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Research paper

The role of avoidant and obsessive-compulsive personality disorder traits in matching patients with major depression to cognitive behavioral and psychodynamic therapy: A replication study

Martijn J. Kikkert [a,*], Ellen Driessen [a,b,c], Jaap Peen [a], Jacques P. Barber [d], Claudi Bockting [e], Frans Schalkwijk [a], Jeff Dekker [b], Jack J.M. Dekker [a,b,c]

[a] Arkin Mental Health Care, Amsterdam, The Netherlands
[b] VU University Amsterdam, Department of Clinical Psychology, Amsterdam, The Netherlands
[c] EMGO Institute for Health and Care Research, VU University and VU University Medical Center Amsterdam, The Netherlands
[d] Derner Institute of Advanced Psychological Studies, Adelphi University, Garden City, NY, USA
[e] Universiteit Utrecht, Department of Clinical & Health Psychology, Utrecht, The Netherlands

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ABSTRACT

Background: Barber and Muenz (1996) reported that cognitive behavior therapy (CBT) was more effective than interpersonal therapy (IPT) for depressed patients with elevated levels of avoidant personality disorder, while IPT was more effective than CBT in patients with elevated levels of obsessive-compulsive personality disorder. These findings may have important clinical implications, but have not yet been replicated.

Methods: We conducted a study using data from a randomized clinical trial comparing the efficacy of CBT and short-term psychodynamic supportive psychotherapy in the outpatient treatment of depression.

Results: We found no evidence indicating that avoidant patients may benefit more from CBT compared to short-term psychodynamic supportive therapy (SPSP).

Conclusions: Our results indicate that treatment effect does not depend on the level of avoidance, or obsessive-compulsiveness personality disorders further examine the influence of personality disorders on the effectiveness of CBT or psychodynamic therapy in the treatment of depression.

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1. Introduction

Cognitive behavioral therapy (CBT) and psychodynamic-interpersonal psychotherapies are two of the most widely used psychological treatments for depression. CBT aims at alleviating depressive symptoms by changing maladaptive thought schemata and errors in thinking in combination with engaging in more activities that affect mood positively (Beck et al., 1979). In contrast, psychodynamic-interpersonal therapies assume that gaining better understanding of (partly) unconscious emotions and/or interpersonal problems is curative (Busch et al., 2004). Notwithstanding these markedly different theoretical assumptions, studies have found minimal differences between CBT and psychodynamic-interpersonal therapies with regard to the reduction of depressive symptom following short-term treatment (Barber et al., 2013; Barth et al., 2013; Cuijpers et al., 2008; Leichsenring, 2001). Given that minimal efficacy differences are found across large patient samples, the question can be raised whether subgroups of patients can be identified that might benefit more from one treatment than the other. If so, patient characteristics that define these subgroups might be used to guide treatment selection in the future.

Little is known about such prescriptive factors or moderators associated with differential efficacy to CBT and psychodynamic therapy for depression (Kraemer et al., 2002). Given the lack of research findings in this regard, the National Institute for Health and Clinical Excellence (NICE, 2009, p.46) called for the examination of moderators of response to CBT and psychodynamic therapy in the treatment of moderate and severe depression to improve patient care. Previous studies suggested that patients with major depressive disorder and a comorbid personality disorder are less responsive to psychotherapy (Shea et al., 1990; Shea et al., 1992; Stuart et al., 1992; Diguer et al., 1993; Newton-Howes et al., 2006), but these results are not consistently replicated (Blom et al., 2007; Mulder, 2002). When comparing CBT and psychodynamic-interpersonal therapy (IPT) treatment in this population, it seems that CBT is related to better outcome compared to IPT (Hardy et al., 1995; Carter et al., 2015).

One study that did examine moderators associated with differential efficacy of CBT and IPT is that of Barber and Muenz (1996)

* Corresponding author.

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using the dataset from the Treatment for Depression Collaborative Research Program (Elkin et al., 1989). Again, no difference was found in the treatment efficacy of CBT compared to IPT. CBT was however more effective in depressed patients with elevated levels of avoidant personality disorder (AVPD) symptoms, whereas IPT was more effective in patients with elevated levels of obsessive-compulsive personality disorder (OCPD) symptoms. This effect was also present for the smaller groups of depressed patients who met criteria for AVPD or OCPD based on the DSM-III. In accordance with these results Joyce et al. (2007) found poorer outcome for IPT compared to CBT in depressed patients with an AVPD. Though they failed to find superior outcome for IPT in depressed patients with an OCPD. This could, however, be the result of the small sample size of depressed patients with an OCPD (N =3). In contrast, McBride et al. (2006) found no effect of AVPD and OCPD symptoms on depressive symptoms in IPT compared to CBT. They did detect an effect of attachment avoidance in depression outcome, favoring CBT over IPT when this trait was present.

Barber and Muenz (1996) describe two theories that might explain their previously described findings. First, they describe the matching theory (Beutler and Clarkin, 1990), which states that patients with internalizing coping skills benefit more from insight-oriented therapy, and patients with externalizing coping skills benefit more from cognitive therapy. Although this theory relates to coping skills and not to personality disorders per se, it can be argued that patients with OCPD are more likely to have internalizing coping skills and therefore might benefit more from a psychodynamic approach. However, as Barber and Muenz (1996) mention, it is less clear whether AVPD patients have more externalizing coping skills. The second theory referred to is the "theory of opposites" (Barber, 1990; Kiesler, 1986; Liebowitz et al., 1986). This theory states that treatment is more effective if the therapy is opposite to the cognitive, personal, and behavioral style of the patient. This implies that patients with OCPD, who are more likely to intellectualize and rationalize, will benefit more from psychodynamic-interpersonal treatment which focuses more on interpersonal patterns, empathy, and affect. On the other hand, patients with AVPD who are more affective in nature are supposed to benefit more from a cognitive approach that focuses on actual situations and behavior (Barber and Muenz, 1996).

Findings indicating that AVPD and OCPD differentiate treatment outcomes between IPT and CBT may have important clinical implications. So far this has only been demonstrated in a few studies and therefore need to be replicated before they can be used to guide treatment selection. As we were unable to retrieve such a replication to date, we aimed to conduct a replication study of the Barber and Muenz (1996) findings using data of a randomized clinical trial comparing the efficacy of CBT and short-term psychodynamic supportive therapy (SPSP) in outpatient treatment of depression (Driessen et al., 2013). The SPSP applied in this study bears a resemblance to the psychodynamic-interpersonal therapy studied by Barber and Muenz (1996). Both interventions are limited to 16 sessions and focus on interpersonal relationships and problems and gratification of social needs. Further, in SPSP the therapy is structured by selecting one problem area as the main focus, as is done in IPT. Last, but most importantly, both IPT and SPSP distinguish themselves from more psychodynamic therapies by not interpreting transference and viewing depression as being caused by (mainly interpersonal) life circumstances (De Jonghe, Rijnierse & Janssen 1994; de Jonghe, 2005). However, SPSP views contemporary interpersonal relationships as the product of internalized representations of early relationships with significant others whereas IPT focusses on present problems without considering early life experiences. Furthermore, SPSP has a more intrapersonal focus whereas IPT more strongly aims at symptom reduction. Although these dissimilarities may result in small therapeutic differences, we consider the overlap between SPSP and IPT to justify its use in this replication study (de Jonghe, 2005; Picardi and Gaetano, 2014).

Following Barber and Muenz (1996), we hypothesize that individuals who show elevated levels of AVPD symptoms or meet AVPD criteria on a screening instrument for DSM-IV personality disorders show more depressive symptom change when treated with CBT than when treated with SPSP, while individuals showing elevated levels of OCPD or meeting OCPD criteria on this screening instrument more depressive symptom change when treated with SPSP than when treated with CBT.

2. Methods

2.1. Design

This paper draws from data of a randomized clinical trial comparing the efficacy of CBT and SPSP in the outpatient treatment of depression that included 341 patients. This intervention study was registered as ISRCTN31263312 with Current Controlled Trials (http://www.controlled-trials.com). The Dutch Union of Medical-Ethic Trial Committees for mental health organizations approved the study design and the study protocol was published (Driessen et al., 2007). Efficacy results of this study are reported elsewhere showing no statistically significant differences between SPSP and CBT on any of the depression outcome measures on post-treatment observer-rated, and patient-rated depression scores (Driessen et al., 2013, 2015).

2.2. Patients

Participants were referred by their general practitioner to one of three psychiatric outpatient clinics in Amsterdam, The Netherlands. Inclusion criteria were: (1) presence of a depressive episode according to DSM-IV criteria as assessed with the *MINI-International Neuropsychiatric Interview – Plus* (Sheehan et al., 1998), (2) *Hamilton Depression Rating Scale* (HAM-D; Hamilton, 1960) scores $\geq$ 14, (3) age between 18 and 65 years, and (4) written informed consent after description of the study. Exclusion criteria are described elsewhere (Driessen et al., 2007). For this study, following Barber and Muenz (1996), we limited our analyses to the sample of patients (N=195) that completed post-treatment assessment.

2.3. Interventions

Patients in both treatments received 16 individual sessions within 22 weeks. Both therapies were conducted according to published treatment manuals (De Jonghe, 2005; Molenaar et al., 2009). CBT followed Beck's principles (Beck, 1976) and included behavioral activation and cognitive restructuring according to a session-by-session protocol with homework assignments. SPSP (De Jonghe, 2005; De Jonghe et al., 2001, 2004; Dekker et al., 2005, 2008) involved an open patient-therapist dialog that used supportive and insight-facilitating techniques to address the emotional background of the depressive symptoms by discussing current relationships, internalized past relationships, and interpersonal patterns. Treatment was provided by 56 psychodynamic therapists and 37 CBT therapists. All therapists were trained psychiatrists or psychologists with at least master- or MD-degree. They received a three days course in SPSP or a 100-hour basic CBT training accredited by the Dutch professional associations of psychotherapists. Although no formal assessments were conducted, treatment fidelity was checked by means of bi-weekly supervision sessions, chaired by a registered study supervisor, in which audiotaped sessions were discussed. Severely depressed patients (HAM-

D > 24 at baseline) and moderately depressed patients at baseline who developed severe symptoms during treatment were offered additional antidepressant medication administrated by a psychiatrist (who was not the patient's psychotherapist). The medication protocol started with extended-release venlafaxine 75 mg/day that could be raised to a maximum of 225 mg/day and switched to either citalopram or nortriptyline in case of intolerance or complete nonresponse. Pharmacotherapy consults addressed symptom evaluation, side-effects and adherence.

2.4. Instruments

Study assessments took place at baseline (week 0), during treatment (week 5 and 10) and at treatment end (week 22).

To assess the level of personality disorder symptoms we used the Questionnaire on Personality Traits (QPT; Duijsens et al., 1996b) which is a self-report screening instrument for the assessment of personality disorders. The QPT is based on the official World Health Organization instrument for the diagnosis of DSM-III-R and ICD-10 personality disorders, International Personality Disorder Examination (IPDE). The QPT consists of 174 items assessing seven different areas such as work, affect, and behavior, in the past 5 years and are scored on a three-point scale (yes, no, ?). QPT scores are moderately stable over time (Duijsens et al., 1996b). Because the QPT overestimates the prevalence of personality disorders compared to a semi-structured clinical interview (IPDE), and due to differences in diagnostic criteria between the DSM-III-R and the DSM-5, it cannot be used as a diagnostic tool. Nevertheless, it is considered suitable as a screening instrument for personality disorders. Correlation between the QPT and IPDE on the AVPD scale is 0.67 and on the OCPD scale 0.46. Both convergent and discriminant validity between the two questionnaires are considered good (Duijsens et al., 1996a). Although the QPT is based on the DSM-III-R, the items in the QPT still refer to the main characteristics of AVPD and OCPD as described in the DSM-5. Therefore, we consider the AVPD and OCPD dimensional sum scores to be good indicators of the levels of AVPD and OCPD symptoms. The QPT was assessed at week 5 of treatment to reduce the burden for patients filling in questionnaires at week 0.

We used two measures of depression to assess treatment efficacy; the observer-rated HAM-D and the *Inventory of Depressive Symptomatology, Self-Report* (IDS-SR; Rush et al., 1986). Both measures were assessed at week 0, 10 and 22, while the HAM-D was additionally assessed at week 5. HAM-D assessors were trained master-level clinical psychology students not blind to patient grouping. The HAM-D was assessed according to the Dutch scoring manual (de Jonghe, 1994). Assessors engaged in one-hour peer supervision sessions bi-weekly, in which audio-taped interviews were discussed. The average intraclass correlation coefficient over 46 audio-taped assessments scored by multiple assessors was 0.97. Both the HAM-D and the IDS-SR showed good reliability at baseline assessment (Cronbach's $\alpha = .75$ and 0.78, respectively).

2.5. Statistical analysis

In the original paper Barber and Muenz (1996) conducted regression analyses on post-treatment residualized change scores using dimensional AVPD and OCPD scores of all patients. In addition, Barber and Muenz (1996) performed a similar regression analysis using a binary diagnostic score for AVPD or OCPD based on criteria of the Personality Assessment Form (PAF; Shea et al., 1990). We did not replicate the latter analysis since only 34 patients in our sample met criteria for either AVPD or OCPD based on the QPT. We conducted two linear mixed model analyses that we consider more appropriate in present time. Continuous HAM-D and IDS scores constituted the dependent variables. These analyses were conducted according to a three-level structure (therapist, patient and repeated measures). The core independent variables in these regression analysis were HAM-D/IDS-baseline score, time, treatment type (SPSP vs CBT), AVPD (dimensional scores), OCPD (dimensional scores), the interaction terms AVPD*treatment, OCPD *treatment, AVPD*time, OCPD*time, AVPD*treatment*time and OCPD*treatment*time. In a preliminary analysis including gender, age and marital status, we found a difference in marital status between patients receiving CBT and patients receiving SPSP (see Table 1). Marital status was therefore added to the core independent variables list. Analog to the analyses performed by Barber and Muenz, in addition to the core independent variables, we started the analyses including a) all two-way interactions between HAM-D/IDS baseline, treatment type and marital status, and b) all two-way interactions between HAM-D/IDS baseline,

Table 1
HAM-D and IDS scores according to treatment group and personality disorder.

	Treatment groups		Total	Differences
	CBT (n=92)	SPSP (n=103)	(n=195)	
Age, mean (SD)	38.41 (10.58)	40.31 (10.48)	39.42 (10.54)	F=1.58, df=1, p=0.21[1]
Gender, n (%)				
Male	30 (32.6)	32 (31.1)	62 (31.8)	Chi2=0.05, df=1, p=0.82[2]
Marital status, n (%)				
Married	30 (32.6)	18 (17.5)	48 (24.6)	Chi2=6.00, df=1, p=0.01[2]
QPT, mean (SD)				
AVPD sum score	6.35 (4.26)	6.44 (4.75)	6.39 (4.52)	F=0.02, df=1, p=0.89[1]
OCPD sum score	6.36 (3.66)	6.36 (3.77)	6.36 (3.71)	F=0.00, df=1, p=0.10[1]
HAM-D, mean (SD)				
Baseline	22.86 (5.03)	22.62 (5.09)	22.73 (5.05)	F=0.11, df=1, p=0.74[1]
Post-treatment (week 22)	14.11 (8.75)	15.38 (8.60)	14.82 (8.66)	F=0.90, df=1, p=0.34[1]
IDS, mean (SD)				
Baseline	41.61 (8.20)	41.69 (11.21)	41.65 (9.90)	F=0.00, df=1, p=0.96[1]
Post-treatment (week 22)	29.29 (15.96)	28.17 (16.21)	28.66 (16.05)	F=0.17, df=1, p=0.68[1]

CBT=cognitive behavioral therapy, SPSP=short-term psychodynamic supportive psychotherapy, AVPD=avoidant personality disorder, OCPD=obsessive-compulsive personality disorder, HAM-D=observer-rated Hamilton Depression Rating Scale, IDS=patient-rated Inventory of Depressive Symptoms.

[1] ANOVA.

[2] Chi square test.

treatment type and marital status on the one hand and AVDP and OCPD on the other hand. The final models presented consist of all the core variables plus all additional two-way interactions with $p < 0.05$. In these analyses, a random slope for HAM-D and IDS-SR respectively was used if this significantly improved the model compared to fixed effects. Analyses were conducted using MLwiN 2.25.

3. Results

3.1. Study sample

Of the 341 patients included in the randomized trial, 146 (42.8%) were excluded from these analyses because QPT scores were missing. Therefore, data of 195 participants were included in the analysis with HAM-D scores as a dependent variable. For the analyses with IDS-SR scores as the dependent variable, data of 188 participants were available due to missing IDS-SR scores. An a priori power analysis confirmed that this sample size was sufficient to detect at least a small effect size. Main characteristics of the different treatment groups are presented in Table 1. At baseline we found patients in the CBT treatment group to be more often married then patients in the SPSP treatment group. There were no other differences between the two treatment groups at baseline. We also checked for differences in medication use and found no differences between the treatment groups, age, gender marital status and QPT scores. As a result of the treatment protocol, patients with higher HAM-D and IDS scores more often used antidepressant medication.

The results of the linear mixed model analysis for the HAM-D are presented in Table 2 and the results of the IDS-SR analysis are presented in Table 3. All assumptions for a linear mixed model analyses such as collinearity, homoscedasticity and normality were met. Both Tables show the main interaction effects of interest, and any other variables or interaction effects which were found significant. The results indicate that patients with higher HAM-D or IDS baseline scores, and married patients had higher average HAM-D and IDS scores. As expected we also found that HAM-D and IDS scores drop over the course of the follow up period. The interaction Avoidance by time indicates that patients with low Avoidance scores at baseline show more improvement on depressive symptomatology as measured with the HAM-D and IDS, compared to patients with high Avoidance. Finally, the interaction treatment by Baseline HAM-D indicates that given a certain baseline score on the HAM-D, patients who received psychodynamic interpersonal therapy scored higher compared with patients who received CBT. Although this interaction is significant, the absolute differences on average HAM-D scores are rather small.

Table 2
Linear mixed model analysis with HAM-D score as dependent variable.

Variable	Mean difference	SE	p
Baseline HAM-D	0.67	0.09	**
Marital status (Married)	1.63	0.67	**
Treatment (SPSP vs CBT)	−3.99	2.87	
Time	−0.46	0.08	**
Treatment * Time	0.11	0.11	
Avoidance	0.16	0.14	
Avoidence * Time	0.02	0.01	*
Treatment * Avoidance	−0.10	0.19	
Treatment * Avoidence * time	−0.02	0.01	
Obsessiveness	−0.00	0.16	
Obsessiveness * Time	−0.00	0.01	
Treatment * Obsessiveness	0.05	0.22	
Treatment * Obsessiveness * time	0.01	0.02	
Treatment * Baseline HAM-D	0.23	0.12	**

CBT=cognitive behavioral therapy, HAM-D=observer-rated Hamilton Depression Rating Scale, IDS=patient-rated Inventory of Depressive Symptoms, SPSP=short-term psychodynamic supportive psychotherapy.
* $p < 0.05$, ** $p < 0.001$.

Table 3
Linear mixed model analysis with IDS-SR scores as dependent variable.

Variable	Mean difference	SE	p
Baseline IDS	0.87	0.05	**
Marital status (Married)	3.14	1.20	**
Treatment (SPSP vs CBT)	1.65	2.86	
Time	−0.90	0.16	**
Treatment * Time	0.02	0.20	
Avoidance	0.23	0.27	
Avoidence * Time	0.04	0.02	**
Treatment * Avoidance	−0.22	0.35	
Treatment * Avoidence * time	−0.04	0.02	
Obsessiveness	−0.16	0.32	
Obsessiveness * Time	0.01	0.02	
Treatment * Obsessiveness	0.18	0.43	
Treatment * Obsessiveness * time	0.03	0.03	

CBT=cognitive behavioral therapy, HAM-D=observer-rated Hamilton Depression Rating Scale, IDS=patient-rated Inventory of Depressive Symptoms, SPSP=short-term psychodynamic supportive psychotherapy.
* $p < 0.05$, ** $p < 0.001$.

Most important for our hypothesis are however the treatment by Avoidance by time, and the treatment by Obsessiveness by time interactions. The final models for the HAM-D and IDS show that none of these interactions were significant (HAM-D AVPD: −0.02 (0.01); HAM-D OCPD: 0.01 (0.02); IDS AVPD: −0.04 (0.02); IDS OCPD: 0.03 (0.03)). For both HAM-D and IDS, adding a random slope did not result in a significant improvement of the models. Therefore, the models only had fixed slopes.

4. Discussion

We aimed to replicate Barber and Muenz's (1996) findings that CBT is more effective than IPT in depressed patients with elevated levels of AVPD symptoms, while psychodynamic-interpersonal therapy is more effective than CBT in patients with elevated levels of OCPD symptoms. These findings may have important clinical implications, but have not yet been replicated. This is the first effort to replicate a finding with potential important clinical implications in a large study sample.

Using data from a randomized controlled trial we were not able to replicate the findings of Barber and Muenz. We found no interaction effect on the outcome measures of treatment with avoidance or obsessiveness over time. This may imply that, over time, the level of avoidance and obsessiveness does not moderate the effectiveness of SPSP and CBT treatment.

There are several differences between the study of Barber and Muenz and this study, which may explain why we were unable to replicate the findings of Barber and Muenz. Perhaps the most important is that Barber and Muenz compared CBT with IPT whereas patients in our sample received CBT or SPSP. As mentioned before, IPT and SPSP bear resemblance, as both originate from psychodynamic psychotherapy, are time limited, and have a strong focus on interpersonal relations. Nevertheless, differences between interpersonal therapy and SPSP do exist (Markowitz et al., 1998; Picardi and Gaetano, 2014). It might be the case that the Barber and Muenz findings are more apparent when patients are treated with IPT therapy than when they are treated with SPSP.

Secondly, we used linear mixed model analysis compared to regression analysis. We did perform a regression analysis to check if this would explain the inconsistent findings. The regression

analysis, although not presented in this paper, also resulted in non-significant treatment by AVPD/OCPD by time. Thus the differences in analysis strategy did not account for the differences in findings between our study and the Barber and Muenz (1996) study.

Thirdly, we had a sample size of 195 and 188 in our analyses. This was larger than in the original paper with a sample of 84 patients and gave us sufficient power to perform the linear mixed model analysis.

Fourthly, Barber and Muenz found an interaction effect between marital status and treatment. In their study unmarried patients benefitted more from IPT, and married patients benefitted more from CBT. We were not able to replicate this. This may be due to the fact that Barber and Muenz put cohabiting and married patients in one group, while we were only able to use marital status as criterion. Therefore cohabiting patients were considered unmarried in our study. This classification may not be suitable to test the hypothesis that patients who are not able, or do not have a relationship may benefit more from psychodynamic-interpersonal therapy, as compared to married or cohabiting patients.

Finally, Barber and Muenz assessed avoidance and obsessiveness with the clinician-rated PAF based on DSM-III, while we used the QPT which is a self-report instrument based on DSM III-R. The PAF uses single items, scored on a six-point rating scale, to assess avoidance and obsessiveness, while the QPT consists of 174 three-point scale items. In general, the level of agreement between assessment instruments of personality pathology is low (Egan et al., 2003; Zimmerman and Mattia, 1999) which may hinder a comparison of results.

4.1. Limitations

This study had several limitations. The QPT screening instrument was assessed at week 5 and not week 0 as the HAM-D and IDS. Although QPT scores are moderately stable over time and assesses personality disorder symptoms in the past five years (Duijsens et al., 1996b), it cannot be ruled out that psychotherapy in the first five weeks had some effect on the level of avoidance or obsessiveness. Since we are not interested in absolute QPT scores we do not expect this has affected our Results. It is also important to note that a substantial number of patients in our sample did not complete the QPT, and some did not complete treatment or were lost to follow-up assessment. We checked for differences between patients lost for analysis and our study sample on main patient characteristics such as age, sex, severity of depression, level of education. We found that patients who were lost for analysis had higher levels of depression at baseline and had a lower income. Thus, the findings of this study might not generalize to all depressed patients. Finally, HAM-D assessors were not blind to patient grouping. We cannot rule out that this affected HAM-D scores between the CBT and SPSP treatment groups. Raters were however unaware of QPT sum scores. It is therefore unlikely that this affected the interaction between treatment and AVPD or OCPD scores, which was the main effect of interest in this study.

4.2. Conclusion

Our study did not confirm the findings of Barber and Muenz (1996). Given the inconsistent findings of this study and the study performed by Barber and Muenz, future research is warranted to further examine the influence of personality disorders on the effectiveness of CBT or psychodynamic therapy in the treatment of depression.

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