The importance of the first three days: Predictors of treatment outcome in depressed in-patients

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This study investigated whether initial reactions, as shown by depressed patients and by the psychiatrist in charge within the first three days of complex hospital treatment, predicted outcome. Sixty-three patients with depressive disorders according to ICD-10 were examined. In addition to basic socio-demographic and clinical data and to baseline symptoms, psychiatrists' optimism, patients' global assessment of treatment and symptom change within the first three days were tested as predictors. The outcome criteria were both observer and self-ratings of symptoms at discharge. Psychiatrists' optimism was the best single predictor of each outcome criterion. Patients' initial subjective reactions predicted self-rated symptoms at discharge. In stepwise multiple regression analyses initial reactions contributed significantly and – in two cases – separately to the overall prediction of outcome. Patients' and psychiatrists' initial reactions in complex hospital treatment of depression are relatively good predictors of outcome and should, therefore, be monitored carefully in research and in clinical practice.

In the treatment of depression, pharmacotherapy and psychotherapy have been shown to be of significantly greater benefit to most patients than placebo treatment or no treatment at all. However, not all depressed patients respond equally well to these forms of therapy. Intensive research efforts have therefore been focused on the question of how to predict whether a given treatment will have a relatively favourable outcome (Sotsky *et al.*, 1991). In general, pre-treatment data seem to have a lower predictive power than variables that can be assessed during the initial states of therapy and reflect first reactions within and to the treatment itself (Priebe, 1992). Thus, for the outcome of psychotherapy the best predictor has been shown to be the strength of the therapeutic alliance as rated after early sessions (Horvath & Symonds, 1991; Luborsky, McLellan, Woody, O'Brien & Auerbach, 1985; Salvio, Beutler, Wood & Engle, 1992). For antidepressant pharmacotherapy, for which hardly any consistent predictor is demonstrated in the literature, symptom change as rated after 7–10 days of treatment has been suggested to have some predictive power for outcome (Kartz *et al.*, 1987; Kocsis, 1990; Nagayama, Nagano, Ikezaki & Tashiro, 1991; Woggon, 1988).

Hospital treatment of depression is usually neither purely pharmacological nor psychotherapeutic, but tends to combine various somato-, psycho- and socio-

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therapeutic approaches within a protected setting for a limited period of time. How the outcome of such a complex treatment process can be predicted has rarely been investigated systematically (Priebe, 1987, 1990; Veiel, Kuhner, Brill & Ihle, 1992). It may be hypothesized that subjective initial reactions shown during initial phases of hospital treatment are a relatively good predictor in comparison with pre-treatment variables. This hypothesis was tested in the present study.

In this naturalistic study we investigated to what extent treatment outcome in depressive in-patients may be predicted by variables reflecting psychiatrists' and patients' initial reactions within treatment, and to what extent those variables contributed to the overall prediction of outcome if basic socio-demographic and clinical data were also considered as predictors. Two sets of predictors were examined: (*a*) basic socio-demographic and clinical data that may be obtained before admission, and observer and self-rated baseline symptoms; (*b*) initial reactions as assessed during the first three days, i.e. the optimism of the psychiatrists in charge, patients' global assessment of the treatment initiated, and change of both observer and self-rated symptoms within the first three days. The outcome criteria were both observer and self-ratings of depressive symptoms at discharge.

Method

Patients, consecutively admitted to a 108-bed university psychiatric hospital in Berlin, were suffering from a depressive disorder according to ICD-10 (F31, F32, F33) (WHO, 1992). The criterion for inclusion was a score of over 24 on the self-rated Von Zerssen Depression Scale (DS) (Von Zerssen, 1986); we used the 32-item version, which has an internal consistency of .92. Patients with marked disturbances of formal thought were excluded. In accordance with the naturalistic approach of the study there was no other exclusion criterion.

Six basic socio-demographic and clinical variables, taken from the patients' files, were examined: age, sex, occupational status, living environment, frequency of previous hospitalizations and diagnosis according to ICD-10. So that coefficients of correlation could be calculated between the predictors and outcome criteria, and all predictors could be included in the multiple regression analyses, all predictor variables with several categories not in rank order were dichotomized. Thus, not only sex (men = 0, women = 1), but also occupational status (no job = 0 vs. being in employment = 1), living environment (alone = 0 vs. not alone = 1), and diagnosis (first episode = 0 vs. recurrent disorder = 1) were coded in a simplified fashion with only two categories.

After admission, baseline symptoms were assessed on the Hamilton (1960) Depression Scale (HAMD), by an interviewer who was not involved in treatment. At the same point of time patients rated their general condition on a visual analogue scale (VAS) according to Aitken (extreme points: 0 = my condition is generally good, 100 = my condition is generally bad) (Aitken, 1969; Luria, 1975), and their depressive symptoms on the DS. Assessments on HAMD and VAS were repeated after three days (the DS is not suitable for assessing changes occurring within three days). On the day after admission the psychiatrist responsible for the patient's treatment rated his/her optimism regarding the current treatment on a VAS (extreme points: 0 = extremely pessimistic, 100 = extremely optimistic). At the same time the patients rated on a VAS to what extent they believed their treatment was right for them (extreme points: 0 = completely wrong, 100 = completely right) (Priebe & Gruyters, 1994).

The six socio-demographic and clinical data taken from the patients' files, the three assessments of baseline symptoms, symptom change on HAMD and on VAS regarding general condition, psychiatrists' optimism and patients' global assessment of treatment were tested as predictors. The therapeutic teams on the wards were not informed about the clinical observer and self-ratings that were considered as predictors (with the exception of the psychiatrists' optimism).

The criterion for prediction was the severity of the symptoms at discharge. The symptoms were again assessed on the HAMD by the independent interviewer, and on the DS and the VAS for general

condition by the patients. The relationships between the predictors and outcome criteria were calculated by Pearson's coefficients of correlation. In addition, multiple regression analyses (stepwise forward) were calculated with each of the three outcome criteria as dependent variable in which only predictors with significant β weights ($p < .05$) were included.

Results

Sample and treatments

Sixty-three patients (42 women, 21 men) were included in the study. Their ages ranged from 21 to 72 years (mean = 46.3, SD = 13.6). The frequency of previous hospitalizations varied between 0 and 11 (mean = 1.9, SD = 1.7). Thirty-seven patients had a job; 26 were unemployed or retired. Thirty-two were living with a partner or with a family and 31 were living alone. Forty-one had been hospitalized for psychiatric treatment before. Fifty-five had received some kind of psychiatric pharmacotherapy (mostly antidepressants) and 15 psychotherapy (mostly some kind of psychoanalytic therapy) at some time in the past. The psychiatric diagnoses according to ICD-10 were recurrent depressive disorder (F33, $N = 33$), depressive episode (F32, $N = 26$) and bipolar affective disorder, current episode depression (F31, $N = 4$).

The patients were hospitalized for a mean period of 65.2 days (SD = 46.1). During this time, 49 patients received antidepressants, 17 neuroleptics, six lithium and five benzodiazepines. In addition to the ordinary ward programme, 20 patients participated in a special form of occupational therapy, 15 patients in the music therapy and 14 patients in psychoanalytic group therapy. The type and amount of individual psychotherapeutic activities depended on the nature and extent of the psychiatrists' psychotherapeutic training and on the prevailing attitude and staff on the ward.

Between admission and discharge the mean scores on the HAMD, DS and VAS (general condition) changed from 20.8 (SD = 6.7) to 8.7 (SD = 6.1), from 56.7 (SD = 17.4) to 32.9 (SD = 23.2), and from 76.2 (SD = 22.7) to 42.3 (SD = 28.6), respectively.

Each of these reductions was statistically significant ($t = 6.37$–11.14, $p < .001$). Within the first three days of treatment, the HAMD scores improved by 4.0 scale points on the average (*t* test for paired samples, $t = 4.42, p < .001$). The improvement on the VAS for patients' general condition was 7.9 ($t = 1.93, p < .10$).

On the day after admission the psychiatrists' ratings of their optimism regarding treatment ranged from 0 to 96 (mean = 54.1, SD = 27.5), and the patients' ratings of the extent to which they were receiving the right treatment from 0 to 100 (mean = 60.0, SD = 30.4). All significant correlations found between the variables tested as predictors are listed in Table 1.

Prediction

What predicted the three outcome criteria? Table 2 shows which of the predictor variables were significantly correlated with HAMD scores at discharge, and how well this score was predicted by a stepwise multiple regression analysis.

Table 1. Significant correlations between all variables tested as predictors. All other correlations were not significant

	Age	Sex	Occup. status	Living envir.	Previous hospit.	Diagnosis	HAMD (basel.)	VAS (basel.)	DS (basel.)	HAMD (init. change)	VAS (init. change)	Psychiat. optimism
Age												
Sex	—											
Occupational status	−.57***	—										
Living environment	—	−.25*	—									
Previous hospitalizations	—	—	—	—								
Diagnosis	.22*	—	—	—	.27*							
HAMD (basel.)	—	—	—	—	—	—						
VAS (basel.)	—	—	—	—	—	—	.38***					
DS (basel.)	—	—	—	−.22*	.25*	—	.43***	.57***				
HAMD (init. change)	—	—	—	—	−.30*	−.30*	.34**	—	—			
VAS (init. change)	—	—	—	—	−.24*	−.33**	—	.43***	.35**	.34**		
Psychiatrist's optimism	—	—	—	.29*	—	−.24*	—	—	—	—	—	
Patient's assessment	—	—	—	—	−.39***	—	—	—	−.37**	.50***	—	—

Pearson or point-biserial correlations: *$p < .05$; **$p < .01$; ***$p < .001$.
Sex: men = 0, women = 1; occupational status: no job = 0, employment = 1; living environment: alone = 0, not alone = 1; diagnosis :
1st episode = 0, recurrent = 1.

Table 2. Prediction of the HAMD scores at discharge: Significant correlations with predictors and stepwise forward multiple regression analysis ($R = .42$, explained variance: 18 per cent)

Predictor	Single correlations with HAMD scores at discharge: r	Multiple regression analysis: β	R^2 change
Psychiatrist's optimism	$-.42**$	Step 1: $-.42**$	$+.18$

*$p < .05$; **$p < .01$; ***$p < .001$.

Table 3. Prediction of the DS scores at discharge: Significant correlations with predictors and stepwise forward multiple regression analysis ($R = .55$, explained variance: 31 per cent)

Predictor	Single correlations with DS scores at discharge: r	Multiple regression analysis: β	R^2 change
Psychiatrist's optimism	$-.49***$	Step 1: $-.44**$	$+.22$
Patient's initial assessment of treatment	$-.32**$	Step 2: $-.23*$	$+.09$
Previous hospitalizations	$.29*$	n.s.	—
Living environment	$.27*$	n.s.	—
Initial change on VAS (general condition)	$-.25*$	n.s.	—

*$p < .05$; **$p < .01$; ***$p < .001$.

The only significant predictor was the psychiatrists' optimism. Higher HAMD scores at discharge were found when the psychiatrist's initial prognosis was less optimistic. Since there was only one significant predictor, the resulting multiple coefficient was rather weak.

As shown in Table 3, higher scores on the DS were found at discharge in patients living with someone else rather than alone, and in patients with more previous periods of hospitalization. The DS scores also tended to be higher when psychiatrists were initially less optimistic, when patients evaluated their treatment less positively and when the improvement in the symptoms self-rated on the VAS (general condition) within the first three days was smaller. In the multiple regression analysis the psychiatrists' optimism and patients' assessment of treatment turned out to be significant predictors, adding up to a moderately high multiple regression coefficient.

Finally, Table 4 shows which variables significantly predicted the self-rated VAS (general condition) scores at discharge.

The final VAS (general condition) scores were higher in patients not living alone. They were less favourable when the psychiatrist was initially less optimistic, when the patient initially assessed the treatment as being less right, and when there was

Table 4. Prediction of the VAS (general condition) scores at discharge: Significant correlations with predictors and stepwise forward multiple regression analysis ($R = .66$, explained variance: 44 per cent).

Predictor	Single correlations with VAS (general condition) scores at discharge: r	Multiple regression analysis: β	R^2 change
Psychiatrist's optimism	$-.44$**	Step 1: $-.29$*	$+.19$
Patient's initial assessment of treatment	$-.26$*	Step 2: $-.32$**	$+.09$
Initial change on VAS (general condition)	$-.32$**	Step 3: $-.30$*	$+.09$
Living environment	$.26$*	Step 4: $.27$*	$+.07$

*$p < .05$; **$p < .01$; ***$p < .001$.

less improvement on the VAS (general condition) within the first three days. Four significant predictors (psychiatrists' optimism, patients' assessment of treatment, initial change on VAS (general condition), and living environment) in combination gave a relatively high multiple regression coefficient.

Discussion

In this naturalistic study, pre-treatment variables, including baseline psychopathology and initial subjective and clinical reactions were tested for their value as predictors of outcome on the basis of three criteria: one clinical observer rating and two self-ratings of symptoms at discharge. The self-rated outcome criteria were predicted more satisfactorily. The best prediction was achieved for the most global and subjective outcome criterion, which was the VAS (general condition) score. Only for this VAS score did the amount of variance explained by all predictors together exceed 40 per cent. In interpreting the amount of variance explained by single correlations or by multiple regression analyses it should be noted that the sample and the treatments were somewhat heterogeneous. Prediction of outcome was therefore studied in a heterogeneous sample receiving heterogeneous treatment within a consistent setting.

Patients' living situation was a significant predictor of each outcome criterion. Patients living with a family or partner rather than alone had a less favourable outcome. The tendency to demand or to accept discharge even with mild or moderate remaining symptoms may be higher in these patients, who can receive emotional and other support from family members or a partner at home, rather than living independently without such support available. In multiple regression analyses, however, pre-treatment socio-demographic data such as living environment or previous hospitalizations did – with one exception (living environment and VAS scores at discharge) – not contribute significantly to the overall prediction of outcome.

In consistency with the hypothesis, subjective and clinical initial reactions predicted outcome of complex hospital treatment. The psychiatrist's optimism, expressed after the first contacts with the patient, was a good predictor of observer and self-rated symptom level at discharge. That optimism was not significantly associated with baseline psychopathology or with initial symptom change. It may reflect intuition, clinical experience or specific knowledge. In any case, psychiatrists are to some extent right when they are more or less optimistic during the initial phase of hospital treatment. Patients are also perceptive when they initially assess to what extent the treatment initiated is right for them: when self-rated symptoms are considered as outcome criterion, patients' assessment – however global or irrational it may be – is a significant predictor. Both psychiatrists' optimism and patients' assessment of treatment might involve aspects of self-fulfilling prophecies and influence various elements of the actual treatment. Similarly to findings of research on the pharmacotherapy of depression, initial symptom change was correlated to outcome. However, that relationship only applied when initially changing symptoms and symptoms at discharge were self-rated and, therefore, also reflected the subjective experience of the patients.

Initial reactions shown during the initial hospital treatment were predictive of the severity of symptoms at discharge. Although it remains unclear which mediating variables were involved in explaining this predictive relationship, it might be assumed that initial reactions as examined in this study reflect non-specific therapeutic components, such as the quality of the treatment alliance, which turn out to be relevant for the eventual outcome (Clarkin, Hurt & Crilly, 1987; Priebe, 1992; Priebe & Gruyters, 1993). As shown in the multiple regression analysis with the VAS (general condition) scores as dependent variable, the psychiatrists' optimism, patients' assessment of treatment and change of self-rated symptoms did not indicate the same predictive aspects of the initial phase of treatment; they contributed separately to the overall prediction of outcome.

It may be concluded that the outcome of complex hospital treatment of depressed patients can be predicted with statistical significance after only three days of treatment if the psychiatrists' and patients' assessments of and reactions to treatment at this early stage are examined adequately. In clinical practice initial reactions of the psychiatrist in charge and in particular of the patients should be monitored carefully and be taken seriously. In the cases of negative reactions special interventions or a change in setting might be considered.

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