STRONG CHILDREN'S RESEARCH CENTER

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ABSTRACT

Title: The Impact of Race/Ethnicity and Socioeconomic Status on Childhood Asthma Outcomes

Background: Within the scope of public health, the significance of the social determinants of health and their interconnections with numerous health outcomes have been a matter of scrutiny for some time. Of note, it is essential to develop an understanding of the intricacies of race, ethnicity, and socioeconomic status (SES) in particular and how they create disparities in regard to health outcomes. For example, a recent study conducted by the CDC in 2018 found that asthma prevalence was 40% higher in non-Hispanic African Americans compared to non-Hispanic whites.[1] While the exact reasons behind why African American children are disproportionately affected are not fully understood, this disparity has been identified and studied extensively along with how factors such as SES may play a role. Researchers at Princeton University have argued that while it is true African American children are more likely to have asthma, the risk factors attributed to this are more due to financial reasons[2]. Their claim is that children born into families of lower SES are more likely to grow up in neighborhoods that have more air pollution which induce and/or exacerbate respiratory conditions such as asthma, and the fact that lower SES households are more likely to engage in behaviors that are risk factors for childhood asthma, such as maternal smoking[2], among other reasons.

Objective: Researchers have been asking for decades whether race/ethnicity and/or SES are significant predictors of health conditions such as asthma, and it has proven difficult to determine due to the close correlation between race/ethnicity and SES in the United States. This research project analyzed data provided from The Vitamin D Antenatal Asthma Reduction Trial (VDAART) to assess the relationship between race/ethnicity as well as SES and to determine if they were significant predictors of asthma outcomes in the children who participated in the trial.

Results: 317 Black, non-Hispanic, 161 White, non-Hispanic, and 328 children classified as "Other" were included in the study. 236 participants were living in poverty (<$30K/year), 202 had an income of >$30K but <$75K, 172 had an income of $75K+, and 196 did not reveal their income. It was found that the following variables were significantly predicting the outcome of interest, which was asthma or recurrent wheezing at the age of 3 years: SES, eczema induced rash by age 3, gender of child, maternal asthma diagnosis, and total number of lower respiratory illnesses by age 3. It is important to note that the stepwise regression model eliminated race/ethnicity as a significant predictor.

Conclusion: It has been difficult to determine whether race/ethnicity and/or SES are significant predictors for conditions such as asthma due to the fact that they are very closely linked to one another. However, the statistical analysis performed using data from the VDAART trial yielded results that show that SES was a better predictor of asthma outcomes in children than race/ethnicity.

References

1. Centers for Disease Control and Prevention (2021). *National Health Interview Survey Data 2018*. U.S. Department of Health and Human Services. https://www.cdc.gov/asthma/nhis/2018/table4-1.htm
2. Alexander, D., & Currie, J. (2017). Is it who you are or where you live? Residential segregation and racial gaps in childhood asthma. *Journal of health economics*, *55*, 186-200.