Cumulative childhood maltreatment and its dose-response relation with adult symptomaticity: Findings in a sample of adult survivors of sexual abuse

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**ABSTRACT**

In the present study, we examined the role of cumulative childhood maltreatment experiences for several health related outcomes in adulthood, including symptoms of psychological distress as well as perceived social support and hardiness. The sample comprised adult survivors of sexual abuse (N=278, 95.3% women, mean age at first abusive incident =6.4 years). One-way ANOVAs revealed a statistically significant dose-response relation between cumulative childhood maltreatment scores and self-reported symptoms of posttraumatic stress (PTSS), anxiety, depression, eating disorders, dissociation, insomnia, nightmare related distress, physical pain, emotional pain, relational problems, self-harm behaviors as well as on a measure of symptom complexity. Cumulative childhood maltreatment was also associated with lower levels of work functioning. An inverse dose-response relation was found for perceived social support and hardiness. Using a Bonferroni corrected alpha level, cumulative childhood maltreatment remained significantly associated with all outcome measures with the exception of eating disorder symptoms after controlling for abuse-related independent variables in hierarchical regression analyses. Results add to previous literature by showing that dose-response relation between cumulative childhood adversities and adult symptom outcomes could also be identified in a sample characterized by high exposure to adversities, and lends support to the notion put forth by previous authors that cumulative childhood adversities seem to be related to the severity of adult health outcomes in a rule-governed way.

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1. Introduction

Sexual abuse occurs at epidemic rates worldwide. Prevalence studies report rates ranging between 8 and 31% for women and 3–17% for men during childhood (Barth, Bermetz, Heim, Trelle, & Tonia, 2013; Finkelhor, 1994), with comparable prevalence rates reported for adult sexual assault (Elliott, Mok, & Briere, 2004) and intimate partner sexual violence (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002). Moreover, childhood sexual abuse often co-occurs with other types of childhood maltreatment, such as physical and emotional abuse or neglect (Clark, Caldwell, Power, & Stansfeld, 2010; Kessler et al., 2010; Turner, Finkelhor, & Ormrod, 2010).

Over the years, a massive and continuously growing body of literature established that being victimized by sexual abuse increases the risk of a wide range of short- and long-term mental and somatic negative health outcomes. Among the reported outcomes are increased risk of suicide and suicide attempts, post-traumatic stress, anxiety, depression, sleep disorders, eating disorders, substance abuse, sexual problems, social impairment, interpersonal problems (Beichtman, Zucker, Hood, DaCosta, & Akman, 1991; Beichtman et al., 1992; Chen et al., 2010; Jumper, 1995; Kendler et al., 2000; Maniglio, 2009; Paolucci, genius, & Violato, 2001; Putnam, 2003), functional gastrointestinal disorders, obesity, chronic pain conditions (Gilbert et al., 2009; Leserman, 2005; Maniglio, 2009; Paras et al., 2009), as well as alterations of neurobiology and stress physiology (Bremner et al., 1997; Dannlowski et al., 2012; Hulme, 2011; Vythilingam et al., 2002). Moreover, survivors of sexual abuse show high degrees of comorbidity of symptoms and disorders (i.e., meeting diagnostic criteria for several mental disorders; Trickett, Noll, & Putnam, 2011).

While sexual abuse is a well-established risk factor for multiple mental and somatic symptoms as well as social problems, studies also document substantial symptom heterogeneity among those victimized (see for example Kendall-Tackett, Williams, & Finkelhor, 1993; Paolucci et al., 2001; Trickett et al., 2011), indicating the presence of factors moderating symptom outcomes. One factor consistently associated with less severe symptomatology among sexual abuse survivors is the degree of perceived social support–a protective factor known to have beneficial health effects both directly (Cohen & Wills, 1985; Uchino, 2006; Umberson & Montez, 2010) and indirectly (e.g. through stress buffering; Brewin, Andrews, & Valentine, 2000; Cohen, 2004; Ozer, Best, Llipsy, & Weiss, 2008). Specifically, higher levels of perceived social support were associated with better health outcomes in both (Kaufman et al., 2004; Tremblay, Hébert, & Piché, 1999) and adult (Burgess & Holmstrom, 1978; Hyman, Gold, & Cott, 2003; Luenger-Schuster et al., 2015; Runtz & Schallow, 1997; Steine et al., 2012) survivors of childhood sexual abuse, and among survivors of adult sexual abuse (Burgess & Holmstrom, 1978; Ullman, 1999). The association between perceived support and health outcomes among sexual abuse survivors is likely to be complex. For example, several representative population studies showed that childhood sexual abuse itself is a significant predictor of smaller network size and lower levels of emotional support from friends, family or spouses later in life (Golding, Wilsnack, & Cooper, 2002). Another construct of potential relevance for differences in symptom outcomes, is the personal style of hardness. Hardiness has been described as a constellation of personality characteristics contributing to stress resilience. It is a multidimensional construct comprising characteristics from three sub-facets: 1) the degree to which one believes one can control events happening in one’s life (Control), 2) the degree to which one approaches difficult situations as opportunities to learn and grow (Challenge), as well as 3) the degree to which a person is engaged in a variety of life domains (Commitment) (for more elaborate information, see Eschleman, Bowling, & Alancon, 2010; Maddi et al., 2002). Hardiness has been shown to play a role in mental health and stress resilience. Specifically, higher levels of hardiness have been associated with lower levels of mental health problems, both in general and following stressful events (Beasley, Thompson, & Davidson, 2003; Eschleman et al., 2010; Pengilly & Dowd, 2000). This has also been found among sexual abuse survivors (Feinauer, 2003; Feinauer et al., 1996). However, other studies indicate that stress resilience itself may be negatively affected by exposure to sexual abuse (e.g., increasing the risk of developing depression after stressful events later in life; Kendler, Kuhn, & Prescott, 2004). Whether this also holds true for hardness remains unclear due to a lack of previous studies investigating this, highlighting the need for studies addressing this question.

Several abuse-related factors have also been associated with differences in short- and long-term symptom outcomes, including a close relation to the perpetrator (particularly a biological parent), abuse involving the use of force, and abuse involving oral, anal or genital penetration (Beichtman et al., 1991; Beichtman et al., 1992; Feehan, Nada-Raja, Martin, & Langley, 2001; Fergusson, McLeod, & Horwood, 2013; Kendall-Tackett et al., 1993; Kendler et al., 2000; Leserman, 2005; Tremblay et al., 1999; Trickett, Reifman, Horowitz, & Putnam, 1997; Tyler, 2002).

In other samples (e.g., national representative samples, national population samples, clinical samples), several large scale studies have reported evidence of a “dose-response” relation between cumulative exposure to different types of childhood adversities and severity of symptomatology later in life. Specifically, a graded relationship was found between the number of different types of childhood adversities experienced and the risk of suicide attempts, anxiety disorders, depression, sleep disturbances, obesity, hallucinations, drug use, antisocial behavior, as well as with many leading causes of death in adults, including ischemic heart disease and cancer (Anda et al., 2006; Chapman et al., 2004; Clark et al., 2010; Felitti et al., 1998; Koskenvuo, Hulin, Partinen, Paunio, & Koskenvuo, 2010; Schilling, Aseltine, & Gore, 2008; Turner et al., 2010; Walker et al., 1999). Exposure to cumulative childhood adversities also was associated with an increasing symptom complexity in both child and adult clinical samples (Cloitre et al., 2009).

Given the interrelatedness of sexual abuse with other types of childhood adversities (Clark et al., 2010; Kessler et al., 2010; Turner et al., 2010), it seems plausible that heterogeneity in the degree of exposure to other childhood adversities could contribute to the symptom heterogeneity observed among sexual abuse survivors. However, to the best of our knowledge no
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