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Influence of Anxiety and Depression on Therapeutic Outcome in Patients with Somatoform Disorders

Jens Heider Alexandra Zaby

Outpatient Psychotherapy Clinic Landau, Germany

Keywords

Somatoform disorders · Depression · Anxiety disorder · Cognitive-behavioral therapy · Prediction · Therapeutic outcome

Summary

Background: The study aimed at assessing the influence of comorbid depression and anxiety disorder on the outcome of cognitive-behavioral therapy in patients with somatoform disorders. **Methods:** In this prospective study including 106 patients with somatoform disorders receiving an outpatient cognitive-behavioral group intervention, the influence of depression and anxiety on therapeutic outcome was determined, while controlling for severity of symptoms and sociodemographic variables. **Results:** Bivariate analysis found a significant positive association between comorbid anxiety, somatization severity, and short- and long-term therapeutic outcome. Depression did not predict therapeutic outcome. In multiple regression analysis, only high somatization severity was associated with favorable treatment response. **Conclusion:** The results suggest that outpatient cognitive-behavioral therapy is beneficial even for patients with severe somatoform disorders and with comorbid depression and anxiety.

Schlüsselwörter

Somatoforme Störungen · Depression · Angststörungen · Kognitive Verhaltenstherapie · Prädiktoren · Therapieerfolg

Zusammenfassung

Hintergrund: Patienten mit somatoformen Stöungen leiden häufig komorbid unter Depressionen oder Angststörungen. Ziel der Studie ist es, deren Einfluss auf den Erfolg kognitiv-verhaltenstherapeutischer Therapie bei somatoformen Störungen zu klären. **Methode:** In einem längsschnittlichen Untersuchungsdesign wurde an 106 Patienten, die an einer ambulanten Gruppenintervention zur Bewältigung somatoformer Beschwerden teilgenommen haben, die Bedeutung komorbider Depression und Angststörungen für die Prädiktion des Therapieerfolgs untersucht. **Ergebnisse:** In bivariaten Analysen zeigten sich signifikante Zusammenhänge zwischen komorbider Angst, Intensität der somatoformen Störung und dem kurzfristigen und katamnestischen Therapieerfolg. Das Vorliegen einer Depression war nicht mit dem Therapieerfolg assoziiert. In multiplen Regressionsanalysen konnte jedoch nur eine hohe Intensität der somatoformen Störung als Prädiktor für den Therapieerfolg bestätigt werden. **Schlussfolgerung:** Auch schwerer beeinträchtigten Patienten mit somatoformen Störungen und Patienten mit komorbider Depression oder Angststörungen kann eine ambulante kognitiv-verhaltentherapeutische Therapie zur Symptombewältigung empfohlen werden.

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Fax +49 761 4 52 07 14
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Dr. Jens Heider
Psychotherapeutische Universitätsambulanz Landau
Universität Koblenz-Landau
Ostbahnstraße 10, 76829 Landau, Germany
Tel. +49 6341 28035610
heider@uni-landau.de

Background

Somatoform disorders are frequently associated with other mental disorders, particularly depression and anxiety disorders [Lieb et al., 2007]. Studies have shown a lifetime prevalence of depression in 47% to 94% of patients with a full-blown somatization disorder according to DSM-III-R [Ebel and Podoll, 1998]. Studies of subsyndromal forms of somatization disorder arrive at comparable rates of comorbidity [Creed and Barsky, 2004; Garyfallos et al., 1999]. The second-most-common comorbid mental disorders are anxiety disorders, especially generalized anxiety disorder and panic disorder; comorbidity rates were reported as between 31% and 54% for generalized anxiety disorder [Leibbrand, 1997] and between 10% and 48% for panic disorder [Ebel and Podoll, 1998].

Comorbid mental disorders can influence the progression and variability of the somatoform disorder [Leibbrand et al., 1999]. Thus, on the one hand, the depression-related loss of drive leads to increased physical avoidance behavior, thereby reinforcing the symptoms of the somatoform disorder. On the other hand, the more severe psychosocial causal attributions made by somatoform patients with comorbid depression – in contrast to attributions made by somatoform patients without comorbid psychiatric conditions – contribute to better acceptance of psychotherapeutic treatments [Henningsen et al., 2005; Martin et al., 2007]. Empirical findings are thus inconsistent about the impact of comorbid depression and anxiety disorders on the outcome of cognitive-behavioral therapeutic interventions in patients with somatoform disorders:

In 30 patients with a somatoform disorder at a psychosomatic hospital, those with a comorbid affective disorder were found more likely still to have a somatoform disorder at a 2-year follow-up [Rief et al., 1995]. In this working group's further studies of larger groups of patients with somatoform disorders, both with a 6-month follow-up period [Bleichhardt et al., 2005] and without one [Leibbrand et al., 1999], no correlation was found between therapeutic outcome and the existence of a comorbid depressive disorder. These findings were confirmed by the short- and long-term results of Blanchard and others [2006] on prediction of therapeutic outcome in outpatient treatment of patients with irritable bowel syndrome.

While these studies investigated the predictive value of a positive, categorial diagnosis of depression, other empirical studies examined the correlations between the extent of dimensionally measured depression and treatment outcome. The findings here are contradictory: Short-term treatment outcome, in the work of Bleichhardt [2005] and Nakao et al. [2001], as well as in predictor studies of therapy for functional somatic syndromes [Blanchard et al., 1992; Deale et al., 1997; Keel et al., 1998; Matzen, 2003], is not correlated with the severity of the initially measured depression. In contrast, however, two studies by Rief [1995] tended to find a positive influence. Three studies of patients with functional somatic syndromes [Blanchard et al., 2006; Drossman et al., 2003; Turk et al., 1998] showed a negative influence of heightened depressive symptoms on the short-term clinical outcome. The heterogeneity of findings is reflected in the prediction of long-term therapeutic outcome: While most studies show that therapeutic outcome at follow-up is not associated with the severity of the initial depression [Bleichhardt et al., 2005; Chalder et al., 2003; Darbishire et al., 2005; Deale et al., 1997; Keel et al., 1998; Matzen, 2003; Ray et al., 1997], three studies attested to a negative correlation [Bentall et al., 2002; Blanchard et al., 2006; Thieme et al., 2007].

The presence of a comorbid anxiety disorder in patients with a somatoform disorder has neither short-term [Bleichhardt et al., 2005; Leibbrand et al, 1999] nor long-term [Bleichhardt et al., 2005] impact on the outcome of a cognitive-behavioral treatment. Only Blanchard et al. [2006] were able to show that the presence of generalized anxiety disorder in patients with irritable bowel syndrome led to greater improvement at follow-up in 1 out of 4 outcome variables.

The findings on the influence of dimensionally measured anxiety are likewise inconsistent: Some studies find, for prediction of both short- and long-term therapeutic outcome, that there are either no correlations [Blanchard et al., 1992; Bleichhardt et al., 2005; Chalder et al., 2003; Darbishire et al., 2005] or negative correlations [Blanchard et al., 2006; Blanchard et al., 1988; Ray et al., 1997] between the severity of anxiety and the outcome. By contrast, in the work of Nakao et al. [2001] and Kolk et al. [2004], a higher level of anxiety at the start of therapy is associated with better therapeutic outcome in both the short and long term.

Based on these few existing studies, it can be stated that the comorbid presence of a clinically significant depression or anxiety disorder does not generally lead to a worse therapeutic outcome, either directly after conclusion of therapy or at the follow-up point. The short- and long-term impact of dimensionally measured depression or anxiety on the therapeutic outcome has been more frequently studied. Most of these studies were also unable to find any correlations. In addition to some studies that showed negative influences on clinical outcome, there were also some positive findings, especially for the influence of anxiety on the therapeutic outcome.

The present study seeks to clarify whether the earlier findings on the predictive value of comorbid anxiety disorders and depressive episodes, which had been conducted exclusively in an inpatient setting until the study by Blanchard et al. [2006], could be replicated in an outpatient sample of patients with somatoform disorders. It is expected that patients with a somatoform disorder and comorbid depression or anxiety disorder do not benefit any less from cognitive-behavioral therapy, in the long term, than patients without comorbid diseases. Moreover, we seek to clarify further the influence of dimensionally measured anxiety and depression on the therapeutic outcome in somatoform disorders.

Method

Sample

The study included patients in outpatient cognitive-behavioral group therapy for coping with somatoform disorders, who met the criteria for a somatization disorder, an undifferentiated somatoform disorder, a pain disorder, or a conversion disorder, according to DSM-IV-TR [Saß et al., 2003]. To exclude monosymptomatic patterns of progression, the patients had to have at least two somatoform physical symptoms [Martin et al., 2007]. The study also included only patients who completed the therapy ('completers'). Acutely suicidal or psychotic patients were excluded, as were patients who could not stick with the 90-min group sessions due to lack of language skills or limited concentration span. Verification of inclusion and exclusion criteria occurred through an interview by professional psychologists, using the International Diagnostic Checklists for DSM-IV (IDCL) [Hiller et al., 1997]. Because somatoform physical ailments can also be symptoms of other mental disorders, the interviewers were prompted, in cases of an anxiety disorder or depression, to review critically whether the physical symptoms also occurred without an anxiety attack – i.e., the experience of intense anxiety – or a depressive episode. In the event of differential diagnostic uncertainties, consultation took place with the authors of this work. A medical evaluation was obtained for each patient to exclude an organic medical disorder.

The sample was recruited via primary care physicians and psychotherapists, as well as newspaper advertisements. Of the 117 patients who were accepted for the study, it was possible to compile questionnaire and interview data, 6 months after the completion of therapy, from 106 patients (90.6%). The study sample subjects were on average 48.1 years old (SD = 12.1) and three-quarters (75.5%) female. 79.2% of the sample met the DSM-IV-TR criteria for undifferentiated somatoform disorder, 12.3% for full-blown somatization disorder, 7.5% for a pain disorder, and 1 patient (0.9%) for conversion disorder. The patients had on average fewer than 9.9 (SD = 5.5) somatoform symptoms. The patients' most frequently reported complaints were abdominal, head, and back pain, as well as nausea followed by dizziness, heart palpitations, and fatigue. More than half of the patients were employed (54.3%) and declared that they had been unable to work for an average of 14.2 days in the last 6 months. Only 4.7% were receiving a disability pension or a partial occupational disability benefit, and 10.4% were retired. 15.1% were housewives or househusbands, 4.7% were students in vocational training programs or college, and 6.6% were unemployed. 23.6% had been hospitalized within the last 6 months because of their ailments; 24.6% were currently in outpatient psychotherapy.

Study Design and Treatment

After detailed instruction was provided to the patients and informed consent given by them, the independent predictor variables and dependent therapeutic outcome criterion (DV) were compiled, before the intervention began, in the interview and by self-report questionnaires. Subsequently, the patients took part in a fully manualized, cognitive-behavioral intervention group (8 weekly sessions of 90 min each). The substantive priority was, along with psychoeducation, to convey either a unique coping strategy, progressive muscle relaxation techniques according to Bernstein and Berkovec [1992], or various strategies such as attention diversion, cognitive restructuring, or reduction of avoidance behavior [Rief et al., 2002]. Independently of therapeutic priorities, both group interventions, in a randomized controlled evaluation study, were statistically significantly superior in the short term to a waiting control group [Zaby et al., 2008]. At the 6-month follow-up, the improvement in the somatoform symptoms achieved by the interventions was maintained. There were no substantial differences in effectiveness found between the interventions [Zaby, 2009]. The patients participated in an average of 7.2 to 8 group sessions. At the end of therapy and 6 months afterward, the therapeutic outcome criterion was applied once again.

Therapeutic Outcome Criterion

The short- and long-term therapeutic outcome was operationalized by the difference values of symptom intensity, using the progressive form of the Screening für Somatoforme Störungen (SOMS-7) (Screening for Somatoform Disorders) [Rief et al., 1997].

Predictor Variables

Anxiety and Depression

The classificatory diagnosis of comorbid anxiety disorders and depression (according to DSM-IV-TR) was performed by professional psychologists, using the IDCL [Hiller et al., 1997]. The German version of the Hospital Anxiety and Depression Scale (HADS-D) [Herrmann-Lingen et al., 1995] was also provided for the dimensional measurement of anxiety and depression.

Other Predictors

To check the influence of other relevant predictors (see survey by Heider [2007]), the best empirically documented predictor so far – the intensity and severity of somatoform symptoms – was determined by the SOMS-7, as well as by the number of somatoform symptoms mentioned in the interview. The variables of age, gender, and educational level were also compiled as control variables.

Evaluation and Statistical Analysis

First, we used bivariate analysis to study the correlations between the predictor variables and the short- and long-term therapeutic outcome criterion, per product-moment correlation or point-biserial correlation. To be able to relate the strength of the impact of individual predictors to each other and to use information that was possibly collected several times only once in the prediction, multifactorial models for predicting short- and long-term therapeutic outcomes were examined on an exploratory basis. For this purpose, with the significant predictors in the bivariate analysis as regressors and the pre-post difference values in the SOMS-7 as the dependent variable, hierarchical multiple regression analysis was performed. To check the starting value for symptom intensity, the starting values in the SOMS-7 were entered in the first block of the analysis. The predictors that were significant in the correlation analysis were entered in the second block.

To verify the premises for conducting a multiple regression analysis (normality, linearity, statistical independence of the residuals (autocorrelations), homoscedasticity, and multicollinearity), we used the procedures and tests described in the literature [Backhaus et al., 2000; Cohen et al., 2003], indicating deviations where appropriate.

Results

Comorbid Anxiety Disorders and Depression

In addition to somatoform disorder, 38.7% of patients suffer from an anxiety disorder (agoraphobia and/or panic disorder 25.5%, social phobia 10.4%, specific phobia 6.6%, generalized anxiety disorder 12.3%). 5.7% have had an acute episode of major depression as a comorbid condition; 12.2% of patients reported both a depressive episode and an anxiety disorder as comorbid conditions. On the HADS Anxiety Scale, the patients had a cumulative value of M = 10.3 (SD = 4.2; cut-off at 11); on the Depression Scale, a cumulative value of M = 7.1 (SD = 4.8; cut-off at 9).

Table 1. Product-moment or point-biserial correlations of predictors and the short- and long-term reduction of symptoms in the SOMS-7

Predictor variables at start of therapy	Short-term reduction of symptoms in the SOMS-7[a]	Long-term reduction of symptoms in the SOMS-7[a]
Severity of somatoform symptoms		
Symptom intensity – SOMS-7	0.23*	0.45***
Number of symptoms[b]	0.24*	0.39***
Comorbid mental disorders		
Comorbid anxiety (n, %)	0.26**	0.13
Comorbid episode of major depression (n, %)	0.11	0.02
Dimensionally measured anxiety and depression		
Depression – HADS	0.13	0.12
Anxiety – HADS	0.19	0.27**
Socio-demographic characteristics		
Age	–0.03	–0.11
Gender	–0.06	–0.08
Education	–0.10	–0.03

SOMS-7: Screening für somatoforme Störungen (Screening for Somatoform Disorders), HADS: Hospital Anxiety and Depression Scale.
[a]Product-moment correlation for interval-scaled data, point-biserial correlation for nominally scaled predictors.
[b]Number of symptoms recorded in an interview, from the ICD-10 supplemented symptom list of DSM-IV.
*p < 0.05; **p < 0.01; ***p < 0.001.

Table 2. Hierarchical regression for predicting the reduction in symptom intensity

	Predictor variables at T1	B[b]	t	adj. R^2	R^2	ΔR^2
DV: Short-term reduction of symptom intensity – SOMS-7						
1. Step	Symptom intensity – SOMS-7	0.14	2.41*	0.05	0.05	0.05*
2. Step	Number of symptoms[a]	3.41	1.11	0.07	0.10	0.05
	Comorbid anxiety disorder	5.42	1.87			
DV: Long-term reduction of symptom intensity – SOMS-7						
1. Step	Symptom intensity – SOMS-7	0.24	2.92**	0.20	0.21	0.21***
2. Step	Number of symptoms[a]	3.62	1.16	0.19	0.22	0.01
	Anxiety – HADS	0.01	0.01			

SOMS: Screening für somatoforme Störungen (Screening for Somatoform Disorders), HADS: Hospital Anxiety and Depression Scale.
[a]Number of symptoms recorded in an interview, from the ICD-10 supplemented symptom list of DSM-IV.
[b]Regression coefficient for inclusion in the regression model.
*p <0.05; **p <0.01; ***p <0.001.

Bivariate Prediction of Therapeutic Outcome

Table 1 shows that neither comorbid presence of a depressive episode nor severity on the HADS Depression Scale is associated with short- and long-term therapeutic outcome. Patients with a somatoform disorder and comorbid anxiety disorder show a stronger short-term reduction in their somatoform ailments. Over the long term, this correlation lacks significance. However there is a long-term positive correlation between higher HADS-Anxiety values and the reduction of somatoform ailments. But the strongest correlations are shown, in both the short term and long term, between the initial number of symptoms and intensity of the somatoform disorder, and the therapeutic outcome. Sociodemographic variables are not significant predictors.

Multivariate Prediction of Therapeutic Outcome

In the hierarchical multiple regression analysis, only the intensity of somatoform disorder at the start of therapy, introduced in the first block, contributes to predicting short- and long-term therapeutic outcomes. Overall, the two regression models achieve statistical significance (short-term therapeutic outcome: $F_{(1,104)} = 5.81$, $p = 0.018$; long-term therapeutic outcome: $F_{(1,104)} = 26.89$, $p < 0.001$), and explain 4.5% and 19.8%, respectively, of the variance in therapeutic outcome. The more severe was the intensity of the somatoform disorder at the beginning of treatment, the greater was the symptom reduction. The predictors 'number of symptoms', 'existence of a comorbid anxiety disorder', and 'HADS Anxiety Value', entered in the second block, do not contribute to any further

explained variance and were not included in the regression models (table 2). The results can be subject to only limited interpretation, however, since the premises of the linear multiple regression model are violated (heteroscedasticity and autocorrelation of the residuals). In particular, it seems that there is a distinct linear dependence between the predictors. The collinear diagnostics confirmed that suspicion and showed a definite collinearity among the independent variables. A confounding of predictors is very likely.

Discussion

The objective of this study was to examine the predictive value of comorbid anxiety disorders and depression for the therapeutic outcome of an outpatient cognitive-behavioral group of patients with a somatoform disorder. Overall in the multivariate regression analysis, the presence of comorbid anxiety disorder or depression did not have predictive value. Only the intensity of the somatoform disorder was confirmed as a potent predictor. A higher intensity of somatoform disorder at the start of therapy was associated with a larger therapeutic outcome. This finding was independent of whether the short- or long-term therapeutic outcome was predicted, as confirmed by a number of studies [Blanchard et al., 1988; Bleichhardt et al., 2005; Nakao et al., 2001; Nielson and Jensen, 2004; Prins et al., 2001; Rief, 1995; Rief et al., 1995; Thieme et al., 2007]. However, that is only true when pre-post difference values are predicted. However, if the end states and the post values are predicted, the correlation is reversed [Bach and Bach, 1995; Blanchard et al., 2006; Darbishire et al., 2005; Drossman et al., 2003; Ray et al., 1997]. The explained variance of 4.5% that was achieved in the short-term therapeutic outcome by the intensity of somatoform disorder is considered low. In contrast, the explained variance of 19.8% in the long-term therapeutic outcome is comparable to the results of other studies of patients with somatoform disorders [e.g., Bleichhardt et al., 2005].

The proportion of almost 40% of patients with a comorbid anxiety disorder corresponds to the data in the overview study by Ebel and Podoll [1998] and the predictor study in an inpatient setting by Rief et al. [1995], Bleichhardt et al. [2005], and Leibbrand et al. [1999]. In the bivariate analysis, patients with a somatoform disorder and a comorbid anxiety disorder showed a better therapeutic outcome in the short term, but not in the long term. Moreover, the short-term effect disappears due to the confounding of the predictor 'comorbid anxiety disorder' with symptom intensity and symptom number in the multivariate regression analysis. This result confirms the findings of Bleichhardt [2005] and Leibbrand et al. [1999].

Dimensionally measured anxiety also could not be confirmed as a predictor in the multivariate analysis. A number of studies are achieving comparable results [Blanchard et al., 1992; Bleichhardt et al., 2005; Chalder et al., 2003; Darbishire et al., 2005]. These differ substantially from the results of three studies [Blanchard et al., 2006; Blanchard et al., 1988; Ray et al., 1997] that found negative correlations, and two studies [Kolk et al., 2004; Nakao et al., 2001] that found positive correlations between severity of anxiety and outcome. The differentiation of the study findings by methodological aspects, such as sample size and selection, therapeutic 'dose', operationalization of the predictors, definition of therapeutic outcomes, length of follow-up period, or evaluation strategy, cannot explain the discrepancies. It can therefore now be assumed that anxiety has no effect, or only a small effect, on therapeutic outcome. Further replications of these findings are required, using comparable methodology [cf. Steketee and Chambless, 1992].

What is striking is the distinctly lower proportion of patients with comorbid depression in the sample, compared with other predictor studies that gave comorbid rates of between 60 and 70% [Bleichhardt et al., 2005; Leibbrand et al., 1999; Rief et al., 1995]. This is explained by the fact that in our work, only patients with an acute episode of unipolar major depression were classified as comorbid depressive patients, but not patients with recurrent depression, current subclinical or remitted symptoms, or dysthymic patients. Nevertheless, the absence of a comorbid depressive episode, either immediately or within 6 months after the end of therapy, was proven to be a predictor of therapeutic outcome. Blanchard et al. had the same result in their work [2006], as did Leibbrand et al. [1999] and Bleichhardt et al. [2005]. This finding differs substantially from the results of Rief and colleagues [1995]. In their sample, patients with a somatoform disorder and comorbid affective disorder at the start of therapy were much more likely to still have somatoform disorders 2 years after the end of treatment than patients without a comorbid affective disorder. It may be that a concurrent depressive disorder does not show a negative effect until the longer term.

Congruent with the non-significant influence of a comorbid depressive episode on the outcome, severity of dimensionally measured depression was not associated with therapeutic outcome in any of our analyses. This confirms the preponderant number of studies that have likewise shown no correlation between depression and therapeutic outcome, either in the short term [Blanchard et al., 1992; Bleichhardt et al., 2005; Deale et al., 1997; Keel et al, 1998; Matzen, 2003; Nakao et al., 2001] or the long term [Bleichhardt et al., 2005; Chalder et al., 2003; Darbishire et al., 2005; Deale et al., 1997; Keel et al., 1998; Matzen, 2003; Ray et al., 1997]. As stated in the introduction, there are also studies that may prove short- and long-term negative correlations. Here too, differentiation of the study findings by methodological aspects – notably in respect to the duration of the post-study period – cannot explain the discrepancies.

The present study has several limitations that restrict the validity and generalizability of the results: First of all, it is questionable whether the results can be generalized to all

patients with somatoform disorders, or whether we were dealing with a self-selected subgroup of patients who were motivated to seek psychotherapy. Second, the treatment program was not fully standardized. To set specific conditions, particularly in regard to concomitant psycho-pharmacological treatment – for example, to suspend such treatment for the period of the study –, would have led to a further selection of the sample. A third limitation on the validity of this work is that the research design did not include an untreated control group. This permits no distinction between predictors for the therapeutic outcome of cognitive-behavioral intervention and predictors that are important for the progression of untreated patients. In their systematic review of the natural progression of somatoform disorders, olde Hartman and others [2009] showed that there is a less favorable prognosis for patients with a large number of symptoms. Comorbid mental disorders, however, had no influence on the progression of somatoform symptoms. Even if the patients they studied had had no previous structured treatment program, that does not necessarily mean that these patients were 'untreated'. Nevertheless, due to the findings of olde Hartman et al. [2009], it cannot be assumed that the non-significance of the predictors 'comorbid anxiety disorders' and 'depression' in our study is specific to the progression after a cognitive-behavioral treatment. Fourth, it cannot be excluded that the predictive importance of an initial high intensity of somatoform disorder for the treatment outcome is at least partly due to the statistical artifact of regression to the mean, especially since the variance of the dependent variable 'symptom intensity' decreases from start of therapy to follow-up [Rogosa, 1995].

Apart from these limitations, we can assert in summary that a substantial proportion of long-term therapeutic outcomes can be predicted by patient variables. In particular, severely impaired somatoform patients benefit from short-term outpatient therapy for coping with somatoform disorders. Patients who also suffer from a comorbid depression or anxiety disorder do not show a lesser reduction of their somatoform symptoms immediately after completion of therapy or at the follow-up point. Thus they too can be recommended for outpatient cognitive-behavioral group therapy.

Disclosure Statement

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