



Public Health Coverage and Access to Mental Health Care for Youth with Complex Behavioral Healthcare Needs

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Abstract

Drawing upon the National Survey of Children with Special Healthcare Needs (2009/2010), multilevel logistic regression analysis assessed the relationship between parent report of a youth having an emotional, behavioral, or developmental problem (EBDP), their level of reported functional limitations, and parents' report of unmet mental health care needs and experience with cost-barriers to accessing needed healthcare services. Results indicate that, compared to all privately insured youth with special health care needs, parents of privately insured youth with EBDP are much more likely to report their child having unmet mental health care needs (OR 12.16; $p < 0.001$) and experiencing cost barriers to care (OR 2.37; $p < 0.001$). Parents of privately insured youth with EBDP with functional limitations are even more likely to report these concerns (Unmet Mental Health Needs: OR 17.09; $p < 0.001$; Cost Barriers: OR 5.77; $p < 0.001$). However, findings suggest that having public insurance is associated with reductions in the odds of having unmet needs for youth with SED by 50%. Public insurance and dual coverage is associated with reductions in the odds of encountering cost barriers to care by almost 50% for children with EBDP, and by more 50% for youth with EBDP and functional impairments.

Keywords Serious emotional disturbance · Medicaid · Health insurance · Mental health access · Children's mental health

Introduction

Children and adolescents that have ongoing or chronic health challenges are considered Children with Special Health Care Needs (CSHCN), defined by The Maternal and Child Health Bureau as “those who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally” (McPherson et al. 1998, p. 138). Approximately 30% of CSHCN have emotional, behavioral, or developmental problems (EBDP), including concerns like anxiety, depression,

bipolar disorder, autism, cognitive or intellectual delays, or cerebral palsy (Inkelas et al. 2007). Among all children and adolescents, about one in five has a diagnosable mental health disorder (Merikangas et al. 2010), and one in six youth have a developmental disability (Boyle et al. 2011); thus children and adolescents with EBDP represent approximately 16 to 20% of youth.

CSHCN can have EBDP alone or in conjunction with a chronic health condition (Bramlett et al. 2009; Inkelas et al. 2007). In fact, almost 40% of youth served in public mental health settings have comorbid chronic health conditions, including respiratory, cardiovascular, and skeletal conditions (Pires et al. 2013), and children with chronic health conditions are three times more likely to have significant mental health concerns than children without complex medical needs (Blackman et al. 2011; Combs-Orme et al. 2002).

Regardless of the origin or comorbidity, if mental health symptoms are severe enough to substantially impair a young person's ability to function in at least one life domain—home, community, or education—children with EBDP can be classified as Severely or Seriously Emotionally Disturbed (SED) (SAMHSA 1993). Approximately 8 to 12% of youth meet criteria for an SED classification.

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Children or adolescents with more severe SED present significant impairment in two or more domains and represent approximately 5 to 6% of the total child population (Williams et al. 2017). Given the often complex needs of youth with EBDP and SED—especially if they have comorbidity and accompanying chronic health conditions—without appropriate support for the youth and their family, these children and adolescents are at risk of being placed outside of the home through involvement with the child welfare or juvenile justice system, or in a long-term care or psychiatric residential treatment facility (Friedman et al. 2016; Greenbaum et al. 1996; Hansen et al. 2004; Hill, 2017).

Home and Community-Based Services (HCBS)

To avoid residential placements, children with EBDP—especially those with severe impairments and complex health needs—often need access to varying levels of intense mental health services and supports to be maintained at home (Kernan et al. 2003; Marcenko et al. 2001). Home and community-based mental health care can include case management, therapeutic behavioral support services, respite care, youth and peer support services, and other interventions that promote educational, social, and personal competency and family coping. Intensive community-based care alternatives provide equal or greater symptom and functional improvement than residentially provided services and at lower cost (Barth et al. 2007; Shepperd et al. 2009; Snyder et al. 2017; Urdapilleta et al. 2013).

Especially with SED, even when youth with EBDP are accessing basic outpatient services (e.g., medication management, outpatient psychotherapy), families whose children have significant or complex needs often are unable to access additional needed services (Miller et al. 2018; Owens et al. 2002; Sheppard et al. 2017). Private insurance coverage supports outpatient clinical care such as office-based doctor visits, therapy, or psychiatric medication management—which is often sufficient for youth with mild to moderate mental health needs—but it provides little or no coverage for home and community-based services that are often needed to support children with more complicated behavioral healthcare needs (Busch and Barry 2009; Graaf and Snowden 2019; Thomas et al. 2016). Partly due to the inadequacies of private coverage for mental health services, CSHCN with emotional, developmental and behavioral health conditions experience more difficulty accessing services than children with complex physical health needs (Nageswaran et al. 2011), and the 25 to 30% of CSHCNs with SED are significantly more likely to experience unmet mental health care needs than other CSHCNs (Inkelas et al. 2007).

Public Funding for Home and Community-Based Mental Health Treatment

Medicaid-covered children with EBDP or SED gain access to many more HCBS services than children with private insurance. “Through a combination of mandated benefits (inpatient care; outpatient care; and Early and Periodic Screening, Diagnosis, and Treatment, or EPSDT) and optional benefits (inpatient psychiatric care, prescription drugs, rehabilitation, and various types of case management), Medicaid provides very comprehensive coverage for mental health services, especially compared with most private insurance plans” (Howell 2004, p. 2). However, only about one-third of children with SED are covered by Medicaid, whereas 30 to 40% are covered by private insurance (Mark and Buck 2006). Ringel and Sturm (2001) report that “adolescents on public insurance plans have higher rates of mental health service use than their privately insured peers” (p. 321). In fact, only 18% of children with private insurance and 10% of uninsured youth ever access mental health services, whereas 44% of Medicaid-covered children access mental health treatment (Howell 2004).

Because HCBS is costly and rarely covered by private insurance (Graaf and Snowden 2019), and the household income of many families is too high to qualify them for Medicaid, families whose children have more significant mental health needs may seek funding for care through the child welfare or juvenile justice system, sometimes transferring custody of their child to the state in the process (Friesen et al. 2003; Hill 2017). In 2003, the General Accounting Office reported that in 2001 over 12,000 children in 19 states were transferred into state custody when families could not qualify for Medicaid and were desperate to obtain mental health services for their child.

The Current Study

Children with special healthcare needs frequently go without needed mental health care (Glassgow and Voorhees 2017), especially CSHCN with EBDP (Inkelas et al. 2007). Compared with families with Medicaid coverage, families with private coverage for a CSHCN with EBDP are more likely to report unmet mental health needs for their child (Derigne et al. 2009), greater caregiving burdens, more financial barriers to services, more negative experiences with their health plan, and are more likely to stop or reduce their income-earning work in order to care for their child (Busch and Barry 2009).

Given their need for a wider array of more intensive services and supports, barriers to care may be particularly

great for youth with more complex symptoms and functional impairments. However, well-controlled research on representative samples of children and adolescents documenting unmet need and financial burden stemming from inadequate private health coverage are few. Further, though much research currently exists examining structural barriers to mental health treatment access (Miller 2014; Owens et al. 2002; Popescu et al. 2015; Stiffman et al. 2000; Varda et al. 2016; Walker et al. 2015; Wilson et al. 2014), none specifically account for variation in functional impairments and the role that insurance coverage may play in moderating financial barriers to care and unmet mental health needs for more and less disabled children.

To this end, this study draws on data from the 2009/2010 National Survey for Children with Special Healthcare Needs (NS-CSHCN) to answer the following questions: (1) Among CSHCN, do youth with EBDP and SED have higher odds of having unmet mental health treatment needs and of encountering cost barriers to services than other youth with special healthcare needs who do not have EBDP or SED? And (2) Does public coverage reduce the odds of having unmet mental health care needs or encountering financial obstacles in obtaining care for a youth with EBDP or SED? The study focuses on public coverage among children expected to need HCBS most—those who experience functional limitations as a result of their disorder or diagnosis. It assesses the impact of public insurance coverage on its own and in conjunction with private coverage, compares more and less disabled children, and it controls for variation in key state level variables, children's age, race, and sex, as well as household structure and income and parental education levels. Because of the more comprehensive coverage for HCBS provided under Medicaid, we hypothesize that youth with EBDP and SED with public insurance are less likely to have unmet mental health needs and cost barriers to care than similar youth with private insurance.

Methods

Model construction for this analysis was guided by the Behavioral Model for Vulnerable Populations (Gelberg et al. 2000), which suggests individual and contextual factors that affect health behaviors, including service utilization. The model organizes factors into three categories: predisposing, enabling, and health needs. The need factor—child EBDP or SED—is our predictor variable. An enabling factor—type of health insurance coverage—is our moderating variable of interest. Our controls include the predisposing factors of age, sex, and race/ethnicity, and other enabling factors of parent education level, family income level, household structure, and size of state mental health systems.

Dataset and Sample Preparation

National Survey of Children with Special Health Care Needs (NS-CSHCN)

All variables for this analysis were drawn from the National Survey of Children with Special Health Care Needs, conducted from 2009 to 2010. This survey was conducted by the National Center for Health Statistics at the Centers for Disease Control and Prevention under the direction and sponsorship of the federal Maternal and Child Health Bureau (MCHB). The 2009/2010 NS-CSHCN provides detailed state- and national-level parent-reported information on the health status and health care system experiences of children and youth with special health care needs (CSHCN) and their families. Topics covered by the survey include health and functional status, insurance coverage and adequacy of coverage, access to health care services, medical home, the impact of children's special needs on their families, family-centeredness of services, and care coordination. The total sample size for the data set was 40,242.

Independent Variable

Mental Health Need

The identification of a child in the dataset as having EBDP is derived from a variable in the NS-CSHCN data that labels the child as having qualified as a child with special health care needs due to ongoing emotional, developmental, or behavioral health conditions. In the survey, this was determined by the respondent's answer to a question in the CSHCN screening tool. The screening tool asks, "Does your child have any kind of emotional, developmental, or behavioral problem for which ('he/she needs'/'they need') treatment or counseling?" If a parent answered "yes" to this question, this variable was coded as a "1." If they answered "no," then this variable was coded as a "0." For this study, these children are considered to be the sub-sample of youth with EBDP.

In the survey, children could also be identified as a CSHCN due to functional limitations associated with the child's medical, behavioral, emotional, or developmental conditions. This was determined by the respondent's answer to another question in the CSHCN screening tool. The screening tool asks, "Is your child *limited or prevented* in any way in (his/her/their) ability to do the things most children of the same age can do?"; "Is this limitation in abilities because of ANY medical, behavioral, or other health condition?" and "Is this a condition that has lasted or is expected to last 12 months or longer?" If the parent responded "yes" to all three questions, "functional limitations" for the child was coded as a "1." Otherwise, the child was coded as "0,"

having no functional impairments. For this study, children are categorized as having SED if their parent reported that the child had both an emotional, behavioral, or developmental problem that needed treatment, *and* that the child experienced functional limitations as a result of their condition.

A categorical predictor variable was constructed which captured three mutually exclusive categories of CSHCN with each type of mental health needs: (1) Youth who qualified as a CSHCN but were not reported to have an emotional, behavioral, or development problem for which they needed treatment (No EBDP—reference group), (2) Youth who qualified as CSHCN due to parent report of an ongoing emotional, behavioral, or developmental problem for which they needed treatment (EBDP—1), and (3) Youth who qualified as CSHCN due to parent report of both an ongoing emotional, behavioral, or developmental problem for which they needed treatment *and* functional limitations related to their medical, behavioral, emotional, or developmental conditions (SED—2). Children with autism spectrum disorders, developmental delays, or other special medical needs who also have behavioral or emotional health problems—and who may experience functional limitations due to non-behavioral health concerns—are represented in the SED population.

Moderating Variable: Type of Insurance Coverage

Health insurance type is the moderating variable of interest in the analysis. This variable captures the type of health coverage each child had at the time of data collection. Health insurance type was coded as a categorical variable where children with private insurance act as the reference group. Other categories for this variable include (1) “public insurance” for children with Medicaid or CHIP coverage only, (2) “dual insurance” for children with both private insurance and Medicaid or CHIP coverage, (3) “other” for families reporting “other” types of health coverage for their child, and (4) “uninsured” for children without any health coverage.

Dependent Variables

This analysis assessed the relationship between a level of mental health needs in CSHCN and parent report of (1) unmet mental health care needs and (2) experiences with cost-related barriers to services, and the role of health insurance type in moderating this relationship.

Unmet Mental Health Care Need Drawn from NS-CSHCN data, Unmet Mental Health Care Need is a binary variable. The survey included the questions, “During the past 12 months was there any time when [your child] needed mental health care or counseling?” and “Did [your child] receive *all* the mental health care or counseling that [he/she]

needed?” If the respondent answered “yes” to the first question and then “no” to the second question, this variable was coded as “1” for the observation. Otherwise, it was coded as “0”.

Delays or Challenges in Obtaining Services Due to Cost Also drawn from NS-CSHCN data, Delays or Challenges in Obtaining Services Due to Cost is a binary variable as well. The survey included the question, “In the past 12 months, did you experience any difficulties or delays in accessing care because of issues related to costs?” If the family answered “yes” to this question, the observation was coded as a “1” for this variable. If the family answered “no,” it was coded as a “0.”

Control Variables

Child and Family Level

Child and family control variables were drawn from the NS-CSHCN and included the following child sociodemographic variables: child’s race/ethnicity (White only, Black Only, Hispanic-Black or White, and Other), child’s sex (male or female), age (0 to 3 years, 4 to 12 years, and 3 to 17 years), the income level of the family (0–99% FPL, 100–199% FPL, 200–299% FPL, 300–399% FPL and 400% FPL or greater), and parental education level (less than high school, high school graduate, and more than high school). Household structure was controlled for through the use of a categorical variable with the following levels: CSHCN living in two-parent biological or adoptive families, CSHCN living in two-parent families with at least one step-parent, CSHCN living in mother-only families with no father present, or CSHCN living in other family structures.

State Level Additional variables were included in models to control for state-level factors that could be linked to coverage differences and to greater infrastructure for mental health care for CSHCNs and their families.

Total State Mental Health Authority expenditures and ambulatory revenues. Because state investment in mental health care has been linked to total mental health care access in previous studies (Ng et al. 2015; Snowden et al. 2008), Total State Mental Health Authority Expenditures and Ambulatory Revenues were included in both models. This data, for each state, was drawn from the 2009 Centers for Mental Health Services (CMHS) Uniform Reporting System reports.

Total state child mental health facilities. To control for available mental health treatment infrastructure, which is associated with coverage and access (Cook et al. 2013), the total number of mental health providers and facilities was also included in the models. This data was derived from The

Substance Abuse and Mental Health Data Archive's (SAMHDA) National Mental Health Services Survey (N-MHSS) from 2010. The total number of mental health facilities and providers who served children was counted for each state and included in the dataset.

Total state population and number of children living at or below 400% of the FPL. Drawn from 2010 U.S. Census data, these variables are included to control for variation in state demographics which may driver greater investment in coverage and public healthcare for children and the accessibility of services to average family consumers.

Total Medicaid expenditures per child. Drawn from the Kaiser Family Foundation State Health Facts, these estimates are based on analysis of data from the 2014 Medicaid Statistical Information System (MSIS) and the Urban Institute estimates from CMS-64 reports. They include both state and federal payments to Medicaid for services provided to children in each state, ages 18 years and under, in the 2014 fiscal calendar year. This variable was included to further control for state investment in children's healthcare, which may impact accessibility to services via enhanced reimbursement rates and the larger provider networks that may result.

Data Preparation and Analysis

The NS-CSHCN of 2009/2010 includes imputed data for household structure, race, and household income. Detailed information about imputation methodology and raw datasets are available through the Centers for Disease Control (www.cdc.gov/nchs/slaits/imputed_data.htm). As a result, there was no missing data for any of the variables utilized in this analysis. However, for three variables (sex, unmet mental health need and cost barriers to care), there was a small number in the sample who reported "Don't Know" or "Refused to Answer." These observations were left out of the descriptive and regression analysis. For this reason, 110 observations were dropped from models examining unmet mental health care need, and 29 observations were dropped from models examining cost barriers to care. Because of "Don't Know" or "Refused" answers for the sex variable, 70 observations were excluded from all models. Analysis included data from all 50 states, but did not include Washington D.C.

Descriptive analysis identified key characteristics of each sub-population in the sample: youth with special healthcare needs and no EBDP, youth with EBDP, and youth with SED. Bivariate associations were inspected using Pearson's Chi square tests and of independence and t-tests for each sub-population, examining proportional differences (child-level binary variables) and linear regressions (state-level continuous variables) between each predictor variable and parent

report of unmet mental health needs and cost barriers to services.

To (1) assess the odds of parents reporting unmet mental health need and encountering financial barriers to care for CSHCN with and without EBDP and those who are SED, and (2) to determine the moderating effects of health insurance type on this relationship for each group of children, two random effects generalized linear regression models were fit, where child observations were nested within states. One model estimated the relationship between the severity of the child's mental health needs by regressing parent report of unmet mental health need on the mental health need of the child (no EBDP, EBDP, or SED) interacted with their type of health insurance. A second model regressed parent report of encountering cost barriers to services on the same predictor variables and controls. Both models controlled for sociodemographic variables and incorporated survey sampling weights. The interaction term assessed the joint effect of a child's type of health insurance coverage (public, private, dual, or no insurance) with their level of clinical need.

To aid in the interpretation of the effect size associated with interaction variables, means of adjusted predicted probabilities were assessed for each subgroup according to their insurance coverage. The mean predicted probabilities for each subgroup with private insurance was compared with each of the other insurance types for each subgroup, and differences were assessed using two sampled t-tests. Analysis was conducted in Stata 16 MP.

States differ widely in many aspects integral to this study, and random intercept modeling is implemented here, as is often done when individuals are nested in states, counties, or other groupings, because it accounts for the between-state variation. Between-state variation leads to correlations between observations within the same state which violates assumptions of standard regression approaches. Multi-level modeling adjusts for this non-independence and provides an estimate of between-state variance and within-state correlation.

Results

The demographic variables from the NS-CSHCN sample are presented in Table 1, categorized by mental health need (no EBDP, EBDP, and SED). The majority of youth in the sample are white, covered by private insurance or public insurance, and are between the ages of 4 and 12 years old. The majority of families in the sample live in two-parent blended families and have a parent with more than high school-level education.

All state level variables were rescaled to the extent that model specification in would allow, thus statistics for these

Table 1 Sample characteristics by EBDP and SED

| | No EBDP (n=27,350) | | EBDP (n=7588) | | SED (n=4553) | |
|-------------------------------|-----------------------|----------------------------|------------------|----------------------------|-----------------|----------------------------|
| | n | Weighted proportion (%) | n | Weighted proportion (%) | n | Weighted proportion (%) |
| Insurance type | | | | | | |
| Private | 17,521 | 38 | 3547 | 8 | 1760 | 4 |
| Public | 6477 | 21 | 2856 | 8 | 1769 | 5 |
| Dual | 1505 | 4 | 610 | 2 | 737 | 2 |
| Other | 1021 | 2 | 261 | 1 | 129 | 0 |
| Uninsured | 759 | 2 | 248 | 1 | 130 | 0 |
| Household income | | | | | | |
| 0–99% FPL | 4023 | 14 | 1686 | 5 | 1007 | 3 |
| 100–99% FPL | 4972 | 14 | 1639 | 5 | 987 | 3 |
| 200–299% FPL | 4621 | 11 | 1287 | 3 | 771 | 2 |
| 300–399% FPL | 4216 | 9 | 948 | 2 | 580 | 1 |
| 400% FPL and over | 9484 | 20 | 1980 | 4 | 1187 | 3 |
| Parent education level | | | | | | |
| Less than High School | 1266 | 7 | 546 | 3 | 279 | 2 |
| High School | 3795 | 13 | 1355 | 4 | 710 | 2 |
| More than High School | 22,255 | 48 | 5639 | 12 | 3543 | 8 |
| Adults in household | | | | | | |
| One | 3105 | 11 | 1388 | 5 | 748 | 3 |
| Two | 18,534 | 44 | 4573 | 11 | 2807 | 7 |
| Three | 3971 | 9 | 1085 | 3 | 666 | 2 |
| Four | 1508 | 4 | 433 | 1 | 284 | 1 |
| Age group | | | | | | |
| 0 through 3 years | 3053 | 9 | 207 | 1 | 317 | 1 |
| 4 through 12 years | 14,920 | 37 | 4357 | 11 | 2655 | 7 |
| 13 through 17 years | 9343 | 22 | 2976 | 8 | 1560 | 4 |
| Sex | | | | | | |
| Male | 15,672 | 39 | 4836 | 12 | 3130 | 8 |
| Female | 11,592 | 29 | 2694 | 7 | 1395 | 4 |
| Race | | | | | | |
| White | 19,322 | 40 | 5215 | 12 | 3131 | 7 |
| Black Only | 2516 | 11 | 697 | 3 | 398 | 2 |
| Hispanic (Black or White) | 2964 | 11 | 895 | 3 | 547 | 2 |
| Other | 2514 | 5 | 733 | 2 | 456 | 1 |

variables may be extremely large or small. State level variables are summarized in Table 2.

Tables 3 reports results from bivariate analysis between all model variables and parent report of unmet mental health need and encountering cost barriers to care, respectively, stratified by severity of mental health need. For all levels of mental health need, insurance type and family income are significantly associated with parent report of both unmet mental health need and cost barriers to services, and parent education level is associated with report of cost barriers to care. For all levels of need, too, race/ethnicity is significantly associated with parent report of cost barriers to services.

Table 4 presents results from bivariate analysis of state level control variables and unmet mental health needs and cost barriers to care for each population: CSHCNs without EBDP, those with EBDP, and those with EBDP and functional limitations (SED). For CSHCNs without EBDP, state population size and the number of children living below 400% of the FPL significantly predicts reductions in the odds of parents reporting unmet mental health needs, and increases in the odds of parents of children with SED reporting cost barriers to care. For CSHCNs without EBDP, the number of mental health facilities in a state, total mental health authority expenditures and ambulatory

Table 2 State level variables characteristics

| | Mean | SD | Min | Max |
|---|-----------|----------|-----------|-----------|
| MH facilities per state | 209.10 | 176.05 | 30.00 | 927.00 |
| Total state MH expenditures ^a | \$692.49 | \$981.76 | \$50.23 | \$4888.70 |
| State median income ^b | \$4.97 | \$0.79 | \$3.70 | \$6.89 |
| Total state MH ambulatory revenues ^a | \$479.44 | \$724.24 | \$21.68 | \$3860.35 |
| Total state population ^c | 62.76 | 68.78 | 5.44 | 369.62 |
| Total number of children in state below 400% FPL ^c | \$25.76 | \$28.76 | \$2.42 | \$155.06 |
| Total state medicaid expenditures per child | \$2630.77 | \$783.11 | \$1594.00 | \$5193.00 |

^aIn millions^bIn tens of thousands^cIn hundreds of thousands

revenues are significantly related to parent report of cost barriers to care.

Table 5 displays results from multivariable logistic regression assessing the relationship between mental health need by health insurance type and parent report of unmet mental health needs and experiencing financial obstacles to services. When compared to similar CSHCNs without EBDP, parents of children with EBDP and SED are significantly more likely to report unmet mental health care needs and cost barriers to care (OR unmet need = 12.16, 17.09, and OR cost barriers = 2.37, 5.77, respectively). Further, higher household incomes are associated with reduced odds of reporting both unmet mental healthcare needs and cost barriers to services, but increasing age of the CSHCN is associated with increased odds of both. Parents living in two-parent blended families or single-parent families are less likely to report cost-barriers to services.

The interaction variable shows that for children with SED, having public insurance reduces the odds of parents reporting unmet mental health need by over 40% when compared to similar children with private health coverage. Similarly, for children with EBDP and SED, having public insurance, dual health coverage (public and private insurance), or “other” coverage decreases their odds of reported unmet mental health needs and cost barriers to services by 43 to 60%. For example, a CSHCN with EBDP is 2.37 times more likely to report an encounter with cost barriers to needed services than a CSHCN without EBDP (OR 2.37). However, when a CSHCN with EBDP has public health coverage, their odds of reporting cost barriers to services is reduced by 47% (OR 0.53). This means that for a CSHCN with EBDP with public health coverage, their odds of reporting cost barriers to care are almost 50% lower than for a similar youth with private insurance (Buis, 2010). For a CSHCN with SED, having public health coverage reduces their odds of reported cost barriers to services by 64% (OR 0.36) when compared to similar youth with private insurance.

Table 6 reports the mean adjusted predicted probabilities for each subgroup, according to their insurance coverage

type. Results from two sample t-tests comparing the mean adjusted predicted probabilities for each subgroup of each non-private insurance type with that of the each subgroup with private insurance are reported in p-values. All differences are statistically significant. For youth with SED with public or dual insurance, probabilities of reported unmet need and cost barriers to care are lower than those of similar youth with private insurance. For youth with EBDP who are publicly or dually insured, probabilities of reported cost barriers to care are lower than those of similar youth with private insurance.

Discussion

In this study, among children with special healthcare needs with private insurance, parents of those with EBDP and SED are significantly more likely to report unmet mental health needs and financial barriers to services for their child than parents of CSHCN with no EBDP. However, for parents of children with EBDP, having public health coverage is associated with 50% lower odds of reporting cost barriers to services than parents of similar youth who have private insurance. Further, for parents of children with SED—when compared to similar families with private insurance—having public insurance is associated with a 50% reduction in their odds of reporting unmet mental health care needs and a 64% reduction in the odds that they will report financial obstacles to obtaining care. These findings are consistent with existing research that demonstrates greater unmet mental health needs among CSHCN with EBDP, and that it is greatest in CSHCN with complex EBDP (Derigne et al. 2009; Inkelas et al. 2007). The study also reinforces existing knowledge that public insurance for these youth is associated with reductions in reports of unmet mental health needs, easier access to care, and reduced care-related cost burdens for families (Busch and Barry 2009; Nageswaran et al. 2011).

This study contributes new knowledge by reporting the significant associations between both insurance coverage

Table 3 Bivariate analysis of CSHCN with and without EBDP and SED and parent report of unmet mental health needs and cost barriers to care

| | No EBDP | | | | EBDP | | | SED | | | | |
|---------------------------|------------------------------|---------------------------|------|----------|------------------------------|---------------------------|----------|------------------------------|---------------------------|----------|-----|-----|
| | No unmet mental health needs | Unmet mental health needs | | <i>p</i> | No unmet mental health needs | Unmet mental health needs | <i>p</i> | No unmet mental health needs | Unmet mental health needs | <i>p</i> | | |
| Insurance type | | | | 0.01 | | | 0.00 | | | 0.00 | | |
| Private | 17,380 | 56% | 141 | 1% | 3182 | 36% | 365 | 5% | 1529 | 29% | 231 | 5% |
| Public | 6369 | 30% | 108 | 1% | 2460 | 34% | 396 | 7% | 1528 | 37% | 241 | 6% |
| Dual | 1485 | 6% | 20 | 0% | 547 | 8% | 63 | 1% | 679 | 14% | 58 | 2% |
| Other | 1010 | 3% | 11 | 0% | 232 | 3% | 29 | 1% | 111 | 2% | 18 | 0% |
| Uninsured | 735 | 3% | 24 | 0% | 169 | 2% | 79 | 1% | 93 | 2% | 37 | 1% |
| Household income | | | | 0.03 | | | 0.03 | | | 0.04 | | |
| 0–99% FPL | 3950 | 19% | 73 | 0% | 1436 | 23% | 250 | 5% | 877 | 23% | 130 | 4% |
| 100–199% FPL | 4890 | 21% | 82 | 0% | 1394 | 19% | 245 | 4% | 837 | 19% | 150 | 4% |
| 200–299% FPL | 4558 | 16% | 63 | 0% | 1114 | 13% | 173 | 2% | 656 | 13% | 115 | 3% |
| 300–399% FPL | 4183 | 13% | 33 | 0% | 836 | 9% | 112 | 2% | 510 | 9% | 70 | 1% |
| 400% FPL and over | 9430 | 29% | 54 | 0% | 1826 | 20% | 154 | 2% | 1067 | 20% | 120 | 3% |
| Parent education level | | | | 0.86 | | | 0.10 | | | 0.58 | | |
| Less than high school | 1250 | 10% | 16 | 0% | 478 | 11% | 68 | 3% | 246 | 11% | 33 | 2% |
| High School | 3756 | 19% | 39 | 0% | 1191 | 19% | 164 | 3% | 629 | 17% | 81 | 3% |
| More than high school | 22,005 | 70% | 250 | 1% | 4937 | 54% | 702 | 10% | 3072 | 57% | 471 | 11% |
| Adults in household | | | | 0.18 | | | 0.01 | | | 0.43 | | |
| One | 3043 | 16% | 62 | 0% | 1152 | 19% | 236 | 4% | 615 | 17% | 133 | 3% |
| Two | 18,364 | 64% | 170 | 1% | 4079 | 48% | 494 | 7% | 2489 | 50% | 318 | 8% |
| Three | 3923 | 13% | 48 | 0% | 952 | 12% | 133 | 2% | 575 | 12% | 91 | 2% |
| Four | 1486 | 6% | 22 | 0% | 369 | 5% | 64 | 1% | 248 | 5% | 36 | 1% |
| Age group | | | | 0.00 | | | 0.25 | | | 0.00 | | |
| 0 through 3 years | 3049 | 14% | 4 | 0% | 192 | 3% | 15 | 0% | 308 | 8% | 9 | 0% |
| 4 through 12 years | 14,759 | 54% | 161 | 1% | 3853 | 49% | 504 | 8% | 2324 | 50% | 331 | 7% |
| 13 through 17 years | 9203 | 31% | 140 | 78% | 2561 | 33% | 415 | 7% | 1315 | 27% | 245 | 7% |
| Sex | | | | 0.31 | | | 0.03 | | | 0.02 | | |
| Male | 15,511 | 56% | 161 | 1% | 4271 | 53% | 565 | 8% | 2738 | 57% | 392 | 10% |
| Female | 11,448 | 42% | 144 | 1% | 2326 | 31% | 368 | 7% | 1203 | 27% | 192 | 5% |
| Race | | | | 0.44 | | | 0.12 | | | 0.56 | | |
| White | 19,125 | 58% | 197 | 1% | 4614 | 51% | 601 | 8% | 2740 | 50% | 391 | 9% |
| Black only | 2486 | 16% | 30 | 0% | 600 | 12% | 97 | 3% | 345 | 12% | 53 | 2% |
| Hispanic (Black or White) | 2920 | 16% | 44 | 0% | 771 | 14% | 124 | 3% | 473 | 16% | 74 | 2% |
| Other | 2480 | 8% | 34 | 0% | 621 | 7% | 112 | 1% | 389 | 7% | 67 | 1% |
| | | | | | | | | | | | | |
| | No EBDP | | | | EBDP | | | SED | | | | |
| | No cost barriers | Cost barriers | | <i>p</i> | No cost barriers | Cost barriers | <i>p</i> | No cost barriers | Cost barriers | <i>p</i> | | |
| Insurance type | | | | 0.00 | | | 0.00 | | | 0.00 | | |
| Private | 16,264 | 52% | 1268 | 5% | 2972 | 34% | 594 | 8% | 1224 | 23% | 540 | 12% |
| Public | 5720 | 27% | 763 | 4% | 2475 | 35% | 394 | 7% | 1383 | 33% | 395 | 11% |
| Dual | 1343 | 5% | 164 | 1% | 533 | 8% | 80 | 1% | 564 | 12% | 176 | 4% |
| Other | 877 | 3% | 143 | 0% | 211 | 3% | 51 | 1% | 86 | 2% | 43 | 1% |
| Uninsured | 414 | 2% | 345 | 2% | 104 | 1% | 146 | 2% | 38 | 1% | 94 | 3% |
| Household income | | | | 0.00 | | | 0.00 | | | 0.01 | | |
| 0–99% FPL | 3488 | 17% | 539 | 3% | 1419 | 23% | 280 | 5% | 779 | 21% | 234 | 6% |
| 100–199% FPL | 4196 | 18% | 780 | 3% | 1320 | 18% | 329 | 5% | 683 | 16% | 305 | 7% |
| 200–299% FPL | 4036 | 14% | 591 | 2% | 1022 | 12% | 269 | 4% | 528 | 11% | 248 | 6% |

Table 3 (continued)

| | No EBDP | | | | EBDP | | | | SED | | | |
|---------------------------|------------------|-----|---------------|------|------------------|-----|---------------|------|------------------|-----|---------------|------|
| | No cost barriers | | Cost barriers | | No cost barriers | | Cost barriers | | No cost barriers | | Cost barriers | |
| 300–399% FPL | 3866 | 12% | 352 | 1% | 791 | 9% | 162 | 2% | 412 | 7% | 170 | 4% |
| 400% FPL and over | 9060 | 28% | 427 | 2% | 1757 | 20% | 229 | 3% | 898 | 16% | 293 | 7% |
| Parent education level | | | | 0.04 | | | | 0.05 | | | | 0.01 |
| Less than high school | 1126 | 9% | 140 | 1% | 471 | 12% | 81 | 2% | 223 | 10% | 57 | 3% |
| High School | 3344 | 17% | 455 | 2% | 1171 | 19% | 192 | 3% | 555 | 15% | 160 | 4% |
| More than high school | 20,176 | 63% | 2094 | 7% | 4667 | 51% | 996 | 13% | 2522 | 45% | 1033 | 23% |
| Adults in household | | | | 0.00 | | | | 0.03 | | | | 0.28 |
| One | 2690 | 14% | 418 | 3% | 1119 | 18% | 275 | 5% | 554 | 15% | 198 | 5% |
| Two | 16,893 | 58% | 1653 | 6% | 3856 | 46% | 739 | 10% | 2023 | 40% | 794 | 19% |
| Three | 3561 | 12% | 414 | 2% | 928 | 12% | 166 | 2% | 493 | 10% | 175 | 4% |
| Four | 1326 | 5% | 182 | 1% | 353 | 5% | 81 | 1% | 211 | 5% | 74 | 2% |
| Age group | | | | 0.01 | | | | 0.10 | | | | 0.46 |
| 0 through 3 years | 2809 | 13% | 245 | 1% | 182 | 3% | 25 | 0% | 249 | 6% | 70 | 2% |
| 4 through 12 years | 13,412 | 48% | 1518 | 6% | 3669 | 46% | 708 | 10% | 1907 | 40% | 755 | 17% |
| 13 through 17 years | 8425 | 28% | 926 | 4% | 2458 | 32% | 536 | 8% | 1144 | 24% | 425 | 10% |
| Sex | | | | 0.16 | | | | 0.96 | | | | 0.10 |
| Male | 14,195 | 51% | 1493 | 6% | 4059 | 50% | 801 | 11% | 2241 | 46% | 898 | 21% |
| Female | 10,403 | 38% | 1192 | 5% | 2243 | 31% | 465 | 7% | 1054 | 24% | 350 | 9% |
| Race | | | | 0.01 | | | | 0.01 | | | | 0.03 |
| White | 17,602 | 53% | 1734 | 6% | 4395 | 50% | 847 | 10% | 2253 | 40% | 890 | 19% |
| Black only | 2236 | 15% | 284 | 2% | 589 | 13% | 113 | 2% | 316 | 11% | 84 | 3% |
| Hispanic (Black or White) | 2587 | 14% | 374 | 2% | 723 | 13% | 179 | 4% | 405 | 13% | 145 | 5% |
| Other | 2221 | 7% | 297 | 1% | 602 | 6% | 130 | 2% | 326 | 5% | 131 | 3% |

Data represent weighted proportions of sample; *p* value represents significance of Pearson's Chi squared F test statistic

type and parent reports of cost barriers to care, and distinguishing the strength of this association between youth with and without EBDP and youth with SED. This study highlights how financial barriers differ by the functional ability of children and how commercial insurance versus public insurance may be linked to reductions in these types of challenges more or less effectively. Findings suggest that for CSHCNs who have EBDP with functional limitations, public insurance may be particularly instrumental in facilitating service delivery and minimizing financial barriers to accessing treatment. This knowledge contributes to a previously neglected area of inquiry on functional impairment in relation to structural barriers to mental health service access (Miller 2014; Owens et al. 2002; Popescu et al. 2015; Stiffman et al. 2000; Varda et al. 2016; Walker et al. 2015; Wilson et al. 2014).

Public Insurance and Unmet Mental Health Care Needs

Overall, when functional impairment was present, the odds of reporting unmet mental health need were reduced for

publicly insured children compared to privately insured children. This may reflect the richer service array available through the public mental health system more adequately meeting the needs of children with complex mental health concerns. However, for children with EBDP without functional impairment, public insurance is not significantly associated with reductions in the odds of parent-reported unmet mental health care needs when compared with CSHCN without EBDP, or with similar privately insured youth. This finding may be due to the possibility that publicly insured children's mental health problems are greater in unmeasured ways than privately insured children's (Bringewatt and Gershoff 2010), or because fewer treatment options or providers are available for publicly insured children with less complex mental health care needs (Holgash and Heberlein 2019). Public sector programs often prioritize more seriously ill children with referrals from child welfare, educational, and criminal justice sources (Costello et al. 2014; Grape et al. 2013; Merikangas et al. 2010), while higher functioning children may find fewer treatment resources available, may not qualify for more intensive services, or may only qualify for them for a shorter duration. Greater specialization of

Table 4 Bivariate analysis of state level variables and unmet mental health needs and cost barriers to care

| | Unmet mental health needs | | | | | | Cost barriers to care | | | | | |
|---|---------------------------|------|-------------|------|-------------|------|-----------------------|------|-------------|------|-------------|------|
| | No EBDP | | EBDP | | SED | | No EBDP | | EBDP | | SED | |
| | β | p | β | p | β | p | β | p | β | p | β | p |
| MH facilities per state | -0.00009120 | 0.82 | -0.00000962 | 0.98 | -0.00025020 | 0.50 | -0.00046950 | 0.01 | -0.00004570 | 0.88 | 0.00040060 | 0.22 |
| Total state MH expenditures ^a | -0.00005710 | 0.42 | -0.00001980 | 0.71 | -0.00006450 | 0.31 | -0.00008830 | 0.01 | -0.00000341 | 0.94 | 0.00003440 | 0.51 |
| State median income ^b | -0.03583950 | 0.77 | 0.06853050 | 0.31 | -0.10629630 | 0.26 | -0.05397800 | 0.20 | 0.00115370 | 0.99 | 0.11920180 | 0.11 |
| Total state MH ambulatory revenues ^a | -0.00004430 | 0.64 | -0.00003610 | 0.63 | -0.00008640 | 0.32 | -0.00012180 | 0.01 | 0.00000025 | 1.00 | 0.00007720 | 0.28 |
| Total state population ^c | -0.00150110 | 0.18 | 0.00072940 | 0.34 | 0.00015730 | 0.86 | 0.00037430 | 0.41 | 0.00083560 | 0.23 | 0.00170710 | 0.03 |
| Total number of children in state below 400% FPL ^c | -0.00000004 | 0.18 | 0.00000002 | 0.35 | 0.00000000 | 0.91 | 0.00000001 | 0.52 | 0.00000002 | 0.29 | 0.00000004 | 0.03 |
| Total state Medicaid expenditures per child | -0.00012490 | 0.44 | -0.00013090 | 0.16 | 0.00017520 | 0.11 | 0.00007620 | 0.20 | -0.00011880 | 0.13 | -0.00012250 | 0.18 |

^aIn millions

^bIn tens of thousands

^cIn hundreds of thousands

services within the public sector for children with severe needs may leave fewer options for less disabled children.

Public Insurance and Cost Barriers to Care

For CSHCN with EBDP—both with and without functional impairment—public coverage was associated with reduced odds of parent report of encountering financial obstacles to needed care. Children with dual health coverage, and those with “other” types of insurance, shared in reduced odds of reported cost barriers. Thus, whether provided alone or in conjunction with private coverage, public coverage is strongly associated with reduced odds of reported cost barriers for children with EBDP, both with and without functional limitations. However, for children with SED, public insurance is associated with a greater reduction in the odds of reported cost barriers to services than that of youth with EBDP alone. These reductions in the odds of reported cost-barriers to care when comparing public health insurance with private may reflect greater coverage under public insurance for functionally-impaired mentally ill children. SED brings about higher levels of service needs, requiring a treatment array that is broader and includes more intensive forms of care (Stroul 1993). Especially for these children, private plans do not cover many needed services. Public coverage affords access to a wider array of more intensive services and, by paying for them, protects parents from greater out-of-pocket expenses (Graaf and Snowden 2019).

The greater reduction in reported cost barriers to services for youth with SED may also reflect parents seeking public coverage for these children in order to gain access to richer service programs offered to publicly insured children. This study found that dually insured families with EBDP and SED were less likely to report experiencing cost barriers to care than families with private coverage alone. This suggests the possibility that although the child was covered under a commercial health insurance plan, parents or providers sought the wider services array and more generous coverage provided by public sources.

Medicaid waiver programs and the TEFRA Medicaid option are both policies adopted by some states that expand the financial eligibility limits for Medicaid coverage for children with significant medical or behavioral health needs. Children in these programs may maintain their private coverage in addition to gaining public coverage. Medicaid waiver programs also provide an additional set of HCBS aimed at the specific needs of the population with complex needs. Many states offer such programs for youth with complex behavioral healthcare needs (Graaf and Snowden 2017). The more significant need represented in CSHCN with EBDP and functional limitations may help to make such children eligible for these programs, resulting in coverage under both

Table 5 Multivariable logistic regression results: Factors associated with unmet health care needs and delays in accessing care due to costs with interactions between insurance type and severity

| | Multivariable logistic regression results: factors associated with unmet mental health need in children with special health care needs | | | | | | Multivariable logistic regression results: factors associated with cost barriers to care for children with special health care needs | | | | | |
|------------------------------------|---|----------------|-------|------|--------|-------|--|----------------|------|------|--------|-------|
| | β | SE (β) | OR | p>t | 95% CI | | β | SE (β) | OR | p>t | 95% CI | |
| Insurance type | | | | | | | | | | | | |
| Private | Ref. | | | | | | Ref. | | | | | |
| Public | 0.50 | 0.18 | 1.65 | 0.01 | 1.16 | 2.36 | 0.28 | 0.15 | 1.33 | 0.06 | 0.99 | 1.78 |
| Dual | -0.47 | 0.52 | 0.63 | 0.37 | 0.23 | 1.74 | 0.19 | 0.17 | 1.21 | 0.26 | 0.87 | 1.68 |
| Other | -0.27 | 0.55 | 0.76 | 0.62 | 0.26 | 2.25 | 0.56 | 0.23 | 1.75 | 0.01 | 1.12 | 2.73 |
| Uninsured | 0.84 | 0.28 | 2.31 | 0.00 | 1.33 | 4.01 | 2.05 | 0.17 | 7.80 | 0.00 | 5.62 | 10.83 |
| Severity | | | | | | | | | | | | |
| No EBDP | Ref. | | | | | | Ref. | | | | | |
| EBDP | 2.50 | 0.19 | 12.16 | 0.00 | 8.39 | 17.61 | 0.86 | 0.09 | 2.37 | 0.00 | 1.98 | 2.83 |
| SED | 2.84 | 0.15 | 17.09 | 0.00 | 12.67 | 23.05 | 1.75 | 0.12 | 5.77 | 0.00 | 4.52 | 7.36 |
| Insurance type and severity | | | | | | | | | | | | |
| Public insurance and EBDP | -0.18 | 0.24 | 0.83 | 0.45 | 0.52 | 1.34 | -0.63 | 0.12 | 0.53 | 0.00 | 0.42 | 0.67 |
| Public insurance and SED | -0.69 | 0.17 | 0.50 | 0.00 | 0.36 | 0.69 | -1.03 | 0.15 | 0.36 | 0.00 | 0.27 | 0.48 |
| Dual insurance and EBDP | 0.33 | 0.59 | 1.39 | 0.58 | 0.44 | 4.40 | -0.78 | 0.21 | 0.46 | 0.00 | 0.30 | 0.69 |
| Dual insurance and SED | -0.06 | 0.57 | 0.94 | 0.92 | 0.31 | 2.89 | -0.75 | 0.21 | 0.47 | 0.00 | 0.31 | 0.71 |
| Other insurance and EBDP | 0.64 | 0.93 | 1.90 | 0.49 | 0.31 | 11.76 | -0.52 | 0.42 | 0.60 | 0.22 | 0.26 | 1.35 |
| Other insurance and SED | -0.39 | 0.73 | 0.67 | 0.59 | 0.16 | 2.81 | -0.84 | 0.48 | 0.43 | 0.08 | 0.17 | 1.09 |
| Uninsured and EBDP | 0.47 | 0.46 | 1.59 | 0.31 | 0.65 | 3.91 | -0.19 | 0.20 | 0.83 | 0.33 | 0.56 | 1.22 |
| Uninsured and SED | 0.29 | 0.39 | 1.34 | 0.46 | 0.62 | 2.87 | -0.59 | 0.40 | 0.56 | 0.14 | 0.25 | 1.22 |
| Race | | | | | | | | | | | | |
| White only | Ref. | | | | | | Ref. | | | | | |
| Black only | 0.07 | 0.10 | 1.07 | 0.47 | 0.89 | 1.30 | -0.16 | 0.08 | 0.85 | 0.06 | 0.72 | 1.01 |
| Hispanic (Black or White) | -0.09 | 0.13 | 0.92 | 0.52 | 0.71 | 1.19 | -0.06 | 0.13 | 0.94 | 0.66 | 0.73 | 1.22 |
| Other | 0.00 | 0.23 | 1.00 | 0.98 | 0.64 | 1.58 | 0.13 | 0.07 | 1.14 | 0.05 | 1.00 | 1.30 |
| Household income | | | | | | | | | | | | |
| 0 to 99% FPL | Ref. | | | | | | Ref. | | | | | |
| 100 to 199% FPL | -0.07 | 0.14 | 0.93 | 0.63 | 0.71 | 1.23 | 0.16 | 0.14 | 1.17 | 0.24 | 0.90 | 1.53 |
| 200–299% FPL | 0.03 | 0.19 | 1.03 | 0.86 | 0.71 | 1.50 | 0.01 | 0.11 | 1.01 | 0.92 | 0.81 | 1.26 |
| 300–399% FPL | -0.24 | 0.17 | 0.79 | 0.16 | 0.56 | 1.10 | -0.25 | 0.16 | 0.78 | 0.11 | 0.58 | 1.06 |
| 400% FPL and over | -0.54 | 0.22 | 0.58 | 0.01 | 0.38 | 0.89 | -0.84 | 0.14 | 0.43 | 0.00 | 0.33 | 0.57 |
| Parent education level | | | | | | | | | | | | |
| Less than high school | Ref. | | | | | | Ref. | | | | | |
| High school | -0.22 | 0.19 | 0.80 | 0.24 | 0.55 | 1.16 | 0.06 | 0.13 | 1.06 | 0.66 | 0.82 | 1.36 |
| More than high school | 0.20 | 0.21 | 1.23 | 0.33 | 0.81 | 1.85 | 0.40 | 0.15 | 1.49 | 0.01 | 1.11 | 2.00 |
| Age group | | | | | | | | | | | | |
| 0–3 years | Ref. | | | | | | Ref. | | | | | |
| 4–12 years | 1.11 | 0.38 | 3.03 | 0.00 | 1.45 | 6.35 | 0.49 | 0.09 | 1.64 | 0.00 | 1.36 | 1.97 |
| 13 to 17 years | 1.40 | 0.36 | 4.04 | 0.00 | 1.98 | 8.25 | 0.52 | 0.11 | 1.69 | 0.00 | 1.36 | 2.09 |
| Sex | | | | | | | | | | | | |
| Male | Ref. | | | | | | Ref. | | | | | |
| Female | 0.17 | 0.07 | 1.18 | 0.02 | 1.03 | 1.36 | 0.04 | 0.04 | 1.04 | 0.31 | 0.96 | 1.13 |
| Adults in household | | | | | | | | | | | | |
| One | Ref. | | | | | | Ref. | | | | | |
| Two | -0.18 | 0.10 | 0.83 | 0.08 | 0.68 | 1.02 | -0.21 | 0.07 | 0.81 | 0.00 | 0.71 | 0.93 |
| Three | -0.10 | 0.12 | 0.91 | 0.40 | 0.72 | 1.14 | -0.23 | 0.10 | 0.80 | 0.02 | 0.66 | 0.96 |

Table 5 (continued)

| | Multivariable logistic regression results: factors associated with unmet mental health need in children with special health care needs | | | | | | Multivariable logistic regression results: factors associated with cost barriers to care for children with special health care needs | | | | | |
|--|---|--------|------|------|--------|------|--|--------|------|------|--------|------|
| | β | SE (β) | OR | p>t | 95% CI | | β | SE (β) | OR | p>t | 95% CI | |
| Four | 0.12 | 0.17 | 1.13 | 0.47 | 0.81 | 1.58 | -0.22 | 0.12 | 0.80 | 0.07 | 0.63 | 1.02 |
| State level controls | | | | | | | | | | | | |
| MH facilities per state | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 |
| Total state MH expenditures ^a | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.34 | 1.00 | 1.00 |
| State median income ^b | 0.12 | 0.06 | 1.13 | 0.05 | 1.00 | 1.28 | -0.02 | 0.01 | 0.98 | 0.16 | 0.96 | 1.01 |
| Total state MH ambulatory revenues ^a | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 |
| Total state population ^c | -0.01 | 0.00 | 0.99 | 0.07 | 0.98 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 |
| Total number of children in state below 400% FPL | 0.00 | 0.00 | 1.00 | 0.01 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 |
| Total state medicaid expenditures per child | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 | 1.00 |
| Intercept | -6.50 | 0.34 | 0.00 | 0.00 | 0.00 | 0.00 | -2.78 | 0.09 | 0.06 | 0.00 | 0.05 | 0.07 |

FPL federal household income

^aIn millions

^bIn tens of thousands

^cIn hundreds of thousands

Table 6 Predicted probabilities for insurance type predicting unmet mental health need and cost barriers to care

| | Adjusted Predicted Probabilities: Unmet Mental Health Need | | | | | | Adjusted Predicted Probabilities: Cost Barriers to Care | | | | | |
|---------|--|------|------|------|------|------|---|------|------|------|------|------|
| | No EBDP | p | EBDP | p | SED | p | No EBDP | p | EBDP | p | SED | p |
| Private | 0.01 | REF | 0.13 | REF | 0.17 | REF | 0.08 | REF | 0.18 | REF | 0.33 | REF |
| Public | 0.02 | 0.00 | 0.18 | 0.00 | 0.15 | 0.00 | 0.13 | 0.00 | 0.16 | 0.00 | 0.24 | 0.00 |
| Both | 0.01 | 0.00 | 0.13 | 0.02 | 0.11 | 0.00 | 0.11 | 0.00 | 0.13 | 0.00 | 0.24 | 0.00 |
| Other | 0.01 | 0.00 | 0.18 | 0.00 | 0.10 | 0.00 | 0.14 | 0.00 | 0.19 | 0.00 | 0.29 | 0.00 |
| None | 0.03 | 0.00 | 0.37 | 0.00 | 0.40 | 0.00 | 0.46 | 0.00 | 0.63 | 0.00 | 0.72 | 0.00 |

p-value represents significance of difference between predicted probabilities for private insurance and that of each other insurance type

private and public insurance and access to a broader array of mental health HCBS.

Private Health Coverage

For more and less impaired CSHCNs with EBDP, the strong association between private insurance coverage and significantly increased odds of reporting unmet mental health care needs and experiencing cost barriers to care may reflect private coverage’s restrictions (Busch and Barry 2009). Deductibles, copayments, and other cost sharing requirements by private insurance plans likely contribute to privately insured parents’ greater likelihood of reporting cost barrier to care (Thomas et al. 2016). Additionally, the narrower scope of benefits under private health coverage limits the range of mental health services available and invites out-of-pocket

spending in order to access to a wider range of treatment options or services of greater duration or frequency.

Limitations

These findings need to be considered in the context of several limitations related to study design and specificity of variables. First, this study is observational in design and, despite careful efforts at control, causal interpretation of association is not assured. Response variables, while obtained from a random sample, are based on parent self-report and rely on recall of experiences over the prior twelve-month period. Although somewhat inherently subjective—the presence of burdens and greater need for care are partly matters of personal interpretation—direct translation into objective measures including need for care and services obtained should

not be presumed (Beckles et al. 2007; Palmer et al. 2012; Short et al. 2009).

Other limitations exist in the lack of specificity of key variables. The use of public health coverage as a predictor variable presents the first challenge. In the NS-CSHCN, “public insurance” indicates both coverage under Medicaid and coverage under CHIP. In eight states, CHIP offers health benefits that are identical to Medicaid coverage, but CHIP is structured similarly to commercial insurance plans in the majority of states. Grouping these types of health coverage together may be muting the effects of Medicaid in relation to meeting needs for HCBS for youth in the sample. More precise scholarship that differentiates between CHIP coverage and Medicaid coverage is needed to clearly discern the relationship between insurance type and access to needed mental health care for these children.

Knowledge in this area would also be further advanced if similar research could assess these relationships with observations that were distinctly classified as having only an emotional or behavioral health problem (EBP), only a developmental problem (ASD/IDD), only a chronic medical condition, having both a chronic medical need and an EBP, or having both a chronic medical need and ASD/IDD. Because the systems that provide and finance care for these different populations are often distinct and varying in structure, funding, and policy—though children with complex and comorbid conditions are likely served across more than one service system simultaneously and over time—findings from an identical analysis may be different for each population.

Similarly, the inability to differentiate the source of functional limitations reported for youth with EBDP—whether such limitations were related to ASD/IDD, their medical condition, or their emotional or behavioral problem—may limit the applicability of the findings to specific populations. However, findings from this study may be broadly applied to the families served in public systems of care because in public mental health practice, CSHCNs present with many concerns resulting from comorbid conditions (Kessler et al. 2012; Pires et al. 2013), and often experience functional limitations that may be attributable to two or more of these conditions (Chavira et al. 2008; Combs-Orme et al. 2002; Simonoff et al. 2008).

Finally, this study looks at data and relationships between health insurance and behavioral health service access prior to the passage and implementation of the Affordable Care Act (2010). Because the ACA brought broad mandates requiring commercial insurers to provide coverage for behavioral health care, it is possible that if data were examined after 2010 finding would be different. After the ACA, associations between public coverage and reductions in the odds of reports of unmet mental health needs and financial barriers to behavioral health care might be lessened.

Conclusion

For youth with significant behavioral health needs, through a complex interplay of coverage source and severity of need, public coverage is linked with reductions in the odds of reported unmet mental health need and cost barriers to care. Public coverage appears to be especially advantageous for children and adolescents with complex emotional, behavioral, or developmental concerns. However, further research is needed to guide policy adjustments for better financial and programming support for children with SED and to fully understand structural pathways to reductions in unmet need and cost barriers to treatment.

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval This article does not contain any studies with human participants or animals performed by any of the authors.

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