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Impulsivity facets' predictive relations with DSM-5 PTSD symptom clusters

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Abstract

Objective—Posttraumatic Stress Disorder (PTSD) has a well-established theoretical and empirical relation with impulsivity. Prior research has not used a multidimensional approach for measuring both PTSD and impulsivity constructs when assessing their relationship.

Method—The current study assessed the unique relationship of impulsivity facets on PTSD symptom clusters among a non-clinical sample of 412 trauma-exposed adults.

Results—Linear regression analyses revealed that impulsivity facets best accounted for PTSD's arousal symptoms. The negative urgency facet of impulsivity was most predictive, as it was associated with all of PTSD's symptom clusters. Sensation seeking did not predict PTSD's intrusion symptoms, but did predict the other symptom clusters of PTSD. Lack of perseverance only predicted intrusion symptoms, while lack of premeditation only predicted PTSD's mood/cognition symptoms.

Conclusions—Results extend theoretical and empirical research on the impulsivity-PTSD relationship, suggesting that impulsivity facets may serve as both risk and protective factors for PTSD symptoms.

Keywords

Impulsivity; PTSD Symptom Clusters; DSM-5

Introduction

Posttraumatic Stress Disorder (PTSD) has a well-established theoretical and empirical relation with impulsivity (Kotler, Julian, Efron, & Amir, 2001; Weiss, Tull, Anestis, & Gratz, 2013). Rarely in the existing literature have studies used a multidimensional approach for both impulsivity and PTSD when assessing their relationship; this is relevant for identifying specific co-occurrence pathways, and for guiding clinical work. The current study aims to assess the unique relations among impulsivity facets and PTSD symptom clusters.

Impulsivity is one variable that has been theoretically and empirically linked to both PTSD symptoms (Kotler, Iancu, Efroni, & Amir, 2001; Weiss et al., 2013) and unpremeditated behaviors (see Berg, Latzman, Bliwise, & Lilienfeld, 2015). Utilizing a multidimensional approach for both PTSD and impulsivity constructs with a focus on symptom heterogeneity is critical. This may inform the development and refinement of targeted treatments aimed at reducing impulsivity behaviors among individuals with PTSD. Therefore, the current study aimed to identify the unique relationships among impulsivity facets and PTSD clusters.

Multiple definitions of impulsivity have been proposed in the literature (see Evenden, 1999). We focus on the UPPS Impulsive Behavior Scale because it highlights the multidimensional nature of impulsivity, and has conceptual underpinnings with the four personality facets related to impulsive behaviors (Whiteside & Lynam, 2001). *Lack of premeditation*, similar to the conscientiousness personality trait, refers to a tendency to engage in action without careful thought and planning. *Negative urgency*, paralleling the neuroticism personality trait, refers to a tendency to act rashly when experiencing intense negative affect with the aim of reducing negative emotions. *Sensation seeking*, related to the extraversion personality trait, refers to a tendency to seek excitement and an openness to try activities. Lastly, *lack of perseverance* the self-discipline facet related to conscientiousness personality trait (Whiteside & Lynam, 2001), refers to difficulty completing tasks and inability to avoid boredom. A fifth facet of impulsivity – *positive urgency* – was later proposed for a tendency to act rashly in response to positive mood states (Cyders et al., 2007).

Theoretical explanations have been proposed to clarify the relationship between PTSD symptoms and impulsivity facets. Casada and Roache (2005) found that individuals with PTSD symptoms have difficulty inhibiting behaviors when they perceive situations that may reduce distress. This disinhibition view of impulsivity may be conceptually similar to the *lack of premeditation* and *negative urgency facets*, wherein the experience of PTSD symptoms may impair one's ability to foresee long-term consequences of their actions, especially when they perceive engagement in a behavior as immediately rewarding. Alternatively, and consistent with research linking PTSD, emotion dysregulation, and impulsive behavior, impulsive behaviors may function to escape or avoid negative affect common among individuals with PTSD (e.g., Weiss, Tull, & Gratz, 2014). Finally, research has shown that a high sensation seeking tendency may represent positive coping in dealing with traumatic experiences (Solomon, Ginzburg, Neria, & Ohry, 1995).

We hypothesized that negative urgency would predict all PTSD symptom clusters (Hypothesis 1) based on the emotional dysregulation function of impulsivity (e.g., Weiss et al., 2013). We hypothesized (Hypothesis 2) that sensation-seeking would predict PTSD's alterations in arousal and reactivity (AAR) symptom cluster, consistent with the compulsive re-exposure hypothesis (e.g., Van der Kolk et al., 1985). Lastly, we hypothesized (Hypothesis 3) that lack of perseverance and lack of premeditation would predict PTSD's AAR symptom cluster, stemming from risky and self-destructive behaviors being a *DSM-5* arousal symptom criterion.

Method

Participants and Procedure

Psychology undergraduates from a Midwestern university were recruited to participate in this online study from 2011 until 2013. Study measures were administered following an online informed consent process.

The initial sample included 911 participants. We restricted the sample to participants endorsing trauma exposure; we then had 427 participants, 412 of which were not missing a majority of data. All available data were used in analyses, estimating missing model parameters using maximum likelihood procedures.

Measures

Demographic information—We obtained information on gender, age, education, employment status, relationship status, ethnic and racial background, and socio-economic status.

Stressful Life Events Screening Questionnaire (SLESQ)—The SLESQ is a 13-item questionnaire assessing traumatic event exposure according to Criterion A1 event of *DSM-IV* PTSD diagnostic criteria (Goodman, Corcoran, Turner, Yuan, & Green, 1998). The measure has good 2-week item-level test-retest reliability (.31 to 1.00), overall test-retest reliability (.89), and concurrent and convergent validity (Goodman et al., 1998). In line with *DSM-5*'s updated Criterion A on qualifying traumas, a probe was added to rule out exposure exclusively via electronic media (see Elhai, Miller, Ford, Biehn, Palmieri, & Frueh, 2012 for more details).

PTSD Checklist for DSM-5 (PCL-5)—The PCL-5 assesses PTSD symptom severity across the four *DSM-5* PTSD symptom clusters: intrusions (5 items), avoidance (2 items), negative alterations in cognition and mood (NAMC; 7 items), and AAR (6 items). The PCL-5 uses a 0 (“not at all”) to 4 (“extremely”) response scale. Preliminary research supports the high internal consistency of the PCL-5 (Bovin et al., in press), and in the current study $\alpha = .95$.

UPPS Impulsive Behavior Scale—The UPPS (Whiteside & Lyman, 2001), a 45-item self-report measure, assesses four impulsivity facets: lack of premeditation (11 items; $\alpha = .91$), negative urgency (12 items; $\alpha = .87$), sensation seeking (12 items; $\alpha = .84$), and lack of perseverance (10 items; $\alpha = .83$). This measure was used due to its multidimensional

properties and historically good psychometric properties (Whiteside & Lyman, 2001). Higher scores indicate more severe impulsivity. The UPPS facets demonstrate good internal consistency and validity (Whiteside & Lynam, 2001).

Participant Characteristics

The final sample of 412 participants ranged in age from 18 to 55 ($M = 20.06$, $SD = 4.42$). The majority were female ($n = 278$, 67.5%). Please refer to the supplemental materials for more information on participant characteristics. The most frequently endorsed index traumatic events were unexpected death of a family member/peer ($n = 187$, 45.4%), childhood sexual molestation ($n = 40$, 9.7%), and life-threatening accident ($n = 31$, 7.5%).

Data Analysis

Data were analysed using IBM SPSS v.21 statistical software. A total of four linear regression analyses were computed to assess the relationship between PTSD symptom cluster scores and impulsivity facet scores. In all of the regression analyses, the four impulsivity subscale scores were entered simultaneously as independent variables to assess their predictive relations, while controlling for the shared variance, with a given PTSD symptom cluster score entered as the dependent variable.

Results

Total PCL-5 scores averaged 21.63 ($SD = 16.86$; range=0–79), and 29.1% of trauma-exposed participants ($n = 120$) met criteria for a possible PTSD diagnosis based on DSM-5 criteria. Table 1 presents descriptive data for and inter-correlations among PTSD symptom clusters and impulsivity facets. Rows 1–4 are combined to constitute impulsivity, while rows 5–8 are PTSD symptom clusters.

Table 2 provides results of the multiple regression analyses, where impulsivity facets were entered simultaneously. Impulsivity facets explained the greatest amount of variance of intrusion symptoms ($R^2 = .22$), followed by NAMC symptoms ($R^2 = .18$), which indicate a medium effect of impulsivity facets on intrusion and NAMC symptoms. Impulsivity had only a small effect on AAR symptoms ($R^2 = .11$) and avoidance symptoms ($R^2 = .06$). As can be seen in Table 2, negative urgency and lack of perseverance were significantly and uniquely related to intrusion symptoms; lack of premeditation, negative urgency, and sensation seeking were related to NAMC symptoms. For the aforementioned regression analyses, greater levels of negative urgency and lower levels of lack of premeditation and sensation seeking were related to greater PTSD symptoms. Further, negative urgency was most highly correlated with PTSD symptoms.

Discussion

Results lend support for the role that negative urgency plays in PTSD's symptomatology (Weiss et al., 2013). Consistent with Hypothesis 1, negative urgency was uniquely associated with all four PTSD symptom clusters. Further, negative urgency was the best predictor of PTSD symptoms compared with the other UPPS facets. These results underscore the relevance of difficulties controlling behaviors in the context of intense negative emotions,

suggesting that impulsive behavior among individuals with PTSD symptoms may serve an emotion-regulating function (Weiss et al., 2013). Future research using experience sampling methods is needed to discern the functional relations among PTSD symptoms, negative affect, and impulsivity, as the sequence of these constructs is unclear. Nonetheless, our findings highlight the potential utility of teaching skills for promoting behavioral control in the context of intense negative emotions by redirecting attention to more adaptive actions.

Results were partially consistent with Hypothesis 2, finding that sensation seeking was uniquely related to avoidance, NAMC, and AAR symptoms. Specifically, individuals with higher trait sensation seeking tended to have lower avoidance symptoms, NAMC symptoms, and AAR symptoms. Further, sensation seeking and AAR symptoms appear to have a much closer association than sensation seeking and avoidance and NAMC symptoms. These findings support the limited prior research that has identified sensation seeking as a protective factor for PTSD following traumatic exposure (Solomon et al., 1995).

Inconsistent with Hypothesis 3, lack of premeditation was found to be uniquely associated with NAMC symptoms, and specifically, greater lack of premeditation was associated with lower NAMC symptoms. The effect size was small, and therefore results should be interpreted cautiously. This finding suggests that individuals who act without consideration of the long term consequences are somewhat less likely to experience negative patterns of thinking and mood. While lack of premeditation has generally been related to negative outcomes (see Berg et al., 2015 for a meta-analytic review), it is possible that a preference for short-term rewards without consideration of the long term consequences results in a short-term reduction in vulnerability to PTSD. Notably, whereas a preference for immediate (versus long term) rewards may be effective in reducing distress in the short-term, it may have paradoxical effects, exacerbating distress in the long term (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996).

Finally, and inconsistent with Hypothesis 3, lack of perseverance was associated with intrusion symptoms, such that individuals who are higher on trait lack of perseverance, that is, less likely to follow through with boring or difficult tasks in the face of other rewarding or distracting stimuli, have higher PTSD intrusion symptoms. Trait-based lack of perseverance may make individuals vulnerable toward the maintenance of intrusive symptoms of PTSD following traumatic exposure given the overlap in defining characteristics of the two constructs.

Implications

This study has several implications for prevention and intervention efforts aimed at reducing PTSD symptoms. As was alluded to, teaching strategies for reducing immediate action in the context of intense negative emotions may have utility in PTSD treatments. Focusing on negative urgency could also benefit individuals who are not yet willing to engage in empirically-supported treatments for PTSD because exposure to traumatic memories and reminders may be too painful, or for whom exposure therapy is contraindicated. Further, our findings suggest the potential utility of targeting aspects of sensation seeking and lack of both premeditation and perseverance in PTSD treatments.

Our study was not without limitations. The generalizability of the findings is limited by our use of a sample of trauma-exposed college students. Moreover, we utilized self-report questionnaires, which introduce possible response biases and issues with social desirability.

Conclusion

In conclusion, impulsivity facets were found to demonstrate unique relations with PTSD symptom clusters. Specifically, negative urgency was uniquely and positively related to intrusion, avoidance, NAMC, and AAR symptoms; sensation seeking was uniquely and negatively associated with avoidance, NAMC, and AAR symptoms; lack of premeditation was uniquely and negatively associated with NAMC symptoms; and lack of perseverance was uniquely and positively associated with intrusion symptoms.

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Table 1

Descriptive Data and Inter-correlations.

	1	2	3	4	5	6	7	8
1. Lack of Premeditation		.16**	.07	.53***	-.04	.00	-.01	.05
2. Negative Urgency			.08	.33***	.28***	.23***	.38***	.43***
3. Sensation Seeking				-.30***	-.13**	-.07	-.11*	-.04
4. Lack of Perseverance					.12*	.09	.23***	.26***
5. Intrusions						.73***	.67***	.67***
6. Avoidance							.67***	.60***
7. NAMC								.79***
8. AAR								
<i>M</i>	21.45	30.30	33.04	19.66	6.00	2.79	7.15	5.69
<i>SD</i>	5.27	7.36	7.33	4.98	5.73	2.41	6.41	4.61

Note. NAMC = Negative Alterations in Mood and Cognitions. AAR = Alterations in Arousal and Reactivity.

* $p < .05$,

** $p < .01$,

*** $p < .001$.

Table 2

Results of Regression Analyses of Impulsivity Facets on PTSD Symptom Clusters.

	B	<i>t</i>	<i>p</i>	R²
Intrusion Symptoms				.22
Negative Urgency	.42	8.03	.000	
Lack of Perseverance	.14	2.13	.034	
Lack of Premeditation	-.11	-1.78	.076	
Sensation Seeking	-.05	-.89	.790	
Avoidance Symptoms				.06
Negative Urgency	.24	4.21	.000	
Sensation Seeking	-.13	-2.12	.034	
Lack of Premeditation	-.09	-1.52	.130	
Lack of Perseverance	-.04	-.57	.572	
Negative Alterations in Mood and Cognitions (NAMC) Symptoms				.18
Negative Urgency	.36	6.71	.000	
Lack of Premeditation	-.11	-1.80	.007	
Sensation Seeking	-.12	-2.01	.046	
Lack of Perseverance	.13	1.90	.059	
Alterations in Arousal and Reactivity (AAR) Symptoms				.11
Negative Urgency	.30	5.41	.000	
Sensation Seeking	-.19	-3.24	.001	
Lack of Premeditation	-.05	-.82	.412	
Lack of Perseverance	-.03	-.41	.685	