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Article

Race, Depression, and Financial Distress in a Nationally Representative Sample of American Adults

Shervin Assari

1 Department of Family Medicine, Charles R. Drew University of Medicine and Sciences, Los Angeles, CA 90095, USA; assari@umich.edu; Tel.: +734-647-7944
2 Department of Psychiatry, School of Medicine, University of Michigan, Ann Arbor, MI 48109-2029, USA
3 Center for Research on Ethnicity, Culture and Health (CRECH), School of Public Health, University of Michigan, Ann Arbor, MI 48109-2029, USA
4 Department of Psychology, University of California Los Angeles, Los Angeles, CA 90095, USA

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Abstract: Background: Although depression and financial distress are correlated, this association may differ for demographic groups, particularly based on race. Aim: Using a national sample of American adults, this study tested whether the association between Major Depressive Episode (MDE) and financial distress differs between African Americans and Whites. Methods: The National Survey of American Life (NSAL), 2003, enrolled 3570 African American and 891 Non-Hispanic White American adults. Demographic data (age and gender), socioeconomic position (SEP; i.e., education, employment, marital status, and income), financial distress, and 12-month MDE were measured. Logistic regression was used for data analysis. Results: In the pooled sample, 12-month MDE was associated with higher odds of financial distress, above and beyond objective SEP measures. We found MDE by race interaction on financial distress, suggesting stronger association between MDE and financial distress among African Americans, compared to Whites. Conclusions: The link between MDE and financial distress depends on race. The financial needs of African Americans with depression should be addressed. Depression screening is also needed for African Americans with financial distress.

Keywords: depression; mood disorders; African Americans; Blacks; ethnic groups; ethnicity; race; financial distress; financial hardship; financial insecurity; class; Socioeconomic Status (SES)

1. Introduction

Theoretical work [1] and empirical data [2–4] have shown a close link between objective (e.g., wealth and income) and subjective (e.g., subjective social position) indicators of socioeconomic position (SEP) and health. The SEP-health association is bidirectional and involves causation and selection [1,5]. While SEP impacts mental health [1], psychiatric conditions such as depression impact SEP, via reducing individuals’ ability to work, earn income, and accumulate wealth [6]. Most past research, however, has focused on the effects of SEP indicators on depression, and less attention is paid to how depression increases financial distress. Using the National Survey of American Life (NSAL), this study compares African American and White adults for the association between experiencing a major depressive episode (MDE) and financial distress, one of the most widely accepted subjective measures of SEP [7].

Financial distress is a unique indicator of SEP. Although correlated with other SEP indicators [7], it is different enough from other conventional objective SEP indicators, such as education and income, in that it captures financial trouble that is a stronger antecedent to poor mental health than other
objective SEP indicators that may not fully capture individuals’ material circumstances [8]. In support of this argument, financial distress has shown stronger associations with certain health outcomes than educational attainment, employment, or income [9–11]. Research has shown that financial distress conveys extra information over economic measures such as poverty status [12]. Some researchers have argued that financial distress reflects distinct economic characteristics that independently correlate with individuals’ and populations’ health beyond conventional SEP indicators [8,9,11,13–16]. Even among high-income individuals, financial distress correlates with health and health behaviors [8]. Trouble paying bills is associated with high risk behaviors [17]. The policy implication of research on financial distress is that standard SEP indicators should not be the only criteria for eligibility to the economic social programs and interventions [13,18–20]. Some populations may still experience financial distress despite high income and education, because they have lower disposable income. So, these families may have more difficulty paying bills and affording adequate food [21], which may have different effects than objective SEP indicators [9,19,22]. While African Americans are known to have higher levels of financial distress than Whites [23,24], we know very little about differences in the associations between financial distress and mental health of Whites and African Americans.

Most theoretical work on this topic is focused on social causation. Link and Phelan’s Fundamental Cause Theory (FCT) conceptualized SEP as an upstream determinant of population health [1]. Mirowsky and Ross argued that the health effects of SEP are “enduring, consistent, and growing” [25]. While the health effects of objective measure of SEP (e.g., income, education, employment) are well documented [26–30], less is known about the association between subjective indicators of SEP, particularly financial distress, and health, after adjustment for SEP indicators. Specifically, less is known about subpopulation differences in the association between subjective SEP indicators and depression.

Racial groups may differ in the effects of mental health problems, such as depression, on SEP indicators. Due to their worse access to the health care system, higher stigma, and a lower quality of treatment by the healthcare system [31], depression may be more disabling for African Americans than Whites [32]. In the NSAL data, Williams et al., showed that depression is more chronic for African Americans than Whites. They also found that African Americans have a higher tendency to rate their depression as severe and disabling compared to White Americans [32]. Other studies documented that compared to Whites with depression, African Americans with depression have higher levels of depressive symptoms and psychological distress [33,34]. All of this evidence suggests that depression is more chronic, severe, and disabling among African Americans than Whites.

Considerable racial variations may exist in the associations between mental health outcomes and SEP indicators [26–30]. Although overall, better health is associated with higher SEP in the overall population [5,29], this association may depend on the presence of other SEP indicators [27,35–38]. The link between SEP and health may vary based on SEP indicator, health outcome, and population [38–42]. Unfortunately, there is very limited knowledge on how Whites and African Americans differ in the magnitude of the association between depression and financial distress.

Using NSAL data, a national sample of American adults, this study compared African Americans and Whites for the association between MDE and financial distress.

2. Methods

2.1. Design

The current study used data from the NSAL 2003-2004, which a component of the Collaborative Psychiatric Epidemiology Surveys (CPES) [43–45]. Although detailed description of the CPES and NSAL methodology is published elsewhere [43–45], here we provide some aspects of the NSAL methods.
2.2. Ethics

The NSAL/CPES received ethical approval from the University of Michigan (UM) Institute Review Board (IRB # B03-00004038-R1). NSAL participants signed a written informed consent. All procedures performed in the study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

2.3. Participants and Sampling

The NSAL sample was household probability sampling. African American and White adults were drawn from urban/rural areas and large cities.

2.4. Interviews

From all interviews, 86% were face-to-face interviews. The remaining 14% of the interviews were telephone interviews. On average, interviews took about two hours and twenty minutes. All the interviews were performed in English language. The overall response rate of the NSAL study was 72%.

2.5. Measures

The current study collected data on race/ethnicity, age, gender, objective SEP (educational attainment, household income, employment status, and marital status), subjective SEP (i.e., financial distress), and 12-month MDE.

Race/Ethnicity. Self-identified race/ethnicity were measured. Individuals self-identified as African American when they were Black but did not report ancestral tie to the Caribbean countries. All the individuals with ancestries from Caribbean countries (Caribbean Black or Black Caribbean) were excluded from the current analysis.

Financial Distress. Financial distress was measured using the following two items: (1) “How difficult is it for (you/your family) to meet the monthly payments on your (family’s) bills?”, and (2) “How much do you worry that your total (family) income will not be enough to meet your (family’s) expenses and bills?” Response items for the first item ranged from 0 (not at all difficult) to 4 (extremely difficult). Responses for the second item ranged from 0 (not at all) to 4 (a great deal). Items were positively and strongly correlated ($r = 0.645$). We reverse coded the items, and calculated a total score, that ranged from 0 to 7, with a higher score indicating higher financial distress. A cut point of 0.80 (mean) was used to dichotomize financial distress.

Major Depressive Episode (MDE). 12-month MDE was measured using the modified version of the World Mental Health (WHO) Composite International Diagnostic Interview (CIDI). CIDI is a fully structured diagnostic interview schedule [46]. The CIDI measures a wide range of psychiatric disorders based on the Diagnostic and Statistical Manual, Fourth Edition (DSM-IV) criteria. Originally developed for the WHO study started in 2000, the CIDI is an interview schedule that is being used by lay interviewers who were trained. CIDI generates potential lifetime and recent diagnoses of non-psychotic psychiatric disorders [47]. Acceptable concordance between CIDI -diagnosis and blind clinical diagnosis by clinicians are shown in reappraisal studies [46–49], particularly for MDE [48]. CIDI provides valid diagnoses for African Americans and Whites [50,51].

Confounders. Socio-demographic factors included age (years), gender (male = 0, female = 1), educational attainment, household income, employment status, marital status. Household income was measured in (USD10,000) and treated as a continuous measure. Thus, a mean household income of 4.6 would indicate income of 46,000 USD. Employment status was a dichotomous variable (employed versus unemployed/not in labor market). Education attainment was treated as a dichotomous variable, with the following coding: 11 Years or Less = 0, 12 Years or More = 1. Marital status was operationalized as a dichotomous variable (0 = other status, 1 = married).
2.6. Statistical Analysis

Stata 13.0 (Stata Corp., College Station, TX) was used for analysis of the data. Taylor series approximation was used to re-estimate the complex design-based variance. All means, proportions, and standard errors reflect the weights due to the sampling complex design. As a result, the results are representative to the nation. Multivariable logistic regressions were applied for multivariable analysis. In the main model, 12-month MDE was the predictor, financial distress was the outcome, and confounders were controlled. We ran models in the absence and presence of interaction terms between race/ethnicity and MDE. Adjusted odds ratios (OR), 95% Confidence Intervals (CI), and their associated $p$ values were reported. All $p$ values equal or less than 0.05 were considered as statistically significant.

2.7. Sensitivity Analysis

To run a sensitivity analysis, we also ran models with financial distress as the predictor and 12-month MDE as the outcome. The results of this secondary analysis are available in the Appendix A.

3. Results

3.1. Descriptive Statistics

Table 1 describes age, objective SEP indicators (education, household income, marital status, and employment), financial distress, and 12-month MDE overall and based on race/ethnicity. Household income and education were lower among African Americans than Whites. Financial distress was higher among African Americans compared to Whites. (Table 1)

| Characteristics          | All Mean  | 95% CI       | All Mean 95% CI | All Mean 95% CI | All Mean 95% CI |
|--------------------------|-----------|--------------|-----------------|-----------------|-----------------|
| Age (Years)              | 43.57     | 42.11–45.02  | 44.84           | 41.96–47.73     | 42.20           | 41.14–43.26     |
| Household Income (USD10,000) | 4.17     | 3.75–4.58    | 4.68            | 3.89–5.46       | 3.62            | 3.35–3.89       |
| Financial Distress       | 1.82      | 1.71–1.93    | 1.71            | 1.52–1.90       | 1.94            | 1.82–2.05       |
| Gender                   |           |              |                 |                 |                 |
| Male                     | 45.76     | 43.59–47.94  | 47.38           | 43.27–51.53     | 44.00           | 42.32–45.70     |
| Female                   | 54.24     | 52.06–56.41  | 52.62           | 48.47–56.73     | 56.00           | 54.30–57.68     |
| Education                |           |              |                 |                 |                 |
| 11 Years or Less         | 19.47     | 16.75–22.51  | 15.16           | 10.68–21.08     | 24.11           | 21.79–26.61     |
| 12 Years or More         | 80.53     | 77.49–83.25  | 84.84           | 78.92–89.32     | 75.89           | 73.39–78.21     |
| Unemployed               |           |              |                 |                 |                 |
| No                       | 92.73     | 91.06–94.12  | 95.48           | 92.28–97.39     | 89.77           | 88.18–91.17     |
| Yes                      | 7.27      | 5.88–8.94    | 4.52            | 2.61–7.72       | 10.23           | 8.83–11.82      |
| Married                  |           |              |                 |                 |                 |
| No                       | 51.78     | 47.94–55.61  | 45.81           | 38.62–53.17     | 58.23           | 56.08–60.36     |
| Yes                      | 48.22     | 44.39–52.06  | 54.19           | 46.83–61.38     | 41.77           | 39.64–43.92     |
| 12-Month MDE             |           |              |                 |                 |                 |
| No                       | 92.68     | 91.76–93.52  | 92.12           | 90.46–93.51     | 93.30           | 92.29–94.18     |
| Yes                      | 7.32      | 6.48–8.24    | 7.88            | 6.49–9.54       | 6.70            | 5.82–7.71       |

MDE; Major Depressive Episode.

3.2. Logistic Regressions

Financial distress as the Outcome. Table 2 summarizes the result of a logistic regression with 12-month MDE as the independent and financial distress as the dependent variable. In the pooled sample 12-month MDE was linked with the odds of financial distress (OR = 2.11, 95%CI = 1.54–2.89),
above and beyond all confounders. We found an interaction between race/ethnicity and 12-month MDE (OR = 1.84, 95%CI = 1.03–3.30) on financial distress, suggesting a stronger association between financial distress and MDE for African Americans compared to Whites.

**Table 2.** Summary of logistic regressions with major depressive episode (MDE) as the independent variable and financial distress as the dependent variable.

|                        | Model 1 |                  | Model 2 |                  |
|------------------------|---------|------------------|---------|------------------|
| **Race (African American)** | 1.08    | 0.82–1.41        | 1.04    | 0.79–1.36        |
| **Gender (Female)**     | 1.38 ***| 1.14–1.67        | 1.37 ** | 1.13–1.66        |
| **Age**                | 0.98 ***| 0.97–0.98        | 0.98 ***| 0.97–0.98        |
| **Education (>=12 Years)** | 0.59 ***| 0.43–0.80        | 0.59 ***| 0.43–0.81        |
| **Unemployed**          | 1.83 ** | 1.20–2.80        | 1.83 ** | 1.19–2.80        |
| **Married**             | 1.20    | 0.87–1.66        | 1.21    | 0.88–1.66        |
| **Income (USD10,000)**  | 0.86 ***| 0.82–0.91        | 0.86 ***| 0.82–0.91        |
| **12-Month MDE**        | 2.11 ***| 1.54–2.89        | 1.66 *  | 1.09–2.55        |
| **12-Month MDE × Race** |         |                  | 1.84 *  | 1.03–3.30        |
| **Intercept**           | 4.94 ***| 3.15–7.74        | 5.03 ***| 3.20–7.93        |

Outcome: Financial Distress, OR; Odds Ratio, CI; Confidence Interval, MDE; Major Depressive Episode, * p < 0.05; ** p < 0.01; *** p < 0.001.

12-Month MDE as the Outcome. Table A1 provides the summary of a logistic regression with financial distress as the independent and 12-month MDE as the dependent variable. In the pooled sample, financial distress was associated with higher odds of 12-month MDE (OR = 2.12, 95%CI = 1.52–2.94), above and beyond confounders. We found an interaction between race/ethnicity and financial distress (OR = 1.85, 95%CI = 1.01–3.40) on 12-month MDE, suggesting a stronger association for African Americans compared to Whites (Table A1).

4. Discussion

We found racial variation in the link between 12-month MDE and financial distress among American adults. Last Year Depression was more strongly associated with financial distress in African Americans, compared to Whites. This racial difference could be replicated regardless of whether MDE or financial distress was conceptualized as the independent or dependent variables.

Our finding on the association between financial distress and MDE is in line with the Fundamental Cause Theory (FCT) [1,35,36], which emphasizes low SEP as an upstream social determinant of a wide range of health problems [35,36,52]. The health effects of SEP indicators are robust; however, these effects may be specific to populations and health outcomes [37]. Poor SEP increases behavioral risk factors and reduces access to resources that can buffer the effects of stress. High SEP helps people escape risk factors and minimize consequences when they are faced. At the same time, severe decline in health lowers SEP, as illness may interfere with maintaining employment, which is the main source of income [53].

Compared to Whites, African Americans have higher odds of experiencing financial distress in the presence of depression. A potential explanation for this finding is the pervasive racial gap in wealth and financial assets. Overall, African Americans with the same income and education as Whites usually have much less overall wealth (e.g., equity on a home, savings) on their own and in their extended families than do Whites [54–63]. As wealth and similar resources may buffer financial distress [64], we found stronger association between depression and financial distress in African Americans than Whites. Deep discussions on the racial gap in wealth and their implications for the health and well-being of African Americans are published by Darity, Hamilton Shapiro, Oliver, and others [54–63]. Such inequalities are consequential for Whites as well [65].
Upward social mobility tends to be more taxing for African Americans compared to Whites [66,67]. As SEP is positively associated with discrimination for African Americans [68–71], the health gains that follow upward social mobility are smaller for African Americans [67,72]. In a recent study, parental education improved mental health of White but not African American young adults [60]. In another study, parental education had a stronger effect on educational mobility of Whites than African Americans [61]. While social mobility alters exposure to stress for Whites, African Americans report high levels of stress regardless of their social mobility status [62]. Other studies have also shown that upward social mobility may be differently linked to physical and mental health of Whites and African Americans [57–65,68,73–75] That is, upwardly mobile Whites report better health status than upwardly mobile African Americans [57–59]. These processes may help us understand why SEP and depression are differently linked by race.

In line with this argument, recent research has revealed high risk of depression among African Americans with high SEP [37,76,77]. In a study, income protected Whites but not African Americans against depression [54]. In the Fragile Families data, high family income reduced Attention Deficit Hyperactivity Disorder (ADHD) of White but not African American youth [77]. In NSAL data, high income was a risk factor for clinical depression among African American men [38]. In NSAL-Adolescents, high family income was a risk factor for MDE among African American males [6]. In the Americans Changing Lives study, higher education degree functioned as a risk factor for an increase in subsequent depression in African men [76].

Several inconsistencies exist in the literature regarding the link between SEP and depression [72, 76,77], reflecting the complex and non-linear nature of such association. One example is the positive link between family income and MDE risk in male African American youth [78] and adults [79]. High education credentials predicted an increase in depressive symptomatology among African American men, a finding which was missing for African American women or White men, or White women [76]. Similar inconsistencies are also reported for the effects of education and income on insomnia, physical inactivity, obesity [37,80,81], drinking [82], chronic disease [83] and mortality [84].

Our finding that MDE is associated with more financial distress is in contrast to previous research which has shown a systemic resilience toward socioeconomic adversities and stress in African Americans [85–87]. In a study, stressful life events showed a stronger association with MDE in Whites than in African Americans [85]. Physical health effects of economic adversities also seem to be larger for Whites than African Americans [88]. Review articles have shown that Whites may be more susceptible to several social and economic risk factors [86,87]. Thus, while African Americans seem to be more resilient to stress than Whites overall, this is not true for the effect of MDE on financial distress.

Our finding is also in support of the observations that depression is more disabling and chronic for African Americans than Whites [32,33,89]. Cross-sectional studies have shown that MDE is associated with more severe depressive symptoms in African Americans than Whites [32,33,89]. These pieces of evidence collectively suggest that African Americans with MDE have more financial distress than their White counterparts.

High financial distress in African Americans with MDE may be due to negative attitudes toward help-seeking and also differential treatment by the healthcare system. These differences may result in lower quality of depression treatment for African Americans than Whites [89]. African Americans have higher levels of stigma and preference toward non-pharmacological approaches to depression treatment [90,91]. In addition, given that comorbidities are more common in MDE among African Americans than Whites [91,92], MDE may be linked to more disability for African Americans. In addition, African Americans with MDE are more likely to receive depression treatment from their primary care physicians, which means a lower quality of treatment [93]. All these differences may result in more disability for African Americans with MDE than Whites with MDE [32]. In addition, a large proportion of African Americans report high levels of discrimination by the healthcare system, which predicts poor outcomes [50].
In this study, when additive (combined) effects of race and objective SEP on subjective SEP (financial distress) were tested, low education, unemployment, and low income but not race were associated with high level of financial distress. This finding suggests that the only reasons Blacks experience lower subjective SEP (i.e., financial distress) is their lower objective SEP. This finding may have policy implication that policies that enhance objective SEP may help African Americans perceive higher levels of fairness, as they find their social status as higher and the society as more just/fair [64,74,75].

When we had financial distress as the outcome, in addition to depression, objective SEP indicators (education, employment, and income) were correlated with financial distress. This suggests that (education, employment, and income impact financial distress, which is in line with the literature of the link between subjective and objective SEP indicators. However, when in our model, MDE was the outcome, in the presence of financial distress, objective SEP indicators (education, income, marital status, and unemployment) did not have residual effects on MDE. This finding of our sensitivity analysis suggests that financial distress, an indicator of subjective SEP, may have stronger association with MDE than objective indicators of SEP.

Limitations

The current study had a few methodological and conceptual limitations. First, due to the cross-sectional design, the current study cannot draw any causative inference, thus future research should test whether African Americans may have higher vulnerability to the effects of financial distress on MDE, or if their MDE results in larger financial scar. Second, financial distress was measured using only two items. Future research may use comprehensive measures to investigate financial distress. Third, this study did not include participation in governmental or state welfare programs, such as Temporary Assistance for Needy Families (TANF) and Supplemental Nutrition Assistance Program (SNAP) [94–98]. Finally, other sources of stress, such as food insecurity, hunger, and stressful life events, were not measured. Despite these limitations, the study still offers new knowledge to the scientific community with the following strengths: (1) a large sample size; (2) national sampling; and (3) high validity of depression measure.

5. Conclusions

To conclude, the association between 12-month MDE and financial distress among American adults depends on race. That is, compared to Whites, African Americans have higher odds of experiencing financial distress in the presence of depression. As a result, financial distress may be a more important aspect of screening, diagnosis, and treatment of depression for African Americans than Whites.

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Conflicts of Interest: The author declares that he has no conflict of interest.
Appendix A

Table A1. Summary of logistic regressions with financial distress as the independent variable and MDE as the dependent variable.

|                      | Model 1          |          | Model 2          |          |
|----------------------|------------------|----------|------------------|----------|
|                      | OR    | 95% CI  | OR    | 95% CI  |
| Race (African Americans) | 0.72  | 0.57–0.90 | 0.47  | 0.29–0.75 |
| Gender (Female)          | 1.01  | 0.64–1.59 | 1.01  | 0.64–1.60 |
| Age                    | 0.99  | 0.97–1.01 | 0.99  | 0.97–1.01 |
| Education (>=12 Years)  | 0.89  | 0.55–1.42 | 0.89  | 0.55–1.43 |
| Unemployed             | 1.01  | 0.63–1.64 | 1.00  | 0.62–1.62 |
| Married                | 0.79  | 0.45–1.37 | 0.79  | 0.46–1.36 |
| Income (USD10000)      | 0.96  | 0.90–1.03 | 0.96  | 0.90–1.03 |
| Financial Distress     | 2.12  | 1.52–2.94 | 1.65  | 1.02–2.67 |
| Financial Distress × Race | -    | -       | 1.85  | 1.01–3.40 |
| Intercept              | 0.12  | 0.05–0.29 | 0.15  | 0.07–0.34 |

Outcome: MDE; Major Depressive Episode. *p < 0.05; **p < 0.01; ***p < 0.001.

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