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PID-5 trait mediation of childhood maltreatment effects

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ABSTRACT

A national sample ($N = 526$) of respondents completed the Personality Inventory for the DSM-5 (PID-5) along with measures of childhood maltreatment (sexual abuse, physical abuse, and exposure to intimate partner violence) and indices of internalized (anxiety, depression, post-traumatic stress, & self-esteem) and externalized (anger, hostility, verbal aggression, physical aggression, conduct disturbance, attentional difficulties) adult maladjustment. The five trait domains of the PID-5 were examined in a path analysis as potential mediators of child maltreatment effects. The maltreatment and trait indicators in this study were all predictive ($p < .001$) of adult symptomatology. Internalized symptoms were best predicted by traits of Negative Affectivity and Detachment. Externalized symptoms were more closely associated with traits of Disinhibition and Antagonism. These four PID-5 trait domains strongly mediated the effects of sexual abuse and parental hostility. Interpretive caution is warranted by the retrospective and cross-sectional design used to generate these results. Trait development was assumed to have occurred concomitant with childhood maltreatment prior to age 16. While the temporal sequencing of childhood abuse and trait development is inherently complex, these relationships continue to warrant systematic analysis.

1. Introduction

Childhood maltreatment has been identified as a putative etiologic contributor to over 20 major psychiatric disorders in the *Risk and Prognostic Factors* sections of the Diagnostic and Statistical Manual (DSM-5; American Psychiatric Association, 2013). Meta-analytic evidentiary summaries in support of these linkages can be found for physical abuse (Norman et al., 2012), sexual abuse (Chen et al., 2010), domestic violence (Wolfe, Crooks, Lee, McIntyre-Smith, & Jaffe, 2003), and other forms of maltreatment. Maltreated children are at risk for the development of both internalized (Bolger & Patterson, 2001; Silva, Grana, & Gonzalez-Cieza, 2013) and externalized (Jaffee, Caspi, Moffitt, & Taylor, 2004; Mrug & Windle, 2010) mental health symptoms. Individual differences in personality traits have been useful in the prediction of differential internalized versus externalized symptom outcomes among maltreatment victims (Combs, Jordan, & Smith, 2013; Settles et al., 2011).

Research in behavioral genetics has attributed 30% to 50% of the variance in trait expression to genetic factors (Plomin, DeFries, Knopik, & Neiderhiser, 2016). Investigators have attempted to account for the remaining variance through a range of putative biological and developmental contributors. Cicchetti (2016) theorized that child maltreatment disrupts victim ability to surmount a series of hierarchically organized, age-related, developmental challenges including, but not limited to, the establishment of secure parental attachments, emotional regulation, self-image integration, early peer relations, and other formative milestones. Cicchetti and his colleagues provided compelling evidence that these developmental insults alter the neurobiological substrates that mediate temperament and personality development (Cicchetti, 2002; Cicchetti & Rogosch, 2001, 2007; Kim & Cicchetti, 2006; Kim, Cicchetti, Rogosch, & Manly, 2009). While wide individual differences in abuse outcomes are to be expected, more distal maltreatment experiences are expected to exert disproportionate negative impacts given the sequential and integrative nature of personality development.

Maladaptive personality traits provide intuitive mechanisms by which early child abuse may be translated into later psychiatric symptomatology (Hovens et al., 2012; Kim et al., 2009; Oshri, Rogosch, & Cicchetti, 2013; Spinhoven, Elzinga, Van Memert, Rooij, & Penninx, 2016). These impressive longitudinal studies have provided compelling evidence regarding the role of personality traits as childhood maltreatment mediators on internalized and externalized symptoms of distress. Collective findings tend to converge on the role of neuroticism and introversion in the development of internalized symptoms. Traits of disinhibition and antagonism often have been more consistently linked to externalized symptoms. Sample sizes in these early analyses have placed limitations on the extent to which maltreatment subtypes could be thoroughly examined. To that end, trait mediators of childhood sexual abuse remain unclearly specified. While the temporal sequencing of abuse and trait development is inherently complex, even within longitudinal designs, these interrelationships between abuse, traits, and symptoms continue to warrant our best analytic efforts.

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The Personality Inventory for the DSM-5 (PID-5; Krueger, Derringer, Markon, Watson, & Skodol, 2012) is a 220-item self-report inventory described in the DSM-5 as a prototype for the measurement of five fundamental personality trait domains that parallel those derived from five-factor theory (Bagby, 2013; Thomas et al., 2013; Watson, Stasik, Ro, & Clark, 2013). These five trait dimensions were examined in this study as potential mediators of child maltreatment effects. Attributes associated with the pathological poles of these domain dimensions can be summarized as follows: Antagonism (manipulativeness, deceitfulness, grandiosity, attention seeking, callousness, & hostility); Disinhibition (irresponsibility, risk taking, impulsivity, distractibility, & low rigid perfectionism); Detachment (withdrawal, intimacy avoidance, anhedonia, depressivity, restricted affectivity, & suspiciousness); Negative Affectivity (emotional lability, anxiousness, separation insecurity, submissiveness, hostility, perseveration, depressivity, suspiciousness, & restricted affectivity); and Psychoticism (unusual beliefs and experiences, eccentricity, and cognitive & perceptual dysregulation).

1.1. Hypotheses

This study tests three hypotheses: 1) PID-5 domain scores are expected to be closely associated with adult symptom indicators; 2) Negative Affectivity and Detachment are expected to be most strongly linked to internalized symptoms, and Antagonism and Disinhibition are expected to be most strongly linked to externalized symptoms; and 3) PID-5 traits are expected to mediate the effects of childhood maltreatment on symptom expression.

2. Methods

2.1. Participants and procedure

Amazon's Mechanical Turk (Mason & Suri, 2012) was used to recruit participants for this 40-min Qualtrics survey for $0.50 compensation. All respondents were United States residents of at least 18 years of age. Protocols were excluded ($n = 105$) if missing items on the PID-5 precluded the scoring of at least four trait domains. Listwise exclusions were used otherwise to manage missing data. The women ($n = 353$) and men ($n = 173$) in this sample varied in age (age 18–24; 17.9%; age 25–39, 49.2%; age 40–59, 28.1%; age 59 or older, 4.8%) and ethnicity (Caucasian, 77.3%; African American, 6.9%; Hispanic, 4.4%; Bi-racial/Multi-racial, 4.6%; Asian American, 3.4%; Native American, 1.5%; Other, 1.9%).

2.2. Child maltreatment measures

2.2.1. The Violent Experiences Questionnaire (VEQ-R)

The Violent Experiences Questionnaire (VEQ-R; King & Russell, under review; King, 2012; King, 2014a; King, 2014b; King, 2016) provided indices for different forms of retrospective child and adolescent maltreatment. VEQ-R measurement distinctions are made between verbal discord, threats of violence, and these physical acts with or without physical injury. The score for each index is interpreted as the average number of days per year a specified type of act occurred. Physical abuse as measured by the VEQ-R relies on a broadly-defined set of index acts (*Physical Acts with or without Physical Injury*: pushing, shoving, shaking, striking, kicking, punching, beating, burning, or use of a weapon to inflict pain or injury) that can be perpetrated by a parent or step-parent toward either the respondent (i.e., childhood physical abuse) or another parent (i.e., exposure to intimate partner violence) between the ages of 5 and 16. Each VEQ-R index also contributes to two of four "hostility" factors used in this study. Parental Hostility (CPH) includes parental physical abuse, threats of physical violence, and corporal punishment. Domestic Hostility (CDH) includes observed verbal discord, threats of physical violence, and physical aggression occurring between parents or step-parents during upbringing. Both factor scores have been found to be reliable and valid as maltreatment indicators (King & Russell, under review).

2.2.2. Sexual abuse & assault self-report (CSA)

This sexual abuse and assault measure (Everson & Knight, 2000) was provided by the Consortium of Longitudinal Studies on Child Abuse and Neglect (LONGSCAN) project coordinated at the University of North Carolina (www.unc.edu/5epts./sph/longscan/). This scale was developed for use with sexually victimized children and adolescents. Minor wording modifications were made for adult sampling purposes (i.e., "genitalia" instead of "sexual parts"; "rape" in place of "put a part of his body inside your private parts"). LONGSCAN provides extensive concurrent validation data. Items sampled CSA occurring prior to age 16.

2.3. Internalized symptom indices

2.3.1. Depression and anxiety symptom indices

The Costello-Comrey Depression and Anxiety Scales (CCDAS; Costello & Comrey, 1967) were comprised of 14 and 9 items respectively scored on a nine-point metric (1 = absolutely not/never; 9 = absolutely/= always).

2.3.2. Rosenberg self-esteem scale (RSE)

The RSE (Rosenberg, 1965) is a widely-used, ten-item self-esteem index which relies upon a four-point index (1 = strongly agree; 4 = strongly disagree). Evidence of RSE internal consistency ($\alpha = 0.91$) and validity (Byrne, 1996) has been established.

2.3.3. Screen for post-traumatic stress symptoms (SPTSS)

The SPTSS (Carlson, 2001) is a 17-item self-report measure of PTSD symptomatology scored on a ten-point scale (0 = never; 10 = always). The SPTSS was shown to be internally consistent ($\alpha = 0.91$) with validation evidence generated from a clinical sample.

2.3.4. Internalized aggregate score (INT)

An aggregate score ($\alpha = 0.85$) was calculated as the mean standard (z) score from the four internalized symptom indicators (CCDAS Anxiety, CCDAS Depression, SPTSS, & RSE-reversed) selected for this study.

2.4. Externalized symptom indices

2.4.1. Buss-Perry Aggression Questionnaire (BPAQ)

The BPAQ (Buss & Perry, 1992) is a 29-item survey scaled on a six-point metric (0 = extremely uncharacteristic; 5 = extremely characteristic) segregated into four subscales (Physical Aggression; Verbal Aggression; Trait Anger; Trait Hostility). Evidence establishing BPAQ reliability and validity has been extensive (Archer & Webb, 2006).

2.4.2. Conduct disorder symptoms (conduct)

A customized survey was developed to quantify the number of core DSM-5 Conduct Disorder symptoms exhibited prior to age 15. Each of the 15 symptoms was scored 0 or 1 with a total CDS score generated from the sum.

2.4.3. Barratt Impulsivity Scale-11 (BIS-11)

The BIS-11 (Patton, Stanford, & Barratt, 1995) is a 30-item self-report questionnaire scaled on a four-point metric (1 = rarely/never; 4 = almost always/always) that provides indices for Attentional Impulsivity (AI), Motor Impulsivity (MI), and Non-Planning Impulsivity (NPI). Test-retest reliabilities for the three subscales range from 0.71 to 0.83.

2.4.4. Externalized aggregate score (EXT)

An aggregate score ($\alpha = 0.81$) was calculated as the mean standard (z) score from these eight externalized symptom indicators (BPAQ-Anger, BPAQ-Hostility, BPAQ-Verbal Aggression, BPAQ-Physical Aggression, Conduct, AI, MI, NPI).