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PEDIATRIC MENTAL HEALTH PROBLEMS AND ASSOCIATED BURDEN ON FAMILIES

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Abstract

Approximately 20% of children in the United States have mental health problems. The factors associated with childhood mental health problems and the associated burdens on families are not well understood. Therefore, our goals were to profile mental health problems in children to identify disparities, and to quantify and identify correlates of family burden. We used the National Survey of Children's Health, 2003 (N=85,116 children aged 3–17 years) for this analysis. The prevalence, unadjusted and adjusted odds ratios of mental health problems and family burden were calculated for children by child-, family- and health systems- level characteristics. The prevalence of mental health problems among children aged 3–17 years was 18%. The odds of mental health problems were higher for boys, older children, children living in or near relative poverty, those covered by public insurance, children of mothers with fair or poor mental health, children living in homes without two parents, children without a personal doctor or nurse, and children with unmet health care needs. Among families with children with mental health problems, 28% reported family burden. Correlates of family burden included White race, severity, older age, higher income, non-two parent family structure, and having a mother with mental health problems. In conclusion, childhood mental health problems are common and disproportionately affect children with fewer family and health care resources. Families frequently report burden, especially if the mental health problem is moderate to severe, but the correlates of family burden are not the same correlates associated with mental health problems. Understanding those highest at risk for mental health problems and family burden will help assist clinicians and policy makers to ensure appropriate support systems for children and families.

Keywords

children; disparities; mental health; family burden

Introduction

Mental health is defined as “how a person feels and acts when faced with life's situations,” (National Mental Health Information Center & Center for Mental Health Services, 2003). In

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general, mental health problems in childhood refer to the broad range of emotional, behavioral, and mental disorders that can affect children (Foy & Perrin, 2010). Approximately one in five children in the United States have an identified mental health problem and mental health problems disproportionately affect certain minorities and the poor (Mark & Buck, 2006; Shaffer, et al., 1996). Mental health problems among children and adolescents are recognized as a public health crisis in the United States (Huang & Mayberg). An additional area of concern is the impact of childhood mental problems on families (Huang & Mayberg). Previous research has demonstrated that childhood mental health problems are associated with social and economic burden on families (World Health Organization, 1999). Families of children with mental health problems experience higher rates of parental stress and grief with disruption to their families' lives (Doornbos, 1997). It is readily apparent that the negative impacts extend beyond home life to affect schools, employment and the greater community (Simpson, Bloom, Cohen, Blumberg, & Bourdon, 2005).

Unfortunately, little is known about the child-level, family-level and health systems-level factors associated with the experience of burden for families raising children with mental health problems. To our knowledge, no studies address both the prevalence of mental health problems in childhood and the associated impact on families. Tying together the experiences of children and their families is critical when planning for holistic programs that target both children and families in the context of their communities (Brauner & Stephens, 2006; Foy & Perrin, 2010; Kim, Viner-Brown, & Garcia, 2007; Waxman, 2006). Therefore, the objectives of this study are threefold: 1) to describe the prevalence of mental health problems among children aged 3–17 years by various child-, family- and health systems-level characteristics, 2) to analyze the factors that are related to having mental health problems to identify possible socio-demographic disparities, and then, 3) to describe and determine correlates of family burden.

Methods

DATA SOURCE

We used the National Survey of Children's Health (NSCH) 2003 for our analyses because the key variables of interest for this study were omitted from the 2007 version of the Survey. The NSCH 2003 was a nationally representative cross-sectional telephone survey of US households sponsored by the Maternal and Child Health Bureau in partnership with the National Center for Health Statistics and the Centers for Disease Control and Prevention. The purpose of the NSCH was to produce prevalence estimates of health indicators and experiences with the health care system for children younger than 18 years of age. One child in each household was randomly selected to be the subject of the survey, and the respondent for the interview was the parent or guardian who was most familiar with the child's health and health care. The survey included questions about demographics, health status, health insurance, and access to and use of health care services (van Dyck, et al., 2004). Estimates reported here are based on 102,353 interviews completed from January 2003 through July 2004 (Blumberg, et al., 2005; Kogan & Newacheck, 2007). For this analysis, the potential sample included 85,389 children between the ages of 3–17 years as the question about mental health problems was not asked to caregivers of children under 3 years. Our final sample, $n=85,116$, excluded 273 children for whom mental health data was missing.

CONCEPTUAL MODEL

To determine which variables to utilize from the NSCH dataset to address our hypotheses we developed a conceptual framework based a model of risk factors for special health care needs put forth by Newacheck and colleagues (Newacheck, Kim, Blumberg, & Rising,

2008). Our conceptual framework places the child in the center of a series of concentric and overlapping circles indicating progressively larger social spheres. In this model, child-level, family-level factors and health systems-level factors potentially impact the mental health of the child. We also note that how the family experiences the impact of caring for a child with mental health problems does not depend solely on the characteristics or severity of child's problems, but likely relates to a plethora of other factors including availability and quality of health services. In this model, we are attempting to relate the sociodemographic and health care characteristics of children to the experience of mental health problems and their impacts on families to identify and quantify potential disparities.

STUDY VARIABLES

Defining Mental Health Problems and Family Burden—Children were identified as having a mental health problem if the survey responder answered affirmatively to the following question: “Overall, do you think that *sample child* has difficulties with one or more of the following areas: emotions, concentration, behavior, or being able to get along with other people?” This question is derived from the Strength and Difficulties Questionnaire (Blumberg, et al., 2005), and the Child Behavior Checklist, both of which are used frequently in research to assess for emotional health and psychosocial problems in childhood (Achenbach & Ruffle, 2000; GOODMAN, 2001). Once the sample child was identified as having a mental health problem, the survey respondent was asked to rate the mental health difficulties as, “minor, moderate or severe.” For our analysis, we dichotomized the severity of mental health difficulties in two groups: mild and moderate/severe. To determine family burden, the survey respondents who affirmatively reported that their child had a mental health problem were asked, “Overall, would you say *sample child's* mental and emotional health puts a burden on your family a great deal, a medium amount, a little or not at all?” For this study, we considered responses ‘a great deal’ or ‘a medium amount’ to indicate the experience of family burden.

Child-, Family-, and Health Systems- Level Factors—Based on our conceptual model, we identified multiple independent variables of interest at the level of the child, family and health system. The child- and family-level characteristics of interest were age (3–11 years old and 12–17 years old), gender, race/ethnicity (White, Black, Hispanic and Non-Hispanic Other), income categories based on Federal Poverty Level (FPL) designation (>200% FPL, 200–400% FPL, and >400% FPL), insurance type and status (private coverage, public coverage, disrupted insurance during the past year, or uninsured), region of the country (Northeast, Midwest, South and West), family structure (two-parent, single parent, or other) and the mental health status of mothers (excellent/very good, good, or fair/poor). We also report on the systems-level factors of having an unmet need for health services and the presence of a personal doctor or nurse.

STATISTICAL ANALYSIS

Estimates presented in the text and tables have been statistically weighted to reflect national population totals. For our data analysis, we first calculated descriptive statistics to generate the population estimates of having a mental health problem. Unadjusted odds (bivariate statistics) were calculated for the presence of mental health problems and experience of family burden for each of the independent variables (data not shown in the results). We performed a multiple logistic regression to predict the adjusted odds for having a mental health care problem. We then performed logistic regression for the experience of family burden, stratified by mental health problem severity. We stratified by severity because we felt that the burden experienced by families of children with more severe mental health problems would likely be different than the burden experienced by families of children with mild mental health problems. All estimates and analyses were performed using STATA11

(STATA Corp, College Station, TX) to account for the complex sample design of the survey. Our secondary data analysis falls under the exempt category by the University of California San Francisco Committee on Human Research.

Results

Prevalence of Mental health Problems

Nearly 11 million or 18% of children in the United States had mental health problems identified by their caregivers/parents. Table 1 summarizes the prevalence of mental health problems by child-, family-, health systems- level characteristics. There were disparities in the prevalence of mental health problems. Mental health problems were more commonly identified among Blacks, children living below 200% of the FPL and children covered by public insurance. The disparities became more pronounced when evaluating children with moderate to severe mental health problems. Twice the proportion of children living below 200% FPL had moderate to severe mental health problems compared to children living above 400% FPL (12.6% vs. 6.1%, respectively). Similarly, the prevalence of severe mental health problems was twice as high for those covered by public insurance than those covered by private insurance (14.9% vs. 7.1%).

Prevalence of Family Burden

Among families of children with mental health problems, 28% reported family burden. The experience of family burden was more frequently identified in families of children with moderate-severe mental health problems compared to those with mild mental health problems, 45.1% vs. 9.6%, $p < 0.0001$. Table 2 summarizes the prevalence of family burden stratified by severity. Among families of children with mild mental health problems, the highest prevalence of family burden was reported by caregivers of children with unmet health care needs (16.0%). Conversely, caregivers of children with mild mental health problems without insurance reported the least burden (3.0%). Similar to the response pattern of caregivers of children with mild mental health problems, among families with children with moderate to severe mental health problems, those without insurance reported the least amount of family burden (30.9%) and those with unmet health care needs reported the most burden (65.6%).

Adjusted Odds of Mental health Problems by Socio-demographic Characteristics

The adjusted odds ratios of having an identified mental health problem are presented in Table 3. After adjustment, the following characteristics were associated with higher odds of having mental health problems: male gender, older age, living below 400% FPL, having public insurance coverage, living in a home not headed by two parents, having a mother with fair or poor mental health, having unmet health care needs, and not having a personal doctor or nurse. Maternal mental health status was the strongest predictor of child mental health problems. Children of mothers with fair/poor mental health had nearly 3 times the odds of mental health problems compared to other children. Hispanic children had statistically lower odds (AOR=0.60) of reporting mental health problems than White Non-Hispanics.

Adjusted Odds of Family Burden

As shown in Table 3, when controlling for all other factors in the multivariable model, only non-two parent family structures and fair/poor maternal mental health were statistically associated with increased odds of family burden for families of children with mild mental health problems. Those without insurance and those living below 200% of the FPL had significantly decreased odds of family burden. For families of children with moderate to

severe mental health problems, families of older children, children with unmet health care needs, and mothers with fair/poor mental health had higher odds of experiencing burden from their child's mental health problems. The adjusted odds of experiencing family burden among families of children with moderate to severe mental health problems were found to be lower among Blacks, Hispanics and those living below 400% of the FPL.

Discussion

Mental Health Problems

This is the first study to simultaneously describe the prevalence of mental health problems in children and associated burdens on families, and to delineate factors associated with both mental health disparities in children and burden on families. Similar to previous studies that document mental health problems in children, we found that nearly 20% of children aged 3–17 had mental health problems (Carter, et al., 2010; Kim, et al., 2007; Mark & Buck, 2006). We also found a prevalence of moderate to severe mental health problems of nearly 10% which is similar to the results from the National Health Interview Survey (Mark & Buck, 2006). Our analysis identified important socio-demographic disparities in mental health, but not necessarily in the patterns identified in other studies (Costello, et al., 1996; Ghandour, Kogan, Blumberg, & Perry, 2010; Mark & Buck, 2006; Simpson, et al., 2005). We found that children with mental health problems were disproportionately living in or near poverty, in non-two-parent homes, and in families already affected by mental health problems. Similar to Mark and Buck (2006), we found that the prevalence of mental health problems was statistically higher for Black children, but in our study, when other factors were controlled for in the multivariable model, minority racial status was no longer statistically significant. In our analysis, Hispanic race was actually associated with decreased odds of having a mental health problem. Lower reports of mental health problems among Hispanic families may be due to true differences in prevalence, differences in cultural understandings of mental health problems, the “immigrant paradox” in which recent immigrants experience fewer psychiatric symptoms despite the stress of immigration compared to acculturated immigrant groups, or, over-reporting by other groups (Alegria, et al., 2008; Crijnen, Achenbach, & Verhulst, 1999; Mendoza, 2009; Teagle, 2002).

In addition to elucidating income disparities, this study also identified important associations between mental health problems and health-systems factors. Children with public insurance, children with unmet health care needs, and children without a personal doctor or nurse had higher odds of mental health problems. The relationship between health insurance type and the presence of mental health problems is most certainly complex because of issues regarding mental health parity and out of pocket expenses for treatments that may effectively manage mental health problems (Barry & Busch, 2007). Regardless of insurance type, reports of unmet need for mental health services are substantial. Among children covered by private insurance, 36.8% (CI 34.0–39.6) reported unmet need for mental health services compared to 41.4% (CI 37.7–45.1) of publicly insured children (Child and Adolescent Health Measurement Initiative., 2003). These high rates of unmet need for children covered by either public or private insurance highlight the inadequacies of the current payment structures to meet the needs of children with mental health problems. The issues of limited access to needed services are further compounded by the experience of living in or near poverty for many children covered by public insurance (Ganz & Tendulkar, 2006). The findings in our study, taken together with the existing literature that identifies the limitations of mental health care delivery for children, indicate the need for advancing care delivery and policies. This points to the potential role that a community based system of care could play in the mitigation of mental health problems through family-centered comprehensive care within a medical home (Perrin, et al., 2007) coupled with strategies to

apply a population perspective to mental health needs and service delivery (J. M. Foy, 2010).

Family Burden

The experience of family burden was common. As identified in other studies we found that caregivers of children with more severe mental health problems reports more burden than those with children with mild mental health problems (Doornbos, 1997; Kim, et al., 2007). Our results are also quite similar to the results found by Teagle (2002), who reported family impacts for 32% of families with children with more than one psychiatric diagnosis. An unexpected finding in our analysis is the socio-demographic distribution of family burden. We anticipated that the pattern of factors associated with mental health problems would be the same for family burden. Under that expectation, the families of children who were more likely to experience family burden would be demographically similar to those with mental health problems, i.e. living in or near poverty. This was not what we found in our analysis. For families of children with moderate to severe mental health problems, the odds of burden were actually lower for families living below 400% of the FPL. The odds of family burden were also lower for Blacks and Hispanics compared to Whites. Among families of children with mild mental health problems, the odds of family burden were lower when the child was without health insurance. While there is no clear explanation for these differences, we consider the possibility that minority families and those living in or near poverty may experience other competing social and economic stressors that could lessen the perceived impact that mental health problems have on families. The experience of poverty is exceptionally complex and includes a conglomerate of stressful situations and conditions (McLoyd, 1990), which may diminish the impact of mental health problems on families. Similarly, the context in which a child is uninsured is likely quite stressful for families and a mild mental health problem might not add substantially more family burden. In contrast, non-minority families and families living well above the FPL are less likely to experience chronic economic and social stressors and therefore the burden of childhood mental health problems may be more acutely felt. Another possible explanation is that cultural differences in the ways families deal with stressors, such as the reliance on extended family support, account for the differences in the experience of family burden. Unfortunately, these possibilities cannot be studied using the NSCH and therefore further research is necessary to determine how different levels of social and economic stress and informal support systems impact perceived family burden. Additionally, research is warranted to correlate our findings with disparities in access to care, out-of-pocket expenses and other types of family burden such as job loss. Furthermore, studying whether the medical home and other models of service delivery provide some protection from unmet health care needs would help guide public policies and promote community based supports.

Limitations

Although the NSCH is the largest comprehensive study of children's health, there are several limitations. The NSCH is a cross-sectional study and therefore, we are able to present associations and cannot determine directionality of the association in terms of causality. In addition, our definition of mental health problems (problems with emotions, concentration, behavior or being able to along with other people) is an accepted but not a standardized definition which makes comparisons across different studies difficult. We also cannot address issues related to specific mental health conditions. Furthermore, this study uses parental/caregiver report to determine the presence of mental health problems which were not verified by a health care professional and maybe reported differently by parents from different cultures (Crijnen, et al., 1999). This may lead to reporting bias, although we note that parental report of mental health problems is highly correlated with practitioner verification (Glascoe, 2003). The experience of family burden is also subjective and may be

mediated by families' cultural backgrounds, especially since burden was not specifically defined in the survey question. Lastly, we assessed only a small number of factors that might relate to families' experiences of burden.

Conclusions

Mental health problems impact a substantial number of children and their families. Addressing the mental health needs of children is a priority area for the American Academy of Pediatrics (American Academy of Pediatrics, 2008) and reducing mental health disparities is a major goal of Healthy People 2010 (US Department of Health and Human Services). As the AAP Task Force on the Family points out, our current social and public policies are not meeting the needs of families leaving them stressed to meet their responsibilities (Schor, 2003). An important mechanism to address existing mental health disparities would be through the reallocation of preventative and mental health services to ensure those lacking health care resources can receive adequate preventative services and mental health care (Foy & Perrin, 2010; Inkelas, Raghavan, Larson, Kuo, & Ortega, 2007; Sturm, Ringel, & Andreyeva, 2003). By identifying factors associated with mental health problems and family burden, we have set the stage for the development of targeted health service delivery interventions that could help minimize the experience of mental health problems, maximize the care for these children and reduce the burden experienced by families.

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Abbreviations

NSCH	National Survey of Children's Health
OR	odds ratio
AOR	adjusted odds ratio
CI	confidence interval
W-NH	White Non-Hispanic
B-NH	Black Non-Hispanic
FPL	Federal Poverty Level US-United States

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Table 1

Prevalence of Mental Health Problems in Children Aged 3–17 Years by Child-, Family-, and Health Systems-Level Characteristics

POPULATION	WEIGHTED PREVALENCE OF MENTAL HEALTH PROBLEMS % (SE)	WEIGHTED ESTIMATE OF MENTAL HEALTH PROBLEMS	WEIGHTED PREVALENCE OF MILD MENTAL HEALTH PROBLEMS %(SE)	WEIGHTED PREVALENCE OF MODERATE/SEVERE MENTAL HEALTH PROBLEMS %(SE)
Children 3–17 yr	17.80% (0.24)	10,900,000	8.59% (0.18)	9.16% (0.17)
AGE:				
3–11 yrs	16.50% (0.31) *	6,018,000	8.49% (0.24)	7.96% (0.21) *
12–17 yrs	19.70% (0.38)	4,903,000	8.72% (0.26)	10.91% (0.30)
SEX:				
Female	14.21% (0.32) *	4,252,000	7.29% (0.25) *	6.89% (0.22) *
Male	21.22% (0.35)	6,661,000	9.82% (0.26)	11.33% (0.27)
RACE:				
W-NH	17.10% (0.26) *	6,335,000	8.06% (0.19) *	9.00% (0.20) *
B-NH	24.68% (0.80)	2,165,000	13.03% (0.65)	11.55% (0.59)
Hispanic	15.08% (0.64)	1,541,000	6.70% (0.45)	8.32% (0.49)
O-NH	17.44% (1.08)	752,000	9.38% (0.93)	8.05% (0.63)
INCOME:				
>400%FPL	13.33% (0.39) *	1,971,000	7.21% (0.31) *	6.12% (0.25) *
200–400%FPL	15.98% (0.37)	2,949,000	8.04% (0.28)	7.92% (0.26)
<200%FPL	23.18% (0.48)	5,091,000	10.47% (0.36)	12.62% (0.37)
INSURANCE:				
Private	14.66% (0.25) *	5,817,000	7.57% (0.19) *	7.05% (0.18) *
Public	26.25% (0.59)	4,175,000	11.31% (0.44)	14.89% (0.46)
Disrupted	16.95% (1.16)	440,000	8.87% (0.91)	7.86% (0.77)
Uninsured	15.39% (1.10)	475,000	7.28% (0.84)	8.04% (0.77)
REGION:				
Northeast	17.75% (0.54) *	1,916,000	8.01% (0.37) *	9.68% (0.43) *
Midwest	17.37% (0.39)	2,394,000	8.13% (0.28)	9.14% (0.31)
South	19.15% (0.39)	4,247,000	9.42% (0.29)	9.69% (0.29)
West	16.19% (0.60)	2,364,000	8.18% (0.47)	8.00% (0.41)
FAMILY STRUCTURE				
Two-parent	14.62% (0.25) *	6,195,000	7.31% (0.19) *	7.27% (0.18) *
Single-parent	24.61% (0.59)	3,544,000	10.92% (0.43)	13.62% (0.47)
Other	23.21% (1.22)	670,000	11.64% (1.04)	11.41% (0.79)

POPULATION	WEIGHTED PREVALENCE OF MENTAL HEALTH PROBLEMS % (SE)	WEIGHTED ESTIMATE OF MENTAL HEALTH PROBLEMS	WEIGHTED PREVALENCE OF MILD MENTAL HEALTH PROBLEMS %(SE)	WEIGHTED PREVALENCE OF MODERATE/SEVERE MENTAL HEALTH PROBLEMS %(SE)
MATERNAL MENTAL HEALTH				
Exc/V.Good/Good	15.69% (0.24) *	8,329,000	7.93 (0.18) *	7.73 (0.17) *
Fair/Poor	39.13% (1.31)	1,527,000	12.93 (0.94)	26.03 (1.14)
PERSONAL DOCTOR OR NURSE				
Yes	17.77% (0.26)	9,040,000	8.61% (0.19)	9.11% (0.19)
No	17.88% (0.64)	1,834,000	8.44% (0.45)	9.35% (0.49)
UNMET NEED FOR HEALTH SERVICES				
No	17.53% (0.24) *	10,600,000	8.51% (0.18) *	8.98% (0.18) *
Yes	38.98% (3.54)	208,000	14.65% (2.66)	23.46% (2.61)

* t-test or chi-squared test (for within sociodemographic group differences) significant at $p < 0.001$, Standard Error (SE)

Table 2

Prevalence of Family Burden Among Children with Mental Health Problems by Child-, Family-and Health Systems- Level Characteristics and Stratified by Severity

	Percentage of Families who Experience Family Burden from their Child's Mental health Problem (SE)	Percentage of Families who Experience Family Burden when the Child's Mental health Problem was <u>Mild</u> (SE)	Percentage of Families who Experience Family Burden when the Child's Mental health Problem was <u>Moderate/Severe</u> (SE)
All Children	27.97% (0.66)	9.58% (0.72)	45.09% (1.00)
AGE:			
3–11 yrs	24.05% (0.87)*	8.48% (1.02)	40.50% (1.35)*
12–17 yrs	32.79% (1.00)	11.13% (0.96)	50.00% (1.45)
SEX:			
Female	26.90% (1.07)*	10.81% (1.33)	43.83% (1.61)
Male	28.69% (0.84)	8.72% (0.77)	45.83% (1.27)
RACE:			
W-NH	30.11% (0.76)*	9.02% (0.67)	48.89% (1.17)*
B-NH	23.78% (1.65)	9.86% (1.98)	39.20% (2.61)
Hispanic	24.28% (1.98)	8.50% (1.76)	37.00% (3.00)
O-NH	29.54% (3.21)	14.88% (4.62)	46.56% (4.03)
INCOME:			
>400%FPL	29.16% (1.42)	9.62% (1.53)	52.17% (2.09)*
200–400%FPL	27.05% (1.09)	8.96% (1.04)	45.41% (1.73)
<200%FPL	27.96% (1.05)	9.60% (1.24)	43.08% (1.54)
INSURANCE:			
Private	26.93% (0.83)*	8.73% (0.76)*	46.30% (1.32)*
Public	31.05% (1.19)	12.07% (1.61)	45.39% (1.65)
Disrupted	24.20% (2.89)	7.94% (2.21)	42.37% (4.91)
Uninsured	17.55% (2.57)	2.98% (0.96)	30.91% (4.43)
REGION:			
Northeast	30.63% (1.57)*	9.01% (1.45)	48.31% (2.36)*
Midwest	29.73% (1.12)	9.33% (1.04)	47.70% (1.75)
South	24.95% (0.95)	8.75% (0.93)	40.68% (1.53)
West	29.45% (1.82)	11.66% (2.28)	47.62% (2.61)
FAMILY STRUCTURE			
Two-parent	25.77% (0.79)*	7.49% (0.67)*	44.05% (1.27)
Single-parent	30.34% (1.26)	11.56% (1.52)	45.44% (1.83)
Other	30.55% (2.67)	14.23% (3.42)	46.41% (3.61)
MATERNAL MENTAL HEALTH			

	Percentage of Families who Experience Family Burden from their Child's Mental health Problem (SE)	Percentage of Families who Experience Family Burden when the Child's Mental health Problem was <u>Mild</u> (SE)	Percentage of Families who Experience Family Burden when the Child's Mental health Problem was <u>Moderate/Severe</u> (SE)
Exc/V.Good/Good	25.54% (2.71) *	8.49% (0.71) *	42.91% (1.19) *
Fair/Poor	39.50% (2.01)	14.75% (2.85)	51.86% (2.50)
PERSONAL DOCTOR OR NURSE			
Yes	28.63% (0.72) *	9.77% (0.81)	46.28% (1.07) *
No	24.79% (1.68)	7.25 (0.69)	39.34% (2.69)
UNMET NEED FOR HEALTH SERVICES			
Yes	46.27% (4.82) *	16.02% (5.82)	65.63% (5.70)
No	27.52% (0.67)	9.52% (0.73)	44.45% (1.02)

* t-test or chi squared test to determine within sociodemographic group differences, $p < 0.05$, Standard Error (SE)

Table 3

Adjusted Odds Ratios of Having Mental Health Problems and Experiencing Family Burden Stratified by Severity

	ADJUSTED ODDS OF HAVING A MENTAL HEALTH PROBLEM (CI)	ADJUSTED ODDS OF FAMILY BURDEN AMONG FAMILIES OF CHILDREN WITH MILD MENTAL HEALTH PROBLEMS (CI)	ADJUSTED ODDS OF FAMILY BURDEN AMONG FAMILIES OF CHILDREN WITH MODERATE TO SEVERE MENTAL HEALTH PROBLEMS (CI)
AGE:			
3–11 yrs	REF	REF	REF
12–17 yrs	1.20 (1.12–1.29)	1.39 (1.00–1.93)	1.32 (1.10–1.59)
SEX:			
Female	REF	REF	REF
Male	1.71 (1.59–1.83)	0.97 (0.68–1.37)	1.18 (0.98–1.42)
RACE:			
W-NH	REF	REF	REF
B-NH	1.02 (0.91–1.15)	0.73 (0.45–1.18)	0.63 (0.48–0.83)
Hispanic	0.60 (0.53–0.68)	0.97 (0.56–1.70)	0.65 (0.47–0.89)
O-NH	0.92 (0.79–1.08)	1.78 (0.88–3.56)	0.81 (0.56–1.19)
INCOME:			
>400%FPL	REF	REF	REF
200–400%FPL	1.15 (1.06–1.26)	0.51 (0.28–0.93)	0.64 (0.49–0.83)
<200%FPL	1.35 (1.21–1.51)	0.82 (0.55–1.23)	0.74 (0.59–0.92)
INSURANCE:			
Private	REF	REF	REF
Public	1.60 (1.44–1.78)	1.58 (0.98–2.53)	1.20 (0.95–1.52)
Disrupted	1.03 (0.85–1.25)	0.72 (0.38–1.38)	0.96 (0.60–1.63)
Uninsured	1.04 (0.84–1.29)	0.29 (0.12–0.72)	0.67 (0.39–1.14)
REGION:			
Northeast	REF	REF	REF
Midwest	0.96 (0.87–1.07)	1.21 (0.79–1.88)	1.05 (0.82–1.38)
South	1.01 (0.91–1.12)	1.28 (0.84–1.97)	0.81 (0.63–1.04)
West	0.99 (0.87–1.12)	1.36 (0.84–2.21)	1.06 (0.78–1.44)
FAMILY STRUCTURE			
Two-parent	REF	REF	REF
Single-parent/Other	1.47 (1.35–1.61)	1.82 (1.25–2.65)	1.23 (1.00–1.51)
MATERNAL MENTAL HEALTH			
Exc/V.Good/Good	REF	REF	REF
Fair/Poor	2.80 (2.46–3.18)	2.03 (1.23–3.35)	1.53 (1.21–1.94)

	ADJUSTED ODDS OF HAVING A MENTAL HEALTH PROBLEM (CI)	ADJUSTED ODDS OF FAMILY BURDEN AMONG FAMILIES OF CHILDREN WITH MILD MENTAL HEALTH PROBLEMS (CI)	ADJUSTED ODDS OF FAMILY BURDEN AMONG FAMILIES OF CHILDREN WITH MODERATE TO SEVERE MENTAL HEALTH PROBLEMS (CI)
PERSONAL DOCTOR OR NURSE			
Yes	REF	REF	REF
No	1.18 (1.06–1.32)	1.05 (0.65–1.72)	0.86 (0.65–1.15)
UNMET NEED FOR MEDICAL CARE			
No	REF	REF	REF
Yes	2.32 (1.67–3.22)	1.13 (0.40–3.18)	2.40 (1.37–4.21)

Referent group (REF), Confidence Interval (CI), Adjusted Odds are adjusted for all other variables in the model. Odds ratios in bold are statistically significant.