The Association of Childhood Trauma and Personality Disorders With Chronic Depression: A Cross-Sectional Study in Depressed Outpatients

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ABSTRACT

Objective: Chronic depression has often been associated with childhood trauma. There may, however, be an interaction between personality pathology, childhood trauma, and chronic depression. This interaction has not yet been studied.

Method: This retrospective analysis is based on 279 patients contacted for a randomized trial in an outpatient psychotherapy center over a period of 18 months from 2010 to 2012. Current diagnoses of a personality disorder and presence of chronic depression were systematically assessed using the Structured Clinical Interview for *DSM-IV*. Retrospective reports of childhood trauma were collected using the short form of the Childhood Trauma Questionnaire (CTQ-SF). *DSM-IV*–defined chronic depression was the primary outcome. The association between chronic depression, childhood trauma, and personality disorders was analyzed using correlations. Variables that had at least a small effect on correlation analysis were entered into a series of logistic regression analyses to determine the predictors of chronic depression and the moderating effect of childhood trauma.

Results: The presence of avoidant personality disorder, but no CTQ-SF scale, was associated with the chronicity of depression (odds ratio [OR] = 2.20, $P = .015$). The emotional abuse subscale of the CTQ-SF did, however, correlate with avoidant personality disorder (OR = 1.15, $P = .000$). The level of emotional abuse had a moderating effect on the effect of avoidant personality disorder on the presence of chronic depression (OR = 1.08, $P = .004$). Patients who did not suffer from avoidant personality disorder had a decreased rate of chronic depression if they retrospectively reported more severe levels of emotional abuse (18.9% vs 39.7%, respectively).

Conclusions: The presence of avoidant personality pathology may interact with the effect of childhood trauma in the development of chronic depression. This has to be confirmed in a prospective study.

Trial Registration: ClinicalTrials.gov identifier: NCT01226238

J Clin Psychiatry 2015;76(6):e794–e801

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Submitted: *March 24, 2014; accepted October 3, 2014 (doi:10.4088/JCP.14m09158).*
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Chronic depression is broadly defined as a depression lasting longer than 2 years. The different forms of chronic depression have recently been summarized as *persistent depressive disorder* in *DSM-5*.[1] Around one-third of patients with a lifetime diagnosis of a depressive disorder suffer from chronic depression.[2,3] Chronic depression has been associated with lower socioeconomic status,[4] a greater level of disability,[3] and higher rates of suicidal ideation.[3] A better understanding of the factors underlying the development of chronic depression might lead to improved treatment and outcomes.

Childhood trauma has often been hypothesized to play a role in the development of chronic depression. Numerous retrospective[2,5–8] and prospective studies[9,10] found increased rates of traumatic events, especially childhood trauma, in patients with chronic depression.[11,12] In these studies, emotional abuse and emotional neglect were the most frequent forms of childhood trauma reported by patients with chronic depression. On the other hand, childhood emotional abuse has also been found to increase the lifetime risk of depression, irrespective of chronicity.[13,14] Finally, childhood trauma was found to affect treatment response in depression.[15,16] Therefore, a specific psychotherapy for chronic depression was developed to target the emotional trauma experienced in childhood.[17–20] This treatment is more effective in patients with chronic depression and childhood trauma than in patients without childhood trauma.[21]

When examining the role of childhood trauma in the development of chronic depression, one should keep in mind that chronic depression is often comorbid with personality disorder.[22–25] Compared to patients with episodic depression, patients with chronic depression are about twice as likely to have comorbid personality disorders.[23] Avoidant personality disorder as well as borderline and antisocial personality disorders are among the personality disorders more commonly found in chronic depression than in episodic depression.[23] Also, avoidant and dependent personality disorders were particularly common in patients with chronic depression compared to a general population sample.[26] Comorbidity of depression with personality disorders and other psychiatric diagnoses is much higher than would be expected by chance alone,[27–30] making it likely that the comorbidity of chronic depression with personality disorders is due to a common underlying factor,[11,27] and that underlying factor might be childhood trauma.[11]

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Clinical Points

- Chronic forms of depressive disorders have recently been summarized in the *DSM-5* under the header Persistent Depressive Disorder. Epidemiologic data suggest that around one-third of all depressive disorders have a chronic course.
- Childhood trauma and personality disorders are associated with chronic depression. Both can also unfavorably influence the course of depressive disorder. The interplay of childhood trauma, personality disorder, and chronic depression has not yet been studied.
- The present results from an analysis of data collected in a randomized trial of depressed outpatients found that the presence of childhood emotional abuse might influence the association between avoidant personality disorder and chronic depression. Patients who retrospectively reported severe emotional abuse more often had chronic depression if they also suffered from avoidant personality disorder.

Personality disorders have frequently been associated with childhood trauma.[11] Retrospective[31–33] and prospective studies[34,35] in patients with personality disorders found increased rates of traumatic events, especially of childhood trauma. In 1 prospective study, emotional neglect was associated with the development of avoidant personality disorder.[34] These examples illustrate a potential interplay of chronic depression, emotional abuse and neglect, and avoidant personality disorder. Emotional abuse and neglect have been found to contribute both to chronic depression and to avoidant personality disorder, and avoidant personality disorder is more common in chronic depression than in episodic depression.

Against this background, it is conceivable that the presence of personality pathology and childhood trauma interact in the development of chronic depression. Yet, while this interaction has been acknowledged in a previous study,[5] there is, to the best of our knowledge, no published study of the interplay of personality pathology, childhood trauma, and chronic depression.

In this article, we therefore present the results of an analysis of data from a randomized trial in which information regarding all 3 factors (retrospective reports of childhood trauma and current assessments of both personality pathology and chronicity of depression) was available. We examined whether childhood trauma had a direct influence on the development of chronic depression or whether the effect of childhood trauma interacted with the presence of personality pathology in the development of chronic depression in our sample.

METHOD

Sample Description

This study was based on a sample of patients who were recruited for a randomized trial (ClinicalTrials.gov identifier: NCT01226238) of an online self-help intervention at an outpatient psychotherapy center. Therapists at the center screened all patients presenting for psychotherapy during their intake interview. Eligible patients were invited to participate in the study and were assessed by 2 of the authors who were trained in the procedures (A.R. and C.S.). Study assessments were conducted over a period of 18 months from 2010 to 2012. The study was conducted in accordance with the Declaration of Helsinki. The ethics committee at Lübeck University approved the study. Prior to the study, informed written consent was obtained from all participants.

Inclusion criteria for the study were the presence of either a major depressive episode or dysthymia according to *DSM-IV* criteria,[36] a Hamilton Depression Rating Scale-24 item (HDRS-24) score of at least 10, age above 18 years, and stable psychiatric medication (either no current medication or no changes in the past 4 weeks). Exclusion criteria were acute suicidality, a history of psychosis, a main diagnosis of substance dependence, and current psychotherapy. Notably, patients who presented for a primary complaint other than depression (ie, anxiety or personality disorder) were also included in the trial if they also met the criteria for major depressive episode or dysthymia. According to *DSM* criteria, the depression was defined as *chronic* if patients suffered from a chronic major depressive episode (≥ 2 years), dysthymia, or double depression (a major depressive episode superimposed on dysthymia).[1,36] The 2-year threshold for the diagnosis of a chronic major depressive episode is supported by empirical data pointing at the dramatically reduced rate of remission for depressive episodes that last longer than 24 months.[37,38]

Measures

The Structured Clinical Interview for *DSM-IV* Axis I disorders (SCID-I)[39,40] was used to assess major Axis I psychiatric disorders, including affective disorders, psychotic disorders, substance abuse disorders, anxiety disorders, somatoform disorders, eating disorders, and adjustment disorder. Interrater reliability of the SCID-I is acceptable for the diagnosis of major depression (Cohen kappa [κ] = 0.66) and good for the diagnosis of dysthymia (κ = 0.81).[41] Although validity is difficult to determine, the SCID has been shown to be more accurate than routine clinical diagnoses.[42]

The Structured Clinical Interview for *DSM-IV* Axis II disorders (SCID-II)[43] interview was used to diagnose personality disorders according to *DSM-IV* criteria. The interview was based on the results of a screening questionnaire. Patients who passed a cutoff specified in the SCID manual were diagnosed with the respective categorical diagnosis. Interrater reliability of the SCID-II was good across the different personality disorders, with a κ ranging from 0.83 to 0.94 except for Cluster A personality disorders.[41] The presence of a current major depressive episode has not been shown to affect the validity of the diagnosis of a personality disorder.[44]

Severity of current depressive symptoms was measured using the Beck Depression Inventory (BDI)[45,46] and HDRS-24.[47,48]

Childhood trauma was assessed using the short form of the Childhood Trauma Questionnaire (CTQ-SF).[49–52]

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The CTQ-SF consists of 28 self-report items that assess maltreatment during childhood and adolescence. Patients rated the accuracy of statements about childhood experiences on a 5-point Likert scale (1, never true; 5, very often true). The items were either phrased in objective terms (eg, "When I was growing up, someone touched me in a sexual way or made me touch them") or included some subjective evaluation (eg, "When I was growing up, I believe I was sexually abused"). The CTQ-SF has a good internal consistency and good criterion-related validity in clinical and in community samples.[49,51,52] For the cutoff scores, good specificity and sensitivity have been reported in the classification of maltreated subjects[49,51,52]

The CTQ-SF consists of 5 subscales: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. The scores for these subscales range from 5 (low level of childhood maltreatment) to 25 (high level of childhood maltreatment) and provide a quantitative index of the severity of abuse. The CTQ-SF total score and the subscale scores were treated as continuous variables.

A confirmatory factor analysis for categorical data using a robust weighted least squares estimator confirmed the previously described factor structure of the CTQ-SF[50] and provided acceptable goodness-of-fit indices ($\chi^2_{345} = 733.95$, Comparative Fit Index [CFI] = 0.95, Tucker-Lewis index [TLI] = 0.94, root-mean-square error of approximation [RMSEA] = 0.064).

Statistical Analysis

Statistical analyses were conducted using SPSS 20.0 (SPSS, Chicago, Illinois), Stata IC 12 (StataCorp, 2011), and Mplus 7.1 (Muthén & Muthén, 2013). The associations between chronicity of depression, personality disorders, childhood trauma, and demographic characteristics were analyzed using Pearson correlations for continuous data, polychoric correlations for ordinal variables, and tetrachoric correlations for dichotomized variables.[53] Additionally, age and sex were tested as potential covariates. Age correlated with chronicity of depression (0.28), avoidant personality disorders (–0.14), and emotional and physical neglect (0.14 and 0.16, respectively). Similarly, sex correlated with chronicity of depression (–0.16), emotional abuse (0.25), and sexual abuse (0.17). Therefore, we included age and sex as covariates in the subsequent regression analyses.

As we were interested in the interplay of childhood trauma, personality disorder, and chronic depression, we set up multivariate analyses to investigate potential predictors for chronic depression. A significant association between an independent variable and group membership (outcome variable) on regression analyses was regarded as indicating a predictor variable. The strength of this relationship between predictor and group membership, however, might be explained by a third variable. This variable is said to be a moderator variable. This moderator has an interactive effect on the main effect of the predictor variable on the outcome variable.[54] (Note that the term *predictor* is strictly used as a statistical term here.) Our analysis is cross-sectional in nature. Therefore, we were not able to establish predictors in the more common usage of the term, whereby a prospective prediction of an event based on longitudinal data is implied.

To ascertain which personality disorders and CTQ-SF subscales were associated with chronicity of depression, we computed a series of binary logistic regression analyses using the robust option in Stata to take account of deviations from the normal distribution of the residuals.[55] All personality disorders and CTQ-SF subscales that had at least a small effect[56] in the prior correlation analyses (correlation over 0.1) were entered into a regression analysis to predict group membership (episodic vs chronic).

For the 1 personality disorder that emerged as a positive predictor of chronicity from this analysis (avoidant personality disorder; see Results), we proceeded similarly to detect which CTQ-SF subscales were correlated with this personality disorder. That is, we compared CTQ-SF scores between patients with avoidant personality disorder and those without avoidant personality disorder using polychoric correlation[53] and entered all subscales that showed a weak association in prior correlation analyses (correlation over 0.1) into a binary regression analysis to predict group membership (avoidant personality disorder vs no avoidant personality disorder). Again, the robust option in Stata was used to take account of deviations from the normal distribution of the residuals.[55]

Here, 1 CTQ-SF subscale (emotional abuse; see Results), emerged as a predictor of avoidant personality disorder. Therefore, emotional abuse was examined as a potential moderator variable for the main effect of avoidant personality disorder on the chronicity of depression. In this robust logistic regression analysis, we included all significant positive predictors from the previous analyses (emotional abuse [emo] and presence of avoidant personality disorder [avoid]) simultaneously and the interaction term *emo* × *avoid* as moderator.

Putative indirect effects of emotional abuse or avoidant personality disorder on the chronicity of depression were tested in path models. Using the weighted least squares means and variance adjusted (WLSMV) estimator in Mplus, which is appropriate for categorical data, chronicity of depression was regressed on avoidant personality disorder, emotional abuse, age, and sex. In 1 model, the indirect effect of emotional abuse on chronicity of depression via avoidant personality disorder was estimated using the "model indirect" command. The model fit the data well ($\chi^2_2 = 3.19$, CFI = 0.97, TLI = 0.89, RMSEA = 0.046 [90% CI, 0.00–0.134]). The second model tested an indirect effect of avoidant personality disorder on chronicity of depression via emotion abuse. However, this model did not fit the data well ($\chi^2_2 = 8.50$, CFI = 0.88, TLI = 0.58, RMSEA = 0.108 [90% CI, 0.41–0.187]), and this indirect effect was not confirmed.

RESULTS

Sample Composition

A total of 353 white patients were interviewed by the study clinicians. Of these, 42 did not meet the inclusion

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Table 1. Comparison of Patients With Episodic and Chronic Depression

Demographics and Clinical Characteristics	Episodic (n = 170)	Chronic (n = 109)	Statistic[a]
Sex, n (%)			.095
Female	115 (67.6)	63 (57.8)	
Male	55 (32.4)	46 (42.2)	
Age, y, mean (SD)	36.16 (10.85)	41.17 (10.41)	< .001
Marital status, n (%)			.68
Single	89 (52.7)[b]	53 (46.8)	
Married/solid relationship	51 (30.0)	33 (30.3)	
Divorced/separated/widowed	29 (17.1)	23 (21.1)	
Education, n (%)			.88
Less than high school diploma	67 (39.4)	42 (38.5)	
High school diploma or more	103 (60.6)	67 (61.5)	
Duration major depressive episode, y, mean (SD)	0.41 (0.65)	4.93 (6.47)	< .001
Number of episodes, mean (SD)	2.10 (2.22)	1.99 (3.29)	.751
Age at onset, y, mean (SD)	34.28 (10.96)	35.32 (12.64)	.539
Atypical depression, n (%)	54 (31.8)	24 (23.3)[c]	.13
BDI, mean (SD)	28.32 (8.90)	28.31 (10.17)	.901
HDRS-24, mean (SD)	24.59 (6.88)	25.57 (7.75)	.273
Anxiety disorder, n (%)	78 (45.9)	49 (45.0)	.88
OCD, n (%)	8 (4.7)	12 (11.0)	.05
PTSD, n (%)	14 (8.2)	13 (11.9)	.31
Family history of psychiatric disorder, n (%)	105 (61.8)	64 (58.7)	.61
Current antidepressant treatment, n (%)	78 (45.9)	41 (37.6)	.17
Personality disorders			
Cluster A, n (%)			
Paranoid personality disorder	12 (7.1)	7 (6.4)	.837
Schizoid personality disorder	0 (0.0)	0 (0.0)	NA
Schizotypal personality disorder	1 (0.6)	0 (0.0)	1.0
Any cluster A personality disorder	13 (7.6)	7 (6.4)	.699
Cluster B, n (%)			
Antisocial personality disorder	5 (2.9)	1 (0.9)	.409
Borderline personality disorder	20 (11.8)	10 (9.2)	.496
Histrionic personality disorder	0 (0.0)	2 (1.8)	.522
Narcissistic personality disorder	6 (3.5)	1 (0.9)	.253
Any cluster B personality disorder	30 (17.6)	12 (11.0)	.130
Cluster C, n (%)			
Avoidant personality disorder	26 (15.3)	27 (24.8)	.049
Dependent personality disorder	9 (5.3)	8 (7.3)	.486
Obsessive-compulsive personality disorder	23 (13.5)	15 (13.8)	.956
Any cluster C personality disorder	56 (32.9)	42 (38.5)	.340
Any cluster C personality disorder diagnosis, n (%)	73 (42.9)	49 (45.0)	.669
Childhood Trauma Questionnaire			
Emotional abuse, mean (SD)	10.14 (5.12)	9.74 (5.05)	.525
Physical abuse, mean (SD)	6.39 (2.68)	6.56 (2.92)	.615
Sexual abuse, mean (SD)	5.81 (2.18)	6.33 (3.01)	.093
Emotional neglect, mean (SD)	13.80 (5.00)	13.15 (5.17)	.345
Physical neglect, mean (SD)	8.50 (3.47)	7.91 (3.11)	.149
Total CTQ-SF score, mean (SD)	51.15 (15.98)	50.04 (16.24)	.572

[a]Comparison using χ^2 statistic (categorical variables) and analysis of variance (continuous variables).
[b]Missing value = 1.
[c]Missing values = 6.
Abbreviations: BDI = Beck Depression Inventory, CTQ-SF = Childhood Trauma Questionnaire-Short Form, HDRS-24 = Hamilton Depression Rating Scale–24-item, NA = not applicable as sample size was too small, OCD = obsessive-compulsive disorder, PTSD = posttraumatic stress disorder.

criteria; and for 32, the onset of their depression could not be assessed reliably. The analyses presented here are based on the remaining 279 patients; 109 of these were classified as chronic (39.1%): 75 patients suffered from a chronic depressive episode (68.8%), 5 from pure dysthymia (4.6%), and 29 from double depression (26.6%).

Predictors of Chronicity of Depression and Avoidant Personality Disorder

Descriptive statistics of the demographic and clinical variables are presented in Table 1. Briefly, patients with chronic depression were older, more often male, and had a longer duration of their current major depressive episode than patients with episodic depression. Differences in terms of comorbid personality disorder were a lower prevalence of Cluster B personality disorders and a higher prevalence of all Cluster C personality disorders, in particular, avoidant personality disorder and dependent personality disorder in patients with chronic depression.

With regard to childhood trauma (Table 1 and Supplementary eTable 1), patients with chronic depression reported more sexual abuse and less physical neglect. In the binary logistic regression analysis (Table 2), only avoidant personality disorder (odds ratio [OR] = 2.20, $P = .015$) and

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physical neglect (OR = 0.92, $P = .041$) were significant predictors of chronicity of depression.

Avoidant personality disorder was associated with emotional abuse, emotional neglect, and physical neglect (Supplementary eTable 1). However, when including these variables simultaneously, only emotional abuse remained a significant predictor for the presence of avoidant personality disorder (Table 2; OR = 1.15, $P = .000$).

Moderating Effect of Emotional Abuse

In addition, an interaction effect (OR = 1.08, $P = .004$) was identified, suggesting that the level of emotional abuse moderates the relationship between the presence of avoidant personality disorder and chronicity of depression (Table 2). In line with this finding, emotional abuse was found to have an indirect effect on chronicity via avoidant personality disorder (B = 0.026, $P = .012$) in a path model (Table 3). In post hoc analysis, we found that patients who did not have avoidant personality disorder had a decreased rate of chronic depression if they retrospectively reported severe emotional abuse (see Figure 1 and Supplementary eTable 2).

Table 2. Predictors of Chronicity of Depression and Avoidant Personality Disorder (binary logistic regression analyses)

			95% CI for OR			
Predictor	*B*	SE	Lower	OR	Upper	*P*
Outcome: Chronicity of depression. Predictors included separately. Controlled for age and sex.						
Avoidant personality disorder	0.788	0.324	1.165	2.200	4.155	.015
Dependent personality disorder	0.337	0.250	0.858	1.402	2.289	.177
Sexual abuse	0.074	0.507	0.956	1.078	1.190	.141
Physical neglect	−0.082	0.040	0.851	0.921	1.000	.041
Outcome: Avoidant personality disorder. Predictors (CTQ-SF-24–subscale sum scores) included simultaneously. Controlled for age and sex.						
Emotional abuse	0.141	0.038	1.068	1.152	1.242	.000
Physical abuse	−0.074	0.064	0.818	0.928	1.054	.251
Sexual abuse	0.026	0.056	0.920	1.026	1.146	.641
Emotional neglect	0.031	0.037	0.960	1.032	1.111	.400
Physical neglect	0.024	0.062	0.907	1.024	1.157	.696
Outcome: Chronicity of depression. Predictors (emotional abuse, avoidant personality disorder, and the interaction term emo × avoid) included with stepwise method. Controlled for age and sex.						
Age	0.044	0.012	1.022	1.050	1.070	< .001
Sex	−0.359	0.265	0.412	0.698	1.180	.175
Emotional abuse	−0.051	0.031	0.894	0.950	1.009	.096
Interaction emo × avoid	0.075	0.026	1.024	1.077	1.134	.004

Abbreviation: CTQ-SF-24 = Childhood Trauma Questionnaire–Short Form, item 24; emo × avoid = emotional abuse × avoidant personality disorder; OR = odds ratio.

Table 3. Result of the Path Models With Chronicity of Depression as Outcome Variables

Effect[a]	*B*	SE	*P*	*B*std	R^2
Chronicity predictor					0.174
Avoidant personality disorder	0.303	0.105	.004	0.315	
Age	0.026	0.007	< .001	0.274	
Sex	−0.220	0.165	.183	−0.101	
Emotional abuse	−0.031	0.017	.067	−0.150	
Avoidant personality disorder predicted by emotional abuse	0.085	0.018	< .001	0.395	0.156
Indirect effect of emotional abuse on chronicity	0.026	0.010	.012	0.124	

[a]Direct and indirect effects of avoidant personality disorder and emotional abuse on chronicity of depression.
Abbreviation: *B*std = standardized *B*.

Sensitivity Analysis

The above-mentioned interaction effect was replicated when we changed the threshold for the diagnosis of a chronic depressive episode to 1 year (OR = 1.05, $P = .026$) or 3 years (OR = 1.06, $P = .035$).

DISCUSSION

In this study, we were able to demonstrate that the level of emotional abuse had a moderating effect on the association between avoidant personality disorder and chronicity of depression. In post hoc analysis using categorical trauma data, we found that in patients who did not suffer from avoidant personality disorder, there was a decreased rate of chronic depression in patients who retrospectively reported severe emotional abuse. To our knowledge, this is the first study that demonstrates this interaction effect of childhood trauma and personality disorder on the prevalence of chronic depression.

Furthermore, we were able to replicate several differences between patients with chronic depression and episodic depression (eg, higher age[2,3,23] and increased rates of avoidant and dependent personality disorders in patients with chronic depression[2,3,23]), while we failed to replicate others (such as increased prevalence of Cluster B personality disorders in chronic depression[23] and younger age at onset in chronic depression[2,3]) These similarities and differences may be important for the generalizability of our results.

Possibly owing to this higher age at onset, findings in our study differ from previous findings regarding levels of childhood trauma in chronic depression. More specifically, the CTQ-SF total score for both groups in our study was similar to the CTQ-SF total score in an inpatient sample of episodic depression in a previous study[7] in which the CTQ-SF total score in inpatients with chronic depression (58.26 for chronic depression vs 52.35 for episodic depression) was significantly higher. Upon closer inspection, this difference was due to lower levels of physical abuse and neglect in our sample. Yet data in this area are far from homogenous, as levels of physical abuse and neglect similar to our findings have been found in another inpatient sample of chronic depression.[57] In yet another outpatient randomized trial,[58] 50% of patients with chronic depression reported moderate-to-severe emotional abuse on the CTQ-SF compared to 18.3% in our sample.

While patients with chronic depression in our sample reported higher levels of sexual abuse in direct comparison with patients with episodic depression, sexual abuse was not associated with the presence of chronic depression in the logistic regression analyses. Higher levels of sexual abuse in chronic depression compared to episodic depression have been reported in some[5,8] but not all previous studies.[7]

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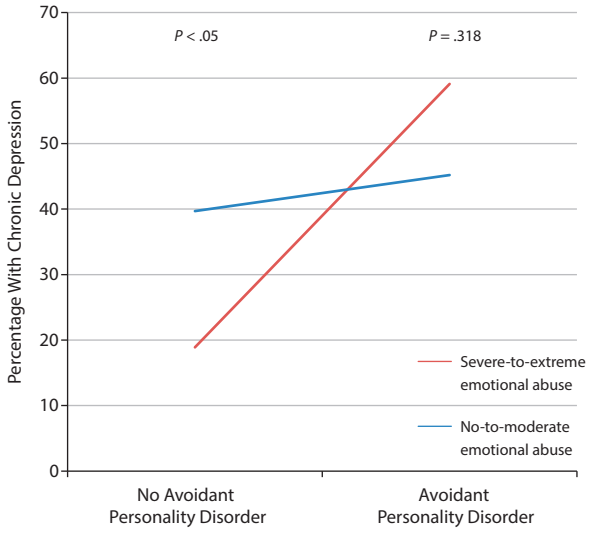
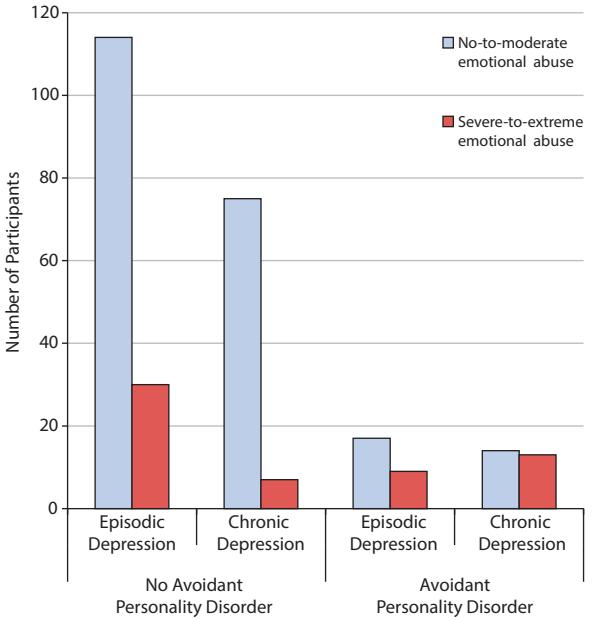
Figure 1. Moderator Effect of Emotional Abuse on the Avoidant Personality Disorder–Chronic Depression Relationship

A. Line Graph[a]



B. Histogram



[a]The independent variable personality disorder is on the x-axis, the dependent variable is on the y-axis, and the moderating effect is illustrated by 2 separate lines. For this presentation, we used the moderate-to-severe cutoff scores for emotional abuse (13 or higher) from the Childhood Trauma Questionnaire.[51] The statistics are $\chi^2_1 = 5.77$ ($P < .05$) for no avoidant personality disorder and $\chi^2_1 = 1.00$ ($P = .318$) for avoidant personality disorder.

Those previous studies comparing chronic depression and episodic depression also found increased levels in other domains of traumatization, including emotional abuse and neglect, that we failed to replicate.[5,7,8] These differences may have been due to differences in the sample definition; Lizardi et al[8] focused their study on early-onset dysthymia. In summary, the higher age at onset in our sample may have contributed to the lower level of traumatization in our study, as traumatization is particularly common in early-onset chronic depression.[5]

There are further limitations to consider. Our sample consisted of outpatients presenting for psychotherapy, and, therefore, results may not generalize to patients with depression in the general population. In fact, the percentage of patients with chronic depression in our study (39%) was closer to the 36%–47% reported in other outpatient clinical samples[23,59] than to the 27%–29% found in population-based studies.[2,3] Also, patients in our study had to be willing to participate in a randomized controlled trial. However, inclusion criteria were broad enough so that only 11.9% of patients had to be excluded from the trial. Therefore, we believe that our results may be generalizable to outpatients presenting for psychotherapy. The retrospective nature of our assessment of the childhood trauma may impair the accuracy of our findings. It has been shown, however, that the CTQ-SF has good specificity and sensitivity in the classification of maltreated individuals.[49,51,52] Finally, our analysis is based on cross-sectional data, which make it difficult to determine the exact nature of the interplay of childhood trauma, personality pathology, and chronicity of depression.

It may appear counterintuitive that there is a decreased rate of chronic depression in patients who experienced severe emotional abuse and do not suffer from avoidant personality disorders. These results might indicate that severe emotional abuse contributes to chronic depression particularly if these abusive experiences coincide with or are followed by the emergence of avoidant personality traits. This assumption is supported by our path model analyses. However, it can be tested satisfactorily only in a prospective longitudinal study in which trauma and personality traits are assessed in childhood and adolescence and the onset of chronic depression is prospectively studied.

CONCLUSION

Our study differed from previous studies in that our patients with chronic depression (1) reported a lower level of traumatization than those in previous studies, (2) reported a later age at onset than previously reported, and (3) were more often male than those patients with episodic depression. In this sample of less-severely traumatized patients, we found that the level of emotional abuse had a moderating effect on the association between avoidant personality disorder and chronic depression. This interaction effect should be interpreted with caution, however, given the discrepancies between our sample and previous studies. We believe that the interaction of personality pathology and emotional trauma in the development of chronic depression deserves further study, as we found evidence that the presence of personality pathology might exacerbate the effect of childhood trauma on the subsequent development of chronic depression.

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Potential conflicts of interest: **Dr Klein** received payments for presentations and workshops on psychotherapy for chronic depression and on psychiatric emergencies. These payments were made by the participants or their employer and not by any third parties. The other authors had nothing to disclose.
Funding/support: This study was not financed by an external source and relied on the basic equipment of the institutions of the researchers involved in this study.
Acknowledgments: The authors thank the staff of the MVZ Falkenried (Hamburg, Germany), especially Helmut Peters, PhD, and Ulrike Lupke, PhD, for their support in recruiting patients for this study. The authors thank GAIA AG (Hamburg, Germany) for the provision of the data assessment infrastructure used in the study and all their patients who volunteered to participate in this study.
Supplementary material: See accompanying pages.

REFERENCES

1. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition. Arlington, VA: American Psychiatric Association; 2013.
2. Murphy JA, Byrne GJ. Prevalence and correlates of the proposed *DSM*-5 diagnosis of chronic depressive disorder. *J Affect Disord*. 2012;139(2):172–180.
3. Satyanarayana S, Enns MW, Cox BJ, et al. Prevalence and correlates of chronic depression in the Canadian community health survey: mental health and well-being. *Can J Psychiatry*. 2009;54(6):389–398.
4. Gilmer WS, Trivedi MH, Rush AJ, et al. Factors associated with chronic depressive episodes: a preliminary report from the STAR-D project. *Acta Psychiatr Scand*. 2005;112(6):425–433.
5. Wiersma JE, Hovens JG, van Oppen P, et al. The importance of childhood trauma and childhood life events for chronicity of depression in adults. *J Clin Psychiatry*. 2009;70(7):983–989.
6. Brown GW, Craig TK, Harris TO, et al. Development of a retrospective interview measure of parental maltreatment using the Childhood Experience of Care and Abuse (CECA) instrument—a life-course study of adult chronic depression—1. *J Affect Disord*. 2007;103(1–3):205–215.
7. van Randenborgh A, Hüffmeier J, Victor D, et al. Contrasting chronic with episodic depression: an analysis of distorted socio-emotional information processing in chronic depression. *J Affect Disord*. 2012;141(2–3):177–184.
8. Lizardi H, Klein DN, Ouimette PC, et al. Reports of the childhood home environment in early-onset dysthymia and episodic major depression. *J Abnorm Psychol*. 1995;104(1):132–139.
9. Brown GW, Moran P. Clinical and psychosocial origins of chronic depressive episodes, 1: a community survey. *Br J Psychiatry*. 1994;165(4):447–456.
10. Horwitz AV, Widom CS, McLaughlin J, et al. The impact of childhood abuse and neglect on adult mental health: a prospective study. *J Health Soc Behav*. 2001;42(2):184–201.
11. Klein JP, Fassbinder E, Schweiger U. Chronic depression and personality disorder: one and the same? scientific evidence and its implications for psychotherapy. *Psychiatrie Grundlagen und Perspektiven*. 2014;11(2): 94-103.
12. Anda RF, Felitti VJ. The relationship of adverse childhood experiences to adult medical disease, psychiatric disorders, and sexual behavior: implications for healthcare. In: Lanius R, Vermetten E, Pain C, eds. *The Hidden Epidemic: The Impact of Early Life Trauma on Health and Disease*. Cambridge, UK: Cambridge University Press; 2009:77–87.
13. Chapman DP, Whitfield CL, Felitti VJ, et al. Adverse childhood experiences and the risk of depressive disorders in adulthood. *J Affect Disord*. 2004;82(2):217–225.
14. Korkeila K, Korkeila J, Vahtera J, et al. Childhood adversities, adult risk factors and depressiveness: a population study. *Soc Psychiatry Psychiatr Epidemiol*. 2005;40(9):700–706.
15. Nanni V, Uher R, Danese A. Childhood maltreatment predicts unfavorable course of illness and treatment outcome in depression: a meta-analysis. *Am J Psychiatry*. 2012;169(2):141–151.
16. Durbin CE, Klein DN, Schwartz JE. Predicting the 2 1/2-year outcome of dysthymic disorder: the roles of childhood adversity and family history of psychopathology. *J Consult Clin Psychol*. 2000;68(1):57–63.
17. McCullough JP Jr, Lord BD, Martin AM, et al. The significant other history: an interpersonal-emotional history procedure used with the early-onset chronically depressed patient. *Am J Psychother*. 2011;65(3):225–248.
18. Klein JP, Belz M. *Psychotherapie Chronischer Depression. Praxisleitfaden CBASP*. Göttingen, Germany: Hogrefe; 2014.
19. McCullough JP. *Treating Chronic Depression With Disciplined Personal Involvement*. New York, NY: Springer; 2006.
20. McCullough JP. *Therapeutische Beziehung und die Behandlung Chronischer Depressionen*. Heidelberg, Germany: Springer; 2012.
21. Nemeroff CB, Heim CM, Thase ME, et al. Differential responses to psychotherapy versus pharmacotherapy in patients with chronic forms of major depression and childhood trauma. *Proc Natl Acad Sci U S A*. 2003;100(24):14293–14296.
22. Melartin TK, Rytsälä HJ, Leskelä US, et al. Current comorbidity of psychiatric disorders among *DSM-IV* major depressive disorder patients in psychiatric care in the Vantaa Depression Study. *J Clin Psychiatry*. 2002;63(2):126–134.
23. Rothschild L, Zimmerman M. Personality disorders and the duration of depressive episode: a retrospective study. *J Pers Disord*. 2002;16(4):293–303.
24. Klein DN, Schatzberg AF, McCullough JP, et al. Age of onset in chronic major depression: relation to demographic and clinical variables, family history, and treatment response. *J Affect Disord*. 1999;55(2–3):149–157.
25. Hellerstein DJ, Skodol AE, Petkova E, et al. The impact of comorbid dysthymic disorder on outcome in personality disorders. *Compr Psychiatry*. 2010;51(5):449–457.
26. Blanco C, Okuda M, Markowitz JC, et al. The epidemiology of chronic major depressive disorder and dysthymic disorder: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *J Clin Psychiatry*. 2010;71(12):1645–1656.
27. Krueger RF, Markon KE. Reinterpreting comorbidity: a model-based approach to understanding and classifying psychopathology. *Annu Rev Clin Psychol*. 2006;2(1):111–133.
28. Boyd JH, Burke JD Jr, Gruenberg E, et al. Exclusion criteria of *DSM-III*: a study of co-occurrence of hierarchy-free syndromes. *Arch Gen Psychiatry*. 1984;41(10):983–989.
29. Kessler RC, McGonagle KA, Zhao S, et al. Lifetime and 12-month prevalence of *DSM-III-R* psychiatric disorders in the United States: results from the National Comorbidity Survey. *Arch Gen Psychiatry*. 1994;51(1):8–19.
30. Kessler RC, Chiu WT, Demler O, et al. Prevalence, severity, and comorbidity of 12-month *DSM-IV* disorders in the National Comorbidity Survey Replication. *Arch Gen Psychiatry*. 2005;62(6):617–627.
31. Yen S, Shea MT, Battle CL, et al. Traumatic exposure and posttraumatic stress disorder in borderline, schizotypal, avoidant, and obsessive-compulsive personality disorders: findings from the collaborative longitudinal personality disorders study. *J Nerv Ment Dis*. 2002;190(8):510–518.
32. Zhang T, Chow A, Wang L, et al. Role of childhood traumatic experience in personality disorders in China. *Compr Psychiatry*. 2012;53(6):829–836.
33. Lobbestael J, Arntz A, Bernstein DP. Disentangling the relationship between different types of childhood maltreatment and personality disorders. *J Pers Disord*. 2010;24(3):285–295.
34. Johnson JG, Smailes EM, Cohen P, et al. Associations between four types of childhood neglect and personality disorder symptoms during adolescence and early adulthood: findings of a community-based longitudinal study. *J Pers Disord*. 2000;14(2):171–187.
35. Widom CS, Czaja SJ, Paris J. A prospective investigation of borderline personality disorder in abused and neglected children followed up into adulthood. *J Pers Disord*. 2009;23(5):433–446.
36. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition. Washington, DC: American Psychiatric Association; 1994.
37. Kennedy N, Abbott R, Paykel ES. Remission and recurrence of depression in the maintenance era: long-term outcome in a Cambridge cohort. *Psychol Med*. 2003;33(5):827–838.
38. Holma KM, Holma IA, Melartin TK, et al. Long-term outcome of major depressive disorder in psychiatric patients is variable. *J Clin Psychiatry*. 2008;69(2):196–205.
39. First MB, Spitzer RL, Gibbon M, et al. *Structured Clinical Interview for DSM-IV Axis I Disorders SCID-I*. Washington, DC: American Psychiatric Publishing; 1997.
40. Wittchen HU, Wunderlich U, Gruschwitz S, et al. *SKID-I. Strukturiertes Klinisches Interview für DSM-IV*. Göttingen, DE: Hogrefe; 1997.
41. Lobbestael J, Leurgans M, Arntz A. Inter-rater reliability of the Structured Clinical Interview for *DSM-IV* Axis I Disorders (SCID I) and Axis II Disorders (SCID II). *Clin Psychol Psychother*. 2011;18(1):75–79.
42. Ramirez Basco M, Bostic JQ, Davies D, et al. Methods to improve diagnostic accuracy in a community mental health setting. *Am J Psychiatry*. 2000;157(10):1599–1605.
43. Fydrich T, Renneberg B, Schmitz B, et al. *SKID II. Strukturiertes Klinisches Interview für DSM-IV, Achse II: Persönlichkeitsstörungen. Interviewheft*. Göttingen: Hogrefe; 1997.
44. Morey LC, Shea MT, Markowitz JC, et al. State effects of major depression on the assessment of personality and personality disorder. *Am J Psychiatry*. 2010;167(5):528–535.
45. Beck AT, Steer RA. *BDI, Beck Depression Inventory: Manual*. San Antonio, TX: Psychological Corp.; 1987.

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46. Hautzinger M, Keller F, Kühner C. *BDI II Beck Depressions-Inventar Manual*. Frankfurt am Main, Germany: Harcourt Test Services; 2006.
47. Williams JB. A structured interview guide for the Hamilton Depression Rating Scale. *Arch Gen Psychiatry*. 1988;45(8):742–747.
48. Hamilton M. A rating scale for depression. *J Neurol Neurosurg Psychiatry*. 1960;23(1):56–62.
49. Bernstein DP, Fink L. *Childhood Trauma Questionnaire Manual*. San Antonio, TX: The Psychological Corporation; 1998.
50. Klinitzke G, Romppel M, Häuser W, et al. The German Version of the Childhood Trauma Questionnaire (CTQ): psychometric characteristics in a representative sample of the general population [article in German]. *Psychother Psychosom Med Psychol*. 2012;62(2):47–51.
51. Bernstein DP, Stein JA, Newcomb MD, et al. Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child Abuse Negl*. 2003;27(2):169–190.
52. Bernstein DP, Fink L. *Childhood Trauma Questionnaire: A Retrospective Self-Report*. San Antonio, TX: The Psychological Corporation; 1998.
53. Uebersax J. The tetrachoric and polychoric correlation coefficients. Statistical Methods for Rater Agreement web site. http://john-uebersax.com/stat/tetra.htm. Accessed January 30, 2014. 2006
54. El Alaoui S, Hedman E, Ljótsson B, et al. Predictors and moderators of internet- and group-based cognitive behaviour therapy for panic disorder. *PLoS ONE*. 2013;8(11):e79024.
55. Erceg-Hurn DM, Mirosevich VM. Modern robust statistical methods: an easy way to maximize the accuracy and power of your research. *Am Psychol*. 2008;63(7):591–601.
56. Cohen J. Statistical power analysis. *Curr Dir Psychol Sci*. 1992;1(3):98–101.
57. Brakemeier EL, Engel V, Schramm E, et al. Feasibility and outcome of cognitive behavioral analysis system of psychotherapy (CBASP) for chronically depressed inpatients: a pilot study. *Psychother Psychosom*. 2011;80(3):191–194.
58. Schramm E, Zobel I, Dykierek P, et al. Cognitive behavioral analysis system of psychotherapy versus interpersonal psychotherapy for early-onset chronic depression: a randomized pilot study. *J Affect Disord*. 2011;129(1–3):109–116.
59. Torpey DC, Klein DN. Chronic depression: update on classification and treatment. *Curr Psychiatry Rep*. 2008;10(6):458–464.

Supplementary material follows this article.

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THE JOURNAL OF CLINICAL PSYCHIATRY
THE OFFICIAL JOURNAL OF THE AMERICAN SOCIETY OF CLINICAL PSYCHOPHARMACOLOGY

Supplementary Material

Article Title: The Association of Childhood Trauma and Personality Disorders With Chronic Depression: A Cross-Sectional Study in Depressed Outpatients

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DOI Number: doi:10.4088/JCP.14m09158

List of Supplementary Material for the article

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Supplementary eTable 1: Correlations between chronicity of depression, personality disorders and CTQ subscales (* p<.05, **p<.01, ***p<.001)**.** For the analysis of sex, male was coded as 0, and female was coded as 1.

	Chronicity	Sex	Age	Avoid PD
Sex	-.16			
Age	.28**	-.09		
Avoidant PD	.21*	.08	-.14	
Dependent PD	.10	.18	-.26*	.48***
Emotional abuse	-.05	.25**	-.01	.38***
Physical abuse	.04	-.01	.16**	.13
Sexual abuse	.13	.17*	.10	.12
Emotional neglect	-.07	.08	.14*	.26**
Physical neglect	-.11	.04	.16**	.18*

Supplementary eTable 2: Number of patients (percentages) with chronic depression in patients with avoidant vs. non-avoidant personality disorder by presence of severe to extreme emotional abuse. For this analyses, we used the moderate to severe cutoff scores for emotional abuse (13 or higher)[51].

Emotional Abuse	PD	Episodic Depression (N=170)	Chronic Depression (N=109)
None to moderate (N=220)	Avoidant PD (N=31)	17 (54.8)	14 (45.2)
	No Avoidant PD (N=189)	114 (60.3)	75 (39.7)
Severe to Extreme (N=59)	Avoidant PD (N=22)	9 (40.9)	13 (59.1)
	No Avoidant PD (N=37)	30 (81.1%)	7 (18.9%)

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