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A comparison of psychiatric day hospitals in five European countries

Implications of their diversity for day hospital research

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Abstract *Objective* As the use of “day hospitals” increases, conceptual models of these services are changing dramatically across Europe. Therefore, the need arises for mental health services research to assess this process cross-nationally in a standardised and systematic way. Such research approaches should seek to maximise the generalisability of results from high-quality (e.g. randomised controlled) single- or multi-site trials assessing specific models of day hospital care. *Method* Using a self-developed structured questionnaire, the European Day Hospital Evaluation (EDEN) study group carried out national surveys of the characteristics of day hospitals for general psychiatric patients in Germany, England, Poland, the Slovak Republic and the Czech Republic, during the period 2001–2002. *Results* Response rates varied from 52 to 91 %. Findings show that day hospitals have no consistent profile of structural and procedural features. Similarities across countries focus on

three main issues: on average, consideration of concepts oriented toward providing acute treatment are equivalent; disorders associated with disabled functioning in everyday life, high risk of somatic complications, and need for behaviour control are excluded to a comparable degree; and some core therapeutic activities are consistent with the main approaches of social psychiatry. Identified according to self-rated conceptions and extended with data from individual hospital’s statistics on the clientele in 2000, three clusters of limited selectivity subdivide the services. One category focuses mainly on rehabilitative tasks; two categories are oriented toward providing acute treatment as an alternative to inpatient care, but combine this either with rehabilitative tasks or with equal additional functions of shortening inpatient treatment and providing psychotherapy. The distribution of services across these three clusters varies significantly in the five European countries. *Conclusion* Future day hospital studies should always clarify the type of services being assessed. To fully consider the impact of their results, the current national and international health policy environment of these services should be taken into account. Such surveys require enhanced methodology, however, in order to identify clear, distinct categories of services characterised by overlapping programme functions, and to increase the generalisability of valid results from single- or multi-site trials.

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Introduction

The current state of psychiatric day hospital research has three major shortcomings: (1) scientific evidence from a sufficient number of randomised controlled trials (RCTs) can be related only to the effectiveness of the acute treatment service model. Nine single-site studies conducted on this issue have been carried out in three countries, the US, the Netherlands, and the UK, with dif-

ferent conceptions of this approach to treatment [1–12]. Therefore, the applicability of these findings to the national level in these countries is unclear, and the transferability of results to an international level of routine services is even more uncertain. Recommendations for future research include conducting a multi-centre RCT on the effectiveness of acute day hospital treatment [13, 14], with results generalisable to (at least) the national level; (2) in the last two decades particularly, a broad variety of conceptual models for day hospital services has proliferated across most modern European psychiatric service systems [13, 15–17]. These models range from crisis intervention to rehabilitative services with a long-term care function, as well as from drop-in centres providing some day-structuring activities to highly specialised centres with differentiated psychotherapeutic elements of treatment. Research to date has not yet determined the extent of these services using the name “day hospital” in various countries nor which models of day hospitals can be most effectively integrated into modern community-based psychiatric services; and (3) to a large extent, the lack of primary research using standardised cross-nationally comparable survey instruments specifically assessing the detailed characteristics of these services [18, 19] has led to the shortcomings outlined above. Within the last two decades we could identify only four national or regional surveys conducted in Europe examining the different uses of day hospitals [20–23]. Each survey used a different methodological approach to classifying the main programme functions of services. The first, describing 49 day hospitals in West Germany in the early 1980s, demonstrates a weak correlation of the services’ self-rating of their main conceptual orientation with data such as discharge diagnoses, exclusion criteria for admission, and clinical pathways of transferring patients to the services [20]. The second survey examines 85 day hospitals established in the Netherlands in the mid-1980s. Based on a functional typology with defined rating criteria (e.g. waiting period for admission, source of referral, main therapeutic objective), the authors of the study could clearly assign only 56% of these services to a main programme function [21]. A third study in the late 1990s performed a one-day census on 341 patients in ten day hospitals in one region of the UK. Interviews with managers about structural elements of the services are combined with an analysis of actual clinical information obtained from the patients’ case-notes. The majority of places were used for rehabilitation, while only 13% of day hospital places were used as an alternative to inpatient admission. Furthermore, this study showed for the first time that an important proportion of the variation in the length of stay is determined not only by diagnosis, age, and source of referral, but also by individual hospital policies [22]. At the end of the 1990s, a detailed questionnaire completed by head physicians assessed all 16 Austrian day hospitals, and identified the programme function of shortening inpatient treatment as the main model of treatment in half of these services [23].

In summary, as the utilisation of these services increases, a clear time-frame of repeated national assessments is needed to monitor development, assess structural elements and procedural features of care, and formulate broadly accepted and valid methods of classifying the services’ main programme functions [24–29].

This gap of research severely restricts the external validity as well as the public health impact of RCTs conducted in this configuration of services, independent of the precise service model assessed in such well-resourced and mostly labour-intensive studies.

In response to this gap, the European Day Hospital Evaluation (EDEN) study group chose to widen the research protocol of their project [30, 31] which is the first international multi-site RCT on the effectiveness of acute psychiatric day hospital treatment in five European centres (Dresden, London, Wrocław, Michalovce, and Prague). Using the same standardised instrument, national surveys of day hospitals for general psychiatric patients in Germany, England, Poland, the Slovak Republic, and the Czech Republic assessed the current structural and procedural features of these mental health services.

By presenting the results of these surveys, this paper aims to: (1) identify similarities and differences of day hospitals across the countries assessed, and (2) cluster these services according to their main programme function, in order to (3) provide an empirical framework of public health relevance demonstrating the extent to which the results of the most recent multi-site RCT on acute day hospital treatment [30, 31] might be generalised in the assessed countries.

Subjects and methods

■ Survey instrument and data collection procedure

The European Day Hospital Evaluation (EDEN) study group used a structured group discussion process to select and define the detailed content of items relevant to the state of day hospitals across several countries, regardless of differences in their mental health service systems [24]. Integrating several steps of independent national discussions and advice from other research groups and organisations specialising in day hospital treatment, a final 15-item questionnaire for standardised self-assessment of individual services was developed (available from the corresponding author). This questionnaire addresses the area’s organisation/structure (5 items), exclusion criteria of patients and routinely conducted diagnostic procedures (2 items), equipment and therapeutic activities (3 items), and characteristics of patients treated in 2000 as recorded in the statistics of the individual service (4 items). One further item asked for a self-rating of the importance of eight main therapeutic concepts with definitions that included the functions of partial hospitalisation described by Schene et al. [15] as well as national traditions of day hospitals [20, 32, 33] in the assessed countries.

In August 2001, using information from 16 state ministries of health and social affairs to identify addresses, the questionnaire was sent with a self-addressed envelope to 438 psychiatric hospitals in Germany (D). A cover letter explained the objectives of the survey, requesting anonymous completion and return of the questionnaire within 12 weeks. Many institutions acted on the offer to discuss additional questions by phone with the German study centre. In England (E), regional service directories for each NHS Executive were used to

identify every NHS Trust that provides mental health services. Contact was established by telephone with a representative able to provide contact details for all psychiatric day hospitals in the Trust. In this way, 102 day hospitals were identified. In March 2002, the questionnaire with similar attachments as reported for Germany was sent to each contact person. Unreturned questionnaires were followed up by telephone at regular intervals and duplicate copies were sent when needed. Contact persons were also provided the option of completing the questionnaire by telephone. Missing data from returned questionnaires were also collected by phone. In Poland (PL), addresses of day hospitals were identified using a May 2000 list of the Institute of Psychiatry and Neurology in Warsaw. In October 2001, 71 services could be contacted using the same procedure as in Germany. After 12 weeks, those who had not sent the questionnaire back received at least three phone calls and E-Mail: reminders. In Slovakia (SK), the survey was carried out in March 2001. Because of the small number of existing services, all could be contacted as already reported. In the Czech Republic (CZ), identification of day hospitals required assistance from the national Association of Day Hospitals and the address list of the Association of Community Services. The procedure of distributing the questionnaires to 35 services in October 2001 was similar to that in Germany.

■ Data quality assurance procedure

Three researchers in the German centre independently checked the data for plausibility. Information which would have required correction was not included in the analysis due to the lack of opportunity to check its validity. Thus, variation in the number of day hospitals providing information for different questions exists and is reported in detail.

■ Statistical analyses

Descriptive statistics were computed to describe the characteristics of the catchment area and the staff working in day hospitals. Mean differences between the countries as well as mean differences between the three cluster groups were compared using ANOVA procedures, including post-hoc Duncan-tests if the ANOVAs yielded significant group differences. Chi-square statistics were used to compare the usage of exclusion criteria, diagnostic procedures and therapeutic activities among the countries. In order to classify the day hospitals according to their self-rated conceptions, cluster analyses using Ward's method have been computed; the decision on the optimal number of clusters was made subjectively by looking at the dendrogram.

Results

■ Response rates

The response rates vary significantly. In Germany, 225 (51.4%) of the 438 psychiatric hospitals returned the questionnaire. Given that 32 (14.2%) of those responding indicated that they do not currently run a day hospital for general psychiatry, it was assumed that the 193 services assessed refer to an estimated number of 372 day hospitals in Germany. The London centre reached a response rate of 77.4%, the Polish rate was 59.1%, the Slovak rate 90.9% and the Czech rate 68.6%.

■ Structural/organisational characteristics of the day hospitals

In Germany and Poland, nearly all day hospitals (98.4%, $n = 190$ vs. 97.6%, $n = 41$) report having a fixed number

of treatment places. This contrasts to the situation in the Slovak Republic (70%, $n = 7$), and especially to the situation in England (26.6%, $n = 21$) and the Czech Republic (33.3%, $n = 8$).

On average, day hospitals in England provide a greater number of treatment places (mean = 33, range: 5–99) compared to the other countries, with the mean capacity ranging from 20 places in Germany (range: 2–74) and the Czech Republic (range: 6–60) to 23 places in the Slovak Republic (range: 10–35).

In the five European countries assessed, day hospitals are embedded in catchment areas with heterogeneously structured social characteristics and regional mental health services system features (Table 1). The most prominent differences seem to be the exceptionally large population figures of the Czech catchment areas in contrast to catchment areas of quite similar size in the other four countries. The rate of inpatient and day hospital places varies quite substantially, ranging from 1.5:1 (E) to 6.5:1 (D). The organisational affiliation of day hospitals to an inpatient psychiatric unit also differs significantly cross-nationally.

■ Formal features and staff levels

The expectations of patients' regular attendance clearly vary among the countries: nearly 80% of the Czech services to more than 90% in Germany, Poland and the Slovak Republic expect their patients to attend every day from Monday to Friday. In contrast, only 15.2% of the English day hospitals expect this, while 91.1% of these services report that their expectations of attendance depend on a patient's needs. In addition to the more rigid expectations of patients' attendance mentioned above, 60% of the Slovak and 41.7% of the Czech day hospitals might also be able to provide a flexible approach to attendance in their programmes. Only a limited number of day hospitals in three countries (D: 4.1%, E: 11.4%, PL: 2.4%) offer their patients optional therapeutic activities on weekends.

The expectations on the number of hours patients attend daily also differ; 97.6% ($n = 41$) of the Polish, 90% ($n = 9$) of the Slovak, 83.9% ($n = 162$) of the German, 66.7% ($n = 16$) of the Czech, but only 32.9% ($n = 26$) of the English day hospitals define a minimum number of hours for daily attendance. From those with this definition, at least 6 hours per day are expected by 90.2% of the Polish, 85.2% of the German, 77.8% of the Slovak, 68.8% of the Czech and 30.7% of the English services.

Even for the core professional groups working in hospital-based mental health services, availability in day hospitals differs among the five countries (Table 2). The general level of staffing in the single professional groups is rather similar, however, showing no clear West-East gradient, but reflecting the provision of different main programme functions such as psychotherapy in the Czech services (see below). The high number of nurses as well as the low number of social workers in English

Table 1 Characteristics of catchment areas in five European countries

Characteristics	Germany (n = 149–182)	England (n = 13–28)	Poland (n = 17–34)	Slovak Republic (n = 5–9)	Czech Republic (n = 4–14)
	M ± SD (range)	M ± SD (range)	M ± SD (range)	M ± SD (range)	M ± SD (range)
Population (in thousands)	252 ± 223 (20–1.700)	179 ± 147 (13.5–730)	255 ± 228 (60–800)	230 ± 135 (60–500)	821 ± 614 (55–1.500)
Rate of unemployment (in per cent)	13 ± 5 (4–29)	8 ± 6 (1–20)	15 ± 5 (3–25)	15 ± 8 (7–26)	7 ± 3 (3–12)
Total number of psychiatric inpatient treatment places in the catchment area	230 ± 260 (0–1600)	48 ± 30 (0–109)	90 ± 92 (0–300)	131 ± 75 (75–260)	129 (75–250)
Total number of day hospital places in the catchment area	35 ± 35 (8–240)	32 ± 19 (5–75)	41 ± 34 (10–150)	31 ± 26 (10–80)	34 ± 21 (8–60)
Correlation between number of inpatient treatment places and size of population	0.59**	0.17	0.75**	0.48	–
Correlation between number of day hospital places and size of population	0.52**	–0.22	0.27	0.74	–
The single day hospital is located (in per cent)					
– in rural area	9	–	2	0	0
– in a small town	53	–	38	60	29
– in a large town	37	–	60	40	71
Site of day hospitals (in per cent)					
– inside hospital building	22	42	18	38	32
– on hospital grounds	29	18	45	13	9
– next to hospital grounds	10	8	0	0	0
– within 15 min of hospital	16	5	13	38	5
– more than 15 min by public transportation from hospital	24	26	25	13	55

Note In England, the location of the day hospitals was not assessed according to the categories listed

Due to missing values no correlations could be calculated for the Czech Republic

* $p < 0.05$; ** $p < 0.01$

services can be explained by some special organisational aspects of this particular mental health system: nurses are trained to take on aspects of social work in their professional duties; social workers acting as key workers in community health teams come to day hospitals to respond to the needs of their clients, but are not officially part of the staff.

■ Exclusion criteria, diagnostic procedures, and therapeutic activities provided

Exclusion criteria for day hospital treatment (Table 3) vary across the countries. For example, acute psychotic symptoms are less frequently viewed as an exclusion criterion in the two Western European countries, a fact in line with the different conceptual orientation. In spite of the respective cross-national differences, however, some reasons for excluding patients are reported in comparable frequencies. These comprise mental retardation, misuse of alcohol or drugs, epilepsy and too much stress for closest reference persons, the last two reasons being of only minor importance.

Diagnostic procedures in day hospitals (Table 4) are also characterised by an inhomogeneous pattern of provision. The extremely high variation refers to measures requiring expensive technical equipment, is not limited

to specific measures focusing on somatic disorders, shows no clear West-East gradient, and also includes basic physical examinations as well as anamnesis techniques.

Analysing the list of provided therapeutic activities (Table 5) gives the impression that despite some national variations, a basket comprising a few core activities in day hospitals is agreed upon internationally. These include direct day structuring, patient activation, outreach activities, crisis intervention, psychological interventions, and individual psychotherapy.

■ Clientele in 2000

On average, day hospitals in Germany admitted 122 patients (range: 16–416) per year, in England 147 patients (range: 10–696) were admitted, and in Poland 110 patients (range: 27–386). The Slovak figures increase to 235 (range: 79–512) admissions, while Czech services reported the lowest number of admissions: 91 patients (range: 6–287). The average length of stay reported is 43 days (range: 10–130 days) in Germany, 61 days (range: 16–150 days) in Poland, 34 days (range: 9–46 days) in Slovakia, and 63 days (range: 16–180) in the Czech Republic. In England, day hospitals report an average length of 128 days (range: 14–540 days) which might be

Table 2 Professional background, availability* and number of staff working in day hospitals (per fixed number of places)

Professional group	Germany		England		Poland		Slovak Republic		Czech Republic	
	Availability	Number of staff M (range)	Availability	Number of staff M (range)	Availability	Number of staff M (range)	Availability	Number of staff M (range)	Availability	Number of staff M (range)
Physicians	86	0.07 (0.02–0.17)	60	0.05 (0.0–0.60)	95	0.09 (0.03–0.30)	100	0.07 (0.04–0.10)	75	0.07 (0.0–0.60)
Nurses	86	0.14 (0.04–0.50)	98	0.16 (0.0–0.50)	98	0.10 (0.05–0.15)	100	0.11 (0.09–0.14)	58	0.17 (0.04–0.83)
Psychologists	76	0.05 (0.01–0.17)	28	0.01 (0.0–0.20)	98	0.07 (0.03–0.30)	90	0.07 (0.03–0.10)	75	0.19 (0.03–0.78)
Psychotherapists	10	0.06 (0.0–0.14)	14	0.01 (0.0–0.13)	19	0.08 (0.04–0.20)	20	0.07 (0.07–0.07)	58	0.14 (0.06–0.33)
Occupational therapists	79	0.07 (0.01–0.20)	84	0.07 (0.0–0.40)	43	0.05 (0.03–0.10)	40	0.10 (0.03–0.17)	42	0.12 (0.07–0.17)
Music therapists	32	0.04 (0.0–0.11)	6	0.00 (0.0–0.10)	19	0.05 (0.03–0.10)	40	0.03 (0.03–0.03)	21	0.33 (0.33–0.33)
Dance therapists	17	0.03 (0.0–0.08)	0	–	7	0.05 (0.03–0.08)	10	0.03 –	17	0.06 (0.03–0.11)
Sport therapists	32	0.04 (0.0–0.08)	6	0.00 (0.0–0.04)	5	0.05 (0.04–0.06)	10	–	13	0.08 –
Art therapists	20	0.04 (0.0–0.10)	35	0.01 (0.0–0.13)	19	0.05 (0.03–0.10)	20	–	42	0.08 (0.04–0.17)
Physiotherapists	33	0.05 (0.0–0.70)	24	0.01 (0.0–0.07)	10	0.07 (0.04–0.10)	30	0.04 (0.03–0.05)	8	0.08 –
Social workers	79	0.04 (0.0–0.14)	10	0.01 (0.0–0.40)	31	0.05 (0.03–0.10)	40	0.05 (0.04–0.05)	50	0.10 (0.04–0.17)
Secretary	54	0.04 (0.0–0.11)	68	0.03 (0.0–0.40)	26	0.05 (0.03–0.10)	0	–	29	0.06 (0.02–0.11)
Other	23	0.06 (0.01–0.20)	53	0.04 (0.0–0.27)	38	0.07 (0.03–0.14)	30	0.05 (0.0–0.09)	42	0.05 (0.04–0.07)

Note * in percentage of day hospitals

Table 3 Exclusion criteria (usage in percentage of day hospitals)

Exclusion criteria	Germany (n = 193)	England (n = 78)	Poland (n = 42)	Slovak Republic (n = 10)	Czech Republic (n = 24)	χ^2 (4, N = 347)
Specific mental disorders						
Drug addiction/abuse	66	36	43	50	83	31.5**
Organic disorders	25	46	7	40	54	29.1**
Abuse/misuse of alcohol or drugs	41	35	55	50	50	5.5
Mental retardation	43	50	45	40	67	5.7
Epilepsy	7	5	7	10	13	1.7
Clinical states irrespective of diagnosis						
Acute suicidal ideations	81	26	95	50	54	96.1**
Acute psychotic decompensation	38	18	86	90	71	69.4**
No motivation	55	17	47	20	71	42.0**
Features of the patient's social situation						
No own flat	40	15	31	50	0	28.6**
Too long a distance to the day hospital	48	22	50	60	33	19.3**
Too much stress for relatives/family	7	10	2	0	0	5.5
Other						
Insufficient knowledge of language	28	12	7	0	25	17.7**

Note * p < 0.05; ** p < 0.01

Table 4 Diagnostic procedures (availability in percentage of day hospitals)

Diagnostic measures	Germany (n = 193)	England (n = 40)	Poland (n = 42)	Slovak Republic (n = 10)	Czech Republic (n = 24)	χ^2 (4, N = 309)
Features of the clinical examination						
Neurological examination	93	25	91	60	8	153.4**
Physical examination	93	53	95	70	21	103.5**
Interviews of relatives (collateral history)	71	63	95	90	42	25.4**
Psychological tests	63	63	98	80	46	25.0**
Laboratory tests						
Blood tests	94	63	93	70	13	117.2**
Urine tests	80	43	93	50	13	75.5**
Examinations using technical equipment						
EEG	57	25	91	20	4	64.6**
X-rays	20	20	83	30	4	77.9**
CT	30	15	76	20	4	52.1**
Others						
Other diagnostic procedures of somatic specialities (e. g. internal medicine)	34	18	69	50	4	37.4**
Others	23	35	48	30	42	13.3*

Note * $p < 0.05$; ** $p < 0.01$

Table 5 Therapeutic activities in day hospitals (availability in percentage of day hospitals)

Therapeutic activities	Germany (n = 193)	England ^a (n = 78)	Poland (n = 42)	Slovak Republic (n = 10)	Czech Republic (n = 24)	χ^{2b}
Promoting contacts	96	–	91	80	29	94.0**
Occupational therapy	93	90	50	100	63	64.4**
Vocational therapy	58	–	7	0	17	53.6**
Counselling for lifestyle	84	–	41	90	46	45.6**
Sporting activities	91	67	69	90	46	44.5**
Counselling for social problems (e. g. work, living, finance)	95	–	67	90	63	41.9**
Teaching in handling medication	95	–	86	90	54	38.6**
Teaching in coping with symptoms	94	–	86	90	54	36.4**
Music therapy	52	37	86	90	42	32.2**
Dance therapy	30	9	36	10	63	31.6**
Physiotherapy (incl. relaxation, gymnastics)	90	67	86	70	54	31.3**
Psychiatric nursing activities	80	–	79	80	29	30.6**
Psychiatric-therapeutic talks	95	–	98	100	67	30.5**
Teaching in coping with simple day structure	95	–	74	80	67	30.5**
Training of everyday-living (e. g. cooking, household)	87	78	69	60	46	28.4**
Social skills training	94	77	88	100	67	26.1**
Assessing social problems	93	–	69	90	67	25.8**
Interventions by somatic specialists (e. g. internists)	64	–	69	60	13	25.1**
Biological-psychiatric interventions	84	–	88	70	50	18.3**
Planning of leisure time activities	86	–	81	100	54	17.5*
Direct day structuring	95	–	81	90	75	15.6*
Activation	96	–	88	100	79	13.7*
Outreach activities (e. g. home-visits, if patients do not attend the day hospital)	72	67	60	40	46	11.6*
Interventions during psychiatric crisis of patients	91	–	83	60	79	10.8*
Psychological interventions	87	–	91	80	67	8.3*
Individual psychotherapy	79	–	81	80	83	0.3

Note ^a The English day hospitals were only asked about the provision of eight therapeutic activities

^b Degrees of freedom and sample size depend on the availability of data from the English day hospitals and are either (4, N = 309) or (3, N = 269)

Table 5 is sorted in descending order according to the χ^2 -value

* $p < 0.05$; ** $p < 0.01$

explained by their different expectations related to patients' attendance.

The distribution of the patients' main clinical diagnoses (Table 6) reflects country-specific differences in the conceptual orientation of these services (see next paragraph). Where day hospitals are oriented towards being an alternative to inpatient treatment, the percentage of affective disorders is high. Schizophrenic and schizoaffective disorders constitute the majority of patients in countries where the programme function of providing social rehabilitation and support is of special importance. Personality disorders and anxiety/adjustment disorders are over-represented in countries where day hospitals mainly provide "psychotherapy."

■ Main concepts

The self-ratings of day hospitals concerning the importance of therapeutic concepts (Table 7) demonstrate a significant heterogeneity of current conceptual orientation both across and within the countries, indicated by significant differences across the countries and relatively high standard deviations for the single assessments.

Within the assessed countries, different conceptions seem to play the most prominent role. In Germany and England, the description of being an "alternative to inpatient treatment" achieved the highest mean, indicating the greatest importance. In Poland and especially in Slovakia, "social rehabilitation and support" is viewed as the most important function of day hospitals, whereas

Table 6 Main diagnoses of day hospital patients admitted in 2000 (in per cent)

Main diagnoses of patients (in 2000)	Germany (n = 163)		Poland (n = 35)		Slovak Republic (n = 9)		Czech Republic (n = 18)		ANOVA F(3,221)
	M	SD	M	SD	M	SD	M	SD	
Organic disorders (F0)	2 ^b	6	11 ^a	13	1 ^b	2	2 ^b	5	12.4**
Addiction, abuse (F1)	4 ^a	9	1 ^a	3	10 ^a	16	11 ^a	27	3.6*
Schizophrenia (F20)	26 ^a	18	31 ^a	25	33 ^a	23	24 ^a	27	1.0
Schizo-affective disorders (F25)	7 ^a	6	7 ^a	7	14 ^a	14	7 ^a	8	2.6
Affective disorders (F3)	24 ^a	15	18 ^{a,b}	15	12 ^{a,b}	8	9 ^b	12	7.6**
Anxiety and adjustment disorders (F4)	16 ^a	12	18 ^a	18	14 ^a	9	24 ^a	25	1.8
Somatoform/psychosomatic disorders (F45, F54)	5 ^a	7	3 ^a	6	6 ^a	6	8 ^a	10	1.9
Eating, sleeping disorders (F5)	2 ^a	3	1 ^a	4	3 ^a	6	2 ^a	3	0.6
Personality disorders (F6)	12 ^a	11	6 ^a	5	6 ^a	6	12 ^a	12	7.5**
Other	2 ^a	4	6 ^a	12	2 ^a	4	2 ^a	5	4.7*

Note Data on the percentages of patients' main diagnoses are not available for the English day hospitals

Means not sharing a common subscript are different at $p < 0.05$ (Duncan test), but α -errors are biased given that samples are of different sizes so that the harmonic mean of the sample sizes has been used

* $p < 0.05$; ** $p < 0.01$

Table 7 Self-rated conceptions of day hospitals

Concepts	Germany (n = 184–192)		England (n = 71–75)		Poland (n = 42)		Slovak Republic (n = 9–10)		Czech Republic (n = 22–24)		ANOVA F(4,327–337)
	M	SD	M	SD	M	SD	M	SD	M	SD	
Alternative to inpatient treatment	3.9 ^a	0.9	3.9 ^a	1.1	3.9 ^a	1.0	4.1 ^a	0.9	3.3 ^b	1.5	2.7*
Crisis intervention	2.9 ^a	1.1	3.6 ^a	1.4	3.1 ^a	1.2	3.2 ^a	1.2	3.0 ^a	1.0	4.1**
Addition to inpatient treatment	2.5 ^b	1.2	3.3 ^a	1.3	3.0 ^{a,b}	1.2	3.4 ^a	1.0	3.6 ^a	1.4	10.0**
Service for admission after failure of outpatient treatment	3.5 ^{a,b}	1.0	3.0 ^{b,c}	1.1	4.1 ^a	1.1	3.1 ^{b,c}	0.8	2.6 ^c	1.2	10.1**
Rehabilitation for chronic disorders	2.6 ^b	1.2	2.8 ^b	1.4	4.0 ^a	1.3	4.3 ^a	0.7	3.2 ^b	1.6	13.1**
Psychotherapy	3.5 ^b	1.2	2.5 ^c	1.4	3.8 ^{a,b}	1.2	4.2 ^a	0.9	4.3 ^a	1.0	15.5**
Social rehabilitation and support	3.1 ^d	1.2	3.4 ^{c,d}	1.3	4.4 ^{a,b}	0.8	4.7 ^a	0.4	3.9 ^{b,c}	1.2	16.4**
Service to shorten inpatient treatment	3.5 ^a	0.9	3.6 ^a	1.3	1.9 ^c	1.3	4.1 ^a	0.7	2.7 ^b	1.4	23.8**

Note The rating scale ranged from 1 = "no importance" to 5 = "greatest importance". Table is upward sorted according to the F-value

Means not sharing a common subscript are different at $p < 0.05$ (Duncan test), but α -errors are biased given that samples are of different sizes so that the harmonic mean of the sample sizes has been used. The subscript 'a' indicates those countries for which the specific concept achieved the highest mean

* $p < 0.05$; ** $p < 0.01$

the description of providing “psychotherapy within partial hospitalisation” is of greatest importance in the Czech services.

Conceptions as self-rated by services (Table 8) subdivide all day hospitals into three categories according to type of services provided. Cluster I provides a category of services focusing mainly on rehabilitative tasks. Cluster II combines the concept of alternative to inpatient treatment with equal additional functions of shortening inpatient treatment and providing psychotherapy. Cluster III day hospitals define their main function as providing acute treatment as an alternative to inpatient care, but also score fairly high on rehabilitation. The distribution of these clusters between the services in the five European countries varies (Table 8 ctd.) and demonstrates a clear orientation of these services toward rehabilitative tasks in the Central European countries.

Taking the validity problems of services’ self-ratings of overlapping concepts into account, we endeavoured to re-examine the identified service clusters with other data from the questionnaire which seem to be less susceptible to tendentious information. Therefore, we analysed across the clusters the distribution of the data from the hospital statistics that referred to the clientele in 2000 (number of admissions, and main diagnoses), as well as the information on the number of treatment places, diagnostic procedures and exclusion criteria. While provided diagnostic procedures do not vary between the clusters, the differences found (see Table 8 ctd.) within the assessed variables seem to be in line with the main concepts of the clusters. In brief, services mainly oriented to rehabilitative tasks (i.e. cluster I) more frequently exclude acute psychotic decompensations (but not patients with language problems), have a lower rate of admissions per treatment place in 2000, and admit patients with schizophrenic disorders more frequently. By contrast, services combining the concept of alternative to inpatient treatment with equal additional functions of shortening inpatient treatment and providing psychotherapy (Cluster II) have the highest rate of admissions per treatment place in 2000, and more frequently admit patients with anxiety and personality disorders. The rate of admissions of cluster III services (providing acute treatment as an alternative to inpatient care, but also scoring fairly high on rehabilitation) falls between the other two clusters, and their mix of diagnoses seems to be influenced by rehabilitation, and not as much by the task of providing psychotherapy.

Discussion

This paper presents the first cross-national survey on the structural and procedural characteristics of day hospitals. The study has several methodological limitations. Because of a lack of internationally established standardised instruments, a self-developed questionnaire relying on information provided by the assessed institutions themselves was used, introducing some question

of validity. Furthermore, the response rates did not reach more than 70% of the services in all countries. Thus, although the response rates are well in accordance or even above similar recent research activities, the ability to generalise the findings may be limited [19, 34].

In general, results of the current survey – in accordance with those of previous national studies [20–23] – lead to the conclusion that, at a cross-national level, day hospitals providing treatment for general psychiatric patients have no consistent profile of structural and procedural features. (Analyses of the survey data within the assessed countries [35–39] demonstrate that the statement on the current inconsistent profile of structural and procedural features of day hospitals is valid for each of the five European countries.) Similarities across countries focus only on three main issues: on average, ratings of conceptual orientations toward providing acute treatment approaches are at the same level of importance; disorders associated with disabled functioning in everyday life, high risk of somatic complications, and need for behaviour control are excluded from this treatment setting to a comparable degree; and some core therapeutic activities covering main approaches of social psychiatry could be identified. All other important features are, however, heterogeneous. This applies to important structural characteristics such as a fixed number of treatment places, the relation between the number of day hospital places and the size of the population in the individual catchment area, organisational affiliation to a psychiatric inpatient unit, availability of professional qualifications in the staff, and to expectations of the patients’ daily attendance. Some of these differences might be explained by different regulations in the national health systems, e.g. funding arrangements of health insurance providers (valid in four assessed countries, but not in the UK) that pay a fixed patient-rate per day if treatment is provided for a defined minimum daily number of hours, or by existing national staff directives [32]. In general, these differences indicate a lack of health policy and professional guidelines defining how services established under the name “day hospital” should be used.

Furthermore, differences appear between Western and Central European countries concerning the most prominent current conceptual orientations. The main programme function of being an alternative to acute inpatient treatment in Germany and England contrasts to the very high importance of socio-rehabilitative and psychotherapeutic approaches in the Central European countries assessed. Different traditions regarding the main programme function [15, 17, 33], some lasting more than three decades, might influence these distinctions; especially striking is psychotherapy in Czech day hospitals [33, 39, 40] and rehabilitation in Polish services, originally conceptualised as day care centres for people with chronic mental illness [33, 37]. Particularly the limited availability of diagnostic procedures using technical equipment as well as the emphasis on acute clinical states in the frequency analysis of the exclusion

Table 8 Cluster-solution based on self-rated conceptions of day hospitals

Concepts	Cluster I (n = 126)		Cluster II (n = 126)		Cluster III (n = 71)		ANOVA F(2,320)
	M	SD	M	SD	M	SD	
Social rehabilitation and support	4.3 ^a	0.7	2.4 ^c	1.1	3.8 ^b	0.9	143.8**
Rehabilitation for chronic disorders	3.7 ^a	1.2	1.9 ^c	1.0	3.3 ^b	1.1	86.9**
Service to shorten inpatient treatment	2.6 ^c	1.2	3.4 ^b	1.1	4.2 ^a	0.7	54.0**
Crisis intervention	2.7 ^b	1.4	2.9 ^b	1.0	4.1 ^a	3.6	37.1**
Alternative to inpatient treatment	3.4 ^c	1.1	4.0 ^b	0.9	4.5 ^a	0.6	33.4**
Service for admission after failure of outpatient treatment	3.3 ^b	1.2	3.2 ^b	1.1	4.0 ^a	0.8	13.4**
Psychotherapy	3.2 ^a	1.4	3.4 ^a	1.4	3.6 ^a	1.0	2.0
Addition to inpatient treatment	3.0 ^a	1.4	2.6 ^a	1.3	2.8 ^a	1.3	1.9

Note The rating scale ranged from 1 = "no importance" to 5 = "greatest importance". Table is downward sorted according to F-value. Means not sharing a common subscript are different at $p < 0.05$ (Duncan test), but α -errors are biased given that samples are of different sizes so that the harmonic mean of the sample sizes has been used. The subscript 'a' indicates the cluster with the highest mean for a specific concept
** $p < 0.01$

Table 8 (ctd.) Cluster-solution based on self-rated conceptions of day hospitals

	Cluster I (n = 126)		Cluster II (n = 126)		Cluster III (n = 71)		ANOVA F
	M	SD	M	SD	M	SD	
Number of admissions per place	5.1 ^b	2.7	6.8 ^a	4.1	6.0 ^{a,b}	2.3	6.5**
Main diagnoses (in %) ^a							
Organic disorders (F0)	5.1	9.7	3.0	7.4	2.6	4.7	2.2
Addiction/abuse (F1)	3.7	10.5	5.4	15.1	3.7	6.0	0.5
Schizophrenia (F20)	32.1 ^a	22.9	21.9 ^b	17.7	26.4 ^{a,b}	15.5	6.3**
Schizo-affective disorders (F25)	7.9 ^{a,b}	6.6	5.6 ^b	6.5	9.4 ^a	9.9	4.7*
Affective disorders (F3)	20.1	17.2	23.1	15.0	25.9	17.2	2.1
Anxiety disorders (F4)	15.0 ^b	15.9	21.4 ^a	16.1	15.2 ^{a,b}	10.4	4.9**
Somatoform disorders (F45, F54)	4.3 ^{a,b}	5.9	6.9 ^a	9.2	3.7 ^b	5.6	4.2*
Eating/sleeping disorders (F5)	1.4	3.0	2.1	3.9	1.4	2.3	1.1
Personality disorders (F6)	8.2 ^b	9.5	13.2 ^a	13.2	10.1 ^{a,b}	8.9	4.7*
	N	%	N	%	N	%	χ^2
Exclusion criteria for DH							
Too long a distance	58	46	47	38	33	46	0.3
No own flat	38	30	41	33	17	24	0.4
No motivation	55	44	61	49	32	45	0.7
Acute psychotic decompensation	73	58	47	38	24	34	14.9**
Acute suicidal ideations	94	75	79	63	50	70	4.3
Mental retardation	58	46	64	51	26	37	3.9
Drug addiction/abuse	70	56	81	65	35	49	4.9
Abuse/misuse of alcohol	58	46	54	43	24	34	2.9
Organic disorders	33	26	44	35	18	25	3.2
Epilepsy	8	6	10	8	4	6	0.5
Insufficient knowledge of language	17	13	36	29	15	21	8.8*
Too much stress for relatives	5	4	9	7	4	6	1.2
Distribution of the three clusters in the assessed countries ^b							53.6**
Germany	50	28	88	49	43	24	
England	23	33	27	39	19	28	
Poland	34	81	3	7	5	12	
Slovak Republic	5	56	1	11	3	33	
Czech Republic	14	64	7	32	1	5	

Note Means not sharing a common subscript are different at $p < 0.05$ (Duncan test), but α -errors are biased given that samples are of different sizes so that the harmonic mean of the sample sizes has been used. The subscript 'a' indicates the cluster with the highest mean for a specific item

^a Data on the percentages of patients' main diagnoses are not available for the English day hospitals

^b The given percentages are not based on the number of day-hospitals in a given cluster but on the number of day hospitals assessed within each country

* $p < 0.05$; ** $p < 0.01$

criteria seem to correspond with the orientation towards psychotherapy and rehabilitation. The results of this survey about the current conceptual orientations are most certainly influenced by the different stages of reform in the mental health care systems, a process only started in Central Europe 10 years ago [24, 33]. The Slovak Republic offers the best illustration. Mental health reform began shortly after the foundation of the independent state and the first day hospital was opened in 1990/91. In the second half of the 1990s, however, financial restrictions imposed a moratorium on further establishment of these services for several years. As a consequence, different functions have been assigned to these services within the various stages of the reform process. While initially intending to reduce (long-stay) hospital-based treatment, the adequate programme function of these new services seemed to provide rehabilitation, whereas the services established most recently (since 1998/1999) are providing a cheap alternative to acute hospital treatment.

As illustrated by this example, a correct interpretation of the present state of a distinct mental health service configuration has to consider the context of the changing health policy background within the assessed countries. In Germany, the process of mental health care reform to develop community services has been underway for more than 25 years in the Western part, and for nearly 10 years in the Eastern part of the country [41, 42]. Comparison with previous research on the national situation of day hospitals conducted at the beginning of the 1980s [20] demonstrates not only a shift of concepts from rehabilitation towards acute treatment within day hospitals, but also a decrease in the number of patients with schizophrenia treated in these services, as well as a dramatic decrease in the length of stay (from 67.3 to 46.4 days spent in treatment). This process has gained momentum with the establishment of a significant number of new day hospitals in the Eastern part of the country within recent years: these services are more clearly oriented toward providing an alternative to acute hospital treatment as can be seen, for example, by an even shorter length of stay (34.3 days), a high frequency of services providing diagnostic procedures using technical equipment, and by a narrowing of the spectrum of exclusion criteria (for more details, see [35]). England has made substantial progress in deinstitutionalization and development of comprehensive community-based services, and is now entering a new phase in community service development with a range of innovative approaches intended to resolve problems still encountered after the initial phases of integrated community service development, e. g. patients who do not engage with community services, user and carer dissatisfaction with emergency services. Until now, there has been no systematic development of day treatment facilities within this process. Day centres are generally available, but the forms these take and levels of provision vary considerably and, at least until recently, these forms of care have often developed piecemeal, with little planning at catchment area or

regional level. Acute day hospitals are available as a component of emergency services in some areas, but are absent in others [25]. In Poland, the current national mental health care programme is oriented towards a community mental health care model, and day hospitals – currently in a state of transition – play a major role within this concept; it is expected that they will increase from 56 in 1985 to 430 in 2005 and focus more clearly on providing an alternative to inpatient admission [26, 27]. In the Czech Republic, the situation is similar to that outlined for Poland. Objectives in the current governmental plan for developing mental health care call for more attention to so-called “intermediate care” as a transition between outpatient and hospital-based care, identifying crisis centres and day hospitals as the two main areas of focus. These services will be expanded and their quality of care will be improved by increasing the numbers of staff and by intensifying their training [28, 33].

Although this brief overview on the health policy situation and intentions in the assessed countries seems to include some promising perspectives for day hospitals, some clear signs that their current inconsistent profile hinders their development cannot be ignored. To the knowledge of the authors, objections from financial carriers to fund these services (particularly those providing rehabilitation) are obvious in all countries with funding arrangements defined by health insurance agencies; the level of acceptance of these services by other mental health services as well as the level of information about the existence of these services among the patients is not as high as could be expected.

Therefore, an urgent need emerges for a robust classification of these services that can be used for health policy as well as for scientific purposes. As outlined in the introductory section of this article, a broadly accepted and valid method for achieving this is not currently available. Based on the services’ self-rating of the importance of their main programme functions and extended by some hard data from the hospital statistics, a cluster analytic method adds a new resource-effective approach to the existing literature. The validity of the included information and lack of *a priori* definitions of a classification system can most certainly lead to criticism of this approach. Striving for cross-national comparisons of more than 300 services, the EDEN study group was unable to use a research approach established by Mbaya et al. [22] that conducts a one-day census of all patients attending these services. However preferable in terms of an independent external evaluation of validity this approach based on actual collected data might be, language barriers and limited personnel and financial resources impeded its implementation in our international project. Due to the implications of the health policy background outlined, including some changes in the use of day hospitals, as well as the lack of previous primary research on monitoring these services at a national level in four of the five assessed countries, *a priori* definitions of classifying services would have been artificial.

Although reasonably supported by some data from hospital statistics, the results of our cluster analysis do not exhibit high selectivity for differentiating services according to their main programme functions [15, 20, 21]. They seem to be of some descriptive value, however, clearly reflecting the current clinical reality and some problems of day hospitals in the countries assessed. Firstly, they reconfirm that the majority of services in the Central European countries participating in the study currently focus on providing rehabilitative approaches to treatment. Secondly, they show that the orientation towards solely providing acute treatment is not as clear as might have been expected after reviewing current scientific evidence and professional as well as health policy discussions on conceptions of day hospitals; services with this main programme function seem to combine this either with rehabilitative tasks or with equal additional functions of shortening inpatient treatment and providing psychotherapy. As presented, it cannot be decided if this result is influenced by conceptual fluctuations or if this is a rather robust finding. Thirdly, it can be speculated that day hospitals might find that arbitrarily focusing on one main therapeutic concept would conflict with the general idea of these services [43] that always combines the treatment of psychopathological symptoms, features of the patient's current social situation and psychodynamic elements of the individual mental disorders – regardless of whether the individual service is dominated by a rehabilitative, psychotherapeutic or acute treatment approach.

For high-quality day hospital trials clearly focusing on the effectiveness of specific models of care (e.g. rehabilitative tasks for chronic disorders after failure of outpatient treatment [44, 45], or providing acute treatment as an alternative to inpatient care [1–12]), the currently established classification of services does not provide a detailed enough empirical database to justify broad generalisability of results. This applies particularly to the effectiveness of acute day hospital treatment as an alternative to conventional inpatient treatment, most recently assessed in the EDEN study, a multi-site RCT including one project centre in each of the five countries [31] whose day hospital characteristics have been presented in this article. With caution, we can only outline that results of this RCT might be of higher public health interest in the two Western European countries where they could be relevant for the majority of currently established services. By contrast, in the three Central European countries these results would apply only for a minority of these services.

Conclusions

The detailed survey data established in this study have clear implications for future research activities in this field. Firstly, to clarify what types of day hospital are being assessed, trials should always outline structural and procedural elements of their research sites. Secondly,

studies have to be conducted on the effectiveness of the day hospital models integrating several main conceptions (e.g. alternative to inpatient treatment and psychotherapy). Thirdly, day hospital studies (as well as studies in other mental health service configurations) have to embed their results in concurrent national or international surveys of the status of these services. These surveys have to improve their methodology, however, in order to identify clear, distinct categories of services characterised by overlapping main programme functions and in order to facilitate statements about the number of services to which results of single- or multi-site trials can be transferred. Otherwise the opportunity to discuss the health policy impact of resource-intensive research like randomised controlled trials will be limited. Finally, continuous detailed monitoring of these services is needed to answer the still-open research question on how (acute) day hospital care can be integrated most effectively into a modern community-based psychiatric service [13, 14].

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