

An Empirical Study of the Enduring Impact of Historical Trauma in 2020

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Abstract

This study aimed to investigate the lasting effects of "historical trauma" on the well-being and "social capital" of historically disadvantaged social groups. We examined rates of depressive disorder, as well as employment status and income levels, using the 2020 dataset from the Behavioral Risk Factor Surveillance System (BRFSS). Various analyses, including Analysis of Variance, Chi-Square, and Independent Sample t-tests, were conducted. As expected if the impact of historical trauma continues in modern society, these analyses revealed significant differences in Adverse Childhood Experiences (ACE) scores between the White population and the Hispanic population, as well as between the White population and the American Indian/Alaska Native populations. Furthermore, females exhibited significantly higher ACE scores than males. Additionally, the analyses demonstrated a significant association between ACE scores and individuals' "social capital." Overall, these findings provide evidence of the persistent influence of historical trauma on the economic well-being and mental health of disadvantaged groups in contemporary American society.

Keywords: Historical trauma; Health disparities; Disadvantaged groups; Adverse childhood experiences; Covid-19 pandemic

Introduction

In recent years, there has been a notable increase in the interest surrounding the study of the causes and consequences of health disparities. Specifically in the United States, research in this field has primarily focused on investigating health disparities linked to socioeconomic status and race. The term "health disparity" commonly refers to the uneven distribution of health or health risks experienced by historically disadvantaged social groups [1-3].

Certain racial or ethnic groups, among others, can be classified as disadvantaged if they consistently face social disadvantages [4]. In the field of public health research, scholars are actively involved in efforts to reduce and eliminate racial or ethnic health disparities, recognizing them as integral to addressing social inequality. To achieve this goal, researchers commonly employ the conceptual and methodological tools of epidemiology, which are predominantly influenced by a biomedical perspective. However, it is essential to acknowledge the inherent constraints and limitations of this perspective. The approach of social epidemiology to health disparities expands the investigation beyond the causes of health disparities by examining the impact of social factors and historical contexts. By doing so, it offers fresh insights and directions for understanding the underlying causes of health disparities among minority and impoverished groups [5].

The theory of historical trauma is a significant paradigmatic contribution to social epidemiology, shedding light on the socio-historical and economic forces that impact the mental health of racial, cultural, or ethnic groups. It encompasses four key assumptions. Firstly, it recognizes that exposure to mass trauma systematically imposed by a dominant group leads to numerous health-compromising factors. Secondly, the effects of this trauma can extend into the present period. Thirdly, traumatic events tend to spread across populations, creating a widely shared trauma experience. Lastly, because the trauma affects entire populations, it can disrupt the psychological,

social, and economic well-being of social or cultural groups across generations [6].

Empirical research supports the notion that groups experiencing historical trauma are more susceptible to adverse psychological outcomes. For instance, a study on children of Holocaust survivors in Canada found a higher vulnerability to PTSD among them [7]. Similarly, research on Palestinians displaced during the 1948 exodus revealed lower self-rated health, poorer socioeconomic status, and higher stress levels among them and their descendants compared to the majority population [8]. The inducement effect of historical trauma serves as a link between the discriminatory experiences faced by minority groups and the health disparities observed in various marginalized populations today.

In the study of how historical trauma can impact present-day health, scholars have suggested that the notion of historical trauma serves as a representation of a specific traumatic event for a particular group, and that the phenomena associated with it creates a connection between trauma and the present-day cultural environment, which, in turn, compromises health [9]. In this way, the trauma narrative links past experiences to the health of a group. Scholars also suggest that to explain the link between present-day health and past trauma experiences, three unique dimensions of historical trauma should be considered. These include the psychosocial dimension, its political-economic impact, and relevant socio-ecological conditions [6]. Study of how cultural narratives of historical trauma link

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to health also reveal much about its enduring, widespread impact [10]. In other words, these findings suggest that, in addition to historical forces, it is usually necessary to consider contemporary socio-political and economic factors that are apt to be at play as one seeks to address consistent mental health disparities among minority groups. This is the goal of the present study.

The COVID-19 pandemic in 2020 had a profound impact on the US economy, leading to stagnation in various sectors. Notably, the unemployment rate surged, affecting more than 40 million Americans, with higher rates observed among the Black and Hispanic populations compared to the white population [11]. Given the long-standing issue of wealth inequality in the US, one could hypothesize that the pandemic-induced loss of wages, combined with existing poverty among minority groups, may have exacerbated health disparities. Over the past four decades, the black population has consistently experienced a life expectancy that is 3.5 years lower than that of the dominant groups, and minority groups with limited socioeconomic resources have faced a higher risk of poor health outcomes [12].

Throughout the pandemic, minorities and individuals with lower socioeconomic status have demonstrated a heightened vulnerability to COVID-19. They experienced higher infection rates, mortality rates, and bore the unequal economic consequences of exposure to the virus [13]. Additionally, a study exploring the link between socioeconomic status and mental health outcomes found a significant disparity in depression based on differential socioeconomic status [14]. These findings collectively highlight the intersecting challenges faced by disadvantaged communities during the pandemic, emphasizing the need for targeted interventions to address health inequities.

Early studies on trauma have established associations between trauma exposure and various disorders, including anxiety disorders, substance use disorders, externalizing disorders, and depression [15]. Importantly, trauma can disrupt both mental and physical well-being, as psychological distress can lead to physiological disorders [16]. Early exposure to traumatic events has been linked to adverse physical health outcomes later in life, such as heart disease and diabetes [17]. A longitudinal study examining the impact of the 9/11 event over three years revealed an increase in cardiovascular ailments and other somatic illnesses, including respiratory, gastrointestinal, and genitourinary conditions [18]. Additionally, subsequent stressful life events resulting from trauma, such as school failure or family problems, may further exacerbate mental disorders [19].

While historical trauma and intergenerational trauma share similarities, they also exhibit distinct characteristics. Intergenerational trauma can be transmitted between generations through direct and indirect means, such as projection and identification [20]. In contrast, historical trauma not only spans generations but also persists and often intensifies through cultural mechanisms [21]. This study aims to examine historical trauma by utilizing adverse childhood experiences as a proxy to differentiate it from intergenerational trauma within various racial groups. To assess the impact of historical trauma, we employ the term "social capital" to

represent the accessibility to resources within an individual's social network [22]. Within this study, "social capital" encompasses factors like depressive disorder status, income level, and employment status, serving as proxies to assess an individual's personal outcomes and well-being within the context of their social network [23]. In this study, we also want to examine the variation in personal outcomes among different racial groups by utilizing the components of "social capital" as it reflects the outcomes of historical trauma.

The COVID-19 pandemic, as well as a range of natural disasters, or grave economic crises, may be properly described as traumatic events that have the power to impact psychological well-being in significant ways [24]. COVID-19, for example, imposed upon millions of people experiences of intense suffering, grief, and bereavement—all of which may delay recovery from those traumatic events and increase vulnerability to mental disorders [25]. Previous studies have indeed found that people are more likely to develop psychological disorders during periods of employment uncertainty and financial strain [26,27]. These uncertainties usually appear when the social environment is rapidly changing.

Materials and Methods

In light of this background, the current project sought to explore the impact of the rapid change in the social environment induced by the COVID-19 pandemic on the health of minority groups who have been especially vulnerable from a financial point of view, and have also tended to be exposed to a higher incidence of trauma. To be more specific, in this project, we explored the hypothesis that the rapid change in the social environment in recent years was apt to render minority groups in the United States more susceptible to mental health problems because of their previous exposure to both historical trauma and relative poverty. We also endeavored to identify some of the most salient factors that might amplify minority groups' susceptibility to mental health problems during this especially stressful period in the life of the American community. Our dependent variables consisted of common mental health disorders that tend to arise as a result of exposure to stress and trauma.

This research consists of two studies. Study 1 sought to validate the existence of the phenomenon of historical trauma in different groups, while Study 2 sought to compare the sampling pattern of the 2020 dataset with the 2019 dataset in order to explore the potential impact of rapid social change, embodied in the COVID-19 global pandemic, on population health. (See Figure 1 for Study 1 variable flowchart).

Data

To explore these themes, we drew data from the Behavioral Risk Factor Surveillance System (BRFSS), which is a health-related survey dataset collected by the Centers for Disease Control in the United States (<https://www.cdc.gov/brfss/index.html>). We chose this dataset because these data are current (2020) and are available to the public. Furthermore, this dataset includes not only a large sample size, but also a large number of relevant variables. Our approach to analyses included Analysis of Variance, Chi-Square Analysis, and Independent Sample t-tests. Since we used a pre-existing dataset for analysis, the study was exempted from Institutional review board approval.

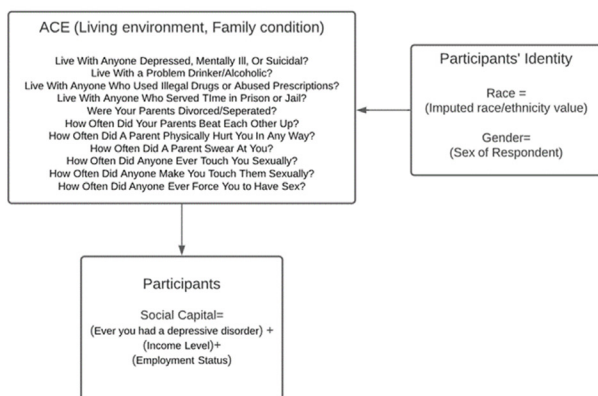


Figure 1: Flowchart for variables in Study 1

Results

Study 1 Results

Study 1 was conducted using the 2020 dataset of BRFSS. Four quantitative analyses were performed with the purpose of examining associations between ACE scores and a range of biological, social, and psychological factors in 2020 as a function of class and race.

One-way ANOVA test for ACE: Previous research has found that Adverse Childhood Experiences (ACE) scores provide reliable evidence of traumatic past experiences. Insofar as historical circumstances have likely rendered racial groups differentially vulnerable to the experience of trauma, we hypothesized that racial and ethnic groups would be apt to differ with respect to ACE scores. The independent variable (IV) in this analysis is the participants' self-identified race, and the dependent variables are the participants' mean ACE scores.

Furthermore, we expected that ACE data would not be normally distributed either across the entire sample or even within each racial or ethnic group because adverse childhood experiences have been found to be more common in families that have been subject to varying degrees of social and economic stress both in the past and in the present. A Shapiro-Wilk test revealed a significant departure from normality for ACE scores across racial groups, $W(3474)=.694, p<.001$. Outliers were retained in the analyses because it is in the nature of Adverse Childhood Experience (ACE) scores to have outliers. Levene's test showed that there was homogeneity of variance for the ACE scores among racial groups, $F(5,129380)=300.904, p<.001$. (See Table 1 for descriptive statistics).

Race	N	Mean	SD
White	96,693	1.58	2.054
Black	11,492	1.6	1.998
Asian	3,474	0.98	1.482
Indian Native	2,712	2.31	2.421
Hispanic	10,037	1.88	2.239
Other Races	4,978	2.32	2.469

Table 1: Descriptive statistics of ACE by race category

We found a statistically significant difference in mean ACE

scores according to racial groups, $F(5)=276.084, p<.001$. (See Figure 2 for ACE scores by race category.) A Tukey post hoc test revealed no significant differences between the White group and the Black group ($p=.629$), or between the American Indian/Alaskan Native group and the other races group ($p=1.000$), but statistically significant differences between all the other groups ($p<.001$) (Figure 2).

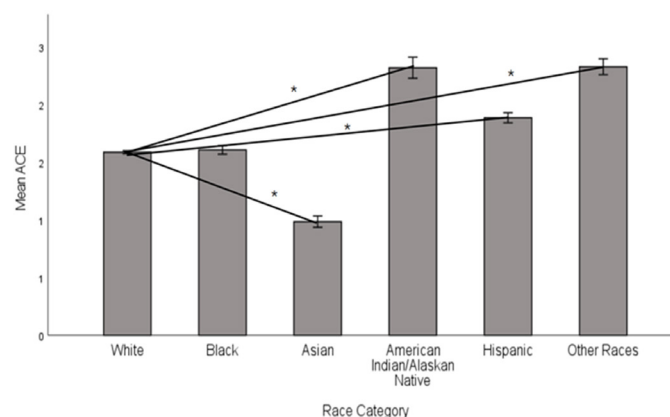


Figure 2: Histogram of mean ACE by race category. Histogram illustrating the difference between 6 racial groups in the Adverse Childhood Experience (ACE) scores (n=129,386) with 95% confidence interval error bars. (*p<0.01)

We also calculated fractional ACE as a different way to count missing values. However, there was no difference between ACE and fractional ACE with respect to the result.

Independent sample T-Test for ACE: In addition to racial groups, we also explored the impact of gender as an independent variable and hypothesized those males and females would differ with respect to mean ACE scores.

As already noted, we expected that the ACE data would not be normally distributed. A Kolmogorov-Smirnov test found that ACE data of neither the male group, $D(58450)=.252, p<.001$, nor the female group were normally distributed, $D(70936)=.249, p<.001$. A Kolmogorov-Smirnov test indicates that fractional ACE data of neither the male group, $D(58450)=.251, p<.001$, nor the female group were normally distributed, $D(70936)=.248, p<.001$. We also decided to include outliers in our analyses as noted already. Levene's test showed that there was homogeneity of variance for the ACE in gender groups, $F(129384)=1219.154, p<.001$, and for the fractional ACE in gender groups, $F(129384)=1206.311, p<.001$. (See Table 2 for t-test result). An independent sample t-test was run with a 95% confidence interval (CI) for mean differences and revealed that the female group had significantly higher ACE scores than the male group, $t(129384)=-20.426, p<.001$. (See Figure 3 for ACE by gender group).

Gender	N	Mean	SD	t	df
Male	58,450	1.51	1.906	-20.426 ***	129384
Female	70,936	1.74	2.22		

*p<0.1, **p<0.01, ***p<0.001

Table 2: Independent t-test result comparing gender group

(male or female) on ACE

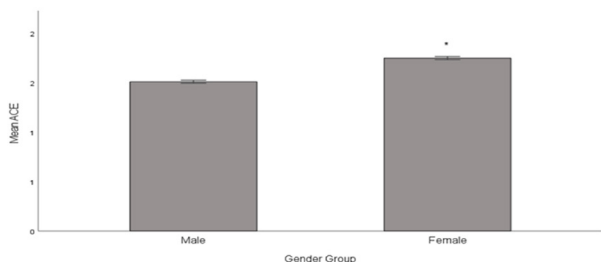


Figure 3: Histogram of ACE by gender group (male and female). Histogram illustrating the difference between two gender groups in the Adverse Childhood Experience (ACE) scores (n=129,386) with 95% confidence interval error bars. (*p<0.01)

Three-way ANOVA for ACE by social capital : A three-way (2 × 4 × 4) ANOVA was conducted to test whether there were significant mean differences between participants’ ACE scores as a function of a range of variables that we referred to as subjects’ “social capital.” This variable consisted of the presence of depressive disorder, subjects’ employment status, and subjects’ income level. Levene’s test showed that the variances for ACE were not equal, F (31, 93042)=272.446, p<0.001.

More specifically, a 3-way between groups ANOVA was deployed to examine the main effects and interactions of depressive disorder condition (yes, no), employment status (employed, chronic unemployed, unemployed, retired), and income level (less than 15,000, between 15,000 and 25,000, between 25,000 and 50,000, 50,000 or more) as related to subjects’ ACE scores. (See Figures 4 and 5 for the fractal ANOVA test) The main effect of the depressive disorder condition yielded an F ratio of F (1, 93042)=2341.141, p<.001, indicating a significant difference between subjects who responded “yes” (M=2.90, SD=2.67), and those who responded “no” (M=1.44, SD=1.89) on whether they had been diagnosed with a depressive disorder. The main effect of employment statuses yielded an F ratio of F (3, 93042)=851.664, p<.001, thereby indicating a significant difference between subjects in the employed (M=1.88, SD=2.23), chronic unemployed (M=2.61, SD=2.71), unemployed (M=2.69, SD=2.67), and retired (M=1.18, SD=1.64) conditions. The main effect for income levels yielded an F ratio of F (7, 93042)=58.833, p<.001, thereby suggesting a significant difference between subjects whose incomes were less than 15,000 (M=2.12, SD=2.495), between 15,000 and 25,000 (M=1.93, SD=2.342), between 25,000 and 50,000 (M=1.72, SD=2.137), or those with incomes of 50,000 or more (M=1.56, SD=1.989) (Figures 4 and 5).

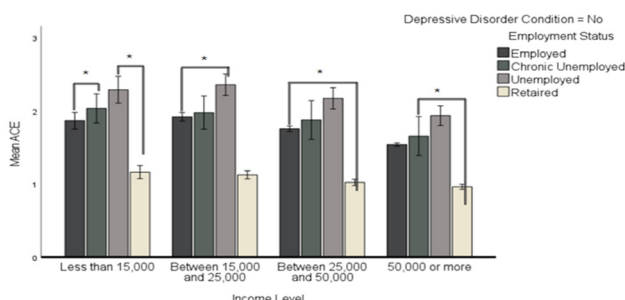


Figure 4: Histogram of 3-way ANOVA for mean ACE

by income level and employment status at depressive disorder=yes. Interpolation lines on the chart indicate all significant associations between groups in employment status, in which those significant associations exist in each level group of income level. (*p<0.01)

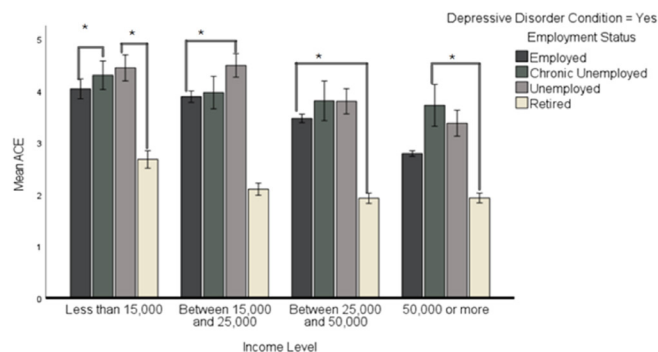


Figure 5: Histogram of 3-way ANOVA for mean ACE by income level and employment status at depressive disorder=no. Interpolation lines on the chart indicate all significant associations between groups in employment status, in which those significant associations exist in each level group of income level. (*p<0.01)

The interaction between depressive disorder and employment status proved to be significant, F (3, 93042)=82.082, p<.001, as was the interaction between the depressive disorder condition and subjects’ income level F(3, 93042)=13.772, p<.001; the interaction between employment status and income level, F (9, 93042)=17.254, p<.001; and the 3-way interaction between depressive disorder, employment status, and income level was also significant. F (9, 93042)=7.057, p<.001. Post hoc tests using the Bonferroni correction revealed that there was no significant difference with respect to the aforementioned variables between subjects that were chronically unemployed and unemployed (p=1.00). There was a statistically significant difference between all the other groups in employment status and income level.

Chi-square analysis for ACE and social capital: We also tested the impact of ACE scores on each dimension of social capital. We hypothesized that there would be a significant relationship between ACE scores and each variable that constitutes “social capital” (depressive disorder condition, employment status, income level).

Specifically, three separate chi-square tests of independence were performed to examine the relationship between ACE scores and “social capital.” A significant relationship was found between ACE scores and depressive disorder condition, $\chi^2 (2, N=93074)=4156.129, p<.01$. The effect size for this finding, using Cramer’s V, was medium, .211. There was also a significant relationship between ACE and employment status, $\chi^2 (4, N=93074)=2265.063, p<.01$. The effect size for this finding, using Cramer’s V, proved to be small, .11. In addition, there was a significant relationship between ACE and income level, $\chi^2 (2, N=93074)=333.537, p<.01$. The effect size for this finding, using Cramer’s V, was also small, .06. (see Table 3, Table 4, and Table 5 for cross-tabulations).

ACE	Yes	No
Low	11732 (74.5%)	71013 (91.8%)
Medium	2171 (13.8%)	4078 (5.3%)
High	1839 (11.7%)	2241 (2.9%)

Table 3: Cross-tabulation table for ACE by Depressive disorder condition

ACE	Employed	Unemployed	Retired
Low	48149 (86.7%)	4189 (76.9%)	30407 (94.7%)
Medium	4378 (7.9%)	653 (12.0%)	1218 (3.8%)
High	2977 (5.4%)	607 (11.1%)	496 (1.5%)

Table 4: Cross-tabulation table for ACE by Employment status

ACE	Low	High
Low	36000 (86.9%)	46745 (90.5%)
Medium	3128 (7.6%)	3121 (6.0%)
High	2289 (5.5%)	1791 (3.5%)

Table 5: Cross-tabulation table for ACE by Income level

Study 2 Results

Study 2 was conducted to explore whether there were significant differences between the 2020 dataset and the 2019 dataset. Each test in the 2020 dataset was also performed with the 2019 dataset. By comparing the mean and standard deviation of each factor in each quantitative test of both datasets in study 1, study 2 explores the difference in sampling patterns of the two datasets. Analyses of these data, based on comparisons of means and standard deviations, revealed no significant differences between the 2020 dataset and the 2019 dataset. We thus conclude that the potential impact of the COVID-19 pandemic, if any, has not been captured in these findings. (See Appendix A for results of relevant analyses).

Discussion

The purpose of this study was to explore the pattern of historical trauma on health outcomes among various groups with different levels of exposure to such traumas. The large dataset from the Behavioral Risk Factor Surveillance System (BRFSS) surveys allowed for the evaluation of social capital among different racial groups (including depressive disorder, employment status, and income level) based on their ACE scores. This study utilized ACE scores as a proxy for the ongoing impact of historically significant traumas, considering their association with childhood stress and trauma, which are often transmitted intergenerational. The reported findings provide an early indication of the impact of historical trauma on health disparities among disadvantaged groups in the contemporary era.

Our results showed a significantly higher ACE score in females compared to males, which aligns with past studies highlighting gender differences in trauma susceptibility [28]. For instance, a study on PTSD found that females are twice as likely as males to develop disorders when exposed to traumatic

events, indicating a greater vulnerability among females [29]. However, the exact causes of this variation remain unclear for both PTSD and intergenerational trauma, including historical trauma. While multiple perspectives have contributed to understanding the factors behind this higher susceptibility, such as genetic, hormonal, and social experiences, it is likely that a combination of these factors contributes to these gender differences [30].

Our analyses revealed significant disparities in ACE scores, particularly between the White and Hispanic populations and between the White and American Indian/Alaska Native populations. We observed notable differences in ACE scores when comparing these racial groups. Previous studies have also identified the Hispanic and American Indian/Alaska Native populations as disadvantaged groups [31,32]. Therefore, our findings support and confirm the ongoing impact of historical trauma on these marginalized groups in 2020.

However, we did not find a significant difference in ACE scores between the White population and the Black population. This finding contradicts previous studies, which have often indicated that members of the Black population are more likely to have higher ACE scores due to the lingering impact of historical trauma [33]. Exploring this change requires further in-depth study. One potential insight can be drawn from the concept of community resilience. Qualitative studies among American indigenous people have shown a positive trend in promoting resilience through the reevaluation of identity, culture, language, and traditions, which support the development of the community and individuals [34,35]. However, there is a lack of qualitative research among the Black community, making it necessary to conduct further investigations to better understand the changes revealed in our analyses.

Our findings indicate that there is no significant difference between the 2019 dataset and the 2020 dataset, making it inconclusive to determine the impact of COVID-19 on the reported outcomes. Recent studies have suggested that COVID-19 has the potential to become another traumatic event, affecting the Hispanic population and American Indian populations in terms of employment prospects, financial burdens, and the lingering impact on mortality rates [36,37]. However, the data analyzed for this report does not provide additional evidence supporting these trends. It is possible that the 2020 dataset did not fully capture the impact of the pandemic, as the patterns and distributions between the 2019 and 2020 datasets were not significantly different. Further investigation using future datasets, such as the 2021 dataset, can be helpful in exploring potential changes in data distribution. In addition, it is important to note that the BRFSS is a self-reported survey dataset, which inherently carries the risk of recall bias. Despite these limitations, the BRFSS has demonstrated reliability and validity. Its prevalence estimates closely align with those obtained from other interview surveys, including the National Health Interview Survey (NHIS) and the National Health and Nutrition Examination Survey (NHANES) [38]. To address potential bias, future research could consider incorporating additional objective measures, such as medical records or information from third parties, to enhance accuracy.

Our results also suggest that social capital and adverse

childhood experiences are significantly intertwined. These findings were consistent with past research which has found strong associations between ACE scores and depressive disorder, as well as negative associations between ACE scores and employment success and income levels [39-41]. In addition, the association between low socioeconomic status and unhealthy behaviors has been established in early research [42]. Our finding on the association between ACE scores and social capital is consistent with these past findings, thereby providing empirical support for the lingering association between ACE scores and socioeconomic status. Also, a recent study revealed an association between socioeconomic characteristics and mortality risk.

Conclusion

Overall, this study connects the negative impact of historical trauma to the phenomenon of health disparities. In addition, this study embodies implications for future public health research and health services intervention. The lingering negative impact of historical trauma can only be addressed through public health interventions that are widespread, well-funded, and long-lasting.

In closing, we might note that a limitation of this study was the failure to test causality. Regrettably, this study was not designed to assess causal links between Adverse Childhood Experiences and the development of social capital of any particular group. While the study is constrained in its ability to reveal anything about causality, our findings suggest that the development of socioeconomic success is inseparable from mental health conditions. A study such as this provides evidence of the ongoing impact of historical trauma and supports the need for further research into the historically significant factors that are apt to contribute to undesirable outcomes among specific racial, ethnic, and cultural groups.

Funding

Not applicable.

Competing Interests

Not applicable.

Availability of Data and Material

Data from the 2019 and 2020 BRFSS data (Centers for Disease Control and Prevention) is used in this paper. The full dataset and documentation can be downloaded from <https://www.cdc.gov/brfss/index.html>.

Code Availability

Code for data cleaning and analysis is provided as part of the replication package. It is available at https://drive.google.com/file/d/1UEq7dC0ix2nm2s8ukfq-PMQtUBmJpz9c/view?usp=share_link for review upon request.

Authors' Contribution

All authors contributed to the study's conception and design. Material preparation and data analysis were performed by Zongpu Li. The first draft of the manuscript was written by Zongpu Li. All authors read and approved the final manuscript.

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References

1. Gone JP, Hartmann WE, Pomerville A, Wendt DC, Klem SH, et al. (2019) The impact of historical trauma on health outcomes for indigenous populations in the USA and Canada: A systematic review. *Am Psychol* 74(1):20-35.
2. Conching AKS, Thayer Z (2019) Biological pathways for historical trauma to affect health: A conceptual model focusing on epigenetic modifications. *Soc Sci Med* 230:74-82.
3. Adler NE (2009) Health disparities through a psychological lens. *Am Psychol* 64(8):663-73.
4. Braveman P (2006) Health disparities and health equity: Concepts and measurement. *Annu Rev Public Health* 27: 167-194.
5. Elder GH, Johnson MK, Crosnoe R (2003) The emergence and development of life course theory.
6. Sotero M (2006) A conceptual model of historical trauma: Implications for public health practice and research. *J Health Disparities Res Pract* 1(1):93-108.
7. Kellermann NP (2001) Transmission of holocaust trauma-an integrative view. *Psychiatry* 64(3):256-267.
8. Daoud N, Shankardass K, O'Campo P, Anderson K, Agbaria AK (2012) Internal displacement and health among the Palestinian minority in Israel. *Soc Sci Med* 74(8): 1163-1171.
9. Mohatt NV, Thompson AB, Thai ND, Tebes JK (2014) Historical trauma as public narrative: A conceptual review of how history impacts present-day health. *Soc Sci Med* 106:128-136.
10. Young A (2004) When traumatic memory was a problem: On the historical antecedents of PTSD. *Posttraumatic Stress Disorder: Issues and Controversies* 7:127-146.
11. Galea S, Abdalla SM (2020) COVID-19 pandemic, unemployment, and civil unrest: Underlying deep racial and socioeconomic divides. *JAMA* 324(3):227-228.
12. Kothari CL, Paul R, Dormitorio B, Ospina F, James A, et al. (2016) The interplay of race, socioeconomic status, and neighborhood residence upon birth outcomes in a high black infant mortality community. *SSM Popul Health* 2:859-867.
13. Wadhwa RK, Wadhwa P, Gaba P, Figueroa JF, Maddox KEJ, et al. (2020) Variation in COVID-19 hospitalizations and deaths across New York City boroughs. *JAMA* 323(21):2192-2195.
14. Agberotimi SF, Akinsola OS, Oguntayo R, Olaseni AO (2020) Interactions between socioeconomic status and mental health outcomes in the Nigerian context amid covid-19 pandemic: A comparative study. *Front Psychol* 11:2655.

15. Roberts B, Damundu EY, Lomoro O, Sondorp E (2009) Post-conflict mental health needs: A cross-sectional survey of trauma, depression and associated factors in Juba, Southern Sudan. *BMC Psychiatry* 9(1):1-10.
16. D'Andrea W, Sharma R, Zelechoski AD, Spinazzola J (2011) Physical health problems after single trauma exposure: When stress takes root in the body. *J Am Psychiatr Nurses Assoc* 17(6):378-392.
17. Draper B, Pfaff JJ, Pirkis J, Snowdon J, Lautenschlager NT, et al. (2008) Depression and early prevention of suicide in general practice study group. Long-term effects of childhood abuse on the quality of life and health of older people: Results from the depression and early prevention of suicide in general practice project. *J Am Geriatr Soc* 56(2):262-271.
18. Holman EA, Silver RC, Poulin M, Andersen J, Gil-Rivas V, et al. (2008) Terrorism, acute stress, and cardiovascular health: A 3-year national study following the September 11th attacks. *Arch Gen Psychiatry* 65(1):73-80.
19. Maschi T, Baer J, Morrissey MB, Moreno C (2013) The aftermath of childhood trauma on late life mental and physical health: A review of the literature. *Traumatology*, 19(1), 49-64.
20. Dekel R, Goldblatt H (2008) Is there intergenerational transmission of trauma? The case of combat veterans' children. *Am J Orthopsychiatry* 78(3):281-289.
21. Degruy-Leary J (2017) Post-traumatic slave syndrome: America's legacy of enduring injury. Portland, OR: Joy DeGruy Publications Inc.
22. Ehsan A, Klaas HS, Bastianen A, Spini D (2019) Social capital and health: A systematic review of systematic reviews. *SSM Popul Health* 8:100425.
23. Goodman ML, Baker L, Maigallo AK, Elliott A, Keiser P, et al. (2022) Adverse childhood experiences, adult anxiety and social capital among women in rural Kenya. *J Anxiety Disord* 91:102614.
24. Masiero M, Mazzocco K, Harnois C, Cropley M, Pravettoni G (2020) From individual to social trauma: Sources of everyday trauma in Italy, the US and UK during the COVID-19 pandemic. *J Trauma Dissociation* 21(5):513-519.
25. Wallace CL, Wladkowski SP, Gibson A, White P (2020) Grief during the COVID-19 pandemic: Considerations for palliative care providers. *J Pain Symptom Manage* 60(1):e70-e76.
26. Ford E, Clark C, McManus S, Harris J, Jenkins R, et al. (2010) Common mental disorders, unemployment, and welfare benefits in England. *Public Health* 124(12):675-681.
27. Fitch C, Hamilton S, Bassett P, Davey R (2011) The relationship between personal debt and mental health: A systematic review. *Ment Health Rev* 16(4):153-166.
28. Cavanaugh CE, Petras H, Martins SS (2015) Gender-specific profiles of adverse childhood experiences, past year mental and substance use disorders, and their associations among a national sample of adults in the United States. *Soc Psychiatry Psychiatr Epidemiol* 50(8):1257-1266.
29. Miller S, Wherry LR, Mazumder B (2021) Estimated mortality increases during the covid-19 pandemic by socioeconomic status, race, and ethnicity: Study examines COVID-19 mortality by socioeconomic status, race, and ethnicity. *Health Aff (Millwood)* 40(8):1252-1260.
30. Haskell SG, Gordon KS, Mattocks K, Duggal M, Erdos J, et al. (2010) Gender differences in rates of depression, PTSD, pain, obesity, and military sexual trauma among Connecticut War Veterans of Iraq and Afghanistan. *J Womens Health (Larchmt)* 19(2):267-71.
31. Warne D, Dulacki K, Spurlock M, Meath T, Davis MM, et al. (2017) Adverse childhood experiences (ACE) among American Indians in South Dakota and associations with mental health conditions, alcohol use, and smoking. *J Health Care Poor Underserved* 28(4):1559-1577.
32. Forster M, Vetrone S, Grigsby TJ, Rogers C, Unger JB (2020) The relationships between emerging adult transition themes, adverse childhood experiences, and substance use patterns among a community cohort of Hispanics. *Cultur Divers Ethnic Minor Psychol* 26(3):378.
33. Slopen N, Shonkoff JP, Albert MA, Yoshikawa H, Jacobs A, et al. (2016) Racial disparities in child adversity in the U. S.: Interactions with family immigration history and income. *Am J Prev Med* 50(1): 47-56.
34. Shansky RM (2015) Sex differences in PTSD resilience and susceptibility: Challenges for animal models of fear learning. *Neurobiol Stress* 1:60-65.
35. Reinschmidt KM, Attakai A, Kahn CB, Whitewater S, Teufel-Shone (2016) Shaping a Stories of Resilience Model from urban American Indian elders' narratives of historical trauma and resilience. *Am Indian Alsk Native Ment Health Res* 23(4):63-85.
36. Macias Gil R, Marcelin JR, Zuniga-Blanco B, Marquez C, Mathew T, et al. (2020) COVID-19 pandemic: Disparate health impact on the Hispanic/Latinx population in the United States. *J Infect Dis* 222(10):1592-1595.
37. Arrazola J, Masiello MM, Joshi S, Dominguez AE, Poel A, et al. (2020) COVID-19 mortality among American Indian and Alaska Native persons-14 states, January-June 2020. *Morb Mortal Wkly Rep* 69(49):1853.
38. Pierannunzi C, Hu SS, Balluz L (2013) A systematic review of publications assessing reliability and validity of the Behavioral Risk Factor Surveillance System (BRFSS), 2004-2011. *BMC Med Res Methodol* 13:49.
39. Chapman DP, Whitfield CL, Felitti VJ, Dube SR, Edwards VJ, et al. (2004) Adverse childhood experiences and the risk of depressive disorders in adulthood. *J Affect Disord* 82(2): 217-225.
40. Topitzes J, Pate DJ, Berman ND, Medina-Kirchner C (2016) Adverse childhood experiences, health, and employment: A study of men seeking job services. *Child*

- Abuse Negl 61:23-34.
41. Halfon N, Larson K, Son J, Lu M, Bethell C (2017) Income inequality and the differential effect of adverse childhood experiences in US children. *Acad Pediatr* 17(7):S70-S78.
42. Nandi A, Glymour MM, Subramanian SV (2014) Association among socioeconomic status, health behaviors, and all-cause mortality in the United States. *Epidemiology* 25(2):170-177.