The Measurement of Dispositions to Rash Action in Children

Tamika C. B. Zapolski, **Agnes M. Stairs**, **Regan Fried Settles**, **Jessica L. Combs**, and **Gregory T. Smith**
Department of Psychology, University of Kentucky

Abstract

Among adolescents and adults, there appear to be at least four different personality traits that dispose individuals to rash or ill-advised action: sensation seeking, negative urgency, lack of planning, and lack of perseverance. The four are only moderately correlated and they appear to play different roles in dysfunction. It is important to determine whether the traits are present among preadolescents, because of their possible influence on subsequent development. We developed assessments of the four traits for preadolescent children, and found evidence supporting (a) the internal consistency of each trait measure, (b) the convergent and discriminant validity of the four measures using the multitrait, multimethod technique, and (c) the hypothesis that the different traits correlated with different dysfunctional behaviors as predicted by theory. Pending further validation efforts, it appears to be the case that researchers may be able to distinguish among different dispositions to rash action prior to adolescence.

This paper describes evidence that different personality dispositions to rash action can be measured reliably and validly in preadolescent children. This work was based on an integration of two recent advances in the study of personality. First, four different personality traits that dispose individuals to rash or impulsive action have been identified in adolescents and adults, and the different traits relate to different aspects of maladaptive behavior (Smith et al., 2007; Whiteside & Lynam, 2001). Second, it now appears to be the case that individual differences in personality are present and can be assessed in children (Barbaranelli et al., 2003; Markey et al., 2004; Measelle et al. 2005; Roberts & Del Vecchio, 2000; Shiner, 1998). Because psychopathology likely emerges as a function, in part, of personality (Caspi, 1993), it is important to determine whether individual differences in specific personality traits exist in children, and to understand their role in relation to dysfunction. We therefore sought to assess the four dispositions to rash action in preadolescent children: success in doing so may facilitate both more informed models of the etiology of dysfunction and more effective intervention efforts.

To introduce our investigation of the reliability and validity of this preadolescent trait assessment, we review evidence pertaining to the four traits from the adult literature, the importance of studying these traits among preadolescent children, and progress concerning the assessment of personality in children. We then review our overall approach and present our hypotheses.

Four Different Dispositions to Rash Action

In recent years, several researchers have observed that measures of traits labeled "impulsivity" or "disinhibition" often combine separate constructs, or refer to different constructs altogether:

Correspondence concerning this article should be addressed to Tamika C. B. Zapolski or Gregory T. Smith, at the Department of Psychology, University of Kentucky, Lexington, Kentucky, 40506-0044, tamika.zapolski@gmail.com or gsmith@email.uky.edu..

these researchers have therefore sought to define and measure the several constructs separately (Depue & Collins, 1999; Evenden, 1999; McCarthy & Smith, 1995; Nigg, 2000; Petry, 2001; Smith et al., 2007; Whiteside & Lynam, 2001). Whiteside and Lynam's (2001) approach to this problem may be particularly useful; they factor analyzed numerous impulsivity/disinhibition measures and identified four moderately correlated dimensions: sensation seeking, urgency (the tendency to act rashly when distressed, which we call negative urgency), lack of planning, and lack of perseverance. The dimensions were not found to be facets of a common, higher-order impulsivity construct; rather, they appear to represent different pathways to risky behavior that are only moderately correlated (Smith et al., 2007). The four traits represented something of a summary of existing perspectives on the personality underpinnings to rash or impulsive action (that is, actions taken without due consideration of the consequences).

The distinctions among the four traits are substantive. Sensation seeking refers to the disposition to pursue novel, thrilling, or exciting stimulation. Negative urgency, the most novel of these traits, reflects the tendency to act in rash, ill-advised ways when upset (Whiteside & Lynam, 2001). Briefly, the concept of negative urgency follows from the following considerations. Emotions, both positive and negative, prepare individuals to act to meet needs. However, individuals vary in how likely they are to act in response to intense emotions, ranging from acting in immediate, rash ways, to inhibiting immediate action to avoid risk (Cyders & Smith, 2008a). In adults, high scores on negative urgency are associated with the disposition to act in rash ways when experiencing intense negative emotions (Cyders & Smith, 2007, 2008a). Behaviors such as impulsive aggression, heavy alcohol consumption, and binge eating behavior have been hypothesized to be consequences of the trait of negative urgency, either because they involve reduced inhibitory capacity as a function of the intense emotion or because the actions provide the short-term negative reinforcement of reducing the negative emotion (Cyders & Smith, 2008a; Tice, Bratslavsky, & Baumeister, 2001). Lack of planning and lack of perseverance appear not to be affect-based, but rather to reflect deficits in cognition. High scores on these traits reflect either a failure to plan ahead or difficulty maintaining one's focus on a task.

The four traits predict different behaviors as predicted by theory, both concurrently (Anestis, Selby, Fink, & Joiner, 2007; Billieux, Van der Linden, & Ceschi, 2007; Cyders & Smith, 2007, 2008a; Cyders et al., 2007; Smith et al., 2007; Whiteside & Lynam, 2003; Whiteside et al., 2005) and prospectively (Cyders, Flory, Rainer, & Smith, 2009; Cyders & Smith, 2008b; Settles, Cyders, & Smith, in press; Zapolski, Cyders, & Smith, 2009). When all the traits are studied together, sensation seeking is uniquely associated with engaging in highly stimulating activities that do not necessarily involve immediate risk (e.g., riding roller coasters; Fischer & Smith, 2004) and the frequency of engaging in risky behaviors such as gambling (Cyders & Smith, 2008b) and alcohol consumption (Cyders et al., 2009). The affect-based trait, negative urgency, predicts risky behavior involvement likely undertaken when experiencing intense mood states (Cyders & Smith, 2007, 2008a, 2009), including such behaviors as problem gambling, drinking quantity, problem drinking, and binge eating behavior (Cyders & Smith, 2008b; Cyders et al, 2009; Fischer & Smith, 2008; Fischer, Cyders, & Smith, 2008); although prediction of aggression has been hypothesized, that relationship has not yet been tested. Both lack of planning and lack of perseverance appear uniquely associated with school performance (Smith et al., 2007), and lack of planning explains unique variance in some risky behaviors in some studies, but not in others (Smith et al., 2007). To date, research on this set of traits has been conducted on college student samples, general population samples, and identified, disordered samples.

Recently, D'Acremont and Van der Linden (2005) measured the four traits in boys and girls aged 12 to 19. They confirmed the four-factor structure previously found in adults and they

found modest inter-correlations among the four traits. Prior to the research reported here, no study has investigated the measurement of these traits in pre-adolescent children, although Anderson et al. (2005) created a measure of disinhibition that was modified for 5th graders (ages 10-11). That scale, which included multiple forms of disinhibition, including sensation seeking, was found to be internally consistent and correlated with 5th grade alcohol consumption ($r = .25$, $p < .05$).

The Importance of Studying Personality Traits in Children

Increasingly, the emergence of psychopathology is understood to occur in the context of development (Cicchetti & Cohen, 2006). One important contributor to individual differences in developmental trajectories across the life span, and in particular to the emergence of psychopathology, is personality (Caspi, Elder, & Bem, 1987; Caspi & Roberts, 2001; Dodge & Pettit, 2003; Ge et al., 1996; Masten, Neemann, & Andenas, 1994; O'Connor et al., 1998; Rutter et al., 1997). For example, individuals high on global measures of disinhibition are thought to be more likely to select high-risk environments, to respond to stimuli with impulsive action, and to elicit more negative, punitive reactions from others: those processes may explain the prospective prediction of dysfunction from earlier disinhibition (Caspi, 1993; Caspi et al., 1987; Ge et al., 1996). To the extent that individual differences in specific personality traits, including those related to disinhibition, are present in preadolescent children, they could well influence children's developmental trajectories in ways that alter the likelihood of psychopathological life outcomes. It is therefore important for clinical researchers to assess those individual differences successfully, in order to then investigate their influence on subsequent developmental trajectories.

The Assessment of Personality in Children

Although there had perhaps been an historical focus on measuring temperaments, rather than personality traits, in preadolescent children (Shiner, 1998), in recent years researchers have produced very promising assessments of the five broad personality domains of agreeableness, extraversion, openness to experience, conscientiousness, and neuroticism, using teacher and parental report (e.g., Digman & Shmelyov, 1996). Most recently, children as young as age four have been shown to provide reasonably coherent and stable self-reports on the five dimensions (Measelle et al., 2005; Roberts & Del Vecchio, 2000). Their self-reports on the different domains were well-differentiated and they correlated meaningfully with external behaviors (Measelle et al., 2005). Other researchers have similarly found that either four (all but openness: Markey et al., 2004) or all five (Barbaranelli et al., 2003) dimensions could be reliably assessed and were predictive of external behaviors among 10 year olds. The fact that children appear able to provide self-reports of their personalities is important, given concerns that adult reports of children's personalities could either express characteristics of their own personalities (Goldsmith, Losynoya, Bradshaw, & Campos, 1994), preconceptions of typical childhood characteristics (Miller & Davis, 1992), or simple inaccuracy in describing internal states of another person.

These advances are important, but as Shiner (1998) noted, scores on the broad five dimensions may obscure important distinctions along more narrow, specific lower order traits. In perhaps the most common measure of the big five factors of personality, the NEO-PI-R (Costa & McCrae, 1992), six distinct facets of each of the five dimensions have been identified. Among adolescents and adults, different facets, both within the same domain and across domains, have different correlates with external behaviors of clinical importance (Brinkley, Newman, Widiger, & Lynam, 2004; Lynam & Widiger, 2007; Smith & Combs, in press). The ability to distinguish among specific personality traits is thus of particular importance for clinical research. Our investigation of four different traits in children, each of which appears to dispose

individuals to rash or ill-advised action, represents the first attempt we know of to determine whether precise distinctions among related traits can be identified in children, and whether those distinctions may have clinical relevance.

The Current Study

In this study, we sought to (a) measure each of the four dispositions to rash action reliably; (b) demonstrate that the four traits could be measured using different methods and show convergent and discriminant validity across assessment method; and (c) show that the four traits have different external correlates that are consistent with what has been demonstrated in adult samples. To this end, we measured the four traits in a sample of 94 preadolescent children (27 of whom were clinical cases) using two methods: questionnaire completed by the child and interview of the child.

After evaluating the internal consistency of the measures, we investigated convergent and discriminant validity of trait assessment using the multitrait, multimethod matrix (MTMM) method. We anticipated good evidence for convergent validity across assessment method, and discriminant validity within assessment method, when comparing child questionnaires and child interviews.[1] We then tested a series of hypotheses concerning the traits' external correlates: we anticipated that the different traits have the same different roles in preadolescents that they appear to have with adults. Thus, we considered the traits together and tested whether sensation seeking was the best predictor of highly stimulating risky behaviors, negative urgency was the best concurrent predictor of aggressive behaviors and of rash actions undertaken while in an extremely negative mood, both lack of planning and lack of perseverance were the best predictors of problematic academic performance, and low perseverance was the best predictor of attentional problems. Finally, we did not expect any of the four traits to relate to internalizing dysfunction.

Method

Participants

Participants were recruited from both the general community and a clinical setting: we combined participants from these two sources because we view dysfunction, and risk for dysfunction, as existing along a continuum. A total of 68 families from the community responded to our advertisement; of those, 67 or 98.5% agreed to participate. Clinical participants ($n = 27$) were children with current psychiatric diagnoses who were recruited through their participation in anger management groups ($n = 5$), social skills groups (n = 8), and/or other treatment for a variety of disorders including Attention-deficit hyperactivity disorder (ADHD), Attention-deficit disorder (ADD), and Oppositional defiant disorder (ODD): 82% of those who were approached participated. Thus, we assessed a total 94 children (mean age of the child = 10.5, ranging from 7-13; modal grade = 6th, ranging from 3rd to 8th, with 56% of children in grades 5 or 6). A majority of the child sample was European American (83%). A total of 54 children (58%) were male; the relatively small sample size precluded investigation of sex differences in this study.

---

[1]It is important to note that, although such findings would provide important evidence for the validity of the distinctions among the traits, it is also true that both assessment methods involve self-report. On one hand, there certainly are important differences between the two methods: for example, one responds to questionnaire items without contact with others, but one must admit to and report personal aspects of the self to an interviewer. And it may not be the case that any other source compares to the self when inquiring into personality traits. On the other hand, the two methods should not be construed as fully independent sources of information as advocated by Campbell and Fiske (1959).

Measures

***The UPPS-R-Child Version* (Whiteside & Lynam, 2001)**—The UPPS-R-C was modified from the original questionnaire by Whiteside and Lynam (2001), which assessed sensation seeking, (negative) urgency, lack of planning, and lack of perseverance on a four-point Likert-type scale. The initials "upps" refer to urgency, planning, perseverance, and sensation seeking. The modifications are described next: all were done with the permission of the UPPS-R authors.

Item Modification for UPPS-R-C Questionnaire—In relation to the adult measure, we sought to reduce the total number of items and to modify items so they met 4th grade or lower reading standards. Concerning the first goal, the adult UPPS-R has 45 items, and the child version has 32 (8 per scale). Concerning the second goal, after simplifying sentence structure and removing words of three syllables or more, we tested the reading grade level of the resulting scale using the Gunning Fog index (Gunning, 1964). The resulting scale was calculated to be at the 3.6 grade reading level (third grade, close to fourth grade).

Example item changes are as follows. The sensation seeking adult item "I generally seek new and exciting experiences and sensations" was changed to "I like new, thrilling things to happen." The adult negative urgency item "In the heat of an argument, I will often say things that I later regret" was changed to "When I am mad, I sometimes say things that I later regret." The lack of planning item "I usually think carefully before doing anything" was changed to "I tend to stop and think before doing things." The lack of perseverance item "I generally like to see things through to the end" was changed to "I like to see things through to the end." Some items were not changed at all, such as the negative urgency item "When I am upset I often act without thinking."

The UPPS-R-Interview Child Version—The original interview version of the UPPS-R was developed by Smith et al. (2007). It is made up of 36 items, divided into the same four subscales. Coefficient alpha estimates of internal consistency for the adult measure ranged from .75 (lack of perseverance) to .82 (lack of planning), and interrater reliability estimates ranged from .82 (lack of planning) to .98 (negative urgency). It was also revised for use with preadolescents, again with the authors' permission.

Item Modification for the UPPS-R Interview Child Version—We kept the original, adult questions for the interview but added a standardized prompt to each question, which involved restating the question in language that was simpler and developmentally relevant. For example, the lack of perseverance interview item "Do you like to stick with things until they are done?" is followed with the prompt, "Do you like to finish what you start?" should the interviewer have any concern about comprehension of the item. The negative urgency question "Do you often make matters worse because you act without thinking when you are upset?" can be followed with the prompt, "When you get sad, mad, or upset, do you do things that could get you into more trouble?" The full interview is available from the authors. Four doctoral students were trained to administer the interview in a series of training sessions until they reached close agreement on pilot cases. A sample of interviews were audiotaped and scored by a second interviewer, in order to assess inter-rater reliability. Participating families received $20 for participation.

***The Child Behavior Checklist* (CBCL; Achenbach, 1991)**—The CBCL is a 140 item Likert-type scale designed to assess problem behaviors and competencies in children. The first section of questionnaire consists of 20 competence items and the second section consists of 120 items on behavior or emotional problems during the past 6 months. Numerous studies have documented the scale's reliability and validity in the assessment of childhood dysfunction. We

used it to assess both academic performance and behavioral/emotional problems. For academic performance, we used items assessing academic performance in language arts, history, mathematics, and science. Items are assessed from 1 (failing) to 4 (above average); we summed the items to provide a marker of overall performance. For behavioral and emotional problems, we used these standard parent report scales: Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Attention Problems, Rule-Breaking Behavior, and Aggressive Behavior. Items are assessed from 0 (not true) to 2 (very true or often true). Internal consistency reliabilities obtained for these scales were found to be 0.82, 0.66, 0.71, 0.88, 0.74, and 0.92, respectively. An overall Internalizing score is based on these scales: Anxious/Depressed, Withdrawn/Depressed, and Somatic Complaints. An overall Externalizing score is based on Rule-Breaking Behavior and Aggressive Behavior. This measure was completed by the participant's parent.

Risky Behaviors Scale (RBS: Fischer and Smith, 2004)—The RBS is an 83 item scale with dichotomous items designed to assess engagement in various risky behaviors. The measure is a composite of various risky behavior questionnaires. We used two items from the RBS, in order to assess involvement in risky behaviors. Our two markers were "rode a roller coaster" and "jumped out of trees." The child participant completed this measure.

Mood-based Questionnaire (MBQ-C: Cyders and Smith, 2007)—The MBQ is a scale designed to measure an individual's self-reported participation in risky behaviors during both a positive and a negative mood state. Evidence for the overall scale's reliability and validity when used with late adolescents is provided in Cyders and Smith (2007). Individuals are first asked to report on their experiences of being in intensely positive moods, including how many times in a typical month they experience an extremely good mood (rated on a five point scale). They then report, by check list, their involvement in a series of behaviors when experiencing a very good mood. Subsequent to that, they report their experiences of being in an unusually bad mood, including how many times in a typical month they experience an extremely bad mood. They then report, using the same check list, their involvement in a series of behaviors when experiencing a very bad mood. This study used reports of behaviors, or markers of behaviors, engaged in while individuals were in an unusually bad mood. Sample items include "ate an unusually large amount of food," "trespassed," "started a fight," "cut class," "did something you normally wouldn't do," "drank alcohol," and "gotten sick from alcohol." The MBQ-C is a modification of the MBQ, designed to remove developmentally inappropriate items and simplify item language. Six items were deleted (e.g., "played drinking games") and others were modified (e.g., "drove a car while intoxicated" was modified to "drove a car"). In previous research, good evidence was reported for the MBQ's reliability and validity (Cyders & Smith, 2007); in the current sample, $\alpha = .73$.

Procedure

Participant Recruitment—Participants were recruited through two sources. A community based sample of participants was gathered through advertisements in an urban Midwestern newspaper. Participants were informed that the study would examine personality traits in children and that the children would be asked to participate in an audiotaped interview and complete several questionnaires. A second sample of participants was recruited through the psychological services center affiliated with the university's clinical psychology department. Parents were provided the same information as the community sample as to the purpose of the study. All families volunteered to participate in the study by contacting the researchers via phone. The accompanying parent provided informed consent and the children provided informed assent. If the child had difficulty reading the assent form, the researcher read the form to the child.

Data Analysis

Missing Data Treatment—Only 1.6% of all values were missing. Individuals who provided complete data were compared to individuals who did not on each study variable. The two groups did not differ on any variables. We therefore concluded that data were missing at random, and we imputed missing values using the Expectation Maximization (EM) method; monte carlo studies indicate that this method of data imputation yields more unbiased estimates of population parameters than do either dropping missing cases or mean substitution procedures (Enders, 2006).

Results

Part 1: Reliability

Reliability Analysis—Estimates of internal consistency, calculated using Cronbach's alpha, for the child questionnaire were, respectively, .90 (sensation seeking), .87 (negative urgency), .84 (lack of planning), and .81 (lack of perseverance). Estimates of internal consistency for the four scales measured by child interview were .73 (sensation seeking), .81 (negative urgency), .75 (lack of planning), and .58 (lack of perseverance). We evaluated the inter-rater reliability of the interview measures of each construct by correlating in-person ratings with audiotape-based ratings from a different interviewer for 26 participants. Raters agreed on the precise score for 96.7% of all items. Intra-class coefficient estimates of inter-rater reliabilities were .98 each for sensation seeking and lack of perseverance, and .99 each for negative urgency and lack of planning.

Part 2: Multitrait, Multimethod Matrix

Table 1 presents the bivariate correlations among the traits for the two methods of assessment. For the four traits, we found strong convergent validity across the child questionnaire and child interview assessment methods. The monotrait, heteromethod correlations were .65 for sensation seeking, .73 for negative urgency, .56 for lack of planning, and .66 for lack of perseverance. The mean heterotrait, monomethod correlations were .19 for questionnaire assessment and .20 for interview assessment. The mean heterotrait, heteromethod correlation was .18.

We then compared these child values to those obtained by Smith et al. (2007) in adults. Smith et al. (2007) reported monotrait, monomethod correlations of .74 for sensation seeking, .64 for negative urgency, .57 for lack of planning, and .56 for lack of perseverance. We tested whether each, corresponding monotrait, monomethod correlation differed significantly between our child sample and Smith et al's. (2007, n = 323) adult sample, using Fischer's r to z transformation (Hays, 1994), and none did. The mean heterotrait, monomethod correlations in Smith et al. (2007) were .22 for questionnaire assessment and .18 for interview assessment, and the mean heterotrait, heteromethod correlation was .20. None of these child correlations differed significantly with the corresponding adult correlations in Smith et al. (2007), either. Thus, there was (a) good evidence of convergent and discriminant validity when comparing child questionnaire reports with child interview reports and (b) remarkable consistency between the child findings reported here and what has been found in the past for adults.

Part 3: Differential Correlates with External Behaviors

We next sought to determine whether the distinctions among the traits observed in the MTMM analysis corresponded to different predictions of different aspects of psychological dysfunction according to our hypotheses. We used the child questionnaire measurement to reflect the four traits. For each outcome variable, we specified hypotheses identifying which traits should be unrelated to the outcome and which traits should be related to the outcome. We adopted

conservative tests of these hypotheses: using multiple regression: we entered the traits not expected to predict at step one and the traits expected to predict at step two. Thus, for each anticipated predictive relationship, we tested its incremental validity over the other dispositions to rash action.

Bivariate Correlations Between Predictor and Criterion Variables—Table 2 presents the bivariate correlations between the four traits and the criterion variables of aggressive behavior (measured by the CBCL), attentional problems (CBCL), highly stimulating risky behaviors (RBS), risky behaviors undertaken while in an extremely negative mood (MBQ), academic performance (CBCL), and internalizing behaviors (CBCL). Each of the criterion variables was distributed in this sample with positive skew. We therefore transformed each outcome variable by taking its square root, thus reducing the skew. After the transformations, all skew values were below 1.0. Sex was unrelated to each outcome variable and so was not included in these regression findings.

Prediction of Aggressive Behavior—We hypothesized that negative urgency would be the only one of the four traits to concurrently predict aggressive behavior. Using bivariate correlations, it was. In a multiple regression analysis, we entered sensation seeking, lack of planning, and lack of perseverance on the first step of the analysis and negative urgency on the second step. Together, the tree traits entered at step one did not explain significant variance in the CBCL measure of aggressive behavior ($R^2 = .06$). When negative urgency was added at the second step, it explained significant additional variance (incremental $R^2 = .07$, $p < .01$, $b = .27$). The results of each multiple regression are presented in table 3.

Prediction of Attentional Problems—We hypothesized that low perseverance would be the only concurrent predictor of attention problems. Considering uncorrected bivariate correlations, it correlated most strongly with that criterion ($r = .37$, $p < .001$), but lack of planning also correlated significantly ($r = .24$, $p < .05$). At step one of the multiple regression, the other three traits, including lack of planning, did not concurrently predict attention problems ($R^2 = .08$). Lack of perseverance did add incremental predictive power at step two (incremental $R^2 = .09$, $p < .01$, $b = .35$).

Prediction of Risky Behaviors—We hypothesized that sensation seeking would be the only predictor of the risky behaviors of riding roller coasters and jumping out of trees. Bivariately, it correlated highly with that criterion ($r = .35$, $p < .001$), and lack of planning also correlated with the criterion modestly ($r = .23$, $p < .05$). At step one of the multiple regression, the other three traits (negative urgency, lack of planning, and lack of perseverance) did not relate to the criterion ($R^2 = .07$) but, even corrected for those three traits, sensation seeking did (incremental $R^2 = .06$, $p < .05$, $b = .25$).

Prediction of Risky Behaviors Undertaken While in an Extremely Negative Mood—We hypothesized that negative urgency would be the only concurrent predictor of risky behaviors undertaken while in an extremely negative mood. Its bivariate correlation with that criterion was $r = .52$, $p < .001$; lack of planning again related to this outcome ($r = .36$, $p < .001$). In the multiple regression analysis, the three traits did predict significantly at step one ($R^2 = .14$, $p < .001$), which can primarily be explained by the significant prediction by lack of planning ($b = .37$, $p < .01$). When negative urgency was added at step two, it explained substantial additional variance in the criterion (incremental $R^2 = .20$, $p < .001$, $b = .46$). When negative urgency was included, lack of planning remained significant ($b = .28$, $p < .01$). This hypothesis was thus partly confirmed.

Prediction of Problematic Academic Performance—We hypothesized that the two low conscientiousness traits would predict academic problems and the other two traits would not. In bivariate analyses, lack of perseverance correlated with academic problems ($r = .32$, $p < .01$), as did lack of planning ($r = .23$, $p < .05$). In multiple regression analyses, sensation seeking and negative urgency, entered at step one, did not predict academic problems ($R^2 = .05$). At step two, the two low conscientiousness traits added significant predictive power (incremental $R^2 = .09$, $p < .05$), but only lack of perseverance had incremental validity ($b = .27$, $p < .05$).

Prediction of Internalizing Dysfunction—As anticipated, none of the traits correlated significantly with the CBCL index of internalizing behaviors. Table 2 presents these correlations.[2]

Discussion

Because there is considerable evidence that dispositional characteristics of children predict distress later in life (Caspi et al., 1987; Ge et al., 1996; O'Connor et al., 1998), it is important to understand the nature of individual differences in children and to measure them reliably and validly. In recent years, there has been growing evidence that preadolescent children differ from each other not just in broad temperament, but in the five basic domains of personality (Shiner, 1998). This advance suggests the possibility that children also differ on even more specific personality traits in ways that influence their risk for problematic developmental trajectories and psychological dysfunction.

We tested whether a set of different personality dispositions to rash action that have been identified in adolescents and adults were detectable in preadolescent children and whether they related to different forms of dysfunction as predicted by theory. This test appears to have been successful. We developed both self-report questionnaire and interview assessment measures of the four different dispositions. Seven of the eight measures proved internally consistent; the exception was the interview assessment of lack of perseverance. All four interview assessments, including lack of perseverance, were highly reliable across raters (all inter-rater reliability estimates equal to or greater than .98).

An MTMM analysis comparing self-reported questionnaire and interview demonstrated comparably good convergent validity across assessment method and comparably good discriminant validity to what has been shown in adults (Smith et al., 2007). This finding supports the hypothesis that these four, specific traits, each of which is thought to dispose individuals to forms of rash or impulsive action, can be differentiated in preadolescent children just as they can in individuals later in development.

The four different traits related differentially to measures of dysfunction as predicted. Sensation seeking related to involvement in high stimulation risky activities. The emotion-based trait, negative urgency, related to a form of maladaptive behavior that tends to be influenced by affect, i.e., aggression, and also correlated with engagement in emotion-based risky behavior. Lack of perseverance related to attentional problems and poor academic performance. In each case, these relationships existed above and beyond prediction from the other traits. Thus, the hypothesized predictive relationships were observed in a fairly stringent empirical test.

The hypothesis that the traits correlate with different external behaviors was also supported. Concerning aggressive behavior, attentional problems, highly stimulating risk behaviors, and

---

[2]Three of the child participants were age 13. Because we draw conclusions about preadolescence, we re-ran all analyses reported in this paper excluding those three children, and the results were the same.

academic performance, our discriminant validity hypotheses were confirmed: when the traits were considered together, no trait related to one of those criteria that was not anticipated to. For negative emotion-based risky behavior, negative urgency was correlated higher with such behaviors than were the other traits. Unexpectedly, lack of planning also related to risky behaviors undertaken while in an extremely negative mood. However, this finding represents the only finding out of 14 externalizing behavior discriminant validity predictions that was inconsistent with our expectations. And, none of the traits correlated with internalizing behavior.

At the uncorrected, bivariate level, lack of planning related to all four risky behavior criteria, but multivariately, it accounted for significant incremental variance for only one (negative mood-based rash action). Perhaps because each trait reflects a form of rash or ill-considered action, lack of planning tends to add relatively little to the substantial prediction provided by those traits.

This study is the first to measure these traits, and to draw such relatively fine distinctions among personality processes, in preadolescent children. We cannot know the degree to which trait levels are stable from preadolescence onward: the encouraging results of this study suggest that investigation of trait stability across the transition into adolescence, and beyond, may be worthwhile. Similarly, investigations of whether individual differences on these traits, measured in preadolescence, predict subsequent developmental trajectories of problem behaviors during the early adolescent years may prove useful. If they do, studies of preventive interventions targeted to the specific traits of interest may be indicated. With older adolescents and adults, there is evidence that high sensation messages reduce the frequency of risky behaviors among those high in sensation seeking, while affect management skill provision may reduce negative urgency-related problem behavior (Linehan, 1993; Stephenson, 2003). Of course, continued investigation into the construct validity of the traits is necessary.

There are important limitations to this study that should be noted. First, the sample size was relatively small. One result of this limitation is that we were unable to investigate similarities and differences between the sexes. We do not know whether the traits differ structurally and predictively for both sexes during this age period. Second, although the statistical power of the study was adequate to detect moderate effects (power = .90 to detect a correlation of $r = .30$), a larger sample would likely have resulted in statistical significance for some non-hypothesized correlations that were observed to be of low magnitude. There is clearly a need to replicate and extend this work with larger samples.

A third limitation is that the sample was entirely from the United States and was primarily Caucasian. We do not know whether similar findings would be observed in other nations or in other cultural groups within the United States. Fourth, recent findings suggest the presence of a fifth disposition to rash action, known as positive urgency (the tendency to act rashly when experiencing intensely positive mood states: Cyders & Smith, 2007, 2008a; Cyders et al., 2007). We did not include positive urgency in this study. It is important to develop an interview assessment of that trait, as has been done with adults (Cyders & Smith, 2007), and to test its role in explaining dysfunction.

In conclusion, there is good reason to believe that psychopathology researchers can assess individual differences on at least some important, specific personality traits prior to adolescence, and that the different traits relate to different aspects of dysfunction in clear, meaningful ways. Researchers studying risk for different forms of risky, maladaptive behavior can take advantage of these findings to obtain more specific, precise evaluations of the nature of risk faced by different children. The possibility that the four different traits have different influences on subsequent developmental trajectories and risk profiles should be investigated.

Acknowledgments

References

Achenbach, TM. Integrative Guide to the 1991 CBCL/4-18, YSR, and TRF Profiles. University of Vermont, Department of Psychology; Burlington, VT: 1991.

Anderson KG, Smith GT, McCarthy DM, Fischer SM, Fister S, Grodin D, Boerner LM, Hill KK. Elementary school drinking: The role of temperament and learning. Psychology of Addictive Behaviors 2005;19:21–27. [PubMed: 15783274]

Anestis MD, Selby EA, Joiner TE. The role of urgency in maladaptive behaviors. Behaviour Research and Therapy 2007;45:3018–3029. [PubMed: 17923108]

Barbaranelli C, Vittorio Caprara G, Rabasca A, Pastorelli C. A questionnaire for measuring the Big Five in late childhood. Personality and Individual Differences 2003;34:645–664.

Billieux J, Van der Linden M, Ceschi G. Which dimensions of impulsivity are related to cigarette craving? Addictive Behaviors 2007;32:1189–1199. [PubMed: 16997490]

Brinkley CA, Newman JP, Widiger TA, Lynam DR. Two approaches to parsing the heterogeneity of psychopathy. Clinical Psychology: Science and Practice 2004;11:69–94.

Campbell DT, Fiske DW. Convergent and discriminant validation by the multi-trait multi-method matrix. Psychological Bulletin 1959;56:81–105. [PubMed: 13634291]

Caspi, A. Why maladaptive behaviors persist: Sources of continuity and change across the life course. In: Funder, DC.; Parke, RD.; Tomlinson-Kersey, C.; Widaman, K., editors. Studying Lives Through Time: Personality and Development. American Psychological Association; Washington, D. C.: 1993. p. 343-376.

Caspi A, Roberts BW. Personality development across the life course: The argument for change and continuity. Psychological Inquiry 2001;12:49–66.

Caspi A, Elder GH, Bem DJ. Moving against the world: Life-course patterns of explosive children. Developmental Psychology 1987;23:308–313.

Cicchetti, D.; Cohen, DJ. Developmental psychopathology. 2nd ed.. John Wiley & Sons; Hoboken, NJ: 2006.

Costa, PT.; McCrae, RR. Revised NEO Personality Inventory manual. Psychological Assessment Resources; Odessa, FL: 1992.

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. [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.

Cyders MA, Smith GT. Emotion-based dispositions to rash action: Positive and negative urgency. Psychological Bulletin 2008a;134:807–828. [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. [PubMed: 19088857]

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. [PubMed: 17371126]

D'Acremont M, Van der Linden M. Adolescent impulsivity: Findings from a community sample. Journal of Youth and Adolescence 2005;34:427–435.

Depue RA, Collins PF. Neurobiology of the structure of personality: Dopamine, facilitation of incentive motivation, and extraversion. Behavioral and Brain Sciences 1999;22:491–569. [PubMed: 11301519]

Digman JM, Shmelyov AG. The structure of temperament and personality in Russian children. Journal of Personality and Social Psychology 1996;71:341–351. [PubMed: 8765485]

Dodge KA, Pettit GS. A biopsychosocial model of the development of chronic conduct problems in adolescence. Developmental Psychology 2003;39:349–371. [PubMed: 12661890]

Enders C. A primer on the use of modern missing-data methods in psychosomatic medicine research. Psychosomatic Medicine 2006;68:427–736. [PubMed: 16738075]

Evenden J. Varieties of impulsivity. Journal of Psychopharmacology 1999;146:348–361.

Fischer S, Smith GT. Deliberation affects risk taking beyond sensation seeking. Personality and Individual Differences 2004;36:527–537.

Fischer S, Smith GT. Binge eating, problem drinking, and pathological gambling: Linking behavior to shared traits and social learning. Personality and Individual Differences 2008;44(4):789–800.

Ge X, Conger RD, Cadoret RJ, Neiderhiser JM, Yates W, Troughton E, Stewart MA. The developmental interface between nature and nurture: A mutual influence model of child antisocial behavior and parent behaviors. Developmental Psychology 1996;32:574–589.

Goldsmith, HH.; Losynoya, SH.; Bradshaw, DL.; Campos, JJ. Genetics of personality: A twin study of the five-factor model and parental offspring analysis. In: Halverson, CF., Jr.; Kohnstamm, GA.; Martin, RP., editors. The developing structure of temperament and personality from infancy to adulthood. Erlbaum; Hillsdale, NJ: 1994. p. 241-265.

Gunning, R. How to Take the Fog out of Writing. The Dartnell Corporation; Chicago, IL: 1964.

Hays, WL. Statistics. Harcourt Brace; New York: 1994.

Linehan, MM. Cognitive-behavioral treatment of borderline personality disorder. Guilford Press; New York, NY, US: 1993.

Lynam DR, Widiger TA. Using a general model of personality to identify the basic elements of psychopathy. Journal of Personality Disorders 2007;21:160–178. [PubMed: 17492919]

Markey PM, Markey CN, Tinsley BJ. Children's behavioral manifestations of the five-factor model of personality. Personality and Social Psychology Bulletin 2004;30:423–432. [PubMed: 15070472]

Masten AS, Neemann J, Andenas S. Life events and adjustment in adolescents: The significance of event independence, desirability, and chronicity. Journal of Research on Adolescence 1994;4:71–97.

McCarthy, DM.; Smith, GT. Issues in the Measurement of Substance Use Risk Factors; Paper presented at the annual meeting of the American Psychological Association; New York. 1995, August;

Measelle JR, John OP, Ablow JC, Cowan PA, Cowan CP. Can children provide coherent, stable, and valid self-reports on the big five dimensions? A longitudinal study from ages 5 to 7. Journal of Personality and Social Psychology 2005;89:90–106. [PubMed: 16060748]

Miller SA, Davis TL. Beliefs about children: A comparative study of mothers, teachers, peers, and self. Child Development 1992;63:1251–1265.

Nigg JT. On inhibition/disinhibition in developmental psychopathology: Views from cognitive and personality psychology and a working inhibition taxonomy. Psychological Bulletin 2000;126:220–246. [PubMed: 10748641]

O'Connor TG, Deater-Deckard K, Fulker D. Genotype-environment correlations in late childhood and early adolescence: Antisocial behavioral problems and coercive parenting. Developmental Psychology 1998;34:970–981. [PubMed: 9779743]

Petry NM. Substance abuse, pathological gambling, and impulsiveness. Drug and Alcohol Dependence 2001;63:29–38. [PubMed: 11297829]

Roberts BW, DelVecchio WF. The rank order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies. Psychological Bulletin 2000;126:3–25. [PubMed: 10668348]

Rutter M, Dunn J, Plomin R, Simonoff E, Pickles A, Maughan B, et al. Integrating nature and nurture: Implications of person-environment correlations and interactions for developmental psychopathology. Development and Psychopathology 1997;9:335–366. [PubMed: 9201448]

Settles RF, Cyders MA, Smith GT. Longitudinal validation of the Acquired Preparedness model of drinking risk. Psychology of Addictive Behaviors. in press.

Shiner RL. How shall we speak of children's personalities in middle childhood?: A preliminary taxonomy. Psychology Bulletin 1998;124:308–332.

Smith, GT.; Combs, J. Issues of construct validity in psychological diagnoses. In: Millon, T.; Krueger, RF.; Simonsen, E., editors. Contemporary Directions in Psychopathology: Toward the DSM-V and ICD-11. Guilford Press; New York: in press

Smith GT, Fischer S, Cyders MA, Annus AM, Spillane NS, McCarthy DM. On the validity and utility of discriminating among impulsivity-like traits. Assessment 2007;14:155–170. [PubMed: 17504888]

Stephenson MT. Mass media strategies targeting high sensation seekers: What works and why. American Journal of Health Behavior 2003;27(Suppl. 3):S233–S238. [PubMed: 14672384]

Tice DM, Bratslavsky E, Baumeister RF. Emotional distress regulation takes precedence over impulse control: If you feel bad, do it! Journal of Personality and Social Psychology 2001;80:53–67. [PubMed: 11195891]

Whiteside SP, Lynam DR. The five factor model and impulsivity: Using a structural model of personality to understand impulsivity. Personality and Individual Differences 2001;30:669–689.

Whiteside SP, Lynam DR. Understanding the role of impulsivity and externalizing psychopathology in alcohol abuse: Applications of the UPPS Impulsive Behavior Scale. Experimental and Clinical Psychopharmacology 2003;11:210–217. [PubMed: 12940500]

Whiteside SP, Lynam DR, Miller JD, Reynolds SK. Validation of the UPPS impulsive behavior scale: A four-factor model of impulsivity. European Journal of Personality 2005;19:559–574.

Zapolski TCB, Cyders MA, Smith GT. Positive urgency predicts illegal drug use and risky sexual behavior. Psychology of Addictive Behaviors 2009;23:348–354. [PubMed: 19586152]

Table 1

Bivariate Correlations for Multi-trait, Multi-method Matrix

	A1	A2	A3	A4	B1	B2	B3	B4
A1		0.16	0.45**	0.22*	0.65**	0.13	0.34**	0.29**
A2			0.13	0.02	0.06	0.73**	0.16	0.05
A3				0.15	0.30**	0.09	0.56**	0.22*
A4					0.10	0.14	0.26*	0.66**
B1						0.05	0.40**	0.16
B2							0.08	0.20
B3								0.33**
B4								

Methods: A: child questionnaire; B: child interview. Traits: 1: sensation seeking; 2: negative urgency; 3: lack of planning; 4: lack of perseverance

*
$p < 0.05$

**
$p < 0.01$

Table 2

Bivariate Correlations Between Traits and Criterion Variables

	AGG	ATN	NMR	RSB	ACD	INT
SS	0.11	0.10	0.00	0.35***	0.04	−0.02
NU	0.28**	0.18	0.52***	0.15	0.23*	0.11
LPL	0.05	0.24*	0.37***	0.23*	0.23*	−0.12
LPV	0.18	0.37***	0.18	0.08	0.32*	0.04

Criterion: AGG: Aggression, ATN: Attentional Problems, NMR: Negative Mood Rash Action, RSB: Risky Behaviors, ACD: Academic Problems, INT: Internalizing Problems. Traits: SS: Sensation Seeking, NU: Negative Urgency, LPL: Lack of Planning, LPV: Lack of Perseverance.

*
$p < 0.05$

**
$p < 0.01$

***
$p < 0.001$

Table 3

Prediction of Aggressive Behavior from Sensation Seeking, Lack of Planning, Lack of Perseverance, and Negative Urgency

Variable	B	SE B	β	R²
Step One				
Sensation Seeking	0.26	0.18	0.15	
Lack of Planning	−0.19	0.26	−0.09	
Lack of Perseverance	0.62	0.30	0.24	
				0.06
Step Two				
Negative Urgency	0.45	0.17	0.27**	
				0.13**

Prediction of Attentional Problems from Sensation Seeking, Lack of Planning, Lack of Perseverance, and Negative Urgency

Variable	B	SE B	β	R²
Step One				
Sensation Seeking	0.10	0.16	0.07	
Negative Urgency	0.19	0.16	0.13	
Lack of Planning	0.38	0.20	0.20	
				0.08
Step Two				
Lack of Perseverance	0.80	0.25	0.35**	
				0.17**

Prediction of Non-harmful Risky Behaviors from Sensation Seeking, Lack of Planning, Lack of Perseverance, and Negative Urgency

Variable	B	SE B	β	R²
Step One				
Lack of Planning	0.15	0.08	0.21	
Lack of Perseverance	−0.02	0.10	−0.02	
Negative Urgency	0.08	0.06	0.15	
				0.07
Step Two				
Sensation Seeking	0.14	0.06	0.25*	
				0.13*

Prediction of Negative Mood-Based Behaviors from Sensation Seeking, Lack of Planning, Lack of Perseverance, and Negative Urgency

Variable	B	SE B	β	R²
Step One				
Sensation Seeking	−0.07	0.13	−0.05	
Lack of Planning	0.58	0.18	0.37**	
Lack of Perseverance	0.01	0.21	0.01	

Prediction of Negative Mood-Based Behaviors from Sensation Seeking, Lack of Planning, Lack of Perseverance, and Negative Urgency

Variable	B	SE B	β	R^2
				0.14[**]
Step Two				
Lack of Planning	0.44	0.16	0.28[**]	
Negative Urgency	0.56	0.11	0.46***	
				0.34***

Prediction of Academic Performance from Sensation Seeking, Lack of Planning, Lack of Perseverance, and Negative Urgency

Variable	B	SE B	β	R^2
Step One				
Sensation Seeking	−0.01	0.04	−0.03	
Negative Urgency	−0.08	0.04	−0.22[*]	
				0.05
Step Two				
Lack of Planning	0.41	0.06	0.08	
Lack of Perseverance	0.15	0.07	0.27[*]	
				0.15[*]

[*]
$p < 0.05$

[**]
$p < 0.01$