Outcome Following Child Psychiatric Hospitalization

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Abstract

Admission, discharge, andfollow-up evaluations of110 children admitted to a child psychiatric unit (mean 14 days) showed that the children's psychologicalftmctioning improved significantly during hospitalization. Gains were notfully maintained atfollow-up (1 and 6 months), bllf the children were still significantly less impaired after discharge than at admission. A nonsignificant difference existed betweenfollow-up scores, indicating no loss ofprogress or decline in ftmctioningfrom 1 • to 6-month follow-up. The results are consistent with an ABA (A = no inpatient intervention, B = inpatient intervention. A = no inpatient intervention) treatmenteffect. They are not explained by removalfrom and return to an unsatisfactory home environment. Psychological functioning after admission was significantly better than after 1 to6 months ofpost-discharge psychiatric services. 17ris study offers a clinically feasible approach to evidence-based practice by documenting patient improvement during and after inpatient treatment using a simple, empirically supponed assessment instrument.

Surprisingly little is written on outcome following child psychiatric inpatient admissions. 1.2 Studies before 1990 generally showed improvement in functioning for children hospitalized on psychiatric units.,.. However, psychiatric practices have changed considerably since then. and lengths ofadmission are now far shoner than in the past. Only a few outcomestudies published during or after 1990 were located that measured patient progress during or after hospitalization.[1-4] These studies showed overall improvement in psychological functioning, but lengths of admission averaged more than a month. Although this is far shoner than pre-I 990 admission lengths, it is considerably longer than admissions today.

According to Dalton and Forman" and Pfeiffer and Strzelecki." previous outcome studies have many methodologic problems. A major limitation is the absence of a consistent and standardized

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assessment at admission, discharge, and follow-up to evaluate improvement during admission and outcome after admission. Most studies simply assessed child functioning at follow-up without a baseline assessment. Some studies'·„_, [1] did evaluate children at two time points bycomparing follow-up assessments several months after discharge with admission assessments. However, in these studies, it is impossible to determine the extent to which reported improvement occurred during or after admission. No studies published after 1990 were found that assessed children at admission, discharge, and follow-up.

In 1996 the authors conducted a pilot study" evaluating the progress of79 children, 3 to 14 years of age, treated on a psychiatric unit (mean length of admission 16 days). Psychological functioning was assessed using the Columbia Impairment Scale (CIS).[15] Children improved significantly at discharge and at 2-month follow-up relative to their functioning at admission. Follow-up data 7 months after discharge were available for 26 of the children; they showed significant improvement compared with admission. Because of missing data, the 79children in the study represented Jess than half of the children admitted during the period of the study and therefore were a select group. The authors· goal was to replicate the pilot study using consecutive admissions.

The present study assessed improvement in psychological functioning in children consecutively admined to a psychiatric inpatient unit for lengths of stay that were far shorter than in past research. The study anempted to overcome methodologic problems in previous studies by using the same standardized assessment instrument at admission, discharge, and follow-up to determine degree of improvement during admission and the extent towhich progress was maintained afterdischarge. The study also sought to develop a procedure for assessing progress and outcome that was practical and feasible for routine clinical use. Most psychiatric facilities do not have the resources, time, or money toconduct rigorous empirical outcome studies. However, psychiatric caregivers need todemonstrate patient progress in orderto justify treatment. Evidence-based practice is essential because of the need to know treatment effectiveness and because of the many changes that may affect the outcome of mental health care. including shorter admissions, insurance authorization and reimbursement practices that may limit patient care, and cost-reduction measures.[16,17]

Method

Sample

The sample comprised 110 of 124 consecutive admissions toachild psychiatric unit from January toJune 1998 (Table 1).Twenty-one of the children had a behavior disorder alone (eg, anention deficit hyperactivity disorder or oppositional defiant disorder), 9 had only a nonbehavior disorder (eg, depression or anxiety). and 80 had both a behavior disorder and nonbehavior disorder. The most common *Diagnostic and Statistical Manual, Founh Edition"* (DSM-IV) diagnoses were oppositional defiant disorder *(n* = 66, 60%), attention deficit hyperactivity disorder *(n* = 64, 58%), adjustment disorder (n = 47, 43%), parent-child relational problems (n = 36, 33%), depression (n = 29, 26%), and anxiety disorder *(n* = IO, 9%). Diagnoses with frequencies less than IO were bipolar disorder, posttraumatic stress disorder, autism, reactive attachment disorder, anorexia, psychosis, and conversion disorder. The quality of each child's home environment was rated from 1 ("very disturbed") to 90("stable, secure, and nurturing") on the Global Family Environment Scale (GFES)" by the child's social worker on the psychiatry unit. A GFES score below 81 indicated an unsatisfactory home environment.

Treatment

The children were hospitalized from 4 to 80 days (mean= 13.9, median= 13, modes= 13 and 14, standard deviation [SD]= 8.8) on a 16-bed child psychiatric unit situated in a teaching hospital. The

Table 1
Child demographic data

Demographic	Mean	Range	Demographic	%
Age	8.9	2-13	Male	71
Intelligence quotient (IQ)	90.2	11-146	White	82
Mother; Years of education	12.4	7-27	Black	11
Father: Years of education	12.2	7-22	Hispanic	6
Global Family Environment Scale	50.1	1-85	Asian	I
			Mother professional*	16
			Father professional	21

***Employed in a professional or managerial position.**

unit served children in 27 counties, which include urban, suburban, and rural populations. The unit was staffed by round-the-clock nursing personnel and mental health technicians. as well as by two attending child psychiatrists, two social workers, two recreational therapists, two special education teachers, and two educational paraprofessionals, all of whom were full-time employees on the unit. Twochild psychiatry residents also were assigned full time to the unit. The components of treatment included daily individual and group psychotherapy, family therapy two times per week, attendance in the school program 3.5 hours aday, recreational therapy 2 hours daily, and a parent support group two times per week. Parents (or primary caretakers) were required to work with their child and the treatment team a minimum of 3 hours per day, 3 days per week. Each child had an individualized behavioral and treatment plan and was on a point system, which determined his or her access to **privileges and other reinforcers. Time out and isolation were used as needed. Medication was often** an integral component of treatment.

Instrument

On the unit, the parent version of the Columbia Impairment Scale (CIS)" was one instrument used to measure psychological functioning. It is a brief, clinically feasible test with excellent preliminary research support." The CIS is designed to be administered by a lay interviewer who simply records the parent's responses to questions read by the interviewer. CIS administration does not require clinical judgment or expertise. The CIS assesses interpersonal relationships. mood and behavior. **academic functioning, and use of leisure time; it yields an overall score indicating degree of** psychological impairment. TI1e CIS comprises 13 items (eg, "unhappy or sad" and "behavior at home") rated on a 5-point scale from "no problem" to "a very big problem" by the child's parent or primary caretaker_(Appendix A presents CIS items). According to the CIS standardization study," the CIS has good internal consistency, test-retest reliability, and concurrent validity. It correlates highly *(r* = .73) with the Children's Global Assessment Scale,'° and it differentiates significantly between referred and nonreferred children."

Procedure

To provide information forclinical use andevidence-based practice on the unit, the child's primary caretaker completed the CIS at admission, discharge, and follow-up. This was done via an interview by a member of the psychiatry unit staff, face-to-face with the parent at admission anddischarge, and by telephone at follow-up. The same caretaker was interviewed at each time point. For consistency, the female primary caretaker (eg, mother or grandmother) completed the C!S for all but fourchildren:

in these cases the father was the primary caretaker and informant. The CIS was completed at admission, discharge, and I-month follow-up for I IO of the 124 children (89%) who completed admissions during the time frame of the study. One or more CIS score was missing for 14 children; therefore, they were not included in the study. For these children, the primary caretaker could not be located at follow-up or was not available at admission or discharge. Of the I 10 children with admission. discharge, and I-month follow-up scores, 90 (82%) also had scores at approximately 6-month follow-up.

Data analyses

Dependent 2-tailed ttests were used to analyze the significance of differences between admission, discharge, and follow-up scores to determine the degree of improvement and the extent to which changes in psychological functioning endured I and 6 months after discharge. It was not possible to create a control group because treatment could not be denied or delayed for children in need of psychiatric care. To compensate for the absence of a control group and to determine if the improvement in CIS scores from admission to discharge significantly exceeded what would be expected due to regression to the mean, a single sample /test was used comparing the change in scores with that obtained over a similar time period in the CIS test-retest reliability study." Bird et al" analyzed initial and repeat parent CIS scores for sixty-one 9- to 17-year-old children treated for psychiatric disorders (84% as outpatients; remainder as inpatients). The initial mean CIS score was 16.5. The mean CIS score for the same group of children an average of 14.7 days later was 15.9, yielding a mean difference of 0.6 points.

CIS scores at admission, discharge, and follow-up were analyzed to determine whether ornot they fit the pattern of an ABA treatment effect (A= no inpatient intervention. B = inpatient intervention, A= no inpatient intervention). Scores also were analyzed as a function of the quality of the child's home environment using independent *t* tests. Children were divided into two groups: those whose family environments were satisfactory (GFES 81, $n = 15$) and those whose family environments were not stable, nurturing, or secure (GFES < 81, $n = 95$). If an ABA pattern was found for children from stable and nurturing homes, then the change in scores could not be explained simply by the child's removal from and return to an unsatisfactory home environment (versus a specific treatment effect). The relative effectiveness of inpatient care versus other psychiatric treatment was analyzed using dependent *t* tests comparing CIS discharge versus follow-up scores for the 99 children who received psychiatric services after their inpatient admissions (including outpatient therapy, one-on-one behavior therapy at home and school, and services while enrolled in a partial hospitalization or residential treatment program).

Results

CIS scores at admission (mean [M] = 31.1) were significantly worse than scores at discharge *(M* = 14.2, *t*= 15.5, $p < .00001$), I-month follow-up *(M* = 20.0, *t*= *9.5,p* < .00001), and 6-month follow-up *(M* = 20.5. *t*= 8.9, $p < .00001$). Relative to admission scores, discharge scores improved for 93% of the children and mean follow-up scores improved for 82%. The obtained mean difference of 17.0 points between the CIS admission and discharge scores was significantly greater *(t* = 14.9, $p <$ .0000I) than the mean test-retest difference of 0.6 points obtained by Bird et al" for a clinical sample of children over an equivalent time interval. The difference between CIS scores at 1- and 6-month follow-up was nonsignificant *(t* = 0.23, $p = .82$). Though follow-up scores were significantly better than admission scores, the mean follow-up score was significantly higher than the discharge score *(t* = 6.00, $p < .0000$ I).

The results for the total sample, as well as those for the 15 children from satisfactory home **environments and the 95 children from unsatisfactory home environments. were consistent with an**

ABA treatment effect (ie. scores were better during versus before or after admission) (Table 2). CIS scores for children from satisfactory versus unsatisfactory family environments did not differ significantly at admission (I= 0.18, $p = .86$), discharge (I= 0.43, $p = .67$), and follow-up (I= I.I8. $p = .24$). For the 99 children who received psychiatric services after discharge, psychological functioning at discharge (CIS $M = 14.8$) was significantly better (I= 5.36, $p < .0001$) than at follow-up (CIS $M = 20.2$).

Discussion

Children admitted to a child psychiatric unit for a mean of 14 days improved significantly in psychological functioning on the CIS from admission to discharge. This improvement was far beyond what was found for a comparison group of clinical children receiving mostly outpatient psychiatric care over a similar time interval of 15 days." Further. improvement rates compared favorably with those reported in other studies of children admitted for much longer lengths of time. In the present study, 93% of the children improved from admission todischarge. compared with 68% in the study by Oliver and Knight.' From admission to follow-up, 82% of the children in the present study improved, versus 80% in the study by Sourander et al.'

The pattern of scores at admission, discharge, and follow-up was incompatible with regression to the mean or spontaneous resolution of problems with time. Instead. the pattern was consistent with an ABA treatment effect. The ABA pattern was found for children from both satisfactory (nurturing. stable, and secure) and unsatisfactory home environments. Therefore, the pattern of results did not simply reflect removal from and return to a negative family environment, because the same pattern was found for children who were removed from and returned to good (as well as poor) home **environments.**

Follow-up scores were higher than discharge scores, indicating that progress made during admission was not fully maintained. However, children were significantly less impaired at 1- and 6-month follow-up than at admission, and there was a nonsignificant difference between 1- and 6-month follow-up scores. This suggests that the children stabilized and did not deteriorate beyond I-month follow-up. Therefore, the progress evident 1 month after discharge was still evident *5* months later. However, even children receiving psychiatric care after their admissions did not maintain the level of improvement achieved at the end of their inpatient stay.

Comparative studies are needed to determine if the same outcome could be achieved with different and possibly less expensive psychiatric interventions than an admission to a child psychiatric unit. **However, the study suggested that inpatient intervention was more effective than some other** psychiatric services. The children made significantly greater progress than did clinical children in

Table 2

Mean Columbia Impairment Scale (CIS) scores at admission, discharge, and follow-up for children from satisfactory ($n = 15$) versus unsatisfactory ($n = 95$) home environments

	CIS scores		
Children	**Admission**	**Discharge**	**Follow-up**
Total sample	31.1	14.2	20.1
Satisfactory home•	30.6	13.2	17.2
Unsatisfactory home'	31.2	14.3	20.5

*Global Family Environment Scale (GFES) ;, 81
'GFES < 81

another study" who received mostly outpatient services over a comparable time interval. At the end of a mean 14-day inpatient admission, the children were functioning at a significantly higher level than at 1- and 6-month follow-up, after the children had received outpatient therapy, one-on-one behavior therapy at home and school, and/or services in a partial hospitalization or residential program. It may be that the very comprehensive and intensive psychiatric intervention, supervision, and behavioral controls provided on an inpatient unit cannot be replicated in the home, school, or community after discharge.

Another study by the authors" analyzed variables that may be related to admission progress and follow-up outcome in the sample of 110 children, including severity of impairment, diagnoses, gender, race, age, intelligence quotient (IQ), family functioning, negative life events, parent education and employment, biologic family history, length of hospitalization, parent involvement during admission, and follow-up services. None of the variables, alone or in combination, was significantly related to admission progress or follow-up outcome, with two exceptions. First, children who were more impaired at admission made more progress during admission, but they were still more impaired at follow-up than were children who had milder symptoms at admission. Second, children without a behavior disorder had a significantly better outcome than did children with a behavior disorder.

Implications for Behavioral Health Services

Study findings showed that children admitted to a child psychiatric unit for an average of 14 days made significant progress during admission and were significantly improved at 1- and 6-month follow-up relative to admission. The study alsodemonstrated the usefulness of the CIS as arelatively simple and clinically feasible means of assessing progress during and after psychiatric admissions. In this era of major changes in mental health care (eg, emphasis on cost reduction, stricter insurance authorization guidelines, and shorter admissions), it is critical to assess the outcome of children admitted to child psychiatric units in order to demonstrate improvement, justify the care provided, and ensu,e that services are not compromised by health care changes. Such evidence-based practice is especially important for psychiatric care providers who do not typically evaluate the effectiveness of their inpatient treatment' and who may have a more difficult time than some medical care providers obtaining approval and reimbursement for services.

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Appendix A

Columbia Impairment Scale (CIS) Items

In general, how much of a problem do you think [he/she] has with

I. getting into trouble?
1. getting along with you ([his/her] motherJ?
2. getting along with (his/her) father (you)?
3. feeling unhappy or sad?

How much of a problem would you say he/she has

I. with his/her behavior at school (or job)?
2. with having fun?
3. getting along with adults other than you or his/her father/mother?

How much of a problem does he/she have

1. **with feeling nervous or wonied?**
2. getting along with his/her brother(s)/sister(s)?
3. getting along with other kids his/her age?

How much of a problem would you say he/she has

I. getting involved in activities like sports or hobbies?
2. with his/her schoolwork (doing his/her job)?
3. with his/her behavior at home?