

Article

Persistent Social Welfare Needs Among Educated Caribbean Black Individuals: Evidence of Minorities' Diminished Returns

Shervin Assari ^{1,2,3,*}, Babak Najand ¹, Hossein Zare ^{4,5}, Amanda Sonnega ⁶¹ Marginalized-Related Diminished Returns (MDRs) Research Center, Los Angeles, CA, USA² Department of Family Medicine, Charles R. Drew University of Medicine and Science, Los Angeles, CA, USA³ Department of Urban Public Health, Charles R. Drew University of Medicine and Science, Los Angeles, CA, USA⁴ Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA⁵ School of Business, University of Maryland Global Campus (UMGC), Adelphi, MD, USA⁶ Institute of Social Research, University of Michigan, Ann Arbor, MI, USA

*Correspondence: Shervin Assari (assari@umich.edu)

Abstract:

Background: Educational attainment is strongly linked to increased employment opportunities, higher income, and greater financial security, making its inverse relationship with reliance on social welfare programs well-documented. However, consistent with the Minorities' Diminished Returns (MDRs) theory, the protective effects of education may be weaker for racial and ethnic minority groups compared to non-Latino Whites. This study examines whether the impact of educational attainment (measured as years of schooling) on social welfare use differs between Caribbean Black and White adults in the United States, focusing on outcomes since age 18 and in the past year. **Objective:** To investigate the relationship between years of schooling and the likelihood of using social welfare programs, while exploring whether this association varies between Caribbean Black and White adults, in alignment with the MDRs framework. **Methods:** Data were derived from the National Survey of American Life (NSAL), a nationally representative dataset with a robust sample of Black and White adults in the United States. The study focused on Caribbean Black and White participants aged 18 and older. Structural equation modeling (SEM) was employed to examine the relationship between years of schooling and social welfare use, adjusting for covariates including age, gender, employment status, and marital status. Interaction terms were used to assess potential differences in the returns of education across racial groups. **Results:** Higher educational attainment was associated with reduced likelihood of using social welfare programs overall. However, consistent with the MDRs framework, the protective effect of education was weaker for Caribbean Black individuals compared to their White counterparts. Caribbean Blacks with similar levels of education as Whites were more likely to report using social welfare programs since age 18 and in the past year, highlighting diminished returns on education for this population. **Conclusion:** This study extends the MDRs framework to Caribbean Black populations, a group rarely studied in the U.S., revealing significant disparities in the economic benefits of education. The findings underscore the need for policies that address systemic barriers limiting the economic returns of education for racial and ethnic minorities, including Caribbean Blacks, to promote greater equity in social and economic outcomes.

Keywords: Welfare, Social Security, Educational Attainment, Minorities' Diminished Returns, Racial Disparities, Black, Immigrants, Caribbean Black

How to cite this paper:

Assari, S., Najand, B., Zare, H., & Sonnega, A. (2025). Persistent Social Welfare Needs Among Educated Caribbean Black Individuals: Evidence of Minorities' Diminished Returns. *Journal of Biomedical and Life Sciences*, 5(1), 98–109.
DOI: [10.31586/jbls.2025.1189](https://doi.org/10.31586/jbls.2025.1189)

Received: September 12, 2024

Revised: December 27, 2024

Accepted: February 10, 2025

Published: May 5, 2025



Copyright: © 2025 by the authors. Submitted for possible open-access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license

(<http://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Social Security and welfare programs serve as critical safety nets for individuals who lose the ability to earn income due to unemployment, severe health challenges, or disabilities [1]. Since their inception in the 1950s, these programs have provided financial support to Americans who are physically or mentally unable to maintain employment [2, 3]. Programs such as Supplemental Security Income (SSI) and Social Security Disability Insurance (SSDI) are vital in reducing the risk of poverty for those unable to participate in the labor force [4]. However, disparities in reliance on these safety nets persist, with elevated rates of welfare dependence among vulnerable populations signaling systemic social and economic challenges in the United States. Investigating the social determinants of welfare reliance is essential to addressing these inequities and developing strategies to mitigate preventable social welfare dependence, particularly among racial and ethnic minority populations [5, 6].

In equitable societies with robust healthcare systems, quality education, and inclusive employment opportunities, reliance on social welfare programs tends to be reduced and more evenly distributed across population groups. Public health interventions, timely healthcare access, and workplace accommodations can play critical roles in preventing or delaying welfare dependence among at-risk populations [7]. Additionally, safe working environments, equitable employment practices, and effective rehabilitation services are essential to minimizing reliance on welfare programs [8–10]. Conversely, high and unequal reliance on welfare often reflects deficiencies in healthcare systems, workplace protections, or social safety nets that fail to address the needs of individuals and communities [11, 12].

The Minorities' Diminished Returns (MDRs) theory [42] provides a critical framework for understanding these disparities. MDRs suggest that the socioeconomic and health benefits of educational attainment are weaker for marginalized populations, such as Black and Latino individuals, compared to non-Latino Whites. For instance, even with equivalent levels of education, Caribbean Black individuals often face diminished upward mobility, lower incomes, and greater exposure to occupational hazards. These systemic inequities contribute to higher stress levels, reduced access to quality healthcare, and increased risk of disability, even among highly educated individuals [42, 44].

Despite their unique social and economic challenges, Caribbean Black populations remain one of the least studied racial and ethnic groups in the context of social welfare reliance in the United States. Although higher education is generally associated with better health, greater financial stability, and reduced dependence on welfare programs [18], these benefits are not equitably distributed. Systemic barriers—including limited access to stable, well-paying jobs, poorer working conditions, and insufficient workplace accommodations—undermine the protective effects of education for Caribbean Blacks. These inequities, rooted in structural racism, economic exclusion, and historical disadvantage, result in disproportionately high reliance on social welfare programs despite similar educational attainment compared to White counterparts [13–16]. Such disparities in the returns on education highlight critical yet understudied inequities.

This study applies the MDRs framework to examine the relationship between educational attainment, measured as years of schooling, and social welfare reliance among Caribbean Black and non-Latino White adults in the United States. Using data from the National Survey of American Life (NSAL)—the most comprehensive national study of the economic and health status of Caribbean Black individuals in the U.S.—this research evaluates two outcomes: social welfare receipt in the past year and cumulative receipt since age 18. Structural equation modeling (SEM) was used to adjust for key covariates, including age, gender, employment status, and marital status. By analyzing racial and ethnic variations, this study investigates whether the protective effects of

education on reducing social welfare reliance are weaker for Caribbean Blacks compared to Whites.

Findings from this research illuminate the systemic barriers that constrain the economic and health benefits of education for Caribbean Blacks. By documenting these diminished returns, the study contributes to the growing literature on the unequal distribution of socioeconomic advantages across racial and ethnic groups [37, 45]. These insights are pivotal for informing policies and interventions that address structural inequities, promote economic and health equity, and reduce reliance on social welfare programs such as SSI and SSDI. Ultimately, such efforts aim to improve long-term outcomes for marginalized communities.

2. Methods

The National Survey of American Life (NSAL) is a nationally representative survey designed to collect data on the economic, social, and health experiences of Black and non-Latino White populations in the United States. This study focuses on the Caribbean Black subpopulation within the NSAL sample, as well as a comparison group of non-Latino Whites. The NSAL employs probability-based sampling methods to ensure representativeness and includes detailed measures of socioeconomic, health, and behavioral variables.

The NSAL is uniquely suited for examining disparities in social and economic outcomes, offering comprehensive data on racial and ethnic differences in welfare reliance, including Social Security and disability program participation. This analysis uses data from the NSAL to assess racial and ethnic disparities in the relationship between educational attainment and social welfare reliance, with a specific focus on Caribbean Blacks.

2.1. Analytical Sample

Our analytical sample consisted of NSAL respondents with available data on educational attainment, social welfare receipt (both in the past year and since age 18), and relevant demographic covariates. The sample includes non-Latino White and Caribbean Black adults. Participants who were missing data on key variables were excluded from the analysis.

2.2. Measures

Key Independent Variable:

Educational attainment, measured as the total number of years of schooling completed, was self-reported by participants. This continuous measure allowed for the evaluation of incremental effects of education on social welfare reliance, aligning with prior research emphasizing the gradient effect of educational attainment on economic outcomes.

Dependent Variable:

Social welfare receipt was measured using two binary variables: (1) receipt of social welfare benefits in the past year and (2) receipt since age 18. These variables captured reliance on programs such as Supplemental Security Income (SSI) and Social Security Disability Insurance (SSDI).

Covariates:

Several demographic and socioeconomic covariates were included in the analysis to account for potential confounding effects:

- **Age:** Measured in years.
- **Sex:** Self-reported as male or female.

- **Employment Status:** Dichotomized as employed or not employed at the time of the survey.
- **Marital Status:** Dichotomized as married or not married.
- **Nativity:** Categorized as U.S.-born or non-U.S.-born (immigrant).

These covariates were included to isolate the independent effect of educational attainment on social welfare reliance.

2.3. Statistical Analysis

Descriptive statistics were used to summarize the demographic and socioeconomic characteristics of the pooled sample. Structural equation modeling (SEM) was employed to examine the association between educational attainment (years of schooling) and social welfare receipt, adjusting for covariates such as age, gender, marital status, employment status, and nativity. Two models were specified: Model 1: Examined the main effects of educational attainment and other covariates on social welfare receipt. Model 2: Included interaction terms between race/ethnicity (Caribbean Black vs. non-Latino White) and educational attainment to assess whether the relationship between education and social welfare reliance varied by race/ethnicity, consistent with the Minorities' Diminished Returns (MDRs) framework.

Results were presented as beta coefficients, standard error (SE), with 95% confidence intervals (CIs) and p-values. This approach allowed for an in-depth exploration of racial and ethnic disparities in the protective effects of educational attainment on social welfare reliance.

2.4. Ethical Considerations

All participants in the NSAL provided informed consent prior to participation. For this specific analysis, no additional participant contact or consent was required, as the data used were de-identified. The study was approved by the Institutional Review Board (IRB) at the University of Michigan, where the NSAL was conducted, ensuring compliance with ethical research practices. By focusing on educational attainment as a key determinant of social welfare reliance, this study contributes to the understanding of systemic barriers faced by Caribbean Black populations, highlighting disparities in the returns of education across racial and ethnic groups.

3. Results

Table 1 shows the results from the structural equation modeling (SEM) analysis with no interaction term. This SEM revealed significant associations between demographic factors, years of schooling, and the likelihood of receiving welfare or public assistance, both since age 18 and in the past year.

For welfare receipt since turning 18, several factors were significantly associated with decreased reliance on public assistance. Higher educational attainment ($B = -0.125$, $SE = 0.021$, 95% CI: $-0.166, -0.085$, $p < 0.001$) was linked to a reduced likelihood of welfare reliance. Similarly, being male ($B = -0.163$, $SE = 0.020$, 95% CI: $-0.202, -0.123$, $p < 0.001$) and being older ($B = -0.075$, $SE = 0.021$, 95% CI: $-0.116, -0.033$, $p < 0.001$) were associated with lower rates of welfare receipt. Caribbean Black participants were less likely to report receiving welfare since turning 18 compared to their non-Latino White counterparts ($B = -0.072$, $SE = 0.021$, 95% CI: $-0.113, -0.031$, $p = 0.001$). Employment status and marital status did not significantly influence welfare receipt in this model.

For welfare receipt in the past year, a similar pattern emerged. Higher educational attainment ($B = -0.152$, $SE = 0.012$, 95% CI: $-0.175, -0.130$, $p < 0.001$) was again associated with reduced reliance on public assistance. Being male ($B = -0.038$, $SE = 0.019$, 95% CI: $-0.076, -0.001$, $p = 0.045$) and being married ($B = -0.139$, $SE = 0.020$, 95% CI: $-0.178, -0.099$, $p < 0.001$) also reduced the likelihood of welfare receipt in the past year. Age, however, showed a positive association ($B = 0.610$, $SE = 0.026$, 95% CI: $0.559, 0.661$, $p < 0.001$),

indicating that older individuals were more likely to have received welfare recently. Caribbean Black individuals were again less likely than non-Latino Whites to report welfare reliance in the past year ($B = -0.091$, $SE = 0.019$, 95% CI: $-0.128, -0.055$, $p < 0.001$). Employment status was not a significant predictor of welfare receipt in the past year.

Overall, these findings underscore the importance of educational attainment in reducing welfare reliance. However, the results also highlight significant racial and demographic variations in welfare dependence, with Caribbean Black individuals showing lower welfare reliance compared to Whites, even after adjusting for education and other covariates. These patterns align with the Minorities' Diminished Returns (MDRs) framework, indicating that educational attainment may yield differential protective effects across racial and ethnic groups.

Table 1. SEM with no interaction

	B	SE	95% CI	p
Received welfare/pub assistance since turning 18				
Unemployed	0.015	0.021	-0.025 0.056	0.461
Age	-0.075	0.021	-0.116 -0.033	< 0.001
Male	-0.163	0.020	-0.202 -0.123	< 0.001
Married	-0.029	0.021	-0.070 0.011	0.153
Education (Yrs)	-0.125	0.021	-0.166 -0.085	< 0.001
Caribbean Black	-0.072	0.021	-0.113 -0.031	0.001
Received welfare/pub assistance in Last Year				
Unemployed	0.003	0.019	-0.035 0.041	0.871
Age	0.610	0.026	0.559 0.661	< 0.001
Male	-0.038	0.019	-0.076 -0.001	0.045
Married	-0.139	0.020	-0.178 -0.099	< 0.001
Education (Yrs)	-0.152	0.012	-0.175 -0.130	< 0.001
Caribbean Black	-0.091	0.019	-0.128 -0.055	< 0.001

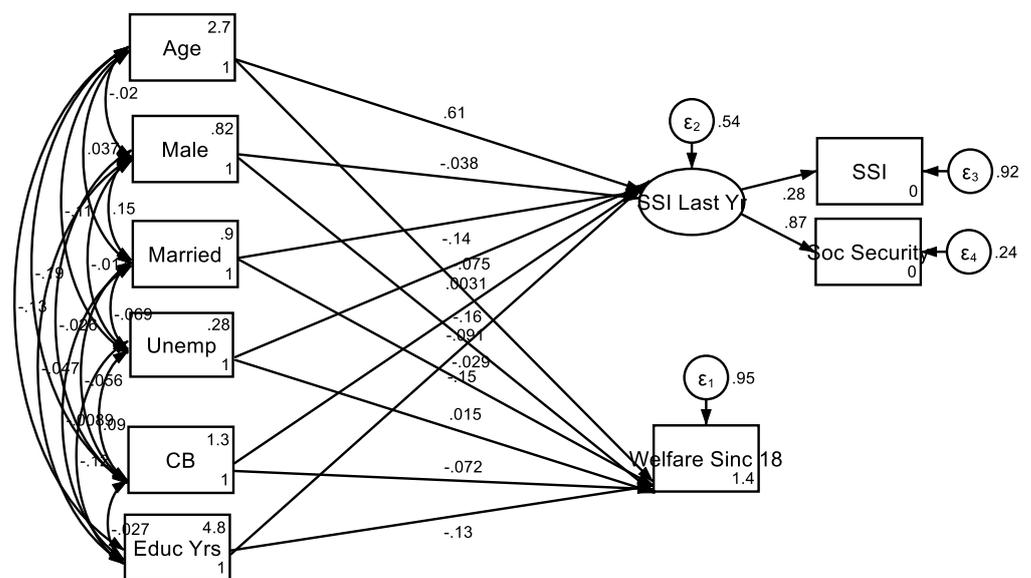


Figure 1. Models without the interaction term

Table 2 shows the results from the structural equation modeling (SEM) analyses with interaction terms. This SEM further illuminate the nuanced relationships between educational attainment, race/ethnicity, and reliance on welfare or public assistance. Specifically, the interaction between being Caribbean Black and years of schooling was a significant predictor of welfare reliance, indicating differential effects of education on welfare use for this group compared to non-Latino Whites.

For welfare receipt since turning 18, several main effects were observed. Higher educational attainment ($B = -0.246$, $SE = 0.034$, 95% CI: $-0.313, -0.179$, $p < 0.001$) and being male ($B = -0.161$, $SE = 0.020$, 95% CI: $-0.201, -0.122$, $p < 0.001$) were associated with a lower likelihood of welfare reliance. Older age ($B = -0.078$, $SE = 0.021$, 95% CI: $-0.119, -0.036$, $p < 0.001$) also predicted reduced welfare receipt. The interaction term (Caribbean Black \times Education) was positive and significant ($B = 0.458$, $SE = 0.105$, 95% CI: $0.252, 0.664$, $p < 0.001$), indicating that the protective effect of education on reducing welfare reliance was weaker for Caribbean Blacks compared to Whites.

For welfare receipt in the past year, similar patterns emerged. Higher educational attainment ($B = -0.187$, $SE = 0.013$, 95% CI: $-0.212, -0.161$, $p < 0.001$) and being married ($B = -0.122$, $SE = 0.019$, 95% CI: $-0.160, -0.084$, $p < 0.001$) were associated with a lower likelihood of welfare reliance. Age showed a strong positive association with welfare receipt ($B = 0.636$, $SE = 0.027$, 95% CI: $0.583, 0.689$, $p < 0.001$), suggesting that older individuals were more likely to have received welfare recently. The interaction term (Caribbean Black \times Education) was positive and significant ($B = 0.409$, $SE = 0.067$, 95% CI: $0.278, 0.540$, $p < 0.001$). This indicates that the protective effect of education on welfare reliance was weaker for Caribbean Blacks than for Whites.

Overall, the interaction effects highlight the differential returns on education for Caribbean Black individuals, consistent with the Minorities' Diminished Returns (MDRs) framework. While higher educational attainment is generally protective against welfare reliance, the benefits of education appear to be diminished for Caribbean Blacks, resulting in less pronounced reductions in welfare use compared to their White counterparts. These findings underscore the need to address structural and systemic barriers that limit the economic and social benefits of education for marginalized populations.

Table 2. SEM with interaction

	B	SE	95% CI	P
Received welfare/pub assistance since turning 18				
Unemployed	0.020	0.021	-0.021 0.060	0.341
Age	-0.078	0.021	-0.119 -0.036	< 0.001
Male	-0.161	0.020	-0.201 -0.122	< 0.001
Married	-0.029	0.021	-0.069 0.012	0.163
Education (Yrs)	-0.246	0.034	-0.313 -0.179	< 0.001
Caribbean Black	-0.509	0.102	-0.710 -0.308	< 0.001
Caribbean Black \times Education (Yrs)	0.458	0.105	0.252 0.664	< 0.001
Received welfare/pub assistance in Last Year				
Unemployed	0.021	0.019	-0.016 0.058	0.267
Age	0.636	0.027	0.583 0.689	< 0.001
Male	-0.022	0.019	-0.059 0.014	0.230
Married	-0.122	0.019	-0.160 -0.084	< 0.001
Education (Yrs)	-0.187	0.013	-0.212 -0.161	< 0.001
Caribbean Black	-0.455	0.062	-0.577 -0.332	< 0.001
Caribbean Black \times Education (Yrs)	0.409	0.067	0.278 0.540	< 0.001

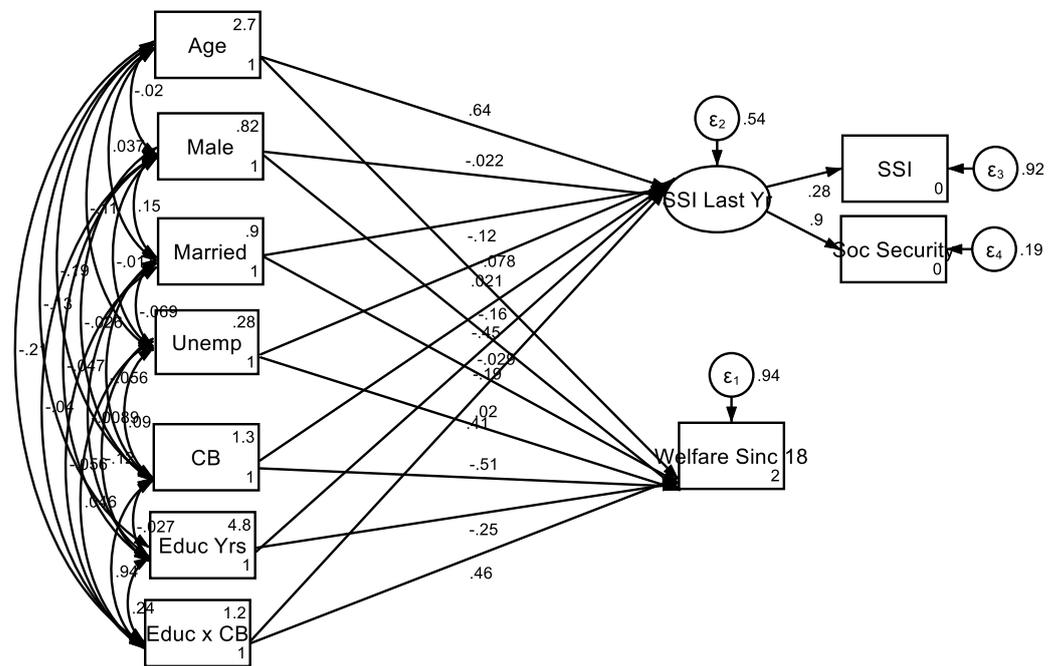


Figure 2. Models with the interaction term

4. Discussion

The primary goal of this research was to investigate the relationship between educational attainment and social welfare receipt, focusing on differences by race and ethnicity. This analysis was framed within the Minorities' Diminished Returns (MDRs) theory, which posits that the benefits of education and other socioeconomic resources tend to be less pronounced for racial and ethnic minorities compared to non-Latino Whites. By examining these patterns among Caribbean Black and non-Latino White individuals, the study aimed to uncover how disparities in social welfare reliance may stem from unequal returns on education across these groups.

Our findings revealed that greater educational attainment was associated with a reduced likelihood of receiving social welfare benefits, highlighting the critical role of education in fostering economic stability and decreasing dependency on such programs [19-23]. However, consistent with the MDRs framework [42], this protective effect was significantly less pronounced for Caribbean Black individuals compared to non-Latino Whites. Even at comparable educational levels, Caribbean Blacks were more likely to rely on social welfare programs, illustrating the diminished effectiveness of education in mitigating economic vulnerability for this population. These results align with prior research demonstrating that racial and ethnic minorities often experience fewer benefits from socioeconomic resources such as education [41, 52, 57, 58, 61, 65-81].

The reduced effectiveness of education for Caribbean Blacks underscores systemic inequities that limit their ability to translate educational achievement into economic and health benefits. Structural factors such as labor market discrimination, limited access to high-paying jobs, and inequities in wealth accumulation create barriers that weaken the protective impact of education. Additionally, many Caribbean Blacks face challenges stemming from lower-quality schooling and reduced access to resources, which contribute to poorer health outcomes and greater reliance on welfare programs. These societal inequities diminish the capacity of education to act as a buffer against financial and health vulnerabilities for marginalized groups [82].

4.1. Implications

The findings have significant implications for policies aimed at reducing racial and ethnic disparities in social welfare reliance. While increasing educational attainment remains important, it is equally critical to address the structural factors that limit the returns on education for minority populations. Key policy measures could include: Reforming funding models for public schools to ensure equitable resources for schools in predominantly minority communities. Developing programs that create access to stable, well-paying jobs, particularly those offering health benefits and safe working conditions. Implementing initiatives to address the health disparities disproportionately affecting minority groups, thereby reducing disability risk and reliance on welfare programs.

Tackling these systemic challenges requires a comprehensive approach that integrates education reform, labor market equity, and public health interventions. Such efforts are essential to ensure that all individuals, regardless of racial or ethnic background, can fully benefit from their educational achievements.

4.2. Limitations

Several limitations should be considered when interpreting these results. First, the cross-sectional nature of the data limits the ability to infer causality between education and social welfare receipt. Longitudinal studies would provide a deeper understanding of how education impacts welfare reliance over time. Second, although key demographic and socioeconomic variables were controlled for, other potential factors, such as childhood socioeconomic conditions, access to healthcare, and workplace hazards, were not included in this analysis. Third, reliance on self-reported measures of welfare receipt may introduce reporting bias. Despite these limitations, the study makes a valuable contribution to understanding the social determinants of welfare reliance in the U.S. Past research has shown that Caribbean Black people differ from African Americans in the US regarding employment, socioeconomic status, education, and daily experiences [83-87].

5. Conclusion

This research highlights the unequal benefits of educational attainment in reducing reliance on social welfare programs across racial and ethnic groups. Caribbean Black individuals, in particular, face diminished returns on their educational investments, likely due to systemic barriers and structural inequities. These findings reinforce the importance of addressing not only educational disparities but also the broader societal factors that restrict the economic and health benefits of education for racial and ethnic minorities. Reducing disparities in social welfare reliance will require a multifaceted approach that tackles inequities in education, employment, and public health to create a more equitable society.

Ethics Approval:

The NSAL protocol was approved by the Institutional Review Board at the University of Michigan, and informed consent was obtained from all participants. All data were collected, stored, managed, and analyzed in a completely anonymized format. As this study utilized de-identified, publicly accessible data, it is classified as non-human subjects research according to the NIH criteria.

Author Contributions:

Funding acquisition: SA and AS, conceptualization, SA; methodology SA; validation SA; formal analysis, SA.; resources, SA and HZ; data curation, SA; writing—original draft preparation, SA;

writing—review and editing, HZ visualization, SA; supervision HZ, project administration, SA; All authors have read and agreed to the published version of the manuscript.

Funding

The research reported herein was performed pursuant to a grant from the US Social Security Administration (SSA) funded as part of the Retirement and Disability Research Consortium through the Michigan Retirement and Disability Research Center Award RDR23000008. The opinions and conclusions expressed are solely those of the author(s) and do not represent the opinions or policy of SSA or any agency of the Federal Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of the contents of this report. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply endorsement, recommendation, or favoring by the United States Government or any agency thereof. Part of Hossein Zare effort comes from the NIMHD U54MD000214. No funders had any role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

References

- [1] Morton WR: Primer on Disability Benefits: Social Security Disability Insurance (SSDI) and Supplemental Security Income (SSI): Congressional Research Service; 2014.
- [2] Button P, Khan MR, Penn M: Do stronger employment discrimination protections decrease reliance on Social Security Disability Insurance? Evidence from the US Social Security reforms. *The Journal of the Economics of Ageing* 2022, 22:100370.
- [3] Morton WR: Social Security Disability Insurance (SSDI) reform: An overview of proposals to reduce the growth in SSDI rolls. 2013.
- [4] Burkhauser RV, Daly MC: Social Security Disability Insurance: time for fundamental change. *Journal of Policy Analysis and Management* 2012:454-461.
- [5] Fichtner JJ, Seligman JS: Beyond all or nothing: Reforming social security disability insurance to encourage work and wealth. *SSDI Solutions: Ideas to Strengthen the Social Security Disability Insurance Program* 2016, 13.
- [6] Siordia C: Social security disability insurance may reduce benefits by 2016: population at financial risk from reductions. *Social work in public health* 2016, 31(6):530-536.
- [7] Staiger B, Helfer M, Van Parys J: The effect of Medicaid expansion on the take-up of disability benefits by race and ethnicity. *Health Economics* 2024, 33(3):526-540.
- [8] Marsh D: Disability versus work health and safety: a safe workplace and the right to an “ordinary life”: commentary on “Regulating disability services: the case of Australia’s National Disability Insurance Scheme quality and safeguarding system”(Hough, 2021). *Research and Practice in Intellectual and Developmental Disabilities* 2021, 8(2):111-118.
- [9] Erkulwater J: Social Security Disability Insurance and Supplemental Security Income. In: *Oxford Handbook of US Social Policy*. edn.; 2014.
- [10] Ladd D, Neumark D: Workplace Injuries and Receipt of Benefits From Workers’ Compensation and Social Security Disability Insurance. *Journal of Occupational and Environmental Medicine* 2023, 65(3):261-270.
- [11] Wachter Tv, Song J, Manchester J: Trends in employment and earnings of allowed and rejected applicants to the social security disability insurance program. *American economic review* 2011, 101(7):3308-3329.
- [12] Lando ME, Farley AV, Brown MA: Recent trends in the social security disability insurance program. *Soc Sec Bull* 1982, 45:3.
- [13] Leigh WA, Huff D: African Americans and social security disability insurance. *Washington, DC: Joint Center for Political and Economic Studies* 2007.
- [14] Navarro-Millán I, Rajan M, Lui GE, Kern LM, Pinheiro LC, Safford MM, Sattui SE, Curtis JR: Racial and ethnic differences in medication use among beneficiaries of social security disability insurance with rheumatoid arthritis. In: *Seminars in arthritis and rheumatism: 2020*: Elsevier; 2020: 988-995.
- [15] Hendley AA, Bilimoria NF: Minorities and social security: An analysis of ethnic differences in the current program. *Soc Sec Bull* 1999, 62:59.
- [16] Green CA: Race, ethnicity, and Social Security retirement age in the US. In: *Warm Hands in Cold Age*. edn.: Routledge; 2013: 125-152.
- [17] Fichtner J, Seligman JS: Saving Social Security Disability Insurance: Reforms within the Context of Holistic Social Security Reform. 2015.
- [18] Hessel P, Sayer P, Riumallo-Herl C: Educational inequalities in disability linked to social security coverage among older individuals in five Latin American countries. *Social Science & Medicine* 2020, 267:112378.
- [19] Mirowsky J, Ross CE: Education, cumulative advantage, and health. *Ageing International* 2005, 30(1):27-62.

- [20] Mirowsky J, Ross CE: Education, Health, and the Default American Lifestyle. *J Health Soc Behav* 2015, 56(3):297-306.
- [21] Ross CE, Mirowsky J: Refining the association between education and health: the effects of quantity, credential, and selectivity. *Demography* 1999, 36(4):445-460.
- [22] Ross CE, Mirowsky J: The interaction of personal and parental education on health. *Social science & medicine* 2011, 72(4):591-599.
- [23] Ross CE, Wu C-I: The links between education and health. *American sociological review* 1995:719-745.
- [24] Chou SY, Liu JT, Grossman M, Joyce T: Parental Education and Child Health: Evidence from a Natural Experiment in Taiwan. *Am Econ J Appl Econ* 2010, 2(1):63-91.
- [25] Cross CJ: Racial/ethnic differences in the association between family structure and children's education. *Journal of Marriage and Family* 2020, 82(2):691-712.
- [26] Sisco S, Gross AL, Shih RA, Sachs BC, Glymour MM, Bangen KJ, Benitez A, Skinner J, Schneider BC, Manly JJ: The role of early-life educational quality and literacy in explaining racial disparities in cognition in late life. *J Gerontol B Psychol Sci Soc Sci* 2015, 70(4):557-567.
- [27] Noble KG, Houston SM, Brito NH, Bartsch H, Kan E, Kuperman JM, Akshoomoff N, Amaral DG, Bloss CS, Libiger O et al: Family income, parental education and brain structure in children and adolescents. *Nat Neurosci* 2015, 18(5):773-778.
- [28] Rakesh D, Zalesky A, Whittle S: Assessment of Parent Income and Education, Neighborhood Disadvantage, and Child Brain Structure. *JAMA Netw Open* 2022, 5(8):e2226208.
- [29] White CM, St. John PD, Cheverie MR, Iraniparast M, Tyas SL: The role of income and occupation in the association of education with healthy aging: results from a population-based, prospective cohort study. *BMC public health* 2015, 15:1-11.
- [30] Wolla SA, Sullivan J: Education, income, and wealth. *Page One Economics*® 2017.
- [31] Lupton MK, Stahl D, Archer N, Foy C, Poppe M, Lovestone S, Hollingworth P, Williams J, Owen MJ, Dowzell K et al: Education, occupation and retirement age effects on the age of onset of Alzheimer's disease. *Int J Geriatr Psychiatry* 2010, 25(1):30-36.
- [32] Mayhew A: Education, occupation, and earnings. *ILR Review* 1971, 24(2):216-225.
- [33] Nocon M, Keil T, Willich SN: Education, income, occupational status and health risk behaviour. *Journal of Public Health* 2007, 15:401-405.
- [34] Powell AL, Brooks J, Zahner DA, Zhang ZM, Akay YM, Micheli-Tzanakou E: Education, occupation, and Alzheimer's disease. *JAMA* 1994, 272(18):1405-1406.
- [35] Samuel R, Bergman MM, Hupka-Brunner S: The interplay between educational achievement, occupational success, and well-being. *Social Indicators Research* 2013, 111:75-96.
- [36] Stern Y, Gurland B, Tatemichi TK, Tang MX, Wilder D, Mayeux R: Influence of education and occupation on the incidence of Alzheimer's disease. *JAMA* 1994, 271(13):1004-1010.
- [37] Assari S: Blacks' diminished health returns of educational attainment: Health and Retirement Study. *Journal of Medical Research and Innovation* 2020, 4(2):e000212-e000212.
- [38] Assari S, Bazargan M: Educational Attainment and Self-Rated Oral Health among American Older Adults: Hispanics' Diminished Returns. *Dentistry Journal* 2019, 7(4):97.
- [39] Assari S, Cobb S, Cuevas AG, Bazargan M: Diminished Health Returns of Educational Attainment Among Immigrant Adults in the United States. *Front Psychiatry* 2020, 11:535624.
- [40] Assari S, Lapeyrouse LM, Neighbors HW: Income and Self-Rated Mental Health: Diminished Returns for High Income Black Americans. *Behav Sci (Basel)* 2018, 8(5).
- [41] Assari S, Perez MU, Johnson N, Williams NR, Carrillo E, Garcia L, Hollis XT: Education Level and Self-rated Health in the United States: Immigrants' Diminished Returns. *Int J Travel Med Glob Health* 2020, 8(3):116-123.
- [42] Assari S: Health disparities due to diminished return among black Americans: Public policy solutions. *Social Issues and Policy Review* 2018, 12(1):112-145.
- [43] Assari S: Blacks' Diminished Return of Education Attainment on Subjective Health; Mediating Effect of Income. *Brain Sci* 2018, 8(9).
- [44] Assari S: College Graduation and Wealth Accumulation: Blacks' Diminished Returns. *World J Educ Res* 2020, 7(3):1-18.
- [45] Assari S: Diminished returns of educational attainment on life satisfaction among Black and Latino older adults transitioning into retirement. *Journal of Medicine, Surgery, and Public Health* 2024, 2:100091.
- [46] Kapteyn A, Angrisani M, Darling J, et al. The Understanding America Study (UAS) *BMJ Open* 2024; **14**: e088183. doi: 10.1136/bmjopen-2024-088183
- [47] Angrisani M, Kapteyn A, Meijer E, Wah SH: Sampling and Weighting the Understanding America Study. *CESR-Schaeffer Working Paper* 2019(004).
- [48] Alattar L, Messel M, Rogofsky D: An introduction to the Understanding America Study internet panel. *Soc Sec Bull* 2018, 78:13.
- [49] Liu Y, Finch BK, Brenneke SG, Thomas K, Le PD: Perceived discrimination and mental distress amid the COVID-19 pandemic: evidence from the understanding America study. *American Journal of Preventive Medicine* 2020, 59(4):481-492.
- [50] Robinson E, Daly M: Explaining the rise and fall of psychological distress during the COVID-19 crisis in the United States: Longitudinal evidence from the Understanding America Study. *British journal of health psychology* 2021, 26(2):570-587.
- [51] Assari S: Diminished returns of educational attainment on life satisfaction among Black and Latino older adults transitioning into retirement. *Journal of Medicine, Surgery, and Public Health*. 2024;2:100091.

- [52] Assari S, Thomas A, Caldwell CH, Mincy RB: Blacks' Diminished Health Return of Family Structure and Socioeconomic Status; 15 Years of Follow-up of a National Urban Sample of Youth. *J Urban Health* 2018, 95(1):21-35.
- [53] Assari S, Zare H: Beyond access, proximity to care, and healthcare use: sustained racial disparities in perinatal outcomes due to marginalization-related diminished returns and racism. *Journal of pediatric nursing* 2021:S0882-5963 (0821) 00289-X.
- [54] Assari S, Zare H: Household Income and Offspring Education Explain Blacks' Diminished Returns of Parental Education. *Open J Psychol* 2024, 4(1):18-29.
- [55] Assari S, Zare H: Caste-based Diminished Returns of Educational Attainment on Wealth Accumulation in India. *Open Journal of Educational Research* 2024, 4(5):243-255.
- [56] Assari S BM: Second-hand exposure home Second-Hand Smoke Exposure at Home in the United States; Minorities' Diminished Returns. *Int J Travel Med Glob Health* 2019, 7(3).
- [57] Assari S BM, Caldwell CH, Zimmerman MA: Diminished Returns of Parental Educational Attainment on School Achievement of Non-Hispanic Black High School Students. *Under review* 2020.
- [58] Assari S SJ: Parental Educational Attainment and Frequency of Marijuana Use in Youth: Hispanics' Diminished Returns. *Journal of Education and Culture Studies* 2021, 5(6).
- [59] Barsha RAA, Assari S, Hossain MB, Apata J, Shekhattari P: Black Americans' Diminished Return of Educational Attainment on Tobacco Use in Baltimore City. *J Racial Ethn Health Disparities* 2023.
- [60] Assari S: Parental Educational Attainment and Mental Well-Being of College Students; Diminished Returns of Blacks. *Brain Sci* 2018, 8(11).
- [61] Assari S: Diminished Economic Return of Socioeconomic Status for Black Families. *Soc Sci (Basel)* 2018, 7(5).
- [62] Assari S: Socioeconomic Determinants of Systolic Blood Pressure; Minorities' Diminished Returns. *Journal of Health Economics and Development* 2019, 1(1):1-11.
- [63] Assari S: Diminished Returns of Income Against Cigarette Smoking Among Chinese Americans. *Journal of health economics and development* 2019, 1(2):1.
- [64] Assari S: Parental Education and Youth Inhibitory Control in the Adolescent Brain Cognitive Development (ABCD) Study: Blacks' Diminished Returns. *Brain Sciences* 2020, 10(5):312.
- [65] Assari S, Boyce S, Bazargan M, Caldwell CH: A dream deferred: African American women's diminished socioeconomic returns of postponing childbearing from teenage to adulthood. *Reproductive Medicine* 2020, 1(2):62-76.
- [66] Assari S, Boyce S, Bazargan M, Thomas A, Cobb RJ, Hudson D, Curry TJ, Nicholson HL, Jr., Cuevas AG, Mistry R et al: Parental Educational Attainment, the Superior Temporal Cortical Surface Area, and Reading Ability among American Children: A Test of Marginalization-Related Diminished Returns. *Children (Basel)* 2021, 8(5).
- [67] Assari S, Boyce S, Caldwell CH, Bazargan M: Minorities' Diminished Returns of Parental Educational Attainment on Adolescents' Social, Emotional, and Behavioral Problems. *Children* 2020, 7(5):49.
- [68] Assari S, Boyce S, Caldwell CH, Bazargan M: Parent Education and Future Transition to Cigarette Smoking: Latinos' Diminished Returns. *Front Pediatr* 2020, 8:457.
- [69] Assari S, Caldwell C, Bazargan M: Parental educational attainment and relatives' substance use of American youth: Hispanics Diminished Returns. *J Biosci Med (Irvine)* 2020, 8(2):122-134.
- [70] Assari S, Caldwell CH, Mincy R: Family socioeconomic status at birth and youth impulsivity at age 15; Blacks' diminished return. *Children* 2018, 5(5):58.
- [71] Assari S, Cobb S, Saqib M, Bazargan M: Diminished returns of educational attainment on heart disease among Black Americans. *The open cardiovascular medicine journal* 2020, 14:5.
- [72] Assari S, Mistry R: Diminished Return of Employment on Ever Smoking Among Hispanic Whites in Los Angeles. *Health Equity* 2019, 3(1):138-144.
- [73] Assari S, Najand B, Shekhattari P: Household income and subsequent youth tobacco initiation: Minorities' Diminished Returns. *Journal of Medicine, Surgery, and Public Health* 2024, 2:100063.
- [74] Assari S, Shekhattari P, Zare H: Blacks' Diminished Returns of Parental Education on Household Income: A Study of College Students in the US. *Open Journal of Educational Research* 2024, 4(4):187-196.
- [75] Assari S, Zare H: Household Income and Offspring Education Explain Blacks' Diminished Returns of Parental Education. *Open Journal of Psychology* 2024, 4(1):18-29.
- [76] Assari S, Zare H: Handing Money to the Poor Is Never Enough: The Impact of Marginalization-Related Diminished Returns. *Global Journal of Epidemiology and Infectious Disease* 2024, 4(1):34-43.
- [77] Barsha RAA, Assari S, Hossain MB, Apata J, Shekhattari P: Black Americans' Diminished Return of Educational Attainment on Tobacco Use in Baltimore City. *J Racial Ethn Health Disparities* 2023, 10(6):3178-3187.
- [78] Boyce S, Darvishi M, Marandi R, Rahmanian R, Akhtar S, Patterson J, Assari S: Review Paper Racism-Related Diminished Returns of Socioeconomic Status on Adolescent Brain and Cognitive Development.
- [79] S A: Minorities Diminished Returns. *MedLine Publications* 2020.
- [80] Shervin Assari CHC, Mohsen Bazargan: Parental Educational Attainment and Black-White Adolescents' Achievement Gap: Blacks' Diminished Returns. *Open Journal of Social Sciences* 2020, 8(3):282-297.
- [81] Zare H, Assari S: Non-hispanic Black Americans' diminished protective effects of educational attainment and employment against cardiometabolic diseases: NHANES 1999-2016. *Austin journal of public health and epidemiology* 2021, 8(4).

-
- [82] Farmer MM, Ferraro KF: Are racial disparities in health conditional on socioeconomic status? *Soc Sci Med* 2005, 60(1):191-204.
- [83] Smith NC. Differential vulnerability to perceived discrimination between African American and Caribbean Black adolescents: The role of parental nativity status. *Journal of racial and ethnic health disparities*. 2020 Jun;7(3):428-35.
- [84] Hastings JF. Comparing the self-rated health effects of obesity on the health of African Americans and Caribbean blacks. *Social work in public health*. 2019 Jul 4;34(5):383-94.
- [85] Robinson MA, Kim I, Mowbray O, Washington T. The effects of hopelessness on chronic disease among african americans and caribbean blacks: findings from the national survey of american life (NSAL). *Community Mental Health Journal*. 2020 May;56:753-9.
- [86] Broman CL, Neighbors HW, Delva J, Torres M, Jackson JS. Prevalence of substance use disorders among African Americans and Caribbean Blacks in the National Survey of American Life. *American Journal of Public Health*. 2008 Jun;98(6):1107-14.
- [87] Erving CL. Stress exposure and physical health among older African American and Caribbean Black women. *Journal of aging and health*. 2022 Jun;34(3):320-33.