



# The Five Factor Model and impulsivity: using a structural model of personality to understand impulsivity

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Received 23 August 1999; received in revised form 1 February 2000

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## Abstract

The present project utilized the Five Factor Model of personality (FFM; McCrae & Costa, 1990) to clarify the multi-faceted nature of impulsivity. The NEO-PI-R and a number of commonly used impulsivity measures were administered to over 400 young adults. Exploratory factor analyses identified four distinct personality facets associated with impulsive-like behavior which were labeled urgency, (lack of) premeditation, (lack of) perseverance, and sensation seeking. Each of these traits was marked by a different facet of the FFM. Following the initial factor identification, scales to measure each of the personality facets were created and combined to form the UPPS Impulsive Behavior scale. Implications for the understanding of impulsive behavior and the FFM are discussed, as are future applications of the UPPS impulsive behavior scale. © 2001 Elsevier Science Ltd. All rights reserved.

*Keywords:* Five Factor Model; Personality; Impulsivity; Deliberation; Sensation seeking; Urgency

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## 1. Introduction

Impulsivity is an important psychological construct. It appears, in one form or another, in every major system of personality. For instance, Eysenck and Eysenck (1985) include impulsiveness (e.g., I usually think carefully before doing anything) as a component of psychoticism and venturesomeness (e.g., I would enjoy waterskiing) and sensation-seeking (e.g., I sometimes like doing things that are a bit frightening) as components of extraversion in their three dimensional view of personality. In his models, Cloninger (Cloninger, Przybeck & Svrakic, 1991; Cloninger, Svrakic & Przybeck, 1993) includes a superfactor of novelty seeking which consists of items asking about thrill seeking and preferring to act on feelings of the moment without regard for rules

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and regulations. Finally, Tellegen (1982) incorporates a dimension of control (vs impulsiveness) under his higher-order constraint factor.

In addition to its importance in personality, impulsivity also plays a prominent role in the understanding and diagnosis of various forms of psychopathology. In fact, after subjective distress, impulsivity may be the most common diagnostic criteria in the fourth version of the *Diagnostic and Statistical Manual for Mental Disorders* (DSM-IV; American Psychiatric Association, 1994). In addition to an entire section devoted to impulse-control disorders (e.g., intermittent explosive disorder, kleptomania, and pyromania), impulsivity appears in the diagnostic criteria for psychiatric disorders as varied as: borderline personality disorder (i.e., impulsivity in at least two areas that are potentially self-damaging), antisocial personality disorder (i.e., impulsivity or failure to plan ahead), attention-deficit/hyperactivity disorder (i.e., blurts out answers, difficulty waiting turn, and interrupts or intrudes), mania (e.g., excessive involvement in pleasurable activities that have a high potential for painful consequences), dementia (i.e., disturbance in executive functioning), bulimia nervosa (e.g., feeling as though one cannot control how much one is eating), substance use disorders, and the paraphilias. Additionally, impulsivity serves as a centerpiece in etiologic theories of psychopathy (Newman & Wallace, 1993; Lynam, 1996), crime (Moffitt, 1993), and substance use (Wills, Vaccaro & McNamara, 1994).

Given the pervasive importance of impulsivity in psychology, it is somewhat surprising to note the variety of current conceptualizations of impulsivity and the inconsistencies among them. As Depue and Collins (1999) note, “impulsivity comprises a heterogeneous cluster of lower-order traits that includes terms such as impulsivity, sensation seeking, risk-taking, novelty seeking, boldness, adventuresomeness, boredom susceptibility, unreliability, and unorderliness” (p. 495). Unfortunately, impulsivity suffers from both the “jingle” and “jangle” fallacies (Block, 1995). The jingle fallacy refers to situations in which two constructs with equivalent labels are in reality quite different; in the present instance, measures labeled impulsivity may reflect constructs as diverse as a short attention span and a tendency to participate in risky behavior. On the other hand, the jangle fallacy refers to situations in which two constructs with different labels are actually the same; for example, Tellegen’s control (Tellegen, 1982) and Zuckerman’s Disinhibition (Zuckerman, 1994) scales seem to measure similar constructs despite bearing different labels. Clearly, the jingle and jangle fallacies are more likely to inhibit than to advance the understanding of impulsivity; these fallacies “waste scientific time” and “work to prevent the recognition of correspondences that could help build cumulative knowledge” (Block, 1995, p. 210). It is in response to these concerns that we conduct the current investigation of impulsivity. Specifically, we attempted to understand the construct of impulsivity by analyzing, within the framework of a well-validated personality model, a variety of commonly used impulsivity measures.

### *1.1. Personality theories incorporating conceptualizations of impulsivity*

There have been several previous attempts to bring clarity to the construct of impulsivity. For instance, Eysenck and colleagues have discussed impulsivity in terms of their three factor theory of personality which currently consists of neuroticism, extraversion, and psychoticism. In their earlier work, Eysenck and Eysenck (1968) included impulsivity as a subscale of the second order personality trait extraversion. Eysenck and Eysenck (1975) revised their personality scale which,

according to Rocklin and Revelle (1981), redefined extraversion in a manner that included liveliness and sociability, but excluded impulsivity. Subsequent to the revision of their three factor theory of personality Eysenck and Eysenck (1977) subdivided impulsivity (labeled broad impulsiveness) into four specific dimensions: narrow impulsiveness, risk-taking, non-planning, and liveliness. They found that the four impulsivity scales correlated differentially with extraversion, neuroticism, and psychoticism. The first factor, narrow impulsiveness, had high correlations with neuroticism and psychoticism, but did not correlate with extraversion. However, the other dimensions, risk-taking, non-planning, and liveliness, were more strongly correlated with extraversion. This work contributed to Eysenck and Eysenck's (1985), reconsideration of their original placement of impulsivity on extraversion (Eysenck & Eysenck, 1975) and their proposal that impulsivity consists of two components: venturesomeness that corresponds to extraversion, and impulsiveness, that corresponds to psychoticism.

Buss and Plomin (1975) included impulsivity, along with emotionality, activity, and sociability in their four factor model of temperament. They hypothesize that impulsivity is a multi-dimensional temperament with inhibitory control, or the ability to delay the performance of a behavior, as its core aspect. The other three components of impulsivity in this system involve the tendency to consider alternatives and consequences before making a decision, the ability to remain with a task despite competing temptations, and the tendency to become bored and need to seek novel stimuli. Although the authors describe impulsivity and the other temperaments as separate dimensions they contend that the traits influence behavior in an interactional manner. For instance, they postulate that while activity and emotionality motivate individuals to action, impulsivity works to slow down or inhibit behavior.

Zuckerman and colleagues likewise have discussed impulsivity in terms of a general model of personality. Zuckerman, Kuhlman, Thornquist and Kiers (1991) began the development of an alternative five-factor model through the factor analysis of a number of general personality inventories. They identified a factor consisting of the four subscales from Zuckerman's Sensation Seeking Scale (Zuckerman, 1994) and other measures of impulsivity which they have since labeled impulsive-sensation seeking. Zuckerman, Kuhlman, Joireman, Teta and Kraft (1993) described this scale as consisting of items that "involve a lack of planning and the tendency to act impulsively without thinking", as well as "experience seeking, or the willingness to take risks for the sake of excitement or novel experiences". They determined that their impulsive sensation seeking scale measured a construct similar to the NEO conscientiousness factor (discussed below, Costa & McCrae, 1992) and the EPQ psychoticism factor.

Cloninger bases his model of personality structure and development on the physiological underpinnings of behavior (Cloninger et al., 1991, 1993). He has identified four temperament scales through research on studies of twins and families, longitudinal development, and neuropharmacology. Cloninger defines temperament factors as dimensions of personality that "involve automatic, preconceptual responses to perceptual stimuli, presumably reflecting heritable biases in information processing" (Cloninger et al., 1993, p. 977). Cloninger includes impulsivity as an aspect of novelty seeking, one of the four temperaments. In addition, novelty seeking also includes: (1) the initiation of approach behavior in response to novelty; (2) extravagance in approach to reward cues; and (3) the tendency to quickly lose one's temper. Cloninger therefore, apparently conceptualizes impulsivity as an automatic response to novel stimuli that occurs at a preconscious level due to biological tendencies.

Tellegen (1982, 1985) has proposed a personality system that includes three higher-order factors. The first two, positive emotionality and negative emotionality, are directly related to mood. The third dimension, constraint, captures an individual's level of caution, restraint, propensity towards risky behavior, and acceptance of conventional society. Individuals low in constraint describe themselves as relatively impulsive, adventurous, and inclined to reject conventional restrictions on behavior. The constraint factor includes a control-versus-impulsiveness scale. In Tellegen's model impulsivity is one of three factors that determines the manner and intensity in which individuals respond to emotional stimuli.

### *1.2. Previous theories of impulsivity*

Barratt and colleagues (Barratt, 1993; Gerbing, Ahadi & Patton, 1987; Patton, Stanford & Barratt, 1995; Stanford & Barratt, 1992) have developed one of the most comprehensive approaches to impulsivity by including information from four diverse perspectives: the medical model, the psychological model, the behavioral model, and the social model. The research incorporates a variety of measures including self-report inventories, cognitive and behavioral tasks, and brain-behavioral research with animals (Barratt, 1993). These researchers (Patton et al., 1995) have identified three higher-order factors which they argue reflect the different components of impulsivity: attentional impulsiveness (the ability to focus on the tasks at hand and cognitive instability), motor impulsiveness (acting on the spur of the moment and perseverance), and non-planning (self-control and cognitive complexity). The latter two factors have been identified by other researchers (Luengo, Carrillo-De-La-Pena & Otero, 1991) while the third factor has not replicated reliably.

In an effort to understand impulsivity from a physiological perspective, Newman and colleagues (Newman & Wallace, 1993; Wallace, Newman & Bachorowski, 1991) have attempted to map Eysenck's system of personality on to Gray's neuropsychological model (Gray, 1987) of approach/avoidance learning. In Gray's model behavior arises from three separate components: the Behavioral Activation System (BAS), the Behavioral Inhibition System (BIS), and the Non-specific Arousal System (NAS). The BAS responds to environmental cues for reward and non-punishment by initiating approach and active avoidance. The BIS, on the other hand, responds to environmental cues for punishment and non-reward, with passive avoidance behavior, or extinction/inhibition of ongoing behavior. Thus, the BAS and BIS have inhibitory connections to each other so that activation of one system inhibits the other. The third system, the NAS, receives excitatory input from both the BAS and the BIS. Stimulation of the NAS in turn serves to intensify the frequency and intensity of behavior emanating from either system. Thus, an increase in the NAS prepares the organism to respond. Further these authors suggest that extraversion reflects the relative strength of the BAS to BIS and that neuroticism reflects the relative strength of the NAS.

Based on this theory, Newman and his colleagues have identified three distinct pathways to impulsive responding. The first pathway (normal impulsivity) involves the dominance of the BAS over the BIS amplified by a highly reactive NAS which results in overresponding to rewards; this pattern is seen in neurotic extraverts. The second pathway (anxious impulsivity) results from a dominant BIS intensified by a highly reactive NAS under conditions in which the dominant response is constrained to be one of approach; this pattern is seen in neurotic introverts. The

third pathway, called deficient P-constraint by Lynam (1996), is seen in psychopaths responding under competing reward and punishment contingencies.

Dickman (1990) has proposed a two dimensional theory of impulsivity based on an information processing approach to personality. His work stems out of his observation that impulsivity can have positive as well as negative consequences and he differentiates between functional (i.e., the tendency to act with relatively little forethought when such a trait is optimal) and dysfunctional impulsivity (i.e., the tendency to act with less forethought than most people of equal ability when this is a source of difficulty). He has argued that dysfunctional impulsivity is associated with disorderliness, a tendency to ignore hard facts when making decisions, acting without forethought, and “a tendency to engage in rapid, error prone information processing because of an inability to use a slower, more methodical approach under certain circumstances” (p. 101). On the other hand, functional impulsivity is associated with enthusiasm, adventuresomeness, activity, and an ability “to engage in rapid error prone information processing when such a strategy is rendered optimal by the individual’s other personality traits” (p. 101).

Despite attempts to place impulsivity in a comprehensive theory of personality by researchers such as Eysenck, Jackson, and Cloninger, none of the frameworks put forward have gained widespread acceptance. This may be due, in part, to the variety of personality models used as a reference point and their disagreement on the number and content of personality dimensions. In an attempt to add clarity to the assortment of impulsivity measures that have been embedded in a variety of personality theories, the current project attempts to identify facets of impulsivity that are common across measures and place them in an inclusive model of personality. Specifically, we use the Five-Factor Model of personality (FFM; McCrae & Costa, 1990) to provide a framework from which to understand and in which to place the various conceptions of impulsivity. This decision is consistent with Zuckerman et al. (1991) who concluded that three- and five-factor models of personality are equally robust and recommended the use of the latter, given its greater specificity.

One structural model of personality that might be used for the above purposes is the Five Factor Model of personality (FFM; McCrae & Costa, 1990). This model consists of five broad higher-order factors called domains (i.e., neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness) each of which is composed of six subfactors called facets. Within this model, there appear to be four distinct facets, on three different domains, that capture some aspect of impulsivity. Costa and McCrae (1992) explicitly propose that low self-control is measured by the Impulsiveness facet of the Neuroticism domain and by the Self-discipline facet of the Conscientiousness domain of their personality inventory the NEO-PI-R. Specifically, they assert that “people high in impulsiveness cannot resist doing what they do not want themselves to do” and that “people low in self-discipline cannot force themselves to do what they want themselves to do” (p. 18). High scorers on the Impulsiveness facet are described as moody, irritable, and excitable, whereas low scorers on the Self-discipline facet are described as lazy, disorganized, and not thorough. In addition, there are two other facets that capture impulsivity as conceptualized by other investigators. First, there is the excitement seeking facet of extraversion which is similar to the dimension of sensation seeking of Zuckerman (1994) and the venturesomeness of Eysenck and Eysenck (1977); high scorers on this facet are described as pleasure-seeking, daring, and adventurous. Second, there is the deliberation facet of conscientiousness which is similar to Tellegen’s control scale and to Barratt’s non-planning factor; low scorers on

this facet are described as hasty, impulsive, careless, and impatient. In the end, the FFM offers four distinct conceptualizations of impulsivity that might be used to bring structure to the construct of impulsivity itself.

The present study examines the relations of commonly-used measures of impulsivity to the FFM. Specifically, we examine whether the four aspects of impulsivity inherent in the FFM map empirically onto the various conceptions of impulsivity present in the literature. To the extent that the FFM can bring structure to the diversity of impulsivity conceptions and measures, it provides a potentially useful framework for the understanding and study of impulsivity. Additionally, to the extent that distinct aspects of impulsivity emerge, scales to measure each form can be developed.

## 2. Methods

### 2.1. Participants

Participants were 437 undergraduates (316 females, 111 males) enrolled in an introductory psychology course who participated to fulfill a course requirement. Participants were administered measures of impulsivity and the NEO-PI-R in groups of up to 25 students.

### 2.2. Measures

In order to maximize the variance and comparability across scales, all the items (including those that were originally in a true/false format) except for Zuckerman's sensation seeking scales were adapted to a four-point Likert-type format ranging from one to four.

#### 2.2.1. *EASI-III Impulsivity Scales*

The EASI-III is a self-report measure designed by Buss and Plomin (1975) to reflect their four temperament theory of personality: emotionality, activity, sociability, and impulsivity. Only the 20 items on the four impulsivity subscales, inhibitory control (e.g. Usually I can't stand waiting), decision time (e.g. I often have trouble making up my mind), sensation seeking (e.g. I generally seek new and exciting experiences and sensations), and persistence (e.g. I generally like to see things through to the end) were included in this study. Braithwaite, Duncan-Jones, Bosly-Craft and Goodchild (1984) report reliability coefficients of 0.61, 0.40, 0.46, and 0.54, for the inhibitory control, decision time, sensation seeking, and persistence subscales, respectively.

#### 2.2.2. *Dickman's Functional and Dysfunctional Impulsivity Scales*

The impulsivity scales of Dickman (1990) are based on his two dimensional conception of impulsivity. His instrument assesses both functional impulsivity (11 items; e.g. Most of the time I can put my thoughts into words very rapidly) and dysfunctional impulsivity (12 items; e.g. Often I don't spend enough time thinking over a situation before I act). Dickman (1990) reported Cronbach's alphas of 0.83 and 0.86 for the functional and dysfunctional impulsivity scales respectively, and an interscale correlation of 0.22.

### 2.2.3. *Barratt Impulsiveness Scale-11 (BIS-11)*

The BIS-11 (Patton et al., 1995) represents the latest effort by Barratt and colleagues to measure an impulsivity construct that is orthogonal to anxiety and is related to similar personality traits, such as extraversion and sensation seeking. The BIS-11 is made up of three subscales: attentional impulsiveness (e.g. I get easily bored when solving thought problems), motor impulsiveness (e.g. I do things without thinking), and non-planning impulsiveness (e.g. I am more interested in the present than the future). Patton et al. (1995) report internal consistency coefficients for the BIS-11 total score that range from 0.79 to 0.83 for separate populations of undergraduates, substance-abuse patients, general psychiatric patients, and prison inmates.

### 2.2.4. *I-7 Impulsiveness Questionnaire (I-7)*

The I-7 (Eysenck, Pearson, Easting & Allsopp, 1985) is a 54 item, true false response inventory designed to measure impulsiveness (e.g. I generally do and say things without stopping to think), venturesomeness (e.g. I quite enjoy taking risks), and empathy. Because the empathy subscale was included primarily to provide divergent validity, only the subscales pertaining to impulsivity were included in this study. Eysenck et al. (1985) reported reliability coefficients above 0.80 for the impulsiveness and venturesomeness scales and an interscale correlation of around 0.36.

### 2.2.5. *Personality Research Form Impulsivity Scale (PRF)*

The PRF (Jackson, 1984) is a self-report inventory designed to measure personality traits related to areas of normal functioning. Of the 22 scales available on the PRF only the 16 items on the impulsivity scale were included in the present study (e.g. Often I stop in the middle of one activity in order to start something else). Jackson reports a reliability coefficient of 0.85 for the impulsivity scale.

### 2.2.6. *Multidimensional Personality Questionnaire Control Scale (MPQ)*

The MPQ (Tellegen, 1982) is a 300 item, true/false, factor-analytically derived personality measure composed of eleven primary personality scales, three “higher order traits”, and six validity scales. Tellegen (1982) reports a thirty day test–retest reliability of 0.82 for the 24 item control (vs impulsiveness) scale (e.g. I often stop one activity before completing it and start another), the only scale used in the present study.

### 2.2.7. *Temperament and Character Inventory (TCI)*

The TCI (Cloninger et al., 1991) is a self-report inventory based on Cloninger’s psychobiological model of personality. This model contains seven factors and combines Novelty Seeking, Harm Avoidance, and Reward Dependence from his original model with Persistence, Self-directedness, Cooperativeness, and Self-transcendence from more recent work. Only the eight-item novelty seeking subscale of impulsiveness vs reflection (e.g. I often react so strongly to unexpected news that I say or do things that I regret) was included in the present study. Cloninger et al. (1993) report internal consistency for the impulsiveness vs reflection scale of 0.62.

### 2.2.8. *Sensation Seeking Scale (SSS)*

The SSS (Zuckerman, 1994) represents an attempt by Zuckerman and colleagues to operationalize “the construct of optimal level of stimulation (p. 139)”. It contains four sub-scales

consisting of 10, forced-choice, items: thrill and adventure seeking (TAS), experience seeking (ES), disinhibition (DIS), and boredom susceptibility (BS). Only the latter two scales were included in the present study. Zuckerman, Eysenck and Eysenck (1978) report alpha coefficients for the DIS and BS scales as above 0.74 and 0.56 respectively, in mixed gender samples from the UK and the USA.

### 2.2.9. Additional “impulsiveness” items

Pilot work suggested the need for additional items that tapped the “impulsiveness” aspect (e.g., strong cravings) of impulsivity. To this end, fourteen additional items were created by the investigators. Example items include: “When I feel bad I will often do things I later regret in order to make myself feel better now”, “I only act rashly when I am upset”, and “It is hard for me to resist acting on my feelings”.

### 2.2.10. Revised NEO Personality Inventory (NEO-PI-R)

The NEO-PI-R (Costa & McCrae, 1992) is a 240 item self-report inventory designed to measure the basic components of personality as identified by the five-factor-model. The inventory contains five domains of personality, neuroticism, extraversion, openness, agreeableness, and conscientiousness, each of which is sub-divided into six facet scales. Internal consistencies for the individual facets range from 0.56 to 0.81. The NEO-PI-R is a widely used personality inventory with considerable empirical data to support its internal and external validity (Costa & McCrae, 1992). The present investigation only included those domains that contained facets believed *a priori* to be related to impulsivity: neuroticism, extraversion, and conscientiousness.

## 3. Results

### 3.1. Scale reliabilities

Individual impulsivity scales were constructed using unit weighting; items with negative corrected item-total correlation were removed. This procedure resulted in one item being removed from each of the following scales: the EASI-III decision time scale, the EASI-III sensation seeking scale, the BIS-11 nonplanning scale, the BIS-11 attentional scale, and the I-7 venturesomeness scale. The resulting reliability coefficients ranged from 0.52 for the EASI-III inhibitory control to 0.90 for the MPQ control scale and are presented in Table 1.

### 3.2. Initial factor analysis

An exploratory factor analysis using principal components analysis and a varimax rotation was conducted on the four NEO-PI-R representations of impulsivity (impulsiveness, excitement seeking, self-discipline, and deliberation) and the seventeen impulsivity scales. Examination of the scree plot and the eigenvalues greater than one suggested a four-factor solution; these four factors explained 66% of the variance in the measures. The factor loadings for the individual impulsivity and NEO-PI-R facet scales are presented in Table 2. Based on content analysis, we labeled the four factors (lack of) Premeditation, Urgency, Sensation Seeking, and (lack of) Perseverance.



The primary factor, (lack of) Premeditation, captured the most frequent conceptualization of impulsivity and included the NEO-PI-R facet of (low) deliberation, MPQ control, PRF impulsivity, I-7 impulsivity, TCI impulsiveness vs reflection scale, EASI-III decision time, dysfunctional impulsivity, and BIS attention. All of these scales assess the tendency to delay action in favor of careful thinking and planning. The second factor, Urgency, appeared to reflect a tendency to commit rash or regrettable actions as a result of intense negative affect. The scales reflecting this factor included the NEO-PI-R facet of impulsiveness, EASI-III inhibitory control, the additional items created by the authors, and, to a lesser degree, the BIS attention scale. For the most part, these scales include items related to an inability to resist cravings, binging, and acting rashly while upset. The third factor, sensation seeking, was comprised of scales measuring the tendency to seek excitement and adventure: the NEO-PI-R facet of excitement seeking, I-7 venturesomeness, EASI-III sensation seeking, SSS disinhibition, and functional impulsivity. Finally, the fourth factor, (lack of) Perseverance, includes scales that assess one's ability to remain with a task until completion and avoid boredom. The scales comprising this factor are the NEO-PI-R facet (low) self-discipline, EASI-III persistence, and SSS disinhibition and boredom susceptibility scales. For the most part, the scales contributing to each factor had relatively high primary loadings and few

Table 1  
Internal consistencies for original scales

Impulsivity scale	Reliability
EASI-III	0.72
EASI-III Inhibitory control	0.52
EASI-III Decision time <sup>a</sup>	0.56
EASI-III Sensation seeking <sup>a</sup>	0.59
EASI-III Persistence	0.66
Dickman's Functional Impulsivity	0.79
Dickman's Dysfunctional Impulsivity	0.85
Cloninger's TCI Impulsiveness	0.63
Jackson's PRF-E Impulsivity	0.81
Tellegen's MPQ Control	0.90
BIS-11	0.84
BIS-11 Nonplanning impulsiveness <sup>a</sup>	0.74
BIS-11 Motor impulsiveness	0.78
BIS-11 Attentional impulsiveness <sup>a</sup>	0.58
Eysenck's I-7 Venturesomeness <sup>a</sup>	0.87
Eysenck's I-7 Impulsiveness	0.87
Zuckerman Sensation Seeking Scales	
Zuckerman Disinhibition	0.78
Zuckerman Boredom Susceptibility	0.57
Additional items	0.89
NEO-PI-R Facets	
NEO Impulsiveness	0.63
NEO Excitement seeking	0.69
NEO Self-discipline	0.80
NEO Deliberation	0.80

<sup>a</sup> One item was dropped from each of these scales due to a negative corrected item-total correlation.

secondary loadings; the only exceptions were SSS disinhibition scale which loaded almost equally on the sensation seeking and (lack of) perseverance factors, and BIS attention which loaded equally on the (lack of) premeditation and urgency factors.

Next, we conducted the factor analyses including all of the NEO-PI-R facets, not just the ones hypothesized to relate to impulsivity. A five-factor solution was suggested that accounted for 63% of the variance; results are provided in Table 3. Although there were some differences between this factor structure and the one discussed above, in general, the factors remained the same. The major difference was the emergence of a sensation seeking factor separate from NEO-PI-R extraversion. The first factor continued to reflect (lack of) premeditation. The only change from the first solution was the primary loading of the BIS attention scale which before had only a secondary loading on this factor. The second factor was comprised of NEO-PI-R Neuroticism and the other Urgency scales. The fact that the BIS attention scale no longer loaded most strongly on factor two does not affect the interpretation of this factor in that the attention scale had a relatively small loading previously. In addition, the attention scale did not appear to fit conceptually with the other scales. The BIS attention scale is replaced on the second factor by Dickman's functional impulsivity scale, which originally loaded on the sensation seeking factor. The negative loading of functional impulsivity on the Urgency factor probably reflects this factor's emphasis on dysfunctional behaviors inspired by negative affect. Functional impulsivity

Table 2  
Factor loadings of NEO-PI-R impulsivity-related facets and other impulsivity scales<sup>a</sup>

Impulsivity scale	Factors			
	I	II	III	IV
NEO-PI-R Deliberation	–70	–30	–19	–30
MPQ Control	<b>87</b>	18	18	21
PRF-E Impulsivity	<b>82</b>	28	14	20
Dysfunctional Impulsivity	<b>80</b>	29	06	14
I-7 Impulsivity	<b>75</b>	40	30	08
TCI Impulsivity	<b>75</b>	06	05	17
EASI-III Decision Time	<b>66</b>	07	28	18
BIS Nonplanning	<b>66</b>	10	–05	45
BIS Motor Impulsivity	<b>64</b>	51	34	–09
NEO-PI-R Impulsiveness	14	<b>74</b>	–08	18
EASI-III Inhibitory Control	20	<b>72</b>	15	21
Additional items	30	<b>71</b>	13	–04
BIS Attentional Impulsivity	45	<b>50</b>	03	27
NEO-PI-R Excitement Seeking	02	14	<b>74</b>	14
I-7 Venturesomeness	21	–03	<b>80</b>	–09
EASI-III Sensation Seeking	10	33	<b>74</b>	02
Functional Impulsivity	36	–27	<b>54</b>	–13
NEO-PI-R Self-discipline	–37	–36	19	– <b>63</b>
SSS Disinhibition	15	22	<b>52</b>	<b>53</b>
EASI-III Persistence	37	14	–21	<b>68</b>
SSS Boredom Susceptibility	17	01	38	<b>67</b>

<sup>a</sup> The highest loading for each scale is in bold.

continues to have a secondary loading on the sensation seeking factor. The third factor interestingly, was composed of the five facets of conscientiousness (minus deliberation) and the scales associated previously with (lack of) perseverance; this suggests an overweighting of the perseverance dimension in the NEO-PI-R. The fact that the EASI-III perseverance scale was the only impulsivity scale to load on this factor reflects the lack of attention given to the ability to remain focused on a difficult task in the impulsivity literature. However, the Zuckerman's boredom

Table 3  
Factor loadings of all NEO-PI-R facets and other impulsivity scales<sup>a</sup>

Scale	Factors				
	I	II	III	IV	V
NEO-PI-R Competence	–33	–26	<b>60</b>	–08	33
NEO-PI-R Order	–47	00	<b>46</b>	–09	–02
NEO-PI-R Dutifulness	–33	–15	<b>66</b>	–04	15
NEO-PI-R Achievement Striving	–23	–07	<b>78</b>	–07	21
NEO-PI-R Self-Discipline	–33	–31	<b>73</b>	–08	14
NEO-PI-R Deliberation	– <b>72</b>	–11	35	–24	–03
MPQ Control	<b>86</b>	–02	–27	16	02
PRF-E Impulsivity	<b>86</b>	09	–21	14	05
Dysfunctional Impulsivity	<b>82</b>	11	–21	10	–03
I-7 Impulsivity	<b>80</b>	12	–12	38	–07
TCI Impulsivity	<b>76</b>	01	–15	10	–01
EASI-III Decision Time	<b>66</b>	–11	–22	17	15
BIS Nonplanning	<b>61</b>	–06	–52	02	–02
BIS Motor Impulsivity	<b>75</b>	22	05	33	15
SSS Disinhibition	20	03	– <u>35</u>	<b>63</b>	15
EASI-III Persistence	31	11	– <b>69</b>	–04	–04
SSS Boredom Susceptibility	20	–08	– <u>36</u>	<b>50</b>	–04
NEO-PI-R Anxiety	–07	<b>77</b>	<u>01</u>	–34	10
NEO-PI-R Angry Hostility	21	<b>65</b>	01	10	–27
NEO-PI-R Depression	04	<b>75</b>	–07	00	–20
NEO-PI-R Self-Consciousness	–10	<b>70</b>	–09	–18	–13
NEO-PI-R Impulsiveness	29	<b>61</b>	–16	17	19
NEO-PI-R Vulnerability	07	<b>71</b>	–33	–13	–14
EASI-III Inhibitory Control	36	<b>48</b>	–16	37	11
Additional items	43	<b>54</b>	06	37	–12
BIS Attentional Impulsivity	<b>52</b>	<u>31</u>	–32	14	15
NEO-PI-R Warmth	–09	–04	24	–03	<b>83</b>
NEO-PI-R Gregariousness	06	–08	–06	27	<b>74</b>
NEO-PI-R Assertiveness	16	–29	34	23	<b>37</b>
NEO-PI-R Activity	30	–05	42	14	<b>52</b>
NEO-PI-R Excitement Seeking	10	–09	–05	<b>57</b>	<b>60</b>
NEO-PI-R Positive Emotions	05	–13	20	–06	<b>81</b>
I-7 Venturesomeness	22	–27	12	<b>67</b>	10
EASI-III Sensation Seeking	20	03	08	<b>77</b>	10
Functional Impulsivity	36	–46	22	<b>37</b>	–01

<sup>a</sup> The highest loading for each scale is in bold; important secondary loadings are underlined.

susceptibility continued to have a strong secondary loading on this factor. The fourth factor was made up of the scales previously comprising the sensation seeking factor and SSS boredom susceptibility. Finally, the fifth factor was comprised of the NEO-PI-R extraversion facets.

### 3.3. Item selection

After the identification of the four meanings of impulsivity in the initial factor analysis, including only the four NEO-PI-R facets related to impulsivity, items were selected to measure each of the meanings. Item selection began by selecting those items with the highest correlations with each factor score. However, in order to preserve the breadth of content within each scale we created pools of at least 25 items for each scale from which to select the most representative items. Therefore we identified cut off scores which would allow us to select the 25 items with the highest factor loadings for each factor. Unfortunately, although factor one had a plethora of items with loadings greater than 0.50 the remaining factors did not. Therefore, in order to systematically accumulate at least 25 items with the highest loadings for each scale we were forced to use separate cut off scores. For factor one, the 43 items with correlations greater than 0.50 were selected. For factors two and three, the 27 and 32 items with correlations greater than 0.40 were initially selected. For factor four, the 33 items with correlations greater than 0.3 were included. In addition, any item which had a correlation on one factor that was at least 0.2 greater than its correlation on the others was retained.

In the next step, the selected items were reduced to 15 items per scale based on content. This was accomplished through the identification of items with similar content within each type of impulsivity and by retaining only those with the highest item-factor correlations; this served to retain the breadth of coverage present in each factor while reducing redundancy. These items' correlations ranged from 0.47 to 0.68 for factor one, 0.42 to 0.59 for factor two, 0.52 to 0.69 for factor three, and 0.32 to 0.55 for factor four. Next, items with the lowest corrected item-total correlations were dropped to increase reliability. Finally, the 50 items representing the four meanings of impulsivity were entered into an exploratory factor analysis using principal components analysis and a varimax rotation; results (see Table 4) indicated that a four factor solution best described the data.<sup>1</sup> From these remaining items each scale was reduced to between 10 and 12 items by retaining the items with the highest factor loadings, and relatively lower loadings on the other factors. In addition, when items with redundant content were identified, only those with higher loadings were retained. This procedure resulted in 45 items measuring the four factors. Table 5 presents the final items for each scale. The internal consistency coefficients were 0.91, 0.86, 0.90, and 0.82 for scales one, two, three, and four respectively. Across all scales, convergent corrected item-total correlations ranged from 0.38 to 0.79 with a mean of 0.58, whereas the average divergent item-total correlations ranged from 0.05 to 0.33 with a mean of 0.17. These results suggest good convergent and divergent relations among items. Finally, the correlations

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<sup>1</sup> A two-group Confirmatory Analysis was performed to examine whether or not the four-factor structure held for both males and females. Results from analyses comparing a model in which loadings and covariances were free to vary across males and females to a model in which they were constrained to be equal across gender indicated that the models were the same for males and females,  $\Delta\chi^2(49) = 51$ , ns.

Table 4  
Factor loadings of the 50 impulsivity items with satisfactory item-total correlations<sup>a</sup>

Abbreviated Items	Factors			
	I	II	III	IV
Reserved and cautious attitude	<b>65</b>	07	08	06
Thinking is careful and planful	<b>73</b>	–01	08	17
Blurt out things without thinking (R)	<b>60</b>	–05	10	04
Like to stop and think things over	<b>72</b>	–08	12	10
Don't start projects until I know how to proceed	<b>58</b>	–05	01	09
Follow a rational and sensible approach	<b>73</b>	–07	12	16
Usually make up mind though careful reasoning	<b>81</b>	–03	18	13
Am a cautious person	<b>77</b>	08	08	11
Like to find out what to expect in new situation	<b>68</b>	09	–04	09
<u>Plan tasks carefully</u>	<b>68</b>	08	12	29
<u>Do things without thinking (R)</u>	<b>50</b>	34	38	14
Usually think carefully before doing anything	<b>76</b>	02	07	16
<u>Do things on spur of the moment (R)</u>	<b>52</b>	17	45	02
Consider all advantages and disadvantages	<b>73</b>	02	06	18
Have trouble controlling impulses	11	24	<b>47</b>	21
Have trouble resisting cravings	–02	08	<b>43</b>	27
Involved in things later wish could get out of	01	08	<b>64</b>	19
<u>Often change interests</u>	–06	34	<b>51</b>	13
When feel bad will do things later regret	08	05	<b>58</b>	06
When feel bad can't seem to stop what am doing	06	–01	<b>54</b>	07
When upset act without thinking	20	20	<b>70</b>	02
When rejected say things later regret	05	–04	<b>76</b>	05
Hard to resist acting on feelings	08	16	<b>71</b>	–06
Act without thinking worsens matters when upset	12	11	<b>76</b>	02
Say things later regret in heat of argument	09	05	<b>71</b>	–07
Always able to keep feelings under control	05	–17	<b>47</b>	08
Do things on impulse that later regret	22	04	<b>54</b>	17
Seek new and exciting experiences	–08	<b>59</b>	18	–27
Will try anything once	04	<b>62</b>	09	05
<u>Do crazy things to be different</u>	15	<b>56</b>	18	04
Like games when have to choose move quickly	–02	<b>55</b>	13	–09
Would enjoy water skiing	23	<b>65</b>	01	–11
Enjoy taking risks	17	<b>77</b>	13	09
Would enjoy parachute jumping	08	<b>73</b>	–05	00
Welcome new experiences even if frightening	–07	<b>80</b>	08	–07
Would like to learn to fly airplane	01	<b>70</b>	–07	–02
Like doing things that are a bit frightening	03	<b>70</b>	16	–10
Would enjoy sensation of skiing very fast	01	<b>75</b>	00	00
Would like to go scuba diving	–18	<b>73</b>	–03	–10
Would enjoy fast driving	11	<b>67</b>	09	07
Like to see things through to end	36	–19	–12	<b>55</b>
Tend to give up easily (R)	–12	00	18	<b>65</b>

(Table continued on next page)

Table 4 (continued)

Abbreviated Items	Factors			
	I	II	III	IV
Bothered by unfinished tasks	35	–16	08	<b>51</b>
Hate to stop once get going on something	35	–19	–04	<b>58</b>
Concentrate easily	26	–10	10	<b>50</b>
Finish what start	34	–16	02	<b>64</b>
Pace self to get things done on time	08	06	11	<b>58</b>
Productive person who gets job done	16	–06	13	<b>66</b>
Almost always finish started projects	09	–01	12	<b>69</b>
So many little jobs sometimes ignore them all (R)	14	05	19	<b>46</b>

<sup>a</sup> The highest loading for each scale is in bold; items that were dropped in the next step are underlined.

Table 5

Items on final UPPS impulsive behavior scale

*Premeditation*

1. I have a reserved and cautious attitude toward life.
2. My thinking is usually careful and purposeful.
3. I am not one of those people who blurt out things without thinking.
4. I like to stop and think things over before I do them.
5. I don't like to start a project until I know exactly how to proceed.
6. I tend to value and follow a rational, "sensible" approach to things.
7. I usually make up my mind through careful reasoning.
8. I am a cautious person.
9. Before I get into a new situation I like to find out what to expect from it.
10. I usually think carefully before doing anything.
11. Before making up my mind, I consider all the advantages and disadvantages.

*Urgency*

1. I have trouble controlling my impulses.
2. I have trouble resisting my cravings (for food, cigarettes, etc.).
3. I often get involved in things I later wish I could get out of.
4. When I feel bad, I will often do things I later regret in order to make myself feel better now.
5. Sometimes when I feel bad, I can't seem to stop what I am doing even though it is making me feel worse.
6. When I am upset I often act without thinking.
7. When I feel rejected, I will often say things that I later regret.
8. It is hard for me to resist acting on my feelings.
9. I often make matters worse because I act without thinking when I am upset.
10. In the heat of an argument, I will often say things that I later regret.
11. I am always able to keep my feelings under control. (R)
12. Sometimes I do things on impulse that I later regret

(Table continued on next page)

Table 5 (continued)

*Sensation Seeking*

1. I generally seek new and exciting experiences and sensations.
2. I'll try anything once.
3. I like sports and games in which you have to choose your next move very quickly.
4. I would enjoy water skiing.
5. I quite enjoy taking risks.
6. I would enjoy parachute jumping.
7. I welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional.
8. I would like to learn to fly an airplane.
9. I sometimes like doing things that are a bit frightening.
10. I would enjoy the sensation of skiing very fast down a high mountain slope.
11. I would like to go scuba diving.
12. I would enjoy fast driving.

*Perseverance*

1. I generally like to see things through to the end.
2. I tend to give up easily. (R)
3. Unfinished tasks really bother me.
4. Once I get going on something I hate to stop.
5. I concentrate easily.
6. I finish what I start.
7. I'm pretty good about pacing myself so as to get things done on time.
8. I am a productive person who always gets the job done.
9. Once I start a project, I almost always finish it.
10. There are so many little jobs that need to be done that I sometimes just ignore them all. (R)

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(R) – indicates that the item is reverse-scored.

among scales (Table 6) ranged from 0.45 for premeditation and perseverance to zero for premeditation and sensation seeking with an average of 0.22.

### 3.4. *Relation between impulsivity scales and NEO facets*

The final set of analyses examined the relations between the impulsivity scales and all of the NEO-PI-R facets through a joint factor analysis.<sup>2</sup> Examination of the scree plot strongly suggested a three-factor solution that accounted for 59% of the variation in the scales. The factor structure clearly mapped onto the structure of the three domains of the NEO-PI-R; see Table 7 for results. Factor one was comprised of (lack of) premeditation, (lack of) perseverance, and all six facets of conscientiousness. Factor two was comprised of sensation seeking and all six facets of extraversion. Finally, factor three was comprised of urgency and all six facets of neuroticism. Importantly, there were few, if any, consequential secondary loadings.

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<sup>2</sup> In order to reduce item-overlap, the item common to the NEO-PI-R impulsiveness facet and the urgency scale was dropped. In the case of (lack of) perseverance, which contains four items from the NEO-PI-R self-discipline facet, two items each were dropped from the facet and the scale.

#### 4. Discussion

The present study attempted to bring order to the myriad of measures and conceptions of impulsivity by identifying distinct facets of personality that have been frequently confused and combined under the umbrella term of impulsivity. The current project examined the various conceptions of impulsivity within the framework provided by the Five Factor Model of personality (FFM; McCrae & Costa, 1990). The FFM was chosen because of its comprehensiveness and its explicit inclusion of several separate traits that have been formerly described as impulsivity.

Table 6  
Intercorrelations of final UPPS impulsivity subscales<sup>a</sup>

Subscales	Premeditation	Urgency	Sensation Seeking	Perseverance
Premeditation	(0.91)			
Urgency	0.28	(0.86)		
Sensation Seeking	0.00	0.18	(0.90)	
Perseverance	0.45	0.29	-0.14	(0.82)

<sup>a</sup> Internal consistencies presented in parentheses.

Table 7  
Factor loadings of all NEO-PI-R facets and UPPS impulsive behavior scale<sup>a</sup>

Scale	Factors		
	I	II	III
NEO-PI-R Competence	<b>72</b>	30	-24
NEO-PI-R Order	<b>68</b>	-13	-03
NEO-PI-R Dutifulness	<b>75</b>	15	-17
NEO-PI-R Achievement Striving	<b>76</b>	30	-06
NEO-PI-R Self-Discipline	<b>80</b>	19	-29
NEO-PI-R Deliberation	<b>78</b>	-28	-13
UPPS Premeditation	<b>-63</b>	18	-04
UPPS Perseverance	<b>-80</b>	-24	17
NEO-PI-R Warmth	34	<b>70</b>	02
NEO-PI-R Gregariousness	-06	<b>73</b>	-04
NEO-PI-R Assertiveness	10	<b>59</b>	-26
NEO-PI-R Activity	09	<b>73</b>	-01
NEO-PI-R Excitement Seeking	-18	<b>73</b>	-09
NEO-PI-R Positive Emotions	21	<b>71</b>	-05
UPPS Sensation Seeking	-18	<b>48</b>	-30
NEO-PI-R Anxiety	14	-09	<b>83</b>
NEO-PI-R Angry Hostility	-23	-07	<b>63</b>
NEO-PI-R Depression	-15	-19	<b>76</b>
NEO-PI-R Self-Consciousness	01	-25	<b>72</b>
NEO-PI-R Impulsiveness	-37	28	<b>62</b>
NEO-PI-R Vulnerability	-29	-24	<b>72</b>
UPPS Urgency	-45	27	<b>58</b>

<sup>a</sup> The highest loading for each scale is in bold.



The 180 items assessing neuroticism, extraversion, and conscientiousness from the NEO-PI-R (Costa & McCrae, 1992) were administered to a large sample of young adults along with many of the most widely used measures of impulsivity. Factor analyses of the scales revealed a robust four-factor solution that corresponded nicely to the four traits related to impulsivity found on the NEO-PI-R.

Many previous researchers have identified multiple psychological traits that underlie behaviors that others view as impulsive, i.e. Eysenck's impulsiveness and venturesomeness. However, there continues to be a lack of agreement on what constitutes impulsivity. For instance, although Barratt (1993) defines impulsiveness as orthogonal to neuroticism, Costa and McCrae place their impulsiveness facet within the Neuroticism domain. We have attempted to consolidate the previous literature by identifying and separating distinct personality facets that have been previously lumped together as "impulsivity". These four facets are not considered variations of impulsivity, but rather discrete psychological processes that lead to impulsive-like behaviors. The use of "impulsive" in our definition, the very term we are striving to avoid, demonstrates the difficulty of finding a single definition for the four factors identified here. We believe that this difficulty stems from the fact that each of these factors represent a discrete facet of personality which have been erroneously consolidated under the single term impulsivity.

The first facet, urgency, is associated with the impulsiveness facet of the NEO-PI-R, and is the least well represented in the current literature. It refers to the tendency to experience strong impulses, frequently under conditions of negative affect. Although some theorists, such as Barratt (Barratt, 1993), believe that impulsivity is independent of emotional factors, others recognize (Jackson, 1984; Wallace et al., 1991) that negative emotions may promote impulsive action. High scorers on urgency are likely to engage in impulsive behaviors in order to alleviate negative emotions despite the long-term harmful consequences of these actions. The items that contribute to urgency and the fact that urgency is aligned with Neuroticism suggest that the impulsive actions associated with this personality trait are colored and influenced by strong impulses and emotions.

The second facet, (lack of) premeditation, identified with the (low) deliberation facet of the NEO-PI-R, is consistent with several previous efforts at describing impulsivity. Quite similar to the narrow impulsivity dimension identified by Eysenck and Eysenck (1977), this facet is the best and most widely represented among the previous impulsivity measures. Premeditation refers to the tendency to think and reflect on the consequences of an act before engaging in that act. Low scorers are thoughtful and deliberative, whereas high scorers act on the spur of the moment and without regard to the consequences.

Lack of perseverance, associated with the self-discipline facet of the NEO-PI-R, is the third trait identified in the present study that has previously been incorporated into impulsivity. Perseverance refers to an individual's ability to remain focused on a task that may be boring or difficult. Individuals low in (lack of) perseverance are able to complete projects and to work under conditions that require resistance to distracting stimuli. High scorers, in the words of Costa and McCrae (1992), "cannot force themselves to do what they want themselves to do" (p. 18). Although the conscientiousness domain of the NEO-PI-R seems saturated with this personality trait, (lack of) perseverance, like urgency, is not well represented in other measures of impulsivity.

Sensation seeking, associated with the NEO-PI-R facet of excitement seeking, is the fourth and final personality facet identified in the present project. This impulsive-like behavioral tendency,

similar to (lack of) premeditation, has been commonly described in many previous theories (Buss & Plomin, 1975; Costa & McCrae, 1992; Eysenck, Easting & Pearson, 1984; Zuckerman, 1994). The current conceptualization is similar to those proposed previously and incorporates two aspects: 1) a tendency to enjoy and pursue activities that are exciting and 2) an openness to trying new experiences that may or may not be dangerous. High scorers enjoy taking risks and engaging in dangerous activities, whereas low scorers avoid risk and danger.

The identification of four distinct facets of personality within the impulsivity literature supports the observations of others (Depue and Collins, 1999) that impulsivity, as it has been previously measured, is a heterogeneous category which includes several different traits. The current lack of a common nosology can impede progress toward understanding impulsive behavior. Findings regarding the construct validity of impulsivity that appear incompatible, may in actuality be the result of studies that measured different personality facets that lead to impulsive behavior. The present paper offers a framework that may be helpful for conceptualizing and parsing the heterogeneity in the current literature. Progress towards a commonly accepted taxonomy for the distinct facets of personality that lead to impulsive behavior can increase the field's ability to synthesize independent lines of research.

The divergent validity of the four personality facets identified in this study is apparent in the differential correlations with the facets of the NEO-PI-R. The results of these analyses indicate that each of the four components is related to distinct aspects of personality as described by the FFM. For instance, (lack of) premeditation and (lack of) perseverance are related to conscientiousness, urgency is associated with neuroticism, and sensation seeking is a component of extraversion. The results of this study suggest that the NEO-PI-R does a fair job of describing and distinguishing the various facets of personality associated with impulsive behavior. However, the present results also illuminate several shortcomings in the FFM's conceptualization of impulsive behavior. For instance, the identification of impulsivity by Costa and McCrae (1992), with the impulsiveness facet of neuroticism and the self-discipline facet of conscientiousness is somewhat idiosyncratic; the preponderance of impulsivity measures included in the present study assess (lack of) premeditation which is related to the deliberation facet of conscientiousness. Additionally, results from the analyses examining the relations of the personality facets identified in this study to the facets of the NEO-PI-R suggest that the NEO-PI-R over-represents (lack of) perseverance and under represents (lack of) premeditation.

Although the identification of distinct facets of personality associated with impulsive behavior is of theoretical interest, it will be important to demonstrate the criterion validity of these scales. One interesting avenue of investigation is to explore how the four facets relate to different forms of psychopathology. As stated above, impulsivity is associated with many psychological disorders either as an explicit part of DSM-IV diagnostic criteria (e.g. borderline personality disorder; BPD) or as theoretically important aspects of other conditions (e.g. psychopathy). The utility of the present parsing of impulsivity into distinct facets of personality would be supported by demonstrating that each facet underlies different disorders. For instance, it is conceivable that urgency may have stronger relations with BPD than other scales. This might be expected on the basis of the assertion that the pathological behavior of individuals with BPD results from attempts to soothe a hypersensitive emotional system (Linehan, 1993). Urgency could also be related to bulimia, since the binges associated with this disorder may be attempts to deal with negative affect (American Psychiatric Association, 1994).

Lack of premeditation, on the other hand, may be related to disorders that involve insufficient ability to plan out actions, to anticipate consequences, and/or other deficits in executive functioning (e.g. antisocial personality disorder, dementia, or psychopathy). As opposed to other disorders, these conditions do not necessarily involve poor decision making in order to relieve negative affect or to pursue thrilling experiences. The impulsive behavior of these individuals result from a dysfunction in the decision making process. For example, Newman and Wallace (1993) and Lynam (1996) have postulated that the psychopath's central deficit is a form of impulsivity that involves the inability to inhibit previously rewarded behavior when presented with changing contingencies. This problem seems closely related to premeditation which involves reflecting and pausing to consider the probable consequences of behavior.

Lack of perseverance may be related to disorders that involve the inability to ignore distracting stimuli or to remain focused on a particular task, such as attention deficit/hyperactivity disorder (ADHD). More specifically, the facet scales presented here could potentially differentiate between predominately inattentive and predominately hyperactive subtypes of ADHD. Since the former primarily involves difficulty remaining on task and sustaining attention it may have a stronger correlation to the (lack of) perseverance scale which directly taps these abilities. The latter subtype involves an inability to remain seated and an elevated activity level which may have stronger correlation to the sensation seeking and (lack of) premeditation scales. Finally, sensation seeking could also be related to disorders that involve engaging in exciting but potentially dangerous activities, such as substance use disorders.

The current study presents a new perspective which regards impulsivity as an artificial umbrella term that actually encompasses four distinct facets of personality associated with impulsive behavior. However, this study is limited in that it represents merely the creation of the UPPS impulsive behavior scale. The review of the instruments available to study impulsivity revealed that the facets the current authors labeled urgency and (lack of) perseverance are under-represented in the current literature. This situation led them to create original items for the former and to utilize four items from the NEO-PI-R self-discipline facet for the latter. Therefore, it is likely that the items on these facets, more so than the other two, may need to be revised or replaced. Moreover, before the utility of this instrument can be explored the factor structure and other psychometric properties need to be replicated and extended to populations other than undergraduate students. Clearly the UPPS impulsive behavior scale is in its infancy and work needs to be done to establish the reliability and validity of its scales. However, this study represents an initial step towards providing a useful nosology to help bring order to the current cacophony of impulsivity measures.

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