

A Longitudinal Analysis of How Perceived Discrimination Gets Under the Skin: Investigating Gender and Racial/Ethnic Differences*

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Abstract

There are three gaps in our understanding of the relationship between perceived discrimination and health: (1) the long-term direct effect of perceived discrimination on health is little known, (2) the pathways linking these two concepts are under-explored, and (3) it remains unclear if there is any gender or race/ethnicity difference in these

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relationships. To fill these gaps, this study applies a recently developed mediation analysis technique to the Americans' Changing Lives longitudinal data (N=1,163) and investigates whether self-esteem and social support mediate the adverse impact of perceived discrimination on self-rated health. Three major findings are obtained. First, an individual's experience of discrimination, even a decade ago, has a significant and negative effect on self-rated health via relationship that cannot be fully explained by variations in individual characteristics. Second, the self-esteem pathway plays a more important role than the social support pathway in mediating the relationship between perceived discrimination and self-rated health, with the former accounting for 70% of the effect, whereas the latter accounts for only 30%. Finally, though there is little evidence for gender or racial/ethnic difference, the self-esteem pathway is more critical for whites than non-whites. These findings suggest that perceived discrimination has a long-lasting effect on health and potential intervention should focus on the psychological pathway to prevent perceived discrimination from being a chronic stressor.

Key Words: health, perceived discrimination, social support, self-esteem, mediation

I. Introduction

Discrimination refers to either unintended or intended behaviors or treatments based on a certain social aspect (such as race/ethnicity and gender) and the consequence of discrimination is often unequal access to resources and unequal power structures across social groups (Pager & Shepherd, 2008). In the United States (US), racial discrimination has drawn researchers' attention as it was openly supported and enforced before the Civil Rights Movement. While racial discrimination has been decreasing since then (Pager & Shepherd, 2008; Quillian, 2006), it still exists, albeit more covertly and subtly, which makes it hard to measure discrimination objectively. In light of the difficulty of measuring "real" discrimination, individual experience with discriminatory actions (i.e., perceived discrimination) becomes a critical aspect of research as it has been found to adversely affect various outcomes, such as educational attainment and risky behaviors (Benner & Graham, 2011; Gibbons et al., 2007).

In the past two decades, given the continuous effort to eliminate racial/ethnic health disparities (Carter-Pokras & Baquet, 2002), the interest in exploring the impact of perceived discrimination on health has been growing (Fischer & Shaw, 1999; Gee, 2002; Yang & Chen, 2018). However, recent review articles (Paradies et al., 2015; Pascoe & Richman, 2009) conclude that two knowledge gaps in this area should be filled. One is that the majority of evidence comes from cross-sectional studies (Paradies et al., 2015), leaving the potential causal relationship between perceived discrimination and health remains underexplored. Indeed, in contrast to that reported by cross-sectional research, the impact of perceived discrimination on health is weaker among longitudinal studies. This implies that the effect on health may decrease over time and the existing evidence may be subject to the nature of cross-sectional research design. The second gap is that the mechanisms through which perceived discrimination affects health are unclear, which

limits the potential interventions that can minimize, if not eliminate, the deleterious effect of perceived discrimination on health. While some scholars explore the factors that moderate the effect of perceived discrimination on health (Fischer & Shaw, 1999), how perceived discrimination gets under the skin, particularly through biopsychological mechanisms, is seldom answered conclusively (Brondolo, Blair, & Kaur, 2018).

Furthermore, little research has investigated whether the effect of perceived discrimination on health varies by social dimension, such as gender and race/ethnicity (Hudson, Puterman, Bibbins-Domingo, Matthews, & Adler, 2013), and even less is focused on whether the mechanisms differ by these dimensions (Yang & Chen, 2018). Among the studies addressing these issues, the findings are far from conclusive. For example, Hahm, Ozonoff, Gaumond, and Sue (2010) report that women are more likely to suffer from discrimination and demonstrate more negative mental and physical health issues than men. By contrast, another study finds that the adverse impact of perceived discrimination on self-rated health is greater for men than women (Flores et al., 2008). The findings with regard to racial/ethnic differences are also mixed. Yang and Chen (2018) use structural equation modeling to compare the effect of perceived discrimination on stress without finding any racial/ethnic difference, suggesting that the negative effect is universal regardless of one's racial/ethnic background. However, Borrell, Jacobs, Williams, Pletcher, Houston, and Kiefe (2007) suggest that exposure to discrimination significantly increases the odds of substance use for blacks, but not for whites. These elusive findings indicate that the relationship between perceived discrimination and health may differ by gender and race/ethnicity. To have a more thorough understanding of how perceived discrimination affects health across social groups, it is essential to delve into the racial/ethnic and gender differences.

This study aims to achieve the following three goals: (1) to investigate the direct association between perceived discrimination

in day-to-day life and health from a longitudinal perspective, (2) to understand the extent to which the support of friends and self-esteem mediate the negative effect, and (3) to explore whether there is any racial/ethnic or gender difference in these mechanisms. Using the Americans' Changing Lives dataset, which is both unique and longitudinal, this study goes beyond the literature by decomposing the total effect of perceived discrimination a decade ago on self-rated health into direct and mediating effects and comparing the results between males and females, as well as between whites and non-whites. Several sources of bias (e.g. data attrition) are considered with the inverse probability weighting method, which yields robust statistical results and conclusions.

II. Background

A. Discrimination and Health: A Longitudinal Perspective

Discrimination based on race/ethnicity, in general, can occur at three levels: the cultural, the institutional, and the interpersonal (Clark, Anderson, Clark, & Williams, 1999; Krieger, 1999). Disseminating negative attitudes and stereotypes about a certain race/ethnicity group in media or mass communication is regarded as cultural discrimination. Institutional discrimination refers to the discriminatory actions embedded in social structures, such as policies, norms, and practices that cause unequal access to resources and power across race/ethnicity groups. Interpersonal discrimination, which is often perceived directly, includes an individual's beliefs, attitudes, and acts that denigrate members from a certain racial/ethnic group (e.g., verbal abuse or physical attacks). While all three levels of discrimination have declined over the past few decades in the US, racial discrimination is not eliminated and just becomes more subtle (Quillian, 2006). As discrimination still exists, all racial/ethnic groups are likely to be exposed to discriminatory

behavior, making it necessary to compare the effect of perceived discrimination among whites with that among non-whites (Borrell et al., 2007; LaVeist, Rolley, & Diala, 2003).

There are several reasons why perceived discrimination undermines one's health. First, perceived discrimination serves as an acute stressor that triggers physiological responses, such as heightened blood pressure, increased heart rate, cortisol secretions, and other responses that have negative effects on physical health (Brondolo et al., 2008; Steffen, McNeilly, Anderson, & Sherwood, 2003). Repeated exposure to discrimination becomes a chronic stressor harmful to health because it triggers the body to prepare physically for stressful scenarios, which may undermine the immune systems (Gee, Spencer, Chen, & Takeuchi, 2007; Seeman, Singer, Rowe, Horwitz, & McEwen, 1997). Second, exposure to discrimination causes individuals to develop negative schemes and threat appraisals that influence their perceptions of interpersonal interactions (Brondolo et al., 2018). For example, individuals who have experienced discrimination tend to more often interpret day-to-day interactions as negative, exclusionary, or unfair (Broudy et al., 2007). This distorted interpretation leads individuals to be isolated socially and experience reduced self-control, which is negatively related to health (Bennett, Wolin, Robinson, Fowler, & Edwards, 2005; Gibbons et al., 2012). Finally, discrimination may directly reduce access to resources that promote health (e.g., health information and employment opportunities) and discourage individuals from engaging in healthy behaviors (Chen & Yang, 2014; Purnell et al., 2012).

While the explanations above suggest that perceived discrimination leads to ill health, it is also likely that individuals with poor health are particularly sensitive to others' words and deeds that may subsequently be reported as discrimination. That is, the causal relationship between perceived discrimination and health should be clarified. As Paradies and colleagues suggest, "it is critical to examine the longitudinal associations between racism and health, in order to

better elucidate these causal pathways” (2015: 4). Beyond the causal relationship between perceived discrimination and health, we argue that the longitudinal association likely exists for two reasons. First, drawing from the biological embedding process (Hertzman, 2012), experiencing social adversities (e.g., discriminatory behaviors) alters human biological processes and development in ways that adversely influence health. The experience is systematically different across social groups (e.g., minorities are more likely to experience discrimination), leading to changes that are stable and last for a long time (if not the entire life course). As the long-term impact of biological embedding cannot be modified by subsequent interventions or exposure to different social contexts (Miller et al., 2009), perceived discrimination should be associated with health even long after the initial event(s) took place. While the biological embedding process emphasizes the experience early in life (Hertzman, 2012), the concept can be applied to other life stages.

The other reason why perceived discrimination should have a long-lasting impact on health is based on the scarring perspective (Turner, Thomas, & Brown, 2016). Perceived discrimination undermines one’s ability to seek support or resources when s/he is in need (Umberson, Williams, Thomas, Liu, & Thomeer, 2014). The lack of support (both tangible and intangible) limits an individual’s options for coping with stress or overcoming difficulties, which ultimately sabotages health. This perspective is focused on social relationships and the resources embedded therein. Specifically, experiencing discrimination prevents individuals from actively engaging in social activities due to the negative moods associated with discrimination. These patterns of social isolation or exclusion may alter how an individual interacts with others in the future, which is comparable to a wound (i.e., perceived discrimination) leaving a permanent scar.

After reviewing 333 articles published between 1983 and 2013, Paradies et al. (2015) report that less than 10 percent of the articles use a longitudinal dataset to examine the relationship between

perceived discrimination and health. Even fewer examine the long-term effect of discrimination on health (i.e., more than one year between a discrimination event and health measure). Should the biological embedding and scarring theory stand, one should expect that the detrimental impact of perceived discrimination on health should remain even after a long period of time. The findings of this study should fill this knowledge gap.

There are at least two reasons for exploring the long-term effect of discrimination on health. First, should the long-term effect of discrimination on health be confirmed, the social etiology of diseases can be better understood. The so-called “upstream” determinants of health could be clearly identified. Second, discrimination does not just affect one’s health but other social outcomes. Exploring (and validating) the long-term impact helps researchers to investigate other potential mechanisms (such as biopsychosocial mechanisms proposed by Brondolo et al., 2018).

The discussion above leads us to the first hypothesis of this study that concerns with the long-lasting effect of discrimination on health. Specifically, we hypothesize that after controlling for other potential confounders, perceived discrimination a decade ago is negatively associated with one’s current health status (H1).

B. Mediating Mechanisms

Extending from the discussion above, we propose two possible mechanisms through which perceived discrimination affects health: self-esteem and social support. We explain how these two mediators may channel some of the negative effect of perceived discrimination on health as follows.

(A) Mechanism Through Self-Esteem

When an individual is exposed to discrimination repeatedly, his/her perceived discrimination becomes a chronic stressor that causes not only biological reactions (e.g., persistently elevated blood pressure and increased cortisol level) but also mental responses (e.g.,

anger and embarrassment) (Pascoe & Richman, 2009). These biological and mental consequences can subsequently influence one's self-esteem. An individual's self-esteem indicates an overall self-evaluation of one's value to others and social surroundings and is a sociometer that summarizes an individual's social life and dynamics (Leary & Baumeister, 2000; Rosenberg, 1965). Experiencing discriminatory behaviors often makes one feel worthless, incompetent, and inferior. These negative emotional states may enhance the aforementioned biological and mental reactions. Individuals with perceived discrimination are more likely to devalue themselves than those without such experience. As a result, perceived discrimination lowers one's self-esteem through a relationship that has been supported by empirical research (Panchanadeswaran & Dawson, 2011; Verkuyten, 1998).

Low self-esteem has been linked to comprised health and limited life chance (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005; Orth, Robins, & Widaman, 2012). While the relationship between self-esteem and mental health has been bolstered by stronger evidence, several scholars report that low self-esteem is associated with poor physical health outcomes, such as chronic health conditions, weak functional status, and cardiorespiratory health issues (House et al., 1994; Trzesniewski et al., 2006; Vingilis, Wade, & Adlaf, 1998). There are two plausible explanations for this association. On the one hand, high self-esteem increases one's confidence to pursue a healthy lifestyle as it creates positive attitudes toward life. These factors help individuals maintain good health (Melnik et al., 2006). On the other hand, individuals with high self-esteem may have control over their ability or mentality to handle the pressure associated with other stressors or serious diseases (Chang & Mackenzie, 1998; Mann, Hosman, Schaalma, & de Vries, 2004), which results in good health outcomes.

Drawing from the aforementioned literature review, we propose a research hypothesis that delineates the pathway via self-

esteem. That is, we expect that high levels of perceived discrimination are associated with low self-esteem and worsening self-esteem, in turn, undermines health (H2a).

(B) Mechanism Through Social Support

The connection between perceived discrimination and social support can be understood in two ways. First, as discussed above, perceived discrimination generates numerous negative emotions that may reshape how an individual appraises social relationships and how s/he interacts with others (Brondolo et al., 2018; Turner et al., 2016). For example, perceived discrimination may trigger race-based rejection and stigma consciousness (Brondolo et al., 2018; Brondolo, Ng, Pierre, & Lane, 2016). These negative relational schemas not only lead individuals to assume that others are rejecting, unfair, or unnecessarily harsh, but also reinforce the conception that the world is unfair and hostile. Consequently, individuals who perceive themselves as subject to discrimination may become socially isolated or excluded, which in turn weakens their social support. Second, when individuals encounter discrimination, they may seek support from their existing social network (e.g., friends) to cope with associated stress. The coping process taxes the existing social support and resources embedded in social relations (Folkman, Lazarus, Gruen, & DeLongis, 1986). If the individuals who ask for help do not continue to invest in these relations, the level of social support may be diminished.

The positive relationship between social support and health has been well documented (Cohen & Syme, 1985; Turner & Brown, 2010; Uchino, 2004) and the literature provides two explanations for this beneficial effect. Social support can be instrumental/informational and emotional. The former refers to tangible resources that an individual can expect from a social relation, such as money, information, and food, whereas the latter indicates the feeling of being loved, cared for, esteemed, and valued (Cohen, 2004). These functions of social support help individuals to

overcome adversity, cope with stress, and eventually improve health. The second explanation is that social support encourages individuals to undertake healthful behaviors (e.g., exercise) and avoid risky behaviors, such as smoking and excessive alcohol consumption (Allgöwer, Wardle, & Steptoe, 2001; Umberson, Williams, Thomas, Liu, & Thomeer, 2014). Explicitly, individuals with strong social support are more likely to have a healthier lifestyle and better health than those with weak social support.

As perceived discrimination may hinder one's social support, we hypothesize the other mechanism that is parallel to the self-esteem pathway. In other words, we expect that being exposed to high perceived discrimination leads to weak social capital, which is ultimately related to poor health status (H2b).

C. Why Do Gender and Race/Ethnicity Matter?

Little attention has been paid to gender and racial/ethnic differences in the association between perceived discrimination, especially with regards to the mediating effects of self-esteem, and social support. While there is evidence suggesting that these effects differ by gender and race/ethnicity, the findings are inconclusive and more effort is needed to answer this question (Flores et al., 2008; Yang & Chen, 2018). Among the few studies investigating the gender differences, most report that the relationship between perceived discrimination and health does not vary by gender (Borrell, Kiefe, Williams, Diez-Roux, & Gordon-Larsen, 2006; Turner & Avison, 2003), though Finch, Kolody, and Vega (2000) find that the impact of perceived discrimination on depression is stronger among females than males. Flores et al. (2008) further indicate that gender differences in the health effects of perceived discrimination depend on the type of health outcomes observed (i.e., physical or mental).

Beyond the mixed findings, two knowledge streams suggest a gender difference. First, gender socialization theory asserts that men and women handle negative emotions or feelings differently in that

men tend to externalize them by engaging in risky behaviors and women are more inclined to internalize their negative emotions (Elliott, 2013; Simon, 2002). Second, men and women experience different types of stressors and given divergent social roles, their reactions to stressors are different. Women tend to report more chronic stressors and distress than men, and women are more likely to be subject to mental illness (Davis, Matthews, & Twamley, 1999; Turner & Lloyd, 1999). Based on these two factors, one should expect that the relationship between perceived discrimination and health should vary by gender.

As for why the links between perceived discrimination and health change by race/ethnicity, we offer several explanations. First, the distribution of perceived discrimination is uneven in the US with a higher concentration among racial/ethnic minorities (e.g., non-Hispanic blacks and Hispanics). As such, the effect of discriminatory experience may be essentially different between whites and non-whites (LaVeist et al., 2003). For example, a study reports that the negative impact of perceived discrimination on self-rated health is slightly stronger among whites than blacks (Hausmann, Jeong, Bost, & Ibrahim, 2008). Second, extending from the process of coping with stress (Folkman et al., 1986), it takes resources to properly handle the stress associated with perceived discrimination. In contrast to their non-white counterparts, whites, in general, have better socioeconomic profiles so that they should have more options at hand to manage perceived discrimination. As a consequence, the connections between discrimination and health may differ by race/ethnicity. Third, given different social identities of whites and non-whites, the perception of discriminatory behaviors may naturally differ by race/ethnicity, which directly leads to pathways that channel the adverse impact of discrimination. It should be emphasized that while there are reasons to expect racial/ethnic differences, the findings in the literature remain scarce and elusive (Brondolo et al., 2011; Yang & Chen, 2018). The comparison between whites and non-whites in this study should provide

evidence in this debate.

Our discussion above offers reasons to expect that both the direct and indirect effects of perceived discrimination on health should vary by gender and race/ethnicity. As such, we propose two additional hypotheses as follows. On the one hand, there are gender and racial/ethnic differences in the direct impact of perceived discrimination on health status with females and non-whites suffering more from perceived discrimination than males and whites, respectively (H3). On the other hand, we anticipate observing gender and racial/ethnic differences in the two pathways via self-esteem and social support in that females and non-whites are more heavily influenced by self-esteem and social support pathways than their male and white counterparts (H4).

III. Data and Methods

This study uses the Americans' Changing Lives (ACL) data to examine the research hypotheses. ACL is a nationally representative longitudinal study based on a multistage stratified area probability sample of adults aged 25 and older in the US, with blacks and adults aged 60 and older being over-sampled. The data also provide sampling weights that adjust for nonresponse and sampling design (Clarke, Marshall, House, & Lantz, 2011). While the ACL survey was first administered in 1986, questions related to discriminatory experience were not included in the questionnaires until Wave 4 (2001/2002). Thus, we have to limit our samples to those who participated in both Waves 4 and 5 (2011).

To account for the potential bias introduced by attrition (e.g., death or dropout), we employ the inverse probability of attrition weighting (IPAW) approach (Weuve et al., 2012). This enables the development of models of the probability of staying in the ACL survey (i.e., being alive and engaging in later waves) with baseline individual characteristics. Using logistic regression and several covariates in Wave 1 (e.g., age and health frailty) to obtain the

predictive models, we compute the probability of continuation for each respondent and then calculate the analytic weights that are in inverse proportion to the probability of staying in the ACL survey. Ultimately, we multiply the original sampling weights from the ACL data by the analytic weights that account for attrition to generate the final weights that are applied to our analysis. It should be emphasized that the original sampling weights have been checked for extreme values and trimming (House, 2014). The final weights used in this study have similar variation with the original sampling weights provided by ACL, which suggests that the extreme values should not be a concern in our analysis. The IPAW approach has been found to be useful particularly for longitudinal research design (Chaix, Evans, Merlo, & Suzuki, 2012), which is the reason why we opt to use IPAW in this study. We apply the final IPAW to the respondents remaining in Waves 4 and 5 (N=1,427) and compare them with the original samples in Wave 1 to understand if the IPAW addresses the potential selection bias. We find that those respondents participating in Waves 4 and 5 are largely comparable with the original sample in Wave 1, except for educational attainment. However, after further removing the cases with missing values in the key variables of this study, those in the final analytic sample (N=1,163) tend to have more education, to be born in the US, and to be white. To account for these differences, we include these variables in all regression models.

A. Measures

The dependent variable for our study is the *self-rated health (SRH)* in Wave 5. Respondents were asked to assess their health at the present time as excellent, very good, good, fair, or poor. We follow the conventional approach to dichotomize SRH by coding those who answered excellent, very good, or good as 1, otherwise 0. As Idler and Benyamini (1997) indicate, dichotomizing SRH helps with the interpretation of results and comparisons to other studies.

The key independent variable is the everyday *discrimination index* reported in Wave 4. This variable is measured with five questions about an individual's discriminatory experience in day-to-day life, including "how often the respondent is treated with less courtesy or respect than other people," "how often does the respondent receive poorer service than other people at restaurants or stores," "how often do people act as if they think the respondent is not smart," "how often do people act as if they are afraid of the respondent," and "how often is the respondent threatened or harassed." Possible answers include "never," "less than once a year," "a few times a year," "a few times a month" and "at least once a week." The ACL assigns scores to a respondent's answers and then calculates the arithmetic average of the five questions in order to generate the discrimination index. A higher discrimination index score indicates a more serious experience of discrimination reported by the participant.

Regarding the mediators, following our discussion above, we identify *positive friend support* and *self-esteem index* in Wave 4. The former is constructed as follows. The respondents were asked to answer the following two questions: "How much do your friends/relatives make you feel loved and cared for?" and "How much are they willing to listen when you talk about your worries or problems?" The possible answers are on a five-point Likert Scale from "Not at all" (coded 1) to "A great deal" (coded 5). After taking the average of the two answers, the ACL further standardizes the values with the Wave 1 weighted means and standard deviations. The standardized scores are included in the released Wave 4 data with higher values suggesting higher levels of positive friend support.

The self-esteem index is calculated based on four questions ("All in all, I am inclined to feel that I am a failure," "I take a positive attitude toward myself," "I feel useless at times," and "At times I think I am no good at all.") and answers include "Disagree strongly," "Disagree somewhat," "Agree somewhat" and "Agree strongly."

Some answers are reversely coded in order to consistently evaluate one's self-esteem in the same direction. The process of generating the self-esteem index is similar to that of positive friend support, the difference being that the self-esteem index is not standardized. Higher index scores reflect better self-esteem.

In addition to the key variables above, we also control for a range of covariates that may confound the relationships among discrimination index, SRH, and mediators. Specifically, we consider a respondent's sociodemographic conditions and risky health behaviors in the analysis. The basic (and generally time-invariant) demographic variables include *gender*, *age*, *years of education*, and *race/ethnicity*, which are all drawn from Wave 1 (1986). Gender is a binary variable in which females are coded as 1 (males are 0). Age and years of education are continuous variables. The former ranges from 25 to 95, whereas the latter is between 0 and 17. As for race/ethnicity, we categorize respondents into three groups, namely non-Hispanic whites (whites hereafter), non-Hispanic blacks (blacks hereafter), and others (reference group). We combine Hispanics with non-Hispanic others due to the small sample sizes of both groups in the data.

One's socioeconomic status and risky health behaviors are gauged with the following variables. *Marital status*, *employment status*, *income* and *insurance status* are from Wave 5 (2011) when the dependent variable, SRH, was collected. Marital status and employment status are both dichotomous variables in that those who were married or employed in the year of survey are coded as 1, otherwise 0. Individual income is inflation-adjusted from 1986 dollars (Wave 1). To avoid a small coefficient estimate, we use logged income value in the analysis. Respondents who had any type of health insurance were coded 1 in the insurance status variable, otherwise 0. Regarding risky health behaviors, we consider the changes in smoking and drinking between Wave 4 and 5 by including six dummy variables in the analysis. Specifically, for smoking, we have *smoker* (those reporting smoking in both waves),

becoming smoker (respondents who did not smoke in Wave 4 but did so in Wave 5), *smoking quitter* (those who smoked in Wave 4 but did not do so in Wave 5) and *non-smoker* (individuals who did not smoke in both waves; reference group). We use the similar approach to define the change in drinking and have the following groups: *drinker*, *becoming drinker*, *drinking quitter* and *non-drinker* (reference group). As our risky health behavior variables precede SRH, they should capture the potential latency periods of diseases that affect how an individual assess his/her SRH.

B. Analytic Strategy

Our analytic strategy encompasses three stages. First, we conduct descriptive analysis with the full samples in order to gain a basic understanding of our data. The gender-specific and race/ethnicity-specific (i.e., whites versus non-whites) results are then obtained and t-tests are used to examine whether the group differences exist. The second stage is to conduct two nested logistic regression models. One includes all covariates except for the two mediators, and the other model takes into account positive friend support and the self-esteem index. The two models allow us to observe how the relationships between independent variables and SRH change after the mediators are considered. It should be emphasized that the nested logistic regression models are also applied to gender-specific and race/ethnicity specific data but due to space constraints, we opt not to report the results (they are, however, available upon request).

In the final stage, we use the KHB method, developed by Karlson, Breen, and Holm in 2011, to decompose formally the total effect of the discrimination index on SRH into direct and mediating effects through positive friend support and self-esteem. The KHB method has several advantages over other mediation analysis techniques. First, it can be applied to non-linear probability methods without any scaling issues so that the estimates of the total, direct, and mediating effects are all on the same scale (Breen, Karlson, &

Holm, 2013; Karlson & Holm, 2011). Second, the KHB method can simultaneously consider multiple mediators, which cannot be done easily with many existing mediation analysis techniques (Karlson, Holm, & Breen, 2012). Third, it is fairly easy to consider confounders for the dependent variable. Specific to this study, the KHB method helps us to estimate the direct effect linking discrimination index and SRH along two pathways through which discrimination affects SRH. The details of the KHB method can be found elsewhere (Karlson & Holm, 2011; Karlson et al., 2012).

IV. Results

Table 1 presents the descriptive statistics of the overall samples and the comparisons by gender and racial/ethnic group. Overall, our samples consist of roughly 62 percent females and 70 percent whites. Several findings are noteworthy. First, overall, 78 percent of the respondents rate their health as good, very good, or excellent, but the distribution varies significantly by gender and race/ethnicity. That is, in contrast to men (81.57%), fewer women report good/very good/excellent health (75.91%), and whites (81.10%) are more likely to report good health than non-whites (70.85%). Second, the average perceived discrimination score is 1.61 and similar to self-rated health, the discriminatory experience differs by gender and race/ethnicity. Specifically, while the difference in the mean discrimination score between males and females is only 0.12, the *t*-test result indicates that this difference is statistically significant, with males reporting higher rates of discrimination experience than females. As expected, non-white respondents have a higher perceived discrimination index score (1.74) than white participants (1.55). Third, we only find significant gender differences in the two mediators in that females have stronger support from friends but lower self-esteem scores than males. Though non-whites seem to enjoy better friend social support and self-esteem than whites, the differences are trivial.

Table 1 Descriptive Statistics for Overall Samples, Gender- and Race/Ethnicity-Specific Samples

Variable	Overall		Males		Females		Diff.	Whites		Non-Whites		Diff.
	Mean	S.D.	Mean	S.D.	Mean	S.D.		Mean	S.D.	Mean	S.D.	
Dependent Variable												
Good/very good/excellent self-rated health (%)	78.07		81.57		75.91		5.66 ^c	81.10		70.85		10.25 ^{***}
Independent Variables												
Wave 4 (2002)												
Discrimination index score	1.61	0.64	1.68	0.71	1.56	0.60	0.12 ^{**}	1.55	0.61	1.74	0.70	-0.19 ^{***}
Friend social support score	0.32	0.90	0.16	0.90	0.42	0.89	-0.26 ^{***}	0.31	0.88	0.33	0.97	-0.02
Self-esteem score	3.53	0.53	3.58	0.50	3.51	0.55	0.07 [*]	3.53	0.52	3.54	0.55	-0.01
Wave 5 (2011)												
Married (%)	54.08		71.24		43.45		27.79 ^{***}	60.24		39.36		20.88 ^{***}
Currently employed (%)	38.09		44.49		34.12		10.37 ^{***}	39.88		33.82		6.06 ⁺
Income (logged)	9.97	0.91	10.21	0.87	9.83	0.91	0.38 ^{***}	10.11	0.87	9.65	0.92	0.46 ^{***}
Has health insurance (%)	95.53		95.96		95.26		0.70	95.98		94.46		1.52
Change in drinking behavior												
Non-drinker (%)	36.03		28.76		40.53		-11.77 ^{***}	31.22		47.52		-16.3 ^{***}
Drinker (%)	42.73		53.03		36.35		16.68 ^{***}	48.54		28.86		19.68 ^{***}
Becoming drinker (%)	16.51		13.93		18.11		-4.18 ⁺	15.85		18.08		-2.23
Quitter (%)	4.73		4.27		5.01		-0.74	4.39		5.54		-1.15
Change in smoking behavior												
Non-smoker (%)	82.55		79.33		84.54		-5.21 [*]	84.63		77.55		7.08 ^{**}
Smoker (%)	9.72		9.44		9.89		-0.45	9.39		10.50		-1.11
Becoming smoker (%)	1.63		2.92		0.84		2.08 ^{**}	1.22		2.62		-1.4 ⁺
Quitter (%)	6.10		8.31		4.74		3.57 [*]	4.76		9.33		-4.57 ^{**}
Wave 1 (1986)												
Age	41.51	12.27	39.71	11.20	42.63	12.77	-2.92 ^{***}	42.04	12.79	40.25	10.86	1.79 [*]
Female (%)	61.74							59.87		66.18		-6.31 [*]
Education years	13.07	2.57	13.47	2.71	12.82	2.45	0.65 ^{***}	13.40	2.29	12.28	3.00	1.12 ^{***}
Race												
White (%)	70.51		73.93		68.38		5.50 [*]					
Black (%)	23.04		19.55		25.21		-5.66 [*]			78.13		
Others (%)	6.45		6.52		6.41		0.11			21.87		
N	1,163		445		718			820		343		

⁺p<0.1, ^{*}p<0.05, ^{**}p<0.01, ^{***}p<0.001

In addition to the key differences above, we find gender differences in almost all other covariates, except for the percentage of having insurance. With respect to racial/ethnic differences in other control variables, friend support score, self-esteem score and the percentage of having insurance is not significant, while the percentage of being currently employed in Wave 5 is marginally significant (p -value < 0.1). The comparisons in other variables all reach the conventional significance threshold. The descriptive statistics and comparisons by gender and race/ethnicity in Table 1 provide preliminary support for the potential gender and racial/ethnic differences in how perceived discrimination affects health through social support and self-esteem.

Following the analytic strategy, we implement two nested logistic models with the results shown in Table 2. Model 1 is the reduced model that excludes the mediators and Model 2 is the full model in which friend social support and self-esteem are considered. We summarize three important findings drawn from Table 2. First, without the mediators, one's discrimination index score is negatively associated with the odds of reporting good/very good/excellent SRH. Model 1 suggests that after controlling for baseline variables and other potential confounders, a one standard deviation increase in perceived discrimination score (i.e., 0.64 in Table 1) in Wave 4 (2001/2002) decreases the odds of good/very good/excellent SRH in Wave 5 (2011) by 21 percent ($1 - \exp(-0.370 * 0.64) = 0.21$). When the two mediators are included in the analysis (Model 2), the decrease in the odds of reporting good/very good/excellent SRH shrinks to 16 percent ($1 - \exp(-0.268 * 0.64) = 0.16$).

Second, somewhat surprisingly, neither gender nor race/ethnicity is significantly related to SRH, and one's age is not associated with SRH. However, other covariates are related to the dependent variable as expected. For example, smokers are almost 63 percent less likely to report good/very good/excellent SRH than non-smokers (Model 2). While including the mediators changes the magnitude of these associations (of confounders) with SRH (from

Table 2 Logistic Regression for Good Self-Rated Health of the Entire Sample

	Model 1			Model 2		
	Coef.	S. E.	ratio	Coef.	S. E.	ratio
Discrimination index score	-0.370*	0.151	0.691	-0.268+	0.155	0.765
Friend social support	--	--		0.160	0.114	1.173
Self-esteem	--	--		0.390*	0.198	1.477
Age	-0.004	0.011	0.996	-0.003	0.011	0.997
Female	0.168	0.215	1.183	0.133	0.220	1.143
Education years	0.076+	0.044	1.079	0.069	0.044	1.071
White (ref: others)	0.031	0.448	1.032	0.045	0.449	1.046
Black (ref: others)	0.059	0.472	1.061	0.019	0.474	1.019
Income (logged)	0.572**	0.167	1.771	0.510**	0.169	1.666
Married	0.211	0.245	1.235	0.271	0.246	1.311
Currently employed	0.981***	0.275	2.668	0.949**	0.273	2.582
Has health insurance	-0.230	0.596	0.794	-0.178	0.592	0.837
Drinker (ref: non-drinker)	0.757**	0.238	2.133	0.734**	0.238	2.084
Becoming drinker (ref: non-drinker)	0.080	0.272	1.083	0.103	0.271	1.108
Quitter (ref: non-drinker)	-0.424	0.445	0.655	-0.416	0.446	0.660
Smoker (ref: non-smoker)	-0.993**	0.352	0.370	-0.990**	0.351	0.371
Becoming smoker (ref: non-smoker)	-0.439	0.705	0.645	-0.466	0.709	0.628
Quitter (ref: non-smoker)	-0.393	0.425	0.675	-0.340	0.425	0.712
Constant	-4.890**	1.611	0.008	-5.848***	1.668	0.003
Pseudo R ²	0.184			0.184		

N=1,163; +p<0.1, *p<0.05, **p<0.01, ***p<0.001

Model 1 to Model 2), the changes are fairly nuanced, indicating that these associations are stable between models.

Third, while the direction of the effects of both mediators on SRH corresponds to the theoretical arguments (see Model 2), only self-esteem shows a significant relationship with SRH. Specifically, the odds of reporting good SRH increases by 23 percent ($\exp(0.390 \times 0.53) - 1 = 0.23$) when the change in self-esteem is one standard deviation (i.e., 0.53). It should be noted that the coefficients of the mediators in Model 2 only represent the

associations between social support and self-esteem in Wave 4 and SRH in Wave 5. They do not fully reflect the mediating effects, which is the reason why a formal decomposition method (i.e., KHB) should be employed. We will discuss our results next.

The KHB decomposition results based on the overall samples are summarized in Table 3. Controlling for other covariates, the total effect of the perceived discrimination index in 2001/2002 on one's SRH in 2011 is -0.370 (same with the finding in Model 1) and the direct effect of perceived discrimination on SRH becomes -0.268 after the two mediators are included in the analysis. The difference between the total and direct effect is -0.102, which is attributed to friend social support and self-esteem (i.e., mediating effect). Overall, approximately 28 percent of the total effect go through the two mediating pathways. The KHB method allows us to further answer the question of how much each mediator contributes to the mediating effect with the decomposition approach (Karlson & Holm, 2011). In the second panel of Table 3, the decomposition results suggest that roughly 30% of the mediating effect goes through positive friend social support (though non-significant) and mediating effect via self-esteem demonstrates individuals with higher 70% is due to self-

Table 3 The Decomposition Results for the Overall Sample^a

Self-rated health	Discrimination		
	Estimates	Robust S.E.	Mediation percentage
Total effect	-0.370 [*]	0.151	NA
Direct effect	-0.268 ⁺	0.155	NA
Mediating effect	-0.102 [*]	0.043	27.52
Through			
Friend social support	-0.031	0.023	30.28
Self-esteem	-0.071 ⁺	0.038	69.72

^a All the control variables are included in the analysis and only the mediation results were reported

⁺p<0.1; ^{*}p<0.05; ^{**}p<0.01, ^{***}p<0.001

esteem (-0.071, p -value<0.1). The negative levels of perceived discrimination have weaker self-esteem, which ultimately affects health, which echoes the literature.

Though in Table 2, gender and race/ethnicity are not related to SRH, we follow the analytic plan to formally test whether or not there is any gender or racial/ethnic difference in the pathways linking perceived discrimination and SRH. Table 4 presents four models by gender and race/ethnicity, we opt to show only the full model results due to space constraints (the reduce model results are available upon request and they show that the perceived discrimination has at least a marginal impact on health for all four groups). We would like to emphasize that comparing the logistic coefficients across groups can be problematic (Allison, 1999; Williams, 2009) due to residual variation (i.e., unobserved heterogeneity). To address this issue, we first use the heterogeneous choice models to understand if unobserved heterogeneity may bias our comparisons (Williams, 2009). The results indicate that using a conventional chi-square contrast comparison is appropriate, which is why we add a column showing the Wald chi-square test results in Table 4.

Two important messages are conveyed by the group comparison results. One is that perceived discrimination is not related to SRH in all models. That is, when we further divided our analysis by gender and race/ethnicity, the importance of perceived discrimination seems to be diluted and there is not any gender or racial/ethnic difference. Second, the associations between the two mediators and SRH are not consistent across models. For example, self-esteem is positively related to SRH only for the males' and whites' models while social support works for non-whites. Furthermore, the Wald test results show significant differences in the effects of social support and self-esteem between whites and non-whites.

Table 4 Logistic Regression for Good Self-Rated Health of the Males, Females, Whites and Non-Whites

	Model for Males			Model for Females			Model for Whites			Model for Non-Whites				
	Coef.	S.E.	Robust Odds ratio	Coef.	S.E.	Robust Odds ratio	Coef.	S.E.	Robust Odds ratio	Coef.	S.E.	Robust Odds ratio		
Discrimination index score	-0.301	0.235	0.740	-0.287	0.224	0.751	0.00	-0.152	0.192	0.859	-0.633**	0.240	0.531	2.44
Friend social support	0.206	0.180	1.228	0.149	0.140			0.025	0.130	1.026	0.530**	0.201	1.699	4.47*
Self-esteem	0.695*	0.347	2.004	0.239	0.232	1.270	1.19	0.614**	0.223	1.848	-0.392	0.377	0.676	5.28*
Age	0.007	0.017	1.007	-0.007	0.014	0.993	0.40	-0.008	0.013	0.992	0.007	0.019	1.007	0.43
Female								0.372	0.253	1.450	-0.763*	0.376	0.466	6.27*
Education Years	0.065	0.067	1.067	0.059	0.052	1.060	0.01	0.051	0.055	1.052	0.148*	0.061	1.160	1.41
White	-1.031*	0.607	0.357	0.678	0.503	1.970	4.70*							
Black	-0.650	0.683	0.522	0.384	0.534	1.468	1.42				0.215	0.411	1.240	
Income (logged)	0.921**	0.285	2.513	0.274	0.208	1.316	3.36+	0.570**	0.215	1.769	0.491*	0.245	1.635	0.06
Married	-0.091	0.425	0.913	0.608*	0.294	1.837	1.82	0.161	0.286	1.175	0.862*	0.435	2.367	1.81
Currently employed	1.520**	0.450	4.571	0.750*	0.326	2.117	1.92	1.045**	0.317	2.843	0.935+	0.547	2.547	0.03
Has health insurance	-0.354	1.106	0.702	-0.170	0.358	0.844	0.02	-0.435	0.822	0.648	-0.063	0.743	0.939	0.11
Drinker (ref: non-drinker)	0.764+	0.408	2.146	0.903**	0.317	2.467	0.07	0.809**	0.275	2.245	0.252	0.464	1.286	1.06
Becoming drinker (ref: non-drinker)	0.235	0.496	1.265	0.101	0.325	1.106	0.05	0.185	0.311	1.203	-0.403	0.543	0.669	0.88
Quitter (ref: non-drinker)	-0.775	0.759	0.461	-0.045	0.526	0.956	0.63	-0.324	0.530	0.723	-0.727	0.818	0.483	0.17
Smoker (ref: non-smoker)	-2.488***	0.640	0.083	-0.249	0.404	0.780	8.75**	-1.361***	0.381	0.256	0.163	0.612	1.177	4.46*
Becoming smoker (ref: non-smoker)	-1.116	1.049	0.328	-0.145	0.738	0.865	0.37	-0.927	0.884	0.396	0.965	0.826	2.624	2.45
Quitter (ref: non-smoker)	-0.039	0.671	0.962	-0.966*	0.483	0.381	1.26	-0.833	0.532	0.435	0.475	0.545	1.608	2.95
Constant	-9.824***	2.517	0.000	-3.384	2.151	0.034	3.78+	-6.662**	2.107	0.001	-3.708	2.361	0.025	0.87
Pseudo R ²	0.294			0.155				0.201			0.235			
N	445			718				820			343			

*p<0.1, **p<0.05, ***p<0.01, ****p<0.001

Table 5 presents the KHB decomposition results for the four groups. We obtain detailed results to understand how the mediating effects vary across models. First, the mediating effect is marginally significant and explains the total effect of perceived discrimination on SRH by roughly 31 percent for males. Whites experience more than 47 percent of the variation accounted for by the two mediators (see the mediation percentage column in Table 5). This finding suggests that the proposed pathways should be substantively meaningful. Second, similar to the findings with the overall samples, the self-esteem pathway plays a larger role than the social support pathway in mediating the negative impact from perceived discrimination to SRH in a 10-year time span. To illustrate using the models for males and whites, at least 80 percent of the mediating effect can be attributed to low self-esteem. Importantly, the social support mechanism receives weak support from the gender- and race/ethnicity-specific models as all of the four models suggest that the mediating effect via social support is not significant. Finally, with respect to the comparisons between groups, the only significant difference is found in the self-esteem pathway between whites and non-whites. Self-esteem mediates more of the negative effect of perceived discrimination on SRH for whites than for non-whites.

V. Discussion and Conclusions

We use the results above to revisit our hypotheses. First, we hypothesized that one's perceived discrimination a decade ago adversely affects SRH and that this relationship holds true even after controlling for other potential confounders. This hypothesis receives moderate support from our analysis, particularly for the pooled samples. Those experiencing high levels of discrimination are less likely to report at least good SRH after a 10-year time span and including the two mediating pathways could not fully explain the adverse impact. This finding is important, as there is little evidence for a long-term negative impact of perceived discrimination

Table 5 The Decomposition Results for Gender-Specific and Race-Specific Models^a

Self-rated health	Discrimination		
	Estimates	Robust S.E.	Mediation percentage
(a) Model for Males			
Total effect	-0.440 ⁺	0.236	NA
Direct effect	-0.301	0.235	NA
Mediating effect	-0.139 ⁺	0.071	31.56
Through			
Friend social support	-0.026	0.026	18.6
Self-esteem	-0.113 ⁺	0.064	81.4
(b) Model for Females			
Total effect	-0.381	0.213	NA
Direct effect	-0.287	0.224	NA
Mediating effect	-0.094	0.061	24.72
Through			
Friend social support	-0.045	0.044	47.60
Self-esteem	-0.049	0.049	52.40
χ^2 for friend social support between males and females			0.139
χ^2 for self-esteem between males and females			0.622
(c) Model for Whites			
Total effect	-0.288	0.184	NA
Direct effect	-0.152	0.192	NA
Mediating effect	-0.135 [*]	0.057	47.08
Through			
Friend social support	-0.005	0.025	3.57
Self-esteem	-0.131 [*]	0.052	96.43
(d) Model for Non-Whites			
Total effect	-0.713 ^{**}	0.249	NA
Direct effect	-0.633 ^{**}	0.240	NA
Mediating effect	-0.080	0.081	11.22
Through			
Friend social support	-0.117	0.073	146.18
Self-esteem	0.037	0.041	-46.18
χ^2 for friend social support between whites and non-whites			2.099
χ^2 for self-esteem between whites and non-whites			6.348 [*]

^a All the control variables are included in the analysis and only the mediation results were reported.

⁺p<0.1, ^{*}p<0.05, ^{**}p<0.01, ^{***}p<0.001

on health in the literature (Paradies et al., 2015; Pascoe & Richman, 2009). The empirical support from our analysis directly fills this knowledge gap.

Our second hypothesis stated that the two mediating pathways through self-esteem and social support partially account for how perceived discrimination gets under the skin. This hypothesis receives some support from our analysis. Specifically, the analytic results indicate that individuals with high levels of perceived discrimination tend to have lower self-esteem and low self-esteem eventually lowers the odds of reporting good health. Roughly 27 percent of the total negative effect of perceived discrimination on SRH can be explained by the two mediating pathways (Table 3). However, it should be noted that stronger support is obtained for the self-esteem pathway than the social support pathway as the latter shows non-significant results, either in the overall sample analysis and the gender- and race/ethnicity-specific analysis.

Regarding our third hypothesis, we expected that the direct impact of perceived discrimination on SRH is stronger among females and non-white respondents; nonetheless, little evidence suggests a gender or racial/ethnic difference in the direct effect as the Wald tests did not find any difference in the gender- and race/ethnicity-specific models.

We finally hypothesized that the self-esteem and social support pathways are more important for females and non-whites than they are for males and whites. Similar to the third hypothesis, the analytic results offer little support and to some extent, the findings contradict our original hypothesis due to the self-esteem pathway being stronger among males and whites than females and non-whites. As shown in Table 5, the self-esteem pathway accounts for more than 80 percent of the overall mediating effect for male respondents and more than 95 percent for white respondents. Furthermore, the Wald test leads us to conclude that there is a racial/ethnic difference in the self-esteem pathway between whites and non-whites. Considering the large proportion of whites in the overall sample, the

observed significant effect of self-esteem in the model of the full sample in Table 2 is mainly driven by the experiences of whites.

We situate the findings and conclusions above into the existent literature as follows. First, our analysis takes advantage of the longitudinal nature of the ACL data by linking one's perceived discrimination experience in 2001/2002 to their health status in 2011. As the time span between the perceived discrimination and health measures is approximately a decade, our finding bolsters the idea that experiencing discriminatory behaviors is comparable to a wound leaving a long-lasting scar for life (Hertzman, 2012; Umberson, Crosnoe, & Reczek, 2010). When social support and self-esteem are not considered in the analysis, discrimination is significantly associated with SRH for all four race/ethnicity and gender groups (results not shown but available). Based on these findings, we can conclude that this effect can last at least 10 years. Importantly, while previous research has focused on how social adversities in early life affect health in later life (Miller et al., 2009; Shanahan, 2000; Tucker, Ellickson, Orlando, Martino, & Klein, 2005), our findings indicate that the discrimination experienced in mid-adulthood could impose an adverse effect on health well into the future.

Second, this study directly speaks to a recent study that calls for a comprehensive examination of how perceived discrimination affects health through biopsychosocial mechanisms (Brondolo et al., 2018). Our finding that the self-esteem pathway plays an important role in mediating the deleterious impact of perceived discrimination on health implies that the psychological (or social cognition) mechanism may be more important than the social mechanism. As pinpointed by Orth and colleagues (2012), self-esteem has a strong prospective impact on health outcomes and proper interventions to improve self-esteem (e.g., exercise) should be developed to minimize the undesirable effect of perceived discrimination on health, which could ultimately improve population health.

Third, we obtain evidence to support the understanding that

the self-esteem pathway is more critical for whites than non-whites. As Brondolo and colleagues (2011) argue, the racial/ethnic difference in how perceived discrimination affects health is not well documented. Our finding contributes to the literature by suggesting that perceived discrimination may undermine whites' self-esteem more than non-whites'. There are two plausible explanations for this finding. First, racism often occurs among racial/ethnic minorities and the concept of "white privilege" has been embedded in social structures (Feagin, 2009; Wellman, 2007). Experiencing discriminatory behavior is a rare event or stressor for whites and as a consequence, such experiences may cause a stronger impact on self-esteem for whites than non-whites, who have developed a strategy for coping with frequent exposure to discrimination (Kessler, Mickelson, & Williams, 1999; Neff, 1985). In other words, it is likely that minorities use a range of methods that effectively block the etiological association between discrimination and health (Brown et al., 2000). The second explanation is related to the nature of the discrimination experienced by whites. While whites are less likely to experience unfair treatment or personal rejection based on race/ethnicity (Barnes et al., 2004), other sources of discrimination, such as age and disability, may contribute to our findings. Future research should endeavor to understand if the nature of discrimination experienced by whites changes the pathways of how discrimination affects health.

Despite the contributions above, this study is subject to several limitations. First, several potential confounding variables are not available in the ACL data (e.g., substance use and religious activities), which may limit the scope of our analysis. Second, the perceived discrimination index is only collected in 2001/2002 so the overall samples must be limited to those in both Waves 4 and 5. Though we use the inverse probability of attrition weighting approach to account for deaths or dropouts, it remains likely that our findings are affected by data attrition. However, it should be noted that we use the Heckman correction approach (Heckman, 1979) as a

sensitivity test and find that the results and conclusions are not altered. In addition, we cannot specify the root of perceived discrimination (e.g., race/ethnicity or sexual orientation) due to the data limitation. Future research should try to understand if different sources of discrimination have different impacts on health. Third, self-esteem and social support were collected in Wave 4, rather than a time period between Waves 4 and 5. This may undermine the causal relationship between perceived discrimination and these two mediators. Fourth, the ACL data provide information on one's spouse social support; however, including this variable eliminates almost 500 respondents due to missing values (only the married respondents answered the questions). The fairly small sample size does not allow us to conduct gender- or race/ethnicity-specific analysis so we opted not to consider spouse social support as a mediating pathway. Though the mediators we found in this study better explain the linkage between perceived discrimination and health for males and whites, the pathways for non-whites remained unclear. Finally, while the data are longitudinal, it should be cautious to make strong causal inference, particularly for the pathways, because we could not eliminate other potential mediators (or explanations for) between perceived discrimination and SRH.

Several policy implications can be drawn from these findings. First, when individuals experience discriminatory behaviors, it is imperative to take immediate actions to cope with the stress associated with this experience. Doing so could prevent discrimination from becoming a chronic stressor and the other is to offset the effect on self-esteem, especially for whites. For example, distracting one's attention from the discrimination experience with exercise, group therapy, or other means of rebuilding self-identity can minimize the negative influence of perceived discrimination. Second, as the impact of discrimination is significant, distracting those discriminated individuals from the exposure to cues of discrimination (e.g., limiting the access to social media) could prove to be beneficial. Furthermore, the cultural and institutional

strategies could be implemented to address the mental problems caused by discrimination. Promoting family socialization, counseling service programs, as well as educational courses like clinical skills learning, can help reducing the negative impacts of discrimination (Yasui, Dishion, Stormshak, & Ball, 2015). Finally, as the deleterious effect of perceived discrimination could last for a decade or more, one of the fundamental solutions should be focused on raising awareness of the long-term harm caused by discrimination with the eventual goal of eliminating discrimination in all forms.

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歧視感如何影響健康的長期分析： 性別和種族的差異

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摘 要

現有對歧視感和健康的關係研究中，歧視感對健康的長期影響、影響路徑以及性別和種族差異受到的關注較少。本研究採取一種近期發展出的中介效應分析方法，來對「美國人民生活變遷追蹤調查」數據進行分析，討論歧視感是否會通過自尊心和社會支持，而對美國人民的自評健康狀況有負面影響。研究發現：(1) 一個人感受到的歧視會顯著降低個人十年後的自評健康。(2) 在歧視感與自評健康的關聯中，自尊感的中介效應 (70%) 比社會支持 (30%) 更為重要。(3) 雖然總體來看沒有發現明顯的性別和種族差異，我們發現自尊感的中介效應對於白人相較於非白人更為重要。基於這些發現，我們認為歧視感會長期影響健康水平，並建議相關干預治療需關注受歧視者的心理路徑建設。

關鍵詞：健康、歧視感、社會支持、自尊心、中介效應