

Individualized Education Program Development Among Racially/Ethnically Diverse Children and Adolescents with Health Conditions

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Abstract *Background* Black, Hispanic, and low income children bear a greater burden of chronic health conditions compared to wealthier white counterparts. Under federal law, schools provide services to children when their health conditions impair learning. These school services, called individualized education programs (IEPs) can reduce disparities in school outcomes. This paper examines the extent to which children with health conditions have an IEP plan, an important first step in understanding service utilization. *Method* Andersen’s Behavioral Model was used to examine IEP plan presence by using the 2012 National Survey of Children’s Health. School aged children (6–17), with at least one health condition (N = 16,496) were examined using multivariable logistic regression analysis to understand predisposing (age, sex, race/ethnicity), enabling (family and neighborhood), and need (health related) factors as predictors of having an IEP plan. Race/ethnicity interaction terms tested for moderating effects of race/ethnicity on the relationship between predisposing, enabling and need factors and having an IEP plan. *Results* Hispanic children were 93.4 % (OR = .066) less likely and Black children were 87.9 % (OR = .121) less likely to have an IEP plan compared to White children. Black, Hispanic, and Multiracial children were more likely to have an IEP plan if they had more family and neighborhood resources (OR range 1.37–1.62) and greater health needs and health care needs (OR range 1.29–2.57).

Conclusion The Behavioral Model was useful in predicting the presence of IEP plans among racially/ethnically diverse children with health conditions as an important step in understanding disparities in healthcare access in schools.

Keywords Race/ethnicity · School service use · Individualized education program · Andersen Behavioral Model

Significance

What is already known? Racial and ethnic minority children are at a disadvantage due to higher rates of health conditions and underutilization of health services. We know less about whether Black, Hispanic, and Multiracial children with health conditions also underutilize school services related to health and learning.

What does this study add? We found that Black, Hispanic, and Multiracial students are more likely to have an IEP plan in place when they had greater family resources, neighborhood resources, more comorbid health conditions, when their health condition was more severe, and when they had unmet health care needs compared to white children. We applied the Andersen Behavioral Model to predict whether students had access to school-based services under an IEP plan.

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Objective

Black and Hispanic children and children living in low income families bear a greater burden of chronic health conditions compared to their wealthier White counterparts (Flores and CPR 2010; Cheng et al. 2009; Flores and Lin

2013). For example, Puerto Rican American children Americans have an asthma rate that is double (13 %) that of white children (7 %) (Joseph et al. 2006). Black and Hispanic children have higher rates of type 2 diabetes (16 per 100,000 and 19 per 100,000 respectively) compared to White children (6 per 100,000) (Mayer-Davis et al. 2009). Black and Hispanic children have a greater propensity toward obesity with 24 % of Black youth, 23 % of Hispanic youth being obese compared to 13 % of White youth (Price et al. 2013). Compared to Whites, Black and Hispanic children and adolescents are also less likely to utilize health care services, tend to underutilize health services and have greater unmet needs for health care (Flores and Lin 2013; Mayer et al. 2004). For those children with special health care needs, minorities are more likely than Whites to be without a usual source of care and have greater unmet healthcare needs (Newacheck et al. 2002). Such health disparities persist through adolescence into adulthood causing long term difficulties (Braverman and Barclay 2009). One of the most important areas of a child's life is school, where children and adolescents spend 6–8 hours per day. Children may face barriers to learning due to the impact of their health condition (Basch 2011). These barriers might be felt more strongly among racial and ethnic minority students due to their higher rates of health conditions and unmet healthcare needs compared to Whites (Flores and Committee on Pediatric Research CPR 2010). Racial and ethnic minority students already experience lower rates of school success across most measures and having one or more health conditions adds to their educational challenges (Crosnoe 2006; Burchinal et al. 2011; Adams et al. 2012). Health is an important causal mechanism through which race/ethnicity and socioeconomic factors impact school success (Crosnoe 2006; Basch 2011; Hass 2006; Palloni 2006).

Federal law mandates that public schools provide educational services to children under the Individuals with Disabilities Education Act (IDEA) of 2004 if they meet the following criteria (USDOE 2015b); (a) have a mental or physical impairment that affects performance in a general education setting; (b) the impairment is persistent and substantially limiting to education; and (c) the impairment impacts major life activities (USDOE 2015b). Children access special school services, such as educational goal setting, identification of supplementary aids, and special needs accommodations (PL1080-446 2004), as part of individualized educational programs (IEP) designed to meet their individual learning needs (United States Department of Education 2000). Nationally, 13 % of school children with disabilities have an IEP plan in place to receive educational services specific to promoting health and learning (USDOE 2015a). It is assumed that utilization of these IEP services will reduce disparities in school

outcomes for disadvantaged students with health conditions, yet there is currently little known about the characteristics of the children (including race, ethnicity, sex or health conditions) that have an IEP plan in place to receive services in the schools (Shah 2012). This paper examines the extent to which children with health conditions have an IEP plan in place by drawing on a national secondary dataset, the National Survey of Children's Health (NSCH) 2011–2012.

Behavioral Model for IEP Service Use

We look to the Anderson Behavioral Model to understand predictors of having an IEP plan in place for children with health conditions (Andersen 1995; Andersen and Newman 2005), as it is widely used by researchers interested in understanding the influences on health service use (Babitsch et al. 2012). Having an IEP plan in place serves as the gateway to health service utilization; a student must first have an IEP plan before they can access the special education services under the plan. The Behavioral Model identifies three factors that influence whether a service is utilized which include; predisposing factors, enabling factors, and need factors (Fig. 1).

Predisposing factors generally include the individual student characteristics that increase the likelihood of having an IEP. Predisposing factors include age, race/ethnicity, and sex. Prior research indicates that racial/ethnic minority children with health conditions tend utilize fewer health services (Flores and Lin 2013), and this partly linked to issues of access. For example, there are sex differences in the diagnosis of certain health conditions, with boys more likely to be diagnosed with mental health problems like attention deficit/hyperactivity disorder (ADHD) and conduct disorder (Courtenay 2003). A diagnosis highlights the need for health services, and with boys more likely than girls to receive such diagnosis, they are granted better access to special school services oriented toward their mental health conditions.

Enabling factors are the conditions that make it easier for a child to engage in IEP use at school and in some cases ameliorate the negative effect of some predisposing factors, like race and sex. In general, families of children with access to more personal, economic and social resources are more likely to utilize health services (Ryan et al. 2015). Research indicates that a two parent family structure, higher income levels, higher levels of parent education, high levels of family functioning, more neighborhood amenities (i.e., sidewalks, parks/playgrounds, recreation centers, libraries), fewer neighborhood detractors (i.e., litter or garbage on the street, dilapidated housing), and being in supportive neighborhoods are all factors associated with higher school service utilization (Ryan et al. 2015;

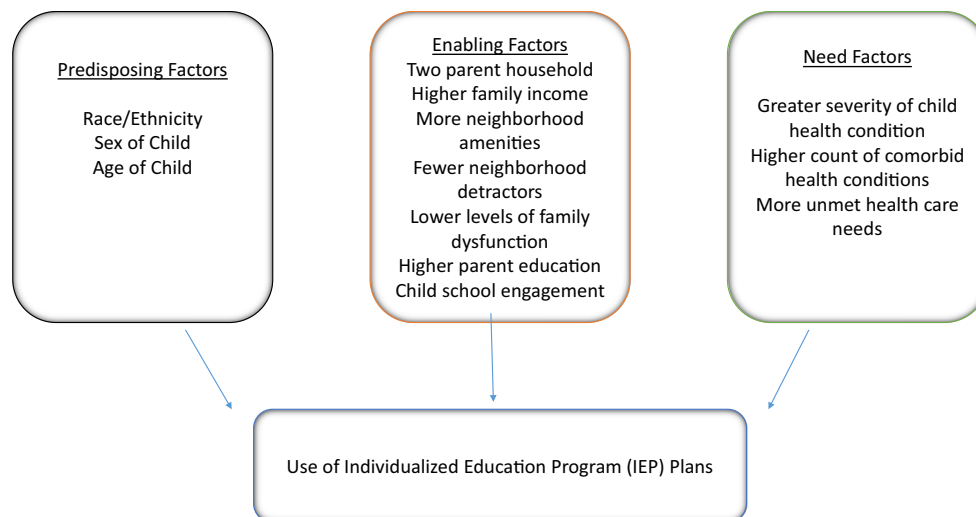


Fig. 1 Behavioral Model for use of individualized education program plans

Nanninga et al. 2014). Because we are looking at IEP service development for health conditions that interfere with learning, a child's level of school engagement could serve as an enabling factor.

Need factors are based on health conditions surrounding a child's illness that makes them eligible for IEP services. The number of comorbid health conditions is directly related to a student's needs in school and therefore should also be related to the development of an IEP plan. If a child has a condition (or set of conditions) that is more severe, we would expect IEP plan development to be greater than for children with less severe health conditions. If a child has unmet health care needs, they may be more likely to turn to the school for IEP services related to their health when other avenues for accessing care are unavailable.

This study contributes to the literature in 3 important ways. First, we examine differences in individualized education program (IEP) development among students with a current health condition (and thus, presumed healthcare needs). Past research has examined the use of school mental health services available for adolescents with mental health conditions (Green et al. 2013), or school based healthcare focused on mental and reproductive health (Mason-Jones et al. 2012), but to our knowledge, none have examined the utilization through the lens of individualized education program development. To better understand service utilization, we first need to understand disparities in access to these services, including differences among those students with an IEP plan in place versus those without. Second, we apply a widely used Behavioral Model of service utilization to guide the analysis. In the past the Anderson Behavioral Model has been used to examine fee-for-service healthcare utilization that required caregiver transport to an external location. This study uses

the Anderson Behavioral Model to examine federally mandated IEP services that are free to qualified students and delivered at the educational site. Predisposing, enabling, and need factors are likely to influence IEP plan development. To this end, we will examine potential disparities IEP plan development by examining the moderating effect of race/ethnicity on the relationship between enabling and need factors and the likelihood of having an IEP plan in place. Finally, there is an identified disparity in the utilization of health services among racially/ethnically diverse children, but little is known of whether this disparity exists in the use of IEP services in the classroom. But to get there, we must first understand who has an IEP plan in place and what set of conditions make a student more or less likely to have an IEP.

Methods

Data

We used the National Survey of Children's Health (NSCH) 2011–2012 which consisted of 95,677 phone interviews, using random digit dialing, to obtain a random sample of household phone numbers with children ages 0–17 (Child and Adolescent Health Measurement Initiative 2012). In each household, a random child was selected to be the sample child, and the parent or adult that had the most knowledge of the sampled child's health was interviewed. Interviews were conducted between February 28, 2011 and June 25, 2012. From the overall sample, a sub-sample of school-aged children (6–17), with at least one health condition named in Table 1, were selected for final analysis. The final analytic sample contained 16,496 children. This

Table 1 Child health conditions specified by the national survey of children's health

Attention deficit disorder or attention deficit hyperactive disorder	Tourette syndrome
Depression	Asthma
Anxiety problems	Diabetes
Behavior or conduct problems	Epilepsy or seizure disorder
Autism, Asperger's disorder, pervasive developmental disorder, or other autism spectrum disorder	Vision problems that cannot be corrected with standard glasses or contact lenses
Any developmental delay	Hearing problems
Intellectual disability or mental retardation	Bone, joint, or muscle problems
Cerebral palsy	A brain injury or concussion
Speech or other language problems	

research was approved by the University of Central Florida as a non-human protocol IRB (SBE-15-11229).

Variables

Dependent Variable—IEP Service Use

Parents were asked “Does your child have a health problem, condition or disability for which they have a written Individualized Education Program or IEP?”. We assigned the variable a ‘1’ if they used a written IEP and a ‘0’ if they did not.

Independent Variables—Predisposing, Enabling and Need Factors

Predisposing factors include race/ethnicity which is coded so that ‘1’ = White, ‘2’ = Hispanic, ‘3’ = Black, and ‘4’ = Multiracial/Other. The age of the child ranges from 6 to 17 and the sex of the child is coded so that ‘1’ = male and ‘0’ = female.

Enabling factors include family and neighborhood attributes and school engagement.

Family structure is coded so that ‘1’ = two parent household consisting of biological and step parents and ‘0’ = single parent households and other households (including grandparents and guardian households). Income was coded so that ‘1’ = low income (less than or equal to 199 % of the Federal Poverty Line FPL), ‘2’ = average income (200–399 % of FPL) and ‘3’ = high income (400 % FPL and above). High school engagement was coded so that ‘1’ = always engaged in school, and ‘0’ = usually, sometimes, or never engaged in school. Parent educational level was measured as a composite of the highest level of school completed by a child's mother or father (or guardian) so that ‘1’ = less than high school diploma, ‘2’ = high school diploma, and ‘3’ = more than high school.

An index of 4 neighborhood amenities were used so that ‘0’ = no amenities in neighborhood and ‘4’ = neighborhood has all amenities. Amenities include sidewalks, parks/playgrounds, a recreation center, and a library. A similar index of 3 neighborhood detractors was used in the analysis. Neighborhood detractors include litter or garbage on the street, dilapidated housing, or houses with broken windows or graffiti. A score of ‘0’ means that there were no neighborhood detractors and a score of ‘3’ indicates a neighborhood with all of the detractors. Family adversity or adverse family events are measured by creating an index of 7 items that measure whether a child has experienced any of the following: parental divorce, parent death, parent in jail, witness domestic violence between parents, witness neighborhood violence, have close family member with mental illness, have a close family member abuse alcohol or drugs. Responses are coded so that ‘0’ = no family dysfunction and ‘7’ = all 7 types of family dysfunction.

Need factors that may contribute to a need for IEP services include three separate factors; severity of a child's illness, the number of comorbid conditions, and the number of unmet health care needs. We used the federal Maternal and Child Health Bureau definition of children with a special health care need to indicate severity. A child with a special health care need is “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” (Initiative 2012). The NSCH creates a code for a child with a special health care need so that ‘1’ = special health care need and ‘0’ = no special health care need. The number of comorbid conditions is operationalized as a count of any of the health conditions identified in Table 1. Because the sample contains children with at least one health condition, the count ranges from 2 to 17 health conditions. Unmet health care needs were operationalized as a count of unmet needs a parent reported related to their child's mental health care, medical care, dental care, vision

care, and other types of health care. Parents were asked if their child has a health care need for which care was delayed or for which they did not receive care. The count ranges from 0 to 5 with ‘0’ indicating no unmet health care needs and ‘5’ indicating all 5 unmet health care needs.

Moderating Effects—Race and Ethnicity

In order to examine the moderating effect of race/ethnicity on the relationship between predisposing, enabling, and need factors and the likelihood of having an IEP plan in place, we created a series of product terms for all of the variables identified in the above section. In each case, the categorical variable race/ethnicity (White, Hispanic, Black, and Multiracial) is multiplied by either a factor (categorical independent variable) or a covariate (continuous independent variable) with White as the omitted category.

Analytic Strategy

We used multivariable logistic regression analysis to examine the relationship between predisposing, enabling and need factors and having an IEP plan. All variables are included in the final model including interaction terms to understand moderating effects. Observations were weighted using complex sampling specifications provided by the DRC data manual including procedures for identifying subpopulations. Resulting estimates are representative of all non-institutionalized children aged 6–17 years in the US and in each state. All analyses were conducted using Stata Version 13.1 (StataCorp. 2013).

Results

Table 2 displays the weighted descriptive statistics for the analytic sample (children 6–17 years of age with at least one health condition) and Table 3 shows the weighted multivariable logistic regression analysis for predicting the odds of having an IEP at school controlling for predisposing, enabling, and need factors. Thirty-three percent of children in the analytic sample have an IEP plan in place at school. White children make up 56 % of the sample with a mean age of 11.56. Most children live in two parent households where 46 % of parents have a level of education higher than a high school diploma. More than half of children live in neighborhood with 4 or more amenities and almost three-quarters live in neighborhoods with no detractors. Half of parents report their child as “always” being engaged in school and the mean number of adverse family events is <1 (.79 out of 7). Twenty-four percent of children report a special health care needs with a mean of <1 comorbid condition (.58

out of 17) and an even smaller number of unmet health care needs (.10 out of 5).

Predisposing Factors and Use of IEP Services

Results displayed in Table 3 will be described using a percentage change interpretation of the odds ratios. When the odds ratio is lower than 1 we use the following formula; $1 - \exp(\beta) \times 100$. When the odds ratio is >1 we use the following formula; $\exp(\beta) - 1 \times 100$. Results indicate that boys are 35 % more likely to have IEPs compared to girls (OR = 1.53). Hispanic children are 93 % (OR = .066) less likely to have IEPs and Black children are 88 % (OR = .121) less likely to have IEPs compared to White students controlling for all variables in the model. There was a significant moderating effect of race/ethnicity on the relationship between age and having an IEP. For every one unit increase in age for Black students compared to White students, there is an 8 % (OR = 1.081) increase in the odds of having an IEP. For Multiracial students, there is a 15 % increased odds of having an IEP compared to Whites.

Enabling Factors and Use of IEP Services

Neither having a two parent family structure nor having a higher parent educational level significantly affected the odds of having an IEP. Income level, however, predicted the likelihood of having an IEP, but within the context of race/ethnicity. For every one unit increase in income level (moving from low income to average income) among Hispanic children, there is a corresponding 63 % (OR = 1.620) increase in the odds of having an IEP in place at school compared to White children with a similar increase in income. Neighborhood detractors did not predict the odds of having an IEP at school, but neighborhood amenities was a significant predictor for Black children compared to White children. For every one unit increase in the number of neighborhood amenities, Black children have an odds of having an IEP that is 37.2 % higher compared to the same increase in neighborhood amenities among White children. Facing adverse events in the family did not predict the odds of having an IEP, but high school engagement levels corresponded to a lower odds of having an IEP compared to children with low levels of school engagement (OR = .713).

Need Factors and Use of IEP Services

All of the need factors significantly predicted the odds of having an IEP plan in this analysis and each were moderated by race/ethnicity. Hispanic children with a special health care need had an odds of IEP that were 95 % (OR = 1.953) higher compared to White children with a

Table 2 Weighted descriptive statistics for all variables (N = 16,496)

Variable	Proportion (%)	Mean (SD)
Students using school service (IEP)	33	
<i>Predisposing factors</i>		
Child age (years)		11.56 (3.46)
Child sex		
Male	51	
Female	49	
Race/ethnicity		
White	56	
Hispanic	21	
Black	14	
Multiracial/other	10	
<i>Enabling factors</i>		
Two parent households	74	
Income level		
Low (199 % FPL or below)	30	
Middle (200–400 % FPL)	30	
High (more than 400 % FPL)	31	
Level of parent education		
Less than HS	21	
HS diploma	33	
More than HS diploma	46	
Counts of neighborhood amenities		
No amenities	3	
1 Amenity	6	
2 Amenities	12	
3 Amenities	24	
4 Amenities	54	
Counts of neighborhood detractors		
No detractors	72	
1 Detractor	17	
2 Detractor	7	
3 Detractors	4	
Number of adverse family events		.79 (1.25)
High school engagement	52	
<i>Need factors</i>		
Children with special health care needs	24	
Number of comorbid conditions		.58 (1.26)
Number of unmet health care needs		.10 (.38)

special health care need. Multiracial children had an odds of having an IEP at school that were 82.3 % (OR = 1.823) higher compared to White children with special health care needs. For each one unit increase in the number of comorbid health conditions a Black child has a 29.1 % (OR = 1.291) higher odds of having an IEP compared to White children. Among Black children, as the number of unmet health care needs increases by one, there is a 158 % (OR = 2.579) increase in the odds of having an IEP compared to the same increase by one in unmet needs for White children. For every one unit increase in unmet health

care needs among Multiracial children, there is a 93.8 % (OR = 1.939) higher odds of having an IEP at school compared to White children with a one unit increase in unmet health care needs.

Discussion

This paper provides an important portrait of the types of children who are more or less likely to have an IEP plan in place at school. Overall, racial/ethnic minorities had more

Table 3 Weighted logistic regression analysis modeling the odds of individualized education program (IEP) plans

	Odds ratio	P value	95 % CI	
			Lower	Upper
<i>Predisposing factors</i>				
Race/ethnicity				
White (ref.)				
Hispanic	1.010	0.990	0.197	5.176
Black	0.066	0.001	0.014	0.323
Multiracial/other	0.121	0.024	0.019	0.760
Child sex				
Male	1.353	0.003	1.112	1.646
Female (ref.)				
Race/ethnicity × sex				
White × male (ref.)				
Hispanic × male	0.803	0.451	0.453	1.423
Black × male	0.666	0.097	0.412	1.076
Multiracial × male	1.093	0.742	0.644	1.854
Age of child in years	0.982	0.206	0.954	1.010
Race/ethnicity × age				
White × age (ref.)				
Hispanic × age	0.944	0.213	0.862	1.034
Black × age	1.081	0.031	1.007	1.160
Multiracial × age	1.152	0.000	1.067	1.245
<i>Enabling factors</i>				
Family structure	0.878	0.300	0.687	1.122
Two parent household single parent/other household (ref.)				
White × two parent (ref.)				
Hispanic × two parent	0.930	0.825	0.491	1.762
Black × two parent	0.993	0.980	0.581	1.699
Multiracial × two parent	0.875	0.652	0.491	1.561
Income level	0.976	0.707	0.860	1.108
White × income level (ref.)				
Hispanic × income level	1.620	0.010	1.120	2.343
Black × income level	0.992	0.963	0.718	1.372
Multiracial × income level	0.840	0.329	0.593	1.191
Parent educational level	1.029	0.690	0.894	1.185
White × parent education level (ref.)				
Hispanic × parent education level	0.803	0.227	0.562	1.147
Black × parent education level	1.069	0.685	0.775	1.475
Multiracial × parent education level	0.807	0.259	0.555	1.172
Count of neighborhood amenities	1.056	0.243	0.964	1.157
White × neighborhood amenities (ref.)				
Hispanic × neighborhood amenities	0.952	0.716	0.728	1.244
Black × neighborhood amenities	1.372	0.009	1.082	1.740
Multiracial × neighborhood amenities	1.181	0.184	0.924	1.509
Count of neighborhood detractors	1.021	0.736	0.905	1.151
White × neighborhood detractors (ref.)				
Hispanic × neighborhood detractors	0.877	0.363	0.660	1.164
Black × neighborhood detractors	1.111	0.462	0.840	1.469
Multiracial × neighborhood detractors	1.129	0.414	0.844	1.510

Table 3 continued

	Odds ratio	P value	95 % CI	
			Lower	Upper
Number of adverse family events	0.958	0.247	0.892	1.030
White × adverse family events (ref.)				
Hispanic × adverse family events	0.975	0.833	0.771	1.233
Black × adverse family events	0.851	0.081	0.710	1.020
Multiracial × adverse family events	0.864	0.079	0.733	1.017
High school engagement	0.713	0.001	0.587	0.866
White × high school engagement (ref.)				
Hispanic × high school engagement	0.751	0.345	0.415	1.361
Black × high school engagement	0.964	0.888	0.577	1.609
Multiracial × high school engagement	1.019	0.944	0.608	1.705
<i>Need factors</i>				
Children with special health care needs	0.591	0.000	0.474	0.737
White × special health care need (ref.)				
Hispanic × special health care need	1.953	0.035	1.048	3.637
Black × special health care need	1.413	0.211	0.822	2.430
Multiracial × special health care need	1.823	0.038	1.033	3.216
Number of comorbid conditions	2.259	0.000	2.052	2.486
White × comorbid conditions (ref.)				
Hispanic × comorbid conditions	0.984	0.886	0.785	1.232
Black × comorbid conditions	1.291	0.030	1.025	1.626
Multiracial × comorbid conditions	1.109	0.424	0.860	1.430
Number of unmet health care needs	0.694	0.001	0.555	0.869
White × unmet health care needs (ref.)				
Hispanic × unmet health care needs	1.085	0.743	0.666	1.767
Black × unmet health care needs	2.579	0.001	1.484	4.483
Multiracial × unmet health care needs	1.938	0.025	1.085	3.460
Constant	0.170	0.000	0.088	0.328

Odds ratios and 95 % confidence intervals for a single model with all variables and interaction terms included

health conditions, but were less likely to have an IEP plan in place compared to Whites. Individual Education Plan program development is an important first step in health service utilization primarily through access to health services in school settings. Without an IEP, accessing school-based health services may be more difficult for those who appear to have greater healthcare needs. A unique contribution of this work is the moderating effect of race/ethnicity. Hispanic, Black and Multiracial children were more likely to have an IEP plan in place when there were more enabling factors (such as high income and neighborhood amenities) and more need factors (including comorbid conditions, greater severity, and unmet health care needs) compared to Whites with similar enabling or need factors. Stated another way, overall, White children were more likely than racial/ethnic minority children to have an IEP in place, but comparing high-healthcare need students shows

that racial/ethnic minority children were more likely than Whites to have an IEP.

This study also identified the Andersen Behavioral Model as useful for predicting the presence of an IEP plan (Andersen and Newman 2005). All of the predisposing factors predicted having an IEP including sex, race/ethnicity, and age. Some enabling factors predicted having an IEP including income, neighborhood amenities and school engagement. Other enabling factors such as two parent family structure, parent educational level, neighborhood detractors and family adverse events did not predict having an IEP controlling for all other factors. As we would expect, need factors predicted having an IEP including greater condition severity, more comorbid conditions, and more unmet health care needs. Overall, the model holds and prediction of having an IEP in place is consistent with health services literature that suggests racial/ethnic

minorities face greater barriers to accessing healthcare. If a student does not have an IEP plan in place, they are unlikely to access healthcare services in school. In general, racial/ethnic minorities were less likely to have an IEP.

Limitations and Future Work

A potential limitation of this study centers on our inability to link reports of current child health conditions, the presence of an IEP plan, and the actual use of IEP Services. *Having* an IEP plan in place is different from *using* the healthcare services available under the IEP plan. We have no way to assess whether the services recommend are used, the degree to which they are used, and differences among children who use these healthcare services. We also do not have the ability to know which child health condition (or pairing of health conditions) is linked to the development of the IEP. We only have information on whether the child has an IEP plan and the types of health conditions affect a child. A third important limitation is our inability to know what other health related services are offered in the schools and whether the child is using those as well, including on-site mental health counseling, referrals for behavioral specialists, occupational therapists, other on-site therapy, or school based health clinics that are becoming more common in the schools. These are limitations of the data and cannot be adequately addressed in this study.

Conclusions for Practice

Our findings indicated that overall racial/ethnic minority children are less likely to have a plan in place for IEP services at school. Implications for practice could center on having health care professionals take a larger role in providing information to parents about seeking out these services. For example, when a child is diagnosed with attention-deficit/hyperactivity disorder in the clinic, the nurse or patient advocate can provide information on the child's right to access IEP Services if symptomology is likely to interfere with learning. An encouraging finding from this research is that minority children with greater healthcare needs (as measured by to severity, health care needs, and comorbid conditions) do have a greater likelihood of having an IEP plan in place. In this case, teachers and health care professionals can encourage parents to seek out these school-based social and healthcare services.

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