

Relapse prevention in schizophrenia: does group family psychoeducation matter? One-year prospective follow-up field study

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Abstract

Objectives. Relapse prevention is one of the most important goals of long-term schizophrenia management, as relapse is both distressing and costly. Family intervention supplementation to standard treatment could reduce the relapse rate. This study assessed the influence of a short-term, clinically based, and professionally led family psychoeducation programme on a 1-year relapse rate. **Methods.** A total of 120 patients were recruited upon discharge from two psychiatric hospitals in Prague: (1) Site A ($N=86$), where family psychoeducation is offered to all patients with schizophrenia, schizoaffective disorder, and acute psychotic episode with schizophrenic symptoms; and (2) Site B ($N=34$), where no such programme was offered. **Results.** Compared to nonparticipants, psychoeducation participants had a shorter average length of rehospitalization stay (5.89 vs. 17.78 days, $P=0.045$) in a 1-year follow-up after discharge. The probability of rehospitalization during a 1-year follow-up was higher for patients from the site that did not provide psychoeducation. **Conclusions.** A shorter average length of rehospitalization of psychoeducation participants, a high turnout of first-episode patients, and positive responses of psychoeducation participants suggest that family psychoeducation should be supplemented early in the course of the illness to achieve favourable treatment outcomes and minimize adverse health and the social consequences of schizophrenia.

Key Words: Family psychoeducation, schizophrenia, relapse prevention, first episode psychosis, quality of life

Introduction

Relapse prevention is one of the most important goals of long-term schizophrenia management, as relapse is both distressing and costly [1]. Many alternative definitions of relapse in schizophrenia have been published. The widely accepted one defines relapse as the reemergence or aggravation of psychotic symptoms leading to hospital readmission. The cornerstone of relapse prevention is long-term pharmacotherapy with antipsychotic medication [2,3]. However, relapse is relatively frequent even though patients receive medication: the 1-year relapse rate for patients who received oral medication was 42%, compared with 27% for long-acting depot medication [4]. The relapse rate can be further reduced by 20% if relatives of schizophrenia patients are included in the treatment [5]. Family psychoeducation—one of the most promising relapse preventing psychosocial interventions—provides a combination of education about mental illness, family support, crisis intervention,

and problem-solving skills training. The programmes are delivered in various designs: individual family psychoeducation, individual family psychoeducation with group psychoeducation for relatives only [6], group family psychoeducation [7], and parallel group psychoeducation: separate groups for patients and groups for their relatives [8,9]. Short-term programmes usually lead to improvement in knowledge and family burden with limited impact on the severity or course [10,11]. However there are studies that found significant reduction of readmission days in a 4-year follow-up even after a short-term programme [12]; longer-term programmes (more than 6 months) have a significant effect on reducing relapse rates and rehospitalization over 2 or more years [13–15] without increasing the overall volume of outpatient mental health services [16].

The family psychoeducation approach is based on the vulnerability/stress model of schizophrenia. Certain information-processing deficits, autonomic reactivity anomalies, and social competence and

coping limitations are viewed as potential vulnerability factors [17]. These problems predispose patients to be vulnerable towards stressors such as discrete life events as well as the prevailing level of social environmental stress which might provoke relapse [18]. This model was supported by studies on intrafamily interactions and atmosphere. The course of the illness was negatively influenced in patients living in stressful environments with relatives exhibiting high expressed emotions (HEE): hostility, highly critical comments, and overinvolvement [19–22]. The interaction of neurocognitive vulnerability and psychosocial stress factors has recently been confirmed; the combination of patients' working memory deficits and interpersonal criticism jointly predicted psychotic thinking [23].

Based on these assumptions, family psychoeducation is hypothesized to reduce family burden and distress by improving patients' functioning and family coping and by increasing social networking. Family members are taught how to provide a safe, predictable, stimuli-controlled environment. The complementary part of this intervention is social-skills training approach that modifies those patient behaviours that elicit negative feedback from family members [18] and strengthen patients' capabilities to confront environmental stressors. Better treatment compliance as a result of the delivery of information regarding antipsychotic medication to both patients and relatives can be expected. Being informed about the side effects of antipsychotics does not negatively affect compliance and is essential for establishing patients' confidence in physicians and in the medications [24].

The aims of the present study were: (1) to analyze the effectiveness of a clinically based family psychoeducation programme implemented as soon as possible after discharge; (2) to gather participant-reported impressions of the main assets of the programme.

Study design

A prospective follow-up field study was designed to compare the 1-year post-discharge relapse rate of psychoeducation participants and nonparticipants. Relapse was defined as the re-emergence or aggravation of psychotic symptoms leading to hospital readmission. The main outcome measures were rehospitalization occurrence and number of days of rehospitalizations in a 1-year follow-up. To evaluate satisfaction with a psychoeducation programme, both patients and relatives were mailed a Psychoeducation Outcomes Questionnaire (POQ) 1 year later.

Study population

Diagnosis of schizophrenia (F20), schizoaffective disorder (F25), acute psychotic episode with schizo-

phrenic symptoms (F23.1) (ICD-10), and the requirement of at least a 1-year antipsychotic maintenance therapy were inclusion criteria. Patients with comorbid organic mental disorder were excluded.

After written informed-consent completion, 120 patients were recruited upon discharge from two hospital settings: (1) Site A ($N=86$), where family psychoeducation was offered to all patients discharged with schizophrenia, schizoaffective disorder, and acute psychotic episode with schizophrenic symptoms. Fifty-three patients (61.6%) accepted the invitation to participate in the family psychoeducation programme, and 33 (38.4%) invited patients decided not to participate; (2) Site B ($N=34$), where no such programme was offered and patients had no opportunity to participate. Originally, 37 patients gave informed consent with participation but three of them withdrew the consent subsequently and were not included into the study.

The Psychoeducation Outcomes Questionnaire was mailed to all psychoeducation participants 1 year after the programme (93 relatives and 53 patients). Forty-five relatives (48.39%) and 36 patients (67.92%) returned the questionnaire.

Intervention

At Site A, a professionally led, clinically based, short-term, 8-hour programme was offered to all patients discharged with schizophrenia, schizoaffective disorder, and acute psychotic episode with schizophrenic symptoms. The patients and their relatives participated in separate parallel groups of eight to 10 participants as soon as possible after discharge in consecutive cohorts between January 2001 and April 2003.

All patients received antipsychotic medication. They were encouraged to invite their family members—regardless of whether they were living with the patients or not—and close friends to support as many of the patients' social network contacts as possible. The programme provided a combination of education on mental illness, family support, crisis intervention, communication, and problem-solving skills training.

The course of schizophrenia was explained by means of the vulnerability/stress model. Special attention was paid to the early warning signs of relapse. The theoretical orientation was a broad-based, supportive, and the cognitive-behavioural.

Instruments

The Psychoeducation Outcomes Questionnaire (POQ) was originally developed to assess the outcomes of psychoeducation and to acquire as much information as possible about family atmosphere, disease management, ability to cope, use of psychiatric services, and satisfaction with such

services. The questionnaire included close- and open-ended questions. The patients and relatives were mailed the Psychoeducation Outcomes Questionnaire [25] 1 year after their participation.

Global Assessment of Functioning (GAF) [26] is a scale that describes the level of symptoms (GAF-S) and disability (GAF-D). One rater, who was unaware of patients' participation status, made an assessment of patients upon discharge from the index hospitalization according to the medical records. Chlorpromazine milligrams equivalents (CLZ) were used for conversion of different types of antipsychotic medications to compare medication dosages [27] upon discharge from the index hospitalization. Follow-up data were provided by all relevant sources: patients and their relatives themselves, outpatient psychiatrists and medical records from inpatient facilities.

Statistical methods

The differences between psychoeducation participants and nonparticipants were calculated with χ^2 analyses (for categorical variables) or One-way ANOVA (for quantitative variable) using $P=0.05$ as the level set to determine statistical significance. Logistic regression was used to analyze the predictors of 1-year rehospitalization. Along with the logistic regression model, we included rehospitalization as a dependent variable. Predictors were Psychoeducation (YES=1, NO=0), Site (A=0, B=1), Number of previous hospitalizations, Age and Sex (M=1, F=0), F 23.1=acute psychotic episode with schizophrenia symptoms (Yes=1, No=0), F 25=schizoaffective disorder (Yes=1, No=0). For additional analysis, we searched for the differences among invited patients only (Site A, $N=86$) to determine the characteristics of those who accepted invitation and participated in the programme compared to those invited who did not come (ANOVA). The Statistical Package for Social Sciences (SPSS) version 11.5 was used for analyses.

Results

Descriptive findings

Clinical characteristics of the study population are in the Table I.

Compared to nonparticipants, psychoeducation participants had a lower rate of previous hospitalizations (1.79 vs. 3.46, $P=0.001$) and spent shorter time in a hospital (5.89 vs. 17.78 days, $P=0.045$) in a 1-year follow-up after discharge.

Predictors of rehospitalization

We used logistic regression to analyse the predictors of rehospitalization during a 1-year follow-up

(Table II). The probability of rehospitalization during a 1-year follow-up was higher for patients from the site B, which did not provide psychoeducation.

Patients invited to psychoeducation (Site A only, $N=86$): Differences between patients who were invited and participated and those who did not participate

To identify the characteristics of those patients who accepted the invitation and participated in the programme, we compared 53 psychoeducation participants with 33 invited patients who did not participate in the programme (Table III).

Compared to patients who were invited but did not participate, participants had significantly fewer previous hospitalizations (1.79 vs. 2.88, $P=0.006$); more of them experienced first-episode illness (34 patients, 64.2% vs. 12 patients, 36.4%, $P=0.011$); their index hospitalization was longer (51.45 vs. 40.55 days, $P=0.003$) and more of them received first-generation antipsychotics (nine patients, 17.3%, vs. one patient, 3%, $P=0.044$). There were no significant differences in a 1-year outcome among those who participated and those who decided not to participate.

Satisfaction with psychoeducation participation

Participants were mailed the Psychoeducation Outcomes Questionnaire one year after psychoeducation to determine their impressions of the main assets of the programme. As detailed quantitative and qualitative analyses of the contents of questionnaire are beyond the scope of this article and will be presented elsewhere, we present the most frequent answers to the open-ended questions. These questions concern the perceived global effects of psychoeducation, particularly disease knowledge, management skills, and satisfaction with the programme.

Patients acknowledged: (1) the importance of delivered information; (2) an opportunity to share their experience with the illness with others during the treatment group sessions; and (3) better reconciliation with the fact of being ill. They welcomed participation of their relatives in the programme. The relatives acknowledged: (1) the importance of delivered information; (2) acceptance that medication was necessary; (3) increased trust in psychiatry; (4) acquired skills on how to behave towards the ill; (5) knowledge that the problem behaviour is not always deliberate; (6) acceptance of the biological origins of the illness; and (7) the feeling of not being alone.

Discussion

Patients who participated in the psychoeducation programme spent less time in a hospital during a

Table I. Clinical characteristics of the study population (N=120): psychoeducation participants and nonparticipants.

Variable	PE participants (N=53)		PE nonparticipants (N=67)		Test statistic	P
	N	%	N	%		
Age (mean ± SD)	31.13 ± 10.23		32.39 ± 9.81		F = 0.467	0.496
Sex: Male	20	37.7	36	54	$\chi^2 = 3.042$	0.059
Sex: Female	33	62.3	31	46		
Diagnosis:						
F 23.1	18	34.0	12	17.9	$\chi^2 = 4.075$	0.130
F 20	29	54.7	46	68.7		
F 25	6	11.3	9	13.4		
Previous hospitalizations (mean ± SD)	1.79 ± 1.49		3.46 ± 3.32		F = 11.496	0.001
Site: A	53	100	33	49	NA	NA
Site: B	NA	0	34	51		
First episode	34	64.2	24	36	$\chi^2 = 9.511$	0.002
No. of days of index hospitalization ¹ (mean ± SD)	51.45 ± 16.42		45.54 ± 26.58			
GAF: Symptoms (mean ± SD)	50.67 ± 3.70		50.17 ± 5.26		F = 0.347	0.557
Disability (mean ± SD)	50.33 ± 4.72		49.91 ± 6.18		F = 0.163	0.687
Medication in CLZ equivalents, mean ± SD	384.90 ± 259.34		402.63 ± 255.79		F = 0.139	0.710
Antipsychotics						
First-generation	9	17.3	7	10.4	$\chi^2 = 1.184$	0.206
Second-generation	43	82.7	60	89.6		
No. of days in hospital: 1-year follow-up, mean ± SD	5.89 ± 15.35		17.78 ± 40.43		F = 4.108	0.045
No. of hospitalizations: 1-year follow-up, mean ± SD	0.17 ± 0.43		0.37 ± 0.85		F = 2.526	0.115

¹Index hospitalization is the last hospitalization before the entry into the study.

First-generation antipsychotics (typical): chlorpromazine, haloperidol, perphenazine, flufenazine decanoate, flupenthixol decanoate, oxyprotopine decanoate.

Second-generation antipsychotics (atypical): sulpiride, amisulpride, risperidone, olanzapine, clozapine, quetiapine, ziprasidone, zotepine.

1-year follow-up compared to nonparticipants. This finding should be interpreted with caution as the main methodological shortcoming of the present field study was the absence of randomization. Also, those patients who had no opportunity to participate in the psychoeducation programme had more hospitalizations before the index hospitalization; it was found that patients with more episodes were more prone to relapses [28].

The probability of rehospitalization during a 1-year follow-up was higher for patients from the institution that did not provide psychoeducation. The setting variables might influence the outcomes, although both settings similarities overbalance differences. Both Site A (41 beds) and Site B (44 beds) are locked units, designed to provide an acute psychiatric care limited by the health care providers to 52 days of inpatient stay for people between 18 and 65 years. Patients' clinical state at discharge was not measured by any formal scale. It is required, however, that discharge from both sites is possible

only when the patient is ready to cooperate in the treatment with his/her psychiatrist as an outpatient. We found no differences in the so-called biological treatment of schizophrenia (neither significant differences in the frequency of first- and second-generation antipsychotics use nor a significantly different dosage of medication on discharge), or in functional status among patients discharged from Site A and Site B (GAF-S, GAF-D). The explanation for higher probability of rehospitalization during a 1-year follow-up for patients from the institution that did not provide psychoeducation may be that dissimilar psychosocial interventions were provided to patients included in our study. Although generally accepted by professionals, family psychoeducation is not provided routinely as a part of treatment procedures for patients with schizophrenia in the Czech Republic. Therefore it was not provided in Site B. Otherwise both settings have a similar profile of inpatient activities (group psychotherapy, art therapy, exercise therapy).

Table II. Predictors of rehospitalization within 1 year after discharge in a sample of 120 patients.

Step 1a	B	S.E.	Wald	P	Exp (B)
Psychoeducation	1.515	0.864	3.077	0.079	4.550
Site	2.191	0.864	6.437	0.011	8.944
Previous hospitalizations	0.189	0.101	3.501	0.061	1.208
Sex	-0.409	0.570	0.513	0.474	0.665
Age	-0.18	0.29	0.388	0.533	0.982
F 23.1	-2.062	1.102	3.500	0.061	0.127
F 25	-1.078	0.870	1.535	0.215	0.340
Constant	-2.359	1.232	3.663	0.056	0.095

Table III. Clinical characteristics of patients invited to psychoeducation (Site A only) ($N=86$).

Variable	Invited and participated ($N=53$)		Invited, but did not participate ($N=33$)		Test statistic	P
	N	%	N	%		
Age (mean \pm SD)	31.13 \pm 10.23		30.15 \pm 7.53		$F=0.226$	0.636
Sex: Male	20	37.7	16	48.5	$\chi^2=0.965$	0.224
Sex: Female	33	62.3	17	51.5		
Diagnosis:						
F 23.1	18	34.0	7	21.2	$\chi^2=1.989$	0.370
F 20	29	54.7	23	69.7		
F 25	6	11.3	3	9.1		
Previous hospitalizations Mean \pm SD	1.79 \pm 1.50		2.88 \pm 2.07		$F=7.930$	0.006
First episode	34	64.2	12	36.4	$\chi^2=6.312$	0.011
No. of days of index hospitalization: Mean \pm SD	51.45 \pm 16.42		40.55 \pm 15.95		$F=9.170$	0.003
GAF: Symptoms, mean \pm SD	50.67 \pm 3.70		51.45 \pm 4.72		$F=0.725$	0.397
Disability, mean \pm SD	50.33 \pm 4.72		52.06 \pm 4.68		$F=2.741$	0.102
Medication in CLZ equivalents, mean \pm SD	384.90 \pm 259.34		456.48 \pm 280.98		$F=1.441$	0.233
Antipsychotics						
First-generation	9	17.3	1	3	$\chi^2=3.964$	0.044
Second-generation	43	82.7	32	97		
No. of days in hospital: 1-year follow-up, mean \pm SD	5.89 \pm 15.35		2.06 \pm 8.33		$F=1.728$	0.192
No. of hospitalizations: 1-year follow-up, mean \pm SD	0.17 \pm 0.43		0.06 \pm 0.24		$F=1.795$	0.184

We speculate that the family psychoeducation approach does not by itself lead to a reduction of days spent in the hospital. Rather, psychoeducation can improve outcomes as a part of a system of care oriented towards patients' needs as well as families' needs. Continuity of care, guaranteed in the form of an invitation to the programme for the whole family, may "bridge" the vulnerable period of the illness—the "fragile" remission which follows hospital discharge—and may play an important role in successful relapse prevention. A skilled therapeutic team consisting of professionals who are able to provide psychoeducation gives additional benefits to patients during their inpatient stay even if such patients do not subsequently participate in family psychoeducation. This explanation is supported by a similar result from a study comparing a programme for schizophrenia relapse prevention (PRP) and treatment as usual (TAU); The PRP teams were much more likely than the TAU psychiatrists to identify prodromal episodes before patients met objective relapse criteria or needed hospitalization [29]. With regard to 1-year outcomes for participants at Site A, we found no significant differences between psychoeducation participants and those who decided not to participate. This finding further supports the possible role of hospital milieu. First-episode patients accepted the invitation and participated in the programme more frequently than did patients with more episodes. Participants' longer index hospitalization could be partially responsible for their higher rate of participation. It is possible that the patients with first-episode psychoses and their relatives spent more time discussing future treatment with the staff than those with more episodes; and their participation in the programme may have been encouraged

more vigorously. A more plausible explanation, however, is that interest in participation on the part of patients with first-episode of psychosis and their relatives reflected their higher need for information and their readiness for cooperation. Having such motivation and cooperativeness increases the potential, at this particular stage of the illness, for achieving positive outcomes ranging from better treatment adherence to trust in psychiatry. Our finding supports other studies that have advocated early implementation of family interventions. Although some studies have not found advantages in psychoeducation participation in patients with a very short duration of illness [30], we suggest that interventions that include family should be implemented as soon as possible in the course of the illness because relatives' involvement influences patients' quality of life [31]; family environment and psychosocial factors are the most important factors affecting patients' well-being [32]; and presence of a supportive social network consisting of relatives and friends predicts better long-term outcomes [33]. As quality of life is already low in first-episode schizophrenia [34,35], it is essential that implementation of interventions be aimed at improving quality of life as soon as possible during the course of the illness in order to prevent further decline. Also, this finding supports advocates of need of specialized services for first-episode patients. Participants in the EPPIC study (The Early Psychosis Prevention and Intervention Center) [36], who received specialized treatment for early psychosis experienced significantly fewer admissions during 1-year follow-up period, had shorter periods as in-patients and had a reduction in both acute and post-acute levels of neuroleptic dosage. Only patients with a mid-range

DUP (duration of untreated psychosis) of 1–6 months treated within the improved and more structured phase-specific treatment programme experienced significantly better outcomes than patients treated within the previous model [37]. These data suggest that there may be a limited window of opportunity in which to influence outcome [38]. Participant-reported reflections illustrate the long-term beneficial effects of group psychoeducation for both relatives and patients, and indicate elements that may be crucial for better treatment outcomes in schizophrenia. Contrary to popular belief, patients welcomed and even required their relatives' participation in the programme.

Conclusions

A shorter average length of rehospitalization in psychoeducation participants, a high turnout of first-episode patients, and positive responses of psychoeducation participants suggest the beneficial potential of the family psychoeducation approach. Involvement of the family in the treatment of schizophrenia early in the course of the illness could positively influence health and social outcomes. Future studies should concentrate on quality of life of all participants—both patients and their relatives—and possible economic outcomes of family psychoeducation implementation.

Key points

- Family psychoeducation can improve outcomes as a part of a system of care oriented towards patients' needs as well as families' needs
- Compared to nonparticipants, psychoeducation participants had a shorter average length of rehospitalization stay during a 1-year follow-up
- A skilled therapeutic team consisting of professionals who are able to provide psychoeducation gives additional benefits to patients during their inpatient stay, even if such patients do not subsequently participate in family psychoeducation
- First-episode patients accepted the invitation and participated in the programme more frequently than did patients with more episodes

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