

## **Epigenetics: Examining Disparities in the African American Community**

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### **Abstract**

The purpose of this review is to examine the onset of negative epigenetic responses and recognize the social issues that plagued those in the African American community. These issues and responses created diseases and mental disorders. This review links changing factors of epigenetics to a system of oppression, incarceration, and sexual disease within the African American community. In addition, this review analyzed the significance of more literature on epigenetics and its effects on disparities among African Americans.

**Keywords:** *African Americans; Epigenetics; Maslow's Hierarchy of Needs; Social Bias; Phobias; STDs; Incarceration*

Epigenetics is the study of altering gene expression throughout multiple generations based upon environmental stimuli. The responsibility of the epigenome is to express preprogrammed cells at a given time period throughout a human's life. The epigenome controls diverse chemical modification in histones and DNA methylation. During the gestational period and early childhood development the expression of DNA methylation can be altered and lead to long term change in gene expression. Thus, suggesting environmental exposure can affect human behavior and be a causal factor for diseases and disorders [1].

### **Maslow's Hierarchy of Needs**

Self-actualization, esteem, love, safety, and physiological are the five basic levels of needs described in Maslow's Hierarchy of Needs, that affects the psyche and behavior of an individual. If one of these levels is not satiated it can become a gateway of psychological, sociocultural or biological mayhem, possibly creating changing in expression which could ultimately lead to an onset of mental disorders.

### **African Americans**

African Americans represent a population that for generations have been exposed to socioeconomic factors that are conducive to negative epigenetic responses. Higher poverty and unemployment rate, racial prejudice in employment, housing discrimination, education and health all rank high in African Americans. These socioeconomic factors have and continue to create unmet needs that may create an onset of disorders. African Americans have experienced numerous trauma for centuries. The questions to be asked are, "Does this still have an effect on African Americans currently, is there a systemic cycle that remains unbroken, and is there any plausible solution that must be addressed?" This article is to link negative epigenetic factors within African Americans that develop disorders and diseases throughout generations, i.e., phobias, syphilis and drug abuse.

### Phobias

Phobia is an anxiety disorder that is categorized by a persistent response to a specific external and/or internal factor. In the Supreme Court case, *Brown v. Board*, educational psychologist, Kenneth Clark addressed the issue that “human being who are subjected to an obviously inferior status in the society in which they live, have been definitely harmed in the development of their personalities; that the sight of instability in their personalities are clear.” He was then asked by the Justice, “Is that the type of injury which would be as enduring or lasting?”

Clark responded, “I think it is the kind of injury which would be enduring or lasting as the situation endured, changing only in its form and in the way, it manifest itself” [2]. The desegregation of schools did not desegregate culture. African American children were subjected to social bias, but since *Brown v. Board*, they were forced to assimilate physically without regards to their mental and emotional instability that may have already been present. Not to mention that after *Brown v. Board*, the Civil Rights Movement began, meaning that the rise of social injustice openly towards African Americans was at its public peak. Eighteen months after the *Brown v. Board of Education* Rosa Parks, wouldn’t give up her seat, three years after *Brown*, Little Rock, Arkansas had just allowed African American students to integrate. African Americans were being hosed down in the streets and Martin Luther King Jr. had still not given his I Have a Dream speech to which our society coins for his desire of racial unity in 1963 [3]. Kenneth Clark’s study on the effects of racism on the esteem of African American children proves that inferiority affects behaviors and can if unresolved create comorbidities or even an onset of disorders related to epigenetics. The median onset for phobias is between the ages of 7 and 11 [4]. Imagine Elementary school African Americans already fearful and full of anxiety embracing an environment that has already rejected them. How would they cope? Do they cope at all and is it prevalent in African Americans today; does it continue?

The continual harassment of integration, the rise of cortisone, the lack of familiarity as segregation remains in the cities, is that a stable environment for proper development? Did African Americans belong? Were they encouraged or nurtured properly?

### War on Drugs

“The consequences of “clean streets” are antithetical to what it takes to build healthy communities; the residual effects of systematic removal and efficient imprisonment of drug users creates a much larger challenge. The repercussions of removing people from their families and communities and then depositing them back later, without any assistance or substantial rehabilitation, are grave. Men and women who have served extensive prison sentences for nonviolent drug offenses are not only left with little or no social support but also clearly marked by the criminal justice system as potentially threatening repeat offenders. They are not only taken away from their loved ones but also placed in an impossible situation, one in which they are unable to provide for their families or retain emotional ties with their loved ones. On release, most, as convicted felons, find it difficult to procure gainful, legitimate employment as with many wars, the collateral damage of the war on drugs is made invisible but is no less destructive [5]”. The War on Drugs left a gap in the African American community. According to Maslow’s Hierarchy of needs the high level of individuals that were and are incarcerated are missing out on a sense of belonging, physiological needs (outside of prison), safety, love, and self-actualization and not only them but their family member who suffer their absence creating a gateway to a change of epigenetic expression. High rates of mental illness and HIV are also the sad truth of incarceration. The change of environment for those incarcerated changes the epigenetic expression creating diseases and mental illness. Although prisoners are given medical attention it is often substandard. Thus, upon the return of the incarcerated there is exposure to mental illness and disease. So not only does prison help formulate these onsets but it breeds them and passing them along to the community. “In 1996, African Americans constituted 62.6% of drug offenders in state prisons. Nationwide, the rate of persons admitted to prison on drug charges for African American men is 13 times that for White men, and in 10 states, the rates are 26 to 57 times those for White men (1996)”. This is not due to African American males being more addicted to drugs than Whites just more liable to be incarcerated because of it. Police are more likely to raid urban areas, where the demographic is mostly colored than that of the middle class suburban area,

where the demographic is mostly white where they utilize about the same if not greater levels of drugs. The War on Drugs was a political stand against the African American community criminalizing young African American women and men and dehumanizing them in the process effecting again the esteem of African Americans.

### Tuskegee Syphilis Experiment

The Tuskegee Syphilis Study is a well-known research study that lasted for 40 years. According to Jones [6], the United States government and US Public Health Service exploited hundreds of African Americans sharecroppers in Macon County, Alabama who were infected with syphilis. During this study, many African American men who were infected with the STD were followed by researchers for a long period of time. At this time, there was no new available treatment or drug to combat the original syphilis drug. By the time the definitive treatment for syphilis became available in 1942, it was still withheld from African Americans. For the first three decades after the cessation of the Tuskegee Syphilis Study in 1972, the unethical and immoral conduct that occurred during that study has frequently been used as a reason why Blacks are less likely to participate in biomedical research than are whites [6,7].

There are some concerns for victims' families including (a) discovering the process that enable some of the victims of the study to find peace and to forgive those who conducted the unethical study; (b) finding healing for the stigma and pain experienced by family members at the hands of an uninformed public; (c) ascertaining information about how money given by the government after President Clinton's Apology was spent by the Tuskegee Bioethics Center; (d) discovering ways to find financial support for the educational needs of grandchildren and great-grandchildren of those who participated in the study; (e) ensuring that family descendants of the study are not ethically mistreated by any further research; and (f) preventing the families of descendants as vulnerable populations from being exploited by unethical research, biological or otherwise.

### Discussion

Epigenetics posts the theory that exposure to specific socioeconomic factors change genetic makeup. In this article, it discussed the importance of having needs met physiological and psychological and that if not met disease and disorders could result. The African American community remains in these environments that are only conducive of producing disease and disorder because they don't provide fully physiological needs, security, esteem, and belonging. Not only is this physically represented in the community but also mentally allowing the cycle of oppression to continue. As a nation, there must be solutions in place that break reoccurring incidents or cycles in African Americans, it is no longer just a coincidence that African Americans have a high percentage of incarceration, are subject to social bias, mental illnesses and disease. It is a byproduct of the solutions that are being created to stop the onset of these factors to which in some cases are not even present. Providing within our Nation's community, belonging, physiological needs and esteem will create a sense of self-actualization that wards off disease and disorders. These traits are also the opposite of oppression and social bias. Allowing diversity to happen as natural as possible starts in the same way that it was denied, in the homes, on the televisions, the streets, the school systems, the governments. A community must be built upon educating others through practice. The African American community needs unity that they can trust, and trust has to be built not just by providing them with a 10-foot spoon but nurturing the community with education, hope and faith giving them a solution and not just quick fixes. Our government needs to see the skewed numbers not just as this is a culture of people but that this is a problem of the people. By conducting more research hopefully, we can present changes that will decrease these negative disparities.

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