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Profiling Psychopathology of Patients Reporting Early Childhood Trauma and Emotional Neglect: Support for a Two-Dimensional Model?

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Objective: Profiling patients who report early childhood trauma and emotional neglect may be useful for treatment planning. This study attempts to quantify a two-dimensional "trauma-neglect model" (Draijer, 2003) proposed to distinguish clinical profiles in terms of trauma-related, dissociative, and personality pathology. ***Method:*** A sample of patients referred to a trauma program ($n = 49$) and a personality disorders program ($n = 101$) was extensively assessed. Cluster analysis was used to discriminate patients in terms of "psychiatric disease burden," based on symptom severity scores, type of disorder, and level of maladaptive personality functioning. Clusters that differed in psychiatric disease burden were mapped in the trauma-neglect space and their positions were evaluated. ***Results:*** We found three clusters and labeled them as "mildly impaired" (26% of patients), "moderately impaired" (43% of patients), and "severely impaired" (31% of patients). The mean scores on trauma and neglect for the mild and severe groups differed significantly. ***Conclusions:*** These findings indicate that further investigation of the validity of the model, which may be used to plan treatment, is useful. Patients experiencing a wide range of trauma-related disorders, dissociative disorders (DD), and personality disorders (PD), combined with a high level of psychiatric symptoms and a maladaptive style of personality functioning, report a range of traumatic experiences in combination with a lack of maternal care, and can be profiled as "severely impaired."

Clinical Impact Statement
Profiling survivors of childhood trauma and emotional neglect may be useful for treatment planning, because the pathology is complex and multiple *Diagnostic and Statistical Manual of Mental Disorders*, fifth edition (*DSM–5*) classifications apply. We discriminated a sample of patients referred to a trauma program or a personality disorders program based on symptom severity scores, type of disorder, and level of personality functioning. Patients who report a range of traumatic experiences in combination with a lack of maternal care can be profiled as "severely impaired," experiencing trauma-related, dissociative, and personality disorders, combined with a high level of psychiatric symptoms and a maladaptive style of personality functioning.

Keywords: childhood trauma, dissociative disorders, emotional neglect, personality disorders, trauma-related disorders

Supplemental materials: http://dx.doi.org/10.1037/tra0000409.supp

During the last few years, we witnessed the transition from *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition (*DSM–IV*; American Psychiatric Association, 1994) to *DSM–5* (American Psychiatric Association, 2013). The reliability and validity of this traditional taxonomy is nevertheless limited by arbitrary boundaries between psychopathology and normality, unclear boundaries between disorders, frequent co-occurrence of disorders, heterogeneity within disorders, and diagnostic instability (Kotov et al., 2017). As for all mental disorders, the transition from *DSM–IV* to *DSM–5* included several critical reviews about the categorical diagnostic system regarding trauma-related disorders, dissociative disorders (DD), and personality disorders (PD; e.g., Herman, 2012; Resick et al., 2012; Skodol, 2014). Like other diagnostic systems, the *DSM* does not combine patients with similar psychopathology based on etiology into a single category. Consequently, *DSM* classifications are of limited use for treatment of patients with histories of complex trauma, including early childhood trauma and/or emotional neglect. People who seek treat-

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ment for psychological problems related to complex trauma vary in the severity of psychopathology, comprising relatively mild and nonclinical complaints to severe mental disorders. This range of severity of psychopathology has important implications for treatment. The problems facing survivors of early childhood trauma and/or emotional neglect can be viewed both from a symptom-oriented, as well as a person-oriented approach (Wildschut, Langeland, Smit, & Draijer, 2014). Therefore, a more dimensional approach in patients reporting early childhood trauma and/or emotional neglect has promise to characterize clinically relevant, transdiagnostic psychopathology (Galatzer-Levy & Bryant, 2013). Based on the information gathered, it might become more clear whether trauma-focused therapy, for example Eye Movement Desensitization and Reprocessing (EMDR), is indicated in these cases or not.

In line with the idea of precision medicine, Draijer (2003) has developed a two-dimensional model that might serve as a guide for treatment for survivors of early childhood trauma and/or emotional neglect (see Figure 1; Wildschut et al., 2014). The model takes into account both the influence of trauma and the influence of emotional neglect on the development of trauma-related disorders, DD and PD, and the spectrum gives an indication of treatability. Patients in the upper right quadrant are expected to show less and slower clinical improvement compared with patients in lower left quadrant (Swart, Wildschut, Draijer, Langeland, & Smit, 2017).

The first dimension, on the *y* axis, displays the range of trauma-related disorders in increasing severity, ranging from no stress symptoms after an stressful incident, to PTSD, chronic and complex, to dissociative disorders, with dissociative identity disorder at the extreme. This dimension is thought of as being related to an increase in reported severity of the trauma endured. This severity fluctuates, depending on factors such as the age at which the trauma occurred, how much force was used, how frequently it occurred, and the relationship to the perpetrator. The second dimension, situated on the *x* axis, consists of the severity of personality pathology, which is hypothesized as being related to emotional neglect (Wildschut et al., 2014).

The primary aim of the current study is to quantify Draijer's two-dimensional model of trauma-related disorders, DD, and PD (Wildschut et al., 2014), hypothesizing that patients with high psychiatric disease burden (based on symptom severity scores, type of disorder, and level of maladaptive personality functioning) are located in the upper right quadrant, whereas patients with low psychiatric disease burden are located in the lower left quadrant. To achieve this, we extensively investigated (using semistructured clinical interviews and self-report questionnaires) a sample consisting of patients indicated for treatment in both a trauma and a PD treatment program. Integrating the data in the two-dimensional model might advance our knowledge on the relationship between trauma-related disorders, DD, and PD in survivors of early childhood trauma and emotional neglect, which may be used to match patients to specific treatment programs.

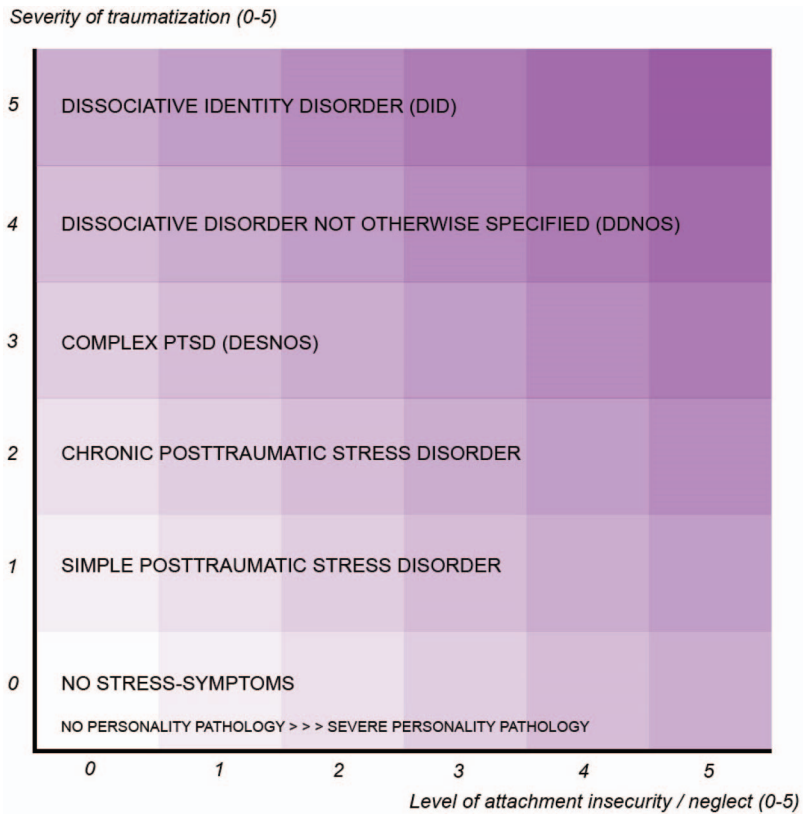


Figure 1. Two-dimensional model for the spectrum of trauma-related, dissociative, and personality disorders. See the online article for the color version of this figure.

Method

Participants

Participants ($n = 150$) were patients in psychiatric care in the northern part of The Netherlands. The psychiatric care provided was organized into diagnostic-driven treatment programs. We collected data from two patient groups: one consisting of consecutively referred patients to a trauma-related and DD treatment program, aimed specifically at adult survivors of prolonged early childhood trauma ($n = 49$); the other consisting of consecutively referred patients to a PD treatment program ($n = 101$). The only exclusion criterion was insufficient mastery of the Dutch language. The reason for choosing these patient groups is explained in more detail elsewhere (Wildschut et al., 2014). In short, we assumed that a wide range of trauma-related disorders and a reported history of trauma, both in childhood and adulthood, were present within these groups.

In total, 220 patients (84 in the trauma program, 136 in the PD program) were invited to participate in the study. Seventy patients refused to participate (35 in the trauma program, 35 in the PD program, i.e., 41.7% vs. 25.7%, respectively; $\chi^2[1] = 6.07$, $p = .014$), suggesting that the refusal rate was higher in the trauma program. However, respondents and nonrespondents did not differ significantly based on demographic variables. The reason for the higher refusal rate in the trauma program is that a substantial amount of patients in the trauma program only completed part of the assessment battery, which was embedded in the Routine Outcome Monitoring system. Patients in the PD program did not have this option: they could participate in the study or not. The reward for participating was an extensive psychological report. As a result, the trauma group is rather small compared with the PD group, but this does reflect a real difference in size of both treatment programs within the organization.

Measures

Sociodemographic variables. Demographic characteristics (sex, age, marital status, educational level, employment) were obtained from hospital records.

Trauma-related disorders and symptoms. The Clinician Administered PTSD Scale (CAPS) is a structured interview with strong psychometric properties (Blake et al., 1995) used to assess PTSD diagnostic status and dimensional PTSD symptom frequency and intensity. The CAPS yields both scores for current and lifetime PTSD.

The Structured Interview for Disorders of Extreme Stress (SIDES; Pelcovitz et al., 1997) measures 27 criteria, arranged into seven categories: regulation of affect and impulses, attention, or consciousness, self-perception, relations with others, somatization, and systems of meaning, which are often seen in response to extreme trauma and not addressed by *DSM–IV* criteria for PTSD. Findings on the psychometrics of the SIDES indicate that it is a valid measure of the associated features of PTSD (Pelcovitz et al., 1997).

The Structured Interview for *DSM–IV* Dissociative Disorders (SCID-D; Steinberg, Rounsaville, & Cicchetti, 1985) assesses the DD according to *DSM–IV*. The SCID-D has good psychometric qualities (Boon & Draijer, 1993).

To measure dissociative symptoms, we used the self-report questionnaire Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986). This scale consists of 28 items rated on a VAS scale (range 0–100). For this scale, good test–retest and split-half reliability as well as internal consistency and construct validity have been reported (Bernstein & Putnam, 1986).

Personality disorders and pathology. The Structured Interview for *DSM–IV* Personality Disorders (SIDP-IV; Pfohl, Blum, & Zimmerman, 1995) is a semistructured interview, in which *DSM–IV* Axis II criteria are organized into different facets (e.g., interests and activities, close relationships, and emotions) of the patient's life. The SIDP-IV has good interrater reliability and is clearly a useful instrument for the assessment of PD, distinguished from other *DSM–IV* Axis II measures by the quality of the clinical inquiries (Rogers, 2001).

Taking a more dimensional approach to personality pathology we also included the Severity Indices of Personality Problems (SIPP-118; Verheul et al., 2008), the Young Schema Questionnaire (SQ; Rijkeboer, Van den Bergh, & Van den Bout, 2005), and the NEO-PI-R (Costa & McCrae, 1995). The SIPP-118 (Verheul et al., 2008) is a 118-item self-report questionnaire that covers five important domains (Self-control, Identity integration, Relational capacities, Responsibility, and Social concordance) of (mal)adaptive personality functioning. The SIPP-118 has good psychometric qualities (Verheul et al., 2008).

The SQ (Rijkeboer et al., 2005) is a 205-item self-report questionnaire. According to Young, Klosko, and Weishaar (2003), a schema is a general theme or pattern, which consists of memories, emotions, cognitions, and physical experiences, related to the self and to relationships with others, which developed during childhood and expanded into adulthood. Psychometric qualities are good (Rijkeboer et al., 2005).

To measure general personality traits, we used the NEO-PI-R (Costa & McCrae, 1995). The NEO-PI-R is a 240-item self-report questionnaire, measuring the Big Five personality traits. Psychometric qualities are very good (Costa & McCrae, 1995). Additionally, we used three questionnaires to measure general psychopathology.

General psychological symptoms. The Symptom Checklist-90–Revised (SCL-90–R; Arrindell & Ettema, 1986) is a 90-item self-report instrument that measures eight different symptom areas and a total scale that is used as global severity index (GSI) of psychological and physical dysfunctioning during the last week. Psychometric qualities of this instrument are reported as good (Arrindell et al., 2003). For the present study we used the GSI scores.

The Inventory of Depressive Symptomatology (IDS; Rush, Gullion, Basco, Jarrett, & Trivedi, 1996), a 28-item self-report questionnaire, was used to evaluate depressive symptom severity during the last week. Psychometric properties are satisfactory (Rush et al., 1996).

The Beck Anxiety Inventory (BAI; Steer & Beck, 1997) is a 21-item self-report instrument for measuring the severity of anxiety in adolescents and adults during the last week. The BAI has good psychometric properties (Steer & Beck, 1997).

Reports of trauma and neglect. For the measurement of trauma history and neglect, the Structured Trauma Interview (STI; Draijer, 1989) was used. This instrument addresses the experience of loss of primary caretakers, witnessing violence between care-

takers, neglect by caretakers based on parental dysfunction, physical abuse, sexual abuse, and other adverse events during childhood and adulthood (defined as age 16 and older). Outcomes ranged from "absent" to "severe," depending on variables such as age of onset, frequency, number of perpetrators, and whether the trauma occurred within the family. Validity of the STI has been shown by comparisons with other instruments for the assessment of childhood trauma (e.g., Kooiman, Ouwehand, & ter Kuile, 2002; Langeland, Draijer, & van den Brink, 2003) and neglect (Draijer & Langeland, 1999).

We used the Parental Bonding Instrument (PBI; Parker, Tupling, & Brown, 1979) as a proxy to operationalize emotional neglect. The PBI assesses two dimensions of parenting: emotional warmth ("care") and control ("overprotection"). The questionnaire consists of 12 items on care and 13 items on overprotection scored separately for mother and father figure. For mothers care scores equal or higher than 27 (range 0 to 36) and overprotection scores equal or higher than 13.5 (range 0 to 39) are considered high, whereas for fathers care scores equal or higher than 24 (range 0 to 36) and overprotection scores equal or higher than 12.5 (range 0 to 29) are considered high (Parker et al., 1979). Reliability and validity of the scales appear to be acceptable and are independent of the parent's sex (Gladstone & Parker, 2005).

We operationalized trauma by constructing a "trauma severity score," based on the sum scores on the STI. We used a range of 0 (= absent) to 1 (= present) for the following 10 categories: loss of primary caretakers, witnessing violence between caretakers, childhood physical abuse (CPA), childhood sexual abuse (CSA), other stressful events during childhood, physical abuse by a partner, physical abuse by another, sexual abuse by a partner, sexual abuse by another, and other stressful events during adulthood (total range 0 to 10). For the categories CPA and CSA we added additional severity scores for each type of abuse, using 4 categories: frequency of abuse (incidental = 1; chronic = 2), whether the abuse occurred within the family (outside the family = 1; within the family = 2; both = 3), number of perpetrators (one perpetrator = 1; multiple perpetrators = 2), and age of onset (between 12 and 16 years of age = 1; between 6 and 12 years of age = 2; before 6 years of age = 3). Our "trauma severity score" thus ranges from 0 to 30.

For the neglect score we used four different operationalizations, based on the PBI (care mother, overprotection mother, care father, and overprotection father). Because we had four different types of neglect scores, we repeated our analysis for each neglect score.

The concept of psychiatric disease burden was evaluated by studying the spectrum of the following 19 variables: the total scores of the CAPS (current), SIDES, and SCID-D, number of PD according to the SIDP-IV, the total score of the SQ, the scores on the five domains of the SIPP-118 (self-control, identity integration, responsibility, relational capacities, and social concordance), the scores on the five domains of the NEO-PI-R (neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness), and the total scores on the GSI-SCL-90, IDS, BAI, and DES. Using these 19 variables, subgroups of patients (clusters) that could be considered as homogeneous groups of patients within this spectrum were identified with respect to psychiatric disease burden.

Procedure

The study protocol was approved by The Institutional Review Board of Mental Health Institutions (Instellingen Geestelijke Gezondheidszorg - METiGG; Registration No. 11.121).

Patients were contacted by a psychologist after admission to one of the two treatment programs and informed on the study. Informed consent (verbal and written) was obtained if a patient agreed to participate. The semistructured clinical interviews were administered by four trained and supervised (by N.D.) psychologists. The total assessment battery, consisting of 13 instruments, took about six to 10 hours to administer, divided over two or three sessions per patient. The trauma interviews were administered first, followed by the PD interview. Most patients filled out the questionnaires at home, between sessions, although assistance was always offered. Some interviews were videotaped and evaluated during supervision sessions. Two randomly selected videos per interview, scored by the four psychologists, were used to calculate the percentage of agreement between them. For each interview, interrater agreement was based on the percentage of equally scored categories (25 trauma categories on the STI, 34 categories on the CAPS [all PTSD symptoms and symptom clusters], seven categories on the SIDES [all symptom clusters], five categories on the SCID-D [all symptoms], and 10 categories on the SIDP-IV [the number of personality traits on all 10 PD]). Interrater agreement for the interviews was high (ranging from 90% to 95%). Internal consistency as measured by Cronbach's alpha's for the self-report questionnaires was also high (ranging from .72 to .94).

Considering the number of patients referred to both treatment programs, it was possible to include all patients consecutively referred to the trauma treatment program. Because of the larger set-up of the PD program, we included all consecutively referred patients at a period of several months in one department and then moved on to the next department.

To test the representativeness of our sample of PD patients (n = 101) we compared demographic variables (sex, age, and marital status) with the population of patients referred to PD programs (n = 1563) during the study period. No significant differences were found between sex of the patients. However, compared with our PD sample, patients in the PD treatment population were significantly older (M = 35.7, SD = 11.5 vs. M = 33.2, SD = 12.5, $p < .05$), but the effect size was small (r = .07), and more likely to be married (30.4% vs. 22.8%, $p < .001$). We conclude that, despite some differences, our PD treatment sample can be considered as a representative reflection of the whole population of patients admitted to the PD programs during the study period.

Data Analysis

In evaluating the two-dimensional model of trauma-related disorders, DD, and PD, we investigated the relationship of the model with psychiatric disease burden, hypothesizing that patients with low burden are located in the lower left quadrant, whereas patients with high burden are located in the upper right quadrant.

We used cluster analysis to discriminate patients with respect to psychiatric disease burden. We applied Ward's hierarchical cluster analysis with squared Euclidian distance as the dissimilarity measure, using a set of 19 variables (see the Measures section above) that we believe to encompass psychiatric disease burden.

We used stopping-rules to determine the optimal number of clusters, by evaluating both the Calinski–Harabasz pseudo-F index (CH) and the Duda–Hart Je(2)/Je(1) index (DH). K-Means cluster analysis, an iterative as opposed to hierarchical method, was applied to validate solutions from the Ward method. Cluster centroids, that is, means of all (standardized) clustering variables, displayed in a profile graph, were used for interpretation of the psychiatric disease burden clusters.

To relate the clusters of psychiatric disease burden to the model, we computed means in the trauma-neglect space (mean trauma and mean neglect) for each of the clusters, together with corresponding 95% confidence ellipsoids. We studied the separation of the clusters by displaying their means and the confidence ellipsoids in the trauma-neglect space, and used MANOVA to test equality of these cluster means, with post hoc tests on pairwise comparisons.

Results

Demographic and clinical information of the 150 patients in our study sample is displayed in Table 1. There were no missing values on any of the 19 cluster variables, nor on the variables indicating trauma or (the several forms of) neglect.

For the cluster analysis, based on the 19 variables, the two stopping rules (CH and DH) were inconsistent. The CH stopping rule suggested a two-cluster solution, whereas the DH stopping rule suggested a nine-cluster solution. Choosing a two-cluster solution would ignore the preference of the DH stopping rule for more clusters. Resampling showed that the 95% confidence intervals of the two- and three-cluster solution had a substantial overlap, whereas little overlap existed with higher cluster solutions, indicating that both the two-cluster and the three-cluster solutions were reasonable. Combining all these findings made us choose the three-cluster solution as the most appropriate solution. The profile graph, indicating the cluster centroids, is displayed in Figure 2. Based on the profile graph, the three clusters were labeled as the "moderately impaired cluster" (largest cluster, 43% of the patients), "severely impaired cluster" (31% of the patients), and "mildly impaired cluster" (26% of the patients).

Table 1
Demographics and Clinical Characteristics of the Sample (n = 150)

Sex of the participants (*n*/%)	
Female	116 (77.3)
Male	34 (22.7)
Age, *M* years (*SD*)	34.2 (11.9)
Relationship status (*n*/%)	
Single	74 (49.3)
Living with partner	47 (31.3)
Divorced/widowed	29 (19.4)
Educational level (*n*/%)	
Elementary education	14 (9.3)
High school	112 (74.7)
College	24 (16.0)
Employment status (*n*/%)	
Yes	39 (26.0)
No	111 (74.0)
Trauma-related disorder (*n*/%)[a]	
PTSD	84 (56.0)
Complex PTSD	58 (38.7)
Dissociative disorder NOS	16 (10.7)
Dissociative identity disorder	2 (1.3)
SIDP-IV Number of PD, *M* (*SD*)	1.5 (1.1)
SIDP-IV Number of PD traits, *M* (*SD*)	12.6 (7.0)
SIDP-IV PD (*n*/%)[ab]	
Paranoid PD	9 (6.0)
Schizotypal PD	3 (2.0)
Antisocial PD	1 (0.7)
Borderline PD	44 (29.3)
Avoidant PD	42 (28.0)
Dependent PD	12 (8.0)
Obsessive-compulsive PD	20 (13.3)
PD not otherwise specified	90 (60.0)

Note. SIDP-IV = Structured Interview for *DSM–IV* Personality Disorders.
[a] Because of comorbidity, the total number exceeds 150. [b] patients with Schizoid PD, Histrionic PD, and Narcissistic PD were not found in our sample.

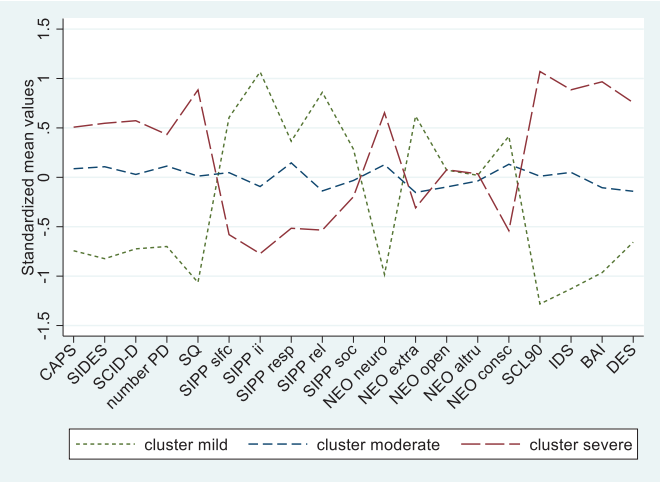
Using the first operationalization of neglect (PBI lack of emotional warmth by mother), the mean scores on trauma and neglect for each psychiatric disease burden cluster differed significantly, according to the MANOVA test: $F(4, 294) = 3.20$, p value = 0.014. This is illustrated in Figure 3, showing cluster means and the corresponding 95% confidence ellipses. Notice that the ellipses overlap only partly. Post hoc tests show that differences are significant between the severe and the mild cluster, $F(2, 146) = 4.79$, p value = 0.010, whereas differences between the other clusters are insignificant. Comparing groups pairwise on the trauma dimension and on the neglect dimension separately, we observed that the mild group differs both from the moderate and the severe groups on the trauma dimension, whereas the severe differs from both the mild and the moderate groups on the neglect dimension. For the three remaining operationalizations of neglect (PBI overprotection mother, PBI lack of emotional warmth by father, and PBI overprotection father; see Figures 4a, 4b, and 4c, provided as online supplementary material) either the MANOVA test or the post hoc pairwise comparisons did not reveal significant differences.

Discussion

We aimed to validate Draijer's two-dimensional model of trauma-related disorders, DD, and PD. We related the model to psychiatric disease burden, hypothesizing that patients with low burden are located in the lower left corner of the two-dimensional model, whereas patients with high burden are located in the upper right corner of the model.

Cluster analysis generated three clusters, which we characterized as "mildly impaired," "moderately impaired," and "severely impaired." The mildly impaired cluster comprises patients who report low levels of symptomatology: patients in this group experience a low level of somatic and psychological distress in general, and most of them do not meet the criteria for PTSD, Complex PTSD, DD, and/or PD. Patients in this group report high levels of self-control, identity integration, responsibility, and relational and social capacities. These patients are largely extraverted and conscientious.

In contrast, the severely impaired cluster comprises patients with high levels of PTSD, Complex PTSD, DD, and PD. These patients report a high number of dysfunctional schemas according to the SQ, and report low self-control, low identity integration, low responsibility, and low relational and social capacities. Furthermore, these patients are highly neurotic, largely introverted, and

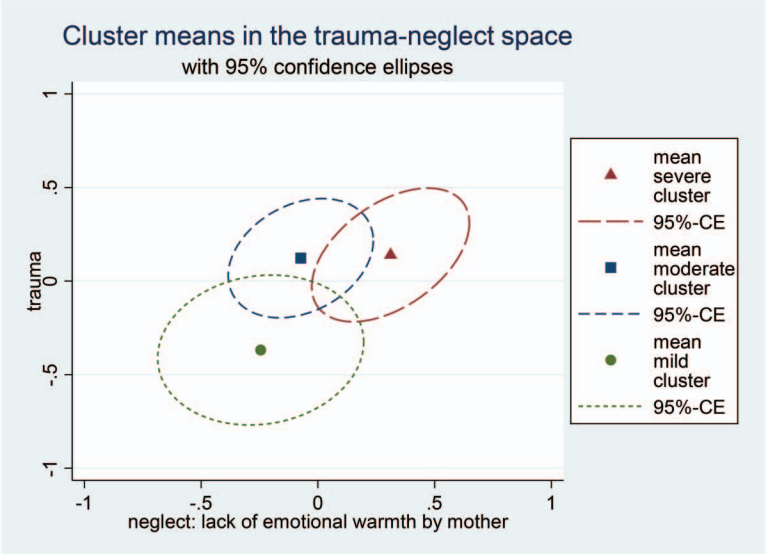


	CAPS	SIDES	SCID-D	Number PD	SQ	SIPP SIfc	SIPP ii	SIPP resp	SIPP rel	SIPP soc	NEO neuro	NEO extra	NEO open	NEO altru	NEO consc	SCL 90	IDS	BAI	DES
Unstandardized original values (upper line Mean, lower line SD)																			
Cluster 1	23.36	22.97	7.31	0.69	2.32	5.38	4.40	4.98	4.35	6.05	142.77	146.08	151.41	170.41	159.41	142.03	20.44	10.23	29.69
($n = 39$)	28.20	16.87	2.61	0.69	0.60	0.76	0.65	0.74	0.76	0.76	22.69	18.37	16.19	17.86	19.56	33.10	8.89	7.10	25.27
Cluster 2	50.65	41.45	10.18	1.60	3.15	4.83	3.45	4.81	3.51	5.75	168.58	128.60	148.11	169.25	152.83	227.81	36.31	21.17	53.31
($n = 65$)	29.31	15.87	3.51	1.14	0.45	0.91	0.57	0.71	0.68	0.93	16.07	22.53	20.08	20.21	20.02	27.18	8.90	8.74	39.64
Cluster 3	64.48	50.17	12.26	1.96	3.83	4.21	2.89	4.28	3.18	5.60	180.80	125.09	151.46	170.72	137.26	298.14	47.57	34.83	94.43
($n = 46$)	29.58	18.64	3.67	1.03	0.57	0.96	0.57	0.82	0.70	1.02	16.95	21.16	20.56	22.45	25.15	34.24	8.68	9.89	45.97
Standardized values (upper line Mean, lower line SD – displayed in Profile plot)																			
Cluster 1	-0.74	-0.82	-0.72	-0.70	-1.06	0.61	1.07	0.36	0.86	0.29	-0.98	0.62	0.07	0.02	0.42	-1.28	-1.13	-0.96	-0.66
($n = 39$)	0.86	0.85	0.68	0.62	0.77	0.77	0.79	0.92	0.91	0.82	0.98	0.81	0.84	0.88	0.84	0.50	0.66	0.56	0.55
Cluster 2	0.09	0.11	0.03	0.11	0.01	0.05	-0.09	0.15	-0.14	-0.03	0.13	-0.15	-0.10	-0.04	0.13	0.01	0.05	-0.11	-0.14
($n = 65$)	0.89	0.80	0.92	1.02	0.58	0.92	0.69	0.89	0.82	1.00	0.69	1.00	1.04	1.00	0.86	0.41	0.66	0.69	0.86
Cluster 3	0.51	0.55	0.57	0.43	0.88	-0.58	-0.77	-0.52	-0.53	-0.20	0.65	-0.31	0.08	0.04	-0.54	1.07	0.89	0.97	0.76
($n = 46$)	0.90	0.94	0.96	0.93	0.74	0.97	0.70	1.03	0.84	1.10	0.73	0.94	1.07	1.11	1.08	0.52	0.64	0.78	1.00

Figure 2. Profile plot of the three-cluster solution. CAPS = Clinician Administered PTSD Scale; SIDES = Structured Interview for Disorders of Extreme Stress; SCID-D = Structured Interview for DSM-IV Dissociative Disorders; Number PD is based on the Structured Interview for DSM-IV Personality Disorders; PD = Personality Disorder; SQ = Young Schema Questionnaire; SIPP slfc = the Severity Indices of Personality Problems (SIPP-118) domain of Self-control; SIPP ii = SIPP-118 domain of Identity integration; SIPP resp = SIPP-118 domain of Responsibility; SIPP rel = SIPP-118 domain of Relational capacities; SIPP soc = SIPP-118 domain of Social concordance; NEO neuro = the NEO-PI-R Big Five personality trait of Neuroticism; NEO extra = the NEO-PI-R Big Five personality trait of Extraversion; NEO open = the NEO-PIR Big Five personality trait of Openness to experience; NEO altru = the NEO-PI-R Big Five personality trait of Altruism/Agreeableness; NEO consc = the NEOPI-R Big Five personality trait of Conscientiousness; SCL-90 = Symptom Checklist-90-Revised; IDS = Inventory of Depressive Symptomatology; BAI = Beck Anxiety Inventory; DES = Dissociative Experiences Scale. See the online article for the color version of this figure.

not very conscientious, and they suffer from high levels of depressive, anxious, and dissociative symptoms, experiencing a high level of general somatic and psychological distress. The moderately impaired group comprises patients who meet criteria for one or more trauma-related, dissociative, or personality disorders and report a moderate level of somatic and psychological distress in general.

After relating the three clusters of patients to the trauma-neglect quadrant, only neglect operationalized as lack of warmth/care by mother confirmed our hypothesis that patients with low psychiatric



Test results	Both Dimensions	Post-hoc (on dimensions)	
	Trauma and Neglect	Trauma	Neglect
All groups	$F(4,292)=3.20$, $p=0.014$ [1)]	$F(2,147)=3.71$, $p=0.027$ [2)]	$F(2,147)=3.70$, $p=0.027$ [2)]
Post-hoc (on groups):			
Mild vs Moderate	$F(2,146)=3.03$, $p=0.051$ [3)]	$t(102)=2.43$, $p=0.017$ [4)]	$t(102)=0.83$, $p=0.408$ [4)]
Mild vs Severe	$F(2,146)=4.79$, $p=0.010$ [3)]	$t(83)=2.44$, $p=0.017$ [4)]	$t(83)=2.62$, $p=0.010$ [4)]
Moderate vs Severe	$F(2,146)=2.19$, $p=0.116$ [3)]	$t(109)=0.09$, $p=0.928$ [4)]	$t(109)=2.10$, $p=0.038$ [4)]

Figure 3. Cluster means and the 95% confidence ellipses in the trauma-neglect space for PBI lack of emotional warmth by mother. 1) main MANOVA test; 2) post-hoc ANOVA tests, testing equality of means for trauma and neglect dimensions separately; 3) post-hoc Hotelling's T^2-tests, testing equality of means of two groups in the trauma and neglect space; 4) post-hoc independent samples t-tests, testing equality of means of two groups in either trauma or neglect. See the online article for the color version of this figure.

disease burden are located in the lower left corner of the quadrant, whereas patients with high psychiatric disease burden are located in the upper right corner. Furthermore, on average, moderately impaired patients and severely impaired patients differ especially in reported lack of warmth by mother, and not so much in their trauma severity scores. This difference between the moderately and the severely impaired group indicates that, especially, a lack of warmth may be related to the difference between moderate and severe symptomatology. This finding is in line with Lobbestael, Arntz, and Bernstein (2010), who report that different forms of childhood maltreatment have differential effects on PD pathology. Furthermore, Cohen et al. (2013) state that both childhood neglect and emotional abuse have unique relationships with adult personality pathology, above and beyond the effect of other types of child maltreatment, and that the destructive impact of physical and sexual abuse on personality development may be heavily dependent on the inherent rejection, betrayal, and neglect associated with such maltreatment. Providing trauma-focused therapy, such as EMDR, without paying attention to these phenomena related to neglect, might decrease therapeutic success.

Our findings indicate that further investigation of the validity of the model is useful. Patients who report a range of traumatic experiences in combination with a lack of care by their mother can be profiled as suffering from a wide range of trauma-related disorders, DD, and PD, combined with a high level of psychiatric symptoms and a maladaptive style of personality functioning.

Considering the model as a whole, we expected to find other sources of neglect (besides lack of care by mother) to fit the model, which was not the case (considering the PBI scales). However, this is in line with Carr, Martins, Stingel, Lemgruber, and Juruena (2013), who report in their systematic review of the role of early life stress in adult psychiatric disorders according to trauma subtypes, that among the subtypes, neglect yielded lesser consensus. This can be explained by the fact that it is the most recently researched subtype. Furthermore, there is no consensus about the concept of early life stress, which leads to a mismatch in the choice of instruments for evaluation (Carr et al., 2013). Taillieu, Brownridge, Sareen, and Afifi (2016) also state that no uniform legal definition of what constitutes emotional maltreatment exists, there is a lack of consensus regarding the definition and measurement of emotionally abusive and neglecting parental actions, and a "gold standard" measure has yet to be developed. As a proxy of emotional neglect, the PBI has been widely used (e.g., Johnstone et al., 2009; Young, Lennie, & Minnis, 2011). Furthermore, Draijer and

Langeland (1999) operationalized lack of parental affection resulting from recurrent illness, nervousness, depression, alcohol misuse, and use of sedatives by relating it to the PBI.

A strength of our study is that we used a comprehensive battery to assess our sample, both in categorical and in dimensional ways, with a satisfactory overall response percentage, especially considering that we conducted our research in a naturalistic setting consisting of patients seeking help in specialized mental health care. We were able to avoid missing values by collecting questionnaires before the second or third interview session (and checking for missing values in the presence of the patient).

A limitation of our study is that we were unable to incorporate measurements that assess trauma-related, dissociative, and personality disorders according to *DSM–5*, because data collection started five years ago. However, because differences between *DSM–IV* and *DSM–5* regarding these disorders are limited, we do not expect much difference in outcome if we had had the opportunity to use *DSM–5* measurements. Another limitation is that, because we conducted research in a naturalistic clinical setting, the interviewers were not blind to which treatment program the patients were referred and analyses were based on cross-sectional data. Also, this study is limited by the restricted sample size and the corresponding limited power to test hypotheses. With this type of patients it is hard to obtain very large samples, and in spite of the efforts to include as many patients as possible over a long period of time and to prevent missing data totally, the resulting sample size is still limited. As a result, the post hoc test results regarding the centroids of the cluster means would not stand up against Bonferroni correction for multiple testing. On the other hand, the Bonferroni correction is rather conservative, and these post hoc investigations are interesting from an explorative perspective.

Our attempt to quantify Draijer's model leads us to a similar conclusion as Ross, Ferrell, and Schroeder (2014), namely that the patients' clinical profile might be best understood as part of an overall response to severe childhood trauma and neglect, and challenges the usefulness of categorizing these patients in terms of diagnostic constructs, especially in daily clinical practice. Diagnostic-driven treatment programs in general limit distinction between and staging of different treatment approaches (e.g., a symptom-oriented, a person-oriented, a trauma-informed or a trauma-focused treatment approach) for each individual patient. A mixture of therapeutic inventions, preferably both trauma- and person-oriented, would be recommendable for survivors of early childhood trauma and neglect. For example, a patient in the severely impaired group could benefit from a person-oriented approach, such as mentalization-based treatment or schema-focused therapy, with trauma-focused aspects, such as EMDR, whereas for a patient in the mildly impaired group the reverse would be preferable. It is this mixture of therapeutic interventions however that is so hard to achieve in diagnostic-driven treatment programs. The multitude of treatment options leads to rapid referral practices and a blurring of proper staging of therapy, because no therapist is responsible for "the whole picture." The location of a patient in the two-dimensional model could help guide treatment.

The present findings suggest several important research directions for furthering the understanding of the link between trauma, neglect, trauma-related disorders, DD, and PD, among them further investigation of psychological profiles of individuals reporting early childhood trauma and emotional neglect with larger samples. Furthermore, in this paper the relationship between trauma-related disorders, DD, PD, early childhood trauma, and emotional neglect was examined cross-sectionally, with retrospective reports of early childhood trauma and emotional neglect. To derive more insight into the course of this relationship, a longitudinal study would be preferable, or in the future, research retrospective reports of trauma and neglect should be corroborated with (e.g.) reports from protective youth services. We will address the predictive value of the two-dimensional model of the spectrum of trauma-related disorders, DD, and PD considering course of pathology and treatment success in future research (Swart et al., 2017).

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