

Patient Characteristics Predicting Better Treatment Outcomes in Day Hospitals Compared With Inpatient Wards

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The study aimed to identify patient characteristics associated with differences in outcomes of acute treatment in day hospitals and conventional hospital wards. **Methods:** Data were from the European Day Hospital Evaluation (EDEN) (2000–2003), a multicenter randomized controlled trial comparing acute treatment in day hospitals and conventional wards in five European countries. All 880 adult patients in the EDEN study who had a diagnosis of schizophrenia, mood disorders, neurotic disorders, and behavioral syndromes (*ICD-10* codes F20–F59) and complete data on baseline variables were included. Outcomes were symptom levels (Brief Psychiatric Rating Scale), subjective quality of life (Manchester Short Assessment of Quality of Life), and social disability (Groningen Social Disabilities Schedule) assessed at discharge and at three and 12 months postdischarge. Mixed- and main-effects models of interaction effects between patient characteristics and outcomes were generated. **Results:** Patients' age, diagnostic category, and living status (alone or not) did not predict differences in outcomes between the two settings. However, patients with higher symptom levels at baseline experienced greater symptom improvements after treatment on a ward, and those with more years of education had greater symptom improvements after day hospital treatment. Female patients had more favorable social disability outcomes after day hospital treatment, but no difference between the two settings was found for male patients. **Conclusions:** More severe symptoms may be a reason for admission to acute treatment on a conventional ward rather than a day hospital. Female patients and those with more education may benefit more from acute treatment in day hospitals. (*Psychiatric Services* 62:278–284, 2011)

Day hospitals have had a long and checkered history in psychiatry. In many Western countries they were widely established as part of mental health care reforms beginning in the 1970s (1–3). Yet the term “day hospital” has been used for very different types of day services, ranging from drop-in facilities for long-term care to settings for crisis interventions (4). Research provided little evidence for the effectiveness of long-term facilities, such as day-care centers providing ongoing vocational activities, and over time such services were challenged and frequently disappeared. At the same time, substantial research evidence suggests that day hospitals providing acute treatment as an alternative to conventional inpatient care may be effective. Systematic reviews and meta-analyses showed that treatment in acute day hospitals leads to symptom reductions similar to those achieved on conventional wards, that it may have more favorable outcomes in terms of patients' social functioning, and that it is often less costly than care on conventional wards (5–7).

Supported by this evidence base, day hospitals for acute treatment have been recommended by the National Institute for Clinical Excellence in the United Kingdom and have become a regular part of mental health service provision in other countries, such as Germany (8,9). However, day hospitals are not meant to replace conventional inpatient care com-

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pletely, and they commonly exist alongside conventional ward settings. Thus, where day hospitals for acute treatment exist, clinicians have the option of admitting patients in need of acute treatment either to a day hospital or to a conventional hospital ward. Currently, there is no research evidence to guide decisions about which patients should be admitted to which setting.

In this study we explored whether patient baseline characteristics predict more favorable outcomes after treatment in either setting in order to provide information for more targeted admissions. Addressing this question requires a multivariate analysis of individual patient data that cannot be conducted in meta-analyses (10). We utilized data from the European Day Hospital Evaluation (EDEN) study, a large randomized controlled trial that compared acute treatment in day hospitals and conventional inpatient wards in five European countries. EDEN assessed patients' psychopathology, social disability, and subjective quality of life as main outcomes over a one-year follow-up period. Consistent with other studies, EDEN found no difference between the two settings in the effectiveness of acute treatment for symptoms and subjective quality of life; however, patients' social disabilities were reduced after day hospital treatment (11).

Several randomized controlled trials have compared outcomes in day hospitals and inpatient wards, and some of them systematically followed patients for at least six months (4–7). Of all patients included in these trials, the EDEN study included approximately 55% of the patients for whom psychopathology outcomes were reported, 71% of those for whom social functioning and disability outcomes were reported, and 100% of those with outcomes reported on subjective quality of life. The EDEN study therefore allowed us to address the research question in an analysis that used most of the patient data available in the world literature. Another advantage of using the EDEN data is that all patient characteristics and outcomes were assessed with identical instruments; thus there was no need to transform data, and the vari-

ance of the data for each individual could be fully utilized.

We explored whether baseline characteristics of patients predicted a better response in either of the two settings. As potential predictor variables, we selected patient characteristics that may be assumed to be associated with a more or less positive response to day hospital treatment than to conventional inpatient care and that are available before admission: patients' age, gender, level of education, living status (alone or not), main psychiatric diagnosis, and symptom levels at admission. We tested whether these variables showed an interaction effect with the setting of acute treatment in predicting outcomes over one year in symptom levels, social disability, and subjective quality of life.

Methods

Study design

This exploratory study analyzed data from the EDEN study, a trial that compared acute day hospital treatment with conventional inpatient treatment that was conducted in 2000–2003 in centers in five European countries (Prague, Czech Republic; Dresden, Germany; Wrocław, Poland; Michalovce, Slovakia; and London, United Kingdom). Details of the study methods, recruitment and patient flow, quality assurance measures for the randomization process, and main results have been described elsewhere (6,11–16).

Sample

All patients aged 18 to 65 who were in need of acute treatment in a psychiatric facility in one of the five centers during the study period were eligible to participate in the EDEN study. Exclusion criteria were admission only for diagnostic purposes, involuntary admission, likely requirement of coercive measures or consistent one-to-one observation, acute intoxication, a somatic disorder requiring inpatient care, direct referral from another hospital, homelessness, a one-way journey to the day hospital of more than 60 minutes or the need to be accompanied on the way to the day hospital, incapacity to give informed consent, or refusal to participate. Study

participants were randomly assigned to acute treatment either in a day hospital or on a conventional inpatient ward. After complete description of the study, written informed consent was obtained from participants. Detailed written protocols of local procedures and clinical responsibilities were established at each center and approved by local ethics committees.

A total of 1,504 eligible patients were asked to participate. Of those, 1,055 patients (70%) were included in the final EDEN analysis of effectiveness. Because we aimed to have large but relatively clear-cut diagnostic categories as potential predictor variables in the study reported here, we further excluded patients with infrequent or unclear diagnoses. We therefore excluded patients with a main clinical diagnosis of an organic mental disorder (*ICD-10* codes F00–F09, N=34), mental and behavioral disorders due to psychoactive substance use (codes F10–F19, N=19), and disorders of adult personality and behavior (codes F60–F69, N=89), as well as patients with an unclear diagnosis (N=33). Thus the final study sample comprised 880 patients, 454 of whom had been assigned to acute day hospital treatment and 426 to conventional ward treatment. In line with clinical practice at participating centers, clinical diagnoses were made on the basis of the *ICD-10* classification system.

Outcome measures

For this analysis we used the three main outcome criteria of the EDEN study—psychopathology, social disability, and subjective quality of life—which were assessed at discharge and at three and 12 months after discharge. These were the outcomes analyzed in previous studies of the differences between the two settings.

Psychopathology was assessed with the 24-item version (version 4.0) of the Brief Psychiatric Rating Scale (BPRS) (17,18). The interrater reliability achieved in the training of researchers in the study was high (intraclass correlation coefficient [ICC]=.78). Social disability was observer rated on the Groningen Social Disability Schedule, second revision

(GSDS) (19). On the GSDS, disabilities are rated in nine social roles, with different dimensions for each role and a sum score based on overall ratings. The interrater reliability for the sum score was also high ($ICC=.77$).

As a patient-reported outcome, subjective quality of life was assessed on the Manchester Short Assessment of Quality of Life (MANSA) (20). The MANSA contains 12 items on satisfaction with life in general and with various life domains, which are rated on a scale from 1, couldn't be worse, to 7, couldn't be better. The mean score on the satisfaction items was taken as a measure of subjective quality of life.

Predictor variables

Predictor variables were the center (location) and patients' age, gender, years of education, length of hospital stay, living status (alone versus with someone), baseline symptom levels (total BPRS score as assessed before randomization), and the main *ICD-10* psychiatric diagnosis. Because a complete standardized diagnostic interview with all patients was impracticable before admission, we used the clinical discharge diagnosis in all cases. Main diagnoses were analyzed in three categories: schizophrenia, schizotypal, and delusional disorders (*ICD* codes F20–29); mood disorders (*ICD* codes F30–39); and neurotic, stress-related, and somatoform disorders and behavioral syndromes associated with physiological disturbances and physical factors (*ICD* codes F40–59).

Procedure

Predictor variables other than clinical diagnosis were assessed by a researcher before randomization. Outcomes were assessed by an independent researcher at discharge and at three- and 12-month follow-ups after discharge. Researchers were not involved in patients' treatment; however, the treatment setting could not be masked because patients had to be interviewed in the given treatment setting at discharge.

Statistical analysis

The three outcome variables (BPRS, GSDS, and MANSA scores) were analyzed separately by a mixed-effects

model to take account of repeated measurements of these outcomes during the follow-up. In this model, the baseline measurement of the given outcome, the treatment setting, the time points of the measurement, and the selected baseline characteristics of patients were introduced as fixed effects, and a random effect was included for patients. The number of patients for whom data on variables tested as predictors were missing was relatively small (ten for living situation, 50 for years of education, and one for length of hospital stay). These missing values were imputed by using their given distributions at baseline. During the trial, some patients dropped out, which resulted in incomplete observations for a given outcome variable. These patients were included in the analysis, and the incomplete observations were assumed to be missing at random in the mixed-effects model analysis.

The analysis was conducted in two steps. First, we estimated a main-effect model with all baseline predictors. In the second step, the first-order interactions between treatment setting and each of the selected baseline variables were added to the main-effect model one by one if the interaction was significant at $p<.05$. The final models contained all baseline variables and significant interactions of baseline variables with treatment setting. We present the regression coefficients, their 95% confidence intervals (CIs), and p values for the main-effect model and for the model that includes the significant interactions.

An interaction effect between setting and a baseline variable means that the treatment effect depended on this variable or that the effect of this variable depended on the setting. The magnitude and statistical significance of interaction effects were taken from the final models. All statistical analyses were conducted with the Statistical Analysis System (SAS), version 9.1 (21).

Results

The baseline characteristics of the sample that were tested as predictor variables are summarized in Table 1.

Table 2 presents the results of the

mixed-effects model analysis of BPRS score. Several variables were found to predict outcomes in both settings, but for the research question addressed in this study only the interaction effects were of interest. Significant interaction effects in the prediction of symptoms were found between baseline variables and time and the treatment setting. Baseline symptom levels and years of education each interacted with the treatment setting in predicting symptom levels during the follow-up period.

The direction of the interactions were as follows: higher levels of baseline symptoms were linked with greater symptom improvement in both settings, but this association was significantly stronger for treatment in a conventional inpatient setting (ward, coefficient=.394, $CI=.328-.460$; day hospital, coefficient=.263, $CI=.192-.335$).

The interaction between education and symptoms suggested that the effect of education on BPRS score differed between day hospitals and wards. The effect (that is, that more years of education predicted more favorable symptom change) was statistically significant in day hospitals (coefficient=−.306, $CI=−.552$ to $−.059$) but not significant on conventional wards. The negative value means that BPRS score was negatively associated with increased years of education in day hospital treatment—that is, patients with more years of education experienced greater symptom reduction after day hospital treatment. In addition, the difference between ward and day settings in symptom improvement was significant only at 12 months (coefficient=1.427, $CI=.477-2.377$).

Results of the mixed-effects model analysis of GSDS score are shown in Table 3. Findings on the interaction effect for GSDS score suggested that the treatment difference in GSDS score between ward and day hospital was significant only for female patients (coefficient=.175, $CI=.095-.256$) but not for male patients (coefficient=−.012, $CI=−.118$ to $.094$).

Finally, Table 4 shows the results of the mixed-effects model analysis of MANSA score. Because no significant interaction effect was found be-

tween treatment setting and any of the patient baseline characteristics, only results from the main-effect model are presented.

Discussion

Main findings

The study identified patient characteristics that can be easily assessed in an acute situation and can predict whether patients may benefit more from treatment in day hospitals or on conventional hospital wards. Higher baseline symptom levels were more strongly associated with symptom improvements after treatment on a conventional ward, and more years of education were associated with greater symptom reduction after day hospital treatment. Female patients had more favorable social disability outcomes after day hospital treatment, whereas no difference between the two settings was found for male patients.

Thus patients with higher symptom levels might benefit more from acute treatment on conventional wards, and female patients and patients with more years of education may show more favorable outcomes in day hospitals. Patients' age, diagnostic category, and living status did not predict differences in outcomes between day hospitals and wards.

Strengths and limitations

This analysis used data from a very large and rigorous randomized controlled trial that included between 55% and 100% of the data that are relevant to the research question and that are available in the world literature. In the multivariate analysis we used full individual data without transformation and controlled for main effects, including possible effects of the treatment center that may have been attributable to the heterogeneity of national health care systems in the five countries or to other local factors.

However, the study also had some limitations. The data are from centers in five European countries, and although the findings were adjusted for a potential center effect, the findings may have been influenced by the varying context at the five study sites. Various potentially important predictor variables, such as patient prefer-

Table 1

Baseline characteristics of 880 participants in the European Day Hospital Evaluation study, by diagnostic category

Characteristic	ICD-10 diagnostic category ^a					
	F20–29 (N=258)		F30–39 (n=387)		F40–59 (N=235)	
	N	%	N	%	N	%
Center						
Germany	28	17	93	57	43	26
United Kingdom	51	32	85	53	23	14
Poland	95	43	92	42	34	15
Slovakia	59	36	43	27	60	37
Czech Republic	25	14	74	43	75	43
Treatment setting						
Inpatient ward	118	28	209	49	99	23
Day hospital	140	31	178	39	136	30
Female	128	23	255	47	162	30
Age (M±SD)	36.75±11.33		42.20±11.40		38.19±12.33	
Living alone	57	34	75	44	37	22
Education (M±SD years)	12.33±2.74		12.40±3.03		11.98±2.60	
BPRS sum score (M±SD) ^b						
Baseline	50.79±11.68		47.66±9.50		43.54±8.46	
At discharge	36.30±8.01		35.44±8.36		34.92±7.80	
At 3-month follow-up	40.36±12.03		36.28±9.34		37.27±9.18	
At 12-month follow-up	40.29±11.68		35.35±8.63		34.93±7.94	
GSDS score (M±SD) ^c						
Baseline	1.34±.58		1.21±.49		1.10±.54	
At discharge	1.02±.54		.96±.47		.91±.54	
At 3-month follow-up	.95±.57		.79±.59		.76±.53	
At 12-month follow-up	.97±.64		.71±.56		.69±.55	
MANSA score (M±SD) ^d						
Baseline	4.09±.90		3.90±.95		4.00±.86	
At discharge	4.55±.88		4.37±.96		4.39±.89	
At 3-month follow-up	4.48±.95		4.45±1.05		4.40±.93	
At 12-month follow-up	4.49±.87		4.54±1.03		4.60±.96	

^a Codes F20–29, schizophrenia and schizotypal and delusional disorders; codes F30–39, mood disorders; codes F40–59, neurotic, stress-related, and somatoform disorders and behavioral syndromes associated with physiological disturbances and physical factors

^b Brief Psychiatric Rating Scale. Possible sum scores range from 24 to 168, with higher scores indicating a higher symptom level.

^c Groningen Social Disability Schedule. Possible scores range from 0 to 3, with higher scores indicating a higher level of disability.

^d Manchester Short Assessment of Quality of Life. Possible scores range from 1 to 7, with higher scores indicating better quality of life.

ence and social networks, were not assessed, and we tested only a small number of potential predictor variables. We used rather crude diagnostic categories, and the diagnoses were clinical and not research diagnoses based on standardized instruments. Studies using more precise and specific diagnostic groups might reveal differences in outcomes between the two settings that were not identified in this study. Data are from a trial with strict inclusion criteria, and the findings may not apply to groups that were excluded, such as homeless patients. Also, the study was exploratory, and the results need

to be confirmed in further hypothesis-driven research.

Relevance of predictor variables

Patients with higher symptom levels appeared to respond better to treatment on a conventional ward. They might especially benefit from the more containing and structured environment of a ward and from supervision of their medication adherence, which may be more intensive on a ward than in a day hospital.

Female patients and those with more years of education benefited more from day hospital treatment. We can only speculate about the rea-

Table 2

Analyses of variables as potential predictors of the Brief Psychiatric Rating Scale (BPRS) sum scores during the follow-up period of 880 study participants who received acute treatment in day hospitals or inpatient wards

Variable and interaction	Main-effect model			Main- and interaction-effect model		
	Estimate	95% CI	p	Estimate	95% CI	p
Intercept	36.237	33.698 to 38.776	<.001	35.696	33.125 to 38.266	<.001
Center						
Germany versus Czech Republic	1.473	-.107 to 3.053	.068	1.488	-.085 to 3.062	.064
United Kingdom versus Czech Republic	2.160	.447 to 3.873	.013	2.389	.677 to 4.101	.006
Poland versus Czech Republic	1.289	-.242 to 2.819	.099	1.382	-.143 to 2.907	.076
Slovakia versus Czech Republic	.408	-1.081 to 1.897	.591	.544	-.940 to 2.028	.472
Age	.040	-.001 to .081	.054	.039	-.001 to .080	.058
Female	-1.309	-2.287 to -.331	.009	-1.266	-2.240 to -.292	.011
Years of education	-.123	-.295 to .049	.161	-.306	-.552 to -.059	.015
Living alone versus not alone	-.083	-1.354 to 1.187	.897	-.154	-1.420 to 1.112	.811
Length of stay in treatment setting	<.001	-.009 to .010	.972	.001	-.009 to .010	.922
ICD-10 diagnosis ^a						
F20–29 versus F40–59	-2.302	-3.487 to -1.116	<.001	-2.273	-3.454 to -1.093	<.001
F30–F39 versus F40–59	-.404	-1.726 to .918	.549	-.501	-1.818 to .816	.456
Time						
Discharge versus 12 months	-1.32	-2.143 to -.497	.002	-.332	-1.460 to .796	.564
3 months versus 12 months	.943	.209 to 1.678	.012	1.095	.095 to 2.094	.032
BPRS sum score at baseline	.335	.285 to 1.395	<.001	.268	.197 to .339	<.001
Inpatient ward versus day hospital	.389	-.616 to 1.395	.447	1.404	.008 to 2.800	.049
BPRS sum score at baseline × treatment setting				.120	.027 to .213	.011
Years of education × treatment setting				.330	.003 to .658	.048
Time (3 months) × treatment setting				-2.052	-3.696 to -.409	.014
Time (12 months) × treatment setting				-.323	-1.793 to 1.147	.667

^a Codes F20–29, schizophrenia and schizotypal and delusional disorders; codes F30–39, mood disorders; codes F40–59, neurotic, stress-related, and somatoform disorders and behavioral syndromes associated with physiological disturbances and physical factors

Table 3

Analyses of variables as potential predictors of the Groningen Social Disability Schedule (GSDS) scores during the follow-up period of 880 study participants who received acute treatment in day hospitals or inpatient wards

Variable and interaction	Main-effect model			Main- and interaction-effect model		
	Estimate	95% CI	p	Estimate	95% CI	p
Intercept	-.008	-1.342 to 1.326	.991	.150	-1.182 to 1.482	.825
Center						
Germany versus Czech Republic	-.047	-.147 to .054	.362	-.045	-.145 to .055	.382
United Kingdom versus Czech Republic	.040	-.071 to .152	.476	.038	-.073 to .149	.497
Poland versus Czech Republic	-.026	-.125 to .073	.609	-.034	-.133 to .064	.494
Slovakia versus Czech Republic	.006	-.093 to .104	.905	.008	-.090 to .106	.877
Age	.001	-.002 to .004	.526	.001	-.002 to .004	.485
Female	-.062	-.127 to .003	.063	-.144	-.230 to -.058	.001
Years of education	-.110	-.229 to .008	.068	-.101	-.219 to .017	.092
Living alone versus not alone	.074	-.009 to .158	.082	.087	.004 to .171	.041
Length of stay in treatment setting	-.001	-.001 to .000	.108	.000	-.001 to .000	.109
ICD-10 diagnosis ^a						
F20–29 versus F40–59	-.097	-.176 to -.019	.015	-.095	-.173 to -.017	.018
F30–39 versus F40–59	-.078	-.166 to .009	.082	-.074	-.161 to .013	.097
Time						
Discharge versus 12 months	-.055	-.090 to -.021	.002	-.014	-.061 to .033	.563
3 months versus 12 months	-.078	-.166 to .009	.080	.045	.004 to .087	.033
GSDS mean score at baseline	.453	.394 to .511	<.001	.457	.398 to .515	<.001
Inpatient ward versus day hospital	.109	.042 to .175	.001	-.012	-.118 to .094	.830
Female × treatment setting				.187	.058 to .315	.005

^a Codes F20–29, schizophrenia and schizotypal and delusional disorders; codes F30–39, mood disorders; codes F40–59, neurotic, stress-related, and somatoform disorders and behavioral syndromes associated with physiological disturbances and physical factors

Table 4

Analyses of variables as potential predictors of the Manchester Short Assessment of Quality of Life (MANSA) scores during the follow-up period of 880 study participants who received acute treatment in day hospitals or inpatient wards

Variable and interaction	Main-effect model			Main- and interaction-effect model		
	Estimate	95% CI	p	Estimate	95% CI	p
Intercept	3.569	3.310 to 3.828	<.001	3.512	3.246 to 3.777	<.001
Center						
Germany versus Czech Republic	.146	-.002 to .294	.053	.143	-.005 to .291	.058
United Kingdom versus Czech Republic	-.128	-.286 to .029	.110	-.129	-.287 to .028	.107
Poland versus Czech Republic	-.168	-.314 to -.023	.023	-.163	-.309 to -.018	.028
Slovakia versus Czech Republic	-.022	-.166 to .121	.758	-.023	-.166 to .120	.752
Age	-.004	-.008 to .000	.030	-.004	-.008 to .000	.029
Female	.074	-.019 to .168	.120	.152	.026 to .277	.018
Years of education	.008	-.008 to .025	.315	.008	-.008 to .024	.342
Living alone versus not alone	-.073	-.193 to .048	.237	-.086	-.207 to .035	.164
Length of stay in treatment setting	-.001	-.001 to .000	.265	-.001	-.001 to .000	.259
ICD-10 diagnosis ^a						
F20–29 versus F40–59	.009	-.105 to .122	.883	.007	-.107 to .121	.904
F30–39 versus F40–59	-.098	-.224 to .027	.124	-.102	-.227 to .024	.112
Time						
Discharge versus 12 months	.009	-.105 to .122	.883	.007	-.107 to .121	.904
3 month versus 12 months	-.098	-.224 to .027	.124	-.102	-.227 to .024	.112
MANSA mean score at baseline	.573	.523 to .623	<.001	.575	.525 to .624	<.001
Inpatient ward versus day hospital	-.095	-.189 to .000	.051	.014	-.136 to .165	.854
Female × treatment setting				-.171	-.355 to .013	.069

^a Codes F20–29, schizophrenia and schizotypal and delusional disorders; codes F30–39, mood disorders; codes F40–59: neurotic, stress-related, and somatoform disorders and behavioral syndromes associated with physiological disturbances and physical factors

sons because potentially mediating processes were not assessed in the study. Both groups may engage better with the treatment approach of day hospitals, which can be very different from conventional inpatient treatment. Commonly, day hospitals provide more activities and discussions in groups, require more patient involvement, and leave more autonomy to the patients, who return home every evening. This may appeal more to women and patients with higher education levels, who at the same time might struggle to cope with the restrictions and tensions that often characterize the atmosphere on acute wards (24,25). Better engagement during acute treatment may have led to more positive outcomes over the one-year follow-up.

Women had better outcomes in regard to social disabilities after day hospital treatment. Compared with wards, day hospitals usually provide more social activities and have a stronger focus on verbal interactions and functioning in groups (4,25). Such a setting may facilitate more positive learning processes among female patients and enable them to ac-

quire confidence and skills to improve their functioning in different social roles after treatment.

The study did not find evidence for the importance of the other tested predictor variables, although their clinical relevance could be hypothesized. For example, it may have been assumed that patients with diagnoses of schizophrenia might benefit more from the structured atmosphere on wards, that the 24-hour provision of care on wards is better for people who live alone, and that the more flexible and less tense setting in day hospitals would be more therapeutic for older patients and those with depressive disorders. However, when the analysis controlled for other relevant factors, these variables did not show significant interaction effects with treatment setting in predicting outcomes.

Conclusions

The findings suggest that targeted referrals to acute treatment in day hospitals and conventional wards are possible. The associations found are not very strong and are based on multivariate analyses that controlled for various other factors. Thus the pre-

dictor variables will not override other important clinical considerations that may favor admission to one of the two settings for a given patient. However, in the absence of other criteria—and all other things, including patient preference, being equal—they are factors to be considered when deciding on the most appropriate setting for acute treatment: higher symptom levels can be seen as a reason to admit a patient to a ward, and female gender and higher education may be seen as reasons to admit a patient to a day hospital (25–27).

These results were found in a study that randomly assigned patients to the two settings without regard to symptom level, gender, or education. If the findings lead to more targeted admissions, day hospitals may end up with more patients who have lower baseline symptoms, are female, and have a higher level of education, whereas patients who are male, have more baseline symptoms, and less education may be concentrated on wards. Such a result may affect the therapeutic atmosphere in the two settings, which may or may not be welcome and which may

eventually change the associations found in this study.

Future research should explore qualitatively and quantitatively the processes behind the associations found here and identify specific treatment methods and patient experiences that explain the different outcomes. Baseline symptoms, gender, and education levels need to be controlled for in trials, and these characteristics may be used to stratify samples that are allocated to different settings of acute treatment.

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