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Racial hierarchy and mental health outcomes among rich nations

Jamie D. Daniels
Smith College

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ABSTRACT

This study examined the relationship between racial diversity and mental health outcomes among wealthy nations. It hypothesized that status anxieties would be more pronounced in those countries marked by greater diversity—a measure of social stratification or hierarchy. Lower status as measured by class has been shown in numerous studies to predict mental health outcomes, like risk of depression and psychosis for individuals. On a population level research has also found a relationship between income inequality—the degree of distance between the rich and the poor—and mental health outcomes. Regression analyses of the prevalence of mental illness against racial diversity showed no statistical significance. A supplemental analysis of racial diversity and mental health in the United States found a significant, and reverse, relationship—the higher percentage of blacks in a state, the better the mental health outcomes. The paper suggests that the results of the analysis are likely the result of a limited sample size or a problem of measurement. The apparent paradox of higher minority populations and better mental health outcomes warrants further investigation.

Racial Hierarchy and Mental Health Outcomes

Among Rich Nations

A project based upon an independent
investigation, submitted in partial fulfillment of the
requirements for the degree of Master of Social Work.

Jamie D. Daniels

Smith College School for Social Work
Northampton, Massachusetts 01063

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DEDICATION

To my children—you are my heartbeat, my life.

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CHAPTER I

Introduction

Relative to other rich democracies, the United States underperforms on measures of health, such as infant mortality and life expectancy (Reid 2010). On the measure of the prevalence of mental illness, the United States follows a similar pattern of underperformance. Again, despite advantages of wealth and material resources, the United States ranks lower among it's peers in terms of mental health.

In *Spirit Level* (2009), Wilkinson & Pickett advance a remarkable perspective on inequality and mental health outcomes. Among wealthy nations, they identify a significant correlation between the level of inequality in income and the overall prevalence of mental illness. In other words, increases of economic inequality produce poorer mental health outcomes on a *population* level. This finding is striking for two key reasons: it alerts us to the fact that the risk of mental health illness to *individuals* is not the same as risk to *populations* and it suggests that we need to devote more attention to the macro-level features of a country that might be implicated in its mental health profile. Further, looking only at individuals obscures patterns that are related to larger social dynamics – how people are impacted collectively based on their social group memberships and the access of those groups to social and institutional power and resources.

From the standpoint of understand health outcomes at a population level, Wilkinson & Pickett's work draws on psychiatric and social epidemiology. Psychiatric epidemiology is the study of mental health among defined populations. Social epidemiology focuses on the non-medical determinants of health (typically called the "social determinants" of health) whose risk factors include stress, social cohesion, racial discrimination, conditions of work, and in

particular, socioeconomic (class) position. However, while most epidemiological studies focus

on micro level risk factors (e.g. an individual's exposure to stress or racism), Wilkinson &

Pickett's work explores inequality on a higher, more contextual level of analysis.

To explain these striking patterns, Wilkinson & Pickett draw on sociological and

psychoanalytic theories concerning "status anxieties." The model is straightforward:

humans are sensitive to rank— we experience threats to the "social self" (p.37)— and so

in societies marked by steep differences in social status, mental health will fair poorer. A

key criteria of rank in the United States—the context of this study—is race, the false

concept that superficial adaptations to geography are genetic and biological determinants

that result in significant differences among groups of human beings (Gossett, 1997) .

Racism is a form of oppression based on the concept of race, in which one racial group

dominates others. In the United States, whites are the dominant racial group (as measured in

institutional power rather than population percentages) (Sensoy & DiAngelo, 2012). Thus in

this context, racism is white racial and cultural prejudice and discrimination, supported

intentionally or unintentionally by institutional power and authority, used to the advantage of

whites and the disadvantage of people of color (Hilliard, 1992). Racism encompasses

economic, political, social, and institutional actions and beliefs, which systematize and

perpetuate an unequal distribution of privileges, resources, and power between whites and

people of color. Despite mainstream representations of a post-racial society, social scientists

have documented overwhelming evidence of continuing institutional racism, which continues

virtually unabated today (albeit in adapted forms) (Bonilla-Silva, 2003; DiAngelo, 2012;

United for a Fair Economy, 2010).

Wilkinson and Pickett examine inequality on the basis of an economic metric— a

measure of the gap between top and bottom earners. Yet given that there are other dimensions of inequality that are not captured by simple economic metrics, North American and European countries with histories of slavery and colonization, racial oppression are of central concern. Indeed, racial hierarchy—the relative distance in social status between whites and nonwhites—(citation?) is a separate but related dimension of social life that might also explain mental health outcomes. It is both a manifestation of discrimination at the individual level, as well as the broader patterns of institutional practice that produce and reproduce disparate opportunities in employment, healthcare, education and other health-related resources.

We can draw on similar psychoanalytic concepts to understand why. Racial and ethnic status form an important category of ascriptive identity. As we will consider more fully in the review of literature, white supremacy dampens class consciousness by making nonwhite status a marker of inferiority, an idea that W. E. B. Du Bois posited in *Black Reconstruction* ((Du Bois, 1935). Societies in which civic and economic opportunity is tied to racial/ethnic identity are generally societies in which "status anxieties" exist along racial lines. Du Bois spoke of the "psychological wages" that white identity conferred (Du Bois, 1935). For example, racism is among the factors that explain the relative weakness of the labor movement in the United States. Historically, white workers endorsed the idea of denying workplace rights to nonwhites, ironically to the detriment of the white working class (Smith, 1949; Roediger, 2003).

This study will explore whether, at the macro level, racial hierarchy (captured by the measure of racial/ethnic diversity in a society) is a social determinant of mental health. If it is, antiracist policy not only advances the cause of racial justice, but arguably improves the health status of *entire* populations.

The methodological approach draws on psychiatric and social epidemiology in that it

uses publicly available data and subjects them to statistical analysis. The goal is to determine the relationship between one or more variables, with respect to the "dependent" or "outcome variable." For this study, prevalence of mental health—the percentage of people within a nation that report any condition—is the dependent variable. The chief "predictor" or "independent" variable is racial diversity. For this study, and for reasons I will elaborate more fully, racial diversity represents a proxy measure of ethnic hierarchy.

Following Wilkinson & Pickett, this study will use regression analysis to consider two questions: 1) Among wealthy nations is there an association between racial hierarchy and mental health outcomes? 2) What would positive results (the finding that a statistically significant relationship exists) mean? The first question will be answered by the statistical analysis. For the second question, I will apply a lens of analysis that draws on psychoanalytic theory and political history. Positive findings would not mean that majority (white) populations have a psychological reaction to minority populations that harms their mental health; but, rather that nations marked by high racial heterogeneity are nations with a long history of institutional racist practices that affect the psychological well being of *entire* populations—for example, public monies going to jail construction instead of school construction, or resistance to universal health care access.

Chapter II

Literature review

This literature review starts with the theories that underpin this analysis—those that focus on the importance of status anxiety in explaining mental health outcomes at the individual and population level. It then discusses some of the (empirical) studies that are relevant to my research question. The following are the main points of this literature review:

1. More than a century of psychoanalytic and sociological theory considers the harmful effects of rank on individual psychology—it is a threat or fear of inadequacy. Anxieties rise as hierarchy becomes more pronounced. Racial distinctions might fuel a related type of status seeking and defensiveness. White identity confers social, political and economic advantages, and so threats to white identity provoke reaction and defensiveness. (DiAngelo, 2011)

2. Second, empirical studies lend support to the idea that status matters for mental health. Numerous studies show an inverse relationship between social class (measured in statistical analyses by income, education, and occupation) and mental health outcomes. (Hudson, 2005) The poor have a higher prevalence of mental illness than the middle class. In turn, the middle class has a worse mental health profile than the affluent.

3. Empirical studies show that anxiety and depression are more common among individuals who experience discrimination. (Banks et al. 2006). That is to say, the subjective experience of unfair, disrespectful treatment is bad for mental health *regardless* of the race of the subject.

4. There is not a lot of empirical work that considers the relationship between status anxieties and population health at a higher, ecological level (wealthy nations), overall inequality (measured as the ratio in income between top and bottom earners) is associated with a higher prevalence of mental health problems. That phenomenon is likely a reflection of heightened status anxieties that reflect a widening of social (and possibly racial) divisions. However, Claude Steele's work in Stereotype Threat (Steele, Spencer & Aronson, 2002) has documented anxiety based on racial status. Stereotype Threat holds that when a person feels that they are under threat of being stereotyped, both unconscious and conscious anxiety is produced, which is distracting enough that performance is impaired. Over the past fifteen years, Steele and his colleagues have shown through numerous empirical studies that Stereotype Threat has a dramatic impact on the overall performance and outcomes of specifically marginalized groups of people, such as African Americans.

Theories Regarding Status Anxiety

Wilkinson and Pickett (2009) suspect that status anxieties explain the results of an analysis that found a consistent and statistically significant relationship between economic inequality and greater mental illnesses among wealthy nations. Wilkinson and Picket discuss the threat to the self that lies at the core of human psychology, a view that goes back at least as far as the work of Adler. They suggest that as inequality has risen, status anxieties have followed in its wake. As Oliver James argues, in a context of high and/or rising inequality, human's judge their work worth on economic and market

criteria: "It entails placing a high value on acquiring money and possessions, looking good in the eyes of others and want to be famous." "These kind of values," he writes "place us at greater risk of depression, anxiety, substance abuse and personality disorder." Alain de Botton describes *status anxiety* as "a worry so pernicious as to be capable of ruining extended stretches of our lives." When we fail to maintain our position in the social hierarchy we are condemned to consider the successful with bitterness and ourselves with shame" (Pickett & Wilkinson, 2009).

It is in that context that the pernicious effects of racism have to be understood as well. White identity confers particular advantages over time—in the United States and elsewhere. Studies about the origin, maintenance and function of white identity offer insight into how race-as-status work under modern capitalism. In his important *Black Reconstruction,* W. E. B. Du Bois discussed the ways "white" identity was employed by particular political and economic members of the Southern elite, to divide the working class."[T]he theory of race was supplemented by a carefully planned and slowly evolved method, which drove such a wedge between the white and black workers that there probably are not today in the world two groups of workers with practically identical interests who hate and fear each other so deeply and persistently and who are kept so far apart that neither sees anything of common interest."(701) For Du Bois, the effectiveness of this strategy depended on the fact that "the white group of laborers, while they received a low wage, were compensated in part by a sort of public and psychological wage." This meant "public deference" and "titles of courtesy because they were white. It meant free access to facilities, better schools and opportunities to engage in civic live. Black identity came to represent the opposite in symbol and fact.

The key to Du Bois's observation was the importance of constructed racial identities as central to maintaining *a particular economic order* or hierarchy. By advancing harmful and racist propaganda about blacks, the Southern elite undermined the class solidarity essential to a populist politics that would fight economic inequality. Du Bois wrote that "they would not listen to the radical" and instead "there [was] been built up in the South an intolerance fatal to human culture." White Southerners generally oppose liberalism, and "are childish and furious" about criticism they take "as personal attack." Du Bois was not a psychoanalyst, but he identified the fact that white Southerners behaved in ways that betrayed a deep status anxiety, grounded in the profound economic inequality that shaped the region.

David Roediger is among the contemporary historians who have built on Du Bois's observations. His *Working Toward Whiteness: How America's Immigrants Became White, The Strange Journey from Ellis Island to the Suburbs* investigated the process by which eastern and southern European immigrants went from being regarded as an "in-between" "racial" group, to ones that were considered white. He and others explain that "white" identity conferred material advantages—not just access to jobs unavailable to nonwhites, but by providing differential access to social welfare policies that started with the New Deal, and later included housing and development schemes promoted after World War II.(Roediger, 2005)

The key point to take away from historical and policy oriented studies of the advantages and construction of white identity, is that there is a psychological benefit— the sense of entitlement and feeling of superiority —but that there is also a material component—"white" identity means better jobs, better homes, better neighborhoods, and

better health.

Empirical Support for the Link Between Rank and Mental Illness?

The aforementioned scholarship offers theoretical and historical insight into why inequality might affect mental health. Since individuals are sensitive to rank and hierarchy, anxiety and other emotion responses are to be expected in societies marked by distinctions of class and race.

The relationship between low economic status and greater prevalence of mental illness is long established. The New Haven Study of 1958, conducted by Hollingshead & Redlich, (1958) and the Midtown Manhattan Study conducted in 1963 (Langer & Michael, 1963) found a direct relationship between poverty and emotional problems as well as access to treatment. This pattern has been show in studies throughout the world. "Psychiatric disorders have been consistently shown to be more common among people in lower social classes."(Murali & Oyebode, 2004, p. 217)

Table 1 Prevalence (%) of psychiatric disorders according to social class, with odds ratio of employment status

Social Class	I	II	III	IV	V	Employed adjusted odds ratio	Unemployed adjusted odds ratio
Mixed anxiety and depressive disorder	60	76	78	76	73	1.00	1.73(1.34-2.24)
Generalized anxiety disorder	23	28	30	41	31	1.00	2.19 (1.53-3.10)
Depressive disorder	9	12	22	28	35	1.00	2.66 (1.73-4.10)
Obsessive-compulsive disorder	6	13	12	11	21`	1.00	3.11 (1.65-5.80)
Panic disorder	1	9	8	7	12		
Functional psychosis	4	3	4	4	17	1.00	2.98 (1.18-7.47)
Alcohol dependence	33	34	47	58	73		
Drug dependence	7	11	17	35	50	1.00	3.80 (5.60)

Source: Drever & Bunting, 2007

Table 1 shows the prevalence, or percentage, of psychiatric disorders as they differ by social class in England and Wales. A gradient pattern exists for all measures—each move up the class ladder reduces the prevalence of particular conditions. The pattern continues in the sense that mental health disparities exist not just between the lowest and highest classes of people, but all along the economic hierarchy. In the last column, the "odds ratio" for the unemployed groups (the employed group receives a value of 1.00) can be interpreted as a percentage. For example, depression among unemployed individuals is 266 percent higher than it is for the employed. In an extensive review of the literature to date, Murali and Oyedobe find that the pattern of psychoses, mood disorders, alcohol and substance misuse and suicide conform to the aforementioned pattern.

Perhaps more importantly, the psychological well being of children is affected by poverty. Murali & Oyebode write that "persistent poverty significantly predicts internalizing symptoms such as childhood depression, whereas . . . current poverty predicts externalizing symptoms such as childhood behavior disorders" (p. 220).

What would drive this pattern? There is no doubt that poorer social status means exposure to stress and difficulties associated with worse material circumstances. Physical hardships and deprivation directly affect psychological well being. But aspects of the "social environment" matter as well. For example, Brown & Harris (1978) point strongly to the importance of supportive relationships in protecting vulnerable women from developing depression. The effect of poverty is substantially reduced when the degree of isolation from friends and family is controlled for, suggesting that social isolation mediates some of the relationships between economic status and mood disorders (Bruce & Hoff, 1994). As I will discuss subsequently in this review, the idea that guides this

study is that a more contentious, fractured and unequal social environment, from the standpoint of racial inequality, might be harmful to mental health.

To date, most of the research examines class/mental health and racism/mental health relationships at the *individual* level—that is to say researchers have considered various attributes of individuals, including socioeconomic and racial status, as factors associated with risk for mental illness. The following section provides a brief summary of some of the studies, the methodologies, and the limitations of the research that explores the relationship between inequality (race and class) and mental health.

Ahnquist & Wamala investigated 1) multiple measures of economic hardship and mental health; and 2) the associations between a combined economic hardship measure and mental health problems. Their data drew on a 2009 Swedish National Survey of Public Health that used a randomly selected sample consisting of 23,153 men and 28,261 women aged 16-84. Using a multivariate statistical analysis, the authors found that self-reported current economic difficulties (inability to pay for ordinary bills and lack of cash reserves) were significantly associated with mental health problems (psychological distress, severe anxiety, and use of antidepressant medication). The relationship was graded—the greater the current economic hardship measure, the worse the mental health outcomes. The study design was strong from the standpoint of the sample size and the richness of the survey data. The limitation, if any, is that the design was cross-sectional as opposed to longitudinal.

Hudson (2005) examined several hypotheses about the causal structure underlying the inverse correlation between socioeconomic status and mental health. He did this by conducting a multivariate statistical analysis of two-large data sets from Massachusetts: the Casemix database includes unduplicated records of 109,437 individuals hospitalized in acute psychiatric

units during the years 1994-2000, and 2003 U.S. Census Bureau data on communities that allowed Hudson to look at specific conditions associated with differential rates of psychiatric hospitalization as well as reported mental disabilities. The key finding in this longitudinal study was that there is a remarkably strong and consistent negative correlation between socioeconomic conditions and mental health: the poorer one's socioeconomic conditions are, the higher one's risk is for mental disability and psychiatric hospitalization.

Lorant and colleagues (2007) investigated whether longitudinal changes in socio-economic factors affect levels of depression. They used the Belgian Household Panel Survey (1992-1999) to assess depression in relation to material standard of living, education, employment and social relationships. They found that a lowering of living standards over time was associated with increases in depressive symptoms and "cases of major depression" (defined as depressed mood plus five additional symptoms). The authors' measures of both depression and socioeconomic status have limitations. In the data set, depression is self-reported. Their socioeconomic variable was actually a composite of a number of attributes, including civic participation.

Hudson, Banks, & Spencer (2006) investigated the relationship between perceived everyday racism and anxiety and depressive symptoms. Starting with data from the 1995 Detroit Area Study that included 570 African American respondents, the a multivariate statistical analysis and found that perceived discrimination predicted depression and anxiety. Results differed somewhat for men and women. This study was cross sectional in design.

Lee and Turney (2012) used data from the Chicago Community Health Study (a sample of 3,105 adults) to examine how two types of perceived discrimination: "chronic everyday discrimination" and "major lifetime" discrimination, are linked to mental health. They looked

at how this association varied by race/ethnicity, gender and socioeconomic status. The study found that everyday discrimination is independently linked to greater depressive symptoms, loneliness, and hostility across all social groups, but major discrimination is not.

In short, what the bulk of the aforementioned studies show is that human psychology is sensitive to rank, as defined by class position and racial status. Moreover, the studies lend support to the view that risks to mental illness are a function of objective status (measured by socioeconomic status) and *subjective* status (measured by questions that capture an individual's sense of perceived discrimination).

Macro-level analyses

Attributes of individuals are not all that matter to health. Researchers have sought to discover how sick and healthy individuals differ from each other and the basis of much research into mental health focuses on the search for "risk factors" which identify certain individuals as being more susceptible to mental illness. However, as Rose (2001) points out, we have to consider not just why an *individual* succumbed to a particular disease, but why some *populations* have higher rates of mental illness. Answers to the latter question would invite an analysis of social determinants of mental health.

One way to consider why some populations have higher rates of mental illness is to use cohort studies that can examine mental health trends over time. Twenge's work is important in this regard. Her work shows that anxiety appears to have increased in the postwar era. A by product of increasing anxiety is a corresponding rise in more narcissistic attitudes among the young. This attitudinal shift might be defensive and represent a response to the increasing importance of class status and material possessions

as measures of human worth (Twenge, 2006). This is occurring at a time when many wealthy nations are seeing a rise in mental health illnesses, suicide and substance abuse (Wilkinson & Pickett, 2009).

To date, Wilkinson & Picket (2009) are the only researchers to consider the relationship between inequality, measured at the level of the macroeconomy, to mental health outcomes. Their analysis was informed by two key observations:

1) That mental health illnesses were rising in many wealthy nations. They note that a million British children—one in ten between the ages of 5 and 16—are estimated to suffer from mental illness (p. 63). A study commissioned by the Children's Society found that "increasing numbers of children have mental health problems, over a quarter [are] regularly feeling depressed" (p. 63). They also cite as an example the finding that "almost 10 percent" of children in the United States "aged 3-17 had moderate or severe difficulties with emotions, and concentration (p. 63).

2) These statistics correspond with rising trends in economic inequality, measured by changes in relative income between top and bottom earners. They also correspond to the general finding that, among wealthy nations, more economically unequal societies have worse health as measured by indicators like infant mortality and life expectancy.

They compiled internationally comparable data on health and a number of social problems (one being mental health), and they conducted a statistical analysis to determine whether income inequality predicts social problems. When they could they tested the hypothesis with data from the 50 states. They used data from the World Health Organization's World Mental Health Survey Consortium. The same questions were asked and administered in Belgium, France, Germany, Italy, Japan, Netherlands, New Zealand,

Spain and the USA. They also used similar, though not identically designed, national surveys from Australia, Canada, and the UK. The results showed that more people suffer from mental illnesses in more unequal countries. The United States showed the highest prevalence of "any mental illness" and Japan the lowest.

Figure 1: Prevalence of mental illness and income inequality
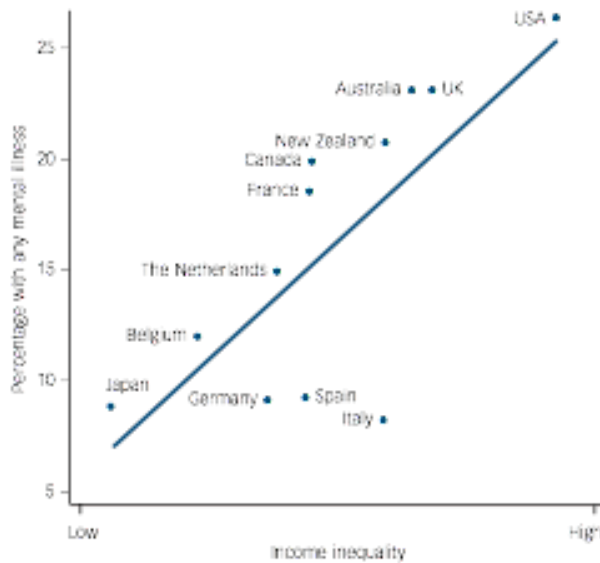
Source: Pickett and Wilkinson

Figure 1 shows the association in rich countries between income inequality and the proportion of adults who had been mentally ill in the 12 months prior to being interviewed. The data shows a strong relationship, and clearly a much higher percentage of the population have a mental illness in more unequal countries; only Italy is somewhat of an outlier, with lower levels of mental illness than we might expect on the basis of its level of income inequality. Inequality is associated with threefold differences in prevalence: in Germany, Italy, Japan and Spain, fewer than 1 in 10 people have been mentally ill within the past year; in Australia, Canada, New Zealand and the UK it is

more than 1 in 5 people, and in the USA more than 1 in 4. This study is limited by a

relative small sample, and the concern that the survey data are not compatible due to

cultural difference. However, the researchers bolster support for their findings by

conducting an analysis of the 50 states to find that women and children's mental health is

worse in more unequal states. Given the relatively small sample of countries they focus

on, replicating any findings among the 50 states gives their analysis greater validity.

These studies reflect a long-standing interest in inequality as a risk factor for mental

disorders. The inverse relationship between social class (or socioeconomic position) and

risk of disease is well established, and mental health outcomes generally conform to the

same pattern (Muntaner et al., 2000). With respect to class inequality and health, there are

four broad theories that offer explanations for this pattern. One holds that the relationship

might be an artifact—it may be a connection that simply does not exist. Another is that

poor mental health produces lower social status, and so perhaps the causal arrow goes in

the opposite way from what we might assume. In other words, might poor mental health

lead to the perception that an individual's social status is lower than it is? Cultural or

behavioral theories suggest that lifestyle choices explain the disparities that we see

(Murali and Oyebode, 2004).

Another perspective is that lower social status produces psychological stress; and

that this subjective experience might drive the differences in mental health outcomes.

Chronic stress produces a "fight or flight" response, with physiological processes that

activate under perceived threat. Discrimination is thought to function as a chronic

stressor, with deleterious effects on mental health over time (Lee and Turney, 2012).

The studies that document racial and class inequality and mental health outcomes

have been primarily conducted at the individual level—analysts use data on various attributes of individuals like age, sex, and socioeconomic position. For example, Wilkinson & Pickett use indicators that capture "macro" features of entire countries—per capita income, income gap between the rich and poor, etc.—and find that people who live in more unequal countries have worse mental health (Willkinson and Pickett, 2009, p63-72). Yet to date, there are no studies that have attempted to explore racial inequality at a macro level, in relation to the prevalence of mental illnesses.

Chapter III

Methodology

Following Wilkinson and Pickett, this study uses multiple regression analysis to consider two questions: 1) Among wealthy nations is there an association between racial hierarchy and mental health outcomes? 2) What would a statistically significant relationship mean? The first question will be answered with a quantitative analysis. Addressing the second question goes beyond the research design and requires an interpretive lens that draws on social and political history. Positive findings would not mean that majority (white) populations have a hostile or fearful reaction to minority populations, and are therefore psychologically worse off; but, rather that nations marked by high racial heterogeneity are nations with a long history of institutional racist practices that affect the psychological well being of *entire* populations. Societies with deep racial cleavage invariably provide fewer and less universal public goods like health care, housing and education.

This study will look at mental health outcomes (the "dependent variable") among a subset of wealthy nations in relation to the "independent variable" of racial hierarchy, which I will operationalize using a measure of racial/ethnic heterogeneity. Given the relatively small number of cases for the international study, I will also run an analysis of the 50 states.

Does "ethnic diversity" capture the phenomenon of racial inequality I think it does? My reasoning for why it might is as follows. The extensive, interdisciplinary literature on the evolution of "race" as an ascriptive category makes clear, "race" is a social and political construction. That some countries are characterized by greater or

lesser "racial heterogeneity" is a function of politics more than demographics. In the United States, for example, categories of white and black arose directly in relation to the evolution of slavery, and later as a function of Jim Crow. Immigration policy favored certain European populations until the 1960s. As King writes "people could only be understood as members of a particular race, and each race a place on the hierarchy which determined its relative superiority and inferiority."(38) Miscegenation was prohibited in some countries, including the United States and South Africa. The point is very simple: the very existence of the category of "race" or "ethnicity" reflects and presupposed a hierarchy that sorts populations according to "racial" attributes.

Data Sources

The data comes from public agencies—the World Health Organization (WHO) and the US Department of Health and Human Services. I use survey data from the WHO's World Mental Health Survey Consortium. The same questions were asked and administered in Belgium, France, and Germany, Italy, Japan, Netherlands, New Zealand, Spain and the USA. Similar surveys were conducted in Australia (National Health Survey, Mental Health), Canada (Bulletin of World Health Organization: 2008) and the UK (British Office for National Statistics). The prevalence of mental health disorders (the percentage of individuals who report problems of anxiety, mood, impulse-control or substance disorders within a twelve-month period) come form a study published in the *Journal of the American Medical Association* (2004). My racial diversity data at the national level comes from work by Alberto Alesina and Associates (2003). I will use data

for prevalence of mental illness for the 50 states provided by the Substance Abuse and Mental Health Services Administration, "National Survey and Drug Use and Health Report" of 2009. Diversity data from the 50 states comes from the U.S. Census and from Hero and Tolbert (1996).

Data Analysis

This analysis is based on quantitative, statistical examination of data related to mental health. Multiple regression is a statistical method for examining the relationship between a single dependent variable (in my case "prevalence of mental illness") and one or more independent variables (for this study I'm considering the effect of racial hierarchy). Multiple regression is the most widely used statistical procedure used in quantitative social science, and it has two key virtues: it can predict outcomes, and help with casual analysis. In the later case, multiple regression analysis can estimate the relationship between the independent variable and its effect on the dependent variable. If there is more than one variable, multiple regression can separate the effects of the different variables in a way that reveals the unique contribution of each variable. The results take the form of a coefficient that indicates how much the dependent variable changes when the independent variable increases. The coefficient captures the size of the relationship, but multiple regression also indicates whether the relationship is "significant" or, in more technical words, whether the probability that a relationship exists is not due to chance alone. "P-values" generated by the statistical software are used to determine significance. The data uses in regression analyses are called "cases," "units

of analysis" or "observations."(Allison 1999) For this study, the cases consist of a subset of wealthy, developed nations, and the 50 states of the United States.

Some potential limitations to this research design are worth noting. The main problem is the small sample size—there might not be enough cases to generate the sort of statistical power that gives strength to the analysis. Another potential problem is that the study is confined to rich democracies. While the reason for this can be justified by a wish to compare countries that share many of the same attributes, how the analysis would hold up among nations of various stages of economic development is not addressed.

Chapter IV

Results

The statistical software used for the data analysis was STATA. The program

allows the analyst to input relevant data and examine the relationship among two or more

variables. There was no statistically significant relationship found between ethnic

diversity and the prevalence of mental health problems among wealthy nations. This can

be discerned in the following chart. The key output in this table is the p statistic which is

well above the 0.05 figure for significance.

Table 1 Ethnic Diversity among Countries and Prevalence of Mental Illness

	coefficient	Std. Err.	t	P> ltl	[95& Conf. Interval	
ethnic diversity	-0.250861	5.504702	-0.05	0.965	-12.70331	12.20
_cons	12.46593	1.904175	6.55	0.000	8.158386	16.773

The following table is a scatterplot that shows quite clearly that there is no linear

relationship between the amount of ethnic diversity and the prevalence of mental illness.

Figure 2: Prevalence of Mental Disorders and Diversity
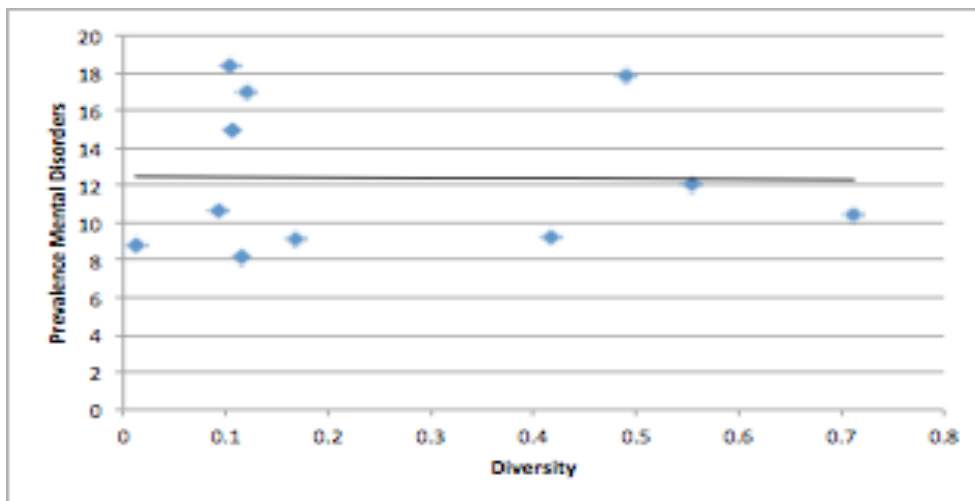
Following Wilkinson & Pickett's strategy, a similar analysis was run for the 50 states. The results are shown in the following table: Here the results go in the *opposite* direction from the way we might expect. The greater the state diversity as measured by the percentage of the black population, the *lower* the prevalence of mental illness.

Table 2: Binary regression of state percentage black and mental illness

	coefficient	Std. Err.	t	P> |t|	[95& Conf. Interval	
Percentage black	-4.962517	2.202574	-2.25	0.029	-9.391088	-0.5339451
					19.96138	21.20397
R-squared	0.0956					
Adj R-squared	0.0768					

A scatterplot reveals a clearly linear pattern, and a negative slope:

Figure 2: State prevalence of mental illness and percentage black
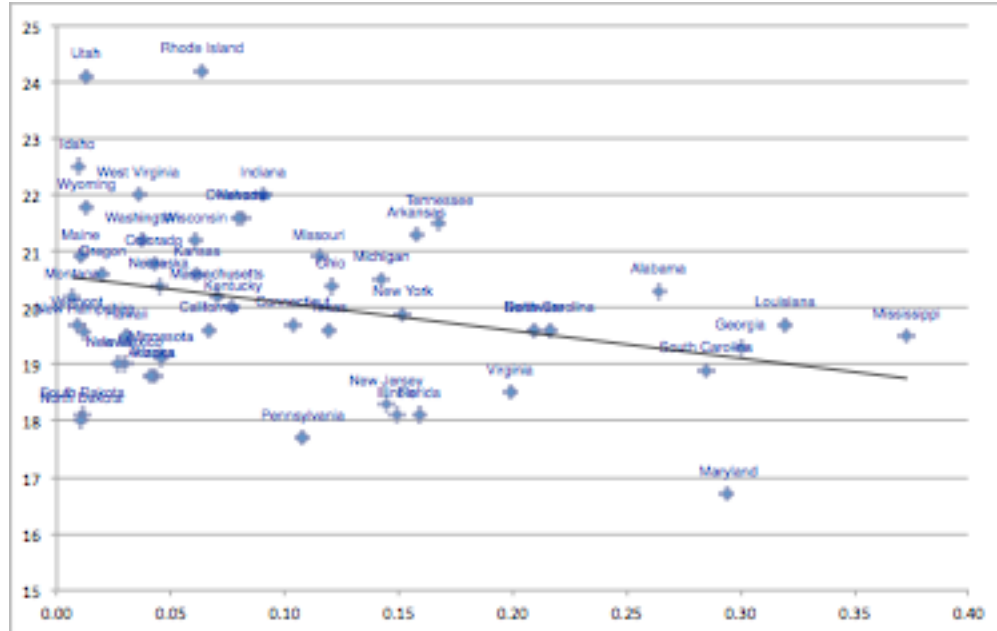
Chapter V

Discussion

The previous chapters of this study considered whether racial hierarchy, measured by a diversity score, would predict mental health problems among wealthy nations. The working idea was derived from Wilkinson & Pickett's findings that relative income inequality among nations was associated with mental health; and it also built on their ideas about status anxieties as the underlying cause. This study investigated whether a different measure of inequality (not economic but racial) might matter. Given the relatively small sample sizes this study ran models for countries as well as the 50 US states. This also followed Wilkinson & Pickett's strategy. The study found no relationship between ethnic diversity and mental health outcomes. It found a relationship in the US data, but one that was opposite of what the theory would have predicted.

Limitations

As mentioned in the chapter on methodology, the first and most important limitation to this study is the small number of cases. Wealthy countries constitute a relatively small sub set of the total (215) universe of nations in the world. From the standpoint of statistical analysis, it is a very small sample. Thus, in terms of this particular analysis there is no relationship between ethnic diversity and mental health; but it is not clear whether this would be true if the number of cases were expanded.

Another point to consider is a measurement issue. Can we be sure that "ethnic diversity" is capturing the same criteria from country to country? Alesina and colleagues'

definition of ethnicity used a combination of racial and linguistic characteristics. For most of Latin America and the Caribbean, for example, ethnicity is based on racial distinctions rather than linguistic differences. In contrast, for some European countries such as Belgium, Luxembourg and Switzerland ethnic diversity largely reflects languages (for example, "ethnicity" in Switzerland includes the following populations: German 65%, French 18%, Italian 10%, other Swiss 6% and Romansch 1%) (6). The same applies to "ethnicity" in Sub-Saharan Africa, where languages constitute "ethnic" divisions. In the United States, racial and ethnic classifications do not rely on language. The main point is that "ethnic diversity" is certainly more imprecise as a measure than, say, a measure of economic inequality. Wilkinson & Pickett's results are based on economic inequality measures which are more assured to be commensurate across countries.

A related point is that racial inequality might be measured in different ways, perhaps as a ratio, in terms of measures like income, education or unemployment. Thus, it might be better to consider racial/ethnic inequality on measures that relate to specific policy domains.

Fraction Black and Health Outcomes in the United States

The results from the analysis of the United States produced the opposite results of what the theory would predict. As with the analysis of the countries, we expected that states with a history of deeper institutional racism would have worse mental health from a population perspective. The states in which blacks constitute the greatest percentage of black people are former slave states, they were the site of Jim Crow practices from about

the turn of the twentieth century into the mid-1960s, as well as the historic struggles against racial segregation. States with the highest percentage of blacks in the United States, especially in the South, are states that are deeply divided on matters of race and politics. And yet states like Mississippi and Alabama had lower overall problems with mental health than, say, Rhode Island and Massachusetts. What would explain these results? It might be that cultural attributes of (especially) Southern states are protective with respect to mental health. It might be, for example, that greater church attendance—which occurs in the south—is good from the standpoint of mental health. The results might reflect something different. Perhaps greater economic inequalities and correspondingly lower social welfare provision paradoxically fosters a greater stoicism. These ideas could be tested with different survey instruments and statistical analyses. Some ideas about how these results could be explored more deeply are offered in the following section.

Future Directions for Research

There are many ways studies could probe this matter in future research. First, it might be useful to expand the universe of countries in question to at least include members of the Organization for Economic Cooperation and Development (OECD). These 34 countries provide a wider range of relatively wealthy and developed nations, against which racial inequality might be examined in relation to mental health outcomes. As mentioned before, it may be possible to consider "ethnic diversity" and other variables that attempt to capture racial inequality in a particular society.

Second, it might be fruitful to confine the analysis to the United States. Doing so guarantees that the diversity scores (or other measures of racial inequality) could be standardized. The definitions of race and ethnicity come from the US census. Imperfect as these categories can be, they are collected in the same way by one governmental agency. Similarly, data on mental health (and differences by gender, race, and socioeconomic status within the United States) would also be uniform and comparable. By drawing on US data like the Behavior Risk Factor Surveillance System (BRFSS) it is also possible to look at mental health outcomes for individuals within the 50 states. This would allow for a statistical analysis of individual risk factors like class, or ethnic identity, against social determinants that operate at a macro, state-level, like income inequality or the degree of racial/ethnic diversity. A statistical approach known as "multi-level modeling" could partition the relative importance of state differences in ethnic composition, after controlling for a range of individual factors. It would also be possible to run separate analyses according to race and gender. In other words, separate models could look at the prevalence of mental illness for black women, white women, black men, and white men in states marked my more or less racial inequality. This type of "stratified" analysis is important, because we cannot be completely sure about the relationship between racial diversity and mental health unless we look at the entire population, but also sub-populations.

To conclude, it is important to tease out the implications of this and related studies, because the policy implications differ. A clinical, social work perspective/model considers individual-level risk factors, in relation resource deprivation (access to health insurance, social services , etc.) An epidemiological perspective requires that we look at

risk factors at a population level; and so, if social stratification (race, class, and so forth) matter to mental health, then policies must reflect that. Antidiscrimination laws and affirmative action—two of many possible examples—could matter to mental health at a population level.

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