

Stigma as a Fundamental Cause of Population Health Inequalities

Mark L. Hatzenbuehler, PhD, Jo C. Phelan, PhD, and Bruce G. Link, PhD

Bodies of research pertaining to specific stigmatized statuses have typically developed in separate domains and have focused on single outcomes at 1 level of analysis, thereby obscuring the full significance of stigma as a fundamental driver of population health. Here we provide illustrative evidence on the health consequences of stigma and present a conceptual framework describing the psychological and structural pathways through which stigma influences health. Because of its pervasiveness, its disruption of multiple life domains (e.g., resources, social relationships, and coping behaviors), and its corrosive impact on the health of populations, stigma should be considered alongside the other major organizing concepts for research on social determinants of population health. (*Am J Public Health*. 2013;103:813–821. doi:10.2105/AJPH.2012.301069)

Growing evidence shows that the stigma associated with multiple circumstances (e.g., HIV, mental illness, sexual preference) both disadvantages the stigmatized and is a major source of stress in their lives.¹ If stigma is a significant source of stress and social disadvantage, one might expect it to have substantial effects on population health, similar to other social determinants, such as socioeconomic status (SES), social relationships (i.e., social support), and racism or discrimination.² We argue that stigma is in fact a central driver of morbidity and mortality at a population level.

Although the literature on stigma and health has grown dramatically, its full power and significance remain somewhat obscured because bodies of research pertaining to specific stigmatized statuses have generally developed in separate domains. For example, we have literatures focused on the health implications of HIV stigma,^{3,4} mental illness stigma,^{5,6} and sexual orientation stigma,^{7,8} which proceed on separate tracks. In addition, studies have tended to examine single outcomes (e.g., associations between stigma and self-esteem) at 1 level of analysis (typically at the individual level, without attention to structural conditions).⁹ The field of population health would greatly benefit from a synthesis of these disparate literatures and from the development of a theoretical framework that provides insights into the processes that generate health inequalities among members of stigmatized

groups. Such a discussion is both worthwhile and timely, in light of the potential insights a stigma framework can provide the field of population health.

DEFINITION OF STIGMA

In response to criticisms regarding variations in the definition of stigma and its excessively individual focus, B. G. L. and J. C. P. proposed a reconceptualization of the construct from a sociological perspective, which is now widely used in the stigma literature.⁹ In this conceptualization, stigma is defined as the co-occurrence of labeling, stereotyping, separation, status loss, and discrimination in a context in which power is exercised. Stigma overlaps with racism and discrimination, but it differs from these constructs in several respects.

Although race/ethnicity is a stigmatized status, the stigma concept encompasses multiple statuses and characteristics, such as sexual orientation, disability, HIV status, and obesity; thus, stigma can be seen as broader in scope than racism. Similarly, discrimination—both at the individual level (i.e., the unequal treatment that arises from membership in a particular social group) and at the structural level (i.e., societal conditions that constrain an individual's opportunities, resources, and well-being)—is a constitutive feature of stigma. Indeed, the term stigma “cannot hold the meaning we commonly assign to it when this aspect is left

out.”^{9(p370)} However, because the overall stigma process incorporates several other elements, such as labeling and stereotyping, the stigma concept is broader than discrimination.¹⁰

STIGMA AS A FUNDAMENTAL CAUSE

Fundamental cause theory proposes that some social factors or circumstances remain persistently associated with health inequalities over time despite dramatic changes in diseases, risk factors, and health interventions. Inequality persists because fundamental causes have certain characteristics.^{11,12} First, a fundamental social cause influences multiple disease outcomes through multiple risk factors among a substantial number of people. Second, a fundamental social cause involves access to resources—knowledge, money, power, prestige, and beneficial social connections—that can be used to avoid risks or minimize the consequences of disease once it occurs. Third, fundamental social causes are robustly related to health inequities across time and place. These enduring relationships occur because the association between the fundamental cause and health is reproduced over time via the creation of new intervening mechanisms.

Policies and interventions must address the social factor itself, rather than the putative mechanisms that link this factor to health. Otherwise, fundamental social causes will continually produce health inequalities through the production of new mechanisms. The theory and research based on these concepts have focused primarily on SES as a fundamental cause of health inequalities. Stigma also meets fundamental cause criteria and deserves consideration as a major and persistent influence on population health.

STIGMA PREVALENCE AND EFFECTS

Table 1 illustrates the traditional approach to the study of stigma. Most studies examine 1

TABLE 1—Traditional Approach to the Study of Stigma

Stigmatized Status	Outcomes						
	Housing	Employment/Income	Education/Academic Outcomes	Social Relationships	Psychological/Behavioral	Health Care	Health
Mental illness	X						
Minority sexual orientation		X					
Obesity			X				
HIV/AIDS				X			
Disability						X	
Minority race/ethnicity	X	X	X	X	X	X	X

Note. X = stigmatizing characteristic and outcome studied; infrequently, traditional approaches study 1 stigmatizing characteristic with multiple outcomes, as in bottom row.

stigmatizing characteristic (e.g., mental illness) with 1 outcome (e.g., housing). Less frequently, studies depict the effect of 1 stigmatizing characteristic (e.g., racial/ethnic minority status) on multiple outcomes (e.g., housing, employment or income, social relationships, maladaptive psychological or behavioral responses, health care, health). This approach often reveals effects of stigma on the outcome in question. However, it is usually also true that many factors other than stigma influence the outcome, with stigma as a single factor among many. This can lead to the conclusion that stigma matters, but that its effect is relatively modest. Such a conclusion is misguided for 2 reasons. First, when trying to understand the impact of stigma for a particular circumstance, such as mental illness, it is important to keep in mind that stigma can affect many life chances, not just one. Thus, a full accounting must consider the overall effect of mental illness stigma on a multitude of outcomes. Second, in a particular outcome, such as employment, many stigmatizing circumstances may be involved. A full assessment of the impact of stigma on such an outcome must take into account all stigmatizing circumstances that may be operating.

We sought to counter this trend in the existing literature by adopting a broader view of the role that stigma processes play in the patterning of population health. We chose 6 stigmatized statuses and characteristics that were the focus of recent quantitative (i.e., meta-analytic) and qualitative reviews and examined the range of associated outcomes. Table 2 shows the 6 stigmatized characteristics, their prevalence in the general population, and the broad range of outcomes that have been shown

to be associated with these stigmatized characteristics. Two striking patterns are evident. First, when considered together, the stigmatized conditions are quite common and affect a large portion of the general population. Second, stigma associated with these conditions has been related to a large and diverse group of outcomes ranging from housing, employment or income, social relationships, psychological or behavioral responses, health care treatment, to health.

It is also the case, however, that any impairments or deficits associated with a stigmatized status might also affect an outcome. This poses the possibility that gaps between stigmatized and nonstigmatized groups are attributable not only to stigma, but also to these impairments or deficits. For example, diminished earnings among individuals with disabilities could be caused by the disability itself (e.g., disabled individuals working fewer hours), in addition to the stigma of being disabled. Most researchers are familiar with this issue and address it in study design and analysis; strategies range from statistical control of symptoms and other potential confounders in observational studies⁶⁴ to experimental designs that unambiguously demonstrate the causal role of a stigmatizing label.^{65–68} Although the degree to which this issue is addressed varies from study to study, the accumulated literature makes a compelling case that stigma represents an added burden that affects people above and beyond any impairments or deficits they may have. Thus, viewed in its entirety, Table 2 suggests the broad impact of stigma, although even this depiction underestimates the full influence of stigma on life chances, because we reviewed

only 6 stigmatized statuses, and our list of outcomes that may be linked with stigma was incomplete.

MEDIATORS LINKING STIGMA TO HEALTH

The evidence in Table 2 demonstrates that stigma thwarts, undermines, or exacerbates several processes (i.e., availability of resources, social relationships, psychological and behavioral responses, stress) that ultimately lead to adverse health outcomes. Each of these stigma-induced processes mediates the relationship between stigma and population health outcomes.

Resources

According to fundamental cause theory, SES embodies resources of money, knowledge, power, prestige, and beneficial social connections, and it is by having superior resources that higher-SES individuals and groups gain a health advantage.¹¹ The situation of being stigmatized depletes many of these same resources. A variety of stigmatized circumstances, such as belonging to a minority racial/ethnic^{55–63} or sexual orientation group,^{27–32} having a history of mental illness,^{15–25} or being incarcerated,⁶⁷ lead to many forms of resource-reducing discrimination, in, for example, employment, wages, mortgages and other loans, housing, quality and quantity of education, and health care.

Regarding resources of power and prestige, Link and Phelan identify status loss as an essential component of stigmatization.⁹ The creation and maintenance of status hierarchies based on education, gender, race, age,

TABLE 2—Stigma Prevalence, Effects on the Distribution of Life Chances, and Associated Health Outcomes

Stigmatized Status	Review Studies Documenting Effects of Stigma							
	Prevalence in General Population, %	Housing ^a	Employment/Income	Education/Academic Outcomes	Social Relationships	Psychological/Behavioral ^b	Health Care ^c	Health
Mental illness	32.4 (current) ¹³ , 46.4 (lifetime) ¹⁴	Link and Phelan, ⁹ Hinshaw and Cicchetti ¹⁵	Link et al., ¹⁶ Corrigan and Penn, ¹⁷ Link and Phelan ¹⁸	Link et al. ¹⁶	Hinshaw and Cicchetti, ¹⁵ Link and Phelan ¹⁸	Pachankis, ¹⁹ Livingston and Boyd, ²⁰ Hinshaw and Sier, ²¹ Risch et al. ²²	Hinshaw and Cicchetti, ¹⁵ Corrigan et al., ²³ Ross and Goldner ²⁴	Mak et al. ²⁵
Minority sexual orientation	3.5 ²⁶	Coker et al. ²⁷	Badgett ²⁸		Hatzenbuehler, ²⁹ Meyer, ³⁰ Friedman et al. ³¹	Pachankis, ¹⁹ Hatzenbuehler, ²⁹	Coker et al. ²⁷ Cochran ³²	Meyer, ³⁰ Cochran ³²
Obesity	33.8 ³³		Puhli and Brownell ³⁴	Puhli and Brownell, ³⁴ Puhli and Latner, ³⁵ Puhli and Heuer ³⁶	Puhli and Latner, ³⁵ Puhli and Heuer, ³⁶ Pettit ³⁷	Puhli and Brownell, ³⁸	Puhli and Brownell, ³⁴ Puhli and Heuer ³⁶	Puhli and Latner, ³⁵ Puhli and Heuer ³⁶
HIV/AIDS	0.003 ³⁹	Leaver et al. ⁴⁰	Herek ⁴¹	Herek ⁴¹	Herek, ⁴¹ Crawford ⁴²	Pachankis, ¹⁹ Herek ⁴¹	Mawar et al. ⁴³ Mahajan et al. ⁴⁴	Rabkin, ⁴⁵ Logie and Gadalla, ⁴⁶
Disability	21.8 ⁴⁷		Smeets et al. ⁴⁸	Smeets et al. ⁴⁸	Jacoby et al., ⁴⁹ de Boer et al. ⁵⁰	Smeets et al., ⁴⁸ Beart et al., ⁵¹ Livneh et al. ⁵²	MacLeod and Austin ⁵³	Jacoby et al. ⁴⁹
Minority race/ethnicity	Hispanic, 16.3; non-White, 27.6 ⁵⁴	Massey and Denton, ⁵⁵ Williams and Collins ⁵⁶	Williams ⁵⁷	Steele, ⁵⁸ Zirkel ⁵⁹	Williams and Collins ⁵⁶	Smart Richman and Leary ⁶⁰	Williams ⁵⁷	Paradies, ⁶¹ Williams et al., ⁶² Clark et al. ⁶³

Note. We included review articles that discussed more than 1 article in each domain.

^aBeing denied housing as a result of discrimination or being overrepresented among the homeless population because of stigma.

^bSelf-esteem, emotion regulation processes, and coping responses to stigma-related stressors.

^cAttitudes of health care providers, suboptimal treatment, or reduced likelihood of accessing prevention and intervention services.

or other factors are the focus of status characteristics theory. The theory proposes, and voluminous research confirms, that in cooperative goal-oriented groups, different status labels (e.g., male and female) reliably produce unequal performance expectations (men will perform better) and performance evaluations (men did perform better) that reproduce the original status hierarchy.⁶⁹ Lucas and Phelan propose that stigma processes have effects on status that are identical to the those described in status characteristics theory.⁷⁰ They conducted an experimental study in the status characteristics tradition and showed that a label of mental illness reduces an individual's interpersonal influence (i.e., power), just as labels of low educational attainment, minority racial status, and female gender have been shown to do in numerous studies in the literature review by Berger et al.⁶⁹

Social Isolation

Several lines of evidence suggest that stigma may cause social isolation. Fears of rejection and negative evaluation lead individuals with concealable stigmas to avoid entering close relationships for fear of others discovering their stigmatized status.¹⁹ In a daily diary study, individuals with concealable stigmas (e.g., individuals with mental illness, low SES, minority sexual orientation) experienced a lift in mood and self-esteem only in the presence of those who shared their stigma; however, they were significantly less likely than persons with visible stigmas (e.g., race/ethnicity) to experience such occasions.⁷¹ Correlational studies have also documented high levels of social isolation among members of stigmatized groups, including individuals with mental illness⁷² and minority sexual orientations.⁷³

A large literature documents the salubrious effects of social support,^{74,75} suggesting that social isolation may be a pathway through which stigma is linked to population health. Consistent with this idea, studies explicitly examining mediation hypotheses find support for the 4 pathways required for mediation⁷⁶: (1) stigma is linked to poor health, (2) stigma is associated with greater social isolation, (3) social isolation increases risk for poor health outcomes, and (4) the stigma–health relationship is significantly attenuated after adjustment for social isolation.^{73,77,78}

Psychological and Behavioral Responses to Stigma

Multiple psychological and behavioral processes are also disrupted by stigma. One of the most widely researched constructs in the field of stigma is self-stigmatization, or the internalization of negative societal perceptions of one's stigmatized status or group. Although initial accounts theorized that the experience of stigma would inevitably result in lowered self-worth,⁷⁹ extensive heterogeneity in psychological responses to stigma is now recognized, with some stigmatized groups showing levels of self-esteem that are as high as those of majority group members,⁸⁰ perhaps stemming from active efforts to challenge and resist stigma.⁸¹ Nevertheless, research has also indicated that some stigmatized individuals internalize the negative views directed toward their group, which can have deleterious health consequences.^{21,30}

Stigmatized individuals use and deplete self-control to manage a devalued identity,⁸² which requires a flexible use of emotion regulation strategies in the short term. Over time, however, the effort required to cope with stigma diminishes individuals' psychological resources and therefore their ability to adaptively regulate their emotions, which can have negative consequences for both mental⁸³ and physical^{84,85} health. Several prospective studies have demonstrated that those who experience stigma report engaging in more maladaptive emotion regulation strategies, such as rumination and suppression, which in turn produce greater symptoms of psychological distress, indicating that emotion regulation processes mediate the stigma–health relationship.^{29,73}

Emerging evidence shows that the experience of stigma can also lead to maladaptive coping behaviors—including smoking and drinking^{61,62}—that increase risk for adverse health outcomes. A recent experimental study randomly assigned overweight individuals to view videos that either stigmatized overweight people or depicted neutral scenes. Participants who watched the stigmatizing videos consumed significantly more calories afterward than did participants who watched the neutral videos, further supporting the link between stigma and health-compromising behaviors.⁸⁶

Stress

Several influential models of stigma posit that stress plays an important role in the stigma process. Minority stress theory refers to the excess stress to which individuals from stigmatized groups are exposed as a result of their social position.³⁰ Minority stressors range from external events (e.g., victimization and violence) to internal responses (e.g., expectations of rejection), both of which are associated with health problems among minority group members.^{30,63} Similarly, identity threat models of stigma argue that possessing a stigmatized identity increases exposure to stressful conditions and situations.¹ Experimental studies have provided evidence consistent with these theories. For instance, the stress of experiencing discrimination and unfair treatment is associated with adverse physiological responses, including diastolic blood pressure reactivity⁸⁷ and increased cortisol output,⁸⁸ that in turn may compromise health if chronically activated.

In sum, stigma appears to have a corrosive influence on health, in large part through disruption and alteration of myriad systems—institutional and communal (material resources and conditions), interpersonal (social relationships), and intrapsychic (self-esteem, coping behaviors)—by the stigma process. Stress is one mechanism through which stigma may create adverse health outcomes, but mediational processes can also operate through pathways that are unrelated to stress (e.g., material conditions).

STIGMA AND THE REPRODUCTION OF HEALTH INEQUALITY

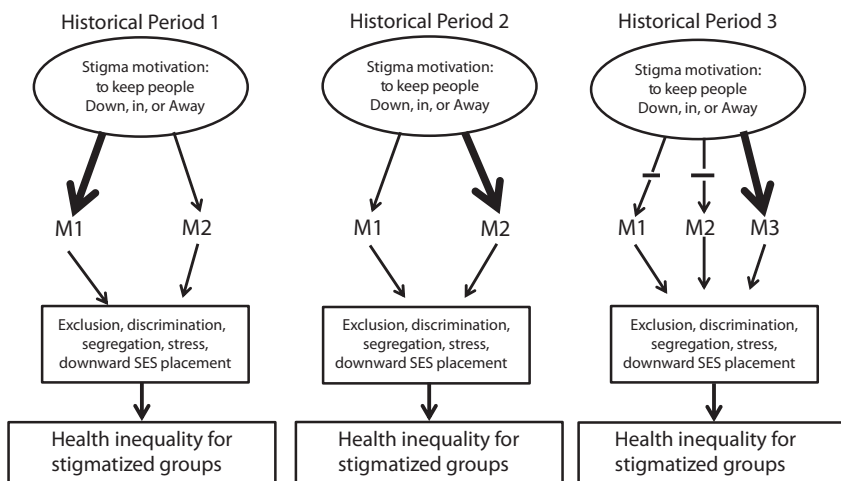
Stigmatizing others enables people to achieve ends they desire. The key ends that are serviced by stigma are summarized by J. C.P. et al. as keeping people down (exploitation), keeping people in (norm enforcement), and keeping people away (disease avoidance).¹⁰ In each instance, members of the dominant group get something they want by stigmatizing others. To the extent that large power differences exist between those who stigmatize and those who are the recipients of stigmatization, we might expect the interests of the more powerful group to be reliably expressed in the kinds of inequalities stigma can produce. But how is such a reliable

expression achieved? Like other key drivers of population health, stigma is related to multiple disease outcomes through multiple social and psychological mechanisms. Those who want to keep others down, in, or away and who have the power to do so are not limited to a fixed set of strategies. If a major existing strategy is blocked or loses its capacity to achieve desired ends, other strategies can be strengthened or new ones can be created.

Figure 1 depicts a set of circumstances in which different mechanisms mediate between a desire to keep stigmatized people down, in, or away and stigma outcomes such as exclusion, discrimination, segregation, stress, and diminished SES. On the left side is historical period 1, in which the goals of stigmatizers are achieved through 2 mediating mechanisms, with heaviest reliance on mechanism 1 (thick arrow) and lesser emphasis on mechanism 2 (thin arrow). These mechanisms achieve desired ends by excluding, segregating, lowering status, diminishing power, or applying punishment for behaviors that stigmatizers designate as nonnormative.

In historical period 2, antistigma efforts or some other social change reduces the effectiveness of mechanism 1 as a means of keeping people down, in, or away. But the motivation to stigmatize is unchanged, so reliance is shifted from mechanism 1 to mechanism 2, allowing the same ends to be achieved in a somewhat different way. Finally, in historical period 3, both mechanisms are effectively blocked. Those whose motivations to stigmatize remain strong can create a new mechanism to achieve desired ends, especially if previously effective mechanisms are blocked.

A concrete example of this model is the multiple, changing mechanisms that have been used to suppress Black people in the United States. As slavery became illegal and Blacks were accorded rights, Jim Crow laws and Ku Klux Klan terror became a prominent means of maintaining White privilege.^{89,90} Now that those mechanisms have been addressed to some degree, social scientists have made us aware of new processes that have effectively reproduced inequalities between Blacks and Whites. For example, as explicit forms of prejudice and discrimination have declined, more covert expressions of racism, known as



Note. M = mediating mechanism; SES = socioeconomic status. The thick arrow indicates a strong effect whereas the thin arrow indicates a weak effect. The arrow interrupted with a dash indicates a blocked mechanism.

FIGURE 1—Multiple mediating mechanisms reproduce disadvantage for stigmatized groups.

aversive racism,⁹¹ have emerged, maintaining psychological and physical distance between minority and majority groups. In addition, under conditions of stereotype threat,⁵⁸ members of stigmatized groups experience anxiety or concern that they will confirm stereotypes of their group. Such awareness can lead to decrements in performance (e.g., in achievement tests), which in turn confirm the negative stereotype (e.g., that Blacks are intellectually inferior to Whites). Although both aversive racism and stereotype threat are more subtle than earlier forms of racism, they nevertheless may contribute to negative outcomes such as educational disparities,⁵⁸ income inequality,⁹²⁻⁹⁴ and enduring residential segregation.^{56,95}

Another example of changing mechanisms to achieve the same ends is societal management of people with mental illnesses. Although initially proposed as a benevolent policy, the construction of asylums in the 19th century resulted in a massive segregation of people with mental illnesses: people could easily be sent away for long periods. With the advent of deinstitutionalization, the utility of this set of mechanisms disappeared and the management of people with severe mental illnesses arose as a new problem to be solved. The construction of psychiatric ghettos consisting of dense clusters of single-room-occupancy hotels and group homes served as a new and very effective form of segregation

that was supported by the perception and reality of many people's strong not-in-my-backyard reactions to having such facilities located in their neighborhoods.⁹⁶

An alternative motivation for stigmatizing others is to keep them in, via norm enforcement. The destitution of mentally ill people opened the option of making access to housing, management of their own money, or unfettered control of their lives contingent on specific behaviors, such as taking prescribed drugs or avoiding unprescribed ones. Such leveraging of the mentally ill toward desired behaviors has become a new and prominent means of managing this stigmatized group; Monahan has documented the enormous growth in the use of leveraging in the era of deinstitutionalization.⁹⁷ In this new situation of closer contact with the stigmatized, the traditional stigma-based approach of cognitive separation needs to be used with greater frequency than when the problem was solved by keeping people away in the asylum. Homeless people with mental illness can be constructed into a "them" so different from the rest of "us" that any moral qualms about their destitution can be repressed, allowing us to walk by them or around them, not really seeing them as we pursue our daily routines.

When the motivation to stigmatize results in the production of new mechanisms in different places and at different times, and when

such reproduction maintains or increases social, economic, and health inequality, then stigma must be conceptualized as a population health issue. Either the motivation to stigmatize or the power to carry out that motivation must be addressed; otherwise, social and health inequality will be reproduced.

Recent studies provide preliminary evidence that addressing changes in power can reduce health disparities among low-status and stigmatized groups. For instance, in a comparison of psychiatric disorders in 15 countries, disparities in depression between women and men were significantly lower in countries where women had greater power, operationalized as changes in gender ideology.⁹⁸ Similarly, Black infant mortality rates dropped precipitously in the US rural South after the passage of the 1964 Civil Rights Act,⁹⁹ suggesting that when the power to discriminate against Blacks was legally curtailed, racial inequalities in health were diminished. Conversely, these health inequalities between Whites and Blacks returned to previous levels and even widened after 1980,¹⁰⁰ when new means were found to stigmatize Black people (e.g., incarceration, the war on drugs),¹⁰¹ without a corresponding reduction in the motivation to stigmatize this group.

RESEARCH DIRECTIONS

We see several promising directions for research on the role of stigma as a social determinant of population health. Despite recent advances in the field of stigma and health, gaps remain (Table 2). Although individual studies suggest that sexual minority adolescents have lower levels of academic success (e.g., lower grade point average)¹⁰² and face more school sanctions (e.g., school expulsion)¹⁰³ than their heterosexual peers, we were unable to find any review articles on educational outcomes associated with the stigma of sexual orientation. Moreover, to our knowledge, only 1 study has documented associations between housing discrimination and the stigma of overweight.¹⁰⁴ These are important areas for future inquiry.

The vast majority of research in this field has examined the experience of the stigmatized at the individual level of analysis. Comparatively less attention has been paid to how

societal conditions (e.g., institutional practices or policies) may disadvantage individuals from stigmatized groups. Indeed, a comprehensive review article by Link et al. identified only 2 studies on structural forms of stigma (against mental illness), leading the authors to conclude that “the under-representation of this aspect is a dramatic shortcoming in the literature on stigma, as the processes involved are likely major contributors to unequal outcomes.”¹⁶(pp515-516)

Recent research has begun to address this shortcoming in the literature.^{105,106} Hatzenbuehler, for instance, examined the influence of stigmatizing social environments on the prevalence of suicide attempts among lesbian, gay, and bisexual youths. Results showed that the risk of suicide attempts was 20% greater among youths living in counties with high structural stigma (e.g., fewer schools with Gay–Straight Alliances, lack of inclusive antibullying policies) than among youths living in low-stigma counties.¹⁰⁷ This study underscores the need for more empirical research that spans multiple levels of analysis to fully appreciate the ways stigma operates to shape population health.

Previous research on social determinants of health has focused on such factors as stress, SES, income inequality, social relationships (i.e., social support), and racism and discrimination (e.g., neighborhood-level segregation). This literature would be considerably strengthened by greater theoretical and empirical attention to stigma. The construct of stigma connects with each of these established social determinants of health, but also involves distinct processes that are relevant for the study of health disparities. Research is needed, therefore, to further explore the relationship between a stigma framework and these existing dominant social paradigms in population health to (1) find points of overlap, (2) identify gaps that can be filled by a stigma framework, and (3) assess whether a stigma framework lends itself to theories about population health that are opposed to existing paradigms, leading to competing hypotheses that can be empirically tested.

Examination of the role of stigma in the production and maintenance of health inequalities requires unique data sets that measure multiple stigmatized characteristics

and stigma-initiated mechanisms (e.g., social isolation, poor resources), as well as data sets that capture how the stigma process interacts with other determinants of population health (e.g., stress, SES, culture, identity, biology) over the life course. Table 3 shows several population-based and experimental data sets that can be used to examine many of our hypotheses. For instance, a newly created study links data from the General Social Survey (the primary source of social indicator data for the social sciences since 1972) with mortality data by cause of death, obtained from the National Death Index.¹⁰⁸ This data set incorporates individuals with multiple stigmatized statuses, as well as rich contextual information on the social environments surrounding these individuals. Recent findings from the new study have documented intriguing links between stigma and mortality. For example, sexual minority individuals living in communities that endorse high levels of antigay attitudes have a higher risk of mortality than do sexual minorities living in low-prejudice areas (M. L. H. et al., unpublished data, 2013). Moreover, Whites living in communities with

TABLE 3—Potential Data Sets for Examining the Role of Stigma in Population Health

Data Set	Description	Sample of Stigma Characteristics Assessed	Potential Outcomes
National Longitudinal Study of Adolescent Health, 1996–2008	Nationally representative, prospective cohort study of youths, 4 waves of data, wave 1 n = 20 745	Sexual orientation, minority racial/ethnic status, overweight/obesity, HIV/AIDS, disability	Educational attainment, economic resources, social relationships, health behaviors, early biomarkers of disease
Growing Up Today Study, 1996–2010	Prospective cohort study of US adolescents, wave 1 n = 16 882	Sexual orientation, overweight/obesity, mental illness, perceived social status	Mental health, health behaviors, global self-worth, perceived competence and self-mastery, social relationships (e.g., bullying)
National Health and Nutrition Examination Survey III and its Mortality File; 1988–1994	Retrospective cohort study, probability-based survey, representative of civilian, noninstitutionalized US population, n = 16 716	Sexual orientation, overweight/obesity, minority racial/ethnic status, HIV/AIDS	All-cause and cause-specific mortality, health behaviors, self-rated health
General Social Survey/National Death Index, 1972–2008	Derived from a nationally representative sample of noninstitutionalized US population, n = 33 053	Sexual orientation, minority racial/ethnic status, disability, mental illness	All-cause and cause-specific mortality, educational attainment, self-rated health
Enhancing Recovery for Coronary Heart Disease Patients, 1996–2001	Randomized controlled trial aimed at improving social support and reducing depression in patients after myocardial infarction, 8 clinical centers and 80 hospitals across the United States, n = 2481	Minority racial/ethnic status, mental illness, disability (health-related quality of life)	Reinfarction and all-cause mortality, social support, major depression, perceived stress, self-efficacy

anti-Black attitudes also experience increased mortality,¹⁰⁹ suggesting that stigma and prejudice exert negative influences on population health for both majority and minority groups. This data set therefore offers many exciting opportunities to document relationships between stigma and population health; to conduct age, period, and cohort analyses to determine how stigma–health relationships change over time; and to evaluate potential moderating and mediating mechanisms that explain these associations.

In addition to employing new data sets, researchers can use the stigma framework to reanalyze established data sets. For instance, Enhancing Recovery for Coronary Heart Disease Patients was a randomized controlled trial conducted in 8 clinical centers and 80 hospitals across the United States (n = 2481 patients).¹¹⁰ The goal of the intervention was to improve social support and reduce depression in patients who had had myocardial infarctions. The results were largely disappointing: White men benefited from the intervention; other groups (women and Black men) did not.^{111,112} Our framework suggests that stigma and status processes may explain, in part, why the intervention was not effective for non-Whites and women. One insight of this framework is that stigma disrupts multiple factors related to health, including social support. Because factors such as social isolation are set in motion by stigma, altering these factors at the individual level—as was attempted in the Enhancing Recovery study—may not gain much traction therapeutically in the absence of stigma-reducing changes at the social–structural level. Instead, it is likely that intervening factors (e.g., social support) will reset to harmful levels when the intervention is withdrawn, because the larger social environment in which stigma persists is left unaltered.²⁹

We highlight this intervention not as a criticism of the researchers, but instead as a cautionary example of what can happen when the stigma process is not fully considered in study design. Reanalysis of this trial (as well as other interventions) with specific attention to the role that stigmatizing characteristics played in determining intervention outcomes will likely aid in the development of more effective public health interventions.

CONCLUSIONS

Although more research is needed, emerging evidence indicates that stigma meets all of the criteria to be considered a fundamental cause of health inequalities. Stigma (1) influences several physical and mental health outcomes that affect millions of people in the United States through multiple mechanisms, (2) disrupts or inhibits access to multiple resources—structural, interpersonal, and psychological—that could otherwise be used to avoid or minimize poor health, and (3) enables the creation of new, evolving mechanisms that ensure the reproduction of health inequalities among members of socially disadvantaged populations. Failure to consider stigma in theoretical and statistical models not only leads to an underappreciation of the social factors that produce poor health but can also undermine the efficacy of public health interventions.

Inequalities between stigmatized and non-stigmatized groups are by no means inevitable, but the power differentials inherent in stigma create substantial obstacles that make the reduction of health disparities especially challenging. In particular, the production of intervening mechanisms that perpetuate health inequities among the stigmatized often goes undetected. The engine producing inequality is therefore frequently unrecognized or misunderstood and requires multiple fields of inquiry to expose it, including interdisciplinary research from such diverse fields as anthropology, psychology, sociology, epidemiology, and biology. This requires a concerted effort on the part of funding agencies, including the National Institutes of Health, to provide the necessary resources to ensure that such research is conducted. Overcoming barriers to adequate funding is essential because the production of knowledge—a resource fundamental to health—is regularly thwarted by stigma. The dearth of scientific resources devoted to lesbian, gay, bisexual, and transgender health, for example, is well documented¹¹³ and has prevented the dissemination of health information to health professionals and to sexual minority individuals themselves, further perpetuating health disparities. The recent Institute of Medicine report

on health disparities in this population represents a particularly important and noteworthy corrective to this trend.¹¹⁴

Research suggests that greater attention needs to be paid to stigma as a social determinant of population health and that such an approach is likely to generate novel insights into documented patterns of population health. Stigma exerts a more pervasive impact on population health than previous research suggests, and we offer here a framework to synthesize research on multiple pathways linking stigma to health inequalities, along with several avenues for future research, including data sets that can be used to evaluate the role of stigma as a driver of population health. We hope our work contributes to transformative research that will lead to improved health among the stigmatized. ■

About the Authors

Mark L. Hatzenbuehler, Jo C. Phelan, and Bruce G. Link are with the Department of Sociomedical Sciences, and Bruce G. Link is also with the Department of Epidemiology, Mailman School of Public Health, Columbia University, New York, NY.

Correspondence should be sent to Mark Hatzenbuehler, PhD, Dept of Sociomedical Sciences, Mailman School of Public Health, Columbia University, 722 West 168th St, Room 549.B, New York, NY 10032 (e-mail: mlh2101@columbia.edu). Reprints can be ordered at <http://www.ajph.org> by clicking the “Reprints” link.

This article was accepted September 9, 2012.

Contributors

M. L. Hatzenbuehler led the research and writing. All authors contributed original ideas and writing.

Acknowledgments

Funding came from the Robert Wood Johnson Foundation Health & Society Scholars program and the National Institutes of Health (to M. L. H., grant K01DA032558).

We acknowledge Molly Jung’s assistance in the literature review.

Human Participant Protection

No protocol approval was required because no human participants were involved.

References

1. Major B, O’Brien LT. The social psychology of stigma. *Annu Rev Psychol.* 2005;56:393–421.
2. Berkman LF, Kawachi I, eds. *Social Epidemiology.* Oxford, UK: Oxford University Press; 2000.
3. Hatzenbuehler ML, O’Cleirigh C, Mayer KH, Mimiaga MJ, Safren SA. Prospective associations between HIV-related stigma, transmission risk behaviors, and adverse mental health outcomes in men who have sex with men. *Ann Behav Med.* 2011;42(2):227–234.

4. Herek GM, Capitanio JP, Widaman KF. HIV-related stigma and knowledge in the United States: prevalence and trends, 1991–1999. *Am J Public Health*. 2002;92(3):371–377.
5. Link BG, Struening EL, Neese-Todd S, Asmussen S, Phelan JC. Stigma as a barrier to recovery: the consequences of stigma for the self-esteem of people with mental illnesses. *Psychiatr Serv*. 2001;52(12):1621–1626.
6. Corrigan PW, Shapiro JR. Measuring the impact of programs that challenge the public stigma of mental illness. *Clin Psychol Rev*. 2010;30(8):907–922.
7. Meyer IH. Minority stress and mental health in gay men. *J Health Soc Behav*. 1995;36(1):38–56.
8. Herek GM, Garnets LD. Sexual orientation and mental health. *Annu Rev Clin Psychol*. 2007;3:353–375.
9. Link BG, Phelan JC. Conceptualizing stigma. *Annu Rev Sociol*. 2001;27:363–385.
10. Phelan JC, Link BG, Dovidio JF. Stigma and prejudice: one animal or two? *Soc Sci Med*. 2008;67(3):358–367.
11. Link BG, Phelan JC. Social conditions as fundamental causes of disease. *J Health Soc Behav*. 1995;35 (extra issue):80–94.
12. Phelan JC, Link BG, Tehranifar P. Social conditions as fundamental causes of health inequalities: theory, evidence, and policy implications. *J Health Soc Behav*. 2010;51(suppl):S28–S40.
13. National Comorbidity Survey Replication. 12-Month prevalence of DSM-IV/WMH-CIDI disorders by sex and cohort. Available at: http://www.hcp.med.harvard.edu/ncs/ftpdir/NCS-R_12-month_Prevalence_Estimates.pdf. Accessed March 1, 2012.
14. National Comorbidity Survey Replication. Lifetime prevalence of DSM-IV/WMH-CIDI disorders by sex and cohort. Available at: http://www.hcp.med.harvard.edu/ncs/ftpdir/NCS-R_Lifetime_Prevalence_Estimates.pdf. Accessed March 1, 2012.
15. Hinshaw SP, Cicchetti D. Stigma and mental disorder: conceptions of illness, public attitudes, personal disclosure, and social policy. *Dev Psychopathol*. 2000;12(4):555–598.
16. Link BG, Yang LH, Phelan JC, Collins PY. Measuring mental illness stigma. *Schizophr Bull*. 2004;30(3):511–541.
17. Corrigan PW, Penn DL. Lessons from social psychology on discrediting psychiatric stigma. *Am Psychol*. 1999;54(9):765–776.
18. Link BG, Phelan JC. Stigma and its public health implications. *Lancet*. 2006;367(9509):528–529.
19. Pachankis JE. The psychological implications of concealing a stigma: a cognitive-affective-behavioral model. *Psychol Bull*. 2007;133(2):328–345.
20. Livingston JD, Boyd JE. Correlates and consequences of internalized stigma for people living with mental illness: a systematic review and meta-analysis. *Soc Sci Med*. 2010;71(12):2150–2161.
21. Hinshaw SP, Stier A. Stigma as related to mental disorders. *Annu Rev Clin Psychol*. 2008;4:367–393.
22. Rüsch N, Angermeyer MC, Corrigan PW. Mental illness stigma: concepts, consequences, and initiatives to reduce stigma. *Eur Psychiatry*. 2005;20(8):529–539.
23. Corrigan PW, Markowitz FE, Watson AC. Structural levels of mental illness stigma and discrimination. *Schizophr Bull*. 2004;30(3):481–491.
24. Ross CA, Goldner EM. Stigma, negative attitudes and discrimination towards mental illness within the nursing profession: a review of the literature. *J Psychiatr Ment Health Nurs*. 2009;16(6):558–567.
25. Mak WWS, Poon CYM, Pun LYK, Cheung SF. Meta-analysis of stigma and mental health. *Soc Sci Med*. 2007;65(2):245–261.
26. Gates GJ. *How Many People Are Lesbian, Gay, Bisexual, and Transgender?* Los Angeles, CA: Williams Institute, University of California, Los Angeles School of Law; 2011. Available at: <http://www3.law.ucla.edu/williamsinstitute/pdf/How-many-people-are-LGBT-Final.pdf>. Accessed February 25, 2012.
27. Coker TR, Austin SB, Schuster MA. The health and health care of lesbian, gay, and bisexual adolescents. *Annu Rev Public Health*. 2010;31:457–477.
28. Badgett MVL. Employment and sexual orientation: disclosure and discrimination in the workplace. *J Gay Lesbian Soc Serv*. 1996;4(4):29–52.
29. Hatzenbuehler ML. How does sexual minority stigma “get under the skin”? A psychological mediation framework. *Psychol Bull*. 2009;135(5):707–730.
30. Meyer IH. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. *Psychol Bull*. 2003;129(5):674–697.
31. Friedman MS, Marshal MP, Guadamuz TE, et al. A meta-analysis of disparities in childhood sexual abuse, parental physical abuse, and peer victimization among sexual minority and sexual nonminority individuals. *Am J Public Health*. 2011;101(8):1481–1494.
32. Cochran SD. Emerging issues on lesbians’ and gay men’s mental health: does sexual orientation really matter? *Am Psychol*. 2001;56(11):931–947.
33. Flegal KM, Carroll MD, Ogden CL, Curtin LR. Prevalence and trends in obesity among US adults, 1999–2008. *JAMA*. 2010;303(3):235–241.
34. Puhl R, Brownell KD. Bias, discrimination, and obesity. *Obes Res*. 2001;9(12):788–805.
35. Puhl RM, Latner JD. Stigma, obesity, and the health of the nation’s children. *Psychol Bull*. 2007;133(4):557–580.
36. Puhl RM, Heuer CA. The stigma of obesity: a review and update. *Obesity (Silver Spring)*. 2009;17(5):941–964.
37. Pettit ML. Disease and stigma: a review of the literature. *Health Educ*. 2008;40(2):70–76.
38. Puhl R, Brownell KD. Ways of coping with obesity stigma: review and conceptual analysis. *Eat Behav*. 2003;4(1):53–78.
39. Centers for Disease Control and Prevention. HIV prevalence estimates—United States, 2006. *MMWR Morb Mortal Wkly Rep*. 2008;57(39):1073–1076.
40. Leaver CA, Bargh G, Dunn JR, Hwang SW. The effects of housing status on health-related outcomes in people living with HIV: a systematic review of the literature. *AIDS Behav*. 2007;11(2 suppl):85–100.
41. Herek GM. AIDS and stigma. *Am Behav Sci*. 1999;42(7):1106–1116.
42. Crawford AM. Stigma associated with AIDS: a meta-analysis. *J Appl Soc Psychol*. 1996;26(5):398–416.
43. Mawar N, Sahay S, Pandit A, Mahajan U. The third phase of HIV pandemic: social consequences of HIV/AIDS stigma & discrimination & future needs. *Indian J Med Res*. 2005;122(6):471–484.
44. Mahajan AP, Sayles JN, Patel VA, et al. Stigma in the HIV/AIDS epidemic: a review of the literature and recommendations for the way forward. *AIDS*. 2008;22 (suppl 2):S67–S79.
45. Rabkin JG. HIV and depression: 2008 review and update. *Curr HIV/AIDS Rep*. 2008;5(4):163–171.
46. Logie C, Gadalla TM. Meta-analysis of health and demographic correlates of stigma towards people living with HIV. *AIDS Care*. 2009;21(6):742–753.
47. Centers for Disease Control and Prevention. Prevalence and most common causes of disability among Adults—United States, 2005. *MMWR Morb Mortal Wkly Rep*. 2009;58(16):421–426.
48. Smeets VMJ, van Lierop BAG, Vanhoutvin JPG, Aldenkamp AP, Nijhuis FJN. Epilepsy and employment: literature review. *Epilepsy Behav*. 2007;10(3):354–362.
49. Jacoby A, Snape D, Baker GA. Epilepsy and social identity: the stigma of a chronic neurological disorder. *Lancet Neurol*. 2005;4(3):171–178.
50. de Boer HM, Mula M, Sander JW. The global burden and stigma of epilepsy. *Epilepsy Behav*. 2008;12(4):540–546.
51. Beart S, Hardy G, Buchan L. How people with intellectual disabilities view their social identity: a review of the literature. *J Appl Res Intellect Disabil*. 2005;18(1):47–56.
52. Livneh H, Wilson LM, Duchesneau A, Antonak RF. Psychosocial adaptation to epilepsy: the role of coping strategies. *Epilepsy Behav*. 2001;2(6):533–544.
53. MacLeod JS, Austin JK. Stigma in the lives of adolescents with epilepsy: a review of the literature. *Epilepsy Behav*. 2003;4(2):112–117.
54. United States census briefs. Overview of race and Hispanic origin: 2010. Available at: <http://www.census.gov/prod/cen2010/briefs/c2010br-02.pdf>. Accessed February 26, 2012.
55. Massey D, Denton N. *American Apartheid: Segregation and the Making of the Underclass*. Cambridge, MA: Harvard University Press; 1993.
56. Williams DR, Collins C. Racial residential segregation: a fundamental cause of racial disparities in health. *Public Health Rep*. 2001;116(5):404–416.
57. Williams DR. Race, socioeconomic status, and health: the added effects of racism and discrimination. *Ann N Y Acad Sci*. 1999;896:173–188.
58. Steele CM. A threat in the air: how stereotypes shape intellectual identity and performance. *Am Psychol*. 1997;52(6):613–629.
59. Zirkel S. Ongoing issues of racial and ethnic stigma in education 50 years after *Brown v. Board*. *Urban Rev*. 2005;37(2):107–126.
60. Smart Richman L, Leary MR. Reactions to discrimination, stigmatization, ostracism, and other forms of interpersonal rejection: a multimotive model. *Psychol Rev*. 2009;116(2):365–383.
61. Paradies Y. A systematic review of empirical research on self-reported racism and health. *Int J Epidemiol*. 2006;35(4):888–901.
62. Williams DR, Neighbors HW, Jackson JS. Racial/ethnic discrimination and health: findings from community studies. *Am J Public Health*. 2008;98(9 suppl):S29–S37.

63. Clark R, Anderson NB, Clark VR, Williams DR. Racism as a stressor for African Americans. A biopsychosocial model. *Am Psychol*. 1999;54(10):805–816.
64. Link BG, Struening EL, Rahav M, Phelan JC, Nuttbrock L. On stigma and its consequences: evidence from a longitudinal study of men with dual diagnosis of mental illness and substance abuse. *J Health Soc Behav*. 1997;38(2):177–190.
65. Tilsik A. Pride and prejudice: employment discrimination against openly gay men in the United States. *AJS*. 2011;117(2):586–626.
66. Page S. Effects of the mental illness label in 1993: acceptance and rejection in the community. *J Health Soc Policy*. 1995;7(2):61–68.
67. Pager D. The mark of a criminal record. *AJS*. 2003;108(5):937–975.
68. Schulman KA, Berlin JA, Harless W, et al. The effect of race and sex on physicians' recommendations for cardiac catheterization. *N Engl J Med*. 1999;340(8):618–626.
69. Berger J, Rosenholtz SJ, Zelditch M. Status organization processes. *Annu Rev Sociol*. 1980;6:479–508.
70. Lucas J, Phelan JC. Stigma and status: the interrelation of two theoretical perspectives. *Soc Psychol Q*. 2012;75:310–333.
71. Frable DE, Platt L, Hoey S. Concealable stigmas and positive self-perceptions: feeling better around similar others. *J Pers Soc Psychol*. 1998;74(4):909–922.
72. Link BG, Cullen FT, Struening E, Shrout PE, Dohrenwend BP. A modified labeling theory approach to mental disorders: an empirical assessment. *Am Sociol Rev*. 1989;54(3):400–423.
73. Hatzenbuehler ML, Nolen-Hoeksema S, Dovidio J. How does stigma “get under the skin”? the mediating role of emotion regulation. *Psychol Science*. 2009;20(10):1282–1289.
74. Cohen S, Willis TA. Stress, social support, and the buffering hypothesis. *Psychol Bull*. 1985;98(2):310–357.
75. Kawachi I, Berkman LF. Social ties and mental health. *J Urban Health*. 2001;78(3):458–467.
76. Baron RM, Kenny DA. The moderator-mediator variable distinction in social psychological research: conceptual, strategic and statistical considerations. *J Pers Soc Psychol*. 1986;51:1173–1182.
77. Diaz RM, Ayala G, Bein E, Henne J, Marin BV. The impact of homophobia, poverty, and racism on the mental health of gay and bisexual Latino men: findings from 3 US cities. *Am J Public Health*. 2001;91(6):927–932.
78. Hershberger SL, D'Augelli AR. The impact of victimization on the mental health and suicidality of lesbian, gay, and bisexual youths. *Dev Psychol*. 1995;31(1):65–74.
79. Goffman E. *Stigma: Notes on the Management of Spoiled Identity*. Englewood Cliffs, NJ: Prentice Hall; 1963.
80. Crocker J, Major B. Social stigma and self-esteem: the self-protective properties of stigma. *Psychol Rev*. 1989;96(4):608–630.
81. Thoits PA. Resisting the stigma of mental illness. *Soc Psychol Q*. 2011;74(1):6–28.
82. Inzlicht M, McKay L, Aronson J. Stigma as ego depletion: how being the target of prejudice affects self-control. *Psychol Sci*. 2006;17(3):262–269.
83. Gross JJ, Munoz RF. Emotion regulation and mental health. *Clin Psychol Sci Pract*. 1995;2(2):151–164.
84. Miller GE, Chen E, Parker KJ. Psychological stress in childhood and susceptibility to the chronic diseases of aging: moving toward a model of behavioral and biological mechanisms. *Psychol Bull*. 2011;137(6):959–997.
85. Repetti RL, Taylor SE, Seeman TE. Risky families: family social environments and the mental and physical health of offspring. *Psychol Bull*. 2002;128(2):330–366.
86. Schvey NA, Puhl RM, Brownell KD. The impact of weight stigma on caloric consumption. *Obesity (Silver Spring)*. 2011;19(10):1957–1962.
87. Guyll M, Matthews KA, Bromberger JT. Discrimination and unfair treatment: relationship to cardiovascular reactivity among African American and European American women. *Health Psychol*. 2001;20(5):315–325.
88. Townsend SS, Major B, Gangi CE, Mendes WB. From “in the air” to “under the skin”: cortisol responses to social identity threat. *Pers Soc Psychol Bull*. 2011;37(2):151–164.
89. Van Woodward C. *The Strange Career of Jim Crow*. New York, NY: Oxford University Press; 1955.
90. Feagin JR. *Racist America: Roots, Current Realities, and Future Reparations*. New York, NY: Routledge; 2000.
91. Dovidio JF, Gaertner SL. On the nature of contemporary prejudice: the causes, consequences, and challenges of aversive racism. In: Eberhardt J, Fiske ST, eds. *Confronting Racism: The Problem and the Response*. Newbury Park, CA: Sage Press; 1998:3–32.
92. Wilkinson R, Pickett K. *The Spirit Level: Why Greater Equality Makes Societies Stronger*. New York, NY: Bloomsbury Press; 2009.
93. Kawachi I, Kennedy BP, Wilkinson RG. *The Society and Population Health Reader: Income Inequality and Health*. New York, NY: New Press; 1999.
94. Marmot MG, Smith GD, Stansfeld S, et al. Health inequalities among British civil servants: the Whitehall II study. *Lancet*. 1991;337(8754):1387–1393.
95. Gee GC. A multi-level analysis of the relationship between institutional and individual racial discrimination and health status. *Am J Public Health*. 2002;92(4):615–623.
96. Dear M, Laws G. Anatomy of a decision: recent land use zoning appeals and their effect on group home locations in Ontario. *Can J Commun Ment Health*. 1986;5(1):5–17.
97. Monahan J. Mandated community treatment: applying leverage to achieve adherence. *J Am Acad Psychiatry Law*. 2008;36(3):282–285.
98. Seedat S, Scott KM, Angermeyer MC, et al. Cross-national associations between gender and mental disorders in the World Mental Health Organization World Mental Health Surveys. *Arch Gen Psychiatry*. 2009;66(7):785–795.
99. Almond DV, Chay KY, Greenstone M. Civil rights, the war on poverty, and Black-White convergence in infant mortality in the rural South and Mississippi. December 31, 2006. MIT economics working paper 07–04. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=961021. Accessed June 30, 2012.
100. Krieger N, Rehkopf DH, Chen JT, Waterman PD, Marcelli E, Kennedy M. The fall and rise of US inequities in premature mortality: 1960–2002. *PLoS Med*. 2008;5(2):e46.
101. Alexander M. *The New Jim Crow: Mass Incarceration in the Age of Colorblindness*. New York, NY: New Press; 2012.
102. Pearson J, Muller C, Wilkinson L. Adolescent same-sex attraction and academic outcomes: the role of school attachment and engagement. *Soc Probl*. 2007;54(4):523–542.
103. Himmelstein KEW, Bruckner H. Criminal-justice and school sanctions against nonheterosexual youth: a national longitudinal study. *Pediatrics*. 2011;127(1):49–57.
104. Karris L. Prejudice against obese renters. *J Soc Psychol*. 1977;101(1):159–160.
105. Hatzenbuehler ML, McLaughlin KA, Keyes KM, Hasin DS. The impact of institutional discrimination on psychiatric disorders in lesbian, gay, and bisexual populations: a prospective study. *Am J Public Health*. 2010;100(3):452–459.
106. Hatzenbuehler ML, Keyes KM, Hasin DS. State-level policies and psychiatric morbidity in lesbian, gay, and bisexual populations. *Am J Public Health*. 2009;99(12):2275–2281.
107. Hatzenbuehler ML. The social environment and suicide attempts in lesbian, gay, and bisexual youth. *Pediatrics*. 2011;127(5):896–903.
108. Muennig P, Johnson G, Kim J, Smith TW, Rosen Z. The general social survey-national death index: an innovative new dataset for the social sciences. *BMC Res Notes*. 2011;4:385.
109. Lee YJ, Muennig P, Kawachi I. Do racist attitudes harm the community health including both the blacks and whites? Paper presented at Population Association of America 2012 Annual Meeting; May 3–5; San Francisco, CA.
110. Berkman LF. Social epidemiology: social determinants of health in the United States: are we losing ground? *Annu Rev Public Health*. 2009;30:27–41.
111. Berkman LF, Blumenthal J, Burg M, et al. Effects of treating depression and low perceived social support on clinical events after myocardial infarction: the Enhancing Recovery in Coronary Heart Disease Patients (ENRICH) Randomized Trial. *JAMA*. 2003;289(23):3106–3116.
112. Schneiderman N, Saab PG, Catellier DJ, et al. Psychosocial treatment within sex by ethnicity subgroups in the Enhancing Recovery in Coronary Heart Disease clinical trial. *Psychosom Med*. 2004;66(4):475–483.
113. Hatzenbuehler ML. Social factors as determinants of mental health disparities in LGB populations: implications for public policy. *Soc Issues Policy Rev*. 2010;4(1):31–62.
114. Institute of Medicine of the National Academy of Sciences. *The Health of Lesbian, Gay, Bisexual and Transgender People: Building a Foundation for Better Understanding*. Washington, DC: National Academies Press; 2011.