

Effectiveness and Predictors of Outcome in a Psychiatric University Day Clinic

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Abstract

Background: Recent studies showed that day-treatment services are generally effective, but there are hardly any consistent results on specific areas where this type of treatment might be superior to other forms of treatment or on predictors of treatment outcome. *Objective:* Effectiveness and predictors of treatment outcome in a university psychiatric day clinic were evaluated in a prospective naturalistic study. *Method:* In 74 patients with affective, schizophrenic and personality disorders, psychopathology (SCL-14), quality of life (SF-8, MSLQ) and interpersonal problems (IIP-25) were investigated at admission, discharge and 1-year follow up. Moreover, the relation between occupation, inability to work, comorbidity, motivation (FPTM) and outcome was evaluated. *Results:* Compared to admission, patients report significantly less symptoms and a significantly higher quality of life at discharge and follow-up. Patients with a higher number of comorbid disorders tend to achieve a poorer short-term improvement than patients with less comorbid disorders. The absence of a steady occupation at baseline is the strongest predictor of reduced long-term improvement. No or just marginal relations were found between other potential predictors and outcome. *Conclusions:* Psychiatric day clinic treatment is an effective intervention with stable long-term results. A steady occupation at baseline is the strongest predictor of a long-term-improvement (German J Psychiatry 2012; 15 (1): 1-9).

Keywords: psychiatric day clinic, outcome, predictors, comorbidity, lack of occupation, quality of life

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Introduction

Psychiatric day clinics play an important role in the care of mentally ill patients. They provide comprehensive care for patients without complete separation from their usual living environment as patients stay in the clinic from about 8 a.m. to 4 p.m. and sleep at home. Patients have often been inpatients before they are admitted to a day clinic. Since, in Germany, this type of treatment has only been available since the 1960s and is less established than inpatient and outpatient treatment, only little research has been done in this field, especially in German speaking countries.

Recent studies showed that day-treatment services are generally effective, but there are hardly any consistent results on specific areas where this type of treatment might be superior to other forms of treatment (Kallert et al., 2007). Moreover, against the background of differing treatment conditions and outcome criteria, the generalisability of these studies is limited. This is even more so for studies on predictors of day-treatment success: The available results are inconsistent, and many predictors were not investigated often enough to verify or falsify their significance. This is precisely where further research is needed to determine for which groups of patients effective day-treatment offers already exist and for which groups they have to be optimised.

As the practice to be evaluated is very complex (e.g. multi-modal treatment) and as, moreover, it is often not possible to assign patients randomly to either an experimental or a control group, there is a conflict between internal and external validity (Kallert et al., 2004). An advantage of studies under real treatment conditions is that is not required to conclude from artificial experimental conditions to the practice, which would be a potential source of many errors. However, it is important to define these conditions (patient variables, treatment programs, staffing, environment of the day clinic etc.) as accurately as possible in the future.

Previous studies on the effectiveness of day clinic treatment

Evidence from original papers. In terms of psychopathological symptoms or psychological welfare and global functioning/adaptation, the available studies consistently showed improvements both in homogeneous and heterogeneous diagnostic groups of patients (Arnevik et al., 2009; Assmann, 2006; Bartak et al., 2010; Brüggemann et al., 2007; Eikermann, 1991; Fittig et al., 2008; Jones et al., 2007; Mazza et al., 2006; Nienhuis et al., 1994; Oka et al., 1999; Seidler et al., 2001; Sledge et al., 1996; Sullivan & Grubea, 1991; Wilberg et al., 1998; Wilberg et al., 1999). However, several studies show (Garlipp et al., 2007; Nienhuis et al., 1994) that some patients still had severe psychopathological symptoms and required psychiatric treatment and the demonstrated improvements were not equally high in all symptom areas (Brüggemann et al., 2007). Regarding social relationships and social functioning, improvements were evident in most areas (Bartak et al., 2010; Eikermann, 1991; Nienhuis et al., 1994; Seidler et al., 2001). There were improvements in the quality of life (Bartak et al., 2010; Brüggemann et al., 2007; Kallert et al., 2007). The number and duration of hospitalisations were reduced after day clinic treatment (Eikermann, 1991; Heitger & Saameli, 1995). Patients' housing situation was not changed by day clinic treatment (Dunn et al., 1982; Eikermann, 1991; Heitger & Saameli, 1995; Seidler et al., 2001; Sullivan & Grubea, 1991). With regard to employment, despite improvements (Assmann, 2006; el Guebaly et al., 1999; Hsu et al., 1983; Wilberg et al., 1998; Zeeck et al., 2005), a large proportion of patients remained unable to work or could not be integrated into the labour market. Results regarding patients' satisfaction with day-treatment were consistently positive (Eichler et al., 2006; el Guebaly et al., 1999; Mazza et al., 2004; Piper et al., 1994; Potvin Kent et al., 2000; Reisch et al., 2001; Schützwohl et al., 2006; Seidler et al., 2001; Wilberg et al., 1998; Zeeck et al., 2005).

Randomised controlled studies. The EDEN study (Kallert et al., 2007; Schützwohl et al., 2007) is a randomised controlled multi-centre study comparing residential and semi-residential psychiatric treatment. Day clinic treatment proved to be equal to residential treatment regarding improvement of psychopathological symptoms, treatment satisfaction and quality of life, and superior regarding improvement of social

functioning. Day clinic treatment is also less costly than inpatient treatment (Kallert et al., 2005). The randomised controlled study by Priebe et al. (2006) did not show any outcome differences between residential and semi-residential groups regarding quality of life; treatment satisfaction, however, was higher in day clinic patients at some measuring points. Short-term symptom improvement was higher in day clinic patients, but there was no long-term difference. In their randomised controlled study, Zeeck et al. (2009) found a significant symptom reduction in patients with eating disorder in both settings; improvements in day clinic patients tended to be more stable. Arnevik et al. (2009) compared day clinic and outpatient treatment; there were no significant outcome differences between the settings in the areas of symptoms, psychosocial functioning, interpersonal and personality problems.

Reviews. The review of Marshall et al. (2001) included nine randomised controlled trials and compared acute day clinic and inpatient treatment and found that day hospital treatment was feasible for 23,2 to 37,5 per cent of examined inpatients. Comparing the two treatment conditions, there was no difference between readmission rates as well as improvement in social functioning. Day hospital patients show a more rapid improvement in mental state and their treatment tends to be cheaper. The authors also compare day hospital treatment to outpatient care. Day treatment programmes (for patients with depression or anxiety disorders) tend to be superior to outpatient care in terms of improving psychiatric symptoms. There was no difference in any other clinical or social outcome variable or in costs. There are no differences between day care centers that offer structured support to patients with long-term severe mental disorders and outpatient care in terms of clinical or social outcome. Day care centers tend to be more expensive than outpatient care. Horvitz-Lennon et al. (2001) compared partial versus full hospitalization by reviewing 18 investigations. They found no evidence of differential outcome in terms of psychopathology, social functioning, family burden and service utilization. Patients and families were more satisfied with partial hospitalization.

Previous studies of predictors of day-treatment outcome. Overall, none of the predictors that were investigated in a large number of studies consistently predicted a good or bad outcome. With regard to diagnoses, the only notable predictor is the presence of a personality disorder (el Guebaly et al., 1999; Mazza et al., 2004; Piper et al., 1994; Potvin Kent et al., 2000; Reisch et al., 2001; Schützwohl et al., 2006; Seidler et al., 2001; Wilberg et al., 1998; Zeeck et al., 2005), which, in most cases, predicted a worse outcome; other studies, however, found that the general presence of personality disorder did not influence the outcome (for example Fricke et al., 2006). No consistent results were found for the potential predictors "other diagnoses", "symptoms at baseline", "gender", "age", "therapeutic relationship", "housing", "partner status" or "family status", "social restrictions/ interpersonal problems" and "treatment satisfaction".

Table 1. Sociodemographic, clinical and treatment data of study participants (n = 74) and dropouts (n = 115)

	Study participants (n = 74) 39.2%	Dropouts (n = 115) 60.8%	Statistic	p
	%	%		
Gender			$\chi^2 = 0.97$	$p = 0.37$
female	59.5	52.2		
male	40.5	47.8		
Main diagnosis at discharge			$\chi^2 = 8.90$	$p = 0.14$
F0	2.7	0.0		
F1	0.0	0.9		
F2	29.7	41.7		
F3	45.9	34.8		
F4	6.8	3.5		
F5	0.0	0.9		
F6	14.9	18.3		
	M (SD)¹ Range	M (SD) Range		
Age (years)	38.91 (9.42) 19-63	37.58 (11.34) 18-72	$t_{(187)} = -0.84$	$p = 0.41$
Treatment duration (days)	115.58 (44.22) 23-263	92.79 (57.71)	$t_{(181,27)} = -3.06$	$p < 0.01$
Number of diagnoses	2.43 (1.46) 1-7	2.97 (1.83) 1-11	$t_{(187)} = -2.14$	$p = 0.03$
Times of illness or incapacity to work (weeks) during the last 6 months before admission	12.62 (10.25)	14.49 (9.16) ²	$t_{(143)} = 1.25$	$p = 0.21$
FPTM³ own initiative	3.21 (0.72)	2.92 (0.75)	$t_{(153)} = -2.46$	$p = 0.02$

¹M = Mean, SD = Standard Deviation

²Statements about periods of illness or incapacity to work were obtained from 62% of the dropouts, statements on initiative (FPTM) from 70% of the dropouts

³FPTM = Psychotherapy Motivation Questionnaire

For several potential predictors however, results mostly pointed to a correlation in a certain direction:

- Patients in employment more often had a good outcome (Dunn et al., 1982; Eikermann, 1991; Mazza et al., 2004).
- Chronically ill patients had a worse outcome in all studies that investigated this issue (Dunn et al., 1982; Eikermann, 1991; Miyaji et al., 2008; Potvin Kent et al., 2000) – with the exception of one study (Piper et al., 1994), which came to a contrary result.
- Patients, who did not take any medication, consistently showed better outcomes than patients taking medication (Dunn et al., 1982; Wilberg et al., 1998).

Objectives of this investigation

Although the effectiveness of day clinic treatment has generally been proved, little research has been done – especially in German-speaking countries - on specific outcome areas such as quality of life as well as on long-term-outcome. The identification of predictors of treatment success is also essential for the differential indication and for verifying optimisation needs of day clinic services for certain groups of patients. The present study pursues two objectives: (1) reassessment of the effectiveness of day clinic treatment and (2) investigation of potential predictors of treatment success.

Hypotheses

Treatment effectiveness

A significant improvement of the mean value is expected in all outcome parameters both between admission and discharge and admission and follow-up.

Predictors of treatment outcome

Patients' strains are expected lower at discharge and follow-up if they have a steady occupation at baseline (as opposed to no fixed occupation), the shorter their periods of incapacity to work or their inability to perform tasks are, the lower the number of diagnoses is and the higher their own initiative (questionnaire for psychotherapy motivation (FPTM), scale own initiative (Schulz et al., 2003) is.

This hypothesis is partly deduced from previous results of day clinic treatment, partly from known predictors of general psychotherapy research (Dunn et al., 1982; Eikermann, 1991; Geiser et al., 2003; Jones et al., 2007; Mazza et al., 2004; Sim et al., 2006; Thompson-Brenner & Westen, 2005), partly from the experience of multi-professional day clinic teams.

The duration of treatment and the baseline burden in the respective criterion were also included as predictors in the

multiple regression analysis in order to control their influence.

Methods

Subjects

The distribution of sociodemographic, clinical and treatment data is represented separately by study participants and dropouts in table Table 1. The number of dropouts is 115 (61% of the total of 189 interviewed patients). The most common reasons for dropping out were: no response at follow-up (32%), early discharge (15%), refusal/ excessive stress and sheet not handed out/ not returned/ was lost (14% each) and obscure reasons (13%). Study participants and dropouts do not differ regarding mean age, gender distribution, distribution of main diagnoses and length of sick leave/illness in the six months preceding the beginning of treatment. However, study participants were treated significantly longer than dropouts, have significantly less comorbid diseases and show significantly more initiative for treatment.

Assessment procedure

All patients admitted in the survey period (March 2003 to November 2006) were to be interviewed prospectively. Surveys were carried out at baseline, after two months of treatment (omitted for some patients), at discharge and 18 months after admission.

Psychopathology was recorded with a short version of the *Symptom Check List* (SCL-14; Harfst et al., 2002), the extend of interpersonal problems with a short version of the *Inventory of Interpersonal Problems* (IIP-25; Harfst et al., 2004), the level of functioning with the *Short-Form Health Survey* (SF-8; Erhart et al., 2005) and quality of life with the *Modular System for Quality of Life* (MSLQ; Pukrop et al., 1999). In the case of the MSLQ – contrary to all other measuring procedures used in this study, where high values indicate a high burden – an increase of values is expected, high values indicating a high quality of life. A short version of the *Psychotherapy Motivation Questionnaire* (FPTM-23; Schulz et al., 2003) measures six dimensions of the psychotherapy motivation on a scale of 1 to 4, high values indicating high motivation.

Day hospital treatment

The general-psychiatric day clinic with 20 treatment places is part of the Centre of Psychosocial Medicine within the University Medical Center Hamburg-Eppendorf. The treatment services are aimed at persons with psychoses, depressions, personality disorders and other existential crises, for whom

outpatient treatment and support is no longer sufficient. Moreover, they are meant to avoid or shorten hospital stays. Therapeutic treatment takes place from Monday to Friday between 8.30 to 16.00 h and consists of different group programmes (core groups according to diagnoses, stabilisation group, social skills training, social information, personality information, metacognitive training, role playing, occupational therapy, art therapy), medical care, individual therapeutic sessions and social-educational care. Patients are accompanied throughout the duration of their stay by one or two reference therapists. Part of the individual accompaniment is a one-on-one session once a week. Home visits as well as interviews with relatives and partner interviews are arranged, if this is considered to be helpful. The aim might be a (re)orientation in the areas work, leisure and housing. If required, it is possible to mediate patients to the occupational therapy attached to the hospital and to outpatient treatment and aftercare planning for the time following discharge.

Statistical analysis

Missing values in the outcome parameters were analysed and substituted using the Expectation Maximization Method (EM; Little & Rubin, 2002).

Comparison of study participants and dropouts

Significance tests (t-test for independent sample or X²-Test according to Pearson) were used to check whether study participants and dropouts differ with regard to sociodemographic and clinical variables, which would prevent the generalisability of the results of this study to all the clients of the general-psychiatric day clinic.

All mean values (*M*) and standard deviations (*SD*) of all the criterion variables at admission and discharge were calculated and the changes were tested for significance with the general linear model with repeated measurements. In addition, the effect sizes of change were calculated for all criterion variables using Cohen' *d* (1988). The Bonferroni correction is used to counteract the problem of multiple comparisons.

A multiple regression equation was formed from the six potential predictor variables to predict treatment success (individually for each criterion variable). In addition to the four predictor variables, the baseline value for each scale and the length of treatment were included. All requirements for the regression calculations (Barth, 1997) were tested and are fulfilled.

Table 2. Outcomes at admission, discharge and follow-Up (N = 74)

	Admission		Discharge		Follow-up		d _{t0-t1}	d _{t0-t2}	F _(2; 72)	p
	M ¹	SD	M	SD	M	SD				
SCL-14 ² : Global Severity Index (GSI)	1.27	0.69	0.93	0.69	0.93	0.69	0.48	0.49	11.00	< 0.001
IIP-25: Total	1.73	0.60	1.43	0.66	1.46	0.71	0.50	0.46	11.77	< 0.001
SF-8: Mental Summary Score	2.15	0.90	1.77	0.96	1.69	1.05	0.42	0.51	6.48	= 0.003
MSLQ: Psychosocial Quality of Life	3.60	1.14	4.44	1.06	4.44	1.24	0.74	0.73	19.05	< 0.001
MSLQ: Emotional Quality of Life	3.24	1.33	4.01	1.39	3.80	1.42	0.58	0.42	12.82	< 0.001
MSLQ: General Quality of Life	3.53	1.33	4.30	1.27	4.28	1.54	0.57	0.56	14.85	< 0.001

¹M = Mean; SD = Standard deviation

²SCL-14 = Symptom Checklist; IIP-25 = Inventory of Interpersonal Problems; SF-8 = Short Form Health Survey; MSLQ = Modular System of Quality of Life

tends to correlates with higher emotional quality of life at discharge.

No relationships were found between the other investigated predictors and outcome. The variance explained in terms of all predictors corresponds to a medium to large effect for each of the outcome parameters (see Table 3).

Results

Outcome

All outcome instruments found significant changes over the three measuring times. At discharge the improvements concerning psychopathological symptoms, interpersonal problems and psychosocial and general quality of life achieve (almost) a medium effect size and persist to follow-up. Improvements concerning level of functioning even increase to follow-up. Emotional quality of life increases from baseline to discharge but slightly decreases from discharge to follow-up (cf. Table 2 and Figure 1).

Predictors

Short-term treatment success

In the multiple regression analysis with all six predictors, the baseline value of the respective scale was found to be the strongest predictor of short-term treatment success. Patients with a higher number of diagnoses tend to have a poorer outcome with regard to psychopathological symptoms and emotional quality of life. A shorter duration of treatment

Medium-term treatment success

Also for medium-term treatment success, the baseline value of the respective scale proves to be the strongest predictor. Apart from that, the most striking relationship is found between occupational state and treatment success: Patients with a steady occupation display higher treatment success regarding level of functioning and interpersonal problems. Regarding the number of diagnoses, there is only a relationship with the severity of symptoms (the more diagnoses the worse the outcome). Here, treatment duration only correlates with treatment success regarding interpersonal problems: Patients with shorter treatment duration have fewer restrictions at follow-up.

The other predictors do not show any significant relationships with medium-term treatment success. Variance explained in terms of all the predictors varies between the outcome parameters from small to large effect size (see Table 3).

Discussion

The present study investigated the effectiveness of day clinic treatment as well as predictors of treatment success on the example of the general-psychiatric day clinic of the University Medical Center Hamburg-Eppendorf. The investigated sample is mostly representative of clients in German day clinics regarding sociodemographic (Diebels et al., 2004) and diagnostic (Kallert et al., 2003) parameters. One exception is the higher rate of high school graduates in this day clinic due to catchment area and university based treatment. Due to the existence of a day clinic specialised for anxiety- and obsessive-compulsive-disorders, the sample of patients in this study shows a slightly increased number of F3 diagnoses and a decreased number of F4 diagnoses.

Figure1. Effect sizes from admission to discharge (d_{t0-t1}) and admission to follow-up (d_{t0-t2}; N = 74)

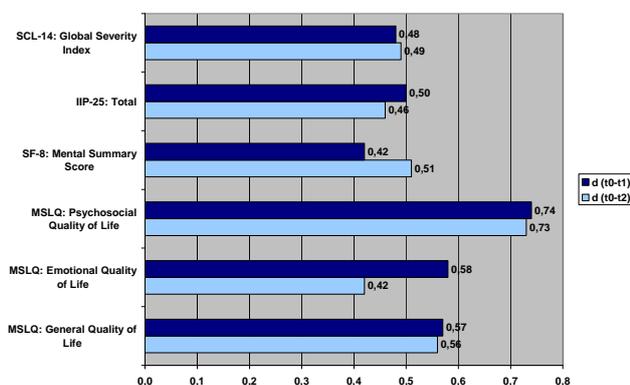


Table 3 Beta weights (B) of the examined predictors, multiple squared adjusted correlation coefficients (R^2_{korr}), effect sizes (N = 74)

	Value at admission		Length of treatment		Occupational situation		Periods of incapacity to work		Number of diagnoses		FPTM initiative admission		R^2_{korr}		Effect size** of R^2_{korr}	
	B_{t1}	B_{t2}	B_{t1}	B_{t2}	B_{t1}	B_{t2}	B_{t1}	B_{t2}	B_{t1}	B_{t2}	B_{t1}	B_{t2}	t_1	t_2	t_1	t_2
SCL-14: Global Severity Index (GSI) ¹	0.51*	0.39*	0.15	0.10	0.02	0.04	0.04	0.16	0.23	0.26	-0.07	-0.07	.38	.26	H	M
IIP-25: Total	0.64*	0.51*	0.12	0.23	0.13	0.23	0.01	0.03	0.07	0.02	0.03	-0.07	.40	.34	H	H
SF-8: Mental Summary Score	0.34*	0.29	0.14	0.09	0.17	0.24	0.19	0.20	0.18	0.16	-0.11	0.03	.18	.16	M	M
MSLQ: Psychosocial Quality of Life	0.37*	0.28	-0.09	-0.11	-0.16	-0.09	-0.15	-0.18	-0.11	-0.11	0.12	0.08	.18	.10	M	L
MSLQ: Emotional Quality of Life	0.45*	0.35*	-0.22	-0.10	-0.14	-0.09	-0.10	-0.13	-0.23	-0.08	0.08	0.07	.40	.13	H	L
MSLQ: General Quality of Life	0.52*	0.41*	-0.11	-0.16	-0.11	-0.14	-0.07	-0.07	-0.15	-0.11	0.09	0.02	.33	.23	H	M

¹SCL-14 = Symptom Checklist; IIP-25 = Inventory of Interpersonal Problems; SF-8 = Short Form Health Survey; MSLQ = Modular System of Quality of Life; FPTM = Psychotherapy Motivation Questionnaire

*Significant Beta Weights (after Bonferroni correction, B is significant if $p \leq 0.0083$)

**H = high, M = medium, L = low

The treatment proves to be effective in the evaluated areas (psychopathological symptoms, quality of life/level of functioning and interpersonal problems). The improvements persist to follow-up. It has to be mentioned that effect sizes are small to medium which is not overwhelming. Certainly some patients have been in inpatient treatment before and were already improved at the beginning of day hospital treatment.

The significant improvements of patients in all outcome parameters and the stable follow-up results indicate the effectiveness of this type of treatment. However, it should be noted that this is not a controlled randomised study. In general, it is difficult for practical and ethical reasons to perform controlled and randomised studies in care settings; therefore, the problem is not specific of this study. Nevertheless, a few controlled or controlled-randomised studies on day clinic treatment have been performed in the past (Arnevik et al., 2009; Creed et al., 1990; Kallert et al., 2007; Priebe et al., 2006; Sledge et al., 1996; Zeeck et al., 2009).

Since most of the subhypotheses related to the examined six predictors were not confirmed, it is almost impossible to identify any individual groups that would particularly benefit from day clinic treatment. Only the predictor "complaints at admission" shows throughout a significant relationship with the value reached at discharge. It can be assumed, however, that short-term benefit for patients is higher if the number of comorbid diseases is lower. This result also meets the expectations. Also medium-term psychopathological symptoms are less in patients with fewer diagnoses. For the medium-term treatment success regarding interpersonal problems and level of functioning, a steady occupation seems to be of major importance; therefore, it is recommended to assist patients even more during treatment in seeking a steady occupation for the time following discharge.

Overall, the six selected predictors are able to explain a considerable part of the variance of treatment success; explanation of variance through the predictors is consistently greater at discharge than at follow-up. The only exception is the Mental Summary Score of the SF-8, where the explanation of variance remains stable.

The non-consistent confirmation of individual predictors of day clinic treatment success might be explained by the heterogeneity of the sample and the heterogeneity of therapeutic offers at the investigated day clinic: There might be other disturbances influencing treatment success. If the beta coefficient of individual predictors does not reach significance within the multiple regression analysis, this can also have statistical reasons: Since, in this study, predictors were selected because of theoretical considerations and not on the basis of statistical fit, it is conceivable that this combination, in terms of calculation, does not explain the greatest variance: For instance, no potential suppressor variables were selected, which improve the predictive power of the other variables by suppressing their variance components that do not correlate with the criterion (Barth, 1997).

The representativeness of the investigated sample is limited as to number of diagnoses, length of treatment and individual initiative: Dropout patients had significantly more comorbid diseases, were treated for a significantly shorter time and showed significantly less individual initiative.

The results of this study are consistent with the results of previous research on day clinic treatment: Previous German studies on day clinic treatment for heterogeneous patient groups also found a decrease of psychopathological symptoms with medium effect size from admission to discharge (Assmann, 2006; Brüggemann et al., 2007; Zeeck et al., 2005), a decrease of interpersonal problems (Assmann, 2006) and an increase of quality of life (Brüggemann et al., 2007;

Schützwahl et al., 2007). There is lack of follow-up-studies in Germany. Zeeck et al. (2005) show even an improvement from discharge to follow-up concerning psychopathology.

Similar to previous studies, it was hardly possible to determine definite predictors in this study. Some of the predictors (comorbidity, times of incapacity to work) have been investigated in day clinic setting for the first time. Treatment motivation and related aspects (e.g. cooperation in therapy, initial acceptance of various therapeutic offers, open-mindedness for psychological issues, regular attendance) correlate positively with treatment success also in other studies (Jones et al., 2007). As regards the occupational status, two previous studies (Assmann, 2006; Potvin Kent et al., 2000) did not find a relationship, three studies (Dunn et al., 1982; Eikelmann, 1991; Mazza et al., 2004) found better treatment success in employed patients.

Following recommendations for research can be derived from this study: Apart from the necessity to conduct randomised controlled studies (day clinic treatment versus outpatient or inpatient treatment settings or versus untreated control group) on the differential effectiveness of day treatment, additional studies on the predictors of day treatment success are also indicated, as the results are not satisfactory so far. Rarely investigated predictors such as somatic and mental comorbidity as well as times of incapacity to work require more frequent surveys in order to verify or falsify the results. Confounding variables will have to be controlled or excluded more systematically.

The team's motivation for the study is of major importance. In phases with regular feedback to the team regarding the state of the survey, the response rate was almost 100% in this study. This proves that a sufficiently motivated treatment team is able to motivate even severely ill psychiatric patients to fill in longer questionnaires.

In summary, it can be concluded from the results of this study that day clinic treatment is effective. Controlled studies are still needed to be able to compare this treatment with other treatments. Further research on predictors is also necessary to assess the differential effectiveness. For a stable treatment success it seems to be important that patients have a steady occupation.

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