

## **Does perceived discrimination account for the “relative deprivation” explanation of the mortality SES gradient?**

**Gilbert Brenes-Camacho**

**Centro Centroamericano de Poblacion, University of Costa Rica**

**Salvador Rivas,**

**American Institutes for Research**

**Beatriz Novak**

**Center for Demography and Ecology CDE, University of Wisconsin-Madison**

### **Abstract**

The relative deprivation hypothesis is one of the frameworks used to explain SES differentials in health and mortality. One of the arguments of this hypothesis is that people compare themselves with their peers in better-off SES strata, and this produces stress and anxiety that translate into deleterious health. In this paper, we contend that self-perceived discrimination might be a way people have to express how they view this comparison, and therefore, perceived discrimination might explain SES differentials. We use data from the MIDUS study, which has an innovative scale to measure perceived discrimination. Mortality of first wave respondents has been followed up by linkage to the National Death Index. We will analyze whether SES differentials are changed after controlling for perceived discrimination, or the interaction of this perceived discrimination with SES variables. Preliminary results indicate that perceived discrimination has a weak association with mortality, but only among younger age adults.

### **Extended abstract**

## **INTRODUCTION**

At the beginning of the 21<sup>st</sup> century, persistent socio-economic status (SES) disparities in health have puzzled industrialized societies like the U.S. that have achieved considerable levels of economic well-being. The “relative deprivation” framework is one of several that have been studied in order to explain the SES gradient in health and mortality (Lynch et al., 2000; Marmot and Wilkinson, 1996; Mechanic, 2000; Wilkinson, 1996, 1997). According to this framework, insufficient amount of social and economic resources can not entirely explain differentials because each upper step in the social ladder is associated with better health status. Inequality in the distribution of these resources and the social hierarchies that it builds are then factors that contribute to the gradient. Wilkinson (1996) has argued that self-perceptions of relative position in society produce stress in the individual. Stress may translate into metabolic unbalances as well as into unhealthy behaviors (smoking, binge drinking) for coping. This explanation is the so-called psychosocial environment interpretation to the relative deprivation framework (Lynch et al, 2000; Mechanic, 2000).

Lynch et al. (2000) agree with the framework in general, but argue that this psychosocial pathway overlooks the role that the material context can play in shaping inequality. If inequality in the distribution of private resources occurs in a context in which there is investment in public infrastructure (such as sanitation, schools, transportation), it is unlikely that individuals will tend to compare themselves with their peers in upper SES strata. These authors then argue that it is inequality in public investment what shapes the SES gradient. Other authors (Mechanic, 2000) criticize the entire framework from a methodological point of view because the original empirical evidence used to sustain the explanation was based on aggregate data (countries, states, etc.) subject to biases such as the ecological fallacy (Kaplan et al., 1996; Lynch et al, 1998). Nonetheless, Mechanic (2000) acknowledges that this framework has made health researchers to think about the role of people comparing themselves with others on health disparities.

This paper seeks to address the psychosocial environment interpretation based on the concept of perceived discrimination. If people become stressed because of how they compare themselves with their peers, it is possible that this comparison may be transformed into a self-constructed perception of being discriminated. Recent research has suggested a link between perceived discrimination and poor health, particularly to depression and other mental health problems (Almeida et al., 2005; Clark et al., 1999; Finch, Kolody & Vega, 2000; Kessler, Mickelson & Williams, 1999; Krieger, 1990, 1999, 2003; Pavalko, Mossakowski & Hamilton, 2003; Williams & Williams-Morris, 2000). Given that mental health has also been related to mortality differentials -“sadness predicts death”- (Cooper, Harris & McGready, 2002; Unutzer et al., 2002; although the association is inconsistent, see Everson-Rose, House & Mero, 2004), the analyses proposed in this article are aimed to test whether perceived discrimination and its mental health consequences can be mediating the association between SES and mortality.

## **BACKGROUND**

As stated in a publication by the National Academies of Sciences (NAS), “Discrimination is defined as ‘the process by which a member, or members, of a socially defined group is, or are, treated differently (especially unfairly) because of his/her/their membership of that group’” (Jary and Jary, 1995, cited by NAS, 2001, p.4-17). There are several mechanisms that might account for the relationship between discrimination and health. According to the same NAS report in 2001, the authors highlight several pathways that can lead from discrimination to deleterious health. They note differences in exposure, susceptibility, and differences in response to economic and social deprivation, toxic substances and hazardous conditions, ...and inadequate health care by facilities and by specific providers” (Krieger, 2000 cited in NAS 2001). While differential exposure implies that the role of discrimination on health occurs in relation to how frequently groups are discriminated, the pathway through which differential vulnerability or susceptibility suggests that discriminated groups are differentially affected by discrimination because of their coping capability (Finch, Kolody, and Vega, 2000; Grzywacs et al, 2004; Pavalko, Mossakowski, and Hamilton, 2003; Turner and Avison, 2003).

The study by Kessler et al. (1999) using the same dataset used in the current paper (MIDUS I) explores disparities in mental health among different social groups. They find that

discrimination -as associated with not being hired for a job, being hassled by police, and being denied a bank loan- is significantly associated with Major Depression. They also find that education and race, but not gender or income, are associated with higher perceived lifetime discrimination. They also find that low-income people are more affected by Major Depression than their higher income counterparts, and controlling for discrimination did in fact accentuate the disparity. Within the debate of whether exposure or vulnerability is more important, Turner and Avison (2003) find that differential exposure is strongly associated with race/ethnic and SES disparities. Collins and Williams (1998) show that in the United States more segregated areas have higher mortality rates, especially in areas classified as 'segregated' using various measures of segregation.

Most of the literature discusses these mechanisms regarding racial and ethnic disparities (for a good review see Williams, 1999; Williams & Williams-Morris, 2000). Regarding recent literature and using latent curve models, George and Lynch (2003) conclude that there is weak evidence of differential vulnerability in the association between discrimination and mental health across racial groups in the United States; although both stress exposure and depression appear to increase over time. Using longitudinal data on women in the workforce, Pavalko, Mossakowski and Hamilton (2003) find that workplace discrimination does appear to have an effect on health; they also note that racial discrimination is more often cited by African-American women than white women.

Personal behaviors of disadvantaged group members have also been cited as interacting with mechanisms of discrimination to produce worse health outcomes. Casagrande et al. (2007) concludes that people that feel discriminated against have worse adherence to medical care; this finding applies to both non-Hispanic whites and African Americans in racially integrated communities, although perceived discrimination is higher among the latter. Analyzing ethnic minorities rather than Black/white disparities Finch, Kolody and Vega (2000) and Mossakowski (2003) find that while minority groups appear to experience more discrimination, their ethnic identity helps them cope with the adverse effects of discrimination on their mental health. However, racial discrimination is not the only type that can lead to health disparities. Pavalko et al (2003) stress the strong effect of workplace discrimination to women on emotional and physical health. Almeida et al (2005) observe that part of SES health disparities can be explained by more severe vulnerability to stressors among disadvantaged groups with lower SES. Grzywacz et al. (2004) reach to similar conclusions.

## **DATA**

The dataset to be used for this analysis is the first wave of the National Survey of Midlife Development in the United States (MIDUS), 1995-1996. These data have been merged with the U.S. National Death Index; thus providing useful cause of death information for all deaths in the sample. The core dataset of the MIDUS I project is representative of the non-institutionalized, English-speaking population between the ages of 25 and 74 of the contiguous United States. The sample was drawn by random digit-dial (RDD) and interviewed via telephone and mail. The fieldwork took place between January 1995 and January 1996. The total sample size of MIDUS I is 7,190 individuals. This sample also includes a special subsample of siblings and twins.

Of particular interest to us are the 421 deaths that occurred between MIDUS I and MIDUS II - during the 10 year interval between the two waves. The deceased were determined via the link with the National Death Index mentioned above. These 421 decedents are of the entire 7,190 sample, but given sample attrition we expect to use about 151 of these deaths.

To be clear, our main dependent variable is whether a respondent in the first wave died during the period between the original interview and September 2006, as assessed by National Death Index. We will explore the effect of discrimination at two different levels: lifetime discrimination and day-to-day discrimination. This approach will allow us to analyze the effect on mortality of both 'acute' and 'chronic' discriminatory experience as defined by Kessler et al. (1999). The main explanatory variable for lifetime discrimination is an index that measures the level of discrimination as perceived by the respondent upon his or herself. The index is created as an unweighted sum of dichotomous variables corresponding to a "yes" answer in the following questions: "How many times in your life have you been discriminated against in each of the following ways because of such things as your race, ethnicity, gender, age, religion, physical appearance, sexual orientation, or other characteristics?" The categories are: being (a) "discouraged by a teacher or advisor from seeking higher education"; (b) "denied a scholarship"; (c) "not hired for a job"; (d) "not given a job promotion"; (e) "fired"; (f) "prevented from renting or buying a home in the neighborhood you wanted"; (g) "prevented from remaining in a neighborhood because neighbors made life so uncomfortable"; (h) "hassled by the police"; (i) "denied a bank loan"; (j) "denied or provide inferior medical care"; and (k) "denied or provided inferior service by a plumber, car mechanic, or other service provider". This is the same index used by Carr and Friedman (2006) to study perceived discrimination by body mass index categories. With regards to an index of day-to-day discrimination, we will use a second set of questions on discrimination asked by MIDUS. This set consists of 9 items which the respondent may answer as (1) "often"; (2) "sometimes"; (3) "rarely" or (4) "never". We will reverse-code and sum the following items to construct this index: (a) "you are treated with less courtesy than other people"; (b) "you are treated with less respect than other people"; (c) "you receive poorer service than other people"; (d) "people act as if they think you are not smart"; (e) people act as if they are afraid of you"; (f) "people act as if they think you are dishonest"; (g) "people act as if they think you are not as good as they are"; (h) "you are called names or insulted"; and (i) "you are threatened or harassed".

Other independent variables important to the study are those that help define health disparities: sex, race, and SES. Sex is derived from direct information from the survey, and disparities are interpreted according to a gender perspective. Race/ethnicity will be operationalized via a dichotomous variable equaling 0 if the respondent is non-Hispanic white and 1 otherwise. This approach will in effect provide a measure of minority status relative to non-Hispanic whites. Finally, SES will be operationalized using years of schooling.

The most important mediating variable will be the scale measure of Major Depression. The phone-interview questionnaire has a battery of questions that operationalize Major Depression as defined by World Health Organization's "Composite International Diagnostic Interview" (Kessler et al, 1998). This same scale has been used in the past using MIDUS I data by Kessler, Mickelson & Williams (1999). As is customary, our statistical models will control for other

relevant variables associated with mortality such as age, marital-status, self-rated health, self-reported chronic conditions, and respondent's parents' survival.

## **METHODS**

The data will be analyzed using descriptive statistics and event-history models, which are also known as survival models (Cox and Oakes, 1984). Event-history models are appropriate for analyzing our main dependent variable - the time to occurrence of an event – death of a respondent. Given that event-history models can account for both the number of occurred events and the sum of all the waiting times before an event occurs, they make it possible to compute survival rates more accurately. That is to say, event-history models allow us to estimate death rates more accurately than with other equivalent statistical methods for binary outcomes.

The effect of depression, sex, race, and SES on mortality will be analyzed with regression-like parametric models, rather than with the popular semi-parametric models, known as Cox regressions. Priority will be given to Gompertz and Weibull distributions to parameterize the equation; and by computing BIC (Bayesian Information Criterion) and AIC (Akaike Information Criterion) across various parameterizations we will be able to select the parameterization that best describes the observed mortality pattern.

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