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Life Expectancy Gain Due to Employment Status Depends on Race, Gender, Education, and Their Intersections

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Abstract

Purpose: Despite the well-established health effects of socioeconomic status (SES), SES resources such as employment may differently influence health outcomes across sub-populations. This study used a national sample of U.S. adults to test if the effect of baseline employment (in 1986) on all-cause mortality over a 25 year period depends on race, gender, education level, and their intersections.

Methods: Data came from the Americans' Changing Lives (ACL) study, which followed 2,025 Whites and 1,156 Blacks for 25 years from 1986 to 2011. The focal predictor of interest was baseline employment (1986), operationalized as a dichotomous variable. The main outcome of interest was time to all-cause mortality from 1986 to 2011. Covariates included baseline age, health behaviors (smoking, drinking, and exercise), physical health (obesity, chronic disease, function, and self-rated health), and mental health (depressive symptoms). A series of Cox proportional hazard models were used to test the association between employment and mortality risk in the pooled sample and based on race, gender, education, and their intersections.

Results: Baseline employment in 1986 was associated with a lower risk of mortality over a 25 year period, net of covariates. In the pooled sample, baseline employment interacted with race (HR = .69, 95% CI= .49-.96), gender (HR = .73, 95% CI= .53–1.01), and education (HR = .64, 95% CI= .46-.88) on mortality, suggesting diminished protective effects for Blacks, women, and individuals with lower education, compared to Whites, men, and those with higher education. In stratified models, the association was significant for Whites (HR =.71, 95%CI = .59-.90), men (HR = .60, 95%CI =.43-.83), and individuals with high education (HR = .66, 95%CI = .50-.86) but not for Blacks (HR = .77, 95%CI = .56–1.01), women (HR = .88, 95%CI = .69–1.12), and those with low education (HR = .92, 95%CI = .67–1.26). The largest effects of employment on life expectancy were seen for highly educated men (HR = .50, 95%CI =.32-.78), White men (HR = .

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Institutional Review Board (IRB) Approval. The University of Michigan Institutional Review Board (IRB) approved the study protocol.

Ethics. All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) with the Helsinki Declaration of 1975, as revised in 2000.

Informed Consent. Informed consent was obtained from all participants included in the study.

Animal Studies. No animal studies were carried out by the authors for this article.

Conflict of Interest. Shervin Assari declares that he does not have any conflicts of interest.

55, 95%CI =.38-.79), and highly educated Whites (HR = .63, 95%CI =.46-.84). The effects were non-significant for Black men (HR = 1.10, 95%CI = .68–1.78), Whites with low education (HR = 1.01, 95%CI = .67–1.51), and women with low education (HR = 1.06, 95%CI = .71–1.57).

Conclusion: In the United States, the health gain associated with employment is conditional on one's race, gender, and education level, along with their intersections. Blacks, women, and individuals with lower education gain less from employment than do Whites, men, and highly educated people. More research is needed to understand how the intersections of race, gender, and education alter health gains associated with socioeconomic resources.

Keywords

Unemployment; Socioeconomic Status; Mortality; Ethnic Groups

Introduction

The protective effects of high socioeconomic status (SES) on health are well-known. A wide range of SES indicators exists, [6] including education [4], employment [1–3], and income [5], and these indicators influence morbidity [7] and mortality [8–10]. Several studies, including the Panel Study of Income Dynamics [17], the Whitehall study [18], the British Regional Heart Study [1], the Longitudinal Aging Study [19], the Growing Older in New York City Study [20], and the Americans' Changing Lives study [21], have all documented the protective effects of employment, education, and income on a wide range of health outcomes. Employment may increase life expectancy up to 10 extra years [22]. In a systematic review, Roelfs extracted mortality risk estimates from 42 studies that had collectively followed more than 20 million people and showed that unemployment is associated with a 63% increase in the risk of mortality, net of covariates [23].

Demographic and social groups, however, do not similarly gain from education. In the British Regional Heart Study, employment had the largest effect on mortality among middle aged men, net of covariates [1]. Race [11–13] and gender [14,15] may alter the salience of SES resources for health outcomes. According to the "diminished return hypothesis," Blacks and other minorities gain less than Whites from the same level of improvement in SES [16]. The health gain associated with employment may also be larger for men than for women [14,15].

Although it is known that race alters the health benefits associated with education [12], less is known on racial differences in the health gain of employment. Gender may also alter how employment impacts health, with men being more susceptible to the effects of employment than women [14,15,24]. In a meta-analysis by Roelfs et al., unemployment had a stronger health effect for men than for women [23]. The effect of unemployment on mortality is also larger for those in their early and middle careers compared to those in their late career [23]. In addition, area level unemployment rates also alters the health effects of employment, as personal unemployment has a harsher effect when there are relatively fewer others who are also unemployed [25–27].

It is still unknown whether the effects of race, gender, and SES indicators (e.g. education, employment, and income) are additive or multiplicative. Although SES may also explain the racial differences in health [35–37], the protective effects of SES may also vary across demographic and social groups [38,39]. In the United States for example, residential segregation by race impacts access and benefits associated with SES [40,41]. As quality of education and types of available occupations depend on race and gender, education and employment differently increase material and human resources for Black and White Americans [42,43]. Due to the labor market preferences and practices, Whites and men receive better jobs and higher earnings than do Blacks and women [46–48]. As a result, health benefits of attained education and employment may vary by race, gender, and their intersection [44–46].

Using data from the Americans' Changing Lives (ACL) study, 1986–2011, a 25-year longitudinal study with a nationally representative sample of adults in the U.S., the current study tested if the effect of baseline employment (1986) on risk of mortality over a 25 year follow-up period depends on race, gender, education level, and their intersections.

Methods

Design and Setting

The Americans' Changing Lives (ACL) study, 1986 – 2011, is a 25-year longitudinal study. ACL enrolled a national sample of non-institutionalized American adults (n= 3,617) who were 25 years or older in 1986 (initial household and individual response rates were 70% and 68% respectively for baseline measures). The study oversampled older individuals (over 60 years old) and Blacks [49,50]. Current study only used baseline variables as predictors and mortality as the outcome.

Measures.—Demographic, SES, health behaviors, and health status were all obtained from baseline interviews in 1986.

Baseline Employment Status.—Baseline unemployment status was the primary predictor of interest, measured using a single item measure. Employment was treated as a dichotomous variable. (Figure 1)

All-Cause Mortality.—All-cause mortality was the main outcome variable. Mortality data was obtained through the National Death Index (NDI), death certificates, and informants. In most cases, time and cause of death were verified with a death certificate. The few instances where death could not be verified with death certificates were reviewed carefully, so in all cases occurrence of death was certain. In the cases that lacked death certificates, the date of death was ascertained from the informants or the NDI report [65,66]. For the cases where the death certificates or NDI reports were unavailable, cause of death was coded as missing (unknown).

Demographic Factors.—Baseline demographic factors included gender (0 = male, 1 = female), race (0 = White, 1 = Black), and age in years (a continuous variable).

Race and Ethnicity.—Self-identified race and ethnicity were collected at baseline in 1986 with several survey items. Respondents were given the following open-ended question: "In addition to being American, what do you think of as your ethnic background or origins?" Respondents were then asked the following multiple-choice question: "Are you White, Black, American Indian, Asian, or another race?" Participants were allowed to answer with multiple categories. When a participant identified with more than one non-White group, they were asked to identify which race and ethnicity "best described" them.

Education.—Education status was measured as years of completed education at the time of entry to study in 1986. Education was operationalized in two ways: a continuous measure reflecting years of education, and a two level categorical variable (less than 12 years, 12 years or more) [51–54]

Income.—Baseline income (respondent and spouse total income) in was considered as a confounder that could interfere with the effects of race, gender, and education on mortality [51–54].

Chronic Medical Conditions (CMC).—Number of CMC was measured at baseline using self-reported data. Participants were asked whether a health care provider has ever told them that they had any of the following seven conditions: heart disease, stroke, hypertension, diabetes, chronic lung disease, arthritis, and cancer. We calculated a sum score, ranging from 0 to 7 with higher scores indicating more CMC [55].

Self-Rated Health.—To collect data on baseline self-rated health (SRH), participants were asked to rate their overall health as excellent, very good, good, fair, or poor. SRH was operationalized as a dichotomous measure. The above response categories were collapsed into two categories (fair/poor vs. excellent/very good/good), a cutoff point that is commonly used in the health literature. SRH has high test–retest reliability and independently predicts mortality risk [56].

Physical Function.—Several questions were used to measure physical function at baseline. Based on those items, a three-level categorical variable was created: 1) no functional limitation (i.e., able to do heavy work around the house); 2) some limitation (i.e. not being able to do such things as heavy physical labor or work around the house); and 3) moderate to severe limitation (having great difficulty walking a few blocks or climbing stairs, or reported being confined to a bed or a chair) [57].

Obesity.—Self-reported weights and heights were collected at baseline. Using these self-reported data, obesity was defined as having a body mass index (BMI) greater than 30 kg/m^2. Weight and height were originally collected in pounds (1 pound = .453 kg) and feet (1 foot = .3048 m)/inches (1 inch = .0254 m), respectively. BMI based on self-report data closely correlates with measured BMI [58].

Health Behaviors.—The ACL study has measured three health behaviors; exercise, smoking, and drinking (i.e., alcohol consumption). To calculate a physical activity index, respondents were asked to rate how often they are engaged in the following activities: 1)

working in the garden or yard, 2) participating in active sports or exercise, and 3) taking walks. A 4-point Likert scale response category was used ranging from "often" to "never." The index score was the mean of the three above items [59]. A high value scored by respondents indicated a high level of physical activity. To measure smoking (i.e., tobacco use), respondents were asked if they currently smoke or not. A dummy variable was created for current smoking. A similar question was asked about drinking behaviors. A dummy measure was also created for current drinking [60].

Depressive Symptoms.—Depressive symptoms were measured using the 11-item Center for Epidemiological Studies-Depression scale (CES-D) [61]. Respondents reported the extent to which in the past week they felt depressed, lonely, sad, restless sleep, and how much they had felt that everything was an effort, that people were unfriendly, that they did not feel like eating, that people dislike them, and that they could not get going. Item response categories ranged from 1 ("hardly ever") to 3 ("most of the time"). Positively worded items were reverse-coded. A mean score was then computed across all items [62,63]. Then, the depressive score was centered. The depression score was treated as a continuous measure, ranging from 1 to 3, with a higher score indicating more severe symptoms. Abbreviated CES-D measures have shown acceptable reliability and similar factor structures to the original CES-D measure [64].

Statistical analysis.

To handle the complex sample design of the ACL study, Stata 13.0 (Stata Corp., College Station, TX) was used for data analysis. Stata uses Taylor series linearization for the estimation of standard errors of weighted data. Given that we applied baseline weights, our results are generalizable to the United States population. As we only used baseline predictors (no data from other waves were used), this study was not affected by non-response or attrition during the follow up period.

A number of Cox proportional hazard models were conducted to determine the effect of baseline employment on mortality due to all causes based on race, gender, education level, and their intersections. First, we evaluated the proportional hazard assumptions for our Cox proportional hazard models. To do so, we used Schoenfeld residual analysis by using the estat phtest code. Our models passed the tests for proportional hazards.

In all of our models, the main predictor of interest was employment status at baseline in 1986. The main outcome of interest was time to death due to all causes from 1986 through 2011. Covariates included age, health behaviors (smoking, drinking, and physical activity), physical health (obesity, chronic disease, and self-rated health), and mental health (depressive symptoms), all measured at baseline. There was no collinearity between the covariates. Covariates were chosen by a literature review. Hazard Ratios (HR) with 95% confidence intervals are reported. A hazard ratio of less than 1 indicates a protective effect of the independent variable on the outcome. In this study $p < .05$ was statistically significant.

First we estimated *Model 1* in the pooled sample which did not include any interaction term. In the next models (Models 2 to 4), we ran models in the pooled sample with two by two interactions including race × unemployment (*Model 2*), gender × unemployment (*Model 3*),

and education × unemployment (*Model 4*). Then we ran models with three way interactions: race × gender × unemployment (*Model 5*), gender × education × unemployment (*Model 6*).

Then we ran models for Whites (*Model 7*), Blacks (*Model* 8), men (*Model 9*), women (*Model 10*), and individuals with high (*Model 11*) and low (*Model 12*) levels of education. We used this modeling approach to confirm the findings of the models with the interaction terms, using strata-specific models.

Results

Table 1 summarizes descriptive statistics for the analytic sample. While there were no significant race differences in age or gender, Blacks had lower levels of education, income, and employment than Whites.

Table 2 displays the results of four models to test the associations between unemployment and all-cause mortality (Model 1), and these associations based on race (*Model 2*), gender (*Model 3*), and education level (*Model 4*) in the pooled sample. *Model 1* showed that baseline unemployment was associated with higher mortality rate net of all covariates. *Model 2* suggested that the association between baseline unemployment and higher mortality risk was stronger for Whites than for Blacks. *Model 3* suggested that the association between baseline unemployment and higher mortality risk was stronger for men than for women. *Model 4* suggested that the association between baseline unemployment and higher mortality risk was stronger for those with high levels of education than those with low levels of education.

Table 3 summarizes the results of *Model 7* through *Model 12,* the Cox proportional hazard models of all-cause death stratified by race, gender, and education. In stratified models, the association between employment and mortality was significant for Whites (HR =.71, 95%CI = .59-.90), men (HR = .60, 95%CI =.43-.83), and individuals with high levels of education (HR = .66, 95%CI = .50-.86), but not for Blacks (HR = .77, 95%CI = .56–1.01), women (HR = .88, 95%CI = .69–1.12), and those with low levels of education (HR = .92, 95%CI = .67–1.26).

Table 4 shows the results of models based on the intersection of race and gender. In stratified models, HR was significant for White males (HR =.55, 95%CI = .38-.79). The effect was marginal for Black women (HR = .66, 95%CI =.43–1.03). The HR was non-significant for White women (HR = .97, 95%CI = .76–1.23) and Black men (HR = 1.10, 95%CI = .68–1.78).

Table 5 shows the results of four models based on the intersection of race and education. According to these models, HR was significant for Whites with high levels of education (HR =.63, 95%CI = .46-.84) and Blacks with low levels of education (HR = .69, 95%CI =.50-.96). The HR was non-significant for Whites with low levels of education (HR = 1.01, 95%CI = .67–1.51) and Blacks with high levels of education (HR = .94, 95%CI = .55–1.61).

Table 6 summarizes the results of four models based on the intersection of gender and education. According to these models, HR was significant for men with high levels of

education (HR =.50, 95%CI = .32-.78). The effect was marginal for men with low levels of education (HR = .73, 95%CI =.52–1.03). The HR was non-significant for women with high levels of education (HR = .84, 95%CI = .63–1.13) or women with low levels of education (HR = 1.06, 95%CI = .71–1.57).

Discussion

Based on our findings, how baseline employment impacts the life expectancy in the United States depends on race, gender, education level, and their intersection. These findings were suggestive of diminished life expectancy gain of employment for Blacks, women, and those with lower education. The intersectionality approach also revealed more nuances regarding the health gain of employment: the gain was largest for men with high levels of education, White men, and Whites with high levels of education. There was no gain for Black men, Whites with low levels of education, and women with low levels of education.

The heterogeneity in the magnitude of the health gain associated with employment should be attributed to the structure of American society; this structure particularly benefits White men and men with high levels of education with minimum health gain for Black men, Whites with low levels of education, and women with low levels of education. We do not argue that women or Blacks, particularly Black men, are unable to translate employment to health. Instead, we argue that how American society operates minimizes the health gain of certain groups, even when they secure a job.

The findings of the current study extend the *Blacks' diminished return hypothesis*, suggesting that socioeconomic factors generate less health gain among Blacks and other minorities than among Whites [16]. In a 2016 study, Assari showed that education has a smaller effect on life expectancy for Blacks than for Whites [12]. These differential gains also extend to the diminished health gain of affect, anger management, sleep quality, self-rated health, self-efficacy, and perceived control over life for Blacks [67–76,92,97].

Our findings are in line with previous work suggesting that gender alters the salience of the SES resources for health outcomes [14,15]. Gender mitigates harm associated with joblessness, with men being more susceptible to the harmful effects of unemployment [14,15,24]. In their meta-analysis, Roelfs et al., showed that unemployment hits men harder than women [23]. This is possibly stronger in traditional societies with strong beliefs in traditional gender norms, where the society still views men as the primary breadwinners [100].

In our study, the effect of baseline unemployment on risk of mortality was beyond the effects of covariates including income, health status, and health behaviors. Exact mechanisms of the effect of unemployment on mortality are not fully known [28,29]. Income may be a mechanism; health behaviors may be another explanation [28]. Roelfs' meta-analysis showed that 24% of the effect of employment on mortality could be explained by health behaviors [23]. Education and employment also improve lifestyle, habits, and behaviors of the individuals [23,28,33]. In addition to health behaviors, employment determines class and status, defined as access to material and human resources, rewarding jobs, and social

networks [29–32]. Such materialistic and human resources enable individuals to avoid risks and minimize their consequences once they occur [33,34].

We argue that racial differences in protective effect of employment may be due to lower quality jobs that Blacks and women enter compared to Whites and men. Another explanation for this finding is the differential pay and benefits that employment gives based on race and gender [77]. It can be argued that employment and education have smaller protective effects on mortality of Blacks and women than Whites and men because employment does not similarly increase income and well-being of racial and gender groups.

Our finding is against the universal health effects of SES indicators across population groups [44], and supports previous research documenting considerable group differences in the health gain associated with an increase in SES indicators [3,38,39,78]. Employment and education differently change life circumstances and behaviors of different social groups [13,79]. As our finding is consistent with the "diminishing returns hypothesis" for Blacks and women, this suggests that with each level of increase in SES level, Blacks and women gain less improvement in health compared to Whites and men [80]. Racial differences are not the same at low versus high SES levels [81] and widen at the highest SES levels [80].

The magnitude of the health effects of any additional SES resources is conditional on the availability of other resources, which is a function of race, gender, and SES [38,39,82]. Socioeconomic characteristics such as race, gender, and education shape the ability of individuals and groups to transfer their SES resources into better health outcomes and higher life expectancy [83–88]. Thus, SES has population-specific rather than universal health effects [8,89–91].

Race and gender alter how SES indicators (education and employment) impact mortality. In a study by Hayward et al., an association of education on mortality was found for Whites but not Blacks [93]. In a study by Backlund et al., for Whites with a high school diploma, each additional year of schooling had a stronger effect in reducing mortality. For Blacks, however, there was a step reduction in mortality at 12 and 16 years of education, with constant slopes across the steps [94]. Assari [12] and Everett et al., [95] have also documented racial differences in the effect of education on mortality. Racial differences in health gain from SES are not limited to mortality and can be also found for health behaviors, psychological distress, and chronic medical diseases [11,13]

In line with previous research [11,13,94,96], our findings support Williams' argument that race, gender, and SES do not only have additive but also multiplicative effects [84]. In this view, increasing education or employment of Blacks and women (in the absence of securing equal pay) may not have the expected effects on eliminating health disparities, as race and gender limit how individuals benefit from these SES resources [84]. In 2006, income of Black men with a master's degree was $27,000 lower than White men with the same credentials. In addition to education, income, and employment, Blacks and Whites differ in household income, wealth, and marital status, which may help us better understand why Blacks do not gain as much as Whites from education and employment [40,41,96]. Racial inequity in pay, particularly in the highest levels of education, suggests that Black-White

disparities in health will not narrow through simply enhancing the SES of Whites and Blacks without addressing how the labor market operates [96].

Our findings have major policy implications. Our study extends previous work [11,13,94,96] on the non-linear and interactive roles that race, gender, and SES (employment and education) have in causing health disparities in the United States. Differential effects of SES resources in changing life circumstances for Whites and Blacks is one of the many contributors of racial disparities in health in the United States. Without changing minimum wage policies, Blacks and women will continue lagging in benefitting from SES resources. Thus, policies that universally enhance education and employment in the United States may not reduce, but actually increase health disparities. To undo racial disparities in the United States, it is not enough to increase access to education and employment of Blacks and women; there is a need to develop policies that ensure that credentials and employments will result in the same level of income and well-being regardless of race and gender. These findings advocate for the additional investment of social equality in the United States.

Although research suggests that Blacks are at a disadvantage for receiving health benefits associated with education and employment [12], income universally protects health outcomes across racial groups [12]. While efforts should be still made to enhance the education and employment of Blacks and women and those with low levels of education, there is a need to increase minimum pay and reduce disparities in pay between races and genders [98,99]. We do not argue that there is not a need for policies that increase the availability of education and employment for Blacks and women. We do, however, believe that universal policies that merely invest on education and employment but ignore the racial gap in pay may widen the disparities, as education and employment better translate into health outcomes for Whites than for Blacks [12]. The solution is increasing quality of education, employability of Blacks by skill building, and policies that secure higher minimum pay and equal pay for Blacks who are employed.

Our study is not free of limitations. First, we only studied the effect of baseline but not change of employment status over time. Employment status, however, similar to other SES indicators, is subject to change over time. Future research should compare social groups for the health effects of changes in employment status over time as well as cumulative duration of being employed over the life-course. As income, health behaviors, and health status also change over time, future research should consider all the covariates as time-varying. This approach may explain why social groups vary in the effect of baseline employment across subgroups. Second, this study did not include contextual measures such as urbanity, place of residence, area-based measure of access to public transportation, etc. Third, this study did not collect data on unemployment status or education of the spouse, which may confound our findings. Despite these limitations, the current study makes a unique contribution to the literature, given the large sample size, long follow-up duration, and nationally representative sampling.

To conclude, race, gender, education, and their intersections alter the health gain associated with employment status in the United States. Groups based on the intersection of race, gender, SES, and differently benefit from being employed. Policies that universally increase

jobs may not narrow racial health disparities, as they better serve Whites than Blacks. In addition to policies that increase job availability, more efforts are needed to equalize benefits of employment, and increase minimum pay for those who are already employed.

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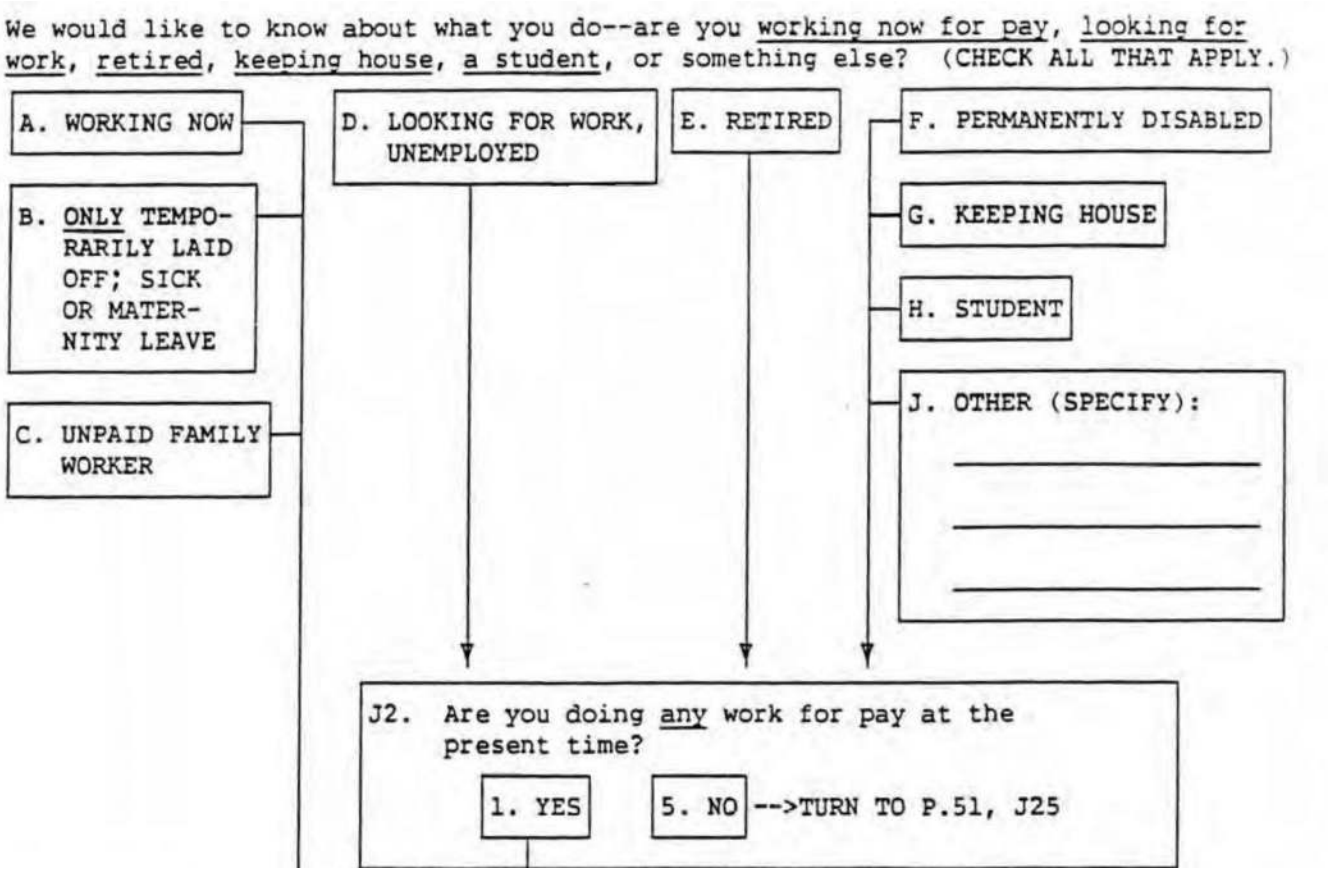

Figure 1.
Unemployment measurement in the study

Table 1.

Distribution of study variables overall and by race.

	All	White	Black	
	Mean (95% CI)	**Mean (95% CI)**	**Mean (95% CI)**	**P**
Age (Years)	47.77(46.69–48.84)	47.96(46.75–49.17)	46.33(44.89–47.78)	0.093
Income (USD10,000)	5.41(5.22–5.60)	5.57(5.36–5.77)	4.25(3.88–4.62)	<0.001
	% (95% CI)	**% (95% CI)**	**% (95% CI)**	**P**
Gender				
Male	48.34(45.44–51.25)	49.04(45.76–52.33)	43.62(38.96–48.39)	0.086
Female	51.66(48.75–54.56)	50.96(47.67–54.24)	56.38(51.61–61.04)	
Education				
12 years or less	23.93(21.37–26.70)	21.71(18.86–24.85)	40.25(34.55–46.24)	0.002
13 years or more	76.07(73.30–78.63)	78.29(75.15–81.13)	59.75(53.76–65.45)	
Education (years)	12.53(12.34–12.73)	12.69(12.48–12.90)	11.37(10.90–11.84)	<0.001
Employment				
Employed	61.68(58.77–64.50)	61.55(58.33–64.67)	62.62(57.47–67.49)	<0.001
Unemployed	38.32(35.50–41.23)	38.45(35.33–41.67)	37.38(32.51–42.53)	
Death (All-Cause)	36.11(33.52–38.78)	35.66(32.77–38.67)	39.41(35.29–43.68)	

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Table 2

Results of Cox proportional hazard models of the effects of baseline unemployment on death due to all causes in pooled sample with and without two way and three way interaction terms

	HR(SE)	95%CI	p	HR(SE)	95%CI	p	HR(SE)	95%CI	p	HR(SE)	95%CI	p
	Model 1			*Model 2*			*Model 3*			*Model 4*		*Model 5*		*Model 6*
Race (Blacks)	1.10(.08)	95–1.27	1.39(.20)	1.04–1.85	1.10(.08)	.95–1.26	1.08(.08)	.93–1.25	0.98(0.07)	0.85–1.13	0.87(0.17)	0.59–1.28
Gender (Women)	.50(.04)***	.43–.58	.50(04)***	.43–.58	.62(.08)***	.48–.81	.50(.04)***	.44–.58	0.63(0.08)***	0.49–0.82	0.74(0.11)#	0.55–1.00
Age	1.08(.00)***	1.07–1.09	1.08(.00)***	1.07–1.09	1.08(.00)***	1.07–1.09	1.08(.00)***	1.07–1.09	1.08(0.00)***	1.07–1.09	1.08(0.00)***	1.07–1.09
Education	.99(.01)	.97–1.02	.99(.01)	.97–1.01	.99(.01)	.97–1.02	1.52(.19)**	1.18–1.97	0.98(0.07)	0.84–1.14	0.90(0.11)	0.70–1.15
Income	.95(.01)***	.92–.97	.95(.01)***	.92–.97	.95(.01)***	.92–.98	.95(.01)***	.92–.98	0.95(0.01)***	0.93–0.98	0.95(0.01)***	0.92–0.98
Smoking	1.79(.14)***	1.54–2.09	1.79(.14)***	1.53–2.09	1.79(.14)***	1.53–2.09	1.77(.14)***	1.51–2.07	1.76(0.14)***	1.51–2.07	1.79(0.14)***	1.53–2.09
Drinking (drinks per month)	1.05(.07)	.92–1.20	1.05(.07)	.92–1.20	1.06(.07)	.93–1.21	1.06(.07)	.93–1.20	1.06(0.07)	0.94–1.21	1.07(0.07)	0.94–1.21
Exercise	.89(.03)***	.84–.95	.89(.03)***	.84–.95	.89(.03)***	.84–.94	.89(.03)***	.84–.95	0.89(0.03)***	0.84–0.95	0.89(0.03)***	0.83–0.95
Obese	1.04(.08)	.89–1.21	1.03(.08)	.88–1.20	1.04(.08)	.89–1.21	1.03(.08)	.89–1.21	1.03(0.08)	0.88–1.20	1.02(0.08)	0.87–1.20
Self-Rated Health (Poor/Fair)	1.25(.10)**	1.07–1.46	1.26(.10)**	1.08–1.47	1.24(.10)**	1.06–1.45	1.27(.10)**	1.08–1.49	1.26(0.10)**	1.08–1.48	1.26(0.10)**	1.08–1.48
Function	.88(.04)**	.81–.96	.88(.04)**	.81–.95	.88(.04)**	.80–.95	.87(.04)**	.80–.95	0.87(0.04)**	0.80–0.95	0.87(0.04)***	0.80–0.95
Chronic Medical Conditions	1.13(.03)***	1.07–1.19	1.13(.03)***	1.07–1.19	1.13(.03)***	1.07–1.19	1.12(.03)***	1.07–1.18	1.12(0.03)***	1.07–1.18	1.12(0.03)***	1.07–1.19
Depressive Symptoms	1.00(.04)	.93–1.09	1.00(.04)	.93–1.08	1.00(.04)	.93–1.09	1.00(.04)	.93–1.08	1.00(0.04)	0.93–1.08	1.00(0.04)	0.92–1.08
Employment	.72(.07)**	.59–.88	1.46(.15)***	1.19–1.79	1.60(.22)***	1.21–2.12	1.60(.18)***	1.28–2.01	0.52(0.08)***	0.39–0.70	0.49(0.08)**	0.35–0.69
Employment × Race (Blacks)	-	-	1.46(.24)*	1.04–2.04	-	-	-	-	1.28(0.24)	0.87–1.88	1.71(0.41)*	1.05–2.79
Employment × Gender (Women)	-	-	-	-	1.38(.22)*	1.00–1.90	-	-	0.71(0.12)*	0.51–0.99	0.70(0.12)#	0.49–1.00
Employment × Education (Low)	-	-	-	-	-	-	1.57(.24)**	1.14–2.16	1.54(0.26)*	1.09–2.16	1.79(0.34)**	1.23–2.61
Gender ×Blacks											0.79(0.10)#	0.61–1.03
Gender × Education											1.15(0.19)	0.82–1.62
Education × Race											0.97(0.18)	0.66–1.42
Employed ×Race ×Education											0.56(0.17)#	0.30–1.03

Table 3.

Results of Cox proportional hazard models of the effects of baseline unemployment on death due to all-causes based on race, gender, and education level

	HR(SE)	95%CI	HR(SE)	95%CI	HR(SE)	95%CI	HR(SE)	95%CI	HR(SE)	95%CI	HR(SE)	95%CI
	Race						Gender				Education Level	
	Whites		Blacks		Men		Women		High		Low	
Race (Blacks)					.98(.12)	.77–1.25	1.24(.10)*	1.05–1.47	1.27(.17)#	.98–1.66	.99(.08)	.83–1.18
Gender(Women)	.48(.04)***	.40–.57	.64(.08)***	.51–.82	-	-	-	-	.49(.04)***	.42–.59	.55(.07)***	.42–.71
Education	.98(.01)	.96–1.01	1.00(.01)**	.97–1.03	.98(.01)	.95–1.01	1.00(.02)	.96–1.05	-	-	-	-
Age	1.09(.00)***	1.08–1.09	1.06(.01)	1.05–1.08	1.08(.01)***	1.06–1.09	1.09(.00)***	1.08–1.10	1.08(.01)***	1.07–1.09	1.08(.00)***	1.07–1.09
Income	.95(.02)**	.92–.98	.92(.02)***	.88–.97	.94(.02)**	.90–.98	.96(.02)#	.92–1.01	.94(.02)**	.91–.98	.95(.03)#	.90–1.01
Smoking	1.84(.17)***	1.52–2.21	1.54(.14)	1.28–1.86	1.66(.19)***	1.33–2.09	1.98(.14)***	1.72–2.29	1.66(.17)***	1.36–2.03	1.93(.25)***	1.49–2.50
Drinking (drinks per month)	1.07(.08)	.92–1.24	1.03(.15)	.78–1.37	1.28(.12)*	1.06–1.55	.87(.11)	.68–1.11	1.10(.10)	.91–1.32	1.01(.08)	.85–1.19
Exercise	.89(.03)***	.83–.95	.90(.06)	.80–1.02	.85(.05)*	.76–.96	.92(.04)#	.84–1.01	.86(.03)***	.80–.93	.94(.04)	.86–1.03
Obese	1.00(.09)	.83–1.21	1.13(.12)	.91–1.42	1.03(.15)	.77–1.37	1.03(.09)	.86–1.23	1.02(.12)	.81–1.28	1.04(.12)	.82–1.31
Self-Rated Health (Poor/Fair)	1.32(.11)**	1.11–1.56	.98(.10)	.79–1.22	1.22(.18)	.91–1.64	1.26(.13)*	1.03–1.55	1.61(.21)***	1.23–2.10	1.03(.10)	.85–1.24
Function	.88(.04)*	.80–.97	.91(.06)	.80–1.03	.88(.05)*	.78–1.00	.88(.04)**	.80–.96	.91(.06)	.80–1.03	.85(.04)***	.78–.94
Chronic Medical Conditions	1.14(.03)***	1.08–1.21	1.09(.05)	.99–1.19	1.11(.05)*	1.00–1.22	1.15(.04)***	1.08–1.23	1.16(.05)***	1.06–1.26	1.08(.04)*	1.01–1.15
Depressive Symptoms	1.01(.05)	.92–1.12	.93(.04)#	.85–1.02	.99(.06)	.87–1.12	1.01(.04)	.93–1.10	.96(.05)	.86–1.07	1.06(.05)	.96–1.16
Employment	.71(.09)**	.59–.90	.77(.12)	.56–1.01	.60(.10)**	.43–.83	.88(.10)	.69–1.12	.66(.09)**	.50–.86	.92(.14)	.67–1.26

Table 4.

Results of Cox proportional hazard models of the effects of baseline unemployment on death due to all-causes based on the intersections of race and gender

	HR(SE)	95%CI	HR(SE)	95%CI	HR(SE)	95%CI	HR(SE)	95%CI
	Male Whites		Female Whites		Male Blacks		Female Blacks	
Age	1.08(.01)***	1.06–1.09	1.10(.01)***	1.09–1.11	1.07(.01)***	1.06–1.09	1.06(.01)***	1.04–1.07
Income	.94(.02)**	.89–.98	.97(.02)	.94–1.01	.92(.04)*	.85–.99	.94(.04)	.87–1.03
Smoking	1.68(.22)***	1.29–2.18	2.10(.18)***	1.76–2.51	1.58(.24)**	1.17–2.14	1.39(.23)#	.99–1.95
Drinking (drinks per month)	1.26(.13)*	1.03–1.56	.88(.12)	.68–1.15	1.29(.25)	.87–1.89	.86(.19)	.55–1.35
Exercise	.83(.05)**	.73–.95	.94(.05)	.85–1.04	.93(.11)	.73–1.18	.88(.06)#	.77–1.01
Obese	.96(.15)	.70–1.32	1.05(.11)	.84–1.30	1.37(.26)	.94–2.00	.96(.11)	.76–1.22
Self-Rated Health (Poor/Fair)	1.25(.22)	.88–1.78	1.40(.16)**	1.10–1.76	1.18(.26)	.75–1.83	.89(.12)	.68–1.15
Function	.90(.06)	.79–1.04	.86(.04)**	.78–.95	.72(.08)**	.58–.90	.97(.08)	.83–1.14
Chronic Medical Conditions	1.13(.06)*	1.01–1.27	1.15(.04)***	1.06–1.24	1.02(.06)	.90–1.15	1.16(.07)*	1.03–1.31
Depressive Symptoms	1.03(.07)	.90–1.19	1.02(.05)	.91–1.13	.82(.06)*	.70–.96	1.01(.06)	.89–1.14
Employment	.55(.10)**	.38–.79	.97(.12)	.76–1.23	1.10(.26)	.68–1.78	.66(.15)#	.43–1.03

Table 5.

Results of Cox proportional hazard models of the effects of baseline unemployment on death due to all-causes based on the intersections of race and education level

	HR(SE)	95%CI	HR(SE)	95%CI	HR(SE)	95%CI	HR(SE)	95%CI
	Race						Gender	
	High Educated Whites		Low Educated Whites		High Educated Blacks		Low Educated Blacks	
Gender(Women)	.46(.04)***	.38–.55	.54(.08)***	.40–.74	.89(.16)	.62–1.27	.53(.08)***	40–.71
Age	1.08(.01)***	1.07–1.09	1.09(.01)***	1.08–1.10	1.07(.01)***	1.05–1.09	1.06(.01)***	1.04–1.07
Income	.95(.02)#	.91–.98	.96(.03)	.90–1.02	.92(.03)*	.86–1.00	.92(.04)*	.86–1.00
Smoking	1.74(.20)***	1.37–2.20	2.05(.30)***	1.53–2.75	1.44(.25)	1.02–2.04	1.55(.26)*	1.09–2.19
Drinking (drinks per month)	1.10(.11)	.91–1.34	1.01(.10)	.82–1.24	1.19(.21)	.82–1.70	1.00(.17)	.71–1.40
Exercise	.86(.04)***	.78–.94	.95(.05)	.85–1.06	.90(.10)	.72–1.12	.91(.07)	.78–1.05
Obese	1.00(.12)	.78–1.28	1.02(.15)	.75–1.39	1.10(.28)	.66–1.83	1.12(.15)	.85–1.47
Self-Rated Health (Poor/Fair)	1.66(.24)***	1.23–2.23	1.05(.11)	.84–1.31	1.22(.27)	.79–1.90	.89(.12)	.69–1.17
Function	.91(.06)	.79–1.05	.85(.05)**	.75–.95	.85(.11)	.65–1.11	.90(.05)#	.80–1.00
Chronic Medical Conditions	1.17(.05)**	1.06–1.28	1.08(.04)#	1.00–1.18	1.11(.10)	.92–1.33	1.08(.06)	.97–1.20
Depressive Symptoms	.96(.06)	.85–1.08	1.09(.07)	.96–1.23	.87(.08)	.71–1.06	.96(.04)	.88–1.05
Employment	.63(.09)**	.46–.84	1.01(.20)	.67–1.51	.94(.25)	.55–1.61	.69(.11)*	.50–.96

Table 6.

Results of Cox proportional hazard models of the effects of baseline unemployment on death due to all-causes based on the intersections of gender and education level

	HR(SE)	95%CI	HR(SE)	95%CI	HR(SE)	95%CI	HR(SE)	95%CI
			Race				Gender	
		High Educated Men		Low Educated Men		High Educated Women		Low Educated Women
Race (Blacks)	.89(.18)	.60–1.34	1.04(.15)	.78–1.39	1.66(.23)***	1.26–2.18	1.03(.09)	.87–1.22
Age	1.07(.01)***	1.06–1.09	1.08(.01)***	1.06–1.09	1.08(.01)***	1.07–1.10	1.09(.01)***	1.08–1.11
Income	.89(.03)***	.84–.95	.99(.04)	.93–1.07	.98(.02)	.93–1.03	.95(.03)	.89–1.02
Smoking	1.62(.27)**	1.16–2.27	1.70(.26)***	1.25–2.31	1.73(.19)***	1.38–2.16	2.26(.26)***	1.79–2.85
Drinking (drinks per month)	1.45(.20)**	1.10–1.91	1.06(.12)	.84–1.34	.92(.12)	.70–1.20	.81(.11)	.61–1.06
Exercise	.86(.05)**	.76–.96	.81(.07)*	.69–.96	.86(.04)**	.77–.95	1.04(.05)	.94–1.15
Obese	1.16(.21)	.80–1.68	.97(.17)	.68–1.40	.94(.14)	.70–1.26	1.03(.13)	.80–1.34
Self-Rated Health (Poor/Fair)	1.59(.34)*	1.03–2.46	1.10(.20)	.77–1.58	1.56(.30)*	1.06–2.28	.96(.11)	.77–1.22
Function	.99(.10)	.81–1.22	.87(.07)#	.74–1.01	.85(.06)*	.74–.96	.85(.05)**	.76–.96
Chronic Medical Conditions	1.13(.10)	.95–1.35	1.09(.05)#	1.00–1.18	1.15(.05)**	1.05–1.27	1.12(.04)**	1.04–1.21
Depressive Symptoms	.97(.07)	.84–1.13	.99(.08)	.84–1.17	.96(.06)	.85–1.09	1.08(.05)	.97–1.19
Employment	.50(.11)**	.32–.78	.73(.12)#	.52–1.03	.84(.12)	.63–1.13	1.06(.21)	.71–1.57