Psychiatry Research 206 (2013) 103–110

Contents lists available at SciVerse ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

Childhood adversities in relation to psychiatric disorders

Christian Pietrek [a], Thomas Elbert [a], Roland Weierstall [a], Oliver Müller [b], Brigitte Rockstroh [a,*]

[a] Department of Psychology, University of Konstanz, 78457 Konstanz, Germany
[b] Center for Psychiatry Reichenau, 78479 Reichenau, Germany

ARTICLE INFO

Article history:
Received 20 January 2012
Received in revised form
16 August 2012
Accepted 1 November 2012

Keywords:
Childhood adversities
Emotional neglect
Sexual abuse
Depression
Borderline personality disorder (BPD)
Schizophrenia

ABSTRACT

Substantial evidence has documented that adverse childhood experiences exert deleterious effects on mental health. It is less clear to what extent specific maltreatment during specific developmental periods may vary between disorders rather than increasing vulnerability for any particular disorder. The present comparison of characteristics of childhood adversity (type and frequency of adversity, developmental period) between major depressive disorder (MDD), borderline personality disorder (BPD), schizophrenia, and psychiatrically healthy subjects examined how effects of adverse childhood experiences vary between disorders. Patients generally reported more adverse events than healthy subjects. Irrespective of diagnosis, emotional maltreatment was substantial in all patients. BPD was characterized by marked increase of adversities across age relative to MDD and schizophrenia. Fifty-six percent of BPD, 40% of MDD and 18% of schizophrenia cases experienced a significant degree of early childhood adversity. Stress pattern (type and time) varied between diagnoses, but not for patients with significant early adversities. Regression analyses confirmed early experiences as a predictor of BPD, but not of MDD and schizophrenia. Prepubescent experiences predicted affective and traumatic symptoms in BPD, and moderated the association with symptoms in MDD. Results indicate a dose-effect with differential impact of adverse childhood experiences in BPD, MDD, and schizophrenia, while early maltreatment beyond a certain degree affects mental health independent of diagnosis.

1. Introduction

A relationship between adverse childhood experiences (ACE) and psychiatric disorder has been frequently emphasized, referring to prevalence, risk, course, and severity of disorder (e.g. Chapman et al., 2004; Dube et al., 2003; McEwen, 2003; Rutter and Maughan, 1997; Teicher et al., 2002). Associations have been described for different diagnoses, including major depressive disorder (MDD; e.g., Kessler, 1997; Heim et al., 1997, 2004; Teicher et al., 2006, 2009; Widom et al., 2007), borderline personality disorder (BPD; e.g., Crawford et al., 2009; Allen, 2008; Liotti et al., 2000; van der Kolk et al., 1994), anxiety disorders (e.g., Kessler et al., 1997) or schizophrenia spectrum disorders (overview Varese et al., 2012; see also Read and Bentall, 2010; Read et al., 2005; Rosenberg et al., 2007; Bebbington et al., 2004, 2011; Betensky et al., 2009; Matheson et al., 2012; Sideli et al., 2012). Efforts to understand the impact of adverse experience on disorder have targeted developmental periods and type of experience. Maltreatment at different ages during childhood affects development of different brain regions, suggesting sensitive periods of brain (Andersen, 2003; Andersen and Teicher, 2008, 2009; Andersen et al., 2008) and neuroendocrine systems development (Weiss et al., 1999; Paus et al., 2008; Kaufman and Charney, 2001; Heim et al., 1997; Wingenfeld et al., 2010). Effects on risk, onset, severity or chronicity of disorder have been reported for different types of adversity, including trauma, interpersonal trauma, parental loss/neglect or verbal aggression (e.g., Kessler et al., 1997; Rubino et al., 2009; Teicher et al., 2004, 2006; De Marco, 2000; Widom et al., 2007; Angst et al., 2011; Crawford et al., 2009) or physical abuse (Sugaya et al., 2012).

Comparisons of diagnostic groups and type of maltreatment show more or less specific associations: focusing on the study of one diagnostic group may suggest a specific impact, for example, of early sexual abuse and BPD (e.g., Wingenfeld et al., 2010) or punishment and psychosis (Fisher et al., 2010), while comparisons of types of adversities and diagnostic groups suggest less specificity (Kessler et al., 1997; Rubino et al., 2009; Matheson et al., 2012; Anda et al., 2002; McLaughlin et al., 2010a,b). This may vary with the 'dose' or intensity of experience, with different amounts of adversity cumulatively increasing the risk or predicting the onset of severe disorders (Rubino et al., 2009; Sugaya et al., 2012; Mueser et al., 2002). It may also vary with the definition of severe disorder: while increasing amounts of various adversities increase the risk in different disorders (Kessler et al., 1997; Read and Bentall, 2010), no dose effect was found for first-presentation psychosis patients (Fisher et al., 2010; Sideli et al., 2012).

* Correspondence to: Department of Psychology, P.O. Box D23, University of Konstanz, D-78457 Konstanz, Germany.
Tel.: +49 7531 884625; fax: +49 7531 882891.
E-mail address: Brigitte.Rockstroh@uni-konstanz.de (B. Rockstroh).

0165-1781/$ - see front matter © 2012 Elsevier Ireland Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.psychres.2012.11.003

Comparing different aspects of childhood experiences like type and developmental period across diagnoses may offer additional information regarding severity of illness and current symptoms. For adolescent depression as an example, Andersen and Teicher (2009) (see also Teicher et al., 2009) show that stress exposure during windows of vulnerability at some stages in brain maturation affects further developments that increase susceptibility for depression in adolescents. This may serve as a model of the contribution of stress exposure to disorder-specific developments.

The present study screened types of adverse childhood experiences for different developmental periods from an early age to adolescence in inpatient samples with primary International Classification of Disorders (ICD)-10 diagnoses of major depressive disorder (MDD), borderline personality disorder (BPD) or schizophrenia, and in healthy comparison subjects. Major goals were to evaluate whether the pattern of different types of adverse experiences at different age periods varied between diagnostic groups and how such patterns contributed to current psychopathology as reflected by symptom severity. In addition, the impact of 'dose' of early adversities on this pattern was examined.

Many studies addressing the impact of childhood adversities have focused on sexual abuse in (healthy) women (e.g. Teicher et al., 2009) or in female patients with BPD (e.g., Wingenfeld et al., 2010), while others examined effects of life events (Brown et al., 1994; Bifulco et al., 1998) or childhood adversities (Heim et al., 2004) in female MDD patients. Gender-specific types of experiences have been assumed (see also Catani et al., 2009), and a gender-specific stress-sensitivity has been concluded from higher overall responses to pharmacological challenge of the stress system—though unrelated to specific stressors (DeSantis et al., 2011). Results on gender-specific interaction of childhood adversities and psychopathology are inconsistent: whereas Schilling et al. (2007) did not find significant gender differences in effects of different childhood adversities on depression and drug abuse, Keyes et al. (2012) reported gender differences in the impact of different childhood adversities on the liability for externalizing (higher liability associated with physical abuse in men) and internalizing (higher liability associated with physical abuse in women)—but no impact on specific disorders and no gender-specific impact of neglect. Wainwright and Surtees (2002) show gender-specific effects of trauma or physical abuse on risk of first onset of depression, but not prevalence per se. Although a gender-specific pattern of adverse experiences and its interaction with disorder was not the major goal of the present study, the potential role of gender was considered in the analyses.

2. Methods

2.1. Sample

Data were collected from a total 160 inpatients of the local Center for Psychiatry. Diagnosed by the respective responsible psychiatrist or psychologist following the criteria of the ICD-10 (World Health Organization, 1988), 41 patients received the primary diagnosis of BPD, 86 patients were diagnosed with MDD, and 33 patients with schizophrenia. Patients were included in the study if they met criteria for ICD-10 diagnoses of BPD (*F*60.31), MDD (F31–33) or schizophrenia (F20–F25), and if they were in a sufficiently remitted state to allow data collection including the interview on childhood adversities. As the clientele of the center mainly includes long-term patients, most were on psychoactive medication. With the aim to evaluate a larger data set, data of two samples screened with the identical instruments and recruited according to identical rules were collapsed: a first sample including 75 patients (34 MDD, 33 schizophrenia patients, and eight BPD) and 30 healthy subjects had been screened for prepubescent stress load (Weber et al., 2008). For those 75 patients data were presently re-analyzed for detailed information about time periods and types of stress. With the aim to enlarge the sample size, an additional 52 MDD and 33 BPD patients were recruited from the same wards and drawn from the same population of patients admitted to the local Center for Psychiatry; the patients were screened together with another 55 healthy subjects using the same screening instrument. The respective two samples did not differ with respect to demographic (age, years of schooling) variables.

Healthy subjects (HC, healthy comparison subjects) were recruited from the community by flyers and screened with the MINI interview (German version by Ackenheil et al., 1999) to rule out current or life-time mental disorders; further exclusion criteria were the use of psychoactive medication and neurological disorder in the past. While the patient group did not differ from HC in age and gender, HC had more years of school education than patients (see Table 1a). The diagnostic groups differed from each other in age and gender, but not in education (Table 1a).

2.2. Procedures

The study protocol was approved by the ethics committee of the University of Konstanz. Participants were informed about the goal of the study and procedures, and signed written informed consent. Amount and severity of childhood adversities were screened using the standardized interview following Bremner's Early Trauma Interview (ETI, Bremner et al., 2007; German version by Heim, 2000; see also Wingenfeld et al., 2011, for psychometric characteristics). The interview assesses the occurrence in the four following domains: general trauma, emotional abuse/neglect, physical abuse/neglect, and sexual abuse. Any reported experience within each domain is considered as a single event. For each reported event the age when it started and the age when it terminated are specified, and the event frequency within each domain and year is encoded on a seven-point Likert-scale ranging from 'never within this year' to 'several times a day'. These ratings per year were summed up for time windows that have been proposed to be differentially affected by stress according to Andersen et al. (2008): preschool (3–5 years), prepubescent (9–10 years), pubertal (11–13 years) and adolescent (14–16). In the present analysis, the period from 6 to 8 years was added with the aim to characterize the full profile of adverse experiences across childhood from 3 to 16 years. Since the age periods were of different length, the mean score/year was determined as the measure of time of adverse experiences. For evaluation of the type of experience, scores were summed up across age periods for each domain.

Symptom severity was determined in all participants at the time of the stress interview. Symptom measures (see Table 1b for group means) included self-ratings of depressive symptoms (Beck Depression Inventory, BDI-II, Hautzinger et al., 2006), negative affect during the preceding week (Positive and Negative Affect Scale, PANAS; Watson et al., 1988), and (in the second sample only) borderline symptoms using the Borderline Symptom List (BSL-23; Bohus et al., 2009; Wolf et al., 2009). Symptoms associated with posttraumatic stress disorder (PTSD), hyperarousal, intrusions, and avoidance were assessed using the Posttraumatc Stress Scale Interview (PSSI), which covers the DSM IV criteria (PDS, Foa, 1995; Foa and Tolin, 2000). Symptom severity was assessed irrespective of whether criteria of PTSD diagnosis were met. Comorbid PTSD diagnosis determined from the PSSI, and comorbidity of BPD and MDD diagnoses, served as additional measures of severity of psychopathology. Borderline symptoms were available only for the second patient sample (see Table 1b).

Table 1a
Demographic data of patients and healthy controls.

Variable	Healthy controls ($n=85$)	Patients ($n=160$)	Group difference	BPD ($n=41$)	MDD ($n=86$)	Schizophrenia ($n=33$)	Diagnostic group differences
Age ($M \pm$ S.D.)	38.3 ± 14.1	36.7 ± 13.8	n.s.	26.4 ± 6.8	42.3 ± 12.1	33.0 ± 9.2	$F(2,157)=33.99$** All post-hoc comparisons**
Gender—male/female	32/53	67/93	n.s.	4/37	41/45	22/11	$\chi^2_{(3)}=27.6$**
Years of education	11.7 ± 1.5	10.3 ± 1.5	$F(1,243)=51.04$**	10.0 ± 1.2	10.3 ± 1.6	10.6 ± 1.6	Diagnostic groups: n.s.

** $p < 0.01$.