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Abstract: Recent literature has focused on severity of personality disorder (PD) and a trait-based assessment of PDs in preference to assessment by specific sets of diagnostic criteria. Evidence suggests that emotional impulsiveness, also known as Urgency (Whiteside SP, Lynam DR. The five factor model and impulsivity: using a structural model of personality to understand impulsivity. Personality and Individual Differences,30, 669-689, 2001) might contribute to a broad spectrum of PDs and to overall PD severity. In a sample of 100 forensic psychiatric patients, all men with confirmed PD and a history of serious offending, two hypotheses were tested: first that high Urgency scores would be associated with a broad spectrum of PDs, and with PD severity; and second, that in regression analysis Urgency would uniquely predict measures of PD severity. Results confirmed these hypotheses and are consistent with the idea that emotional impulsiveness/Urgency contributes importantly to overall severity of PD, and in so doing may explain, at least in part, the well-documented link between PD and violence.

Cover Letter and Word Count

To:

Kerry L. Jang, PhD

Associate Editor, PAID

Dear Dr Jang,

Thank you for your suggestions for improving this paper. In the light of your comments I have revised and expanded the section in the Introduction that introduces the UPPS. I now provide a more detailed justification for its use, as well as explaining the acronym "UPPS". Note that it is no longer a separate sub-section, since it is subsumable within the section labelled "Impulsiveness" – a separate sub-section is, I think you will agree, unnecessary. The word length is now 4,167.

In addition:

- I refer to some other literature: Lynam et al., 2006; Miller et al., 2003) that is pertinent.
- I have added a summary statement that links this section with the following one, Severity of Personality Disorder:
  In summary, therefore, negative Urgency appears to be associated with a broad range of internalizing and externalizing psychopathologies, and to reflect the intersection of externalizing and externalizing tendencies seen in severe personality disorder, to be considered in the following section .

I think this helps to make the argument for using the UPPS more cogent and compelling.

Thank you for helping me to make this a better paper.

Yours sincerely,

Richard Howard

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***Title page with author details**

Is emotional impulsiveness (Urgency) a core feature of severe personality disorder?

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***Highlights (for review)**

HIGHLIGHTS

- Urgency was significantly associated with 6 of 10 personality disorders
- Urgency correlated significantly with measures of severity of personality disorder
- In regression analysis, Urgency uniquely predicted severity of personality disorder
- Urgency likely contributes to the link between personality disorder and violence

*Manuscript without author identities
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Is emotional impulsiveness (Urgency) a core feature of severe personality disorder?

ABSTRACT

Recent literature has focused on severity of personality disorder (PD) and a trait-based assessment of PDs in preference to assessment by specific sets of diagnostic criteria. Evidence suggests that emotional impulsiveness, also known as Urgency (Whiteside, S.P., & Lynam, D.R. (2001). The five factor model and impulsivity: Using a structural model of personality to understand impulsivity. *Personality and Individual Differences,*30, 669-689*)* might contribute to a broad spectrum of PDs and to overall PD severity. In a sample of 100 forensic psychiatric patients, all men with confirmed PD and a history of serious offending, two hypotheses were tested: first that high Urgency scores would be associated with a broad spectrum of PDs, and with PD severity; and second, that in regression analysis Urgency would uniquely predict measures of PD severity. Results confirmed these hypotheses and are consistent with the idea that emotional impulsiveness/Urgency contributes importantly to overall severity of PD, and in so doing may explain, at least in part, the well-documented link between PD and violence.

KEY WORDS: impulsiveness; impulsivity; urgency; personality disorder; violence.

1. INTRODUCTION

1.1. Impulsiveness.

Impulsiveness can broadly be defined as a predisposition to react rapidly and without planning to internal and external stimuli with little or no regard for the short-term and long-term consequences for oneself and others (Bjørkly, 2013). It is considered to be a symptom of many psychiatric disorders including borderline and antisocial PDs, bipolar disorder, attention deficit/hyperactivity disorder, conduct disorder and substance abuse/dependence (Moeller, Barratt, Dougherty, Schmitz & Swann, 2001). Impulsiveness is generally recognised to be multifaceted, incorporating a number of dimensions, including a tendency to act rashly and intemperately under the pressure of positive or negative emotions (Shapiro, 1965). When behaving in an emotionally impulsive way, the individual responds to a stimulus or event on the basis of an immediate emotional reaction such as desire or anger, with little if any checking of long-term consequences (Wingrove & Bond, 1997). Measures of impulsiveness, both self-report and behavioural, are limited in the degree to which they tap emotional impulsiveness. For example, a commonly used self-report measure of impulsiveness, the Barratt Impulsivity Scale (BIS: Patton, Stanford & Barratt, 1995) does not include an explicitly emotional component.

In contrast, a more recent model of impulsive behaviour, developed by Whiteside & Lynam (2001) and derived from the Five Factor Model (FFM) of normal personality, conceptualises and assesses impulsiveness as a multifaceted construct that includes four separable and distinct pathways to impulsive behaviour: **U**rgency, (lack of) **P**remeditation, (lack of) **P**erseverance, and **S**ensation-seeking (hence it is referred to by its acronym "**UPPS**"). The Urgency scale from the UPPS clearly and explicitly reflects negative affectivity, measuring "a tendency to experience strong impulses, frequently under conditions of

negative affect" (Whiteside and Lynam, 2001, p. 685). Subsequently, UPPS was revised to include a positive Urgency scale to reflect impulsive behaviour occurring in the context of positive affect (Lynam, Smith, Whiteside, & Cyders, 2006) . Positive and negative Urgency were found to correlate highly and can therefore be considered as a unitary scale (Few, Lynam & Miller, 2015). Negative Urgency has been reported to predict aggression and appears to capture a dimension of emotional dyscontrol shared by several psychological disorders, including borderline personality disorder, eating disorders and depression (Miller, Flory, Lynam and Leukefeld, 2003). More recently, negative Urgency was reported to be associated with poor self-control and high emotional lability in a student sample (Dir, Karyadi and Cyders, 2013). These authors reported that when all UPPS facets were considered, negative Urgency uniquely predicted deliberate self-harm, eating problems, and problematic alcohol consumption. In summary, therefore, negative Urgency appears to be associated with a broad range of internalizing and externalizing psychopathologies, and to reflect the intersection of externalizing and externalizing tendencies seen in severe personality disorder, to be considered in the following section .

1.2. Severity of Personality Disorder.

There has recently been a shift away from viewing PDs as discrete categories in favour of seeing them dimensionally as constellations of traits (e.g. Section 3 of DSM-5 (APA, 2013)). Severity of PD has been a particular focus of attention (e.g., Hopwood, Malone, Ansell, Sanislow, Grilo, McGlashan, Pinto, Markowitz, Shea, Akodol, Gunderson, Zanarini & Morey, 2001) and the forthcoming (11^{th}) edition of the International Classification of Diseases (ICD-11: Tyrer, Reed & Crawford, 2015) intends to abolish diagnostic categories of PD in favour of an assessment according to severity, defined by the degree of harm to self and others. This will range from mild ("not associated with substantial harm to self or others") to severe

("associated with a past history and future expectation of severe harm to self or others that has caused long-term damage or has endangered life" (Tyrer et al., 2015 p.722). In a bi-factor analysis of PD traits, Sharp, Wright, Fowler, Frueh, Allen, Oldham and Clark (2015) identified a general (g) factor that transcended diagnostic boundaries and appeared to index overall PD severity. It represented a mixture of antisocial traits (irresponsible, disregard for safety, failure to conform, deceitfulness, impulsivity), traits related to cognitive disturbance (odd beliefs, ideas of reference), and traits related to internalising/neurotic introversion (socially inhibited, avoids social contacts at work, preoccupied with rejection), as well as traits related to obsessionality. Conway, Hammen & Brennan (2015) identified a similar PD severity factor that reflected both internalizing and externalizing processes, particularly aggression, anxiety and depression, in a high-risk Australian sample.

To date, only one study has investigated impulsiveness in relation to personality disorder using the UPPS model in a clinical sample (Few et al., 2015). This comprised psychiatric patients who were predominantly female (70%) and of whom 37% were confirmed as having a PD diagnosis on the basis of a semi-structured interview. Regarding DSM-5 (APA, 2013) Section 3 trait domains, Urgency correlated strongly with 3 of the 5 domains (Negative Affectivity, Antagonism and Disinhibition), and with 14 of 25 lower-order traits. (Lack of) Premeditation also showed significant correlations particularly with traits from the disinhibition domain, including risk taking, impulsivity and irresponsibility. Regarding DSM-5 (APA, 2013) categorical measures (Section 2), Urgency showed strong associations with 7 of the 10 PDs (paranoid, schizotypal, antisocial, borderline, histrionic, narcissistic and dependent).

1.3. Emotional impulsiveness in Personality Disorder: A Link with Violence?

These results suggest that high Urgency contributes to a general severity dimension of PD, rather than any particular type of PD, and that PD severity, including a contribution from Urgency, might in part account for the link between PD and violence (Howard, 2015). Significantly, Bousardt, Addriaan, Hoogendoorn, Noorthoorn, Hummeln and Nijman (2015) found that the incidence of serious physical violence committed by psychiatric inpatients was increased threefold in those who scored high on Urgency, and was nearly two times higher in those with PD (specific types of PD were not examined in this study). Urgency was found to correlate significantly with a composite measure of serious violence in a sample of 100 personality disordered offenders with a history of violent offending (Howard, Khalifa & Duggan, 2014). In substantially the same sample it was reported by Howard, Hepburn and Khalifa (2015) that a measure of PD severity, obtained by summing across individual PD criteria (Hopwood et al., 2011), was associated with scores on two trans-diagnostic PD variables, “acting out” and “anxious- inhibited’ ”, that putatively reflect externalising and internalising features of personality pathology respectively (Blackburn, Logan, Renwick & Donnelly, 2005). Howard et al. (2015) reported that severe PD, defined by summing scores across DSM-IV (APA, 1994) PD criteria, was significantly associated violence and with high levels of both externalising and internalising personality features. These findings suggest that UPPS Urgency contributes to a general PD severity dimension that is associated with both internalising (“anxious- inhibited’ ”) and externalising (“acting out”) PD features.

1.4. The Present Study

1.4.1 Study Objectives.

We undertook a re-examination of the data from Howard et al.’s (2014) study, with two objectives in mind. We first aimed to explore in closer detail the relationship of UPPS measures, particularly Urgency, with individual DSM-5 Section 2 PD scores in order to

confirm, in a male forensic PD sample (N = 100), Few et al.'s (2015) findings from a non-forensic and predominantly female sample. Second, we aimed to test the hypothesis that Urgency would be associated with two trans-diagnostic features of PD severity: first, a combination of 'acting out' and 'anxious- inhibited' '; and second, severity measured by aggregating across dimensional scores of individual PDs. If it were shown, first, that Urgency was associated with PDs across the spectrum of PDs (confirming Few et al.'s (2015) results); and second, that Urgency was associated with high scores on measures of overall PD severity, it might reasonably be concluded that high Urgency contributes to a PD severity dimension that is itself a marker of severe psychopathology ('p') and is related to a heightened risk of violent offending (Caspi, Houts, Belsky, Goldman-Mellor, Harrington, Israel, Meier, Ramrakha, Shalev, Poulton & Moffitt, 2014; Howard, 2015).

1.4.2. Study Hypotheses.

1.4.2.1. Urgency will correlate with scores of personality pathology across the spectrum of PDs, rather than with any specific PD category (e.g. antisocial or borderline PD). In particular, Urgency will correlate with measures of PD severity, viz. the Hopwood et al. (2011) measure and a measure combining 'acting out' and 'anxious- inhibited' ' scores.

1.4.2.2. Regression analysis where measures of PD severity, viz. Hopwood et al.'s (2011) measure and a combination of "acting out" and "anxious-inhibited" scores, are regressed onto Urgency (and other UPPS measures) will show that Urgency uniquely predicts PD severity.

2. MATERIALS AND METHODS.

2.1. The Sample

Full details of the sample are given in Howard et al. (2014). In brief, one hundred male offenders detained under the 1983 UK Mental Health Act were recruited from the

personality disorder services at two English high-secure hospitals and one medium-secure hospital. All patients gave their informed consent to participate in the study, which was approved by the local Research Ethics Committee. Criteria for inclusion were: (i) at least one definite DSM-IV personality disorder (PD); (ii) a full-scale IQ of 70 or greater (on the basis of Wechsler Adult Intelligence Scale: Wechsler, 1997); (iii) no identifiable Axis I diagnoses of psychosis or bipolar affective disorder on DSM-IV (APA, 1994); (iv) no history of head injury or neurological disorder such as epilepsy. Patients' mean age at the time of assessment was 35.2 years (SD = 9.2; range 21 to 64). Patients had a history of chronic offending, with a mean number of 33 lifetime offences (range 1-154) and of 12.5 violent offences (range 1-135). Most (91%) had received a Cluster B PD diagnosis: antisocial (72%), borderline (47%), histrionic (7%) or narcissistic (13%) PD; fewer received Cluster A (45%) or Cluster C (42%) diagnoses. The mean number of PD diagnoses was 2.9 (SD=1.5). Three-quarters of the sample (76%) had a history of childhood conduct disorder, and a quarter (25%) had a diagnosis of childhood attention deficit/hyperactivity disorder. A large proportion received co-morbid lifetime diagnoses of major depression and alcohol dependence (56% and 54% respectively).

2.2. Assessment of Personality Disorder.

DSM-IV Axis II personality disorders were assessed using the International Personality Disorder Examination (IDPE: Loranger, Sartorius, Andreoli, Berger, Buchheim, Channabasavanna, Coid, Dahl, Diekstra, Ferguson, Jacobsberg, Mombour, Pull, Ono & Regier, 1997), interview version which has good inter-rater reliability (kappa of 0.70 and above: Zimmerman, 1994) and temporal stability (Loranger et al., 1997). Dimensional scores were derived for the 10 individual PDs by aggregating scores across individual criteria. Severity of PD was assessed, first, by summing across criteria for all individual PDs to obtain

a total severity score (Hopwood et al., 2011); second, by obtaining scores on two higher-order factors, “acting out” and “anxious- inhibited’ ”, derived by Blackburn et al. (2005) from a primary factor analysis of 93 IPDE items. Twenty-one items contributed to the ‘acting out’ factor, and 19 items to the ‘anxious- inhibited’ ’ factor: for individual items, see Table 1. ‘Acting out’ and ‘anxious- inhibited’ ’ scores were summed together to obtain an overall severity index reflecting both externalising and internalising personality pathology.

TABLE 1 HERE

2.3. Assessment of Impulsiveness

Impulsiveness was assessed using the UPPS, a 44-item self-report inventory designed to measure four distinct personality pathways to impulsive behaviour: (Negative) Urgency, (lack of) Perseverance, (lack of) Premeditation, and Sensation Seeking (Whiteside & Lynam, 2001). The later developed positive Urgency scale was not included since the study started before details of its items were published. Each UPPS item was rated on a 4-point scale with higher scores reflecting greater impulsiveness.

2.4. Data Analysis Strategy

Analysis was carried out using SPSS, version 22. Correlational analysis was conducted to examine the relationship between UPPS total and subscale scores and PD dimensional scores and overall PD severity measured by using both the Hopwood et al. (2011) method and Blackburn et al.’s (2005) internalising (‘anxious- inhibited’ ’) and externalising (‘acting out’) factor scores. For continuous variables, Spearman’s rho test was used on any variable found not to be normally distributed. Otherwise, Pearson’s correlation test was used. Multiple linear regression analysis was conducted to assess whether the Urgency subscale of UPPS could be used to adequately predict the Hopwood et al. (2011) PD severity measure or Blackburn et al.’s (2005) factor scores. In order to control for covariates, the effects of

variables which correlated significantly with measures of PD severity were partialled out in regression analysis. Given that the sample size was relatively small, and in order to avoid confounding within the covariates, they were initially included individually in the regression model. Covariates that did not show significant effects on the parameters of the regression model were excluded from subsequent regression models such that the final model only included covariates with significant effects. Additionally, multicollinearity diagnostics, such as tolerance test and Variance Inflation Factor (VIF), were applied to assess whether the main predictors (i.e. UPPS subscale scores) had a strong linear relationship with each other.

3. RESULTS

Correlations between dimensional PD scores and UPPS scores are shown in Table 2, where it may be seen that Urgency correlated significantly with a majority of PD scores (exceptions were schizotypal, narcissistic, avoidant and obsessive-compulsive). Cluster B PDs, in particular antisocial, borderline and histrionic, showed the highest correlations with Urgency. Exceptionally, schizoid PD score correlated significantly and *negatively* with Urgency. Importantly, Urgency correlated significantly with overall PD severity, measured both by the Hopwood et al. (2011) measure and by combining 'acting out' and 'anxious-inhibited' ' scores.

TABLE 2 HERE

Further analysis (see Table 3) showed that when overall PD severity (Hopwood et al., 2011) was regressed onto UPPS scores, only Urgency significantly predicted severity (β=.39, t=4.34, p <.001). When the combined 'acting out'/'anxious- inhibited' ' score was regressed onto UPPS scores, Urgency again showed a trend towards significant prediction of severity (β=.23, t=2.38, p=.02).

TABLE 3 HERE

4.1. DISCUSSION.

The current results supported the hypothesis that emotional impulsiveness (Urgency) is a core feature of overall PD severity. They add to a growing literature that suggests that emotional impulsiveness is a key feature of psychopathology more generally (e.g. Dir et al., 2013).

The present study employed a forensic sample comprising male patients with confirmed PD and a high level of PD comorbidity. In contrast, the Few et al. (2015) sample comprised predominantly female patients of whom only 37% received a PD diagnosis confirmed by clinical interview. Despite these differences in the nature of the samples studied, the current results were highly consistent with those reported by Few et al. (2015). A notable discrepancy with Few et al.'s (2015) results was the significant negative correlations found here between schizoid PD score and Urgency, Sensation seeking and (lack of) Premeditation. Consistent with an inverse relationship between these UPPS facets and Schizoid PD, the latter was previously reported by Howard et al. (2014) to be inversely associated with violent offending in the current sample. Unlike antisocial PD, which was significantly associated with all UPPS facets, borderline PD did not correlate significantly with Sensation Seeking. This suggests that while antisocial and borderline PDs share many traits related to externalizing psychopathology, borderline PD lacks the excitement seeking facet of externalizing that characterises antisocial PD (Uliaszek & Zinbarg, 2015).

Two limitations of the present study merit consideration. First, lacking a measure of neuroticism we were unable to control for variance shared between Urgency and PD measures (including severity) attributable to neuroticism. The significant relationship of Urgency with 'anxious-inhibited', which in terms of Five Factor Model (FFM) personality traits reflects neurotic introversion (Blackburn et al., 2005), is likely accounted for by shared

neuroticism. However, most of the correlations between Urgency and DSM-5 Section 3 traits reported by Few et al. (2015) remained significant after variance shared with FFM neuroticism was removed. We can therefore be reasonably confident that associations reported here between Urgency and PD severity would not have been different had we controlled for neuroticism. Second, the Urgency measure used here (negative Urgency) did not include items related to positive mood (positive Urgency). However, given the high and significant correlation (r = .71) between positive and negative Urgency reported by Few et al. (2015), it is unlikely that inclusion of positive Urgency would have significantly altered our results.

4.2. CONCLUSION.

Overall, results of the present study supported the hypotheses (see Introduction) and are consistent with the idea that emotional impulsiveness/Urgency contributes importantly to overall severity of PD, and in so doing may explain, at least in part, the well-documented link between PD and violence (Yu, Geddes, & Fazel, 2012). Further research will be required to verify this.

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Internalising “anxious-inhibited” Factor	Externalising “acting out” Factor
PAR1: Suspects exploitation or harm (.33)	CD1: Often bullied others before age 15 (.60)
PAR2: Doubts loyalty or trustworthiness (.46)	CD2: Initiated fights before age 15 (.62)
PAR3: Reluctant to confide (.39)	CD4: Cruel to people before age 15 (.60)
TYP1: Ideas of reference (.58)	CD5: Cruel to animals before age 15 (.41)
TYP9: Excessive social anxiety (.53)	CD6: Stole while confronting victim before 15 (.36)
SCH5: Lacks close friends (.34)	CD12: Stole without confronting victim before age 15 (.45)
TYP3: Unusual perceptual experiences (.45)	CD13: Often stayed out at night before 15 (.33)
TYP5: Suspiciousness (.36)	APD2: Repeated lying (.51)
CD15: Often truant at school (.38)	APD4: Irritable and aggressive (.49)
BOR5: Recurrent suicidal gestures (.41)	APD5: Reckless disregard for safety (.35)
BOR6: Affective instability (.50)	APD7: Lack of remorse (.62)
BOR7: Chronic emptiness (.51)	BOR4: Impulsivity (.45)
BOR9: Paranoid ideation (.44)	BOR8: Inappropriate anger (.43)
AVO1: Avoids contact at work (.47)	HIS2: Sexually seductive (.36)
AVO5: Inhibited in new interpersonal situations (.68)	HIS6: Exaggerated emotion (.42)
AVO6: Views self as inept (.65)	HIS8: Considers relationships intimate (.41)
AVO7: Avoids personal risks (.45)	NAR1: Grandiose self-importance (.39)
DEP1: Needs reassurance (.38)	NAR4: Requires admiration (.32)
DEP4: Difficulty doing things on his own (.46)	NAR5: Sense of entitlement (.39)
	NAR6: Exploitative (.44)
	NAR7: Lacks empathy (.48)

TABLE1: IPDE items contributing to the “acting out” and “anxious-inhibited” factors described by Blackburn et al. (2005). Notes: Factor loadings are in brackets. Abbreviations (with their corresponding IPDE dimensional item numbers) refer to the following DSM-IV Axis I/Axis II disorders: PAR: paranoid PD; SCH: schizoid PD; TYP: schizotypal PD; CD: childhood conduct disorder; APD: antisocial PD; BOR: borderline PD; HIS: histrionic PD; NAR: narcissistic PD; AVO: avoidant PD; and DEP: dependent PD.

	UPPS Facets			
PD dimensional scores	PREMED.	URG.	SEN. SEEKING	PERSEV.
Paranoid	.28**	.28**	.05	.20*
Schizoid	-.20*	-.22*	-.36**	.04
Schizotypal	-.08	.06	-.13	.08
Antisocial	.39**	.32**	.33**	.23*
Borderline	.35**	.41**	.07	.27**
Histrionic	.19	.33**	.28**	.18
Narcissistic	-.02	.18	.19	.10
Avoidant	.12	.11	-.31**	.35**
Dependent	.17	.23*	.00	.17
Obsessive-compulsive	.03	.12	.23*	-.05
Cluster A	.02	.08	-.18	.16
Cluster B	.37**	.43**	.32**	.29**
Cluster C	.16	.20*	-.08	.20*
Acting out (AO)	.30**	.33**	.28**	.20
Anxious-inhibited’ (AI)	.27**	.21*	-.19	.38**
Combined AO and AI	.39**	.37**	.04	.40**
Hopwood PD Severity	.33**	.41**	.15	.34**

TABLE 2: Correlates of UPPS scales. PREMED: (lack of) Premeditation; URG: Urgency; SEN SEEKING: Sensation seeking; PERSEV: (Lack of) Perseverance. * Correlation is significant at the 0.05 level (2-tailed); ** Correlation is significant at the 0.01 level (2-tailed).

Dependent variables	**Predictor variables**	**Beta**	**t**	**Sig.**	**Adjusted R^2**	**Collinearity Statistics**	
						Tolerance	VIF
Hopwood PD severity	UPPS Urgency score	.39	4.34	<.001	.21	.99	1.01
	Age at first offence	-.21	-2.33	.022		.99	1.01
Combined Anxious-inhibited' and acting out score	UPPS - Urgency score	.23	2.38	.020	.19	.81	1.23
	UPPS – Perseverance (lack of) score	.30	2.98	.004		.81	1.23

TABLE3: Results of regression analysis.