

Skin Shade Stratification and the Psychological Cost of Unemployment: Is there a Gradient for Black Females?

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Abstract The purpose of this paper is to formally evaluate whether the deleterious impact of unemployment on mental health increases as skin shade darkens for black women in the U.S. Using data drawn from the National Survey of American Life, we find strong evidence of a gradient on depression between skin shade and unemployment for black women. These findings are consistent with the premises of the emerging field of stratification economics. Moreover, the findings are robust to various definitions of skin shade. Unemployed black women with darker complexions are significantly more likely to suffer their first onset of depression than unemployed black females with lighter skin shade. While in some cases, lighter skinned black women appeared not to suffer adverse effects of unemployment compared to their employed counterparts, persons with dark complexions did not enjoy the same degree of protection from poor mental health.

Keywords Stratification economics · Skin tone · Phenotype · Unemployment · Mental health · Depression

JEL Classification Z13 · I1 · J64 · J15

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Introduction: Stratification economics and colorism

Stratification Economics is an emerging paradigm in the discipline that accounts for structural and intentional processes capable of generating and maintaining group differences in life outcomes.¹ It asserts that social phenomena such as group identity, which influence how members of a group are treated and respond to life course developments, must be considered to obtain a full understanding of difference in life outcomes both across and within groups. However, most work in this sub-field focuses on the integration of the notion of behavior guided by self-interest from economics with insights about actions from sociology and psychology to explain differences in outcomes between groups. An example is the work by Hamilton and Darity (2010) to explain the existence, and persistence, of the large racial gap in wealth. An exception is the application of the concept of colorism to explain differences in life outcomes within racial or ethnic groups.

Colorism is the allocation of privilege and disadvantage according to the lightness or darkness of one's skin, with favoritism typically granted to those with lighter skin.² Thus, this construct posits that pooling all blacks together may mask intra-racial and inter-racial differences in outcomes associated with complexion. Goldsmith et al. (2007) advance an explanation of why blacks with lighter skin are likely to receive preferential treatment compared to their darker skinned peers, which they describe as a *preference for whiteness*, grounded in theories from social psychology and anthropology. In more recent work, Hamilton et al. (2011) extend the notion of colorism to account for other phenotypical characteristics aside from skin shade, including hair color/texture and eye color. They assert that those whose constellation of features most resembles a northern European "ideal" generally receive more favorable treatment in comparison to those with a more Afrocentric phenotype.^{3 4}

In general, given the degree of heterogeneity that commonly occurs within a group, and that groups are oftentimes defined based on at least somewhat ambiguous social classification, individuals may be arrayed along a continuum between in and out-group status, which is governed at least partially based on individual proximity to in and/or out-group characteristics. Specifically, black females vary with regards to skin

¹ See Darity (2005) for a detailed early discussion of stratification economics.

² For an overview of colorism and how it operates in a range of spheres including education, health, the labor market, and pop culture see Pearce-Doughlin et al. (2013). There is extensive evidence of colorism operating across a wide range of societies (Hunter 2005) including Brazil (Rangel 2007, Francis and Tannuri-Pianto 2013) and India (Hunter 2008).

³ Racial phenotype is the observable physical characteristics (e.g., hair texture, skin tone, facial features, cheek bone structure, height) resulting from genetics and environment that are often used to differentiate individuals when identifying a racial group. Thus, racial phenotype refers to physical features generally assumed to be typical among members of a racial/ethnic group. Maddox (2004) coined the term Afrocentric phenotype bias to explain favoritism based on differentiation in physical characteristics among African Americans. He asserts that negative attitudes and perceptions are associated with more Afrocentric features (e.g., darker skin, broader nose, fuller lips).

⁴ For instance, darker skinned males are found to work in lower status occupations (Hill, 2000) and earn lower wages (Goldsmith et al. 2007; Keith and Herring 1991) than their lighter skinned counterparts. In addition there is evidence that blacks with darker skin shade are subject to higher conviction rates and more severe sentences for comparable crimes (Gyimah-Brempong and Price, 2006; Mocan and Tekin, 2010; Eberhardt, et al. 2004) than persons with lighter skin tone, and they are considered less trustworthy in experimental settings (Wilson and Eckel, 2007).

complexion, and the *preference for whiteness* theory asserts that the dichotomous classification of black/white masks the within group heterogeneity of black women where lighter complexioned black women might receive better social treatment as a result of their closer proximity to the more socially privileged white “in-group.”

This fits neatly into the framework of Stratification Economics which incorporates and extends insights from Blumer (1958) and Forbes (1997) regarding the use of social identity theory and relative group positioning theory to explain how intergroup and intragroup rivalry lead to behaviors aimed at solidifying and perpetuating material and social advantages. The underlying mechanism behind colorism is a desire for the white “in-group” to maintain privilege or advantage with recognition that social identity is more continuous rather than a simple and discrete binary description.

The purpose of this paper is to use insights from colorism, and hence stratification economics, to evaluate if emotional damage associated with unemployment is greater for darker complexion black women.

Black women and unemployment vulnerability

Black women in the United States face an array of financial constraints that expose them to a particularly high burden of stress. On average they earn lower incomes and accumulate less wealth than white women. Black women also take on exceptional kin obligations adding to their financial stress (Chiteji and Hamilton 2002). In addition, in major part due to the shortage of marriageable black males (Wilson 1987, Darity and Myers 1992, Hamilton et al. 2009), less than three-fifths of black women are married by the age of 30.⁵ As a result, they lag behind men and couples in earnings and wealth, and are more likely to experience poverty (Weiss and Gardner 2010). Even black women who are married have spouses who earn substantially less than the spouses of their white female counterparts (Hamilton et al. 2009). Moreover, these conditions arise in the context of the ever present threat of both race and gender discrimination in the labor market. Thus, black women rely heavily on a discriminatory labor market to obtain income while simultaneously having to maintain a household, including raising children, often without support of a partner (Brown and Keith 2003).⁶

As a consequence of this array of pressures, Brown and Keith (2003) argue that black women are especially vulnerable to poor mental health.⁷ For black women

⁵ 28% of non-Hispanic black women headed a household in 2008 (Women’s Health 2010), three times the rate for white women. Weiss and Gardner (2010) report that adult black women (68 %) are much more likely than white (43 %) and Hispanic (47 %) women to be unmarried. Schneider (2011) reports that 63 % of black women and 80 % of white women had married by the age of 30 in 1980. However, for black women this rate fell to 38 % by 2000 and it declined to 66 % for white women; and for each group has remained relatively stable thereafter.

⁶ Borrell et al. (2006), using data from the Longitudinal Coronary Artery Risk Development in Young Adults Study (CARDIA) on African American women, offer evidence that the probability of securing full time employment is less for women with darker skin shade for the entire period spanning from 1985 to 2000, but that the gap, which starts out statistically significant, falls in magnitude over time and no significant difference can be detected in 2000.

⁷ They contend that African American women are typically, and inaccurately, depicted as resilient (the “strong black woman” trope) to these emotional challenges in popular literature and the media. Moreover, they cite evidence of a connection between skin shade and mental health for black women in the U.S.

unemployment is even more likely to cause income insecurity relative to women from other groups. Unemployment may simply overwhelm their strained adaptive and coping capabilities, resulting in harm to their emotional well-being. Moreover, Brown and Keith (2003) assert that black women with more Afrocentric features, who have historically been subject to poorer treatment than black women with more European phenotypes, may be, quite justifiably, particularly fearful and anxious about unemployment. Thus, in their view unemployment fosters substantial stress for black women, especially among those with more Afrocentric appearances.⁸ Our paper formally evaluates the validity of this hypothesis by determining if the deleterious impact of unemployment on mental health increases as skin shade darkens for black women in the U.S. Using data drawn from the National Survey of American Life we find evidence of a gradient that the adverse impact of unemployment on the mental health of black women is greater for those with darker skin. These findings highlight the importance of considering the theoretical foundations of stratification economics when designing empirical analysis relating to understanding the links between groups and life outcomes.

Unemployment, colorism, and mental health

Social scientists from a variety of disciplines have postulated that unemployment damages emotional well-being by depriving persons of the monetary and non-pecuniary benefits of work (Jahoda 1982), fostering feelings of helplessness, and generating anxiety because of the failure to meet personal and social expectations (Seligman 1975, Erikson 1959). There is extensive evidence documenting a link between unemployment and poor mental health across racial and ethnic groups and for men and women.⁹ In addition, there is reason to believe that those with lower human capital are especially vulnerable.

Hersch (2006), using data drawn from the National Survey of Black Americans, 1979–80 (NSBA), reports that black women with darker skin complete less years of school than black females with light skin shade. Moreover, in regressions that control for a wide range of factors that influence schooling, she finds that black women with darker skin color attain significantly less education than those who are light skinned. Klonoff and Landrine (2000) find that the likelihood of exposure to a variety of types of

⁸ Brown and Keith (2003) show that darker complexioned black women suffer from higher levels of psychological distress than lighter skinned African American women with similar socio-demographic characteristics using data from the National Comorbidity Study.

⁹ For a meta-analysis review of cross sectional studies and longitudinal examinations of the link between various forms of emotional health and unemployment see (Paul and Moser 2009) and (McKee-Ryan et al. 2005) respectively. Ruhm (2000) using national and state-level data offers evidence that mortality rates fall as the unemployment rate rises. He interprets this as the outcome of people responding to the lower opportunity cost of time associated with poor job market conditions leading to greater self-investment in activities that promote better health. Following his logic joblessness should not foster poorer mental health. However, further analysis of his proposition using aggregate and state level data by Miller et al. (2009, 127) reveals that it is “unlikely that changes in individuals’ own labor force status, work, or health behaviors are the key determinants of aggregate mortality changes across the business cycle.” The primary cause of a pro-cyclical pattern in mortality rates is due to a positive link between motor vehicle accidents and economic activity among working age individuals.

racial discrimination rises as skin shade darkens among blacks and that this relationship is more pronounced for women than men in the social arena. Both of these factors, less education and skin shade discrimination in the social sphere, suggest that unemployed black women with darker complexion in the U.S. are more likely to worry about their prospects for employment than unemployed black women with light skin. A greater fear of being trapped in joblessness on the part of black women with more Afrocentric appearance would potentially subject them to higher levels of anxiety, stress, and more pronounced feelings of helplessness. Therefore, it is plausible that unemployment poses a greater risk of suffering psychological distress for these women than Eurocentric appearing black women.¹⁰ This prediction highlights the value of accounting for colorism within a stratification economics framework to understand how unemployment impacts black women.

Skin shade discrimination is associated with poorer mental health for black women with darker skin tone.¹¹ In addition, there is extensive evidence that unemployment harms mental health (Goldsmith and Diette 2012). We expect that the impact of unemployment on poor mental health is greater for women with darker skin shade because of skin shade discrimination. However, whether the skin shade of black women influences the emotional suffering they experience due to unemployment is currently unresolved. This paper addresses this shortcoming in the empirical literature by investigating if the likelihood of experiencing poor mental health as a result of unemployment is greater as skin shade darkens among black women.

Data sources and measurement

This study uses data on black females drawn from The National Survey of American Life (NSAL). The survey was designed to collect information on potential determinants of mental disorders in the US through face-to-face interviews with respondents conducted in the privacy of their homes. The NSAL is a nationally representative sample gathered between February 2001 and March of 2003. The U.S. economy was in a recession from 2001 to 2003. According to the BLS, unemployment among black women 20 years of age and older was at 6.1 % in 1999 and moved up to 6.5 % in 2000 the year prior to onset of the recession. For these women, unemployment rose steadily throughout the sample period from 7.0 to 8.8 to 9.2 % before falling back to 8.9 % in 2004. Therefore, our study examines the connection between unemployment, skin shade, and mental health for black women during an economic downturn.

The NSAL contains information on recent labor force status, psychological well-being, and skin shade. A desirable feature of the data is that the survey collects retrospective respondent information on mental health in a life event framework. As a result, information on the age of first onset of mental disorders is available. This allows us to parse out individuals with previous bouts of mental illness from more current bouts, and thereby better identify if unemployment appears to trigger a decline

¹⁰ Krieger (2000) reports that many epidemiological studies find that self-reported health status is lower for black men and women with darker skin shade.

¹¹ Thompson and Keith (2001) provide evidence that black women with darker skin shade report lower levels of self-esteem than black females with lighter complexion.

in mental health. Thus, the NSAL is well suited for examining whether the adverse emotional consequence of unemployment is greater for black females with darker complexion. However, some caution must be applied in generalizing our findings to non-recessionary periods, since the worries that individuals experience from unemployment might differ by the health of the economy. In addition, our estimates of only those not identified as having a prior bout of mental illness, limits the external validity of our results as well.

Skin shade measurement

NSAL interviewers graded respondents on a salient phenotypical dimension, skin shade, using a Likert scale. Prior to conducting interviews, the orientation of NSAL interviewers included training to establish consistency in the coding of respondent skin shade. The NSAL interviewers used five categories (very dark, dark, medium, light, and very light) when coding to describe the complexion of blacks who participated in the survey. Initially we collapsed the data into three categories: *Light* (which includes very light and light), *Medium*, and *Dark* (containing very dark and dark).¹² Then, to evaluate if our findings are sensitive to the definition of dark or light skinned we constructed two different bivariate variables to gauge skin tone characterized by the expansiveness of the light or dark grouping. The *Expansive Light* indicator variable places very light, light, and medium in an *Expansive Light* group in contrast with those who are in the *Dark* grouping composed only of those who are dark and very dark skinned. Then, we designed an *Expansive Dark* indicator variable that combines those who are very dark, dark, and medium complexioned into a group and places the light and very light in the *Light* group.

Measurement of unemployment

The NSAL survey contains information on the number of weeks during the past 6 months that the respondent spent employed, unemployed, and out of the labor force. Since our primary interest is to investigate the effect of involuntary unemployment on mental health relative to those who are employed, persons who report at the time of the NSAL survey that they are out of the labor force are excluded from the data.¹³

Measurement of mental health

Researchers in psychology (Eisenberg and Lazarsfeld 1938, Seligman 1975) and sociology (Jahoda et al. 1933) have long postulated that unemployment can foster depressive affect. All NSAL respondents were asked to provide retrospective information on broad screener questions for mental health to enable the identification of persons who might have suffered from depression in the past. Respondents who are flagged as potentially having suffered from depression were administered the World

¹² Collapsing the skin shade categories from five to three offers us greater statistical power to generate more precise estimates.

¹³ However, individuals who report being out of work, but who later in the survey indicate that they are willing to take a job if one is offered, are included as unemployed members of the labor force.

Mental Health-Composite International Diagnostic Interview (WMH-CIDI) module by trained interviewers.¹⁴

The major depressive episode (MDE) module consists of 19 items. Each of these items can contain multiple questions that assess hallmark symptoms of depression, including persistent feelings of sadness as well as loss of interest or pleasure in life. Responses on the battery of questions contained in the module were then used to make two clinical diagnoses, one for each of two alternative classification systems: the DSM-IV criteria developed by the American Psychiatric Association and the ICD-10 classification mechanism developed by the World Health Organization.¹⁵ The idea is to generate “pseudo clinical” diagnoses of depression that are more accurate than simple self-reports on screener questions.¹⁶ In our analysis, a respondent is identified as depressed if they are diagnosed as suffering from major depressive disorder using either of the classification systems (DSM-IV, ICD).

Sample design and descriptive statistics

Unemployment and mental health: selection and causality issues

It is possible that black females with darker complexions suffer from poorer mental health than lighter skinned blacks, making them more vulnerable or susceptible to becoming unemployed. Thus, finding a link between darker skin shade and poorer mental health among unemployed blacks in the U.S. should be viewed with caution given that in theory the direction of the effect between unemployment and depression is plausible in both directions. However, in the NSAL respondents who are identified as suffering from depressive affect were asked to identify their age when they first experienced this disorder. We take advantage of this unusual feature of the data to construct a strategy to help distinguish if exposure to unemployment appears to foster depression, and if such a connection exists whether it is more pronounced among black women with darker complexion.

Using information on the age of first onset of depression we stratify our data into two groups. One group is composed of black women who experienced depression at some point prior to the past 6 months. We refer to these women as psychologically *vulnerable*. The second group contains black women who have either never had a bout of depression or experience their first one in the past half year. These women are denoted as psychologically *resilient*. Our analysis is conducted solely on the sub-sample of psychologically resilient black women. We restrict our analysis to the sub-sample of resilient black women. We adopt this approach because of the strong

¹⁴ Each of the more than 300 professional interviewers employed by the Institute for Social Research at the University of Michigan who participated in the data collection process received seven days of study-specific training and successfully completed two practice interviews before beginning their assignment.

¹⁵ The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) uses 16 spheres to gauge mental health while the International Classification of Diseases (ICD-10) evaluates mental well-being in ten areas. Using either of these criteria frameworks, a *clinical like* diagnosis on a zero to one scale is made indicating whether or not the person suffers from the condition.

¹⁶ There is evidence of good concordance (Kessler et al. 2005) between this clinical like diagnosis and actual diagnosis of the same respondents made by experienced clinical psychologists using a structured clinical interview.

possibility of reverse causality among the vulnerable population. The concern is that prior bouts of depression may foster both unemployment and current bouts of depression leading to biased estimates of the link between unemployment and depression. In other words, by removing women who have been identified as having a prior bout of poor mental health, we are better able to identify the effect of a contemporary bout of unemployment on depression independent of the confounding effect vulnerability to chronic depression.

The construction of the analysis sample allows us to focus on those black women without previous bouts of depression. We suspect that persons who are diagnosed as never experiencing depression over the course of their life cycle and who are in the work force are more likely to continue to be emotionally healthy controlling for other determinants of depression. Thus, the resilient sample allows us to analyze those least likely to have a bout of poor mental health leading to unemployment and thereby partially reduces the concern regarding the direction of causality. Therefore, if analysis of this selected sample reveals that among unemployed black females the likelihood of depression increases as skin tone darkens then we can assert with some confidence—to the extent that our model controls for other determinants of mental health—that the emotional damage generated by unemployment is greater for those black women with a darker skin shade.

Descriptive statistics

Prevalence of depression

The sample we analyze consists of 1,798 black females who either never have experienced a spell of prolonged depressive affect or had their first bout of depression in the past year. Table 1 Panel A reports the prevalence or percent of the sample that suffered from major depressive disorder for the first time in the past year for the full sample and broken down by skin shade group. Panel A reveals that with this sample of resilient individuals the incidence of depression is low however it is higher among dark

Table 1 Summary statistics

	Full sample	Light	Medium	Dark
Panel A—Depression				
Major depression disorder-last 12 months	1.70 %	1.93 %	1.05 %*	2.75 %
Panel B—Depression by employment status				
Depression—Employed	0.61 %	0.47 %	0.18 %*	1.54 %
Depression—Unemployed	3.87 %	4.20 %	2.94 %	5.21 %
Panel C—Employment status				
Unemployed	33.59 %	39.13 %**	31.56 %	32.79 %
Observations	1,798	379	862	557

Note: Unemployed is measured as unemployed at any time in the past 6 months. T-tests for statistical difference in the means relative to Dark Skin

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

skinned blacks than those with light or medium complexion and this gap is not statistically significant between those with dark and medium skin tone. Panel B presents prevalence of first onset of depression in the past year by work force status. Inspection of Panel B reveals that the prevalence of depression for those individuals experiencing any unemployment is substantially higher than for those who are employed throughout the past 6 months. In addition, among depressed persons—whether employed or unemployed—the likelihood of suffering from this mood disorder rises as skin shade darkens. Panel C reveals the share of the sample that experienced any unemployment during the past 6 months. Over a third of the sample reported experiencing at least 1 week of unemployment in the last half year. Within our analysis sample of resilient black women, light skinned women are approximately 6 % more likely to indicate suffering a recent bout of unemployment.

Demographic and family characteristics

The NSAL also provide extensive information on demographic factors that may contribute to psychological health including a respondent's educational attainment, age, country of birth and information regarding respondent's family characteristics when they were young, which allows us to control for whether they were raised by both of their parents, their parents' education, and whether their family received public assistance when they were a youth Table 5 provides detailed definitions for all of the variables used in our formal analyses of first onset of depression.

Table 6 presents summary statistics on all of the control variables used in our empirical analysis of black female depression. About 43 % completed schooling beyond high school or are highly educated, 69 % are more than 30 years old, and 6 % are foreign born. A majority of the women were raised by both parents (53 %), around half had mothers who had at least 12 years of formal education, while 35 % had fathers with at least 12 years of schooling. Almost a quarter of the persons in our resilient sample grew up in poor families (24 %), and 71 % reported that religion was very important in their home as a youth. More than half of the sample reported living in the South (57 %) and the typical person lived in a county with an unemployment rate just over 5 %.

Prevalence of emotional buffers

Psychologists expect a variety of social and economic factors to cushion the impact of unemployment on emotional health.¹⁷ A valuable aspect of the NSAL data is the provision of information on a myriad of factors, both economic and social, that are believed to moderate the impact of unemployment on depression. This makes it possible to account for these features of a women's environment when examining the influence of unemployment on suffering from depression. The potential buffers that we are able to control for in our analysis include the number of siblings, whether the respondent has a parent who is still living, and whether the respondent is currently married or cohabitating.

¹⁷ Numerous studies report that social support buffers the psychological distress associated with unemployment; see for instance Atkinson et al. (1986).

Almost a third of the respondents had one parent who was still alive and 44 % reported that both of their parents were living (See Table 6). Moreover, 37 % are married or cohabitating, and the mean number of siblings in the sample was 3.5.

Empirical procedures

Our empirical work aims primarily to address two questions regarding the mental health of black women in the U.S. First, does recent unemployment damage emotional well-being by fostering depression, independent of skin shade? Second, if unemployment in the recent past is associated with first lifetime onset of depression and hence a decline in mental health, is the impact more severe for black women with darker skin? In order to investigate the impact on depression of exposure to unemployment during the past 6 months we estimate the following model of depression on the sample of resilient persons:

$$\begin{aligned} \text{Depression} = & \alpha_0 + \alpha_1(\text{Unemployed}) + \alpha_2(\text{Medium}) + \alpha_3(\text{Dark}) \\ & + \alpha_4(X) + \alpha_5(Z) + \varepsilon \end{aligned} \quad (1)$$

Depression takes on a value of one if the respondent is gauged to have suffered from their first onset of major depressive disorder in the past year under either the DSM-IV or ICD classification assessment scheme; otherwise it is zero. *Unemployed* classifies individuals who have experienced unemployment taking a value of one for those who were unable to find work at any time within the past 6 months and zero for those who were employed throughout the period.

A respondent's skin shade is captured by a series of skin tone indicator variables. *Medium*=one if a person is identified as having medium brown skin, zero otherwise, while the variable *Dark* takes on a value of one for those gauged to be dark or very dark skinned. The reference group is persons categorized as being *Light* (i.e., light or very light) skinned. *X* is a vector of controls that accounts for other factors expected to influence mental health. It contains variables that reflect individual factors (i.e., country of birth, gender, level of formal schooling completed, and age), and family characteristics as a youth (i.e., raised by both biological parents, mother's education, father's education level, and whether family was on welfare). Finally, the vector *Z* contains *buffer* variables to account for sources of social and economic support that might mitigate the impact of involuntary joblessness on emotional health (i.e., married or cohabitating, biological mother still alive, biological father still alive, and proxies for living siblings and friend support).

To evaluate whether skin shade mediates the impact of unemployment on mental health—the second question we are interested in exploring—we interact our indicators of skin tone and unemployment and estimate the following model of Depression.

$$\begin{aligned} \text{Depression} = & \beta_0 + \beta_1(\text{Unemployed}) + \beta_2(\text{Medium}) + \beta_3(\text{Dark}) \\ & + \beta_4(\text{Unemployed} * \text{Medium}) + \beta_5(\text{Unemployed} * \text{Dark}) \\ & + \beta_6(X) + \beta_7(Z) + \eta \end{aligned} \quad (2)$$

Given this model specification β_1 , β_4 and β_5 reveal the impact on suffering from depression for the unemployed with light skin, medium brown skin or dark skin, respectively, relative to light skinned persons who are employed (the reference group).¹⁸

Both model specifications, Eqs. (1) and (2), are assumed to take on a probit distribution, and are estimated using maximum likelihood estimation to determine the impact of unemployment and other factors on the probability that a person has suffered their first ever bout of depression in the past year.

Results

Unemployment

Table 2 is a summary table which presents our estimates of the marginal impact of both unemployment and skin shade, on the chances of experiencing depression in the past year for the resilient sample evaluated at the sample mean for all of the included predictor variables. Results for all of the control variables are presented in Table 7. Our findings for Eqs. (1) and (2) are presented in column 1 and column 2 respectively.

Black women who are subject to unemployment during the past year are 2.6 % more likely to experience their first bout of depression in the past year than persons who were employed throughout the past half year. Those classified as medium skin shade have the same chance of suffering from depression as those with light skin. In addition, black women with dark skin are also equally likely to suffer from depression for the first time during the past year versus those with light skin. However, the probability of suffering from depression for black women with dark skin is significantly greater than for those with medium skin shade.

Unemployment-skin shade interaction: evidence of a gradient?

In Column 2 of Table 2, we report the total impact of skin shade-labor force states based on Eq. (2) where we interact unemployment and skin shade. Among those employed throughout the past 6 months, there is no statistically significant difference in the probability of experiencing depression between black females who are light skinned relative to black women who are medium or dark skinned. Still, employed dark skinned black women are significantly more likely to suffer from depression than employed black females with medium skin shade.

Further inspection also reveals that skin shade influences the adverse psychological consequences of unemployment. We find no difference in the likelihood of suffering

¹⁸ While the data allows us to identify spells of unemployment within the last 6 months, we are not able to identify individuals' prior bouts of unemployment. If prior bouts of unemployment led to depression, these individuals are classified as vulnerable and therefore omitted from our analysis. However, among the resilient individuals, prior bouts of unemployment may influence the likelihood of recent bouts of unemployment lead to depression. This would alter the interpretation of our finding if the following three conditions hold: (1) skin tone is correlated with previous bouts of unemployment; (2) previous bouts of unemployment are correlated with current bouts of unemployment; and (3) these previous bouts of unemployment (that did not result in onset of depression) contribute to a current onset of depression. If this is the case, then we would interpret β_4 and β_5 in equation (2) as the influence of multiple bouts of unemployment on depression (and not solely due to skin shade).

Table 2 Probit estimation of depression total marginal effects unemployed in the last 6 months

Variables	(1)	(2)	(3)	(4)
Unemployed	0.026**			
	[0.003]			
Medium	-0.002			
	[0.766]			
Dark	0.014			
	[0.104]			
<i>chi² test: Medium=Dark</i>	(0.098)*			
Employed–Medium		-0.010		
		[0.467]		
Employed–Dark		0.022		
		[0.094]		
<i>chi² test: Employed (Medium=Dark)</i>		(0.013)*		
Unemployed–Light		0.028		
		[0.062]		
Unemployed–Medium		0.029*		
		[0.032]		
Unemployed–Dark		0.037*		
		[0.012]		
<i>chi² test: UnEmployed (Light=Medium)</i>		(0.035)*		
<i>chi² test: UnEmployed (Light=Dark)</i>		(0.010)**		
<i>chi² test: UnEmployed (Light=Medium)</i>		(0.008)**		
Employed–Dark			0.028*	
			[0.014]	
Unemployed–Expansive Light			0.035**	
			[0.004]	
Unemployed–Dark			0.043**	
			[0.002]	
<i>chi² test: UnEmp. (Exp. Light=Dark)</i>			(0.000)***	
Employed–Expansive Dark				0.007
				[0.524]
Unemployed–Light				0.029
				[0.065]
Unemployed–Expansive Dark				0.033*
				[0.016]
<i>chi² test: UnEmp.(Light=Exp. Dark)</i>				(0.012)*
Observations	1,798	1,798	1,798	1,798

Robust *p*-values in brackets

(1) Base, (2) Full interaction, (3) Expansive Light, (4) Expansive Dark

****p*<0.01, ***p*<0.05, **p*<0.1

from depression between black females identified as light skinned who are unemployed and who are employed (the reference group).

Among black women subject to unemployment, chi square tests reveal that the likelihood of being depressed is significantly smaller for those with light skin relative to individuals who are medium brown skinned or and those who are dark skinned. In addition, black women with dark skin tone are more likely to experience first onset of depression than black women with medium skin shade. Therefore, among black women who are unemployed we find evidence of a gradient of depression—the adverse association between unemployment and mental health increases as skin shade darkens—evidence that supports our primary hypothesis.

Robustness to skin shade definition

In order to examine whether our results are sensitive to the skin shade classification scheme, we construct two paired sets of bivariate indicators of skin shade. One set has an indicator for expansive light (contains brown skinned women rated as very light, light, and medium) coupled with the existing indicator for dark (dark brown and very dark brown). Alternatively we construct an indicator of expansive dark (medium, dark, and very dark) and pair it with light (very light and light). These bivariate indicators are used to explore the robustness of the earlier finding that light skin shade insulates black women from the detrimental effects of unemployment on mental health. Thus, we estimate both equation 3a and 3b.

$$\begin{aligned} \text{Depression} = & \gamma_0 + \gamma_1(\text{Unemployed}) + \gamma_2(\text{Dark}) + \gamma_3(\text{Unemployed} * \text{Dark}) \\ & + \gamma_5(X) + \gamma_6(Z) + \xi \end{aligned} \quad (3a)$$

$$\begin{aligned} \text{Depression} = & \psi_0 + \psi_1(\text{Unemployed}) + \psi_2(\text{Expansive Dark}) \\ & + \psi_3(\text{Unemployed} * \text{Expansive Dark}) + \psi_5(X) + \psi_6(Z) + \omega \end{aligned} \quad (3b)$$

Column 3 in Table 2 presents our finding based on Equation 3a when we explore the impact on mental health of unemployment for black women who fit the dark criteria relative to persons identified under the expansive light skinned definition and employed or unemployed. Our findings from Equation 3b compare those black females who are categorized as part of the expansive dark group relative to those in the light group and are presented in column 4.

Among the unemployed the chances of suffering from depression are greater for black women who have dark skin relative to those who have light, very light or medium skin tone. This evidence is consistent with our earlier finding that for black women the negative association between unemployment and mental health strengthens as skin shade darkens—there is a gradient.¹⁹

When we use the expansive dark indicator, column 4, the findings also remain consistent with the results in column 2. In this case, the dark group pools black women with very dark, dark, and medium skin tone and compares them to black women with very light or light complexion (the same reference group in our original specifications in columns 1 and 2). Our results indicate that black women who are medium brown or

¹⁹ The pattern of findings reported in Table 3 are robust to the inclusion of state fixed-effects, county unemployment rate, obesity, and religiosity at the time of the survey.

darker—the expansive dark group—and who also experienced unemployment are significantly more likely to suffer from depression than the light or very light skinned unemployed.

Robustness to family status

Black women who are single and have children may be especially vulnerable to unemployment because of the associated economic insecurity given they do not have a spouse or partner to buffer the financial consequence of joblessness. Thus, our fundamental “gradient” finding, that unemployed black women with darker complexions face significantly higher probabilities of a first onset of depression than unemployed black females with lighter skin shade, may be more pronounced for single women with children. To evaluate this hypothesis we split the sample into a subsample of Black women who are single with children living in the household, and another subsample of Black women who are married or cohabitating or single without children. Then we estimated Eq. (4) which fully interacts unemployment status, skin shade, and whether the woman is a single mother with children in the household under 18 years of age.

$$\begin{aligned}
 \text{Depression} = & \gamma_0 + \gamma_1(\text{Unemployed}) + \gamma_2(\text{Dark}) + \gamma_3(\text{SingleMom}) \\
 & + \gamma_4(\text{Unemployed} * \text{Dark}) + \gamma_5(\text{Unemployed} * \text{SingleMom}) \\
 & + \gamma_6(\text{Dark} * \text{SingleMom}) + \gamma_7(\text{Unemployed} * \text{Dark} * \text{SingleMom}) \\
 & + \gamma_8(X) + \gamma_9(Z) + \xi
 \end{aligned} \tag{4}$$

Table 3 reports the total marginal effects for each of the possible combinations of the three-way interaction. The results are consistent with the findings reported in Table 2. For both family statuses we find evidence that the detrimental impact of unemployment on mental health is greater for women with darker skin shade (see last two rows of Table 3). In addition, among unemployed black women, those who were single have a significantly greater chance of being afflicted with depression for the first time in their life during the past half year than those who are married or cohabitating—for each skin shade group. Therefore, while single mothers are particularly vulnerable to the adverse emotional consequences of unemployment, all black women face a gradient where the mental health effects are more likely for those with darker complexions.

Why is unemployment more closely associated with depression for those with darker skin?

Exploring the mechanism behind the unemployment—skin shade depression gap: methodology

Our findings reveal that as a result of unemployment the probability of experiencing depression, in the form of suffering from major depressive disorder, for black women in the U.S. rises as skin shade darkens. An interesting question is why is this the case? Social scientists, health practitioners, and policymakers have long advanced the idea that

Table 3 Probit estimation of depression total marginal effects unemployed in the last 6 months by single parent status

Variables	(1)
Employed-Light-Single Parent	0.035* [0.022]
Employed-Dark-Not Single Parent	0.052** [0.004]
Employed-Dark-Single Parent	0.045* [0.013]
Unemployed-Light-Not Single Parent	0.056** [0.002]
Unemployed-Light-Single Parent	0.060** [0.004]
<i>chi² test: UnEmployed-Light (Single Parent= Not Single Parent)</i>	(0.000)***
Unemployed-Dark-Not Single Parent	0.065** [0.001]
Unemployed-Dark-Single Parent	0.071** [0.002]
<i>chi² test: UnEmployed-Dark (Single Parent= Not Single Parent)</i>	(0.000)***
<i>chi² test: UnEmployed-Not Single Parent (Light= Dark)</i>	(0.000)***
<i>chi² test: UnEmployed-Single Parent (Light= Dark)</i>	(0.000)***
Observations	1,798

Robust p-values in brackets

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

unemployment generates anxiety and fear about the future that can damage mood and foster depression. Moreover, at the outset of the paper the insights from stratification economics motivated this study and led us to postulate that among black women experiencing unemployment those with darker skin may be more prone to feel uncertainty and stress about the future. This may be due to the realization or perception that they are treated less favorably than lighter complexion black females and face the greatest phenotype penalty in many arenas, including employment (Pearce-Doughlin et al. 2013).

In an effort to shed light on the mechanism underlying our finding that the psychological consequences of unemployment are more likely to foster depression for darker skinned black women than black women with lighter skin tone, we take advantage of respondent information on perceptions of unfair treatment contained in the NSAL. Respondents were asked if they believe they face unfair treatment in general, discrimination at the workplace, are steered into poor quality jobs, and are treated poorly by either blacks or whites due to their skin shade.

Skin shade and the prevalence of perceived discrimination

Table 4 Panel A reports the prevalence of perceived discrimination for the five types of unfair treatment identified above, for the sample of black females as a whole and for

Table 4 Perceived discrimination

Variables	General	At work	Steered to poor quality jobs	Treated poorly due to skin shade by Whites	Treated poorly due to skin shade by Blacks
Panel A					
Summary statistics					
Overall	37.2 %	21.0 %	24.5 %	53.6 %	41.6 %
Light	38.0 %	18.2 %	21.1 %*	42.8 %***	41.3 %
Medium	36.4 %	20.7 %	26.1 %*	55.1 %	38.4 %*
Dark	38.1 %	24.0 %	24.5 %	59.9 %	47.9 %
Panel B					
Probit results with marginal effects reported					
Medium	-0.015 [0.700]	0.036 [0.342]	0.063 [0.117]	0.121** [0.002]	-0.029 [0.469]
Dark	0.002 [0.971]	0.066 [0.120]	0.046 [0.319]	0.169*** [0.000]	0.065 [0.146]
<i>chi</i> ² Test of Medium=Dark	(0.872)	(0.294)	(0.299)	(0.001)***	(0.043)*
Observations	1,738	1,436	1,449	1,788	1,790

Panel A Test statistically different means between Light and Dark; Medium and Dark

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Panel B Robust p-values in brackets

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

light, medium, and dark skin shade groups. Thirty seven percent of the sample reported a belief that they faced discrimination in general, while 21 % felt they were subject to discrimination at work. A quarter of black women indicated that they sense they were guided or nudged toward poor quality jobs. More than half of black women believe they are treated poorly due to their skin shade by whites and just over 40 % claimed they were treated unfairly by other blacks due to their complexion.

Perceptions of discrimination in general or at work do not differ significantly by skin tone. However, a larger share of dark skinned black women believe they are discriminated against because of their skin shade—by whites and blacks—and that they are shunted into less desirable work. Perhaps unsurprisingly, the greatest variation in reports of discrimination by black women of different skin shade occurred in the last two measures which were designed to detect perceptions of skin shade differences.

Drawing on this data we estimate the following model to explore if black women with darker skin shade believe they are more inclined to face unfair treatment or discrimination, which could in turn explain why those women with darker skin are more likely to suffer from depression when unemployed than those with lighter complexion.

$$Discrim = \theta_0 + \theta_1(Medium) + \theta_2(Dark) + \tau \quad (5)$$

We estimate five different versions of Eq. (5) that vary primarily based on the measure of perceived discrimination which we represent with *Discrim*. In the first

model, $Discrim=1$ if a person believe they face *general discrimination*, 0 otherwise. In the second model this indicator takes on a value of 1 when the respondent reported believing facing discrimination at work, and in the third model if they said they are pushed into lower quality jobs.

For the second and third models we add two controls: working primarily with black co-workers, and having a black supervisor. Finally we estimate two additional models with Eq. (5) when $Discrim$ reflects a belief that whites, and then blacks, treat persons poorly based on skin shade. If our findings reveal that dark skinned blacks are more likely to hold a belief they are treated unfairly or face discrimination, $\theta_2 > 0$, then we can surmise that this might play a role in explaining why among unemployed black women those with darker complexion are more likely to suffer from depression.

Results

Table 4 Panel C presents our findings on the link between skin shade and various beliefs about mistreatment and discrimination on the part of black women. The columns of the table correspond to the alternative dependent variables reflecting different types of perceived discrimination, ($Discrim$). The rows of Table 4 offer our estimates of the impact of being medium brown skinned (row 1), and dark (dark or very dark) skinned (row 2) on perceptions of mistreatment relative to those black females who are light or have a very light complexion. The next row presents a chi-squared test comparing if the perceived probability of facing discrimination is equivalent for black women who have medium brown skin and those with darker skin.

Inspection of Table 4 reveals no statistically significant difference in the estimated impact of having light, medium, or dark skin shade on the perception of facing discrimination in general, being steered into low quality jobs, and on confronting unfair treatment in the workplace. However, black women with medium brown skin tone are 12 % more likely than light skinned black females to believe they are treated poorly by whites due to their skin tone, and that difference is statistically significant. Dark skinned black women are even more likely than light complexioned black women, 17 %, to believe whites treat them unfairly because of their dark skin shade. In addition, the difference in the probability of perceived poor treatment by whites due to skin shade for black women with dark skin, compared to medium skin, is statistically significant. Although black women with medium skin shade do not believe that blacks treat them any differently than light skinned black females, black women with dark skin shades were more inclined to believe that other blacks treat them poorly in comparison with medium complexion black women.²⁰ Although the colorism literature presents considerable evidence of social stratification based on skin shade, see Pearce-Doughlin et al. (2013) for a summary, regardless of whether dark skinned black women are actually treated worse or not in the workplace, the greater perception of the prevalence itself may be the mechanism of a deleterious effect on mental health resulting from the interaction of skin shade and employment.

²⁰ We also examined if blacks with darker skin shade are more inclined to worry in general. We find no evidence this is the case when we estimated the model using the resilient sample and then we stratified the sample by labor force status.

Concluding thoughts

This paper presents strong evidence of a gradient on depression between skin shade and unemployment for black women. Moreover, the findings are robust to various definitions of skin shade. Unemployed black women with darker complexions are significantly more likely to suffer their first onset of depression than unemployed black females with lighter skin shade. While in some cases, lighter skinned black women appeared not to suffer adverse effects of unemployment compared to their employed counterparts, persons with dark complexions did not enjoy the same degree of protection from poor mental health. Given these findings, social service, mental health practitioners, and policymakers should be aware of the significant gradient on depression between skin shade and unemployment for black women. This relationship should be taken into account when trying to understand the mental health effects of unemployment. In addition, policymakers should avail themselves of insights provided by stratification economics that would enable them to more fully understanding social problems as well as potential impacts of public policy.

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Appendix

Table 5 Definition of variables used in the econometric analysis and associated summary statistics

Variables	Variable definitions
Panel A: Dependent variables	
Depression	1 if respondent diagnosed as depressed using either DSM IV or ICD classification system, 0 otherwise
General discrimination	1 if respondent reports belief that they face discrimination in general, 0 otherwise
Work discrimination	1 if respondent reports belief that they face discrimination at the worksite, 0 otherwise
Poor job discrimination	1 if respondent reports belief that they are unfairly steered into poor quality jobs, 0 otherwise
Poor job discrimination by white persons	1 if respondent reports belief that they are treated unfairly due to skin shade by white persons, 0 otherwise
Poor job discrimination by black persons	1 if respondent reports belief that they are treated unfairly due to skin shade by black persons, 0 otherwise
Panel B: Unemployment	
Unemployment–Share	1 if respondent spent any weeks unemployed during the past half year, 0 otherwise
Panel C: Skin shade	
Light	1 if respondent’s skin shade is judged to be very light brown or light brown, 0 otherwise
Medium	1 if respondent’s skin shade is judged to be medium brown, 0 otherwise
Dark	1 if respondent’s skin shade is judged to be dark brown or very dark brown, 0 otherwise

Table 5 (continued)

Variables	Variable definitions
Expansive Light	1 if respondent's skin shade is judged to be very light brown, light brown, or medium brown, 0 otherwise=Narrow Dark
Expansive Dark	1 if respondent's skin shade is judged to be Medium brown, dark brown or very dark brown, 0 otherwise=Narrow Light
Panel D: Individual characteristics	
Young	1 if respondent is 30 years of age or younger, 0 otherwise
Well-educated	1 if respondent has completed 13 or more years of formal education, 0 otherwise
Panel E: Family characteristics as a youth	
Foreign born	1 if respondent reports being born outside the United States, 0 otherwise
Both biological parents	1 if respondent reports being raised by both biological parents, 0 otherwise
Mother well educated	1 if respondent's mother has completed 12 or more years of formal education, 0 otherwise
Father well educated	1 if respondent's father has completed 12 or more years of formal education, 0 otherwise
Mother education missing	1 if respondent's mother's education level is not reported, 0 otherwise
Father education missing	1 if respondent's father's education level is not reported, 0 otherwise
Family poor	1 if respondent reports that their family was on welfare at some point while growing up, 0 otherwise
Family poor missing	1 if respondent fails to report if their family was on welfare at some point while growing up, 0 otherwise
Siblings	Number of sibling's respondent had growing up. Top-coded at 5.
Siblings missing	1 if respondent fails to report number of siblings they had growing up, 0 otherwise
Religion important	1 if respondent reports that religion was very important in their home as a youth, 0 otherwise
Panel F: Emotional buffering factors as an adult	
Married or cohabitating	1 if respondent reports being married or cohabitating, 0 otherwise
Both parents alive	1 if respondent reports that both of their parents are still alive, 0 otherwise
One parents alive	1 if respondent reports that only one of their parents is still alive, 0 otherwise
Panel G: Location characteristics	
County unemployment rate	Unemployment rate in the county of current residence
South	1 if respondent lives in the South of the United States, 0 otherwise
West	1 if respondent lives in the West of the United States, 0 otherwise
Northeast	1 if respondent lives in the Northeast of the United States, 0 otherwise

Table 6 Summary statistics

	Full sample	Light	Medium	Dark
Panel A: Individual and family characteristics				
Foreign born	6.1 %	6.0 %	4.4 %	9.5 %
Well-educated	42.6 %	42.3 %	43.7 %	40.8 %

Table 6 (continued)

	Full sample	Light	Medium	Dark
Young	31.0 %	37.6 %	30.3 %	26.8 %
Both biological parents	53.2 %	53.8 %	54.6 %	50.0 %
Mother well-educated	50.5 %	57.1 %	50.2 %	45.5 %
Mother education missing	13.7 %	9.8 %	15.1 %	14.3 %
Father well-educated	35.3 %	37.7 %	35.7 %	32.5 %
Father education missing	36.2 %	30.8 %	36.6 %	40.1 %
Family poor	24.2 %	23.5 %	24.0 %	25.2 %
Family poor missing	1.5 %	0.8 %	0.9 %	3.2 %
Religion important	71.7 %	67.8 %	71.7 %	74.8 %
County unemployment rate	5.06 %	4.92 %	5.08 %	5.15 %
South	56.7 %	56.6 %	56.9 %	56.4 %
West	9.0 %	9.6 %	8.2 %	10.1 %
Northeast	17.0 %	20.2 %	15.9 %	16.4 %
Panel B: Potential buffers				
Both parents alive	43.8 %	43.0 %	46.5 %	39.4 %
One parent alive	31.8 %	31.4 %	31.8 %	32.0 %
Siblings	3.5	3.4	3.5	3.6
Siblings missing	2.2 %	2.1 %	2.1 %	2.4 %
Married or cohabitating	36.7 %	31.9 %	36.3 %	41.6 %
Observations	1,798	379	862	557

Table 7 Marginal effects of depression

Variables	(1)	(2)	(3)	(4)
Foreign born	-0.011 [0.201]	-0.012 [0.159]	-0.012 [0.163]	-0.009 [0.301]
Well-educated	0.007 [0.302]	0.008 [0.275]	0.007 [0.293]	0.008 [0.292]
Young	-0.002 [0.792]	-0.003 [0.727]	-0.003 [0.722]	-0.003 [0.723]
Both biological parents	-0.000 [0.979]	-0.000 [0.974]	-0.000 [0.985]	-0.001 [0.904]
Mother well-educated	0.009 [0.291]	0.010 [0.273]	0.010 [0.267]	0.009 [0.322]
Mother education missing	0.014 [0.209]	0.015 [0.186]	0.015 [0.200]	0.013 [0.251]
Father well-educated	-0.008 [0.425]	-0.008 [0.396]	-0.008 [0.426]	-0.008 [0.415]
Father education missing	-0.002 [0.785]	-0.002 [0.791]	-0.002 [0.804]	-0.003 [0.763]

Table 7 (continued)

Variables	(1)	(2)	(3)	(4)
Family poor	0.012 [0.123]	0.011 [0.147]	0.011 [0.143]	0.012 [0.121]
Family poor missing	-0.023 [0.139]	-0.024 [0.125]	-0.024 [0.125]	-0.022 [0.189]
Religion important	0.003 [0.705]	0.003 [0.668]	0.003 [0.684]	0.004 [0.577]
County unemployment rate	-0.003 [0.291]	-0.003 [0.316]	-0.003 [0.306]	-0.003 [0.314]
South	0.011 [0.333]	0.011 [0.312]	0.011 [0.305]	0.012 [0.303]
West	0.031 [0.053]	0.032* [0.046]	0.032* [0.049]	0.033* [0.038]
Northeast	0.031* [0.025]	0.030* [0.026]	0.030* [0.023]	0.030* [0.030]
Both parents alive	0.006 [0.576]	0.007 [0.514]	0.007 [0.514]	0.006 [0.590]
One parent alive	0.002 [0.875]	0.002 [0.838]	0.002 [0.843]	0.000 [0.989]
Siblings	-0.002 [0.358]	-0.001 [0.377]	-0.001 [0.377]	-0.001 [0.381]
Siblings missing	0.021 [0.170]	0.023 [0.142]	0.023 [0.138]	0.025 [0.144]
Married/cohabitating	-0.009 [0.254]	-0.009 [0.219]	-0.010 [0.210]	-0.007 [0.361]
Observations	1,798	1,798	1,798	1,798

Robust p-values in brackets

(1) Base, (2) Full interaction, (3) Pool Medium with Light, (4) Pool Medium with Dark

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

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