

## Variables related to outcome following child psychiatric hospitalization

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### Abstract

Children ( $N = 110$ ) hospitalized on a child psychiatric unit improved significantly in psychological functioning at discharge and 1- and 6-months follow-up relative to their functioning at admission. Children who were more impaired at admission made more progress during admission but were more impaired at follow-up than children who had milder symptoms at admission. Children without a behavior disorder had a better outcome than children with a behavior disorder. None of the other variables, alone or in combination, was significantly related to admission progress or follow-up outcome, including specific diagnoses, gender, race, age, IQ, family functioning, negative life events, parent education and employment, biological family history, length of hospitalization, parent involvement during admission and follow-up services. © 2001 Elsevier Science Inc. All rights reserved.

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### 1. Introduction

In this era of major changes in inpatient mental health care (including briefer psychiatric admissions, restrictions imposed by insurance programs and cost reduction measures [1,2]), evidence-based practice is critical. We need to determine the effectiveness of treatment, justify the care provided and evaluate the impact of health care changes on the well being of our patients. Unfortunately, psychiatric care providers do not typically assess the effectiveness of inpatient treatment [3] and few research studies have been published on outcome following child psychiatric admissions [4,5]. A study recently published by the authors [6] used a simple and clinically feasible assessment measure (the Columbia Impairment Scale (71) at admission, discharge and follow-up to assess child psychological functioning and patient progress. Results showed that 110 children admitted to a child psychiatry unit (mean length of stay 14 days) improved significantly in psychological functioning during their hospitalization and were significantly improved at 1- and 6-months follow-up relative to admission. The pattern of results was consistent with an ABA treatment effect and was not explained simply by removal from and return to a negative home environment. Children from good

environments had the same pattern of improvement as children from poor environments. The purpose of the present study was to analyze a host of patient, family and treatment variables that may be related to the progress made by these children during admission and their outcome at follow-up and to compare current findings with those of previously published studies, all of which involved much longer lengths of admission.

The relationship between outcome following child psychiatric admissions and various independent variables has been the focus of research, sometimes with inconsistent results. Studies showed that children who were less severely impaired at admission had a better outcome than children with more severe symptoms [4,8-12]. Children who had a diagnosis of only depression or anxiety disorder had a more favorable outcome than children with other disorders [4,12-13]. A poor prognosis was particularly associated with antisocial behavior and other behavior disorders, such as oppositional defiant, conduct, and attention deficit hyperactivity disorders [4,8,12-16]. A less favorable outcome was also linked with psychosis [14-16] and, in contrast to other studies, depression [16]. In one study, a history of physical abuse was not significantly related to a negative outcome [14], whereas it was in another study [16].

Outcome results as a function of age and IQ are equivocal. Most studies found a nonsignificant relationship with age [4-5,11,13]. However, Kolko [16] reported a poorer outcome with increasing age and IQ. In contrast, higher IQ

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was associated with better outcome in other studies [10-11,14-15]. All studies investigating gender reported a non-significant relationship to outcome [4-5,11,13].

Family variables were studied in a few publications. Poor outcome was associated with impaired family functioning [8,14-15] and living with adoptive parents [13]. Less favorable outcomes were also linked with a parental history of criminal or antisocial behavior [14-15], parent psychiatric hospitalization [4] and maternal psychopathology [8].

Several early studies reported that longer versus shorter admissions were related to a more positive outcome [10-11,14,17]. However, later studies found a nonsignificant relationship between length of admission and outcome [4-5,13,16]. The remaining studies investigating treatment variables found that outcome was more favorable with increasing family participation during admission [5] and with involvement in follow-up services [11,16].

In summary, the only consistent results from multiple **studies are that poor outcome is associated with greater severity of impairment at admission and the presence of a behavior disorder.** Study findings regarding other factors are not yet replicated or are discrepant from one study to another. These discrepancies may be accounted for by considerable differences in patient and treatment variables and research designs from one study to another. Published studies span several decades during which there have been major changes in psychiatric treatment. Mean lengths of admission in published studies range from 27 days to more than one year. Some studies included children with a variety of diagnoses and others were limited to only one disorder (e.g., autism). Some studies analyzed data for only children or only adolescents and others combined data for both age groups. Sample sizes in published studies ranged from 12 to over 1,000. Most studies simply assessed children at follow-up without a baseline assessment. No studies published after 1990 used a consistent and standardized assessment at admission, discharge and follow-up. Outcome measures differed greatly, ranging from retrospective chart reviews to **the use of clinical interviews, questionnaires and rating scales.** The time at which outcome was assessed ranged from 2 months to 24 years follow-up after admission.

The purpose of our study is to assess variables associated with outcome following the much shorter admission length (mean 14 days) that typifies child psychiatric hospitalizations today compared with previous studies. Our goal is to determine the relationship between patient progress during and after psychiatric hospitalization and several independent variables involving patient, family and treatment characteristics. Our study is unique compared to others in that it evaluates children at admission, discharge and follow-up using a standardized instrument, therefore yielding two outcome measures: [1] admission progress (degree of improvement in psychological functioning during admission) and [2] follow-up outcome (degree of impairment at follow-up). This may be important when analyzing the possible effects of the independent variables, which might be significantly

related to admission progress but not to follow-up outcome **or vice versa.**

## 2, Method

### 2.1. Sample

The sample consisted of 110 children, 2 to 13 years of age, hospitalized on a 16-bed child psychiatric inpatient unit from January to June 1998. Seventy-eight children were males, 90 were white, 12 were black, 7 were Hispanic and 1 was Asian. IQs ranged from 11 to 146 ( $M$  90). The mean length of admission was 13.9 days. The child psychiatric unit is located in a teaching hospital and is staffed by full-time employees, including psychiatric nurses, two child psychiatrists, two social workers, two recreational therapists, two special education teachers, two educational paraprofessionals, two child psychiatry residents and a psychologist. Treatment components included behavioral, individual, group, family and recreational therapy; participation **in the school program; and medication.**

### 2.2. Variables and instruments

#### 2.2.1. Dependent variables

The two dependent variables are admission progress and follow-up outcome, derived from each child's score on the parent version of the Columbia Impairment Scale (CIS) [7]. The CIS assesses mood, behavior, interpersonal relationships, functioning at school and use of leisure time and it yields an overall score indicating degree of impairment. The CIS comprises 13 items (e.g., "behavior at home" and "unhappy or sad") rated by the child's parent or primary caretaker on a 5-point scale from "no problem" to "a very big problem." The CIS is clinically easy to use and has good research support, including internal consistency, test-retest reliability and concurrent validity [7]. The CIS correlates highly ( $r = .73$ ) with the Children's Global Assessment Scale (CGAS) [18] and it significantly discriminates between referred and non-referred children [7]. The CIS was chosen over other assessment measures (such as the CGAS) because of the need for a standardized measure that could be completed by the same person at admission, discharge and follow-up and because the CIS has test-retest data over a 2-week period (which coincides with the mean length of our **admissions**).

On our unit, the child's primary caretaker is interviewed by a member of the psychiatry unit staff at admission, discharge and follow-up to complete the CIS. The same **caretaker is interviewed each time, which, for consistency and standardization, is the female caretaker, unless the father is the sole primary caretaker (which occurred in four instances in our study).** The CIS was completed at admission, discharge and 1-month follow-up by 110 of the 124 (89%) consecutive admissions to our unit during the time

**Table 1**  
Columbia Impairment Scale (CIS)\*

	M	SD	Range
Admission CIS	31.1	11.2	3-52
Discharge CIS	14.2	9.1	0-39
Admission progress**	17.0	11.5	-14-45
Follow-up outcome***	20.1	10.2	0-46

\* The higher the score, the greater the impairment; \*\* Admission minus discharge CIS; \*\*\* Mean CIS at 1- and 6-months follow-up.

period of the study. Ninety of the 110 children (82%) also had CIS scores at 6-months follow-up.

Admission progress (degree of improvement in psychological functioning during admission) equals the admission minus discharge CIS score. Follow-up outcome (degree of impairment at follow-up) equals the mean CIS score at 1- and 6-months follow-up (Table 1). For the 20 children without CIS scores at 6-months follow-up, the 1-month follow-up score alone was used because 1- and 6-month scores (M 20.0 and 20.5, respectively) did not differ significantly from each other ( $I = 0.23$ ,  $P = .82$ ) in our sample.

### 2.2.2. Independent variables

**2.2.2.1. Child variables.** Child characteristics are summarized in Table 2. These include severity of impairment at admission (admission CIS score), *DSM-N* discharge diagnoses, gender, race, age, IQ and learning problems. Discharge diagnoses using *DSM-N* criteria were determined by each child's child psychiatrist on the inpatient unit based on clinical observations; extensive parent and child interviews; teacher, parent and child rating scale scores; input from the treatment team (i.e., psychologists, teachers, child psychiatry residents and nurses); and review of previous records. One hundred ten children had behavior disorders, including attention deficit hyperactivity disorder (ADHD), oppositional defiant disorder, adjustment disorder with dis-

**Table 2**  
Child variables

	M		%
Severity of impairment*	31.1	Oppositional defiant disorder (ODD)	60
Age	8.9	Attention deficit hyperactivity disorder (ADHD)	58
IQ	90.2	Adjustment disorder	43
		Parent-child relational problem	33
Male	71	Depression	26
White	82	Anxiety disorder	9
Behavior disorder****	92	Bipolar disorder	6
Learning problem	48	Posttraumatic stress disorder (PTSD)	4
Abused*****	21	Autism	4
		Other	9

\* Admission CIS; \*\*\*\* Behavior disorder with or without other disorders; \*\*\*\*\* History of child physical or sexual abuse.

turbance of conduct, bipolar disorder, autism, psychosis, or parent-child relational problem. The nine children without a behavior disorder had diagnoses of depression, anxiety disorder, anorexia, or posttraumatic stress disorder (Pfsd), **alone or in combination with each other.**

In the majority of cases, the child's IQ was that on the WISC-III, which was administered on the unit or given previously within two years of admission. For children below age 6, other individually administered intelligence tests were used (most often the Stanford-Binet Intelligence Scale: N). In 35 cases, an IQ was not available, so the Broad Knowledge score on the Woodcock-Johnson Tests of Achievement-Revised (which is routinely administered to children on the unit by their classroom teachers) was substituted. This was done because the Knowledge score correlated highly with IQ ( $r = .87$ ,  $P < .00001$ ) for children in our study. A child was considered to have a learning problem if the child's IQ or reading, math, or writing achievement test standard score on the WIAT or Woodcock-Johnson was below 80.

**2.2.2.2. Family variables.** Family characteristics are presented in Table 3. These include intact family (children living with both parents, either biological or adoptive), history of domestic violence in the home, parent employment (percentage of mothers and fathers in a professional or managerial position vs. other or unemployed), parent education (highest grade completed), quality of the home environment (score on the Global Family Environment Scale [19] or the GFES) and number of negative life events experienced by the child's family. The GFES was completed by the child's social worker on the child psychiatry unit. The quality of the child's family environment is rated on the GFES from I ("very disturbed family environment") to 90 ("stable, secure and nurturing"). Scores from 81 to 90 reflect an adequate family environment, 71 to 80 a slightly unsatisfactory environment, 51 to 70 a moderately unsatisfactory environment, 31 to 50 a poor environment, II to 30 a very poor environment and I to 10 a very disturbed family environment. The GFES is designed to be rated by mental health professionals. Inter-rater agreement based on clinical interviews is high, with a reliability coefficient of .89 [19]. The last variable, number of negative or stressful events experienced by the family, was determined using a modified version of the Schedule of Recent Experience [20]. On admission, the primary caretaker was asked if each of 15 stressful or negative events (e.g., divorce, income decreased substantially, moved to a new location, death of immediate family member and legal problems) had occurred in the past year. The negative events score was the total number of such events (possible range 0-15).

During the psychiatric interview at admission, parents were asked about maternal and paternal biological family history. The percentage of children with a positive family history for various psychiatric disorders in their parents, grandparents, aunts, uncles, cousins, or siblings is listed in

**Table 3**  
Family variables

	%		Biological family history		%
Intact family	36		<b>Depression</b>	63	
Domestic violence	17		<b>Substance abuse</b>	62	
Mother professional	16		<b>Violence</b>	43	
Father professional	21		<b>Criminal conviction</b>	38	
	<b>M</b>	<b>Range</b>	ADHD	31	
Mother years education	12.4	7-27	<b>Bipolar disorder</b>	23	
Father years education	12.2	7-22	<b>Schizophrenia</b>	18	
Global Family Environment Scale	50.1	1-85	<b>Conduct or ODD</b>	12	
Number of negative events	2.8	0-9	<b>Anxiety disorder</b>	9	
			PTSD	5	
			<b>Eating disorder</b>	4	
			<b>Negative</b>	2	

Table 3 (excluding seven children not living with their biological parents for whom family history was not known). Only two children (both with a diagnosis of autism) had no family history of psychiatric disorders.

**2.2.2.3. Treatment variables.** Treatment characteristics analyzed in the study were length of admission, parent involvement during admission (percentage of days during admission that one or more primary caretaker was present) and follow-up services (Table 4). When the child's primary caretaker was interviewed by phone to complete the CIS at follow-up, the caretaker was specifically asked what services the child was currently receiving. Services were divided into six categories: outpatient therapy, intensive in-home behavior intervention, medication, special education, psychiatric readmission or enrollment in a partial hospitalization or residential program and placement in a foster or group home.

### 2.3. Data analyses

Pearson correlation coefficients were calculated to determine the degree of linear relationship between each of the continuous child, family and treatment variables (e.g., length of admission) and the dependent variables (admission progress and follow-up outcome). An independent *t* test or ANOVA was used to investigate differences in admission progress and follow-up outcome between groups of children created by the independent variables (e.g., males vs. females). Dependent *t*-tests were calculated to compare CIS scores at different time points (e.g., admission vs.

follow-up) within a single group. Forward stepwise logistic regression analysis was applied to determine the extent to which a weighted combination of key variables could identify children with good versus poor outcome. Variables included gender, race, intact family, absence of behavior and learning disorders, severity of impairment at admission, age, length of admission, parent involvement during admission, negative life events and quality of the home environment. A cumulative risk factor score was created by the authors by counting the total number of risk factors present for each child. Potential risk factors were: [1] inadequate family environment (GFES < 81), [2] more than one negative life event, [3] child not living with both parents, [4] history of child physical or sexual abuse, [5] history of criminal behavior in one or both biological parent, [6] parent history of violent behavior, [7] parent history of substance abuse, [8] parent history of psychiatric disorders, [9] education less than high school for one or both parent, [10] parents unemployed and [11] child learning disorder. Therefore, risk factor scores could range from 0 to 11. Each child's risk factor score was correlated with admission progress and follow-up outcome. Differences in the number of risk factors for children with good versus poor outcomes were also analyzed. All tests of significance were 2-tailed. If a probability level was <.01, a Bonferroni correction [21] was calculated to insure that results were still significant at .01 given the number of comparisons made.

## 3. Results

### 3.1. Child variables

#### 3.1.1. Symptom severity

The severity of a child's impairment at admission (i.e., the CIS admission score) was significantly related both to admission progress (admission CIS minus discharge CIS) and follow-up outcome (CIS at follow-up). The greater the severity of admission symptoms, the greater the degree of

**Table 4**  
Treatment variables

		Range
Mean admission length (days)	14	4-80
Mean % days parent present	69	7-100
% children receiving follow-up services	95	

progress made during admission ( $r = .68$ ,  $P < .00001$ ) and the greater the impairment at follow-up ( $r = .52$ ,  $P < .00001$ ). However, even children in the more impaired half of the sample at admission were significantly improved at follow-up relative to admission ( $t = 11.88$ , Bonferroni  $P < .01$ ), as were the 31 children in the most impaired quarter of the sample ( $t = 9.38$ , Bonferroni  $P < .01$ ).

### 3.1.2. Diagnosis

The 9 children who did not have a behavior disorder had a significantly better outcome (mean CIS at follow-up 9.0) than did the 21 children with only a behavior disorder (mean CIS 19.8) and the 80 children with both a behavior and nonbehavior disorder (mean CIS 21.4,  $F = 6.62$ ,  $P = .002$ ), with a nonsignificant difference between the latter two groups. The difference in outcome between children without a behavior disorder ( $M = 9.0$ ) versus children with a behavior disorder ( $M = 21.0$ ) was still significant with a Bonferroni correction ( $t = 3.59$ ,  $P < .01$ ). Children with versus without a behavior disorder were equally impaired at admission ( $t = 0.48$ ,  $P = .64$ ) and made similar degrees of improvement during admission ( $t = 0.63$ ,  $P = .54$ ). However, children with a behavior disorder deteriorated significantly from discharge to follow-up ( $t = 6.14$ , Bonferroni  $P < .01$ ), whereas children without a behavior disorder did not ( $t = 0.36$ ,  $P = .73$ ). Even so, children with a behavior disorder were still significantly improved at follow-up compared to admission ( $t = 10.20$ , Bonferroni  $P < .01$ ). Significant differences in admission progress and follow-up outcome were not found between children divided according to **the presence versus absence of each of the seven most frequent diagnoses** (ADHD, ODD, adjustment disorder, parent-child relational problem, depression, learning problem and abused),  $t_s = 0.15-2.09$ ,  $P_s = .04-.88$ .

### 3.1.3. Demographic variables

Admission progress and follow-up outcome were not significantly related to gender and race ( $t_s = 0.58-1.89$ ,  $P_s = .06-.57$ ) and age and IQ ( $r_s = -.07-.13$ ,  $P_s = .18-.44$ ).

## 3.2. Family variables

### 3.2.1. Family functioning

Family variables, including quality of the home environment (score on the Global Family Environment Scale) and number of negative life events, were not significantly associated with admission progress and follow-up outcome ( $r_s = .02-.19$ ,  $P_s = .04-.87$ ), nor were two other family variables: whether or not the child was living with both parents and whether or not there was family history of domestic violence ( $t_s = 0.20-1.76$ ,  $P_s = .08-.84$ ).

### 3.2.2. Biological family history

Admission progress and follow-up outcome did not differ significantly ( $t_s = 0.21-2.00$ ,  $P_s = .05-.83$ ) as a function of family history for specific psychiatric problems, includ-

ing bipolar disorder, schizophrenia, depression, anxiety disorder, ADHD, conduct disorder, ODD, criminal conviction, history of violent behavior and substance abuse. Nonsignificant differences were also found when CIS scores were compared for family history of each disorder in one or both parents versus other relatives versus no family history ( $F_s = 0.06-1.93$ ,  $P_s > .14$ ).

### 3.2.3. Parent education and employment

Numbers of years of education completed by mothers and fathers were not significantly related to admission progress and follow-up outcome ( $r_s = .02-.09$ ,  $P_s = .37-.83$ ), nor were maternal and paternal employment (professional or managerial position vs. other),  $t_s = 0.16-1.06$ ,  $P_s = .29-.88$ .

## 3.3. Treatment variables

**Nonsignificant correlations were obtained between** length of admission and both admission progress ( $r = -.19$ ,  $P = .05$ ) and follow-up outcome ( $r = .08$ ,  $P = .38$ ). The percentage of days during the child's admission during which one or both parents was present was not significantly associated with admission progress ( $r = -.15$ ,  $P = .11$ ) and follow-up outcome ( $r = -.16$ ,  $P = .09$ ). Only five children were not receiving services at follow-up. These five children did not differ significantly from the remaining children in outcome ( $t = 0.36$ ,  $P = .72$ ). Similarly, follow-up outcome was not significantly related to whether or not the child was receiving each of the six types of follow-up services ( $t_s = 0.17-2.54$ ,  $P_s > .01$ ).

## 3.4. Cumulative risk factors

The mean number of risk factors for children in the study was 5.3 (range 0-10,  $SD = 2.1$ ), excluding the seven children for whom biological family history was not known. Correlations between the cumulative risk factor score and admission progress ( $r = .12$ ) and follow-up outcome ( $r = .18$ ) were nonsignificant ( $P = .24$  and  $.08$ , respectively). When children with better ( $n = 53$ ) versus worse ( $n = 50$ ) outcomes were compared, the difference in the frequency of risk factors ( $M = 5.3$  and  $5.4$ , respectively) was nonsignificant ( $t = 0.23$ ,  $P_s = .82$ ).

## 3.5. Logistic regression analysis

Logistic regression analysis showed that only two of the child, family and treatment variables (i.e., less severe impairment at admission and absence of a behavior disorder) contributed significantly to identifying children with good (vs. poor) follow-up outcomes. When the total sample was divided by outcome (better half vs. worse half), the logistic regression formula using severity of admission impairment and absence of a behavior disorder classified children with 68% accuracy. When children were divided into two ex-

treme outcome groups, those with the best outcome (CIS  $\leq$  10,  $n = 22$ ) and those with the worst outcome (CIS  $\geq$  29,  $n = 23$ ), severity of admission impairment alone identified children with 82% accuracy. Accuracy did not improve when absence of a behavior disorder, or any other variable, was added to the formula.

#### 4. Discussion

Significant improvement in psychological functioning at discharge and follow-up (1 and 6 months) relative to admission was demonstrated for a group of 110 children, 2 to 13 years of age, hospitalized for an average of 14 days on a child psychiatric unit. The purpose of our study was to analyze patient, family and treatment variables that may be related to admission progress and follow-up outcome and to determine if our findings are similar to those of previous studies involving much longer lengths of admission. Only one variable was significantly related to admission progress: the greater the severity of impairment at admission, the greater the degree of improvement achieved during admission (presumably because of the greater room for improvement). However, results also showed that the greater the severity of admission symptoms, the greater the impairment at follow-up. The finding of a significant and positive relationship between severity of symptoms and negative outcome is consistent with previous research [4,8-12]. **However, even children in our study with the most severe impairments at admission were significantly improved at follow-up relative to admission, thus supporting their inpatient care.**

Children with a behavior disorder, such as antisocial behavior or oppositional defiant, conduct, or attention deficit hyperactivity disorder were also more impaired at follow-up than children without a behavior disorder (i.e., **children with depression, an anxiety disorder, anorexia, or PTSD alone or in combination with each other**). This is similar to prior research showing that behavior disorders were associated with poor outcome [4,8,12-16]. Conversely, prior research indicated that children with an anxiety disorder or depression had the most favorable outcome [4,12-13].

In our study, children with versus without a behavior disorder were equally impaired at admission and made similar degrees of progress during admission. However, **children without a behavior disorder maintained their gains after admission, earning similar scores at discharge and follow-up**. In contrast, children with a behavior disorder deteriorated significantly in psychological functioning from discharge to 1-month follow-up. There are many possible explanations for this finding, including: [1] behavioral controls and techniques used on the unit (e.g., comprehensive behavior program which determines child privileges, 24-h supervision, staff trained in behavior management, structured and secure environment, locked unit and time-out

room) could not be replicated in the home, school, or community, [2] improvement in functioning during admission for children with a behavior disorder may represent a temporary reaction to the new situation and staff (e.g., a "honeymoon period"), which does not endure and carry over off the unit after discharge, [3] medications used to treat children with depression and anxiety may be more effective in helping to maintain progress than those used to treat behavior disorders, [4] nonbehavior disorders by their very nature **may be episodic or time limited, whereas behavior disorders may be more chronic and** [5] children with nonbehavior disorders may be motivated to change (e.g., they do not want to feel sad or anxious), whereas children with behavior disorders may be less motivated to decrease their oppositional and disruptive behaviors.

Although children with a behavior disorder deteriorated significantly in psychological functioning from discharge to 1-month follow-up, they did not deteriorate further between 1- and 6-months follow-up. The mean CIS score was 21 at each of these time points. Further, even children with behavior disorders were significantly improved at 6-months follow-up relative to admission.

**Consistent with most previous research, age and gender** were not significantly related to outcome [4-5,11,13]. Prior studies were contradictory in their finding regarding IQ, which in our study was not significantly associated with outcome. The nonsignificant relationship between length of **admission and outcome in our study was found in other** studies published after 1990 [4-5,13,16]. In contrast to studies showing a relationship between family functioning and outcome [8,14-15], outcome was not significantly associated with the family variables measured in our study (including quality of the home environment, negative life events, biological family history, domestic violence and parent education and employment). Two variables not previously studied (race and the presence of a learning problem) were also not significantly related to outcome in our study. Unlike two prior investigations [11,16], lack of involvement in follow-up services was not linked to a poor outcome. Such a finding is not unexpected because lack of follow-up services could reflect both the absence of need for such services as well as noncompliance when the need **exists**.

There was much individual variation and a broad range of scores for both admission progress and follow-up outcome. Therefore, it was surprising that all but two of the many variables studied (either alone or in combination) were not significantly related to progress and outcome. **Future research endeavors need to continue the search for** factors related to outcome to help in our understanding of who may or may not benefit from inpatient treatment, why and what variables need to be targeted for intervention to enhance the effectiveness of inpatient care and child **outcome**.

Overall, our study demonstrates that children made significant progress during admission and were significantly

improved at follow-up independent of age, IQ, gender, race, learning ability and other variables. Significant progress was achieved for children from all types of families. Progress was independent of the quality of the home environment, negative life events, biological family history, parent education and employment, history of abuse or domestic violence and family composition. Progress was also achieved independent of treatment variables, such as length of admission, degree of parent participation during admission and involvement in follow-up services. Only two variables affected outcome. Not surprising was the finding that children with more severe impairments at admission had a poorer outcome at follow-up. An important finding is that outcome following inpatient intervention is significantly better for children who do not have a behavior disorder (e.g., for children with depression or anxiety) than for children who have a behavior disorder. Both groups were equally impaired at admission, but children without a behavior disorder maintained their progress, whereas children with a behavior disorder deteriorated somewhat by 1-month follow-up. Even so, children with a behavior disorder functioned significantly better at 1- and 6-months follow-up than at admission, supporting inpatient treatment for this group.

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