THE LOUIS DE LA PARTE FLORIDA MENTAL HEALTH INSTITUTE

AHCA
FLORIDA AGENCY FOR HEALTH CARE ADMINISTRATION

Disparities in Mental Health Status and Service Utilization among Medicaid-Eligible Children in Florida

Paul E. Greenbaum, Ph.D.
Svetlana Yampolskaya, Ph.D.
Mario Hernandez, Ph.D.
Richard Briscoe, Ph.D.

USF UNIVERSITY OF SOUTH FLORIDA

June 2007

This publication was produced by
The Louis de la Parte
Florida Mental Health Institute

University of South Florida
13301 Bruce B. Downs Blvd.
Tampa, FL 33612-3807

For more information, call 813-974-7995
or visit the Website: http://fmhi.usf.edu

Louis de la Parte Florida Mental Health Institute Publication
Agency for Health Care Administration (AHCA) series, 220-94,
Tampa, Florida

Recommended citation for the report:
Greenbaum, P. E., Yampolskaya, S., Hernandez, M., & Briscoe, R. (2007). *Disparities in mental health status and service utilization among Medicaid-eligible children in Florida*. Tampa, FL: Louis de la Parte Florida Mental Health Institute, University of South Florida.

Submitted to the Florida Agency for Health Care Administration under Contract MED049.

The University of South Florida

The University of South Florida is among the nation's top 63 public research universities and one of 39 community engaged public universities as designated by the Carnegie Foundation for the Advancement of Teaching. It is one of Florida's top three research universities. USF was awarded more than $300 million in research contracts and grants last year. The University offers 219 degree programs at the undergraduate, graduate, specialist and doctoral levels, including the doctor of medicine. The University has a $1.8 billion annual budget, an annual economic impact of $3.2 billion, and serves more than 45,000 students on campuses in Tampa, St. Petersburg, Sarasota-Manatee and Lakeland. USF is a member of the Big East Athletic Conference.

Louis de la Parte Florida Mental Health Institute

The Louis de la Parte Florida Mental Health Institute at the University of South Florida has a mission to strengthen mental health services throughout the state. The Institute provides research, training, education, technical assistance, and support services to mental health professionals and agencies as well as consumers, consumer organizations, and behavioral health advocates statewide. At the state level, the Institute works closely with the Departments of Children and Families (DCF), Corrections (DOC), Elder Affairs (DOEA), Education (DOE), and the Agency for Health Care Administration (AHCA), as well as with members and staff of the State Legislature and providers of mental health services throughout Florida.

Comprised of three primary research departments, Mental Health Law & Policy, Child & Family Studies, and Aging & Mental Health and a number of specialized centers, the Institute conducts research and program evaluations, provides training and consultations, and offers a number of academic courses at the masters and doctoral levels.

Disparities in Mental Health Status and Service Utilization among Medicaid-Eligible Children in Florida

Contents

Executive Summary 1

Background 3

Study Issues/Hypotheses....4

Method 5

Participants....5

Data Source....5

Indicators....5

Child-level factors....5

County-level factors....5

Grouping factors....6

Analytic approach....6

Results/Discussion 7

Prevalence....7

Outpatient Office-Based Mental Health Service Use....15

Mental Health Service Use Provided by Institutional Facilities....18

Conclusions 25

References 27

Tables

Table 1 ICD-9 Codes for DSM-IV Mental Health Disorders....7

Table 2 Mental Health Disorder Prevalence among Eligible Children, Fiscal Year 2005-2006, All Ethnic Groups....8

Table 3 Mental Health Disorder Prevalence among Eligible Children, Fiscal Year 2005-2006, African American....8

Table 4 Mental Health Disorder Prevalence among Eligible Children, Fiscal Year 2005-2006, White....8

Table 5 Mental Health Disorder Prevalence among Eligible Children, Fiscal Year 2005-2006, Hispanic....9

Table 6 Mental Health Disorder Prevalence among Eligible Children, Fiscal Year 2005-2006, Other....9

Table 7 Mental Health Disorder Prevalence among Eligible Children, Fiscal Year 2005-2006, Asian American....9

Table 8 Mental Health Disorder Prevalence among Eligible Children, Fiscal Year 2005-2006, American Indian....10

Table 9 Multilevel Model Results: Prevalence of Depression Disorder among White, African American, and Hispanic Medicaid-Eligible Children in the State of Florida, FY2005-2006....10

Table 10 Multilevel Model Results: Prevalence of Depression Disorder among White, African American, and Hispanic Medicaid-Eligible Children in the State of Florida, FY2005-2006: Interaction of Individual-Level Hispanic Factor with County-Level Factors, 10% Random Sample....11

Table 11 Multilevel Model Results – Prevalence of Depression Disorder: Interaction of Individual-Level African American Factor with County-Level Factors, 10% Random Sample....11

Table 12 Multilevel Model Results: Prevalence of Conduct Disorder among White, African American, and Hispanic Medicaid-Eligible Children in the State of Florida, FY2005-2006....12

Table 13 Multilevel Model Results: Prevalence of Conduct Disorder among White, African American, and Hispanic Medicaid-Eligible Children in the State of Florida, FY2005-2006, Interaction of Individual-Level Hispanic Factor with County-Level Factors, 10% Random Samp....12

Table 14 Multilevel Model Results: Prevalence of Conduct Disorder among White, African American, and Hispanic Medicaid-Eligible Children in the State of Florida, FY2005-2006, Interaction of Individual-Level African American Factor with County-Level Factors, 10% Ran....13

Table 15 Multilevel Model Results: Prevalence of Attention Deficit Disorder among White, African American, and Hispanic Medicaid-Eligible Children in the State of Florida, FY2005-2006....13

Table 16 Multilevel Model Results: Multilevel Model Results: Prevalence of Attention Deficit Disorder among White, African American, and Hispanic Medicaid-Eligible Children in the State of Florida, FY2005-2006, Interaction of Individual-Level African American Facto....14

Table 17 Multilevel Model Results: Multilevel Model Results: Prevalence of Attention Deficit Disorder among White, African American, and Hispanic Medicaid-Eligible Children in the State of Florida, FY2005-2006, Interaction of Individual-Level Hispanic Factor with C....14

Table 18 Multilevel Model Results – Log Transformed Number of Office-Based Outpatient Services 16
Table 19 Multilevel Model Results: Log Transformed Number of Office-Based Outpatient Services 16
Table 20 Multilevel Model Results – Log Transformed Number of Visits to Mental Health Providers 8
Table 21 Multilevel Model Results: Log Transformed Number of Visits to Mental Health Providers 18
Table 22 Multilevel Model Results: Number of Hospital-Based Outpatient Mental Health Services Received....19
Table 23 Multilevel Model Results: Number of Hospital-Based Outpatient Mental Health Services Received, Interaction of Individual-Level African American Factor with County-Level Factors 20
Table 24 Multilevel Model Results: Number of Hospital-Based Outpatient Mental Health Services Received, Interaction of Individual-Level Hispanic Factor with County-Level Factor 20
Table 25 Multilevel Model Results: Number of Mental Health Inpatient Hospitalization Episodes) 21
Table 26 Multilevel Model Results: Number of Mental Health Inpatient Hospitalization Episodes, Interaction of Individual-Level African American Factor with County-Level Factors....21
Table 27 Multilevel Model Results: Number of Hospital-Based Outpatient Mental Health Services Received, Interaction of Individual-Level Hispanic Factor with County-Level Factors 22
Table 28 Multilevel Model Results: Number of Days in First Hospitalization for Mental Health Inpatient Hospitalization Episodes 22
Table 29 Multilevel Model Results: Number of Days in First Hospitalization for Mental Health Inpatient Hospitalization Episodes, Interaction of Individual-Level African American Factor with County-Level Factors....23
Table 30 Multilevel Model Results: Number of Hospital-Based Outpatient Mental Health Services Received, Interaction of Individual-Level Hispanic Factor with County-Level Factors....23
Table 31 Multilevel Model Results: Number of Days between First and Second Hospitalizations for Mental Health Inpatient Hospitalization Episodes 24
Table 32 Multilevel Model Results: Number of Days between First and Second Hospitalizations for Mental Health Inpatient Hospitalization Episodes, Interaction of Individual-Level African American Factor with County-Level Factors 24
Table 33 Multilevel Model Results: Number of Days between First and Second Hospitalizations for Mental Health Inpatient Hospitalization Episodes, Interaction of Individual-Level Hispanic Factor with County-Level Factors ...25

Figures

Figure 1 Mean Number of Outpatient Services for Children with Different Mental Health Diagnoses by Race/Ethnicity 15

Figure 2 Mean Number of Visits to Mental Health Providers for Children with Different Mental Health Diagnoses by Race/ethnicity 17

Figure 3 Mean Number of Hospital-based Outpatient Services for Children with Different Mental Health Diagnoses by Race/ethnicity 19

Disparities in Mental Health Status and Service Utilization among Medicaid-Eligible Children in Florida

Executive Summary

Following the definition provided by Griffith, Moy, Reischl, and Dayton (2006) and consistent with usage recommended by the Agency for Healthcare Research and Quality (AHRQ, 2004), the term health disparity is used in this report as an inclusive term to indicate any differences between groups as well as group differences that reflect the effects of individual factors. In keeping with this definition, disparities have been included that may be due to access-related factors, clinical needs, or individual preferences (Sue & Dhindsa, 2006).

Conceptualizing disparities in this way, recent reports have indicated most children with mental health problems do not receive any mental health services, and the disparity between need and use of services has been found to be greatest for minority youth (National Institute of Health, 2001). Although these studies identified mental health disparities among children with mental health issues, most studies focused on child- or individual-level factors associated with children's mental health use and did not examine contextual factors that may have explained variations in service use (Hurlburt et al., 2004). Because children and families respond to mental health problems and concerns within the context of a larger social environment that may guide them toward or push them away from various types of services, it is important to examine contextual factors that can potentially influence racial and ethnic health disparities including disparities in health status, access to care, and quality of care (Cauce et al., 2002; Gamble, & Stone, 2006). Therefore, the goal of the current study was to determine the effect of both individual-level and contextual and socioeconomic factors measured at the county-level on disparity patterns of mental health service utilization among Medicaid-eligible children in Florida.

Prevalence of Mental Health Disorder. Results from this study have supported many of the findings from an earlier study on the mental health needs of Florida's Medicaid-eligible children (Greenbaum et al., 2006) that indicated the three most prevalent disorders among Medicaid-eligible children were, in rank order, attention deficit disorder, conduct disorder, and depression disorder. Prevalence for each racial/ethnic group revealed a consistent trend. For African American, Hispanic, and White children, the same three disorders that were most prevalent overall were also the three most prevalent within each group and in the same rank order. Between groups, however, the observed prevalence for African American and Hispanic children was significantly lower. The results of the study also indicated counties with higher median family incomes had lower prevalence of depression among Medicaid-eligible children.

Outpatient Office-Based Mental Health Service Use. In general, children who were Hispanic received fewer outpatient office-based services compared to children who were White. African American children, older children, and boys received more outpatient, office-based services. In addition, African American

children had significantly more visits to mental health providers compared to children who were White. At the county level, children who resided in counties with higher percentages of children in their population also received more services from mental health providers.

Mental Health Service Use Provided by Institutional Facilities. Overall, children who were African American or Hispanic received fewer outpatient hospital-based services than their White counterparts. However, the disparity in services for African American children (vs. White children) was reduced in counties with greater provider ratios. Additionally, children who lived in counties with higher levels of median family income received more outpatient, hospital-based services.

On another measure of service use, the number of days in the hospital during the first mental health hospitalization, African American children had fewer days in the hospital (particularly if they lived in counties with either larger provider ratios or higher median family incomes). Additionally, older children spent more time in the hospital.

Finally, our findings indicated there was a significant increase in the number of days between a first and second hospitalization for Hispanic children (vs. White children) in counties with higher median family incomes.

Background

Following the definition provided by Griffith, Moy, Reischl, and Dayton (2006) and consistent with usage recommended by the Agency for Healthcare Research and Quality (AHRQ, 2004), the term health disparity is used in this report as an inclusive term to indicate any differences between groups as well as group differences that reflect the effects of individual factors. In keeping with this definition, disparities have been included that may be due to access-related factors, clinical needs, or individual preferences (Sue & Dhindsa, 2006). Conceptualizing disparities in this way, recent reports have indicated most children with mental health problems do not receive any mental health services and the disparity between need and use of services has been found to be greatest for minority youth (National Institute of Mental Health, 2001).

Minority status also has been found to be associated with significantly lower rates of mental health service utilization among youth involved in the juvenile justice system (Rawal, Romansky, Jenuwine, & Lyons, 2004). Findings from several studies have shown that among youth, race/ethnicity (i.e., African American and White) has been associated with different patterns of mental health utilization as well as differences in the admitting clinical diagnosis (Fabrega, Ulrich, & Mezzich, 1993; Kilgus, Pumariega, & Cuffee, 1995). Although most literature has documented that African American youth use mental health services at a lower rate than other groups, some studies have found that African American youth did not have lower utilization rates. Other research has indicated an overrepresentation of African American children in mental health services (Yeh, McCabe, Hough, Dupuis, & Hazen, 2003).

After reviewing findings from mental health service utilization research, Roberts and colleagues (2004) concluded that the results regarding mental health service use among African American have been mixed. There was also consistent evidence that the mental health of Latino youth may be worse than that of youth from other groups (Roberts, Alegria, Roberts, & Chen, 2004). In addition, studies by Zwillich (2000) and McCabe et al. (1999) have demonstrated that more than 80% of Latino adolescents with mental health issues did not receive care, and Latinos were underrepresented in public mental health services by a factor of approximately one third. Kataoka, Zhang, & Wells (2002) have also shown that the rate of unmet mental health needs was greater among Hispanic than White children, and Hispanic children with mental health problems had greater odds of having no care and unmet need compared to White children. Among Hispanic Medicaid-eligible children in Florida, Greenbaum et al. (2006) found similar results and showed that Hispanic children had lower mental health service utilization rates.

Although these studies have identified mental health disparities among children with mental health issues, most studies have focused on individual-level child factors associated with children's mental health use and have not examined contextual factors that may explain variations in service use (Hurlburt et al., 2004). Because children and families respond to mental health problems and

concerns within the context of a larger social environment that may both guide them toward or push them away from various types of services, it is important to examine those contextual factors that potentially can influence racial and ethnic health disparities including disparities in health status, access to care, and quality of care (Cauce et al., 2002; Gamble & Stone, 2006).

For example, ecological studies have revealed that disparities in treatment access were lower for residents of poor neighborhoods than for other neighborhoods, and utilization of mental health services has been associated with socio-economic status (Chow, Jaffer, & Snowden, 2003; Cohen & Hesselbart, 1993; Koot & Verhulst, 1992). As Pandiani et al. (2005) noted indicators of access to care include, among others, economic factors, geographic location of services, and cultural sensitivity. Following this approach, a number of county-level contextual factors that reflect these issues were included in the analyses for this study. Specifically, the following county-level factors included: (a) ratio of publicly-funded behavioral health service providers to county population size to address access to services, (b) county median family income to address socio-economic status at the county level, and (c) the percentage of children as a function of the county's population to take into consideration county demographic distribution.

To increase our understanding of the extent and nature of children's mental health disparities, we sought to assess the contribution of county-level social factors while simultaneously examining the effect of individual-level characteristics and the interaction of children's race/ethnicity at the individual-level with county-level factors. Therefore, the goal of the current study was to determine the effect of individual-level race/ethnicity factors and county-level contextual and socioeconomic factors on patterns of mental health prevalence and service utilization among Medicaid-eligible children in Florida.

Study Issues/Hypotheses

Specific research questions addressed in this study were the following:

Are there significant differences in:

1. prevalence of mental health disorders?
2. number of office-based outpatient mental health services?
3. number of visits to mental health providers?
4. number of hospital-based outpatient services?
5. number of mental health–related hospitalization episodes?
6. length of stay during the first hospitalization episode?
7. time to readmission to an inpatient treatment facility?

Differences were examined for children's race/ethnicity (i.e., African American, Hispanic, and White), sex, age, and the following county-level variables: (a) county median family income, (b) proportion of children in the county, and (c) ratio of publicly-funded behavioral health service providers in the county.

Method

Participants

Study participants included children in Florida who were Medicaid-eligible to receive behavioral health services during fiscal years 2005-2006 and were between birth and 18 years of age. The average age of participants was 6 years old (N = 705,792). Almost 51% of the participants were male. Race or ethnicity of the sample was 27% African American, 32% White, 28% Hispanic, 0.6% Oriental, 0.1 American Indian and 12% other. To examine race/ethnicity differences, only children who were African American, White, and Hispanic were included in the analyses (N = 190,939; 222,490 and 195,633, respectively). For all Medicaid-eligible children during FY05-06, 70,382 received outpatient behavioral health services and 4,081 were hospitalized.

Data Source

Data for the indicator analyses used in this report came from the Florida Medicaid claims administrative datasets, which contain information on any health related services paid by Medicaid as well as sociodemographic characteristics of eligible persons and their diagnoses.

Indicators

The key indicators were:

1. ICD-9 mental health diagnostic codes
2. Number of office-based outpatient mental health services
3. Number of visits to mental health providers
4. Number of hospital-based outpatient services
5. Number of mental health–related hospitalization episodes
6. Length of stay (in days) during the first hospitalization episode
7. Time (in days) to readmission to an inpatient treatment facility

Child-level factors

The following individual-level child characteristics were included:

- Child gender
- Child age
- Child's race/ethnicity

County-level factors

The following county-level factors were included:

- County median family income
- Ratio of publicly-funded behavioral health service providers to the county's population
- Percentage of children in the county's population

Grouping factors

Three ICD-9 mental health diagnoses were used as grouping variables: (a) major depression, (b) attention deficit disorder, and (c) conduct disorder. These diagnoses were selected because they were the three mental health disorders with the highest prevalence for Medicaid-eligible children in this study.

Analytic approach

Several analytic techniques were used to address the research questions of the project. Multilevel logistic regression was used to address research question 1 to determine the prevalence of the various mental health disorders and to examine (at the individual- and county-level) racial and ethnic differences in the prevalence of particular mental health disorders while controlling for gender and age. To address the second through fifth research questions, multilevel multiple regression analysis for either a continuous or count dependent variable was used. To examine the time-to-event indicators (i.e., length of stay during the first hospitalization episode, time to re-hospitalization), multilevel Cox regression (i.e., proportional hazards modeling) was used (Cox, 1972; Muthen & Muthen, 1998-2006; Singer & Willett, 2003).

Results/Discussion

Prevalence

Prevalence of mental health disorders among children. Eight different mental health disorders, considered to be the most prevalent among children by the Center for Mental Health Services, were examined for their relative frequency of occurrence among Medicaid-eligible children. These disorders were the following: (a) attention deficit, (b) conduct disorder, (c) depression, (d) bipolar disorder, (e) post traumatic stress disorder, (f) substance abuse, (g) schizophrenia, and (h) eating disorder. Table 1 lists the ICD-9 diagnostic codes that were included in each of the disorders.

Table 1

ICD-9 Codes for DSM-IV Mental Health Disorders

DSM-IV Disorder	ICD Code
Attention deficit disorder	314 (314.0 – 314.9)
Conduct disorder	312 (312.0 – 312.9)
Depression	296.3
Bipolar disorder	296.0
	296.1
	296.4
	296.5
	296.6
	296.7
	296.8
Post traumatic stress disorder	309.81
Substance abuse	291
	292
	303
	304
	305 (excluding 305.1, 305.1)
Schizophrenia	295 (295.0- 295.9)
Eating disorder	307.1
	307.5
	307.51

Among all Medicaid-eligible children, the three most prevalent disorders were found to be: attention deficit (3.60% had the disorder), conduct disorder (1.00%) and depression (0.46%). Table 2 lists the eight disorders in descending prevalence (see Table 2). An examination of prevalence for each racial/ethnic group separately (see Tables 3 to 8) revealed a consistent trend, that is, for each racial/ethnic group, the same three disorders that were most prevalent overall were also the three most prevalent and in the same rank order of prevalence.

Table 2
Mental Health Disorder Prevalence among Eligible Children, Fiscal Year 2005-2006, All Ethnic Groups, (N = 705,792)

Disorder Name	Frequency	Percentage
Attention deficit disorder	25,388	3.60
Conduct disorder	7,074	1.00
Depression	3,236	0.46
Bipolar disorder	1,904	0.27
Post traumatic stress disorder	1,585	0.22
Substance abuse	1,380	0.20
Eating disorder	433	0.06
Schizophrenia	355	0.05

Table 3
Mental Health Disorder Prevalence among Eligible Children, Fiscal Year 2005-2006, African American (N = 190,939)

Disorder Name	Frequency	Percentage
Attention deficit disorder	5,334	2.79
Conduct disorder	2,658	1.39
Depression	771	0.40
Post traumatic stress disorder	387	0.20
Substance abuse	319	0.17
Bipolar disorder	286	0.15
Schizophrenia	92	0.05
Eating disorder	68	0.04

Table 4
Mental Health Disorder Prevalence among Eligible Children, Fiscal Year 2005-2006, White (N = 222,490)

Disorder Name	Frequency	Percentage
Attention deficit disorder	11,024	4.95
Conduct disorder	2,304	1.04
Depression	1,297	0.58
Bipolar disorder	976	0.44
Post traumatic stress disorder	836	0.38
Substance abuse	720	0.32
Eating disorder	151	0.07
Schizophrenia	98	0.04

Table 5
Mental Health Disorder Prevalence among Eligible Children, Fiscal Year 2005-2006, Hispanic (N = 195,633)

Disorder Name	Frequency	Percentage
Attention deficit disorder	4,735	2.42
Conduct disorder	1,353	0.69
Depression	806	0.41
Bipolar disorder	269	0.14
Substance abuse	243	0.12
Post traumatic stress disorder	207	0.11
Eating disorder	143	0.07
Schizophrenia	97	0.05

Table 6
Mental Health Disorder Prevalence among Eligible Children, Fiscal Year 2005-2006, Other (N = 91,436)

Disorder Name	Frequency	Percentage
Attention deficit disorder	4,209	4.60
Conduct disorder	730	0.80
Bipolar disorder	365	0.40
Depression	341	0.37
Post traumatic stress disorder	145	0.16
Substance abuse	89	0.10
Eating disorder	68	0.07
Schizophrenia	66	0.07

Table 7
Mental Health Disorder Prevalence among Eligible Children, Fiscal Year 2005-2006, Asian American (N = 4,418)

Disorder Name	Frequency	Percentage
Attention deficit disorder	43	0.97
Conduct disorder	21	0.48
Depression	18	0.41
Post traumatic stress disorder	7	0.16
Substance abuse	4	0.09
Bipolar disorder	3	0.07
Eating disorder	3	0.07
Schizophrenia	1	0.02

Table 8
Mental Health Disorder Prevalence among Eligible Children, Fiscal Year 2005-2006, American Indian (N = 876)

Disorder Name	Frequency	Percentage
Attention deficit disorder	43	4.91
Conduct disorder	8	0.91
Bipolar disorder	5	0.57
Substance abuse	5	057
Depression	3	0.34
Post traumatic stress disorder	3	0.34
Schizophrenia	1	0.11
Eating disorder	0	0.00

Analysis of individual- and county-level factors. Multilevel analyses that examined the relationship between individual-level (i.e., sex, age, and race/ethnicity of the child) and county-level factors (median family income, provider ratio, and proportion of population that were children) were conducted for the three most prevalent disorders (see Tables 9-17). Results indicated that among individual-level factors, Hispanic children had lower prevalence (i.e., were significantly less likely to have received the diagnosis) than their White counterparts. Hispanic children were approximately 1.5 times less likely to be diagnosed with attention deficit disorder, 2.0 times less likely to be diagnosed with depression disorder, and 2.5 times less likely to have conduct disorder. Similarly, African American children also were almost two times less likely to be diagnosed with depression and attention deficit disorders than their White counterparts. However, among African American children, conduct disorder was slightly more likely to be diagnosed.

Table 9
Multilevel Model Results: Prevalence of Depression Disorder among White, African American, and Hispanic Medicaid-Eligible Children in the State of Florida, FY2005-2006 (N = 664,200)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.170	0.005	33.99*
Sex	-0.221	0.044	-4.99*
African American[a]	-0.526	0.045	-11.67*
Hispanica	-0.739	0.042	-17.55*
County-Level Factors			
Median Family Income	-0.027	0.013	-1.98*
Provider Ratio	0.036	0.080	0.45
Percentage Children	-0.009	0.023	-0.40

[a] The reference group for African American and Hispanic is White children.
* $p < 0.05$

Table 10

Multilevel Model Results: Prevalence of Depression Disorder among White, African American, and Hispanic Medicaid-Eligible Children in the State of Florida, FY2005-2006: Interaction of Individual-Level Hispanic Factor with County-Level Factors, 10% Random Sample (N = 66,255)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.169	0.014	12.33*
Sex	-0.152	0.113	-1.35
African American[a]	-0.358	0.179	-2.00*
Hispanic[a]	-1.459	3.071	-0.48
County-Level Factors			
Median Family Income	-0.039	0.019	-2.08*
Provider Ratio	0.085	0.099	0.86
Percentage Children	-0.001	0.032	-0.026
Hispanic X Median Family Income	0.020	0.040	0.50
Hispanic X Provider Ratio	0.115	0.404	0.28
Hispanic X Percentage Children	-0.009	0.070	-0.13

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Table 11

Multilevel Model Results – Prevalence of Depression Disorder: Interaction of Individual-Level African American Factor with County-Level Factors, 10% Random Sample (N = 66,255)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.169	0.014	12.39*
Sex	-0.155	0.111	-1.39
African American[a]	2.962	1.625	1.823
Hispanic[a]	-0.822	.209	-3.94*
County-Level Factors			
Median Family Income	-0.041	0.018	-2.24*
Provider Ratio	0.079	0.101	0.79
Percentage Children	-0.001	0.033	-0.021
African American X Median Family Income	-0.009	0.023	-0.40
African American X Provider Ratio	-0.077	0.191	-0.41
African American X Percentage Children	-0.126	0.046	-2.74*

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Table 12

Multilevel Model Results: Prevalence of Conduct Disorder among White, African American, and Hispanic Medicaid-Eligible Children in the State of Florida, FY2005-2006 (N = 664,200)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.119	0.016	7.63*
Sex	1.066	0.080	13.40*
African American[a]	0.233	0.073	3.21*
Hispanica	-0.486	0.083	-5.84*
County-Level Factors			
Median Family Income	-0.002	0.012	-0.17
Provider Ratio	-0.070	0.100	-0.71
Percentage Children	0.022	0.020	1.13

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Table 13

Multilevel Model Results: Prevalence of Conduct Disorder among White, African American, and Hispanic Medicaid-Eligible Children in the State of Florida, FY2005-2006, Interaction of Individual-Level Hispanic Factor with County-Level Factors, 10% Random Sample (N = 66,255)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.126	0.017	7.47*
Sex	1.013	0.092	11.01*
African American[a]	0.295	0.137	2.16*
Hispanica	1.400	1.523	0.92
County-Level Factors			
Median Family Income	-0.020	0.010	-2.13*
Provider Ratio	-0.091	0.091	-1.00
Percentage Children	0.031	0.026	1.19
Hispanic X Median Family Income	-0.022	0.018	-1.24
Hispanic X Provider Ratio	-0.246	0.276	-0.89
Hispanic X Percentage Children	-0.034	0.043	-0.79

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Table 14

Multilevel Model Results: Prevalence of Conduct Disorder among White, African American, and Hispanic Medicaid-Eligible Children in the State of Florida, FY2005-2006, Interaction of Individual-Level African American Factor with County-Level Factors, 10% Random Sample (N = 66,255)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.126	0.017	7.60*
Sex	1.011	0.093	10.87*
African American[a]	0.211	1.355	0.16
Hispanic[a]	-0.542	0.104	-5.21*
County-Level Factors			
Median Family Income	-0.020	0.010	-2.08*
Provider Ratio	-0.092	0.092	-1.00
Percentage Children	0.033	0.025	1.31
African American X Median Family Income	-0.001	0.023	-0.03
African American X Provider Ratio	0.098	0.165	0.59
African American X Percentage Children	0.003	0.035	0.08

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Table 15

Multilevel Model Results: Prevalence of Attention Deficit Disorder among White, African American, and Hispanic Medicaid-Eligible Children in the State of Florida, FY2005-2006 (N = 664,200)

Factor	**B**	**SE**	**Critical Ratio**
Individual-Level Factors			
Age	0.043	0.003	14.06*
Sex	0.986	0.016	63.55*
African American[a]	-0.643	0.064	-10.07*
Hispanic[a]	-0.874	0.105	-8.35*
County-Level Factors			
Median Family Income	-0.018	0.010	-1.81
Provider Ratio	0.132	0.037	3.52*
Percentage Children	-0.025	0.017	-1.45

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Table 16

Multilevel Model Results: Multilevel Model Results: Prevalence of Attention Deficit Disorder among White, African American, and Hispanic Medicaid-Eligible Children in the State of Florida, FY2005-2006, Interaction of Individual-Level African American Factor with County-Level Factors, 10% Random Sample (N = 66,255)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.047	0.004	11.73*
Sex	0.0971	0.040	24.02*
African American[a]	1.871	0.955	1.96*
Hispanica	-0.908	0.134	-6.80*
County-Level Factors			
Median Family Income	-0.025	0.010	-2.50*
Provider Ratio	0.148	0.041	3.61*
Percentage Children	-0.033	0.015	-2.16*
African American X Median Family Income	-0.010	0.013	-0.76
African American X Provider Ratio	-0.112	0.087	-1.28
African American X Percentage Children	-0.087	0.030	-2.88*

[a] The reference group for African American and Hispanic is White children.
* $p < 0.05$

Table 17

Multilevel Model Results: Multilevel Model Results: Prevalence of Attention Deficit Disorder among White, African American, and Hispanic Medicaid-Eligible Children in the State of Florida, FY2005-2006, Interaction of Individual-Level Hispanic Factor with County-Level Factors, 10% Random Sample (N = 66,255)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.047	0.004	11.30*
Sex	0.0973	0.040	24.09*
African Americana	-0.623	0.071	-8.72*
Hispanica	-0.816	0.986	-0.83
County-Level Factors			
Median Family Income	-0.025	0.011	-2.32*
Provider Ratio	0.147	0.048	3.07*
Percentage Children	-0.027	0.017	-1.57
Hispanic X Median Family Income	-0.018	0.030	-0.60
Hispanic X Provider Ratio	-0.343	0.404	-0.85
Hispanic X Percentage Children	-0.037	0.053	0.70

a The reference group for African American and Hispanic is White children.
* $p < 0.05$

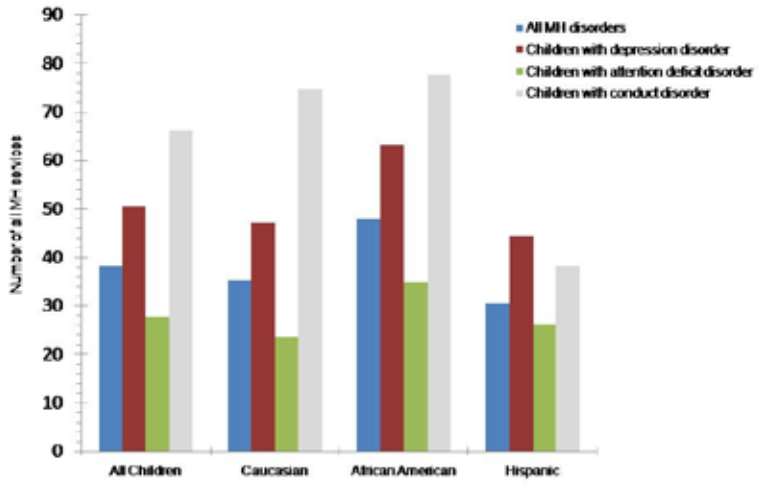
Additional factors at the individual-level that were significantly associated with prevalence differences were age and gender. Older versus younger children were more likely to be diagnosed with the three disorders. Males versus females were almost three times more likely to have attention deficit and conduct disorder diagnoses, while females were 30% more likely to have a depression disorder.

County-level factors were also significant predictors in the analyses of diagnostic prevalence. For depression disorder, a county's median family income was significantly related to diagnoses prevalence. Counties with greater median family income had lower depression prevalence. For attention deficit disorder, counties with higher ratios of mental health providers had higher prevalence. There was also an association between county- and individual-level factors with African American youth having even lower depression and attention deficit prevalence (vs. White youth) in counties that had a greater proportion of children in their population.

Outpatient Office-Based Mental Health Service Use

Number of outpatient services. The average number of outpatient mental health services per year received by Medicaid-eligible children who had a mental health disorder diagnosis (N = 68,619) was 38. The average number for children who were White, African American, and Hispanic was 35, 47, and 30, respectively (see Figure 1).

Figure 1
Mean Number of Outpatient Services for Children with Different Mental Health Diagnoses by Race/Ethnicity



When type of disorder was considered, among two of the three most prevalent disorders the average number of received services was significantly greater than for other disorders, averaging 66 for conduct disorder and 50 for depression disorder. For attention deficit (the third most prevalent disorder), the number of mental health services received was significantly less than other disorders and averaged 28 services per year.

Analysis of individual- and county-level factors. Figure 1 displays the mean number of outpatient services received for each type of disorder by race/ethnicity. When examined by multilevel analysis (see Tables 18-19), there were significant differences between White, African American, and Hispanic children. Hispanic children received significantly fewer services, and African American children received significantly more compared to children who were White. In addition, older children and boys received a significantly greater number of services than younger children and girls. None of the county-level factors were significantly associated with differences in the number of outpatient mental health services received.

Table 18

Multilevel Model Results – Log Transformed Number of Office-Based Outpatient Services (N = 58,110)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.032	0.003	11.32*
Sex	0.062	0.011	5.73*
African Americana	0.095	0.015	6.41*
Hispanica	-0.083	0.015	-5.65*
County-Level Factors			
Median Family Income	-0.002	0.004	-0.48
Provider Ratio	-0.037	0.023	-1.62
Percentage Children	0.010	0.009	1.11

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Table 19

Multilevel Model Results: Log Transformed Number of Office-Based Outpatient Services (N = 58,110)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.032	0.003	11.36*
Sex	0.062	0.011	5.79*
African Americana	0.007	0.136	0.05
Hispanica	0.031	0.208	0.15
County-Level Factors			
Median Family Income	-0.002	0.004	-0.48
Provider Ratio	-0.037	0.023	-1.61
Percentage Children	0.010	0.009	1.11
African American X Median Family Income	0.002	0.002	1.04
African American X Provider Ratio	0.020	0.014	1.45
African American X Percentage Children	-0.001	0.005	-0.18
Hispanic X Median Family Income	0.002	0.003	0.59
Hispanic X Provider Ratio	0.038	0.025	1.55
Hispanic X Percentage Children	-0.009	0.006	-1.42

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Number of visits to mental health providers. When only outpatient visits to mental health providers were considered, the mean number of visits for all children with any of the three most prevalent mental health disorders was 25. Similar to results for all outpatient mental health services, the analysis of mental health provider outpatient visits indicated that for each of the three most prevalent disorders, the average number of visits was greater for children with depression and conduct disorders than for children with attention deficit disorder. For depression disorder, the average was 37 and for conduct disorder, the average was 60. For attention deficit disorder, the average was 17 (see Figure 2).

Figure 2
Mean Number of Visits to Mental Health Providers for Children with Different Mental Health Diagnoses by Race/ethnicity

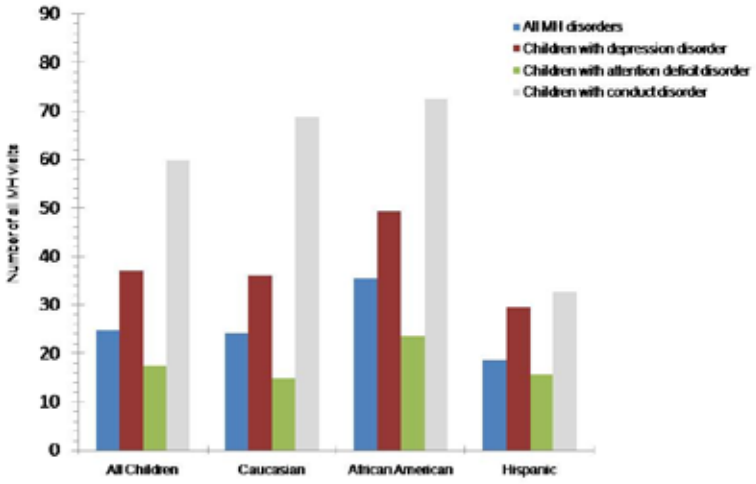


Figure 2 displays the means for children who were White, African American, and Hispanic. Results of multilevel analysis indicated that among the individual-level factors, African American (vs. White) and older children received significantly more mental health outpatient service visits. Hispanic children compared to White children received fewer visits. Among county-level factors, the provider ratio affected the disparity between Hispanic and White children who received outpatient visits, and counties with larger provider ratios had smaller disparities (see Tables 20 -21).

Table 20

Multilevel Model Results – Log Transformed Number of Visits to Mental Health Providers (N = 58,110)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.034	0.003	10.13*
Sex	0.014	0.011	1.29
African Americana	0.144	0.015	9.30*
Hispanica	-0.041	0.017	-2.43*
County-Level Factors			
Median Family Income	-0.001	0.005	-0.24
Provider Ratio	-0.038	0.028	-1.34
Percentage Children	0.017	0.009	1.88

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Table 21

Multilevel Model Results: Log Transformed Number of Visits to Mental Health Providers (N = 58,110)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.034	0.003	10.15*
Sex	0.014	0.011	1.29
African American[a]	0.003	0.177	0.02
Hispanica	-0.112	0.236	-0.47
County-Level Factors			
Median Family Income	-0.001	0.005	-0.24
Provider Ratio	-0.038	0.028	-1.34
Percentage Children	0.017	0.009	1.88
African American X Median Family Income	0.001	0.003	0.49
African American X Provider Ratio	0.012	0.014	0.81
African American X Percentage Children	0.003	0.005	0.59
Hispanic X Median Family Income	0.003	0.004	0.70
Hispanic X Provider Ratio	0.052	0.026	2.00*
Hispanic X Percentage Children	-0.003	0.006	-0.45

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Mental Health Service Use Provided by Institutional Facilities

Number of hospital-based outpatient services. There were 8,703 children who received outpatient hospital-based services. The average number of hospital-based outpatient services for children who received these services was approximately 8 per year.

Figure 3 graphically displays the average number of hospital-based outpatient services by type of disorder and race/ethnicity. Results of multilevel analysis indicated that among individual-level factors, race/ethnicity was significantly associated with differences in the number of outpatient hospital-based services

(see Tables 22-24). Children who were African American received significantly fewer outpatient hospital-based services than their White counterparts. Among county-level factors, county median family income was found to be significantly associated with the number of outpatient hospital-based services; higher levels of county median family income were associated with an increased number of services received. When relationships between county- and individual-level factors were examined, an association between African American children and a county's provider ratio was found. The lower number of services for African American children (vs. White children) overall was not as low as in counties with small provider ratios.

Figure 3
Mean Number of Hospital-based Outpatient Services for Children with Different Mental Health Diagnoses by Race/ethnicity

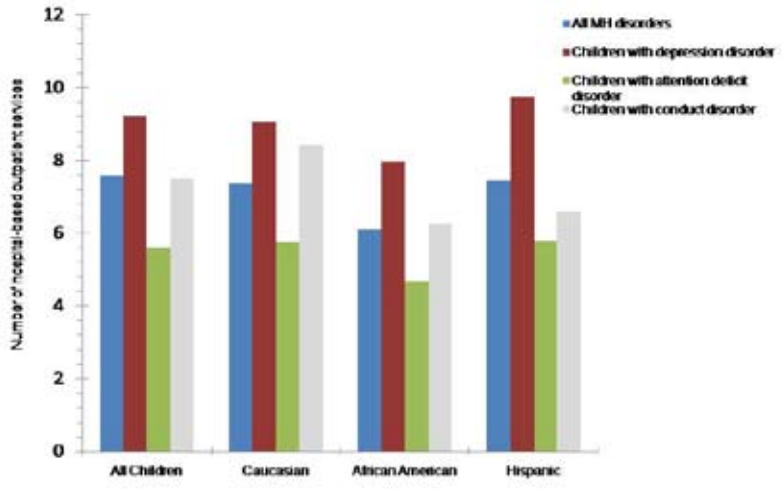


Table 22
Multilevel Model Results: Number of Hospital-Based Outpatient Mental Health Services Received (N = 6,883)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.016	0.005	3.38*
Sex	-0.045	0.028	-1.60
African American[a]	-0.205	0.060	-3.39*
Hispanic[a]	0.001	0.052	0.02
County-Level Factors			
Median Family Income	-0.011	0.005	2.28*
Provider Ratio	-0.009	0.023	-0.41
Percentage Children	-0.007	0.009	-0.86

[a] The reference group for African American and Hispanic is White children.
* $p < 0.05$

Table 23

Multilevel Model Results: Number of Hospital-Based Outpatient Mental Health Services Received, Interaction of Individual-Level African American Factor with County-Level Factors (N = 6,883)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.017	0.005	3.68*
Sex	-0.043	0.029	-1.47
African American[a]	-0.524	0.539	-0.97
Hispanica	-0.026	0.059	-0.45
County-Level Factors			
Median Family Income	-0.011	0.005	2.20*
Provider Ratio	-0.009	0.022	-0.40
Percentage Children	-0.006	0.009	-0.73
African American X Median Family Income	0.014	0.010	1.49
African American X Provider Ratio	0.106	0.040	2.67*
African American X Percentage Children	-0.016	0.022	-0.75

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Table 24

Multilevel Model Results: Number of Hospital-Based Outpatient Mental Health Services Received, Interaction of Individual-Level Hispanic Factor with County-Level Factors (N = 6,883)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.016	0.005	3.18*
Sex	-0.045	0.030	-1.53
African American[a]	-0.179	0.063	-2.86*
Hispanic[a]	0.015	0.873	0.18
County-Level Factors			
Median Family Income	-0.011	0.005	2.29*
Provider Ratio	-0.009	0.023	-0.38
Percentage Children	-0.007	0.009	-0.80
Hispanic X Median Family Income	-0.001	0.011	-0.12
Hispanic X Provider Ratio	0.057	0.108	0.53
Hispanic X Percentage Children	-0.007	0.009	-0.32

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Number of hospital episodes. During fiscal year 2005-2006, there were 4,081 children who were admitted into a hospital-based treatment facility with a diagnosis of at least one of the eight mental health disorders examined in this study. These children averaged 1.37 hospital episodes per year. For children with conduct disorder, this number was significantly greater (1.47). Age was a significant factor in the number of hospital episodes a child received. Older children had fewer episodes. No other association was found between any of the individual- and county-level factors and the number of hospitalization episodes (see Tables 25-27).

Table 25

Multilevel Model Results: Number of Mental Health Inpatient Hospitalization Episodes (N = 3,043)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	-0.003	0.002	-1.98*
Sex	-0.038	0.028	-1.34
African American[a]	-0.028	0.025	-1.10
Hispanic[a]	-0.003	0.038	-0.07
County-Level Factors			
Median Family Income	0.006	0.004	1.44
Provider Ratio	-0.034	0.024	-1.44
Percentage Children	0.002	0.006	0.36

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Table 26

Multilevel Model Results: Number of Mental Health Inpatient Hospitalization Episodes, Interaction of Individual-Level African American Factor with County-Level Factors (N = 3,043)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	-0.003	0.002	-2.08*
Sex	-0.039	0.029	-1.38
African American[a]	0.289	0.398	0.73
Hispanic[a]	-0.039	0.029	-1.38
County-Level Factors			
Median Family Income	0.004	0.004	1.13
Provider Ratio	-0.037	0.029	-1.27
Percentage Children	0.007	0.006	1.13
African American X Median Family Income	0.003	0.007	0.42
African American X Provider Ratio	-0.008	0.047	-0.16
African American X Percentage Children	-0.018	0.011	-1.75

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Table 27

Multilevel Model Results: Number of Hospital-Based Outpatient Mental Health Services Received, Interaction of Individual-Level Hispanic Factor with County-Level Factors (N = 3,043)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	-0.003	0.002	-1.92
Sex	-0.039	0.029	-1.35
African American[a]	0.002	0.038	0.43
Hispanic[a]	-0.462	0.397	-1.16
County-Level Factors			
Median Family Income	0.006	0.004	1.36
Provider Ratio	-0.028	0.026	-1.06
Percentage Children	0.000	0.006	-0.21
Hispanic X Median Family Income	0.001	0.005	0.23
Hispanic X Provider Ratio	-0.055	0.057	-0.97
Hispanic X Percentage Children	0.017	0.011	1.57

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Number of hospital days during the first hospitalization. Among children who received an initial hospitalization for a mental health disorder, the median number of hospital days was 9. Broken down by race/ethnicity, the medians were the same and equaled 8 days for African American, Hispanic, and White children. Broken down by the type of disorder, the medians ranged between 7 and 8 days per hospitalization.

Results of the multilevel analyses indicated that at the individual-level, only age of the child was significant (see Tables 28-30). Older children spent more time in the hospital. At the county-level, two factors were associated with the individual-level factor of a child being African American. In counties that had larger median family income and larger provider ratios, African American children spent less time in the hospital.

Table 28

Multilevel Model Results: Number of Days in First Hospitalization for Mental Health Inpatient Hospitalization Episodes (N = 3,043)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.008	0.003	2.34*
Sex	0.002	0.037	0.57
African American[a]	-0.025	0.051	-0.50
Hispanic[a]	0.076	0.071	1.08
County-Level Factors			
Median Family Income	0.003	0.008	0.33
Provider Ratio	-0.051	0.042	-1.23
Percentage Children	0.014	0.017	0.87

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Table 29

Multilevel Model Results: Number of Days in First Hospitalization for Mental Health Inpatient Hospitalization Episodes, Interaction of Individual-Level African American Factor with County-Level Factors (N = 3,043)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.008	0.003	2.32*
Sex	0.004	0.037	0.12
African American[a]	-0.022	0.051	-0.44
Hispanic[a]	-0.163	1.249	-0.13
County-Level Factors			
Median Family Income	0.003	0.009	0.29
Provider Ratio	-0.046	0.041	-1.13
Percentage Children	0.013	0.016	0.79
African American X Median Family Income	-0.003	0.037	-0.07
African American X Provider Ratio	-0.117	0.176	-0.67
African American X Percentage Children	0.018	0.036	0.50

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Table 30

Multilevel Model Results: Number of Hospital-Based Outpatient Mental Health Services Received, Interaction of Individual-Level Hispanic Factor with County-Level Factors (N = 3,043)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	-0.003	0.002	-1.92
Sex	-0.039	0.029	-1.35
African American[a]	0.002	0.038	0.43
Hispanic[a]	-0.462	0.397	-1.16
County-Level Factors			
Median Family Income	0.006	0.004	1.36
Provider Ratio	-0.028	0.026	-1.06
Percentage Children	0.000	0.006	-0.21
Hispanic X Median Family Income	0.001	0.005	0.23
Hispanic X Provider Ratio	-0.055	0.057	-0.97
Hispanic X Percentage Children	0.017	0.011	1.57

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Number of days until second hospitalization. During FY 2005-2006, slightly more than a fifth (i.e., 21%) of children were hospitalized a second time for a mental health disorder. Among those children who received a second hospitalization (N = 871), the median number of days from discharge from the first hospitalization until the second hospitalization was 48. The multilevel analyses indicated there was a significant increase in the number of days until the second hospitalization for Hispanic children (vs. White children) in counties with higher median family incomes (see Tables 31-33).

Table 31

Multilevel Model Results: Number of Days between First and Second Hospitalizations for Mental Health Inpatient Hospitalization Episodes (N = 3,043)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.008	0.013	0.64
Sex	0.033	0.065	0.51
African American[a]	0.038	0.081	0.47
Hispanic[a]	-0.088	0.175	-0.51
County-Level Factors			
Median Family Income	0.015	0.006	2.60*
Provider Ratio	0.039	0.046	0.84
Percentage Children	0.009	0.011	0.82

a The reference group for African American and Hispanic is White children.
* $p < 0.05$

Table 32

Multilevel Model Results: Number of Days between First and Second Hospitalizations for Mental Health Inpatient Hospitalization Episodes, Interaction of Individual-Level African American Factor with County-Level Factors (N = 3,043)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.008	0.012	0.65
Sex	0.038	0.066	0.58
African American[a]	-0.151	1.351	-0.11
Hispanic[a]	-0.073	0.176	-0.41
County-Level Factors			
Median Family Income	0.018	0.008	2.24*
Provider Ratio	0.035	0.052	0.67
Percentage Children	0.004	0.015	0.28
African American X Median Family Income	-0.006	0.017	-0.35
African American X Provider Ratio	-0.094	0.211	0.44
African American X Percentage Children	0.019	0.039	0.49

a The reference group for African American and Hispanic is White children.
* $p < 0.05$

Table 33

Multilevel Model Results: Number of Days between First and Second Hospitalizations for Mental Health Inpatient Hospitalization Episodes, Interaction of Individual-Level Hispanic Factor with County-Level Factors (N = 3,043)

Factor	B	SE	Critical Ratio
Individual-Level Factors			
Age	0.008	0.013	0.62
Sex	0.038	0.063	0.61
African American[a]	0.035	0.081	0.43
Hispanic[a]	-4.883	2.975	-1.64
County-Level Factors			
Median Family Income	0.006	0.005	1.28
Provider Ratio	0.003	0.045	0.07
Percentage Children	0.011	0.011	1.00
Hispanic X Median Family Income	0.075	0.023	3.34*
Hispanic X Provider Ratio	0.252	0.205	1.23
Hispanic X Percentage Children	0.062	0.087	0.71

[a] The reference group for African American and Hispanic is White children.

* $p < 0.05$

Conclusions

Disparities. Findings from this study suggest at least two different disparity patterns when Hispanic and African American children are compared to White children in terms of mental health status and service utilization. The first pattern, associated with Hispanic children, consists of receiving: (a) fewer mental health diagnoses for the most prevalent disorders, (b) fewer inpatient services for those who have a mental health diagnosis, and (c) more days until re-hospitalization. This pattern is consistent with receiving a lower level of services than the comparison (White children). The second pattern, experienced by African American children, is more complex. African American children also have lower prevalence of attention deficit and depression disorders, but have greater prevalence of conduct disorder than their White counterparts. When services are considered, African American children receive more outpatient services from all providers and from mental health providers only. However, when inpatient services were compared, African American children receive fewer hospitalizations and have fewer days for a first hospital stay.

An argument can be made that both disparity patterns reflect a lower level of services received for minority children. However, the data from this study do not provide information on the causes or mechanisms of the observed disparity patterns. As has been suggested by others (Griffith, Moy, Reischl, and Dayton, 2006), lower health status and service use for African American and Hispanic children may reflect differences in group or cultural norms about seeking services, differences in access to mental health services, or a combination of both factors. Future research should examine the degree to which each of these factors

(differences in help-seeking behavior and access to services) plays a role in the observed differences or disparities found in this study.

County-level factors. The three county-level factors included in the analyses were examined for their effects on health status, service use, and disparities in health status and service use. Each of these factors had an association with at least one health status or service use indicator for all children regardless of race/ethnicity. For example, counties with higher median family income had lower prevalence of depression disorder and provided a greater number of inpatient services. Counties with higher provider ratios also had greater prevalence of attention disorder and counties with a larger percentage of children in their population provided a greater number of services from mental health providers.

Additionally, and of particular interest, some disparity effects were associated with county-level factors. For example, in counties with larger median family incomes, African American children received more hospital services but had fewer days in their first hospitalization. Counties with greater median family income also were associated with Hispanic children having more days until a second hospitalization. Similar to the finding of median family income, counties with larger provider ratios also had fewer days for a first hospitalization for African American children. Finally, counties with greater percentages of children in their population had lower prevalence of depression and attention deficit disorders among African American children. However, although these county-level effects occurred, there was no discernible overarching pattern that was evident. Future research should examine if other county-level variables than those selected for this study might have a more direct effect.

References

Agency for Healthcare Research and Quality. (2004). *National healthcare disparities report.* Rockville, MD: U.S. Department of Health and Human Services.

Cauce, A. M., Paradise, M., Domenech-Rodriguez, M., Cochran, B. N., Shea, J. M., Srebnik, D., & Baydar, N. (2002). Cultural and contextual influences in mental health help seeking: A focus on ethnic minority youth. *Journal of Counseling and Clinical Psychology, 70*, 44-55.

Chow, J., Jaffer, K., & Snowden, L. R. (2003). Mental health services use by racial and ethnic populations in poverty areas. *American Journal of Public Health, 93,* 792-797.

Cohen, P., & Hesselbart, C. (1993). Demographic factors in the use of children's mental health services. *American Journal of Public Health, 83,* 49-52.

Cox, D. R. (1972). Regression models and life tables. *Journal of the Royal Statistical Society. Series B (Methodological), 34*(2), 187-220.

Fabrega, H., Ulrich, R., & Mezzich, J. E. (1993). Do Caucasian and Black adolescents differ at psychiatric intake? *Journal of the American Academy of Child and Adolescent Psychiatry, 32,* 407-413.

Gamble, V. N., & Stone, D. (2006). U. S. policy on health inequalities: the interplay of politics and research. *Journal of Health Politics, Policy, and Law, 31,* 93-126.

Griffith, D. M., Moy, E., Reischl, T. M., & Dayton, E. (2006). National data for monitoring and evaluating racial and ethnic health inequalities: Where do we go from there? *Health Education & Behavior, 33,* 470-487.

Greenbaum P. E., Yampolskaya, S., Wang, W., & Hernandez, M. (2006). *Disparities and patterns of behavioral health service utilization among medicaid eligible children in Florida.* Department of Child and Family Studies. Louis de la Parte Florida Mental Health Institute, University of South Florida.

Hurlburt, M. S., Leslie, L. K., Landsverk, J., Barth, R., Burns, B. J., Gibbons, R. D., Slymen, D. J., & Zhang, J. (2004). Contextual predictors of mental health service use among children open to child welfare. *Archives of General Psychiatry, 61,* 1217-1224.

Kataoka, S. H., Zhang, L., & Wells, K. B. (2002). Unmet needs for mental health care among U.S. children: variation by ethnicity and insurance status. *American Journal of Psychiatry, 159,* 1548-1555.

Kilgus, M. D., Pumariega, A. J., & Cuffee, S. P. (1995). Influence of race on diagnosis in adolescent psychiatric inpatients. *Journal of the American Academy of Child and Adolescent Psychiatry, 34,* 67-72.

Koot. H. M., & Verhulst, F. C. (1992). Prediction of children's referral to mental health and special education services from earlier adjustment. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 33,* 717-729.

McCabe, K., Yeh, M., Hough, R. L., Landsverk, J., Hurlburt, M. S., Culver, S. W. (1999). Racial/ethnic representation across five public sectors of care for youth. *Journal of Emotional and Behavioral Disorders, 7,* 72-82.

Muthén, L. K., & Muthén, B. O. (1998-2006). *Mplus: Statistical analysis with latent variables: User's guide. Version four.* Los Angeles, CA: Muthén & Muthén.

National Institute of Mental Health. (2001). *Blueprint for change: research on child and adolescent mental health.* Rockville: U.S. Department of Health and Human Services Administration, Center for Mental Health Services, National Institute of Health, National Institute of Mental Health.

Pandiani, J. A., Banks, S., M., Simon, M. M., Van Vleck, M. C., & Pomeroy, S., M. (2005). Access to child and adolescent mental health services. *Journal of Child and Family Studies, 14,* 431-441.

Rawal, P., Romansky, J., Jenuwine, M., Lyons, J. S. (2004). Racial differences in the mental health needs and service utilization of youth in the juvenile justice system. *The Journal of Behavioral Health Services & Research, 31,* 242-254.

Roberts, R., Alegria, M., Roberts, C., R., & Chen, I. G. (2004). Mental health problems of adolescents as reported by their caregivers. *The Journal of Behavioral Health Services & Research, 23,* 1-13.

Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence.* New York, NY: Oxford University Press.

Sue, S., & Dhindsa, M. K. (2006). Ethnic and racial health disparities research: Issues and problems. *Health Education & Behavior, 33,* 459-469.

Yeh, M., McCabe, K., Hough, R. L., Dupuis, D., & Hazen, A. (2003). Racial/ethnic differences in parental endorsement of barriers to mental health services for youth. *Mental Health Services Research, 5,* 65-77.

Zwillich, T. (2000). *US healthcare system missing most mentally ill children and adolescents.* Wasington, DC: Reuters Medical News. Retrieved June 24, 2007, from http://psychiatry.medscape.com/reuters/prof/2000/09/09.20/20000920publ009.html