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Efficacy of psychiatric day treatment. Course and outcome of psychiatric disorders in a randomised trial

Abstract The course of the psychopathology and social functioning in an experimental day-treatment group referred for inpatient psychiatric treatment is compared with that of a control group receiving standard inpatient care. During a follow-up period of 2 years subjects were interviewed three times. The interview comprised information about psychiatric symptoms, psychological functions, psychiatric diagnosis and social-role functioning. Apart from these discrete assessments an effort was made to map episodes of illness throughout the follow-up period. Upon entry the groups did not differ in terms of psychopathology or social functioning. At follow-up both groups had improved significantly with respect to symptomatology, psychological and social functioning. The extent to which the groups improved did not differ significantly regarding pathology, but self-care improved more in the experimental group. The average duration of episodes of illness was similar for the experimental and control group. During the 2-year follow-up patients suffered from a well-defined disorder during an average of 11 months. The fact that approximately 40% of them were still a psychiatric case after 2 years further underscores the severity of their pathology.

Key words Day treatment · Efficacy · Psychopathology

Introduction

When new treatment modalities as alternatives to standard hospital care for psychiatric patients are introduced various evaluative matters must be addressed. Apart from those pertaining to policy-making, cost-effectiveness and other considerations, the question of who can actually be accepted in the new treatment modality and what its effects are on psychosocial functioning must be answered. To answer these questions satisfactorily within an experimental design various issues should be considered (Wilkinson 1984). Two of these issues are the use of a randomisation procedure and an unselected population (unless a selected population is intended).

Randomisation has not been widely applied in the field under consideration, and there is only one study using an unselected population, that of Zwerling and Wilder (1964), who conducted a randomised day-treatment experiment. Since then only a limited number of controlled day-treatment studies have seen the light of day (Herz et al. 1971; Washburn et al. 1976; Dick et al. 1985; Creed et al. 1990; Michaux et al. 1972; Penk et al. 1978; Fink et al. 1978), some of which did not use a randomisation procedure (Michaux et al. 1972; Penk et al. 1978; Fink et al. 1978). None of these aforementioned studies used an unselected population, thus only allowing restricted applicability to other admission populations (Kluiter et al. 1992).

The present study is the first since Zwerling et al. to use an unselected population. Only patients referred for appraisal because of a request by court, for whom treatment was not the reason for referral, and patients suffering from dementia, who were to be treated on a specialised geriatric ward, were not included. No further exclusion criteria were applied. The Drenthe Substitution Project was initiated in 1985. It set out to develop day treatment as an alternative to standard hospitalisation. The experiment was carried out in a 500-bed psychiatric hospital. Its objective was to test whether day-treatment was possible for patients referred for inpatient care. Basically, day treatment was pursued for all admitted experimental patients. This effort had not been made before in the Netherlands. In another paper (Kluiter et al. 1992) the extent to which the new treatment modality is feasible and the factors predicting this, have been dealt with in detail.

The focus of the present paper is the comparison of the outcomes of the measures of psychopathology and social functioning of the experimental day-treatment group and the control group, each receiving standard clinical care.

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Differential effects between the two treatment modalities are tested. The groups are compared with regard to outcome on symptoms, psychological functions, remission and relapse rates as well as on social impairments. Most other day-treatment studies also reported psychopathology as an outcome measure, but only one other study (Creed et al. 1990) assessed social functioning separately from psychopathology.

Though using different assessment procedures, instruments and follow-up periods most studies found no differences in effect between the two conditions as far as psychopathology was concerned. Herz et al. (1971) found a temporarily greater decrease in psychopathology in favour of control patients, whereas Michaux et al. (1972) found the opposite. In the course of time these differences had vanished in both studies. Washburn et al. (1976) reported a difference in improvement with regard to "subjective distress" in favour of the experimental group, that lasted throughout the follow-up period of 2 years. The overall tendency is rather consistent, to the extent that no major differences in the reduction of psychopathology were found. As for social functioning only the Herz study (1971) found a difference in favour of the experimental group in the performance of basic social skills. No other study reported any lasting differences between groups. Based on these findings we tested the hypothesis that neither the course of psychopathology nor that of social functioning differs between the experimental and control group.

Patients and methods

Study design

A randomised controlled trial was conducted to evaluate the feasibility and effects of day treatment as an alternative to standard hospitalisation. It can be considered as a replication and an elaboration of the Zwerling and Wilder study (1964 and 1966). The trial can be characterised as a management trial, as described by Sackett and Gent (1979): "The management trial may ... accept all comers, including patients with poor compliance, to obtain a better estimate of starting down a particular therapeutic path". With this type of trial the "intention to treat" is connected, i.e. the attempt to apply the experimental treatment to all patients assigned to the experimental condition. It is, however, not known in advance whether the experimental treatment is feasible for all assigned patients (Newcombe 1988 a, b).

From November 1986 to March 1988, 160 patients in need of admission were randomly assigned to either the experimental or control condition. The patients were randomised upon admission into groups of 14, with a fixed ratio of 9 experimental to 5 control subjects, resulting in 103 experimental and 57 control patients. Psychopathology and social functioning were assessed with standardised measures upon entry as well as 1 and 2 years later. The research team operated independently of the treatment teams.

Treatment conditions

The trial was carried out in a psychiatric hospital in a semirural region in the northern Netherlands, with patients from a circumscribed area of 95,000 inhabitants. The hospital is located in a town of 45,000 inhabitants.

In the control condition (C) the patients were treated according to standard clinical care, which includes 24-h-hospitalisation, medication, regular contacts with a psychiatrist, occupational therapy

Table 1 Sociodemographic and diagnostic characteristics of control (C) and experimental (E) group (in percentages). Differences not significant at 5% (χ^2)

	C (%)	E (%)
Gender		
Male	59.6	44.7
Female	40.4	55.3
Age (years)		
18–24	14.0	12.6
25–44	47.4	51.5
45–64	21.1	25.2
≥ 65	17.5	10.7
Living alone	38.6	28.2
Marital status		
Single	38.6	38.8
Married	33.3	39.8
Divorced	21.1	13.6
Widowed	7.0	7.8
Education		
College/university	7.4	15.6
Secondary	18.4	17.7
Elementary	70.4	60.4
None	3.7	6.3
Employed	87.3	88.7
Disability pension	54.5	55.7
Compulsory admission	10.5	7.8
Previous admissions		
None	43.6	36.9
1	14.5	20.4
2	9.1	18.4
3 or more	32.7	24.3
Unknown	$n = 2$	
Psychiatric diagnosis		
Substance abuse/dependence	19.3	12.6
Schizophrenia	29.8	35.0
Affective psychosis	12.3	9.7
Anxiety/depression	15.8	23.3
Other	22.8	19.4

and in indicated cases individual, group, behavioural, creative or psychomotor therapy. Aftercare was provided by the local Community Mental Health Center (CMHC) after discharge from the hospital, and was delivered following a standard procedure.

The experimental condition (E) took place in the same hospital. As a rule the experimental patients were routinely admitted. Within 1 or 2 days after admission a screening took place. All participants present at the screening (psychiatrist, ward nurse, CMHC and the patient and his/her relatives) discussed the appropriateness of day treatment at that moment. Basically the decision of whether to commence day treatment was made several times a week. This decision depended largely on the patient's condition (e.g. danger of harm to self or others). For some patients this meant that day treatment was not feasible at all throughout the admission, except perhaps in the discharge phase, whereas others could start attending day-treatment after some days or weeks of standard hospital care. Day-treament typically took place between 0830 and 1630 hours from Monday to Friday in a new day centre on hospital grounds. In this centre a specially conceived multidisciplinary programme was offered. Treatment could also take place in a regular clinical unit,

where the patient participated in the usual day programme, spending the night at home.

In contrast to standard hospitalisation, the following services were available to determine feasibility of day-treatment:

1. "A bed on prescription". If necessary day treatment could be interrupted for one or more nights, therefore a bed was made available for such cases.
2. A special telephone number was available to patients 24 h/day in case any problems should occur at home, and an updated case history was always accessible to the nurse answering the phone.
3. House calls were common, to provide in situ support.
4. The existing aftercare (delivered by CMHC) was thoroughly revised in order to achieve a greater continuity of care. In the past this continuity had been virtually non-existent for half of the patients.

The case records of experimentals were tagged with an E, which meant that in case of a readmission within the 2-year follow-up period the attempt to carry through the delivery of day-treatment should be sustained.

As fas as diagnosis and sociodemographic characteristics were concerned the study population was quite comparable to the entire admission population of the 40 general psychiatric hospitals in the Netherlands in 1984. The experimental (E) and control (C) groups showed no significant differences with regard to diagnostic or sociodemographic characteristics (Table 1).

Of the 160 patients, 108 were personally interviewed upon entry into the study (73 E and 35 C). The remaining 52 were not personally interviewed as far as psychopathology and social functioning were concerned[1], because of the following reasons:

1. Preparations for this part of the study had not been completed when the experimental treatment actually started (16 patients).
2. Logistical problems (8 patients).
3. Patients were too ill physically (3).
4. Some patients refused to participate in the study upon entry (25 patients).

From the remaining 108 patients another 27 were lost to follow-up at 1 year, and 23 (4 patients resumed cooperation) at 2 years. It follows that at 1 year 81 patients (55E and 26C), and at 2 years 85 patients (60E and 25C), were available. Therefore, 53–58% of E-patients and 44% of C-patients were included in the present study.

It was tested whether these remaining patients differed from those who dropped out of the study. In the group of remaining E-patients there was a larger proportion of subjects within the range of 18–25 years ($\chi^2 = 8.45$; $df = 3$; $P = 0.04$) as well as subjects who had never been hospitalised ($\chi^2 = 9.01$; $df = 3$; $P = 0.03$). In the group of C-patients no differences between participating and non-participating subjects were found. Between the E- and C-patients who were included in the analysis no significant differences were found with regard to sociodemographic characteristics. The average number of admission days within the 2-year follow-up period was 166 (C) v 203

Measures

Social functioning was assessed with the Groningen Social Disability Schedule (GSDS), which is a standardised semistructured interview with a respondent and key informant, that assesses the level of social dysfunction in the 4 weeks preceding the interview in 8 roles (self-care, family life, partner, kinship, parental, social, citizen and occupational role), each with one or more dimensions. For each applicable role an overall rating is made on a 5-point scale, based on the dimensional ratings. Ratings of 0 and 1 indicate

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[1] Psychopathology and social functioning were assessed in two separate interviews. The numbers of patients mentioned concern the "psychopathology interview". Slightly different numbers of patients participated in the "social interview"

excellent and adequate functioning, 2 a slight disability, and 3 and 4 severe to total disability. The GSDS was used in a number of studies in the Netherlands with reasonable-to-good reliability (Wiersma et al. 1988; Kraaykamp 1992). The second, revised version is available in English (Wiersma et al. 1990).

For the assessment of psychopathology two instruments were used. For the assessment of the mental state the Present State Examination (PSE; Wing et al. 1974) was administered. The PSE yields syndromal scores for the symptoms present in the month preceding the interview, summarized in four subscores, provided by the CATEGO computer programme: DAH (delusions and hallucinations), BSO (behaviour, speech and other syndromes), SNR (specific neurotic reactions) and NSN (nonspecific neurotic symptoms). Furthermore, the programme provides a total score and the Index of Definition (ID; Wing and Sturt 1978), which represents the likelihood of the patient to suffer from a specific psychiatric illness or being a "case". It ranges from 1–8. The threshold for being a case is generally set at 5 (Wing et al. 1978).

The Classification of Intellectual and other Psychological Impairments (CIPI; Hoek, 1987) was used to assess impairments in psychological functioning. This instrument was developed within the framework of the International Classification of Impairments, Disabilities and Handicaps (ICIDH WHO 1980; Wiersma 1986; Wiersma and De Jong 1989). Within this model impairments are believed to potentially lead to disabilities in daily life, which in turn can induce a handicap, reflecting the social and economical consequences of disabilities. The classification provides supplementary coding facilities in addition to ICD-9 or DSM-III-R codes. The CIPI was devised to assess impairments in 11 psychological functions such as attention, sleep, psychomotor functioning, memory etc. Ratings are primarily based on observed behaviour. Each function contains a number of items pertaining to that particular function. Each item consists of an interview score and a "past-4-weeks score", the latter requiring an informant to describe the patient's conduct during the past 4 weeks. On the basis of the interview- and 4-weeks score a global rating of the impairment is given per function.

A research diagnosis was given for all patients, using the DSM-III (APA 1980). The diagnosis was based mainly on the data gathered with the PSE. Because the PSE was not devised to generate DSM-III diagnoses, supplementary items were added (Brink et al. 1989). In the diagnostic panel, consisting of experienced clinicians, one or more diagnoses were given. In case of comorbidity the diagnosis highest in the hierarchy below was used. For purpose of statistical analyses the diagnoses were classified into the following hierarchy and categories:

1. Nonaffective psychoses: 295.12/ 14/ 30/ 31/ 32/ 33/ 34/ 35/ 40/ 62/ 70/ 91/ 92; 297.90; 298.30/ 90
2. Affective psychoses: 296.24/ 34/ 44/ 54/ 64
3. Addiction/abuse: 303.90/ 91/ 92; 305.01/ 92
4. Depression and anxiety: 296.22/ 23/ 32/ 33/ 52; 300.00/ 02/ 22/ 23/ 30/ 40/ 90; 309.81
5. Others: 294.80; 296.70; 300.13; 309.00/ 28/ 40; 310.10; 312.34/ 39; V61.10/ 80; V71.09

Another measure of assessment was the episodes of illness. The other assessments after 1 and 2 years reflect the patient's condition at those particular moments. To cover the period between these moments an effort was made to assess the duration of the pathology in terms of a DSM-III condition, in 1-month units. This episode study was carried out as follows: Upon entry a research diagnosis (DSM-III) was given. Basically, its course was followed for 2 years. At 1-year follow-up the patient was asked how long the symptoms pertaining to this disorder had continued. A specially devised score sheet was used to assure that the DSM-III criteria were met. If another disorder was present at 1-year follow-up the patient was also asked when this disorder had begun. Finally, the patient was asked whether any other disorder had occurred after entry, and had remitted before 1 year follow-up. Thus, the entire year was covered, both for the diagnosis upon entry and for any other psychiatric disorder that emerged between the two assessments. This procedure was repeated after 2 years. Informants

(mostly next of kin) were asked for supplementary information. Apart from this the following rules were observed: (1) A disorder had to last at least 2 weeks in a particular month in order to be counted. (2) Episodes had to be separated by an interval of at least 2 months without a DSM-III disorder, otherwise only one episode was assumed.

Data analysis

The following analyses were performed on the PSE, CIPI, episodes and GSDS data: For all available PSE, CIPI and GSDS scores an "improvement score" was calculated by subtracting the 1-year (T1) or 2-year (T2) follow-up scores from the scores upon entry (T0). The mean improvement scores were tested within groups and between groups, the latter being the main focus of this paper. The applied statistical technique was analysis of variance for repeated measures with factors: conditions × points of assessment (O'Brien and Kaiser 1985; Ekstrom et al. 1990). It accounts for initial differences and uses paired scores only. The analysis was carried out for the entire E- and C-groups, and was subsequently repeated for each diagnostic category concerning psychopathology. The same procedure was used comparing the mean duration of the episodes of illness, using a two-sided t-test. The distribution of course patterns (in terms of episodes) over the two groups was tested with X^2. The level of significance was 5%.

Results

Mental state: PSE

Table 2 shows the mean scores and SDs of PSE measures at the three assessments. Upon entry and after 1 year (T0–T1) the paired data of 55 E- and 26 C-patients were available. For the 2-year follow-up (T0–T2) the data of 60 E- and 25 C-patients were available. Therefore, the two corresponding mean values at T0 are shown in the first column.

Improvement is significant on all measures at T1 and T2, compared with T0. It is worth noting that scores tend to improve (if not significantly) or remain equal in the second year of follow-up. Nevertheless, the mean ID of 4 and 3.6 for the E- and C-group, respectively, indicate a

considerable amount of residual or chronic pathology after 2 years.

Testing the differences in improvement between groups (E vs C) showed no differences in outcome on any of the PSE measures. For each diagnostic group the same analysis did not reveal any significant differences, either. In other words: the E- and C-patients improved to the same extent.

Mental state: psychological functions

In Table 3 the mean CIPI scores SDs of the E- and C-patients at the three assessments are presented. As with the PSE two mean values are given for each function at T0. Most conspicuous is the high initial score on mood/affect (predominantly a depressed mood). Furthermore, mainly the functions relating to sleep, volition, drives and speech/thought processes were impaired. Least impaired were intelligence, memory and consciousness. The initial scores, but also those at T1 and T2, are practically identical for E- and C-patients.

Functions improving significantly between admission and both follow-up points in both groups are: speech/thought, reality testing, drives and volition. The other functions improved in one group or at one follow-up moment, except psychomotor functioning, which did not improve significantly in either group. After 2 years mood/affect and speech/thought were most impaired. Testing the differences in improvement rates revealed no differential effects of the two conditions.

Mental state: episodes of illness

Table 4 shows the average number of months with a psychiatric disorder according to DSM-III within the same diagnostic category as the research diagnosis upon study entry. These averages show how successful the two treatment modalities were in treating the patients' condition upon on admission.

Table 2 Mean scores and SDs of Present State Examination (PSE) measures at T0, T1, and T2 for E- and C-group. F-statistic, based on repeated measures $P < 0.05$. No significant differences. T0 upon admission, T1 at 1-year follow-up, T2 at 2-year follow-up; DAH delusions and hallucinations; BSO behaviour, speech, and other syndromes; SNR specific neurotic reactions; NSN non-specific neurotic syndromes; ID index of definition

	E			C		
	T0	T1	T2	T0	T1	T2
DAH	2.7 (5.6)	1.4 (3.4)	–	3.2 (5.0)	0.6 (2.2)	–
	2.6 (5.0)	–	1.3 (3.7)	3.5 (5.0)	–	0.6 (1.5)
BSO	2.1 (2.6)	1.2 (2.0)	–	2.4 (2.5)	1.1 (1.4)	–
	2.2 (2.7)	–	1.4 (2.0)	2.6 (2.7)	–	0.9 (1.4)
SNR	5.6 (4.0)	3.0 (4.2)	–	5.6 (3.8)	2.9 (3.1)	–
	5.3 (4.4)	–	2.2 (3.2)	5.2 (3.8)	–	2.2 (3.7)
NSN	12.2 (8.1)	6.9 (7.1)	–	11.8 (6.8)	6.0 (5.2)	–
	11.4 (8.3)	–	5.7 (6.5)	11.2 (7.3)	–	4.7 (6.9)
Total	22.6 (12.8)	12.5 (10.6)	–	23.0 (12.2)	10.6 (8.6)	–
	21.5 (12.6)	–	10.6 (11.5)	22.5 (12.7)	–	8.4 (11.0)
ID	6.1 (1.7)	4.5 (2.3)	–	6.2 (1.7)	4.0 (2.1)	–
	6.1 (1.7)	–	4.0 (2.1)	6.2 (1.7)	–	3.6 (2.3)

Table 3 Mean scores and SDs of Classification of Intellectual and other Psychological Impairments (CIPI) measures for E- and C-groups. *F*-statistic, based on repeated measures (*P* < 0.05). No significant differences

	E			C		
	T0	T1	T2	T0	T1	T2
Intelligence	0.3 (0.8)	0.2 (0.7)	–	0.3 (0.8)	0.2 (0.7)	–
	0.3 (0.8)	–	0.1 (0.5)	0.3 (0.8)	–	0.2 (0.6)
Consciousness	0.2 (0.6)	0.1 (0.3)	–	0.2 (0.5)	0.1 (0.5)	–
	0.3 (0.6)	–	0.1 (0.5)	0.3 (0.7)	–	0.1 (0.3)
Sleep	1.8 (1.5)	0.6 (1.0)	–	1.6 (1.3)	1.0 (1.0)	–
	1.7 (1.5)	–	0.7 (0.9)	1.5 (1.3)	–	0.9 (1.1)
Attention	0.9 (1.1)	0.6 (1.0)	–	1.1 (1.2)	0.5 (0.9)	–
	1.0 (1.1)	–	0.7 (0.9)	0.9 (1.2)	–	0.5 (0.7)
Memory	0.5 (0.9)	0.2 (0.6)	–	0.3 (0.6)	0.1 (0.4)	–
	0.5 (0.9)	–	0.2 (0.5)	0.3 (0.6)	–	0.3 (0.6)
Thought/speech	1.6 (1.1)	1.1 (1.2)	–	1.8 (1.3)	1.0 (0.9)	–
	1.7 (1.1)	–	1.1 (1.2)	1.9 (1.2)	–	1.0 (1.1)
Reality testing	1.2 (1.3)	0.8 (1.3)	–	1.2 (1.2)	0.5 (0.7)	–
	1.3 (1.4)	–	0.6 (1.2)	1.3 (1.2)	–	0.3 (0.6)
Drives	1.6 (1.2)	0.6 (0.8)	–	1.3 (1.3)	0.6 (1.0)	–
	1.6 (1.1)	–	0.6 (0.9)	1.3 (1.3)	–	0.5 (0.9)
Volition	1.7 (1.2)	0.9 (1.1)	–	1.5 (1.4)	0.8 (0.9)	–
	1.7 (1.2)	–	0.9 (0.9)	1.5 (1.4)	–	0.8 (1.1)
Mood/affect	2.5 (1.1)	1.4 (1.2)	–	2.0 (0.7)	1.5 (1.0)	–
	2.5 (1.1)	–	1.2 (1.1)	2.0 (0.7)	–	1.4 (1.2)
Psychomotor function	1.2 (1.1)	0.5 (0.8)	–	1.1 (1.2)	0.5 (0.9)	–
	1.2 (1.2)	–	0.6 (0.9)	1.2 (1.2)	–	0.6 (0.9)

Table 4 Average number of months (and SDs) with disorder in 2-year follow-up period

Diagnostic category	E		n	C		n
Addiction/abuse*	6.0	(8.8)	7	19.6	(4.0)	3
Nonaffective psychoses	12.0	(11.3)	27	9.0	(10.2)	9
Affective psychoses	6.6	(9.9)	5	3.8	(5.6)	4
Depression and anxiety states	9.6	(8.9)	16	8.7	(11.6)	6
Others	4.6	(9.1)	8	4.0	(9.8)	6
Average for all categories	9.5	(10.2)	63	8.4	(10.0)	28

* (*P* < 0.05)

Table 5 Course types of episodes of illness

Diagnostic category	E (n = 63)	n	C (n = 28)	n
Quick remission (episode < 2 weeks after admission)	30%	19	36%	10
Single episode (> 2 weeks, < 24 months)	28%	18	39%	11
Intermittent (> 1 episode in 24 months)	15%	9	7%	2
Chronic (episode 24 months)	27%	17	18%	5

* (*P* < 0.05)

Only in the category "addiction/abuse" a significant difference was found between E- and C-patients (two-sided *t*-test, *P* = 0.025): The average duration of episodes of E-patients was shorter than that of C-patients. Aver-aged over all diagnostic categories the episodes of E-patients lasted 9.5 months, and of C-patients 8.5 months.

Table 5 shows the distribution of the patterns in the course of psychopathology. The distributions of both groups did not differ significantly (χ^2 = 2.46; *df* = 3; *P* = 0.48). The percentage of patients with a remission within 2 weeks following admission is similar in both groups. In 25% of the E-patients and 20% of the C-patients there was no remission at all during 24 months. The figures given reflect episodes with psychopathology, meeting DSM-III Axis I criteria. Not meeting these criteria does not imply the total absence of pathology. In many instances serious pathology remained present, notably in patients suffering from a serious personality disorder.

Social functioning

The high average scores on all social roles at T0 indicate a generalised impairment in social functioning in both groups upon admission (see also Rüphan et al. 1992). After 1 year all social roles have improved significantly, except for the parental and citizen role. After 2 years only the parental role (applicable in only 31 E-patients and 15 C-patients) has not improved significantly. Impairment after 2 years was most prominent in the partner-, social- and occupational role.

There is one difference between the E- and C-groups. The self-care role has improved significantly more in the

Table 6 Mean scores and SDs of social roles at T0, T1 and T2 for E- and C-group

	E			C		
	T0	T1	T2	T0	T1	T2
Self-care	2.14 (0.94)	1.53 (0.79)	1.31 (0.56)*	1.85 (0.96)	1.55 (0.84)	1.66 (1.38)
Family	2.37 (0.88)	1.76 (0.87)	1.54 (0.78)	2.29 (0.95)	1.85 (0.96)	1.70 (1.20)
Kinship	1.86 (0.88)	1.70 (0.85)	1.60 (0.80)	1.92 (1.48)	1.54 (1.44)	1.45 (1.83)
Partner	2.52 (0.51)	2.14 (0.94)	1.98 (0.99)	2.53 (1.30)	2.29 (1.02)	2.11 (1.36)
Parental	2.12 (1.01)	1.87 (0.91)	1.83 (1.22)	2.06 (0.93)	2.06 (1.03)	1.86 (1.68)
Citizen	2.21 (1.05)	2.07 (0.99)	1.85 (0.94)	2.03 (0.94)	1.92 (0.94)	1.88 (1.72)
Social	2.42 (0.83)	2.20 (0.88)	2.06 (0.87)	2.51 (0.88)	2.44 (0.84)	2.25 (1.26)
Occupational	3.00 (0.95)	2.58 (1.17)	2.31 (1.10)	3.03 (1.26)	2.65 (1.47)	2.62 (1.37)

* F-test, significant difference between E- and C-groups ($P < 0.05$)

E group. They needed less care or support from others in maintaining their self-care in the home situation, whereas problems in self-care lasted shorter in the follow-up period between assessments.

Discussion and conclusion

From the data presented in this paper it can be concluded that the present population of patients referred for admission is characterised by severe psychopathology and social impairment. The mean subscores (DAH, BSO, NSN and SNR) upon entry are quite similar to those in a group of patients deemed too ill to be eligible for randomisation in a day-treatment experiment (Creed et al. 1990). Close to 50% of the patients were psychotic upon admission, and were severely impaired in all social roles.

Both groups improved to a significant degree with regard to symptomatology between entry and follow-up. This also held true for most psychological functions assessed with the CIPI. Even between 1- and 2-year follow-up, scores on PSE and CIPI tended to improve. Nevertheless 40% of the C- and 43% of the E-patients remained a psychiatric case (ID $\geq$ 5) after 2 years. In 27% of the E- and 18% of the C-patients the episode of illness (DSM-III condition assessed upon entry) continued for 24 months (the entire follow-up period). If all DSM-III diagnoses are included the E-group suffered from a psychiatric disorder during 11 months in the E-group and 10.8 months in the C-group. Psychopathology not adding up to a DSM-III diagnosis was even more common.

This episode study has not been reported before in day-treatment literature (except in Kris [1965], although not well documented). Despite inherent methodological difficulties of this retrospective approach (an der Heiden and Krumm 1991), it yields valuable information about the course of psychopathology (see also Keller et al. 1987; Brink et al. 1991).

Finally, social functioning improved significantly in all social roles after the 2-year follow-up, except with regard to the parental role. This persistent impairment represents a thorough disruption of the contact with the children, in some instances leading to divestment of parental authority.

Testing for differences in the course and outcome of pathology yields only one significant difference between the two conditions: the duration of episode in the abuse/ addiction category in favour of the E-group. This is largely attributable to the fact that all three C-patients were well-known alcohol addicts, whereas the E-patients were predominantly alcohol abusers.

The only recent day-treatment outcome experiment, although somewhat different from our study, involving a fairly unselected population (Creed et al. 1990), had the same results as far as psychopathology is concerned. In the more community-oriented programmes findings are similar. Only the study of Hoult et al. (1983) showed clear superiority of community treatment over hospital treatment with regard to the reduction in psychopathology. Currently, this is the only study showing clear superiority of a more social-psychiatric approach over standard hospital care. The evidence may lead one to belief that such alternative forms of care for the acutely ill do not affect psychopathology any more than traditional hospitalisation. More than treatment attitudes the use of psychotropic drugs, the change of environment and the lapse of time are probably the most effective factors in recovery from psychiatric symptoms.

With regard to social functioning one difference between the E- and C-group was found: The E-group improved significantly more than the C-group with regard to self-care. The only study with a (partly) differentiated assessment of social functioning reporting a more positive outcome for the day treatment group is Herz et al. (1971), who found that the "daily routine–leisure time impairment" and the "housekeeper-role impairment" improved significantly more in the E-group. As for the "self-care roles" of the GSDS, they represent the less complex aspects of social functioning. The extra effort made in the E-condition to reinforce the patients' self-supportiveness by training in basic skills seems to have paid off. Although expected, it is still remarkable that the two conditions should vary so little in outcome. The question remains as to why this is the case.

Firstly, the extent to which the attempt to establish day-treatment was successful varied strongly within the E-group. For a part of this group day-treatment was not feasible at all. Consequently, these patients received the same care as the C-group, partly on the same wards and given by the same health-care providers. Insofar as the course depended on the nature of the care given, differential ef-

fects could thus have been attenuated. Analysis of the course of the three day-treatment groups discerned in this study (day-treatment effected, partly effected and not effected; Kluiter et al. 1992) revealed no differences in outcome with regard to the PSE, CIPI or GSDS. Therefore, the heterogeneity of the E-group, in terms of the extent to which day-treatment was realised, does not appear to provide a good explanation.

Secondly, none of the treatment conditions specifically addressed the reduction of symptoms more than is traditionally the case. This is shown by the fact that medication policy does not differ between conditions (Kluiter et al. 1991). The treatment of psychiatric symptoms and disorders is always topical in the medical model, whereas the E-condition is much more oriented towards the principles of social psychiatry, i.e. aiming at preserving and reinforcing the social network, self-care etc. This difference in emphasis between the E- and C-condition, to reinforce self-supportiveness in the patient's own environment by training in basic skills, is reflected in a greater improvement in self-care in the E-group.

Thirdly, patients were followed-up for 2 years, a limited period of time for the more chronically impaired patients. For them this is only an episode in a much longer history of illness. Possibly, as put forward by Herz (1991) and Hoult (1983), care must be long-term and continuous, because beneficial effects last as long as care is given (Fenton et al. 1979). Or, as stated by Stein and Test (1980), our strategy should be "to change our treatment strategy from preparing patients *for* community life to *maintaining* patients *in* community life", which was one of the objectives of our project.

Finally, given the absence of major differences in outcome, is day-treatment desirable or preferable to hospitalisation? We would like to argue that it is. Participation in social life is continued and stigma is usually less marked than with admission to a hospital. The patient is entitled to live in the least restrictive environment possible (Geller et al. 1990), especially if there is no increased risk of suicide or suicide attempts in day-treatment patients, as was the case in our study. This contradicts the initial fear of some clinicians that day-treatment is potentially harmful to patients who are eligible for admission. If proper care is taken, day treatment can be a good alternative to hospitalisation.

This view has found its way into the planning of mental health services in the Netherlands. In recent years more beds have been substituted by "chairs" (day-treatment facilities) although not as many as the estimated 2900 that *could* be substituted (Wiersma et al. 1994). As far as costs are concerned, a cost-benefit analysis (Wiersma et al. 1994) revealed no significant overall differences between the two conditions.

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