Acta Psychiatr Scand 2002: 106: 276–285
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ACTA PSYCHIATRICA SCANDINAVICA
ISSN 0001-690X

One-year outcome in first episode psychosis patients in the Swedish Parachute project

Cullberg J, Levander S, Holmqvist R, Mattsson M, Wieselgren I.-M. One-year outcome in first episode psychosis patients in the Swedish Parachute project.
Acta Psychiatr Scand 2002: 106: 276–285. © Blackwell Munksgaard 2002.

Objective: Implementing a system designed to treat first episode psychotic (FEP) patients.
Method: Every FEP patient ($n = 253$) from a catchment area of 1.5 million inhabitants were asked to participate in this 5-year project. One historical ($n = 71$) and one prospective ($n = 64$) FEP group were used for comparisons.
Results: A total of 175 patients (69%) were followed up through the first year of treatment. Global Assessment of Functioning (GAF) values were significantly higher than in the historical comparison group but similar to the prospective group. Psychiatric in-patient care was lower as was prescription of neuroleptic medication. Satisfaction with care was generally high in the Parachute group. Access to a small overnight crisis home was associated with higher GAF.
Conclusion: It is possible to successfully treat FEP patients with fewer in-patient days and less neuroleptic medication than is usually recommended, when combined with intensive psychosocial treatment and support.

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Key words: first episode psychosis; neuroleptic treatment; schizophrenia; outcome, psychotherapy

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Accepted for publication May 1, 2002

Introduction

Outcome of first episode psychosis in mental health care systems throughout the world is unsatisfactory. Many patients suffer second and third episodes along with substantial disability. A recent epidemiological outcome study in Stockholm shows that 74% of first episode schizophrenia syndrome patients and 47% of other psychoses are on disability pension or on long-term sick leave after 5 years (1). In addition to the well-documented beneficial effects of neuroleptic agents, devastating routine overuse has become evident not least from patient reports. Aftercare of psychotic patients is generally characterized by a lack of continuity and insufficient focus on the prevention of relapses. Research has shown the importance of psychotherapeutic approaches both for the individual as well as for the family (2–4). In spite of our knowledge of the importance of a small, low stimulus, home-like milieu for patients with psychosis (5), few would claim that today's 'treatment as usual' is optimal in that respect.

In Scandinavia, two concepts characterizing treatment of first episode psychosis have been introduced during the past decade. The Finnish 'need-adapted treatment' (6) focuses on a psychotherapeutic and family approach and low neuroleptic dosages. The Soteria low stimulus crisis centre model (7, 8) with focus on low stimulus and meaningful therapeutic milieu, has been used in one location in Sweden. The results of both types of approach have been promising, even if evidence-based knowledge is not yet available regarding the extent to which the prognosis of schizophrenia and other psychoses can be improved using this method.

The aims of the Parachute project have been to minimize elements considered to contribute to poor outcome including excessive reliance on high dose of neuroleptic medication, lack of continuity of care, mixing first episode and chronic patients and reliance on hospital care. The project thus represents an effort to provide 'need adapted treatment' on a large-scale basis for all first episode psychosis patients. It also intends to evaluate the effectiveness and cost of this program in comparison with a parallel prospective comparison group. Finally, it aims to provide an opportunity to study prognosis and outcome with reference to clinical,

psychological, social and biological variables. A pilot study was previously undertaken (9).

The following six principles describe the project's clinical foundation in vulnerability-stress theory (10, 11).

1. Intervention without delay by the Parachute team, preferably in the patient's home, after the first contact with the clinic (12).
2. Initial structuring crisis intervention, including coherence in professional attitudes and staff continuity. According to the patient's needs – more specific psychotherapy of a dynamic type may be needed in later phases of the process – often supplemented with cognitive methods (13, 14).
3. Immediate and recurrent family meetings together with the patient, trying to understand the strains and resources of the family and to provide a common understanding of the psychotic reaction in the light of the vulnerability-stress view. The family focus includes psychological support at different stages of the illness and, when needed, family treatment and psycho-education (15, 16). An overriding aim is to provide a realistic hope for those involved and, as far as possible, a concordance of aims and strategies of the treatment.
4. Accessibility to a stable specialized treatment team during a period of 5 years (17).
5. Lowest optimal doses of neuroleptic medication, with an attempt to avoid neuroleptic medication during the first 1–2 weeks. Benzodiazepines are used for anxiety or insomnia during this period. When psychotic symptoms do not abate or are perceived as painful by the patient, an initial daily dose of ½–1 mg haloperidol equivalents is recommended (9, 10). Type of antipsychotic medication should be adapted to the needs of the patient.
6. Access to small scale, homelike, low stimulus overnight care when the care that can be offered in the patient's home proves insufficient or negative. This crisis home is preferably situated outside the hospital, in a flat or a small house, and used only for 3–6 first episode psychotic (FEP) patients. Staffing level should be kept at a low level – also overnight. Different types of solutions should be used to meet the individual patient's needs. Ordinary psychiatric in-patient care is to be used only in case of emergency.

In 1994, the psychiatric clinics in Sweden were invited to take part in a combined clinical and research project focusing on all first episode psychosis patients. To be included in the project the clinics were expected to adhere as closely as possible to the above six clinical principles. Further, the clinics had to guarantee clinical and research follow-ups over a 5-year period.

From the beginning 19 clinics participated in the study. Eight were situated in the Stockholm area and the rest spread out from the very north to the south of Sweden. Seven clinics did not develop the small-scale overnight care facilities and their results were specially studied in relation to the rest of the clinics. Two of the participating clinics had to be excluded since they could not provide good quality research data. The remaining catchment area was about 1.5 million inhabitants representing one-sixth of Sweden's population. As practically no private care for psychotic patients is available in Sweden, the patient cohorts can be expected to be rather complete regarding treated incidence and the inflow of FEP out- and in-patients from the region can thus be fairly well controlled. Recruitment of patients started after a series of planning meetings with representatives from the participating clinics. These meetings included appointment of local co-ordinators, selection of research instruments, video and role-play training in diagnostic assessments and symptom ratings. Study groups were formed for the neuropsychological and the Rorschach tests. Continued consensus training has been provided during biannual conferences with 40–50 participants. The conferences have also been used to give feedback and to discuss collected data. The project co-ordinator has run the central database set up in Stockholm. The local co-ordinators, usually psychologists, were responsible for the collection of follow-up ratings, interviews, tests, and for the communication with the central database. The degree of organizational compliance to the treatment principles was assessed through recurrent telephone interviews with the local co-ordinators.

The National Board of Health and Welfare provided funding for the local part-time co-ordinators for a period of 2 years. Apart from this the clinics received no extra funding and the needs for extra resources in the clinical work was solved through local reallocations. The Ethical committee of the Karolinska Institute (dnr. 95–399) approved the project.

Aims of the study

To describe the general design of the study, the research populations, as well as some 1-year follow-up results.

Material and methods

The inclusion criteria were as follows: patients living in the catchment area, for the first time

seeking psychiatric help for psychotic symptoms, age 18–45 years, and without a dominating substance abuse or a diagnosed brain disorder. Inclusion diagnoses according to Diagnostic Statistical Manual (DSM)-IV (18): Schizophrenia, Schizophreniform psychosis, Schizo-affective psychosis, Delusional disorder, Brief psychosis, Psychotic disorder NOS. Affective disorder with non-congruent psychosis was also included. The patients were informed about the research project as soon as they were considered able to understand the implications. All patients were guaranteed de-identified representation in the database. Those who declined participation were given the same treatment and care as those included in the project.

The collection of cases started 1 January 1996 and ended 31 December 1997 (24 months).

During the first week every candidate patient was diagnosed with a SCID interview (Axis 1) according to DSM-IV – usually performed by a responsible psychiatrist. Those patients who agreed to participate in the study were re-diagnosed at 1, 3 and 5 years after baseline. The baseline diagnosis was revised at the 12-month assessment.

Checklists regarding pharmacological, psychological, and organizational aspects of treatment were completed at each follow-up occasion. Neuroleptic medication was registered for five periods (1st and 4th week, as well as the last week of the 3rd, 6th and 12th month), and later calculated according to total amount of prescribed haloperidol equivalents per day during the actual period. Depot medication was transformed into daily dose eqv., according to Tuninger's formula (19), with different constants for different types of medication. (In accordance with recommendations by the Swedish Psychiatric Association 1 mg haloperidol has been considered equivalent to 1 mg risperidone, flupenthixol, pimozide, 2 mg fluphenazine, 4 mg perphenazine, 5 mg olanzapine, zuclopentixol, 25 mg clozapine, and 50 mg chlorpromazine, thioridazine, levopromazin).

Information about individual and family psychiatric history and the patient's social contacts, working and financial situation was collected in interviews during the first month.

Brief Psychiatric Rating Scale (BPRS) the 24 item-version (20), was used to assess the type and degree of symptoms. Scores for positive and negative psychosis symptoms were later constructed (see Table 4).

Global Assessment of Function (GAF)-values (21) indicate symptom severity in combination with social functioning level.

A specially constructed 13-item scale regarding degree of satisfaction with care was given to the patients and their relatives at the 12-month follow-up, to be completed separately and sent directly to the database in stamped envelopes.

The psychological examinations included, a neuropsychological examination (WAIS-RNI), the personality-focused Rorschach test, self-ratings of the patients' own relation to people in their surroundings as well as the relation to their own life situation. Telephone interviews with the staff person who knew the patient best were also included.

Computerized tomography (CT) alternatively magnetic resonance imaging (MR) as well as electroencephalogram (EEG) were carried out on patients with schizophrenia syndrome, and childbirth records were requisitioned.

A cost-benefit analysis is being independently performed at the Institution of National Economy, University of Växjö (Table 1).

The central database

Each clinic has a local database in MsAccess format. The files and paper forms are sent to the central database where thorough routines for scrutinizing the data have been worked out. Missing information and disputable or illogical responses are returned to the local co-ordinator.

Comparison groups

As the participating clinics were too small to provide different treatment models, it was not possible to randomize the patients into experimental and control groups. Such a randomization also raises ethical difficulties in referring patients as, according to our earlier experiences, there is a demand for this kind of treatment methods.

A historical comparison group was assembled in an epidemiological focused study at three of the project's Stockholm clinics where so-called standard psychosis treatment was provided, i.e. treatment primarily focused on pharmacological and supportive treatment. The study included all FEP patients during 1991–1992 and who were followed-up over a period of 5 years. The inclusion criteria were the same as those used in the Parachute project (except that affective psychosis was not included). Two specialist psychiatrists established the diagnoses using a consensus procedure. The plan of follow-up interviews had to be abandoned as only half of the patients were willing to participate. The GAF-assessments, along with estimates of care consumption, prescription of

Table 1. Research schedule for the Parachute project

1st week DSM-IV (SCID interview)	1 Month	3 Months	6 Months	1 Year DSM-IV	3 Years DSM-IV	5 Years DSM-IV
Checklist for treatment interventions	Checklist	Checklist	Checklist	Checklist	Checklist	Checklist
Social status	Life and family history			Social status	Social status	Social status
BPRS	BPRS	BPRS		BPRS	BPRS	BPRS
GAF	GAF	GAF		GAF	GAF	GAF
				Strauss-Carpenter	Strauss-Carpenter	Strauss-Carpenter
					HONOS	HONOS
	Rorschach	Rorschach		Rorschach	Rorschach	Rorschach
	WAIS-RNI				WAIS-RNI	WAIS-RNI
	MR/CT*, EEG*			Test 21	Test 21	Test 21
	Birth record*			Family/patient satisfaction	Family/patient satisfaction	Family/patient satisfaction

*Only schizophrenia syndrome.

medicine, and sick-list data were based on hospital records as well as available databases. The results from this study have been published separately (1).

During the 90s important changes took place regarding treatment policies, including reduction of in-patient resources and the introduction of new and possibly more effective anti-psychotic medication, which underlined the need for a prospective comparison group. Considerable difficulties were encountered in recruiting a clinic with interest and capacities for collecting the data needed. However, the psychiatric clinic at Uppsala University simultaneously started a study for investigating outcome of the region's first episode psychosis patients and agreed to provide a comparison group. The Uppsala clinic is known for high standards in biological and social psychiatric psychosis treatment including contact persons for every patient, family contacts of informative character and research (22). As in the Parachute project low doses of neuroleptic treatment are routinely recommended including efforts to avoid treatment with neuroleptics during the first week. The main difference is that all first episode patients in the prospective comparison group have been evaluated and treated as in-patients on a psychiatric research ward together with young and old long-term patients. No specific psychological or family treatment for first episode patients has been offered.

The aim of the prospective group has been to include every first episode psychosis patient during the years 1995, 1996 and 1997 with the same inclusion and exclusion criteria as in the Parachute project. The completeness is, however, less certain regarding patients with non-schizophrenia syndromes as one might expect that a number of these patients were not referred to the research ward.

As the Uppsala study had already started when co-operation with the Parachute project was decided, some of the Uppsala methods are slightly different. Two senior psychiatrists working at the clinic made the assessments at baseline (retrospectively) and at the end of 12 months. The following assessments/methods were used: Diagnosis (DSM-IV), duration of untreated psychosis (DUP), Positive and Negative Syndrome Scale (PANSS) (23) and GAF assessments. Medication and days of hospital care were recorded. The PANSS items that are identical with the BPRS positive and negative symptom items have been used for comparisons (see Table 4). In 30 of the 51 patients the PANSS and GAF evaluations were made from hospital records. The data were sent to the Parachute database, and controlled and treated in the same way as the rest of the material.

Statistical methods

Analyses were made with the SAS and SPSS statistical packages versions 8, 10.0, respectively. Standard chi-square, Wilcoxon two-sample tests, and *t*-tests were employed to test differences between the comparisons. Fisher's Exact Probability Test was used when too small cells for chi-square. Tests were two-tailed and made at a 5% significance level.

Results

Incidence

Some of the participating 17 Parachute clinics were late in starting and the patient collection period in these cases was thus somewhat shorter. This has

been corrected for in the incidence analyses. During the period 253 patients fulfilled our criteria of first episode psychosis.

The 1-year (treated) incidence of psychosis was 24.5 per 100 000 population between 18 and 45 years of age (10.0 per 100 000 total population). Age specific incidence (18–45 years) of schizophrenia syndrome diagnoses (schizophrenia, schizophreniform, and schizo-affective psychosis) was 10.0 per 100 000 population. Non-schizophrenia psychosis incidence was 14.5.

In the Historical comparison group 74 FEP patients were identified with a 1-year incidence of 34.8/100 000 inhabitants between 18 and 45 years of age.

In the Prospective comparison group 64 patients were identified during 3 years, giving a total treated yearly psychosis incidence of 18.4/100 000 inhabitants between 18 and 45 years of age.

Drop-outs

Seventy-eight patients (31%) of the Parachute group ($n = 253$) dropped out initially or during the first year. Thirty-seven of the drop-outs did not wish to participate because of a reluctance to appearing in a case register. The remaining 41 could not be included as they moved from the area early in the treatment process, had language difficulties, because of practical circumstances or for unknown reasons. Patients moving to another area after 6 months of treatment were followed-up as research patients unless they refused to participate.

The drop-outs were significantly older (32.1 years) than the remaining Parachute group ($n = 175$) and there was a trend that non-schizophrenic patients (unrevised baseline) dropped out, especially those with delusional syndrome and brief psychosis.

In the Historical comparison group every patient was followed up through patient records, databases and, in some cases, by questioning the caregivers.

In the Prospective comparison group 13 of 64 (20%) did not want to take part in the investigation or could not be contacted for assessments at the 12-month follow-up. They did not differ significantly from the rest of the prospective group regarding age, sex and distribution of schizophrenia/non-schizophrenia diagnoses.

Social data and baseline diagnoses (Table 2)

There were no significant differences regarding social data between the groups, except that the Prospective comparison group contained more married/cohabiting persons and more students (university town).

Table 2. Social characteristics on entering study

	Parachute project ($n = 253$)	Historical comparison group ($n = 71$)	Prospective comparison group ($n = 64$)
Drop-out (initial and late)	78 (31%)	None	13 (20%)
Research population	$n = 175$	$n = 71$	$n = 51$
Age: years at admission (mean)	28.7	29.8	28.8
Males (%)	55	51	41
Born in other country (%)	17	*	22
Living in family of origin (%)	25	20	20
Children (%)	29	*	27
Married/cohabiting (%)	22†	29	37
Completed education (%)			
Primary school	25	*	14
High school/gymnasium	62	*	78
University	14	*	8
Employment (%)			
Employed in open market	36	*	27
Student	20†	*	35
Work training and other	43	*	37
On disability pension	0	4	1

*No reliable information.
†Parachute/Prospective $P < 0.05$.

At baseline (diagnosis revised at 12 months) the Parachute group contained 40.8% schizophrenia syndrome patients (including 8% schizophreniform and schizo-affective disorder). The Historical group had 61% schizophrenia syndromes (including 4% schizophreniform and three schizo-affective disorder) and the Prospective group 56.2% schizophrenia syndromes (17.3% schizophreniform and 0% schizo-affective disorder). The difference between parachute/historical group is significant ($P < 0.05$).

Duration of untreated psychosis

The DUP was measured using information from both patients and relatives in order to register the earliest date of experienced or observed psychotic symptoms. The median DUP time for Schizophrenia syndromes in the Parachute group was 21 weeks (range 0–902) vs. 12 weeks (range 1–300) in the Prospective group (NS).

For non-schizophrenia syndromes median DUP time was 2.3 weeks (range 0–764) in the parachute group vs. 2 weeks (range 1–500) in the Prospective group (NS). The relationship between DUP and outcome will be analysed in a later paper.

No information was available from the Historical group.

Treatment process during the first year

Psychological treatments in the Parachute group. There was a median of eight planned individual

therapeutic sessions during the first month. During the 12th month the median number was three for those patients still in treatment or who had returned for treatment. Unplanned sessions were not reported (the content of the sessions: informative, structuring, supportive, psychodynamic, cognitive, etc., is not specified because of uncertainty about reliability. The duration of the sessions varied according to patient's needs).

In addition a median of three family meetings were held during the first month. During the 12th month median was 0.

Pharmacological treatments (Table 3)

Schizophrenia syndromes. First week: Fewer patients (32%) in the Parachute group than in the comparison groups were prescribed anti-psychotic treatment. The daily dose for those treated was significantly lower than in the Historical group but did not differ from the Prospective group.

During the *last week of the 12th month* fewer (62%) in the Parachute than Comparison patient groups were treated with anti-psychotic medication. The doses did not differ significantly.

One patient in the Parachute and Prospective group, respectively, vs. five (19%) in the Historical group were on depot medication at the 12th month.

Fourteen per cent of Parachute patients did not have a neuroleptic prescription during any of the five check periods vs. 9% of the Historical group and none of the Comparison group (NS).

Non-schizophrenia syndromes. First week: Significantly more patients got antipsychotic medication in the Historical group. The doses were also higher. There was no difference between the Parachute and the Prospective groups.

At the *last week of the 12th month* there were no differences regarding the frequency of medication. The doses were however, significantly higher in the Historical group.

Twenty-three per cent of Parachute, 4% of Historical and 21% of Prospective comparison non-schizophrenic patients were not on neuroleptic treatment during any of the check periods.

Other medication (not recorded in Historical group). Benzodiazepines were significantly more often prescribed to the prospective comparison group during the first week.

There were no differences in frequency of patients using antidepressants/lithium during year 1.

In-patient treatment (Table 4)

The Parachute patients were treated for 22 days (median 5 days) in traditional in-patient care, the Historical group for 42 days (median 26 days) and the patients in the Prospective group for 65 days (median 42).

During the first year it became evident that only 10 of the 17 clinics could provide need-adapted

Table 3. Frequencies (and daily doses for those treated) of neuroleptic treatment (mg haloperidol eqv/day), benzodiazepines and antidepressives or lithium

	Schizophrenia syndromes*			Non-schizophrenia syndromes		
	Parachute group $n = 71$	Historical comp. group $n = 43$	Prospective comp. group $n = 27$	Parachute group $n = 99$	Historical comp. group $n = 28$	Prospective comp. group $n = 24$
Neuroleptic medic 1st week (%)	32†, ‡	51	56	39†	79	54
Mn doses mg (Md)	2.8 (1.7)‡	4.3 (4.2)	2.0 (1.5)	2.0 (1.7)†	3.9 (3.5)	1.4 (1.0)
Neuroleptic medic	$n = 69$	$n = 42$	$n = 27$	$n = 101$	$n = 28$	$n = 22$
52nd week (%)	62‡	62	89	31	39	36
Mn doses mg (Md)	3.0 (2.0)	4.2 (3.0)	4.3 (2.3)	1.9 (2.0)	3.5 (3.0)	2.3 (1.8)
No registered prescription of neurol. medic. during year 1 (%)	14‡	9	0	23†	4	21
Benzodiazepines 1st week (%)	60‡	§	85	60‡	§	92
Registered prescription of antidepress. or lithium med. (%)	36	§	26	40	§	42

*Schizophrenia, schizophreniform, schizo-affective psychosis.
†Parachute/Historical $P < 0.05$.
‡Parachute/Prospective $P < 0.05$.
§No reliable information.

Table 4. In-patient treatment for the first 12 months. In-patient days/patient/total groups

	Parachute OC ($n = 94$)	Parachute NOC ($n = 60$–62)	Parachute Tot. group ($n = 169$–171)	Historical Comparison ($n = 71$)	Prospective Comparison ($n = 51$)
Traditional psychiatric ward					
% Utilizing	54	68	62	76	100
Days/pat mean (Md)	12 (1)*	30 (12)*	22 (5)†, ‡	42 (26)†	65 (42)‡
Crisis home§					
% Utilizing	57	–	34	6	–
Days/pat mean (Md)	42 (9)	–	24 (0)	2 (0)	–

Total overnight care days:
*OC/NOC in traditional psychiatric ward days: $P < 0.01$; in total overnight care days: NS.
†Parachute/Historical in traditional psychiatric ward days: $P < 0.001$; in total overnight care days: NS.
‡Parachute/Prospective in traditional psychiatric ward days: $P < 0.001$; in total overnight care days: Parachute/Prospective $P < 0.001$.
§Residential home in Historical group.

overnight care. In order to investigate the effects of such crisis homes we have divided the Parachute clinics into two groups according to whether or not such a centre was available:[1]

Group OC: Ten centres with overnight crisis home, i.e. access to an overnight centre (even if it was not used for all patients) in addition to traditional in-patient care.

Group NOC: Seven centres with no specific overnight crisis home, i.e. only traditional in-patient care was available.

Parachute clinics with access to a crisis home (OC clinics) used 12 days/patient in traditional wards. However to this a mean of 42 days in crisis homes should be added.

Outcome at 1 year

GAF (Figure 1). At baseline there were no differences between the groups. At 12 months the Historical group had significantly lower values. There was no difference between Parachute and Prospective groups (given the sample sizes and SDs of the two groups, and a significance level of 0.05, a power above 0.80 would require a mean difference of 7 or more GAF-points).

BPRS/PANSS (only Parachute and Prospective groups) (Table 5)

There were no significant differences in any of the diagnostic subgroups between the Parachute and the Prospective groups at 12 months.

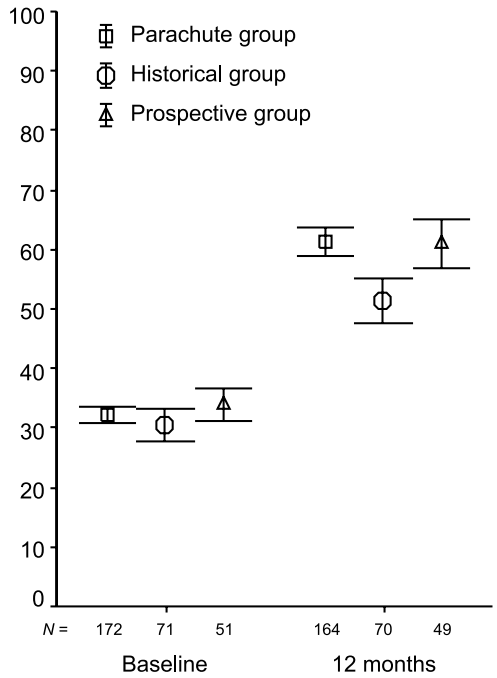

Fig. 1. GAF-(95% confidence interval).

Comparisons between Parachute OC and NOC clinics

The mean GAF value rises from 32 in both groups at baseline, to 59 in the OC vs. 50 in the NOC group at the 12th month ($P < 0.05$) in the schizophrenia syndrome group.

There were no significant differences at baseline or at 12 months between the groups regarding BPRS ratings. There were no differences in outcome regarding the non-schizophrenia patients.

The groups were statistically comparable concerning age, sex, schizophrenia syndrome diagnosis and on all social measures. The OC group had longer DUP-time than the NOC-group. The OC-group received significantly more

[1]For 16 patients at the clinics, which started a crisis home after onset of the project, the special crisis home treatment was not available during their whole first year. These patients were excluded from the comparisons between the Parachute groups but not from other comparisons.

Table 5. BPRS/PANSS at baseline and at 12th month

	Schizophrenia syndromes		Non-schizophrenia syndromes	
	Parachute group ($n = 68$–66)	Comparison group ($n = 27$)	Parachute group ($n = 103$–95)	Comparison group ($n = 24$–18)
BPRS/PANSS baseline				
Positive symptoms* (%)	95.5	100	86.5	98.5
Negative symptoms† (%)	69.7	63.5	43.3	62.5
BPRS/PANSS 12th month				
Positive symptoms (%)	53.0	40.7	20.0	5.6
Negative symptoms (%)	44.8	66.7	20.0	27.8

*Positive symptoms BPRS items 9–11, PANSS items P1, P3, P6: defined as one or more items > 2 on the 7 point scale.
†Negative symptoms BPRS items 16–18, PANSS items N1, N2, A7: Defined as one or more items > 2 on the 7 point scale.
Parachute/Prospective NS diff.

planned individual psychotherapeutic/supportive sessions during the first month. There were no significant differences regarding pharmacological treatments.

Suicides

There was one suicide during the first 12 months in the Parachute group, one in the Historical, and two in the Prospective group.

Satisfaction with care in the Parachute project

One hundred and thirty-five (77%) patients and 103 (59%) relatives anonymously answered the 13 items (44% of the patients were living alone). There was a general satisfaction with the care among both patients and relatives with a median satisfaction score for patients 3.9 and for relatives 4.0 (scoring 3: 'both satisfied and unsatisfied', 4: 'largely satisfied' and 5: 'completely satisfied').

Discussion

To our knowledge the Parachute project is unique in the integration of an epidemiological approach, efforts for intensive psychosocial and medical treatment of a large cohort of FEP patients, with a sufficiently long follow-up period (5 years) and comparing with 'standard treatment' FEP populations (6, 24–26).

One problem in the interpretation of the results of the study is the lack of randomization between experimental and 'standard treatment'. Besides the ethical problems when randomizing between a low-intensive and a high-intensive treatment programme, the randomization between different treatments of a low incidence disorder in the same clinic would obviously demand much larger catchment areas than are to be found in Sweden. Two comparison groups have been collected. None of them is without drawbacks. The historical comparison group may be regarded as a rather complete standard treatment FEP collection from three inner and suburban city areas, 5 years later involved in the Parachute project The patients have been retrospectively assessed, mostly through records. The higher proportion of baseline schizophrenia syndromes may be related to the retrospective diagnostic procedure, as the investigators could not be totally blinded to the later course of illness.

The Prospective comparison group probably is not as complete as the Parachute and Historical groups from the epidemiological point of view. Possibly non-schizophrenia patients, who were never admitted to in-patient care, were less well represented. This problem is met by separately comparing outcome and treatment of schizophrenia and non-schizophrenia syndromes. Also the differences to the Parachute project regarding treatment policies are unclear in several aspects. The Uppsala clinic is not very typical for traditional care of FEP patients as it advocated considerably lower doses of neuroleptic medication than was usually recommended in the middle of the 90s. However, in the lack of systematic psychotherapeutic and family approaches it was more like 'treatment as usual'. No inter-rater reliability tests could be conducted between the Parachute and comparison groups, which also reduces the possibilities of drawing firm conclusions from the comparisons.

The study is an evaluation of treatment concepts, not of specific treatments, which include many ingredients. There were no fixed treatment schedules as the treatments were 'need-specific' and individualized. An evaluation of the adherence to the six parachute principles is currently undertaken. It will make an intra-project comparison possible in comparing the results from those centres with high fidelity with the programme, with the others.

The antipsychotic medication was low, both in the Parachute and Prospective comparison group relative to recommendations given by professional groups (27, 28). GAF-values of the Parachute and the Prospective comparison patients were significantly better at 12 months in relation to the Historical group. Several studies during the past decade show that considerably lower antipsychotic doses are feasible and preferable in comparison with conventional treatment (29, 30). This is also confirmed in PET studies (31, 32). Two Finnish 'need-adapted' treatment studies (33, 34) show good results with even less medication than in the Parachute group. The often-repeated belief that there is a risk involved in not immediately treating with neuroleptics in recommended doses (35) does not seem to be justified. The advantage of using low effective doses of antipsychotic medication is evident, given our knowledge of devastating immediate and late side-effects and the need for compliance with the medication. The low suicide rate, and the high satisfaction with care also support this view.

The utilization of traditional in-patient care is lower for the Parachute patients – especially for clinics with access to a small 'crisis home'. The extent to which this lowers total cost is under evaluation.

A possibility arose to investigate the usefulness of a residential overnight crisis home as compared with ordinary psychiatric wards, as only about half of the Parachute clinics were able to create the special small-scale 'crisis home' milieu. This intra-project comparison shows significantly better 12-month GAF values for the schizophrenia syndrome patients at the clinics with access to a small crisis home. This supports clinical experience that access to crisis home care is an important factor in psychosis care (4). There were also more planned individual psychotherapeutic/supportive meetings at these clinics during the first care period, and fewer days of hospital in-patient stay. We have not been able to find any confounding factors explaining the differences. One alternative interpretation of the GAF difference is that the most effectively working Parachute clinics would also produce a crisis home and that the general high level of ambition is the important factor. The results must of course be checked in further studies.

There were no differences in BPRS symptom ratings at 12 months between NOC and OC clinics. However, symptom reduction seems only partly correlated with functional well being. The low rate of in-patient care in NOC clinics (with no crisis home) reflects that out-patient care has often been preferred to traditional ward care. Many of the Parachute clinics with crisis home facilities, for organizational and conventional reasons, were unable to take over the treatment responsibility when the patient was first actualised at the clinic. This meant that during the first days many patients were unnecessarily hospitalized and treated with neuroleptics even at Parachute clinics with access to overnight crisis homes.

Other outcome measures such as working capacity, the capacity to maintain a social network, early prevention of relapse, neuropsychological functioning, personality aspects including coping strategies, etc. will be presented in later studies. The interactive effects related to good and poor recovery, respectively, will be the focus of these studies.

In conclusion, it is possible to create and implement a large scale system of care that value high degree of psychosocial support, lowest optimal antipsychotic medication, participation of families, and treatment in normalized, humane and integrated settings. At 1-year follow-up, data indicate that outcome in this new system of care is at least comparable with usual treatment. The satisfaction with care is high among patients and families.

Institutional care is low and a cost analysis is being conducted to evaluate the relative cost of Parachute model vs. treatment as usual.

Acknowledgements

The clinical and research teams at the clinics taking part in the Parachute project are gratefully acknowledged, i.e. Bromma-Ekerö, Central Stockholm, Haninge, Hässelby-Vällingby, Järfälla-Upplands Bro, Nacka, Stockholm South, Eskilstuna, Västervik, Malmö South, Mark, Motala, Östersund, Skellefteå, Sundsvall-Härnösand, Umeå and Västerås. Also we thank the research staff at Psychiatry Ulleråker, Uppsala.

The central research organization has been funded by a grant from the Unit for Research and Development of Stockholm County Council, no. HSN 0009-0470 and by a grant from the Swedish National Board of Health and Welfare. Susanne Wicks and Nils Larsson have provided statistical services. We also gratefully acknowledge advice from professor Wayne Fenton, Washington, DC.

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