Racial Biases in Healthcare and Education:
Is Medical Racism Linked to the School-to-Prison Pipeline?

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Introduction

  As humanity has advanced, so have science and technology. Nothing quite exemplifies that more than the medical field. With professionals working on the literal cutting-edge, working to push the boundaries of what is possible to do for and with the human body. From the discovery of penicillin to the rise of CRISPR, the drive to help one another has fueled our innovation and our progress. However, there are blind spots in healthcare settings that have yet to be fully addressed, particularly the racial biases that exist. One such area in which it is important to consider that aspect is in the diagnosis of neurodivergent conditions within children of color. It has become unequivocally clear that neurodivergent conditions like ADHD and autism go grossly underdiagnosed in children of color, at a time when they run the risk of falling into the school-to-prison pipeline, a systemic issue that is known to target students of color at a disproportionately higher rate. While students with symptoms of neurodivergence already experience higher rates of academic discipline, neurodivergent children of color face a double jeopardy that threatens their well-being, stability, and future. With so much on the line, one may be compelled to ask how much of a part the healthcare system and medical professionals have to play in the discipline and academic stability of young Black and Brown children. As the world begins to untangle and heal from the effects of mass colonization and ethnocentrism from centuries of violence, it may turn out that there are more connections between education and medicine than one would expect.

Background

  The history of racism in the medical field, particularly in America, has a long and ugly history of violence, particularly against Black and Indigenous peoples. The Tuskegee Syphilis

Experiments, conducted without consent, have now become the poster example for unethical science and have fostered a culture of mistreatment of Black patients, as told by a qualitative study (Brown, et. al. 2023). The forced sterilization of Indigenous women has had lasting effects on how Indigenous communities are valid in their mistrust of the healthcare system. Even today, this racism persists, and has spread to Latine and Asian communities. One such study revealed that alcoholism goes underdiagnosed in Asian communities, and has commonly been attributed to the model minority stereotype (Cheng, et. al. 2016).

This is not the only example of medical racism that exists, and the idea that neuropsychological professionals are free from scrutiny does a disservice to the undiagnosed neurodivergent people of color who experience struggles due to their lack of answers. The biases present in the medical field can often lead to misdiagnosis. For example, "a study by the Center for Autism and Developmental Disabilities Research and Epidemiology at the University of Pennsylvania, found that African-American children were 5.1 times more likely to be misdiagnosed with conduct disorders before receiving the proper diagnosis of autism spectrum disorder"(Beacon College 2023).

These misdiagnoses of conduct disorders have large-scale implications, particularly for Black children and other children of color. There is a higher rate of suspension for Black children, according to the 2014 US Department of Education. As was reported by CHADD in 2017, Black children were 3.6 times more likely than their white counterparts to be suspended from public schools. While neurodivergent conditions range on a number of levels, ADHD is the condition most commonly associated with misbehavior as perceived by society and the school systems. In fact, it is estimated that in just one prison, 40% of adult male inmates serving longer sentences present signs of ADHD. In the case of the underdiagnosis of ADHD, a study done by

Morgan, Staff, Hillemeier, Farkas, and Maczuga found that there is a noticeable racial/ethnic disparity in ADHD diagnosis starting by kindergarten and persisting until the end of eighth grade at minimum, even with confounding factors like socioeconomic status accounted for within the study (2013).

Rationale

The underdiagnosis of ADHD and other neurodivergent conditions like autism leading to more students of color, particularly Black students, being sent into the school-to-prison pipeline, shows just how intertwined colonization and systemic racism are with modern society. It is not enough to outlaw racism on a legal basis, the institutions that were built on racist pasts need to be dismantled in order to create equity. The link between medical racism and the school-to-prison pipeline is just one such example of how society in America is set up against people of color. In studying these issues, it will shed light on the underbelly of society that needs to be scrubbed clean, so that those who have been marginalized for so long can finally live an existence free of adversity.

Research Question

Are the underdiagnosis of and severity of punishment for ADHD symptoms in children of color compared to their white counterparts both statistically significant?

Hypothesis

The rate of underdiagnosis of ADHD in children of color compared to white children is statistically significant, and the punishment of ADHD symptoms in children of color compared to their white counterparts is statistically significant.

Basic Research Methodology

The study will be conducted in two parts, with the second part splitting into two: The first part will be a focus group being asked questions about schooling with a variety of people who were not diagnosed with ADHD until adulthood, while the second part will aim to draw the connection between the racism in healthcare and education. For the second part, one aspect will cover the underdiagnosis of ADHD in the healthcare settings, and the other aspect will cover how the expression of ADHD symptoms are dealt with in the classroom. The healthcare setting will be studied by means of survey data, and participant observation will be the method employed for the educational setting. Both of these will be tailored around how healthcare and educational professionals approach children of color in regards to ADHD and neurodivergence. In opting to study both aspects and trying to find a statistical significance in both, it will be possible to draw a mathematical conclusion that the two are connected by the mutual thread of systemic racism.

It will be possible to employ mixed methods in this study by virtue of the focus group. Since they will be adults at the time of this study, it will be possible to complete a qualitative and comparative historical analysis on how ADHD symptoms have been handled through the years in the educational system, as well as a glimpse into how the school-to-prison pipeline used to look like. The rates of diagnosis in the groups of children of color versus the white children will

be examined using quantitative analysis, specifically, a two-proportion z-score test. This will help determine whether or not the difference in the rates of diagnosis of ADHD among the two demographics is statistically significant. For the educational setting, a t-test will be used with an ordinal scale measuring severity of punishment for every instance an ADHD symptom expressed by any student occurs. A two-proportion z-test will also be used to determine if the rate of occurrence of punishment for students of color and white students for ADHD symptoms is statistically significant.

Phase One: The Focus Group

The focus group will serve as a baseline for understanding how undiagnosed ADHD affects children from all backgrounds in both healthcare and educational settings. Participants will be selected randomly, with an emphasis on their background, as well as whether they were diagnosed with ADHD after childhood. The goal will be a focus group of about 15 to 20 people of various races and genders.

The focus group will cover questions regarding if and how they expressed symptoms in school, and how their educators reacted. The goal is to get a snapshot of how educators respond to ADHD based on the race of the person who has it, even if that person is not diagnosed. Other questions may include how the reactions of the educators and their peers affected their wellbeing and academic performance. However, there will also be questions regarding whether or not these individuals attempted to approach medical professionals about the struggles they were facing, if at all, and what the response was. This will give a solid picture of what undiagnosed ADHD felt like for those who experienced it before they were able to understand why they were experiencing such unique struggles. The observations and notes gathered from this focus group

will also serve as something that can be compared to the data collected in the second phase of the study.

Phase Two: The Healthcare Survey and Educational Observation

The bipartite second phase partly comprises a survey that will encourage parents of children from ages 5-17 to fill out a survey if they had their child evaluated for ADHD. The only identifying information that will be accounted for in this survey is if the child is nonwhite, and if they were diagnosed with ADHD. The goal will be a sample size of 2000. A two-proportion z-test will be carried out with a value of 0.05, and should the p-value be less than 0.05, that will be sufficient to show that there is a statistically significant difference in the rate of diagnosis of ADHD between white children and children of color.

The educational aspect of the second phase involves several evaluators familiar with how ADHD presents across multiple cultures sitting in on various classrooms observing how educators discipline various students who present ADHD symptoms at inopportune times. The educators will make a note of whether or not the student is white, and assign the punishment an ordinal ranking based on its severity that will be agreed upon by all evaluators. This evaluation will take place over the course of one academic year. With the data collected, both a t-test and z-test will be employed to determine if there is statistical significance in the rate and/or severity of punishment for ADHD symptoms for children of color compared to white children. In both cases, if the p-value found is less than 0.05, then the rate and severity are both statistically significant. It is important to note that the rate of punishment does NOT factor into the hypothesis presented above. It is merely another metric being measured to offer further insight on how children of color are treated in educational settings. The meat of the hypothesis is found

in determining whether both the rate of underdiagnosis and the severity of punishment for ADHD in children of color are statistically significant, as that would better link the racial biases present in medical and educational settings.

Expanding on the Analysis

The z-test for the healthcare survey will be conducted through R, but the steps are rather simple. First, the hypotheses will be formed. The null hypothesis, the one that the research hypothesis does not support, is the idea that there is no difference between the rates of ADHD diagnosis between children of color and white children. After the data has been collected, to run the test, a z-score will be calculated from the pooled proportion and the standard error of the data. From the z-score, a p-value will be calculated, and if it falls under 0.05, the null hypothesis can be rejected, and the hypothesis that children of color are diagnosed with ADHD at a significantly lower rate is acceptable.

For the t-test measuring the statistical significance of the severity of punishment, it will first be necessary to check if the data is normally distributed. In the event it is not, a u-test will need to be conducted using R. If the data is in fact normally distributed, an independent sample t-test will be used to determine the p-value. Like the z-test, if the p-value is less than 0.05, the severity of punishment for ADHD symptoms in children of color is statistically significant.

Potential Impacts

Systemic racism has twisted a lot of American society in ways that render things unfamiliar to marginalized people. The repeated gaslighting of the medical system and the educational system has fostered a culture of individuality based entirely on isolation. Should this

study yield the results the hypothesis is predicting, the implications will prove the intertwining of institutions to work against people of color. While colonial violence is an ugly part of this country's history, ignoring it will not make it go away. Understanding and remedying its effects are the guaranteed way to ensure some of those who inhabit it now do not continue to perpetuate the hate they so vehemently deny exists. The more people endeavor to understand the good with the bad in the world around them, the closer humanity gets to building a more equitable society.

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