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Do Police Officers Give Teenagers Stress? The Impact of Police Interaction on Teenage Body Mass Index

By

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Degree to be awarded: Master of Public Health

Epidemiology

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By

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B.S. Health Education and Promotion
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Abstract

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By Sarah Mueller

Police violence has become an increasingly more visible issue in the last decade. This study seeks to examine the relationship between lived and vicarious police interaction and teenage weight status. This was done using data collected from the Fragile Families and Child Wellbeing Study. This research found that there was no relationship between direct interactions and an overweight/obese weight status, (PR 0.89 (95%CI 0.78, 1.02). The results for vicarious interactions were mixed. Reporting seeing someone being stopped in their school was not associated with prevalence of overweight (PR 0.98 (95%CI 0.85 ,1.13). The vicarious variable that did have a very slight association was knowing anyone who had an interaction with police which had a prevalence ratio of 1.05 (95% CI 0.92, 1.20). While there was no association between direct interactions with police officers and overweight and obese status, there were mixed findings with vicarious interactions depending on the context of that the interaction. This research highlights the need for further research on impact of police officers on teenagers, and the need for further research about the impact of police officers' impact on the mental health and physical of society.

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Introduction

"Police interaction" means something different for every person living in the United States. For some, it is an interaction with someone whose job it is to keep one safe. For others, it can be a death sentence. Since its inception in the early 1700's, policing in the United States has been based in racism. Modern day police forces originated from slave patrols from Southern United States during the 1800s (McLeod et al., 2019). As slavery was dismantled in the late 19th century, these slave patrols were transitioned into modern day police in the Southern United States, and eventually across the country (McLeod et al., 2019). As the police in the United States has continued to develop, immigrants and racial minorities are often the target of police officers' attacks (Geller et al., 2014). McLeod et al., sums it up nicely "In effect, Blacks have experienced targeted police violence for as long as they have been in the USA" (McLeod et al., 2019). Little is known on how these interactions turn violent or deadly, but while Black Americans make up only 13% of the population, they make up 23% of those who are fatally shot during police interactions (McLeod et al., 2019).

In the United States, Black Americans are more likely than other racial/ethnic groups to be the driver in a traffic stop (McLeod et al., 2019). Due to new policing rules and guidelines, there are more police officers patrolling in low-income communities (Geller et al., 2014) compared to more affluent communities. This has led to a disproportionate number of interactions between those who inhabit low-income communities, often racial minorities, such as

Black Americans (Geller et al., 2014). Police stops are not random occurrences, there are both social and health selective factors involved (McFarland et al., 2019). For example, police are more likely to stop racial minorities, males, those who have a low socioeconomic status, and those who may engage in delinquent behavior (McFarland et al., 2019).

While the long-term impact of police interactions is largely unknown, there is a body of research that has effectively demonstrated that police interactions can lead to fatal injuries, stress, poor physical health outcomes, and other oppressive practices on racial minorities in the United States. (Geller & Fagan, 2019). The more trauma an individual endures, the worse off their health may be (Trauma and Violence, n.d.). People who are often stopped by police face far more than the mental toll but can also see physical symptoms on the body (Geller & Fagan, 2019). The traumatic experiences that are associated with police interaction can lead to health conditions such as depression, anxiety, and post-traumatic stress disorder (Geller & Fagan, 2019).

In a study completed in Chicago, Illinois, adults who had encounters with the police said that there were more negative encounters than positive (Hirschtick et al., 2020). Those who had more than three lifetime stops from police were three times more likely to report post-traumatic stress disorder symptoms than those with less than three lifetime stops from police (Hirschtick et al., 2020). Long term post-traumatic stress disorder has been shown to have physical symptoms (McFarland et al., 2019). There has been great evidence in the last decade to show that there is connection between psychological stress and hypertension, cardiovascular disease, and obesity (Brydon, 2011). When a person experiences frequent stress responses from traumatic events, there is a significant impact on the physical health of the individual (Geller & Fagan, 2019).

Some of the impacts on the bodily health can be high blood pressure, increased heart rate, increased sweating, and decreased digestion activity (Mental Health Foundation U.K., n.d.).

When considering the physical impact of stress from both lived and vicarious police interactions, as demonstrated by Wardle et al., in 2011, a clear connection can be seen between an increase in stress and a high level of adiposity (Wardle et al., 2011). Greater psychological stress from a young age can have an impact on weight control behaviors, such as overeating which can then extend throughout the lifetime (Roemmich et al., 2007). Evidence suggests that children who are continuously exposed to high levels of stress are more likely to be obese (Brydon, 2011). With more and more teenagers experiencing stress related to interacting with police, there is evidence that this could lead to these children having higher levels of adiposity and higher body mass index's (BMI) (Roemmich et al., 2007).

There is a gap in research demonstrating how children are impacted by exposure to police interaction from a young age. This study seeks to examine a relationship between lived and vicarious police interaction and teenage weight status in a cross-sectional study, using the teenagers self-reported BMI measurements. We predicted that there would be a positive relationship between interactions with police, both direct and vicarious, and BMI level.

Methods

1. Fragile Families and Child Wellbeing Study

This study utilized the Fragile Families and Child Welfare Study (FFCWS), that is a stratified, multistage study funded by Princeton and Colombia University. FFCWS began sampling between 1998 and 2000, with 4,898 children enrolled in the original cohort. FFCWS oversampled unwed mothers 3 to 1, this resulted in a high proportion of low-income families included in FFCWS. This was done to understand how children's health develops overtime in

what is deemed “fragile” families. In this study, the impact of direct and vicarious police interaction on the health of children interviewed in year 15 of the Fragile Families and Child Welfare Study will be examined. The sample size for the analytic sample was 2,396. The sample went from 4,898 to 2,396 through filtering out teenagers who did not answer questions regarding police interactions or regarding the confounders. Additionally, not all the 4,898 were included in wave 15. This lead to the 2,396 included in the study. This includes all the children who did not have missing values for the demographic, BMI, or police contact questions.

2. Demographics

This study will use the interview data collected from the focal child, as well as responses from the interviews of the primary caregiver. Teens were asked to self-identify their race/ethnicity in an open-ended format, and in this study, this was coded as White non-Hispanic, Black Non-Hispanic, Hispanic, Multiracial, or Other. We also included the teens self-reported biological sex from year 15, male or female.

3. Police Contact

The teens were asked a series of yes or no questions to reflect if they had personally been stopped by police at school, in their neighborhood, in a car, or another place. Similarly, they were asked if they had heard, witnessed, been told, or had been made aware of another person having been stopped by police. Like what was done by McFarland et al., we characterized adolescent police contact based on a series of questions that were asked during the year 15 survey. These questions were “Ever been stopped by the police?” “Ever seen someone stopped by police in your school?” “Friend was stopped by police?” “Parent was stopped by police?” “Sibling was stopped by police?” It is important to note that though the data was collected in year 15, all the questions ask if an event or interaction has ever occurred in the child’s life, not

just within the year of the survey. 100% of the respondants reported that they knew someone who had been stopped by the police.

4. BMI

Teen's height and weight were self-reported in year 15. FFCWS calculated and reported teenager BMI as a variable in the year 15 dataset. The BMI was characterized as not overweight/obese or overweight/obese in this study. The not overweight/obese category was a BMI less than or equal to 24.9. The category of overweight is greater than or equal to 25, which the Centers for Disease Control has classified as overweight to obese. Overweight/obese status will be used as a dichotomous outcome variable.

5. Determining Confounders

Possible confounders that were included in this study were: primary caregiver education level (did not graduate high school, high school or GED, some college or a technical degree, college, or graduate school) number of parents living in the home reported by primary care giver (single parent home, double parent home, or prefer not to answer), child reported race/ethnicity, child reported age, and child reported sex. The confounders were based on existing literature.

6. Analyses

First, descriptive statistics were completed to determine type and frequency of police contact within year 15 by overweight or obesity status. Next, log binomial regression was completed to model the relationship between police interaction and overweight and obesity status. Overweight/obese status was used as the binary outcome. First, a model examined direct police interaction as an exposure. Next, a series of models examined vicarious police interactions as the exposures, adjusting for confounders.

Results

Table 1. Demographics for FFCWS, N=2396

	N	**Percent**
Race /ethnicity		
White, non-Hispanic	439	18.31
Black, African American, non-Hispanic	1146	47.81
Hispanic/Latinx	617	25.74
Other, non-Hispanic	195	8.13
Sex		
Female	1339	55.91
Male	1057	44.19
Body Mass Index Categories		
Not overweight	1663	69.38
Overweight or Obese	734	30.62
Primary Caregiver Education Level		
Did not graduate high school	413	17.23
Highschool graduate or GED	436	18.19
Some college, technical degree	1066	44.47
College degree or graduate school	482	20.11

Number of Parents in Household		
One parent household	1546	64.50
Two parent household	851	35.50

Table 2. Overweight/Obese status by police interactions, direct and vicarious for FFCWS N-2396

Direct Police Interaction	**N (percent) Yes**	**Frequency (percent) No**
Ever been stopped by the police		
Overweight/Obese	210 (33.76)	524 (29.52)
Vicarious Police Interaction	**Frequency (percent) Yes**	**Frequency (percent) No**
Ever seen someone stopped by police in your school		
Overweight/ Obese	333 (30.80)	217 (30.56)
Know anyone stopped by police	**Frequency (percent) Yes**	**Frequency (percent) No**
Overweight/Obese	550 (30.71)	606 (30.80)

Table 3. Prevalence ratios and confidence intervals of direct and vicarious police stops for FFCWS N=2396.

	Overweight and Obese Prevalence Ratio	**95% Confidence Intervals**
Direct Police Interaction		
Personally stopped by police	0.89	(0.78,1.02)
Vicarious Police Interaction		
Seen someone stopped by police in your school	0.98	(0.85 ,1.13)
Know anyone stopped by police	1.05	(0.92, 1.20)

*Note: Confounders included were child race, child sex, child age, maternal marital status, and primary caregiver education level. N=2396.

Results

Table 1 describes the demographics of the study sample. The study sample was made up of 55.91% females and 44.19% males. 48 percent of participants identified as Black or African American/non-Hispanic, 26% reported to be Hispanic or Latinx and 18% identified as white/non-Hispanic only. Twenty-four percent were reported as overweight or obese.

Of the teenagers included in this study, 64.50% were reported to come from a single parent home. 35.50% were reported to come from a two-parent home. Primary caregivers were also asked to report their highest level of education. 17.23% reported that they did not finish high school, 18.19% reported that they finished high school or had obtained a GED, 44.47% reported that they had completed some college or had a technical degree, and 20.11% reported that they had graduated college or had gone to graduate school.

Table 2 demonstrates the prevalence of direct interaction and vicarious interactions with police officers from the 2,396 teenagers included in this study. 33.76% of the respondants were

categorized as overweight/obese and had direct interactions with police officers. 29.52% were categorized as overweight/obese and did not report a direct interaction with police officers.

When it came to vicarious interactions, respondants were asked if they had seen someone stopped at school. 30.80% of respondants categorized as overweight/obese and seeing someone being stopped. 30.56% of the respondants did not report seeing someone at their school being stopped. Finally, 30.71% report knowing anyone who had been stopped by police, while only 30.80% reported not knowing anyone who had been stopped.

Table 3 demonstrates the prevalence ratios of obesity for the direct and vicarious police interaction variables. The direct police interaction variable, "Have you ever been personally stopped by the police?" the prevalence ratio was 0.89 (0.78, 1.02) This demonstrates that the teenagers who answered yes to that question were not more likely to be obese than those who answered yes to the question. The association was null.

Table 3 has a series of vicarious police interaction variables, the first being "have you ever seen someone at your school stopped by a police officer?" the prevalence ratio for this question was 0.98 (0.85 ,1.13). this means that the teenagers who answered yes to this question were not more likely to report a BMI that would be classified as overweight than a teenager who answered no to this question. The association was null.

Similarly, Table 3 demonstrates that the prevalence ratio for teenagers who knew anyone who was stopped by the police that reported a BMI that was classified as overweight was 1.05 (0.92, 1.20). Teenagers who had a vicarious interaction with police through a parent or sibling were 1.05 times more likely to report a BMI over 25, as demonstrated in Table 3. This value is only slightly over null.

Conclusion

Teenagers who have direct interactions with police officers are not more likely to have a higher BMI than those who do not have direct interactions with police officers. Teenagers who are exposed to police officers vicariously through seeing someone being stopped in their school, are not more likely to have a higher BMI than those who do not report seeing someone in their school, albeit estimates were less precise. However, teenagers who are exposed to police officers vicariously through knowing anyone who has interacted with the police are slightly likely to report a higher BMI than those who are not exposed to police officers.

The impact of police interaction on teenagers and children in the United States is still largely not understood. However, it is widely accepted that interacting with police officers can lead to stress (McFarland et al., 2019). This study set out to determine if there was an association between both direct and vicarious police interactions, and body mass index in teenagers. It was found that there was not a strong association between police interaction and an increased BMI. This demonstrates the need for further research on the topic of how interactions with law enforcement impacts teenagers, and how this impacts their health long term.

Discussion

The study had several strengths, including the large and complete sample size. The topic of this study does not have many data sets that can be used and having a large data set with 2,396 respondants with complete data is an advantage to this study. This study can ensure that all of the respondants have answered every question needed, and that the data is 100% complete.

While further research is needed to fully understand the relationship between young people and their responses to stressful or traumatic interactions with police officers, there are some

limitations to this study and data available. One important aspect of this study is that it is cross sectional in nature. This implies that this study cannot establish temporality. This means that while this study can suggest that there may be a correlation, this study cannot establish a relationship overtime. To do this, this study would have to be repeated over time and would need to encompass multiple years of the FFCWS. As more years of the study become available, this opportunity can be taken to demonstrate the impact of teenagers interacting with police as they grow from teenagers to young adults. The potential lack of depth demonstrates a weakness of the study.

Additionally, there were confounders in this study that were not controlled for. This led to limitations in this study. Examples of these confounders are neighborhood socioeconomic status, crime rates, and geographic area that the teenager lives in. This may have led to inappropriate estimates of the relationship between the exposure and the outcome.

Finally, a limitation is that BMI data used is self-reported and may not be as accurate as if it was measured during the home visit portion of year 15 of the FFCWS, however prior studies have shown high correlation between self-reported height and weight and measured height and weight in the Fragile Families Study.

Many of the teenagers involved in this study do report being stopped or knowing peers who had been stopped by police officers in schools, which leads to an important conversation about police officers in schools. Many schools will employ officers in schools as an anti-bullying strategy, though there is currently not enough data to support if this strategy is truly effective or if it is simply a scare tactic (Devlin et al., 2018). However, in a study published in 2011, it was found that when schools increase the presence of police officers, the rate of weapons found in the schools and the amounts of crimes reported within the schools were increased (Na &

Gottfredson, 2011). This demonstrates the need for further research on the impact of police in schools, and the perception of police from the students within the schools. It is also worth mentioning that police officers can vary widely with how they treat the students in the school, and this can have a significant impact on how they are perceived by the student they are interacting with, which in turn will have an impact on the stress level, and the response that the students have to the police within their schools (Na & Gottfredson, 2011).

Future directions for this work would be to consider modifications by race or sex within this study. Because these factors could moderate the police interaction and BMI relationship, they are factors that should be further explored within the design of this study. Additional future directions would be to explore how the relationship changes as the study population ages, as the original FFCWS is a longitudinal cohort study, and the study could be repeated in the future to establish a causal relationship.

There was not an association between direct police interaction and teenagers who report a BMI that is classified as overweight or obese. Slight associations were seen between the vicarious police interaction variable and teenagers who report a BMI that is classified as overweight and obese, including knowing anyone who has been stopped by police. The study implies that there may be some sort of stress reaction within teenagers who are exposed to police interactions, and further research is needed to understand how what the reaction is, and what can be done to limit this negative impact on the teenagers in the future

Works Cited

Alang, S., McAlpine, D.D. & Hardeman, R. Police Brutality and Mistrust in Medical Institutions. J. Racial and Ethnic Health Disparities 7, 760–768 (2020). https://doi.org/10.1007/s40615-020-00706-w

Alang S., McAlpine D., McCreedy E., and Hardeman R.,, 2017:Police Brutality and Black Health: Setting the Agenda for Public Health Scholars American Journal of Public Health 107, 662_665, https://doi.org/10.2105/AJPH.2017.303691

Benson, S., Arck, P. C., Tan, S., Mann, K., Hahn, S., Janssen, O. E., Schedlowski, M., & Elsenbruch, S. (2009). Effects of obesity on neuroendocrine, cardiovascular, and immune cell responses to acute psychosocial stress in premenopausal women. *Psychoneuroendocrinology*, *34*(2), 181–189. https://doi.org/10.1016/j.psyneuen.2008.08.019

Bor, J., Venkataramani, A. S., Williams, D. R., & Tsai, A. C. (2018). Police killings and their spillover effects on the mental health of Black Americans: A population-based, quasi-experimental study. The Lancet, 392(10144), 302–310. https://doi.org/10.1016/s0140-6736(18)31130-9

Brydon, L. (2011). Adiposity, leptin and stress reactivity in humans. *Biological Psychology*, *86*(2), 114–120. https://doi.org/10.1016/j.biopsycho.2010.02.010

Devlin, D. N., Santos, M. R., & Gottfredson, D. C. (2018). An evaluation of police officers in schools as a bullying intervention. *Evaluation and Program Planning*, *71*, 12–21. https://doi.org/10.1016/j.evalprogplan.2018.07.004

DeVylder, J., Oh, H., Nam, B., Sharpe, T., Lehmann, M., & Link, B. (2017). Prevalence, demographic variation and psychological correlates of exposure to police victimisation in four US cities. Epidemiology and Psychiatric Sciences, 26(5), 466-477. doi:10.1017/S2045796016000810

Emmett, P. M., & Jones, L. R. (2015). Diet, growth, and obesity development throughout childhood in the Avon Longitudinal Study of parents and children. *Nutrition Reviews*, *73*(suppl 3), 175–206. https://doi.org/10.1093/nutrit/nuv054

Geller, A., & Fagan, J. (2019). Police contact and the legal socialization of urban teens. RSF: The Russell Sage Foundation Journal of the Social Sciences, 5(1), 26. https://doi.org/10.7758/rsf.2019.5.1.02

Geller, A., Fagan, J., Tyler, T., & Link, B. G. (2014). Aggressive policing and the mental health of Young Urban Men. American Journal of Public Health, 104(12), 2321–2327. https://doi.org/10.2105/ajph.2014.302046

Goosby, B. J., Cheadle, J. E., & Mitchell, C. (2018). Stress-related biosocial mechanisms of discrimination and African American health inequities. Annual Review of Sociology, 44(1), 319–340. https://doi.org/10.1146/annurev-soc-060116-053403

Gottlieb, A., & Wilson, R. (2019). The effect of direct and vicarious police contact on the educational achievement of Urban teens. Children and Youth Services Review, 103, 190–199. https://doi.org/10.1016/j.childyouth.2019.06.009

Fagan, J., Tyler, T.R. Legal Socialization of Children and Adolescents. Soc Just Res 18, 217–241 (2005). https://doi.org/10.1007/s11211-005-6823-3

Brunson, R. K., & Weitzer, R. (2009). Police Relations with Black and WhiteYouths in Different Urban Neighborhoods. Urban Affairs Review, 44(6), 858–885. https://doi.org/10.1177/1078087408326973

Harrell E. (n.d.). Contacts between police and the public, 2018 - statistical tables. Bureau of Justice Statistics. Retrieved January 25, 2022, from https://bjs.ojp.gov/library/publications/contacts-between-police-and-public-2018-statistical-tables

Hirschtick, J., Homan, S., Rauscher, G., Rubin, L., Johnson, T., Peterson, C., & Persky, V. (2020). Persistent and aggressive interactions with the police: Potential mental health implications. Epidemiology and Psychiatric Sciences, 29, E19. doi:10.1017/S2045796019000015

Landers, A. J., Rollock, D., Rolfes, C. B., & Moore, D. L. (2011). Police contacts and stress among African American college students. *American Journal of Orthopsychiatry*, *81*(1), 72–81. https://doi.org/10.1111/j.1939-0025.2010.01073.x

Mental Health Foundation UK . (n.d.). *The impact of traumatic events on Mental Health*. Mental Health Foundation . Retrieved April 25, 2022, from https://www.mentalhealth.org.uk/sites/default/files/the-impact-of-traumatic-events-on-mental-health.pdf

McFarland, M. J., Geller, A., & McFarland, C. (2019). Police contact and health among urban adolescents: The role of perceived injustice. Social Science & Medicine, 238, 112487.https://doi.org/10.1016/j.socscimed.2019.112487

McFarland, M. J., Taylor, J., McFarland, C. A., & Friedman, K. L. (2018). Perceived unfair treatment by police, race, and telomere length: A Nashville community-based sample of Black and Whitemen. Journal of Health and Social Behavior, 59(4), 585–600. https://doi.org/10.1177/0022146518811144

McLeod, M.N., Heller, D., Manze, M.G. et al. Police Interactions and the Mental Health of Black Americans: a Systematic Review. J. Racial and Ethnic Health Disparities 7, 10–27 (2020). https://doi.org/10.1007/s40615-019-00629-1

Mocanu, V. (2013). Prevalence of overweight and obesity in urban elementary school children in northeastern Romania: Its relationship with socioeconomic status and associated dietary and lifestyle factors. *BioMed Research International*, *2013*, 1–7. https://doi.org/10.1155/2013/537451

Na, C., & Gottfredson, D. C. (2011). Police officers in schools: Effects on school crime and the processing of offending behaviors. *Justice Quarterly*, *30*(4), 619–650. https://doi.org/10.1080/07418825.2011.615754

Roemmich, J. N., Smith, J. R., Epstein, L. H., & Lambiase, M. (2007). Stress reactivity and adiposity of youth*. *Obesity*, *15*(9), 2303–2310. https://doi.org/10.1038/oby.2007.273

Sewell, A. A. (2016). Collateral damage: The health effects of invasive police encounters in New York City. Journal of Urban Health: Bulletin of the New York Academy of Medicine, 93(1). https://doi.org/10.31235/osf.io/y9x5t

Slocum, Lee Ann., & Wiley, Stephanie Ann. (2018). "experience of the expected?" Race and ethnicity differences in the effects of police contact on youth*. Criminology, 56(2), 402–432. Https://doi.org/10.1111/1745-9125.12174

The Trustees of Princeton University. (n.d.). *About the core study*. Princeton University. Retrieved February 7, 2022, from https://fragilefamilies.princeton.edu/about

Trauma and violence. SAMHSA. (n.d.). Retrieved January 25, 2022, from https://www.samhsa.gov/trauma-violence

Turney K, Jackson DB. Mothers' health following youth police stops. Prev Med. 2021 Sep;150:106693. doi: 10.1016/j.ypmed.2021.106693. Epub 2021 Jun 23. PMID: 34157316.

Tyler, T. R., Fagan, J., & Geller, A. (2014). Street stops and police legitimacy: Teachable moments in young urban men's legal socialization. Journal of Empirical Legal Studies, 11(4), 751–785. https://doi.org/10.1111/jels.12055

Wardle, J., Chida, Y., Gibson, E. L., Whitaker, K. L., & Steptoe, A. (2011). Stress and adiposity: A meta-analysis of longitudinal studies. *Obesity*, *19*(4), 771–778. https://doi.org/10.1038/oby.2010.241

Wildeman, C., Goldman, A. W., & Turney, K. (2018). Parental incarceration and child health in the United States. Epidemiologic Reviews, 40(1), 146–156. https://doi.org/10.1093/epirev/mxx013

Wildeman, C., & Wang, E. A. (2017). Mass incarceration, public health, and widening inequality in the USA. The Lancet, 389(10077), 1464-1474