negative Urgency, Trait Anxiety, Trait Depression, and Angry Hostility

	<i>b</i>	<i>R</i> ²
Step 1		.36**
Education	-.60**	
Step 2		.38**
Education	-.60**	
Trait Anxiety	.01	
Angry Hostility	.08	
Trait Depression	.08	
Step 3		.46**
Education	-.50**	
Trait Anxiety	.07	
Angry Hostility	-.09	
Trait Depression	-.08	
Negative Urgency	.42**	

Note. *n* = 111;

*
p < .05;

**
p < .01

Table 5

Study Two: Mean endorsement of negative urgency, negative affectivity, and CES-D depression scores

	Negative Urgency	Negative Affectivity	CES-D
	Mean (SD)	Mean (SD)	Mean (SD)
Girls	2.20 (.72)	2.19 (.81)	24.13 (8.33)
Boys	2.19 (.71)	2.03 (.75)	22.77 (7.01)
Total	2.20 (.72)	2.11 (.78)	23.46 (7.74)

Note: $n = 905$ for girls, 908 for boys.

Table 6

Study Two: Bivariate Correlations Among Study Variables

	LPI	Lpe	NU	NA	Pub	Drink	Smoke	Dep
LPI	--	.40**	.40**	.18**	.07	.18**	.21**	.27**
LPe	.45**	--	-.06	.07	-.04	.09*	.11**	.04
NU	.34**	-.01	--	.36**	.13**	.21**	.23**	.43**
NA	.09**	-.02	.37**	--	.02	.14**	.11**	.49**
Pub	.06	.01	.08	.04	--	.11**	.17**	.18**
Drink	.14**	.08	.17**	.08	.11**	--	.51**	.21**
Smoke	.19**	.10*	.23**	.04	.17**	.30**	--	.17**
Dep	.12**	-.04	.32**	.46**	.09*	.13**	.07	--

Note: Girls' correlations are listed above the diagonal and boys' are listed below. $n = 905$ for girls, 908 for boys,

* $p < .01$;

** $p < .001$. LPI= lack of planning, Lpe= lack of perseverance, NU= negative urgency, NA = negative affectivity, Pub = pubertal status, Drink = problem drinking, Smoke = smoker status, Dep = CES-D depression score.

Table 7
Study Two: Prediction of Problem Drinking, Smoker Status, and Depression

	Girls		Boys	
	OR	p value	OR	p value
<u>Problem Drinking</u>				
Step 1				
Pubertal status	2.81	<.001	2.65	<.001
Step 2				
Pubertal status	2.02	.04	2.23	.01
Lack of planning	1.65	.13	1.56	.14
Lack of perseverance	1.90	.08	1.65	.14
Negative affect	1.38	.11	1.14	.51
Negative urgency	2.95	<.001	2.39	.001
<u>Smoker Status</u>				
Step 1				
Pubertal status	3.63	<.001	3.18	<.001
Problem drinking	41.26	<.001	10.28	<.001
Step 2				
Pubertal status	3.39	.002	2.90	.001
Problem drinking	23.54	<.001	6.11	<.001
Lack of planning	2.00	.06	1.28	.42
Lack of perseverance	1.96	.10	2.30	.02
Negative affect	.93	.76	.73	.13
Negative urgency	2.39	.004	3.92	<.001
<u>Depression</u>				
Step 1				
Pubertal status	.18	<.001	.09	.01
			.03	.01

	Girls			Boys		
	<i>b</i>	<i>p</i> value	R ²	<i>b</i>	<i>p</i> value	R ²
Step 2			.33			.24
Pubertal status	.13	.04		.06	.03	
Lack of planning	.10	.002		.05	.18	
Lack of perseverance	-.02	.51		-.04	.21	
Negative affect	.38	<.001		.40	<.001	
Negative urgency	.24	<.001		.15	<.001	

Note: *n* (girls) = 905; *n* (boys) = 908. Note: problem drinking and smoker status were predicted using binary logistic regression and depression was predicted using least squares linear regression. OR: odds ratio; *b*: standardized beta weight.

Table 8

Study Three: Bivariate Correlations Among Study Variables

	Sex	LPI	Lpe	NU	NA	Deliq	Agg	Rsex	Drug
Sex	--								
LPI	-.01	(.83)							
LPe	.14*	.39**	(.79)						
NU	.03	.34**	.36**	(.87)					
NA	.02	.02	.16**	.42**	(.67)				
Deliq	.27**	.22**	.15*	.19**	.09	(.64)			
Agg	.20**	.14*	.12	.27**	.14*	.34**	--		
RSex	.05	.10	.07	.19**	.06	.16**	.20**	(.74)	
Drug	.12	.26**	.19**	.28**	.12	.46**	.23**	.34**	(.67)
Drink	.07	.26**	.19**	.34**	.16**	.26**	.27**	.15*	.34**

Note: $n = 418$,

* $p < .01$;

** $p < .001$. LPI = lack of planning, Lpe = lack of perseverance, NU = negative urgency, NA = negative affectivity, Deliq = delinquency, Agg = aggression, RSex = risky sex, Drug = illegal drug use, Drink = problem drinking. Values in parenthesis are coefficient alpha estimates of reliability.

Table 9

Study Three: Prediction of Delinquent Behavior, Aggressive Behavior, Risky Sex, Illegal Drug Use, and Problem Drinking

	<i>b</i>	<i>p</i> value	<i>R</i> ²
<u>Delinquent Behavior</u>			
Step 1			.07
Sex	.26	<.001	
Step 2			.13
Sex	.26	<.001	
Negative affect	.05	.38	
Lack of planning	.19	<.001	
Lack of perseverance	.00	.97	
Negative urgency	.09	.06	
<u>Aggression</u>			
Step 1			.04
Sex	.21	<.001	
Step 2			.11
Sex	.20	<.001	
Negative affect	.04	.38	
Lack of planning	.08	.12	
Lack of perseverance	-.02	.55	
Negative urgency	.21	<.001	
<u>Risky Sex</u>			
Step 1			.00
Sex	.05	.30	
Step 2			.04
Sex	.05	.32	
Negative affect	-.02	.70	
Lack of planning	.04	.37	
Lack of perseverance	-.01	.70	
Negative urgency	.18	<.01	
<u>Illegal Drug Use</u>			
Step 1			.01
Sex	.11	.02	
Step 2			.12
Sex	.10	.02	
Negative affect	.03	.59	
Lack of planning	.18	.001	
Lack of perseverance	.03	.62	
Negative urgency	.18	.001	
<u>Problem Drinking</u>			
Step 1			.01

	<i>b</i>	<i>p</i> value	<i>R</i> ²
Sex	.07	.16	
Step 2			.14
Sex	.06	.20	
Negative affect	.04	.46	
Lack of planning	.16	.002	
Lack of perseverance	.00	.97	
Negative urgency	.26	<.001	

n = 418