

[A report from a new general psychiatric day hospital in Canton Fribourg](#)

# A naturalistic study of outcomes in a general psychiatry day hospital

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## Summary

Psychiatric day hospitals have potential advantages compared with inpatient and/or outpatient treatment, but results are inconsistent and thus their use is controversial. Moreover, few data are available on the factors influencing the treatment success; this is particularly the case regarding Swiss day hospitals. This paper has three goals; first, to give an insight into the population attending a new general day hospital in Canton Fribourg; second, to assess different treatment outcome indicators, and third, to assess treatment improvement predictors. Results, relying on therapist-assessed data from all day hospital stays gathered over more than 3 years, show that, within a wide diversity, overall patients had a significant improvement in their functioning level during the stay. Moreover, our results indicated that patients with a substance-related disorder benefited less from the treatment, whereas patients with an affective disorder benefited more. Additionally, patients starting with a lower functioning level improved more, whereas patients with a longer disorder history improved less. Suicidality and self-harming behaviour did not affect the outcome. Most importantly for clinical implications, longer treatment and more frequent attendance at the day hospital predicted a better outcome. Results are discussed in the context of the existing literature and their potential utility for further treatment and research.

Key words: general adult psychiatry; day hospital; treatment outcomes

In the last few years, day hospitals have received renewed interest in European mental health services because of their potential advantages compared with inpatient and/or outpatient treatment [1]. However, results are inconsistent and thus their use is controversial. Day hospitals pursue several aims, the most common being a reduction in inpatient treatment, and the promotion of social integration or rehabilitation by keeping patients in contact with real-life conditions [2]. Day hospitals appear to be an adequate alternative to a substantial proportion of inpatient admissions [3], and accumulating evidence shows the advantages of partial hospitalisation. In a recent systematic review, Marshall and colleagues [4] showed that the outcomes are comparable to those of

inpatient wards; other studies indicated that they can be even better in terms of social adjustment [5, 6] and treatment satisfaction [7, 8]. Reviews and meta-analyses have shown that treatments in acute day hospitals were effective in reducing symptoms [9] and global levels of psychopathology [7, 8]. Furthermore, the cost-benefit ratio is often better in day hospitals than with inpatient care [7, 10]. The benefits of day hospitalisation compared with an inpatient stay appear to be more salient regarding social functioning [6, 9, 11]. Life quality has been shown to improve to a similar degree as in an inpatient ward [8], even in acutely ill patients [6].

However, these promising advantages are not universal. The models, goals, theoretical orientations, populations and contexts of day hospitals vary greatly. Accordingly, results concerning psychiatric day hospitals are sometimes contradictory [2, 12]. Moreover, data available for Swiss psychiatric day clinics are very limited and concern specific approaches or diagnoses [13, 14]. A few years ago, in Canton Fribourg, Switzerland, a day hospital that aimed to provide an intermediate structure between outpatient and inpatient general adult mental healthcare was opened. The present study aims to (a) provide a picture of the population treated at this day hospital, (b) assess the treatment outcomes and (c) identify predictors of treatment outcomes.

## Predicting successful stays

### Diagnosis categories

Day hospital treatments seem effective for a broad range of psychopathologies. Most day hospitals do not select patients according to their diagnosis and thus a wide range of diagnosis categories are usually encountered [4, 15]. When day hospitals are not specialised in a specific diagnosis [16], the most frequent primary diagnosis categories are depressive and anxiety disorders and/or psychotic disorders [9, 17]. In addition, personality disorders may also be prevalent as secondary diagnoses [18]. Some studies report no difference in

effectiveness according to diagnosis [9, 15]. However, patients with alcohol dependence improve during a day hospital stay, but not more than outpatients and at a higher cost [19]. Patients with an affective [17] or a personality disorder seem to benefit more from day hospitalisation than other forms of treatment [20], in a cost effective way [21, 22]. This was nevertheless not the case in Cluster B personality disorder patients: the outcome was better for inpatients [23].

### **Affection severity**

A systematic literature review [7] showed that day hospital care is adequate for patients with an acute psychiatric disorder. However, there are contradictory results regarding the role of the severity of the disorder. Priebe and colleagues [15] showed that patients with a high symptom load at baseline had a better outcome with inpatient treatment than at day hospital. However, Arnevik et al. [24] found no difference in outcome according to the functioning level in borderline patients. Suicidality also indicates the severity of mental disorder [25] and is frequent in severely ill psychiatric patients [26, 27]. As patients go home daily, it can be questioned whether a day hospital setting is adequate for suicidal patients. Mazza and colleagues [28] provided preliminary evidence that day hospitals are suitable for at least some suicidal patients, as the level of anxiety and depression decreased and no patient of this cohort committed suicide. Episode length is another indicator of the psychopathology severity [29]. To our knowledge, no study has taken the episode length into account in evaluating day hospital treatment.

### **Treatment intensity**

Severe psychiatric disorders suggest long-term intensive treatment (see [30]). However, long treatments are expensive, and not necessarily more efficient [31]. Moreover, it has been argued that too long hospitalisations could threaten patients' autonomy, and a limited time-frame for psychotherapy has become established practice [32]. Among patients with severe psychiatric disorders, treatment adherence is often problematic [33]. Unlike the inpatient setting, coming every day to a day hospital can be challenging. Thus, the number of days people attend the hospital during their stay might affect the treatment outcome.

### **Sociodemographic features**

Some studies found gender differences in the outcome of day hospital treatment. Priebe and colleagues [15] showed that women had a more favourable outcome in a day hospital setting than a conventional hospital

ward; a systematic review showed that women improved more than men in social functioning[7]. This latter review also showed that age was positively associated with improvement, but Priebe and colleagues [15] did not find any association.

## **The current study**

The literature reviewed above shows little consistency in the predictors of successful stays in day hospitals, probably owing to the wide diversity of settings, programmes and patients in different day hospitals. Day hospitals appear efficient, but how and for whom is still not clear. This study thus aimed to contribute to the empirical literature on psychiatric day hospitals.

Our first goal was to give an insight into the population attending the Fribourg day hospital. Our second goal was to assess treatment outcomes. More specifically, we hypothesised an improvement and measured it with the following indicators: enhancement of the level of general functioning, and a reduction of suicidality and self-harming behaviours. Our third goal was to assess improvement predictors. More specifically, we hypothesised that the outcome would be affected by the following factors:

- a) Diagnosis at admission; patients with a depressive or personality disorder will show better outcomes, and patients with substance-related disorder will show worse outcomes.
- b) Severity of affection, as measured by the level of functioning, psychopathological load, self-destructing attitudes (suicidality and self-harming behaviours), episode length; they were hypothesised to negatively affect the outcome.
- c) Treatment intensity, assessed by stay length and attendance rate; it is expected to be positively related to the outcome.

Because outcome differences according to age and gender have been found, we controlled for them in our analyses.

## **Method**

### **The Fribourg day hospital**

The Fribourg day hospital pertains to the Fribourg Mental Health Network (RSFM/FNPG), which hosts all public psychiatric services of Canton Fribourg, Switzerland, which has about 300 000 inhabitants and two official languages, French and German. The Fribourg day hospital's mission is the reintegration and rehabilitation of a psychiatric population, aged between 18 and 65 years, from inpatient facilities or from outpatient services, and to offer an alternative

to inpatient stays. The day hospital is a rather young facility, established in Fribourg in 2010 after a pilot phase started in 2007. The programme was designed on the basis of the experiences of other Swiss day hospitals. The formal admission criteria are to have a fixed home address, to be able to come to the hospital autonomously every weekday, and to speak French or German. Severe suicidal ideation or behaviour is a (temporary) exclusion criterion. Crisis management is part of the hospital's mission and very brief inpatient stays, shorter than 5 days, do not interrupt the treatment.

Patients are expected to participate in the programme for about 7 hours per day, every weekday. The facility closes at weekends. The therapeutic programme relies on two corner stones: on the one hand, a group programme, based on standardised third wave cognitive and behavioural therapy, general psychoeducation and other group activities; and on the other hand, individualised therapies (including individual psychotherapy, couple, family and network meetings, and pharmacological treatment). Patient's needs can be very different [34]. Thus, based on the individual needs, patients were assigned to one of two options for the group programme: (a) a programme emphasising psychotherapy and psychoeducation; (b) a programme mainly based on group activities such as art therapy and manual workshops. A psychotherapist (physician or psychologist) and senior clinician (nurse or social assistant) team is responsible for each patient. A multidisciplinary team provides social work assistance, art-therapy and a focus on professional life resumption. The day hospital collaborates frequently with the patient's relatives and other community health professionals involved.

A peculiarity of the Fribourg day hospital is the bilingual approach. It covers a catchment area of about 200 000 inhabitants (the rest of the canton being covered by a second French-speaking day hospital founded in 2012), offering 20 French-speaking places and 15 German-speaking places. Covering all positions, the staff consists of about 12 full-time-equivalents. Patients are separated according to their language during the verbal sessions (group therapy, assemblies) and united for the nonverbal therapies and activities. Individual psychotherapy is offered in the patient's tongue.

### Sample and procedure

The data of all Fribourg day hospital stays were gathered from 1 January 2011 to 31 March 2014. The original sample consisted of 426 stays of 327 patients, including French-speaking patients (261 stays) and German-

speaking patients (165 stays). The 327 patients of the whole sample had a mean number of 1.30 stays during the study period (standard deviation [SD] 0.61, range 1–4), with one stay for 77.0%, two stays for 17.4%, three for 4.5% and four for 1.2% of the patients. They were adults of a wide age range (mean 40.63 years, SD 12.32, range 18–70), with 58.2% of women. Half (50.1%) of the stays were preceded by a psychiatric inpatient stay, and 42.4% by ambulatory treatment by a psychiatrist, psychologist, family doctor or in an outpatient institution. The data collection in this prospective naturalistic study was approved by the cantonal ethics commission and all patients signed an informed consent form.

### Measures

During the data gathering period, at each admission and discharge, the patient's main therapist (a psychiatrist or psychologist) completed a form recording various patient's characteristics. All forms were checked and revised by the day hospital's clinical head (third author). The following information was collected.

**Demographics.** Age, gender and treatment before admission were assessed.

**Diagnoses** were made according to the Tenth revision of the International Classification of Diseases' Classification of Mental and Behavioural Disorders [35] at admission. The main therapist relied on all available information (from previous hospitalisation(s), contact with other therapists and initial interview). Thus, the diagnosis was based on clinical judgement, without a structured interview. For the analyses, diagnoses were grouped at the general category level.

**Episode length.** At admission, the current episode length was assigned to one of five categories: less than 1 week, 1 to 4 weeks, 1 to 12 months, more than 1 year, or unknown.

**Functioning level.** At admission and discharge, the patient's functioning and illness severity were assessed with (a) the Global Assessment Scale (GAF; [36]), which reflects in a single measure the rating of psychological, social and occupational functioning on a scale ranging from 0 to 100, and (b) the Clinical Global Impression severity scale (CGI-S; [37]). The GAF and the CGI can be usefully and validly implemented in daily clinical practice [38, 39]. Therapists assessed life-time (answer options: yes, no, unknown) and current suicidality (no suicidality, suicidality, suicide attempt, unknown), as well as self-harm behaviours (yes, no, unknown) at admission, and at discharge regarding the stay. We computed a score of self-destructive atti-

**Table 1:** Descriptive statistics for stays characteristics.

	Mean	SD	Range	Difference (Wilcoxon)
Stay length (in week days)	51.46	39.27	1–245	
Attendance rate	83.35%	15.87%	12.5–100%	
GAF score at admission	50.37	7.63	25–70	$Z = -10.42^{***}$ , $r = .38$
GAF score at discharge	54.54	39.27	5–84	
Difference in GAF score over stay	4.07	9.53	–43–35	
CGI score at admission	4.69	0.82	2–7	$Z = 5.442^{***}$ $r = .20$
CGI score at discharge	4.47	1.01	0–7	
CGI improvement	2.93	1.22	0–7	

$n = 426$  stays for 327 patients. According to Cohen's criteria,  $0.10 < r < 0.30$  is a small effect and  $0.30 < r < 0.50$  is a medium effect.

tudes by adding up the presence of life-time suicidal attempt, current suicidality and self-harming behaviours.

**Treatment intensity** was assessed as the attendance rate during the stay (the percentage of billed days, indicating when the patient attended the hospital during their stay) and the stay length (number of weekdays).

### Data analysis

To provide a more adequate picture of what was actually happening in the day hospital, we performed all our analyses at the stay level, and not at the patient level. The characteristics of the entire sample were summarised (426 stays for 327 patients), to provide a picture of stay diversity. Some stays were removed from the statistical inference analyses, to give a more accurate reflection of general tendencies: missing admission data ( $n = 1$ ) or discharge data ( $n = 4$ ), outlier values on the studied variables ( $n = 35$ )<sup>1</sup> or, because they were the sole instance of a diagnosis category (F7x, F8x and F9x;  $n = 3$ ). The final sample for the analyses was composed of 383 stays for 292 patients.

To test the hypotheses for our second goal (improvement of the stay), Wilcoxon tests were used to compare the GAF and CGI-S at admission and discharge and McNemar tests to compare the differences in suicidality and self-harming behaviour rates. For our third goal (predictors of improvement at the GAF-scale), we first ran analyses for each predictor individually, using analysis of variance (ANOVA) models for the categorical variables (gender, diagnostic category, and episode length) and a regression model for the continuous variables (age, GAF at admission, self-destructive attitudes, stay length and attendance rate). The effect of gender and age was assessed before testing the hypothesised predictors and kept in the subsequent analyses only if found to be significant. Finally, all significant predictors were included in a single analysis of covariance (ANCOVA) model.

## Results

### Stay characteristics

Our first goal was to report the characteristics of the hospital stays. The majority concerned patients with a main diagnosis of affective disorder (F3x, 48.8%), followed by stays of patients with a personality disorder (F6x; 18.2%), a neurotic or stress-related disorder (F4x; 14.2%), a psychotic disorder (F2x; 9.2%), an organic disorder (F1x; 7.1%), and a disorder associated with physiological disturbances (F5x; 1.9%). One stay (0.2%) concerned a patient with a mental retardation (F7x), one with a disorder of psychological development (F8x), and one with an unspecified disorder (F9x). Most admissions concerned patients with one (58.2%) or two (30.0%) diagnoses, but there were up to five (mean = 1.54, = SD 0.77, range = 0–5). Table 1 summarises the entire sample's stay characteristics. The initial functioning level was rather low, indicating moderate to serious impairment on the GAF scale. The CGI score also indicates a low level of functioning, with a mean score close to 5, corresponding to "markedly ill". At admission, the current episode length was: 1–4 weeks (2.8%), 1–12 months (48.0%), more than 1 year (46.6%), unknown (2.6%). For subsequent analyses, the episode length was divided in less vs more than 1 year. More than half of the patients were currently at risk for suicide at admission. At discharge, most stays were followed by outpatient treatment either by a psychiatrist (48.2%), by a psychologist (15.7%), or in an institution (14.3%). Overall, 16.1% of the stays were followed by an inpatient stay. On average, the stays lasted about 10 weeks, but length varied considerably (SD 39.49, range 1–245 week days). The average attendance rate was high (mean = 83.03%), but also varied widely (SD = 15.87%, range 12.5–100.0%).

Our second goal was to assess with multiple indicators whether an improvement could be observed over the treatment (table 1). The GAF score significantly improved, with a medium effect size. The overall symptoms (CGI-score) decreased significantly, even if the effect size was small. The mean therapist-rated improvement level was close to minimal (3 = minimally improved); 70.8% of the stays were rated as being associated with improvement (CGI-I from 1–3;  $n = 351$ ) and 29.2% as unchanged or worsened (CGI-I from 4–7;  $n = 145$ ). At the end of the stay, there were significantly fewer suicidal patients and fewer patients showing self-harming behaviour (table 2). This shows a consistent picture of improvement over the stay.

<sup>1</sup> Outliers were determined with boxplots of all the used variables in SPSS [40], which defines as outliers the 1.5 times the Interquartile range (see for example [41]). Even if outliers are to be expected in a facility having such broad admission criteria, they were removed from the analyses to avoid them having a disproportionate impact on the results.

**Table 2:** Suicidality and self-harming behaviours at admission and discharge.

Life-time suicide attempts			
Yes	40.0%		
No	54.1%		
Current suicidality	Shortly before admission	During stay	McNemar test
No suicidality	49.6%	65.4%	$\chi^2(1) = 33.83^{***}$
Suicidality	40.7%	31.8%	
Suicide attempt	8.7%	2.6%	
Self-harming behaviour	Shortly before admission	during stay	McNemar test
No	78.5%	85.1%	$\chi^2(1) = 5.03^*$
Yes	16.3%	14.9%	

n = 426 stays for 327 patients. Remaining percentage to attain 100% are in the "unknown" category.

### Predicting improvement over the stay

Our third goal was to assess predictors of improvement (i.e. the difference between the GAF at discharge and at admission) over the stay.

We first tested whether age or gender were significant predictors of improvement. This was not the case for age ( $b = 0.01$ ,  $t(378) = 0.22$ ,  $p = 0.83$ ) or for gender ( $F(1, 378) = 0.14$ ,  $p = 0.70$ ).

We then tested our prediction that the outcome would differ according to the diagnosis category. This was the case:  $F(5, 373) = 3.71$ ,  $p < 0.01$ . *Post-hoc* analyses revealed that the difference was significant only between F1x (substance related disorders) and F3x (mood disorders; Tamhane  $T2 = -5.05$ ,  $SE = 1.34$ ,  $p < 0.001$ ) categories, the stays with patients of the latter category being associated with a greater improvement. Next, we tested whether several indicators of the functioning level would affect the improvement. GAF at admission was a significant predictor, such that the lower the initial functioning level at intake, the more the GAF score improved ( $b = -0.23$ ,  $t(378) = -4.64$ ,  $p < 0.001$ ). However, stays of patients with a longer episode length before admission gave a significantly lower improvement ( $F(1, 68) = 10.00$ ,  $p < 0.001$ ). Estimated marginal means for episode length shorter than 1 year were 5.93 (SD = 0.53), and for episodes longer than 1 year 3.46 (SD = 0.57). Self-destructive attitudes did not affect the outcome ( $b = -0.01$ ,  $t(344) = -0.11$ ,  $p = 0.92$ ).

**Table 3:** Final NICOVA model predicting GAF score improvement over the stay.

	F	(df)	p	Partial $\eta^2$
Diagnosis category	1.95	5,355	<0.10	0.03
GAF at admission	28.39	1,355	<0.001	0.07
Episode length	11.48	1,355	<0.01	0.03
Stay length	25.31	1,355	<0.001	0.07
Attendance rate	3.74	1,355	<0.10	0.01

n = 383 stays for 292 patients.  $R^2 = 0.20$ , adjusted  $R^2 = 0.18$ .

We then tested whether the treatment intensity affected the outcome. Stay length significantly and positively predicted the GAF score improvement ( $b = 0.26$ ,  $t(374) = 5.25$ ,  $p < 0.001$ ). The same applied to the attendance rate; the more intensively patients attended the day hospital during their stay, the better the GAF score improvement ( $b = 0.11$ ,  $t(373) = 2.16$ ,  $p < 0.05$ ).

The final analysis, which included all significant predictors within the same model, revealed that most predictors remained significant: GAF at admission ( $F(1, 355) = 28.39$ ,  $p < 0.001$ ), episode length ( $F(1, 355) = 11.48$ ,  $p < 0.01$ ) and stay length ( $F(1, 355) = 25.31$ ,  $p < 0.001$ ). Some predictors dropped to marginal significance: diagnosis category ( $F(1, 355) = 1.95$ ,  $p < 0.10$ ) and attendance rate ( $F(1, 355) = 3.74$ ,  $p < 0.10$  (table 3). This model explained 18% of the variance (adjusted  $R^2 = 0.18$ ). Hence, the factors that appear to matter most in predicting the outcome are the initial functioning level, the chronicity of the disorder and the treatment length, and when we control for these factors, the percentage of attendance and the diagnosis category lose importance.

## Discussion

This paper provides an overview of the stay characteristics from a day hospital recently opened in a small Swiss city. The data, based on a large pool of patients and stays, showed a wide diversity and generally high affection severity, but overall patients' functioning level significantly improved over the stay. An initially low functioning level, as well as a longer stay significantly predicted a favourable treatment outcome, whereas the chronicity of the disorder predicted a less favourable outcome.

### High population diversity

In agreement with most literature on day hospitals [4, 15], the stay characteristics were very heterogeneous for a broad range of factors (diagnosis, age, stay length, functioning level and improvement at discharge, etc.). Moreover, the illness severity of the treated patients was rather high. Initial global assessments of functioning were generally rather low (about 50, indicating markedly ill patients with moderate to serious impairments). This is not surprising given that the target population was patients presenting a severity of illness justifying intense daily treatment, but with a level of autonomy and stability allowing them to go back home daily. Also indicating the severity of disorders in the treated population, about 40% of the stays concerned patients with comorbid disorders and about 50% patients with current suicidality (thoughts

or attempts). The most represented diagnosis category was mood disorders, which matches previous literature [9, 17]. However, in contrast to the literature, many patients had a main diagnosis of personality disorder, and few patients had psychotic disorders [9, 18]. Offering a treatment that suits this very heterogeneous population in a single facility represents a challenge.

### **Improvement over the stay**

The day hospital appeared to be helpful in a majority of the cases, despite their heterogeneity: 71% of the stays ended with a global clinical improvement (CGI-I) and a significant medium-sized increase in functioning level (GAF scores) and a small decrease in illness severity (CGI severity scores) was found. Suicidality and self-harm behaviours also significantly decreased, even if many patients often disclosed their suicidal thoughts only during the stay (which may have biased our results in a conservative way [42]).

### **Predictors of improvement**

Our third goal was to determine what predicted improvement over the stay. To begin with, gender and age did not influence the outcome, such that the day clinic seem to have been equally useful for male and female patients of all ages.

### *Diagnosis category*

Stays of patients with different first diagnosis categories showed different outcomes. Stays of patients with substance related disorders brought a lower improvement than stays of patients with mood disorders. The better outcome for mood disorder is consistent with Mazza's [17] results. Moreover, previous literature showed that general day hospitals are not optimal for patients with substance disorders [19]. These less favourable outcomes may be due to the challenges associated with these disorders (higher severity for dual disorders [43]). Current research recommends treatments integrating mental health and substance related disorder problematics [44]. In our facility, the problematics associated with substance related disorders were not specifically targeted. For some diagnosis categories, such as substance related, psychotic or personality disorders, a diagnosis-specific intervention (individual or group) might help address the particular difficulties associated with these disorders.

### *Severity of affection*

The lower the initial functioning level (GAF-score), the higher the improvement. Previous literature has

shown contradictory results; Arnevik and colleagues [24] found no difference in outcome according to the functioning level, but Priebe et al. [15] showed that patients with a high symptom load at baseline had a worse outcome in day hospital than with inpatient treatment. In our facility, stays of patients with a lower functioning level seemed to have higher improvement. In addition, improvement of the GAF score was predicted by episode length; stays of patients whose episode had lasted less than a year were more likely to be associated with an improvement, showing that less chronic cases are easier to treat [45]. Finally, self-destructive attitudes did not affect the outcome, indicating that, despite the potential threat to the treatment that suicidal thoughts or self-harming behaviour might represent, they do not seem to interfere with the therapy outcome. This shows that suicidal patients can be treated in a day hospital with a success level similar to nonsuicidal patients [28]. However, our data do not consider the severity of suicidality, and close monitoring of the suicidality level should always be a priority. In our day hospital, referring patients to an inpatient ward to protect them from a high suicidal risk was common.

### *Treatment intensity*

Finally, and importantly for the clinical implications, stay length and attendance rates were significant positive improvement predictors. They not only indicate a time but also a dose-response effect. After controlling for stay length, the effect of attendance rate dropped to marginally significant, showing that a key factor is to grant enough time to the patient to improve. Despite the financial burden represented by longer stays, our results indicate that patients with the best outcome need to have sufficient time and participation with the treatment. The day hospital setting allows contact with real-life conditions, and thus conserves or trains daily skills. Given the severity of disorder in the treated population, a longer stay seems important for patients to be able to benefit, as has been shown in other psychiatric settings with severely affected patients [31, 32]. This is in line with a recent study showing that adults from a psychiatric outpatient clinic showed better outcomes with longer treatments, especially if the patients improved slowly [46]; this was mostly the case in our sample, as improvements were modest. It should also be noted that the stays of patients dropping out from the treatment likely have been rated with a worse outcome, and that the longer stays concern more committed patients. Thus, working on the patient's motivation and adherence to treatment appears important (e.g. [47]).

### Limitations and future research

This study offers a comprehensive and ecologically valid picture of a day hospital and is to our knowledge the first to do so for a Swiss day hospital that is not specialised in a certain diagnosis or approach. Analyses were based on a large representative sample of the treated population, including 89.9% of all patients treated during the data acquisition period in French and in German. However, several limitations must be taken into account.

First, the effect sizes were small, such that the results should be interpreted with caution. This is, however, not surprising given the illness severity of the treated population, and that the treatment stops once the patient is stable enough to be treated in an outpatient setting, thus setting a natural ceiling on the potential improvement. Second, the results concerning the differences regarding the diagnosis must be interpreted cautiously. Diagnoses were not made with a structured clinical interview, and were often refined and changed during treatment, as part of the day clinic services [1]. Moreover, comorbid disorders were not taken into account and might have been more frequent if assessed with structured clinical interviews, because of overlapping symptoms between diagnosis [48]. Third, despite their general good measurement properties [38, 39], the GAF and CGI are very broad measures and their reliability can be affected by several factors, such as the rater's attitude toward these measurements [49], the patient-therapist relationship history or the therapist's memory [50]. Hence, in public psychiatric services, at least one rater-completed and one patient-completed instrument should be used [51]. Future research should assess patients' self-reported general psychopathology, specific symptoms (e.g. with the symptom check list [52]) and user satisfaction. Fourth, our design did not allow conclusions about the influence of specific process factors such as individual therapy, group therapy, social support, therapeutic

relation, etc. Fifth, as this was not a randomised controlled study, we have no data concerning the effectiveness of our day hospital compared with outpatient or inpatient services. A cost/benefit analysis is thus not possible. Finally, our study did not allowed us to tease apart the effect of different therapeutic orientations, which varied according to the therapists' individual training. However, the treatment concept seems to have little relevance and patients' characteristics to be much more important [53].

### Implications for practice and future research

The strength of this study was its naturalistic, real-life setting, based on the bilingual population of Canton Fribourg. Even with severely impaired patients with very diverse psychiatric disorders and comorbidities, small to medium improvements were observed, allowing good conditions for a subsequent outpatient treatment. The treatment intensity (stay length and attendance rate) was an important predictor of outcomes, demonstrating the importance of offering a sufficiently substantial treatment. Owing to the large variation in outcome, the question of admission criteria and indication (e.g. GAF thresholds) remains open and would be important to address in order to admit patients for whom day hospital treatment is best indicated. The different outcomes according to diagnosis raise the question of whether disorder-specific treatments might be important for at least a portion of patients.

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### References

The full list of references is included in the online article at [www.sanp.ch](http://www.sanp.ch).

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