

Ready or Not: An Examination of Health and Educational Disparities through the Lens of a Social Determinants of Health Framework during Early Childhood

Roseanne L. Flores

Hunter College of the City University of New York, New York, USA

Email: rflores@hunter.cuny.edu

How to cite this paper: Flores, R. L. (2021). Ready or Not: An Examination of Health and Educational Disparities through the Lens of a Social Determinants of Health Framework during Early Childhood. *Open Journal of Social Sciences*, 9, 261-278.
<https://doi.org/10.4236/jss.2021.93018>

Received: January 20, 2021

Accepted: March 19, 2021

Published: March 22, 2021

Copyright © 2021 by author(s) and Scientific Research Publishing Inc. This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

Objective: African-American, Hispanic, and poor children are at the utmost risk of experiencing adverse health and educational outcomes. Research has demonstrated that health and education disparities occur within the context of social determinants of health. The purpose of this study was to examine the relationship between social determinants of health and health and educational disparities that begin early childhood. **Methods:** Using data from the 2011/2012 National Survey of Children's Health the sample for the current study included data for 1496 African-American and 2451 Hispanic children 3 - 5 years of age. Indicators of potential health and education disparities included measures of access to healthcare, measures of health and dental health, and measures of early childhood experiences. **Results:** The findings revealed that African-American, Hispanic, and poor children experienced more significant disparities in health and early childhood outcomes than their White and wealthier peers and that neighborhood risks were related to poorer health and educational outcomes. **Conclusions:** The results suggest that ensuring health equity and reducing health and educational disparities during early childhood can only occur by focusing on upstream determinants of health which include risk exposure, social disadvantage, and social inequities.

Keywords

Health Disparities, Early Childhood, Poverty, African-American and Hispanic Children, Social Determinants of Health, National Survey of Children's Health

1. Introduction

Today 1 in 6 children are growing up in poverty in the United States (Children's

Defense Fund, n.d.). In 2018, 1 in 18 children were underinsured with poor children and children of color disproportionately represented within this group (Children's Defense Fund, n.d.). Moreover, in 2018 approximately thirty-three percent of individuals experiencing homelessness lived in families with children (Children's Defense Fund, n.d.). Children's healthy growth and development are dependent upon their biological, social, and physical environments. Where they live, play, and spend most of their waking hours is dependent upon the social, physical, mental, spiritual, and economic resources available to their parents (Crosnoe, Wu, & Bonazzo, 2012; Woolf & Braveman, 2011; Braveman, Sadegh-Nobari, & Egerter, 2011). Thus, children's health and well-being are linked to their parents' health and well-being (Braveman, Sadegh-Nobari, & Egerter, 2011). For children growing up in well-to-do environments, the developmental outcomes are often quite promising; however, for those children with exposure to a more significant number of risks, the health outcomes are quite bleak (Aber, Bennett, Conley, & Li, 1997). These children will carry the burden of disease within society.

In 2003, the Institute of Medicine produced a report entitled "*Unequal Treatment: Confronting Racial Disparities in Health Care*," which delineated the inequalities within the health care system that affected the health outcomes of specific populations, in particular African-Americans and Hispanics across the lifespan (Smedley, Stith, & Nelson, 2003). These disparities outlined in the report have become known as health disparities and reflect the prevalence or burden of disease among marginalized groups.

Within the United States, health disparities are often reflected across race, SES, and gender. This report's findings demonstrated that African-Americans and Hispanics tended to receive lower-quality care and had access to more inferior services than their White peers, with minority patients having higher mortality rates (Smedley, Stith, & Nelson, 2003). Thus the consequences are that minority patients tend to encounter more significant disparities in their health care which in turn lead to poorer health outcomes.

The question that arises then is what is leading to the disparities in health. Is it the lack of health insurance, lack of access to quality care, genetic makeup, or the neighborhood one lives in or some combination of them all? To understand the complexity involved in examining and assessing the causal pathways that lead to health disparities, one must begin to address the social determinants of health.

1.1. Social Determinants of Health

The social determinants of health are often thought of as social, economic, and environmental factors that affect health outcomes. These factors are often described as being upstream or downstream (Woolf & Braveman, 2011; Braveman, Egerter, & Williams, 2011; Bharmal et al., 2015). Upstream factors are those that set the causal pathways in motion, whereas the downstream factors are closer to the health outcomes. For example, a child who is consuming an over-abundance of sugar-sweetened and fatty foods, which may, in turn, lead to obesity, would be

an example of a downstream determinant of health. In contrast, resources such as education, income, and neighborhoods with few or no grocery stores would fall under the category of an upstream social determinant of health.

In trying to address and reduce health disparities within an individual, it becomes critical to address the role of upstream determinants of health in the persistence of disease within those communities in which individual resides (Woolf & Braveman, 2011; Braveman, Egerter, & Williams, 2011). Furthermore, as we begin to understand how upstream determinants of health contribute to health disparities within specific populations, we need to be mindful of how they affect adult behavior and how they affect the health and well-being of children, as healthy behavior begins in childhood (Francis et al., 2018). To that end, we must start to examine the research that addresses the prevalence of health disparities within children and the connection between health disparities and the social determinants of health during the early years (Tolliver, 2010).

1.2. Social Determinants of Health and Early Childhood

The conditions under which children are born expose them to environments that can place them on a positive or negative life course (Moore, McDonald, Carlon, & O'Rourke, 2015). To date, there has been a large body of research that has demonstrated that early life experiences can positively or negatively affect brain development, socio-emotional functioning, health, and early learning (Crosnoe, Wu, & Bonazzo, 2012; Woolf & Braveman, 2011; Braveman, Sadegh-Nobari, & Egerter, 2011; Braveman, Egerter, & Williams, 2011; Phillips & Shonkoff, 2000). Young children are growing up in low-income households where social and economic resources are strained fare less well with respect to physical health, socio-emotional, cognitive, and behavioral developmental outcomes than their more affluent peers (Hertzman, 2010; Woolf & Braveman, 2011). Moreover, African-American and Hispanic children are often less likely to be in excellent or good health than their White peers, placing them at a disadvantage to develop into healthy adults (Flores, Olson, & Tomany-Korman, 2005). Furthermore, it has also been demonstrated that health disparities are linked to school readiness (Currie, 2005). For example, children who experience chronic health problems such as untreated cavities are less likely to do well in school and often have behavior problems. These children are often from low-income families, with African-American and Hispanic toddler and preschool-aged children having more untreated dental cavities than their White peers (Currie, 2005). Thus, African-American, Hispanic, and poor children are not only on a trajectory for experiencing poor health outcomes; they are also on course for having limited academic success, a foundation that will prove to be deleterious for positive adult growth and development (Currie, 2005).

Despite these outcomes, few studies have examined the relationship between disparities in health and early childhood experiences within the context of downstream and upstream social determinants of health, in particular, the health and early childhood experiences for African-American and Hispanic children living

in poverty.

1.3. Purpose of the Research

In order to address this gap in the research, the purpose of the present study was to examine the association among access to healthcare, living in neighborhoods with exposure to multiple risk factors, and the educational and health outcomes for young African-American and Hispanic children. More specifically, the questions assessed were as follows: 1) What is the prevalence of access to health care, dental care, and mental healthcare for African-American and Hispanic children 3 - 5 years of age?; 2) What is the prevalence of parental concerns about receptive and expressive language, and the behavior of African-American and Hispanic 3 - 5-year-old children?; 3) What is the relationship between access to medical healthcare and living in neighborhoods with detracting elements and the overall health for African-American and Hispanic children 3 - 5 years of age?; 4) What is the relationship between access to medical health care and living in neighborhoods with detracting elements and the physical health of African-American and Hispanic children 3 - 5 years of age?; 5) What is the relationship between access to dental healthcare and living in neighborhoods with detracting elements and the oral health for African-American and Hispanic young children 3 - 5 years of age?; and 6) What is the relationship between access to mental health care and living in neighborhoods with detracting elements and the behavioral health and educational outcomes for African-American and Hispanic children 3 - 5 years of age?

2. Methods

2.1. Data Source and Design

The data for this paper comes from the 2011/2012 National Survey of Children's Health. The NSCH is a national survey conducted via telephone in English and Spanish and provides a wide range of information about children's health and well-being. A total of 95,677 surveys were collected nationally for children between the ages of 0 - 17 years. Survey results were weighed to represent the population of non-institutionalized children at the national and state levels ages 0 - 17. The survey is sponsored by the Maternal and Child Health Bureau of the US Department of Health and Human Services and the National Center for Health Statistics of the Center of Disease Control and Prevention ([Child and Adolescent Health Measurement Initiative, 2012](#)). The data is housed on the Data Resource Center for Child and Adolescent Health (DRC) which provides access to public data on the status of children's health and health-related services for children, youth and families. Further details about the survey can be found on the Data Resource webpage ([DCR, n.d.](#)).

2.2. Participants

The demographic data for the survey includes indicators for US children by age

group, sex of the child, the race and ethnicity distribution of the child population, the level of the child's household income, and quality of the neighborhood. The sample for the current study included data for 1496 African-American and 2451 Hispanic children 3 - 5 years of age. See **Table 1** for weighted and unweighted demographic data for the sample.

2.3. Variables

2.3.1. Independent Variables

The primary independent variables for the study were quality and access to healthcare.

Measures of Healthcare Access and Quality

Mental Health Care. Access to mental health care was measured using the following indicator: "Receipt of needed mental health treatment or counseling in the past 12 months" with possible responses including (a) needed but did not get mental health services or (b) needed & received mental health services.

Dental Health Care. Access to dental care was measured using the following

Table 1. Demographic information for children ages 3 - 5.

Variables	Weighted Estimates	Unweighted Estimates	% of Total
<i>Race/Ethnicity</i>			
Hispanic	3,116,483.433	2451	25.8
White, non-Hispanic	6,098,268.852	9548	50.5
Black, non-Hispanic	1,518,822.241	1496	12.6
Multiracial/Other non-Hispanic	1,349,441.450	1982	11.2
<i>Sex of Selected Child</i>			
Male	6,371,873.931	8140	50.9
Female	6,131,606.632	7757	49.0
Refused	6225.566	13	0
<i>Household Income (SCHIP^a)</i>			
0% - 199% FPL	5,842,195.330	5998	46.7
200% - 299% FPL	2,101,247.634	2548	16.8
300% - 399% FPL	1,482,904.045	2183	11.9
400% - 499% FPL	3,083,359.121	5181	24.6
<i>Detracting Neighborhood Elements^b</i>			
No Detracting elements in the neighborhood	8,615,907.750	11235	70.6
Neighborhood has 1 detracting element from the list	2,192,234.427	2707	18.0
Neighborhood has 2 detracting element from the list	937,203.026	1092	7.7
Neighborhood has 3 detracting element from the list	465,573.394	558	3.8

^aSCHIP Qualification; States have broad flexibility to set their SCHIP income eligibility levels; most states cover children up to 200 percent of the federal poverty level (FPL), which, in 2006, was equivalent to \$2767 in monthly income for a family of three. Children generally must be uninsured to qualify for SCHIP-funded coverage. 0% - 99% = poverty level; 100% - 199% = near poverty level; >200% = non poverty level; ^bDetracting elements consist of litter, poorly kept or run down housing, or vandalism/graffiti.

question: “During the past 12 months/since [child’s] birth, how many times did your child see a dentist for preventive dental care such as check-ups and dental cleanings?” with possible responses including (a) no preventive dental care visits or (b) one or more preventive dental care visits.

Medical Health Care. Access to medical care was measured using the following question: “During the past 12 months/since [child’s] birth, how many times did your child see a doctor, nurse, or other health care provider for preventive medical care such as a physical exam or well-child checkup?” with possible responses including (a) no preventive medical care visits or (b) one or more preventive medical care visits.

2.3.2. Dependent Variables

The primary outcomes of interest in this study were the child’s overall physical and dental health and educational outcomes.

Measures of Health and Dental Health

Overall physical health. Physical health was measured using the following question: “In general, how would you describe your child’s health?” with possible responses including (a) excellent/very good; (b) good; or (c) fair/poor.

Behavioral health. Behavioral health was measured using the following question: “Are you concerned a lot, a little, or not at all about how your child behaves?” with possible responses including (a) a lot; (b) a little; or (c) not at all.

Oral health. Oral health was measured using the following question: “How would you describe the condition of your child’s teeth?” with possible responses including (a) excellent/very good condition; (b) good condition; or fair/poor condition.

Measures of Early Childhood Experiences

Early learning, behavior and development. Concerns about early learning, behavior and development were measured by the following question: “Do you have any concerns about [child’s] learning, development, or behavior?” with possible responses including (a) yes or (b) no.

Receptive language. Concerns about receptive language were measured by the following question: “Are you concerned a lot, a little, or not at all about how your child understands what you say?” with possible responses including (a) a lot, (b) a little or (c) not at all.

Expressive language. Concerns about expressive language were measured by the following question: “Are you concerned a lot, a little, or not at all about how your child talks and makes speech sounds?” with possible responses including (a) a lot, (b) a little or (c) not at all.

Family Reading. Family members reading to child was measured using the following question: “During the past week, how many days did you or other family members read stories to the child?” with possible response including (a) no days; (b) 1 or 2 days; (c) 3 or 4 days; (d) 5 or 6 days; or (e) every day.

2.3.3. Demographic Factors

Demographic factors included child’s age, race and gender, household income

based on SCHIP, and quality of neighborhood. All factors were included in the analyses.

2.4. Statistical Analysis

Statistical analyses were performed using the SPSS Complex Survey Samples software. To account for the complex sampling design of the NSCH all estimates were weighted and adjusted in the analysis unless specified in the results. The survey weight represents the population of non-institutionalized children ages 0 - 17 nationally and in each state (NSCH, n.d.)

3. Results

Table 1 provides an overview of the characteristics for children ages 3 - 5 represented in the study with 25.8% identifying as Hispanic and 12.6% as Black. 46.7% of the children identified as living in households that were either poor or near poor with approximately 29.5% living in neighborhoods with 1 or more detracting elements.

3.1. Prevalence of Overall Health and Access to Healthcare, Dental Care, and Mental Health Care

Descriptive statistics were computed for children 3 - 5 years of age to assess their overall health and the prevalence of their access to healthcare, dental care, and mental health care. **Table 2** provides estimates for the overall health of children 3 - 5 with the majority of children reporting to being in excellent or good health. That said the number of children reported to being in fair or poor health is highest among Black children at 5.4% and Hispanic children at 4.9%.

Table 3 provides estimates describing the overall condition of 3 - 5 year old

Table 2. Overall health for children ages 3 - 5 by race.

Variables	Weighted Estimates	Unweighted Estimates	% of Total
<i>Excellent/ Very Good</i>			
Hispanic	2,325,236.599	1915	74.6
White, non-Hispanic	5,617,632.829	8861	92.1
Black, non-Hispanic	1,254,923.798	1253	82.6
Multiracial/Other non-Hispanic	1,113,247.569	1731	82.5
<i>Good</i>			
Hispanic	637,917.663	422	20.5
White, non-Hispanic	394,759.039	539	6.5
Black, non-Hispanic	182,321.827	193	12.0
Multiracial/Other non-Hispanic	200,185.752	214	14.8
<i>Fair/ Poor</i>			
Hispanic	153,164.774	113	4.9
White, non-Hispanic	85,142.171	145	1.4
Black, non-Hispanic	85,176.615	50	5.4
Multiracial/Other non-Hispanic	360,008.129	37	2.7

Table 3. Condition of teeth for children ages 3 - 5 by race.

Variables	Weighted Estimates	Unweighted Estimates	% of Total
<i>Excellent/ Very Good</i>			
Hispanic	1,776,740.855	1614	57.0
White, non-Hispanic	5,150,924.895	8191	84.5
Black, non-Hispanic	1,137,431.410	1160	74.9
Multiracial/Other non-Hispanic	1,010,813.334	1500	74.9
<i>Good</i>			
Hispanic	918,902.438	583	29.5
White, non-Hispanic	713,373.549	1057	11.7
Black, non-Hispanic	281,194.404	268	18.5
Multiracial/Other non-Hispanic	253,549.639	348	18.8
<i>Fair/ Poor</i>			
Hispanic	419,683.645	251	13.5
White, non-Hispanic	233,639.418	298	3.8
Black, non-Hispanic	99,671.387	67	6.6
Multiracial/Other non-Hispanic	84,953.881	132	6.3

children's teeth. In general the majority of children were reported to have teeth that are in excellent, very good, or good condition. The number of children reported to have teeth in fair or poor conditions was highest among Hispanics 13.5% children and Black children 6.6%.

Table 4 provides estimates for access to preventative medical care for children during the past 12 months. In general the majority of children had access to 1 or more visits in the past 12 month. Among the children reported to having no preventative visits lack of preventive care was highest for Hispanic children at 16.4% and Black children at 12.3%.

Table 5 provides estimates for access to preventative dental care for children during the past 12 months. In general the majority of children were reported to have had access to 1 or more preventative visits in the past 12 month. Among the children reported to having no preventative visits lack of preventative care was highest for Black children 30.3% and White children at 27.8%.

Table 6 provides estimates for access to mental health care by children during the past 12 months. In general the majority of children were reported that they needed treatment or counseling but did not receive it with Hispanic and Black children reporting the highest need for care 67.4% and 61.7 respectively, but not receiving it.

3.2. Prevalence of Parental Concerns about Children's Receptive and Expressive Language and Learning, Development and Behavior

Table 7 provides estimates for parent's expression of concern over the ability of their children to understand language. Hispanic and White parents expressed more concern about their children's abilities with African-American parents expressing less concern.

Table 4. Preventative medical care for children ages 3 - 5 by race.

Variables	Weighted Estimates	Unweighted Estimates	% of Total
<i>Preventative Medical Care</i>			
<i>No preventative visits during past 12 months</i>			
Hispanic	509,002.913	366	16.4
White, non-Hispanic	514,189.965	865	8.5
Black, non-Hispanic	182,790.172	159	12.3
Multiracial/Other non-Hispanic	157,196.040	249	11.7
<i>1 or more visits during past 12 months</i>			
Hispanic	2,586,647.645	2061	83.6
White, non-Hispanic	5,559,113.448	8636	91.5
Black, non-Hispanic	1,301,671.882	1315	87.7
Multiracial/Other non-Hispanic	1,184,403.438	1715	88.3

Table 5. Preventative dental care for children ages 3 - 5 by race.

Variables	Weighted Estimates	Unweighted Estimates	% of Total
<i>Preventative Dental Care</i>			
<i>No preventative visits during past 12 months</i>			
Hispanic	765,288.583	655	24.6
White, non-Hispanic	1,692,432.891	2469	27.8
Black, non-Hispanic	459,964.771	343	30.3
Multiracial/Other non-Hispanic	448,596.112	594	33.5
<i>1 or more visits during past 12 months</i>			
Hispanic	2,349,770.803	1792	75.4
White, non-Hispanic	4,396,747.324	7059	72.2
Black, non-Hispanic	1,058,163.993	1149	69.7
Multiracial/Other non-Hispanic	891,122.924	1376	66.5

Table 6. Access to mental health care (past 12 months) for children ages 3 - 5 by race.

Variables	Weighted Estimates	Unweighted Estimates	% of Total
<i>Access to Mental Health Care (Past 12 Months)</i>			
<i>Needed and DID NOT get any mental health tx counseling</i>			
Hispanic	119,748.083	76	67.4
White, non-Hispanic	123,824.651	210	44.6
Black, non-Hispanic	59,383.544	55	61.7
Multiracial/Other non-Hispanic	35,178.096	57	45.9

Continued

<i>Needed and received mental health tx/ or counseling</i>			
Hispanic	57,956.650	60	32.6
White, non-Hispanic	153,528.468	200	55.4
Black, non-Hispanic	36,797.483	37	38.3
Multiracial/Other non-Hispanic	41,444.256	59	54.1

Table 7. Parental concerns about receptive language for children ages 3 - 5.

Variables	Weighted Estimates	Unweighted Estimates	% of Total
<i>Race and Ethnicity Categories</i>			
Hispanic			
(A Lot)	322,553.495	198	2.7
(A little)	383,047.855	273	3.2
(Not at All)	2,406,314.447	1971	19.9
White, non-Hispanic			
(A Lot)	181,332.220	235	1.5
(A little)	380,747.476	492	3.2
(Not at All)	5,532,746.980	8812	45.8
Black, non-Hispanic			
(A Lot)	134,999.687	141	1.1
(A little)	145,690.147	153	1.2
(Not at All)	1,238,132.406	1202	10.2
Multiracial/Other non-Hispanic			
(A Lot)	97,835.414	112	0.8
(A little)	133,480.108	171	1.1
(Not at All)	1,117,876.935	1698	9.3

Table 8 displays the estimates for parent's expression of concern over the ability of their children to make speech sounds and expressive themselves. Again White and Hispanic parents expressed more concern about their children's abilities to express themselves than African-American parents who expressed less concern.

Table 9 presents the estimates for parent's expression of concern about the learning, development, or behavior of their 3 - 5 year old children. White and Hispanic parents expressed more concern about their children's learning, development, and behavior than African-American parents who expressed less concern.

3.3. Upstream and Downstream Determinants of Health and Child Outcomes

3.3.1. Access to Medical Healthcare and Neighborhood Characteristics and Overall Health

Ordinal regression analysis was conducted adjusting for age, race, gender, and income to examine the relationship between access to healthcare and the overall

Table 8. Parental concerns about use of expressive language for children ages 3 - 5.

Variables	Weighted Estimates	Unweighted Estimates	% of Total
<i>Race and Ethnicity Categories</i>			
Hispanic			
(A Lot)	316,879.619	187	2.6
(A little)	501,092.393	378	4.1
(Not at All)	2,296,886.974	1882	19.0
White, non-Hispanic			
(A Lot)	286,625.683	399	2.4
(A little)	954,070.438	1381	7.9
(Not at All)	4,857,323.085	7764	40.2
Black, non-Hispanic			
(A Lot)	146,318.842	144	1.2
(A little)	240,282.914	253	2.0
(Not at All)	1,131,766.629	1097	9.4
Multiracial/Other non-Hispanic			
(A Lot)	128,723.027	146	1.1
(A little)	216,882.092	295	1.8
(Not at All)	1,003,490.044	1539	8.3

Table 9. Parental concerns about learning, behavior and development for children ages 3 - 5.

Variables	Weighted Estimates	Unweighted Estimates	% of Total
<i>Race/Ethnicity Categories</i>			
Hispanic			
(No)	2,664,064.473	2120	22.1
(Yes)	446,343.342	325	3.7
White, non-Hispanic			
(No)	5,549,253.651	8717	45.9
(Yes)	547,008.145	824	4.5
African American/Black			
(No)	1,346,562.079	1310	11.1
(Yes)	171,279.231	184	1.4
Multiracial/Other non-Hispanic			
(No)	1,163,850.375	1774	9.6
(Yes)	174,508.035	204	1.4

health of children. The odds ratio of 1.007 [95% CI: 0.886, 1.145] indicates that the cumulative odds for children having 1 or more preventative medical visits are 1.007 times the cumulative odds of not receiving preventative health visits during the past 12 months (**Table 10**).

Ordinal regression analysis adjusting for age, race, gender, and income examining the association between neighborhood detractors and the overall health of children revealed positive associations for living in neighborhoods with no detracting elements vs 3 detracting elements 1.169 [95% CI: 0.948, 0.1441], living

Table 10. Ordinal regression predicting overall health.

Predictor	Cumulative Odds Ratio ^a	95% CI	
		Lower	Upper
<i>Access to Health Care</i>			
Needed 1 or more preventative healthcare visits vs. no preventative visits in the last 12 months	1.007	0.886	1.145
<i>Neighborhood Detractors^b</i>			
No detracting elements vs. Neighborhood has 3 detracting elements	1.169	0.948	1.441
Neighborhood has 1 detracting element	1.071	0.853	1.346
Neighborhood has 2 detracting elements	1.068	0.813	1.403

*Note. CI = Confidence Interval for odds ratios (OR); ^aAnalysis was adjusted for age, race, gender and poverty on SCHIP; ^bDetracting elements consist of litter, poorly kept or rundown housing, or vandalism/graffiti.

in neighborhoods with 1 vs 3 detracting elements 1.071 [95% CI: 0.853, 1.346] and living in neighborhoods with 2 vs 3 detracting elements 1.068 [95% CI: 0.813, 1.403] (Table 10).

3.3.2. Access to Dental Care and Neighborhood Characteristics and Overall Dental Health

Table 11 provides the ordinal regression results examining the relationship between access to dental care and the overall dental health for children. The odds ratio of 0.696 [95% CI: 0.628, 0.772] indicates that the cumulative odds for having no preventative visits during the past 12 months was 0.696 the odds of having 1 or more visits during the past 12 months.

Ordinal regression analysis adjusting for age, race, gender, and income examining the association between neighborhood detractors and the overall dental health of children revealed positive associations for living in neighborhoods with no detracting elements vs 3 detracting elements 1.164 [95% CI: 0.979, 1.384], living in neighborhoods with 1 vs 3 detracting elements 1.050 [95% CI: 0.869, 1.268] and living in neighborhoods with 2 vs 3 detracting elements 1.068 [95% CI: 0.742, 1.140] (Table 11).

3.3.3. Access to Mental Health Care and Neighborhood Characteristics and Behavioral Health

Table 12 presents the overall associations between access to mental health care and behavioral health. The odds ratio of 0.882 [95% CI: 0.480, 1.62] indicates that the cumulative odds for children needing but not receiving any mental health treatment vs needing and not receiving mental health treatment are 0.882 times the cumulative odds of not receiving any mental health treatment.

Ordinal regression analysis adjusting for age, race, gender, and income examining the association between neighborhood detractors and the behavioral health of children revealed positive associations for living in neighborhoods with no detracting elements vs 3 detracting elements 2.102 [95% CI: 1.275, 3.466],

Table 11. Ordinal regression predicting dental health.

Predictor	Cumulative Odds Ratio ^a	95% CI	
		Lower	Upper
<i>Access to Dental Care</i>			
No preventative visits during past 12 months vs 1 or more visits in the last 12 months	0.696	0.886	1.145
<i>Neighborhood Detractors^b</i>			
No detracting elements vs. Neighborhood has 3 detracting elements	1.164	0.979	1.384
Neighborhood has 1 detracting element	1.050	0.869	1.268
Neighborhood has 2 detracting elements	0.919	0.742	1.140

*Note. CI = Confidence Interval for odds ratios (OR); ^aAnalysis was adjusted for age, race, gender and poverty on SCHIP; ^bDetracting elements consist of litter, poorly kept or rundown housing, or vandalism/graffiti.

Table 12. Ordinal regression predicting behavioral health.

Predictor	Cumulative Odds Ratio ^a	95% CI	
		Lower	Upper
<i>Access to Mental Health</i>			
Needed and did not receive any mental health treatment vs needed and received mental health treatment	0.882	0.480	1.621
<i>Neighborhood Detractors^b</i>			
No detracting elements vs. Neighborhood has 3 detracting elements	2.102	1.275	3.466
Neighborhood has 1 detracting element	1.978	1.135	3.448
Neighborhood has 2 detracting elements	1.243	0.680	2.270

*Note. CI = Confidence Interval for odds ratios (OR); ^aAnalysis was adjusted for age, race, gender and poverty on SCHIP; ^bDetracting elements consist of litter, poorly kept or rundown housing, or vandalism/graffiti.

living in neighborhoods with 1 vs 3 detracting elements 1.978 [95% CI: 1.135, 3.448] and living in neighborhoods with 2 vs 3 detracting elements 1.243 [95% CI: 0.680, 2.270] (**Table 12**).

3.3.4. Access to Mental Health Care and Neighborhood Characteristics and Educational Outcomes

Expressive Language

Table 13 provides the overall association between access to mental health care and a parent's concerns about their child being able to produce speech sounds. The odds ratio of 1.272 [95% CI: 0.753, 2.149] indicates that the cumulative odds for children needing but not receiving any mental health treatment vs needing and not receiving mental health treatment are 1.272 times the cumulative odds of not receiving any mental health treatment.

Ordinal regression analysis adjusting for age, race, gender, and income examining the association between neighborhood detractors and the expressive

language of children revealed positive associations for living in neighborhoods with no detracting elements vs 3 detracting elements 0.865 [95% CI: 0.555, 1.348], living in neighborhoods with 1 vs 3 detracting elements 0.936 [95% CI: 0.580, 1.510] and living in neighborhoods with 2 vs 3 detracting elements 1.304 [95% CI: 0.771, 2.205] (**Table 13**).

Receptive Language

Table 14 reports the association between access to mental health care and a parent's concerns about their child being able to understand language. The odds ratio of 1.104 [95% CI: 0.640, 1.904] indicates that the cumulative odds for children needing but not receiving any mental health treatment vs needing and not receiving mental health treatment are 1.104 times the cumulative odds of not receiving any mental health treatment.

Ordinal regression analysis adjusting for age, race, gender, and income examining the association between neighborhood detractors and the expressive

Table 13. Ordinal regression predicting expressive language.

Predictor	Cumulative Odds Ratio ^a	95% CI	
		Lower	Upper
<i>Access to Mental Health</i>			
Needed and did not receive any mental health treatment vs needed and received mental health treatment	1.272	0.753	2.149
<i>Neighborhood Detractors^b</i>			
No detracting elements vs. Neighborhood has 3 detracting elements	0.865	0.555	1.348
Neighborhood has 1 detracting element	0.936	0.580	1.510
Neighborhood has 2 detracting elements	1.304	0.771	2.205

*Note. CI = Confidence Interval for odds ratios (OR); ^aAnalysis was adjusted for age, race, gender and poverty on SCHIP; ^bDetracting elements consist of litter, poorly kept or rundown housing, or vandalism/graffiti.

Table 14. Ordinal regression predicting receptive language.

Predictor	Cumulative Odds Ratio ^a	95% CI	
		Lower	Upper
<i>Mental Health</i>			
Needed and did not receive any mental health treatment vs needed and received mental health treatment	1.104	0.640	1.904
<i>Neighborhood Detractors^b</i>			
No detracting elements vs. Neighborhood has 3 detracting elements	0.972	0.628	1.505
Neighborhood has 1 detracting element	0.870	0.540	1.401
Neighborhood has 2 detracting elements	1.221	0.772	2.063

*Note. CI = Confidence Interval for odds ratios (OR); ^aAnalysis was adjusted for age, race, gender and poverty on SCHIP; ^bDetracting elements consist of litter, poorly kept or rundown housing, or vandalism/graffiti.

language of children revealed positive associations for living in neighborhoods with no detracting elements vs 3 detracting elements 0.972 [95% CI: 0.628, 1.505], living in neighborhoods with 1 vs 3 detracting elements 0.870 [95% CI: 0.540, 1.401] and living in neighborhoods with 2 vs 3 detracting elements 1.221 [95% CI: 0.772, 2.063] (Table 14).

4. Discussion

The present study identified several upstream determinants of health, income, quality of the neighborhood, and income as a function of education, which provided the context for examining the health and early childhood experiences of a national sample of children 0 - 5 years of age. The findings from this study suggest that the burden of health disparities and early childhood experiences are borne by African-American, Hispanic, other minority, and poor children living in communities that are also bearing the brunt of inequalities.

It has been suggested that the upstream social determinants of health provide the ecological context for understanding the causal pathway that leads to health outcomes expressed within the downstream determinants, such as poor oral health (Woolf & Braveman, 2011; Braveman, Egerter, & Williams, 2011). The findings from this study, although not causally linked, provide evidence for this conceptual model.

When examining the conceptual framework developed by the Robert Wood Johnson (Braveman, Egerter, & Williams, 2011), it becomes clear that economic, social opportunities and access to resources are the upstream causal mechanisms that influence individuals' behaviors in communities. This paper's findings suggest that African-American, Hispanic, other minority, and poor children live in households and communities that have access to fewer financial, educational, and social resources.

More of these children reside in working-poor households and live in homes where the primary language is not English and have fewer opportunities for positive early childhood experiences.

When examining the findings that address the access to, and quality of healthcare received by families the results suggests that African-Americans, Hispanics, other minority, and poor children are faring less well than their White and affluent peers with respect to: receiving preventative medical and dental care, having access to mental health care services, having one or more of their needs not met by the healthcare providers, experiencing frustration when trying to obtain a health care services for their children, having access to doctors who appear to be interested in discussing their concerns about their children's development, having children with poorer overall physical and dental health, and having more children with chronic health problems.

It should be noted, however, that while parents are reporting dissatisfaction concerning having one or more of their needs not met, the most significant disparity appears to occur in families with the 100% - 199% FPL, indicating the

poorest families are having their needs met through health care services provided by the government.

When examining the quality of early childhood experiences, African-American, Hispanic, other minority, and poor children are once again bearing the burden of poorer cognitive, linguistic, socio-emotional, and learning outcomes. These parents reported having more significant concerns about their children's learning development or behavior, the expressive and receptive language development of their children, the development of school-based skills of their children, and the resilience of their children. Furthermore, these families are spending less time reading to their children than their White and affluent peers, a factor which has been shown to be predictive of later school success (Hart & Risley, 1995).

In short, the same families who are living in communities that have limited access to physical, social, and financial resources are the same children who are experiencing greater disparities in health and early educational experiences, strongly suggesting that the upstream determinants of health are linked to the health and educational outcomes of children.

Limitations of the Study

It should be noted that while the findings from this research provide new knowledge that will move the field forward concerning our understanding of how upstream determinants of health may be linked to health disparities, there are nevertheless some limitations to the study. First, this study's findings do not define a causal pathway but rather provide information that will allow the field to begin to connect the dots between social determinants of health and early childhood developmental outcomes (Braveman, Egerter, & Williams, 2011). Second, the data from this study do not consider all of the factors that may have affected the health and early education experiences of children, such as the discrimination and stress experienced directly or indirectly by their parents, thereby suggesting other pathways that might lead to poor developmental outcomes. That said, despite these limitations, this study provides an initial response to the call for more studies to examine health disparities within the context of upstream social determinants and early childhood (Braveman, Egerter, & Williams, 2011).

5. Conclusion

The findings from this study support previous evidence that has demonstrated a critical relationship between social and economic factors and health and educational outcomes for young children (Currie, 2005; Chen, Martin, & Matthews, 2006). Both the health measures and early childhood experience measures demonstrate that African-American, Hispanic, other minority and poor children are experiencing poorer health and educational outcomes than their White and more affluent peers, leaving them ill-prepared to lead healthy and productive lives. Moving forward, if we intend to shift the needle to reach health and educational equity for all, it will become imperative for scientists to develop more

complex research designs that will address the complexity of development; practitioners to engage in practices that address the integration of needs within the whole child; and policymakers to develop more comprehensive approaches that will begin to address the upstream social determinants of health which are the cause for many of the poor health and early childhood outcomes for African-American, Hispanic, minority, and poor children. Doing anything less will ensure health and education inequities persist across the lifespan.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

- Aber, J. L., Bennett, N. G., Conley, D. C., & Li, J. (1997). The Effects of Poverty on Child Health and Development. *Annual Review of Public Health, 18*, 463-483. <https://doi.org/10.1146/annurev.publhealth.18.1.463>
- Bharmal, N., Derose, K. P., Felician, M., & Weden, M. M. (2015). *Understanding the Upstream Social Determinants of Health* (pp. 1-18). California: RAND.
- Braveman, P., Egerter, S., & Williams, D. R. (2011). The Social Determinants of Health: Coming of Age. *Annual Review of Public Health, 32*, 381-398. <https://doi.org/10.1146/annurev-publhealth-031210-101218>
- Braveman, P., Sadegh-Nobari, T., & Egerter, S. (2011). *Early Childhood Experiences and Health* (Issue Brief No. 2). Robert Wood Johnson Foundation: Author.
- Chen, E., Martin, A. D., & Matthews, K. A. (2006). Understanding Health Disparities: The Role of Race and Socioeconomic Status in Children's Health. *American Journal of Public Health, 96*, 702. <https://doi.org/10.2105/AJPH.2004.048124>
- Child and Adolescent Health Measurement Initiative (2012). *Fast Facts: 2011/12 National Survey of Children's Health*. Data Resource Center, Supported by Cooperative Agreement 1-U59-MC06980-01 from the U.S. Department of Health and Human Services, Health Resources and Services Administration (HRSA), Maternal and Child Health Bureau (MCHB). <http://www.childhealthdata.org>
- Children's Defense Fund (n.d.). *The State of America's Children 2020*. <https://www.childrensdefense.org/the-state-of-americas-children-2020>
- Crosnoe, R., Wu, N., & Bonazzo, C. (2012). Child Health and Early Education. In V. Maholmes, & R. B. King (Eds.), *The Oxford Handbook of Poverty and Child Development* (pp. 338-353). New York: Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199769100.013.0019>
- Currie, J. M. (2005). Health Disparities and Gaps in School Readiness. *The Future of Children, 15*, 117-138. <https://doi.org/10.1353/foc.2005.0002>
- DCR Data Resource Center for Child and Adolescent Health FAQ (n.d.). <http://childhealthdata.org/help/faq#About1>
- Flores, G., Olson, L., & Tomany-Korman, S. C. (2005). Racial and Ethnic Disparities in Early Childhood Health and Health Care. *Pediatrics, 115*, e183-e193. <https://doi.org/10.1542/peds.2004-1474>
- Francis, L., DePriest, K., Wilson, M., & Gross, D. (2018). Child Poverty, Toxic Stress, and Social Determinants of Health: Screening and Care Coordination. *Online Journal of Issues in Nursing, 23*, 2.

- Hart, B., & Risley, T. R. (1995). *Meaningful Differences in the Everyday Experience of Young American Children*. Baltimore, MD: Paul H Brookes Publishing.
- Hertzman, C. (2010). Framework for the Social Determinants of Early Child Development. In R. E. Tremblay, M. Boivin, & R. V. Peters (Eds.), *Encyclopedia on Early Childhood Development*.
<http://www.child-encyclopedia.com/importance-early-childhood-development/according-experts/framework-social-determinants-early-child>
- Moore, T. G., McDonald, M., Carlon, L., & O'Rourke, K. (2015). Early Childhood Development and the Social Determinants of Health Inequities. *Health Promotion International*, 30, 102-115. <https://doi.org/10.1093/heapro/dav031>
- NSCH National Survey of Children's Health (n.d.). *National Survey of Children's Health (NSCH), 2011/12 Fast Facts about the Survey*.
<http://childhealthdata.org/learn/NSCH/FAQ>
- Phillips, D. A., & Shonkoff, J. P. (2000). *From Neurons to Neighborhoods: The Science of Early Childhood Development*. Washington DC: National Academies Press.
- Smedley, B. D., Stith, A. Y., & Nelson, A. R. (2003). *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Institute of Medicine, Committee on Understanding and Eliminating Racial and Ethnic Disparities in Health Care.
- Tolliver, R. (2010). *The Connection between Health Disparities and the Social Determinants of Health in Early Childhood*. *Health*, 800, 886-7689.
- Wolf, S. H., & Braveman, P. (2011). Where Health Disparities Begin: The Role of Social and Economic Determinants—And Why Current Policies May Make Matters Worse. *Health Affairs*, 30, 1852-1859. <https://doi.org/10.1377/hlthaff.2011.0685>