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ABSTRACT

Length of stay in psychiatric inpatient units has received increasing attention with the external pressures for treatment cost-effectiveness and evidence that longer hospital stays do not appear to have significant advantages over shorter hospital stays. This study examined the relationship between length of psychiatric hospital stay and demographic, family, diagnosis and presenting problems, cognitive functioning, current treatment, and previous mental health treatment variables. Subjects included 200 children and adolescents recently discharged from a state psychiatric hospital. Regression analyses indicated the best groups of predictor variables of length of inpatient psychiatric hospital stay in children and adolescents were the demographic variables and the diagnostic and presenting problem variables. The poorest groups of predictors were the family variables and the cognitive functioning variables. Awareness of factors contributing to the length of hospital stay may assist clinicians in formulating better treatment goals. The findings of the present study suggest many youth would benefit from treatment focused on attention-deficit problems. (ABL)

Predicting Length of Psychiatric Hospital Stay in Children and Adolescents

Michele Leininger Laura A. Stephenson

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Abstract

The relationship between length of psychiatric hospital stay and demographic, family, diagnosis and presenting problems, cognitive functioning, current treatment, and previous mental health treatment was investigated in a sample of 200 children and adolescents at a state psychiatric hospital. Regression analyses indicated demographic variables and diagnosis and presenting problems were the best predictors of length of stay.

Predicting Length of Psychiatric Hospital Stay in Children and Adolescents

Length of stay in psychiatric inpatient units has received increasing attention with the external pressures for treatment cost-effectiveness and evidence that longer hospital stays do not appear to have significant advantages over shorter hospital stays (Kirshner, 1982). Despite findings that children and adolescents have longer stays in psychiatric hospitals than adults (Dorken, 1980; Faden & Taube, 1977; Heiman & Shanfield, 1981; Rud & Noreik, 1982), few studies have investigated which factors contribute to length of hospital stay for the inpatient population under the age of 18. The present study investigated the relationship between length of hospital stay and a) demographic variables, b) family variables, c) diagnosis and presenting problems, d) cognitive functioning, e) current treatment variables, and f) previous mental health treatment variables.

Method

Subjects

Subjects were 200 of the most recently discharged inpatients between the ages of 5 and 18 from a midwestern state psychiatric hospital. The average age of the sample at the time of admission was 12.9 years, with 79% of the subjects falling between the ages of 11 and 15. Fifty-nine percent of the subjects were male, 81% were white, and 85% lived in rural areas.

Procedure

The social work and psychological records of these youth were reviewed to collect the following information:

Demographic variables: race, age, sex, religion, and urban or rural residence

Family variables: current caregiver, living arrangements prior to admission, parents' marital status, family history of mental illness, family history of child abuse, previous out-of-home placements, size of family, and parental custody at admission and discharge.

Diagnosis and presenting problems: DSM-III diagnoses at admission and discharge, and presenting problems at admission.

Cognitive functioning: Wechsler Intelligence Scale for Children-Revised (WISC-R) scores.

Treatment variables: voluntary/involuntary admission, hurting self or others while hospitalized, placement on suicide or AWOL precautions, presence of psychotic symptoms while hospitalized, and contact with parents while hospitalized.

Previous mental health treatment: type of care (e.g., substance abuse treatment, outpatient, etc.) and length of treatment.

Results

Data Analyses

Each set of variables was subjected to a stepwise multiple regression with length of stay as the criterion variable. The variables that were significant predictors of length of stay in these analyses were then further analyzed based on a median split. Subjects were dichotomized into a long-stay group and a short-stay group baed on a median split (mdn=14.2 months). The long-stay group and the short-stay group were then compared using Chi-squares or t-tests on the significant variables from the multiple-regression.

Additional regression analyses combined the best predictors from each set of variables to predict length of stay for a) the entire sample, b) 5-12 year olds, and c) 13-18 year olds.

Length of Stay

The average length of stay for the sample was 18.8 months (S.D.=17.3).. Those discharged between the years 1981-1984 had a significantly longer hospital stay (M=23.8) than did those discharged between the years 1985-1988 (M=14.4)

Demographic

Three demographic variables accounted for 22% of the variance in length of stay. Subjects in the long-stay group were significantly younger than the short-stay group, were more often male, and were from urban areas.

Family Background

Two family variables accounted for 5% of the variance in length of stay. There were significantly fewer youths in the custody of their parents at admission in the long-stay group than in the short-stay group. The short-stay group had a nonsignificantly higher incidence of sexual abuse by a family member than the long-stay group.

Diagnosis and Presenting Problems

Four of these variables accounted for 21% of the variance in length of stay. The long-stay group had a significantly greater incidence of personality disorder diagnoses than did the short-stay group. In addition, the long-stay group had significantly more presenting problems of an attention-deficit nature than did the short-stay group. There were more youth with a psychotic diagnosis in the long-stay group than in the short-stay group but the difference was not significant. The final variable that was included in the regression analysis was a miscellaneous category of presenting problems that were not conduct problems, mood symptoms, psychotic symptoms, substance abuse problems, or attention-deficit problems.

Cognitive Functioning

Three cognitive variables from the WISC-R accounted for 9% of the variance in length of stay. The long-stay group had significantly lower scores on the Coding subtest. These long-stay subjects scored higher, but not significantly so, on Arithmetic and Picture Arrangement than the short-stay group.

Treatment Variables

Three treatment variables accounted for 10% of the variance in length of stay. There was a higher incidence of AWOL precautions and a higher incidence of hurting oneself or others while hospitalized in the long stay group. The short-stay group showed a nonsignificant higher incidence of being placed on suicide precautions compared to the long-stay group.

Previous Mental Health Treatment

One previous mental health treatment variable accounted for 10% of the variance in length of stay. More individuals in the short-stay group had a history of previous inpatient treatment than individuals in the long-stay group.

Table 1

Comparison of Long-Stay and Short-Stay Groups on Variables that Predicted Length of Stay

	Long Stay	Short-Stay	p
Demographic			
Age	M=12.1	M=13.8	.001
Sex			
Males	65%	51%	.05
Females	35%	49%	
Residence			
Urban	92%	79%	.02
Rural	8%	21%	
Family			
Sexual Abuse	11%	14%	N.S.
In custody of parents at adm.	31%	69%	.05
Diagnosis/Presenting Problem			
Personality Disorder Dx	55%	45%	.02
Attention Deficit Pres. Prob.	24%	5%	.001
Psychotic Dx	9%	7%	N.S.
Misc. Pres. Prob.	52%	41%	N.S.

Table 1 (continued)

	Long-Stay	Short-Stay	p
Cognitive			
Coding	M=7.1	M=8.2	.05
Arithmetic	M=7.9	M=7.2	N.S.
Picture Arrangement	M=10.2	M=9.9	N.S.
Treatment			
AWOL Precautions	65%	35%	.03
Hurting self or others	81%	19%	.0001
Suicide Precautions	2%	3%	N.S.
Previous Treatment			
Inpatient Rx	41%	59%	.02

Multiple Regression Using Six Variable Groups

The final set of multiple-regression analyses used the two most important predictor variables from each of the previous analyses. These were: age, sex, history of sexual abuse by a family member, parental custody at admission, presenting problem of an attention deficit nature, presenting problems falling into the "other" category, Arithmetic subtest score of the WISC-R, Picture Arrangement subtest score on the WISC-R, hurting oneself or others while hospitalized, incidence of AWOL precautions while hospitalized, and previous inpatient treatment.

All Subjects. an analysis using all subjects yielded four variables that accounted for 33% of the variance in length of stay. Presenting problem of an attention-deficit nature, incidence of AWOL precautions while hospitalized, and younger age at admission were found to be predictive of a longer hospital stay. Previous history of inpatient treatment was found to be related to a shorter hospital stay.

Preadolescent Group. The same set of predictor variables was used in a multiple-regression analysis for the subsample of 5-12 year olds. Two variables accounted for 21% of the variance in length of Stay. These variables, predictive of a longer hospital stay, were presenting problems of an attention-deficit nature and incidence of AWOL precautions while hospitalized.

Adolescent Group. The regression analysis of the adolescent group indicated that three variables accounted for 28% of the variance in length of stay for this age group. The results indicated that a younger age and presenting problems of an attention-deficit nature were predictors of a longer hospital stay whereas previous inpatient treatment was related to a shorter hospital stay.

Table 2

Multiple Regression Analyses by Age Group

All Subjects

Variables	R^2	Increment In R^2	df	F for Increment	Overall F
Age	.18	.18	1,102	22.27***	
Attention-Deficit	.24	.06	2,101	8.57**	
AWOL Precautions	.29	.05	3,100	7.14**	
History of Inpatient Treatment	.33	.04	4,99	5.71**	
					12.02***
Ages 5-12					
Attention-Deficit	.12	.12	1,33	4.57*	
AWOL Precautions	.21	.09	2,32	3.60*	
					4.25*

Table 2 (continued)1

Ages 13-18

Variables	R^2	Increment In R^2	df	F for Increment	Overall F
Age	.12	.12	1,67	9.41***	
History of Inpatient Treatment	.23	.11	2,66	9.17***	
Attention Deficit	.28	.05	3,65	4.55*	
					8.58***

*p<.05 **p<.01 ***p<.001

Conclusions

1. The best groups of predictor variables of length of inpatient psychiatric hospital stay in children and adolescents were the demographic variables and the diagnostic and presenting problem variables. The poorest groups of predictors were the family variables and the cognitive functioning variables.

2. Awareness of the factors contributing to the length of hospital stay may assist clinicians in formulating better treatment goals. The findings of the present study suggest many youth would benefit from treatment focused on attention-deficit problems.

3. Overall, youth in the present study had a much longer hospital stay than the national average. This longer stay may be due to the sample being drawn from a public facility with a more seriously disturbed population, a lack of community resources to support outpatient care, and the influence of an analytic long-term orientation to treatment.

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