Journal of Posthumanism
2025
Volume: 5, No: 8, pp. 578–599
ISSN: 2634-3576 (Print) | ISSN 2634-3584 (Online)
posthumanism.co.uk

DOI: https://doi.org/10.63332/joph.v5i8.3231

Socioeconomic Stress and Health Disparities

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Abstract

Health outcomes are shaped by the conditions of society and economy. The poorer ones do not earn much, do not accumulate much wealth unlike richer ones. They die older and experience poor health unlike richer ones. The socio-economic status (SES), particularly education, is seen as an important social determinant of health. People who have a low socio-economic status (SES) and a low education level are always getting sick, and dying more often than others in the same population and time. It is observed that these people have a lot more chronic heart disease, diabetes, asthma and other illnesses. The occurrence of health disparities is not random, it is patterned and stratified socially. People who have lower incomes and less education are more likely to engage in risk taking behaviors like smoking, bad eating, and classic couch potato exercise patterns. The clustering of these actions makes health inequalities worse.

Keywords: *Socioeconomic Status, Health Disparities, Education, Chronic Disease, Mortality Inequity.*

Introduction

The pervasive human experience of stress is exacerbated in our contemporary society characterized by marked inequalities (1). Stress is an important point of intersection between both social and biological hierarchies, and therefore an important juncture for the production and maintenance of health inequalities (2). Stress exposure and response are profoundly patterned by race, ethnicity, gender, social class, and health status, creating differential feasibility of protecting health through access to scientific knowledge, health care, and care-giving (3). Inequalities in stress burden are systematically patterned by position in social hierarchies, and are also a central pathway through which status-based inequities in exposures to toxicity impact biological processes (4). The stress process describes how the sources, mediators, and manifestations of stress interact to condition the relationship between social stratification and health (5). The sources of stress can be broadly categorized into traumatic life events, financial strains, stressful daily events, everyday and major life discrimination, and community chronic stress linked to the organization of the social world (6). These sources can themselves be traced to social hierarchies, including inequality along race, gender, and social class lines (5). The mediators of stress include resources, behaviors, perceptions, and cognitions that individuals invoke in the face of stressors (3). Access to stress mediators also varies systematically by position in the social hierarchy (4). The ways in which stress manifests into wider health effects are the cumulative biological, behavioral, psychological, and social changes

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that physical and social systems undergo in response to stress exposure (6). Stress response is biopsychosocial in nature, encompassing adrenocortical, autonomic, visceral, inflammatory, and metabolic systems of running and repairing (2). Stress response affects individuals' health, perceptions, behaviors, and social networks, all of which may have important health implications (1).

Theoretical Frameworks

Research shows that racial differences in socioeconomic factors shape Black-White disparities in exposure to chronic stressors and strains (7). Racial differences in material conditions, opportunity structures, and residential environments are theorized to produce racial differences in chronic stressors, with a particular focus on community- and household-level socioeconomic status (8). Evidence shows that who one lives, works, and engages with can influence exposure to a range of psychosocial stressors that harm health and promote disease (9). An overview of recent and past research on race, socioeconomic status, and childhood health outcomes is offered (1).

Several approaches to the sociology of vulnerability to health-related stress are detailed (10). More research is needed on how group-level characteristics shape behavior across different social contexts and influence vulnerability across socioeconomic domains, with research on systematic patterns of development and mechanisms of maintenance (11). Measures of vulnerability status should be linked to measures of exposure to promoters of measurement error in stress processes (12). The broader implications of this analysis are discussed, including the ideal notion of public sociology for health disparities and the need for a regulatory agency to monitor the precision and transparency of risk factor determinations and public health communication (13).

This analysis describes how broader patterns of social stratification and group disadvantage, on average, can be expected to produce health disadvantage for group members by shaping both exposures to health-promoting and health-harming social conditions (14). Patterns of health-related disadvantage and group vulnerability to stress may be attributable to interactions between both the greater weight of risk factors and the lower weight of health-promoting resources (15). A primary consideration is how a group's position in the social structure shapes stress, health, and risk over and above the social position of the individual member (15). Some of the work of is used to describe expected patterns of stress, health, and risk in an exploratory fashion (14). To extrapolate from levels of exposure among, say, residents of public housing in economically troubled neighborhoods to life course expectations for different socio-economic status (SES) groups risks missing differences in access to coping resources that shape population-wide expectations (16).

Health Disparities Defined

A health disparity is a multidimensional concept meaning that a health disparity includes different dimensions (17). The first and most critical dimension is the identification of health and health care, which include a large number of health outcomes and health status (18). Many dichotomies are often referred to as health disparities, such as quality of care, effectiveness of care, access to care, utilization of care, and satisfaction (17). Some of the economic indicators and general socioeconomic conditions that are closely related to health and health care reflect the social disparities and contexts in which health and healthcare disparities occur (18). Health disparity indices are not without difficulties, such as the reliability of the rate and disparity

indices in calculating the health data difference among racial/ethnic groups (19). The second dimension is the identification of race and ethnicity (20). Racial/ethnic differences are another dimension that should be part of the definition of health disparities, meaning that race/ethnicity is not itself a construct, but a variable (19). Individuals' racial or ethnic categories are determined by an agreed-upon set of social markers, which in turn define racial/ethnic groups and privilege some groups over others (20). Although the current standard for race and ethnicity data collection is self-identification, racial or ethnic identification does not entirely rely on self-adopted norms, social acceptance, or even biological meanings of race (21). The third dimension of a health disparity is the identification of a health disparity group (22). A health disparity group can be defined as a specific racial/ethnic group identified by the US government that is the focus of the study of this dissertation (21).

Impact of Socioeconomic Status on Health

Socioeconomic Status (SES) or Socioeconomic Position (SEP) refers to a person's position within a social structure, which can be defined by their access to resources (income, education, occupation, neighborhood, etc.) and social prestige (23). In regard to health, persons of lower SES usually have a higher risk of ill health than those of higher SES (24). This association is consistent across ages, gender, ethnicities, countries, and times (25). Beyond differences in wealth, education, occupation, and distresses, added effects of SES on health have also been identified, indicating the important roles of relative deprivation, social exclusion, and stigma. SES inequities in health tend to be particularly broad and deeply entrenched (23).

Regarding the mechanisms through which SES affects health, it has often been suggested that people of lower SES have greater exposure to multiple health risks and related factors which can affect both physical and mental health (26). Lower SES is associated with undesirable life style factors (stress); this association is particularly robust between lower SES and smoking. It has also been suggested that not just the features of one's neighborhood but dissatisfaction with the neighborhood can affect health outcomes (27). More recently, attention has been drawn to psychosocial resources (26).

Relaxation, self-esteem, effective social participation, trust in others, and social participation beyond one's life shape health (28). People living in poverty nurture distorted worldviews and interests, leading to such health-promoting factors as feeling cohesive with the community, having reliable friends, social participation and activism, feeling control over and trust in the neighborhood, a sense of community, feelings of safety and security, meaning of life, and stable income (29). In regard to discrimination, in many societies and over a long span of time, ethnic/racial minorities or certain occupation groups including rural, low-income, and convict people have been subject to stigmatization, segregation, and exclusion (30). Stigmatization affects health by inducing shame, low self-esteem, social withdrawal, indignation, obesity, smoking, heavy drinking, and lack of health care (30).

Psychological Mechanisms

Research that emerged in the 1970s noted that indicators of socioeconomic status correlate with health outcomes (31). This prompted a flurry of research on the health impacts of education, income and occupation (31). As sociology joined in, it began to ask how the social structural determinants of health might become embodied (32). One pathway of interest was the psychosocial route, focusing on how hierarchical social relationships might lead to stress (32). Those interested in the connection between social hierarchy, stress, and health propose that

social hierarchies produce differential exposure to stressors (21). Research on neighborhood disadvantage suggests various processes through which living in more resource-deprived neighborhoods might lead to greater exposure to stressful experiences, such as concentrated poverty leading to reduced safety, increased exposure to violence, and limited access to resources (33). These possibly health-threatening experiences impact individuals via physiological changes or impairments in emotion regulation strategies (34). Considering that individuals exposed to stressful social contexts become more at risk for developing health problems, through stress, social hierarchies can become deeply embodied, producing inequalities in health (35). Stress exposure is poised to capture the kinds of reciprocal, interactive effects linking health to one's subordinated position within social hierarchies (35). The biological systems sensitive to socio-environmental conditions and functional for the regulation of stress responses and emotional responses to stressors are rooted in development, intricately woven into basic processes of cognition, perception, and behavior (34). Changes in the functioning of these systems fall along continuous axes of individual variability but nonetheless yield extreme, deleterious health-related consequences (33).

Biological Responses to Stress

The biopsychosocial model recognizes that health is influenced by social conditions, psychological attributes, and biological processes (36). A growing body of biosocial research links social conditions to biological processes that underlie health to better understand how social conditions get "under the skin" to shape population health (36). Many socioeconomic factors have been shown to affect disease development at multiple levels of influence, including externally assessed neighborhoods and individuals' self-reported neighborhood perceptions (1). Exposure to impoverished neighborhoods with low access to social and health resources and high rates of violence and crime has been implicated in increased cardiovascular disease, allostatic load, and all-cause mortality (37). Life course changes in exposure to poor neighborhoods are also predictive of later life ischemic heart disease, hypertension, and metabolic syndrome, suggesting that the mechanisms linking neighborhoods to health may operate in part through cumulative exposure to neighborhood conditions over time (36). Inequities in wealth and neighborhood quality, thus, act in concert with other social conditions to shape health inequities across populations in the United States (37).

Understanding how power and control distribution along social hierarchies shapes the physiological underpinnings of population health inequities and exploring how spatial context gets under the skin to shape these processes is necessary to delineate the complex pathways through which socioeconomic position affects population health (38). The adolescent years are an important period in the development of inequalities in health and development (39). Socioeconomic disadvantage consistently predicts poor health trajectories from youth to adulthood (40). Increased exposure to poverty and neighborhood disadvantage has been implicated as a core mechanism of greater onset and worse progression of morbidity and mental illness in disadvantaged populations (41). Such disadvantage is experienced by a higher proportion of Black, Latino/a, and low-income youth relative to White, Native/Asian, and wealthy youth, who are also the populations characterized by better health profiles (40).

Social Determinants of Health

A large and growing literature has documented the association between socioeconomic status (SES) and a broad range of health domains (42). Across different domains, SES is often defined by a common set of factors, including occupation, income, and education (42). Lower levels of

education and occupational status, lower income, and poverty are almost universally associated with poorer health and more rapid declines in health over time (43). Explanatory pathways linking low SES to detrimental health outcomes include lack of material resources, increased exposure to chronic stressors, reduced health promoting resources, such as social support, exposure to greater health risk, and lack of health care services and knowledge (42). Despite being well established at the individual level, the association between SES or its components and health disparities across the life course has not been fully examined or explained (43).

An individual's own SES, or social class, is among the most important predictors of health, progress toward mortality, and onset of chronic disease (44). There is also a well documented association or gradient between an individual's own socioeconomic status and numerous measures of health (44). This literature demonstrates that individuals with a lower educational attainment, occupational status, income, wealth, or living in poverty have higher prevalence, poorer prognosis, and earlier onset of numerous chronic diseases as well as higher rates of mortality (45). The experiential pathways through which SES exerts its influence on health outcomes include diminished material resources, increased exposure to chronic stressors, reduced health promoting resources, such as social support, exposure to greater health risks, and lack of health care services and knowledge (46).

Access to Healthcare

The 2000 U.S. Census indicated that one of every eight individuals in America is enrolled in the Medicare program. Approximately 37 million beneficiaries receive comprehensive hospital and physician coverage insurance (47). During 2005, the Medicare program is projected to exceed $352 billion in benefit expenditures and to finance coverage for 44.2 million individuals (47). Despite the passage of the Medicare program in 1965 as a mission to ensure healthcare access and reduce economic hardship, Medicare beneficiaries experienced varied access to healthcare in 1998 (48). Eligible beneficiaries, particularly minority individuals in certain states, were much less likely than whites to have an identified usual source of care (49). Prevalence by race and geography resulted in disparities (49). Medicare beneficiaries reported greater barriers and delays to care compared to whites, and the ability of Medicaid to counteract these factors is debated (48). A consequential series of events comes as racial and ethnic disparities in treatment among Medicare beneficiaries are explored (50). Utilization of various acute and preventive healthcare services was examined by racial/ethnic group and geography as sources of care and timely care were examined (50). Medicare beneficiaries' access to healthcare was assessed in several ways, such as whether they received care in the prior year from a specified type of provider, measures of source of care, and timely care (51). Beneficiaries with no usual source of care and no provider were studied (48). Despite equal coverage, racial and geographic disparities in service-setting access and receipt, particularly for prospective analgesia during labor and cesarean deliveries, were significant and persisted after accounting for potential confounding factors (51). The question to be addressed is whether disparities in access to care persist in settings with greater availability of that care (52). Socio-environmental factors contribute to the overall understanding of access to healthcare and health disparities (52).

Environmental Factors

It is well known that people who live in poverty are more likely to experience health issues and die earlier than their more affluent neighbors (53). There has consistently been a lower life expectancy and an increased chronic disease prevalence in divorced areas, fed by a vicious circle involving economic decline, higher crime, few municipal services, and environmental risks (54).

People in such areas are more exposed to environmental hazards—pollution, overcrowding, and chemically treated industrial waste (41). Environmental racism has been shown to increase the vulnerability of marginalized groups (1). Globally, waste disposal facilities are often built in impoverished neighborhoods, which leads to greater health complications for their communities (55). Risk factors such as crime and chronic stress can speed up the onset of chronic illnesses, disproportionate burdens falling on vulnerable communities (53). Additionally, those living in disadvantaged environments may have difficulties accessing treatment. People in equally poor neighborhoods also struggle, creating a vicious circle (54).

Case Studies of Health Disparities

Understanding how socioeconomic circumstances shape health is essential for ultimately eliminating health disparities (56). Socioeconomic status is a primordial social determinant of health, typically defined by a person's educational attainment, occupational status, or household income (57). As first articulated by sociologists and epidemiologists in a series of groundbreaking studies unearthing the social gradient in health in the 1980s, socioeconomic disadvantage is consistently associated with a multitude of adverse health outcomes (58). Most epidemiologic research on the socioeconomic determination of health focuses on characterizing "the black box" of the underlying mechanisms linking education to health, including health behaviors, access to medical care, healthy environments, psychosocial stress, and inequalities in other relevant resources (1). A longstanding line of inquiry highlights chronic psychosocial stressors arising from the social hazards of socioeconomic disadvantage as potentially "toxic" exposures (58). It is a claim that has attracted increasing attention from scholars seeking to empirically test this argument, as evidenced by a burgeoning literature documenting how education moderates exposures to stressful life events, chronic regarding difficulties, mundane interpersonal hassles, and the operations of non-coping resources (57).

In just two decades since the first reports of a "psychosocial stress class" in the Journal of Health and Social Behavior, studies have now documented that the burdens of these chronic and acute stressors, alone or in combination with other stress processes, are well described, broader in scope than originally conceived, and potent predictors of health outcomes never previously anticipated (59). Socioeconomic disadvantage is also associated with chronic and acute stressors and the disproportionate burden of multiple and intersecting chronic stressors (60). There is evidence that socioeconomic inequalities in chronic stress exposures and stressors contribute to disparities in health outcomes (61). Epidemiologic studies of chronic psychosocial stressors demonstrate that social gradients in health can be understood, at least in part, by differential exposures to chronic psychosocial stressors arising from disadvantage (1).

Despite this burgeoning literature, approaching the role of psychosocial stress exposure in social disparities in health from a life course perspective raises important and novel questions that scholars seeking to understand how education shapes health have only recently begun to grapple with (62). Most studies targeting the role of psychosocial stress exposure in health disparities employ a methodology originally developed to understand how chronic environmental hardship and exposure to toxic substances drive disparities in health and development (63). Following this tradition, most studies measure stress exposure using one or two indicators of stress, such as chronic financial difficulties, everyday racial discrimination, job strain, or traumatic life events (64). Exposures to life events that are perceived as harmful or threatening and necessitate a possible response are referred to as stressors (64). Stress exposure is conceptualized as a collection of major event characteristics indicative of the time path of each stressor, and thorough

taxonomies or coding schemes assign life events or transition attributes to a particular category (63). A specific collection of life events was hypothesized to comprise a stress exposure measure's proximal portion, with an effect on health that is most malleable to cognitive appraisal (62).

Racial and Ethnic Disparities

Nations and regions experience unequal health outcomes across the life course. Racial and ethnic minorities typically have elevated morbidity and mortality, as do low socioeconomic status populations (65). In the U.S., the black-white gap in life expectancy is about 4 years, a difference that is similar to the gap between the U.S. and nations in Eastern Europe with similarly poor health outcomes (66). The confluence of individual and geographic wealth has both immediate and downstream effects on health, while other mechanisms such as exposure to stressful neighborhoods, racial discrimination, and the social isolation of wealth are emerging avenues of investigation (1). Beginning in the 1970s, scholars documented systematic differences in how social stratification produces risk for health; however, disparities in health across other forms of stratification continued to be poorly understood (67).

The possibility that socioeconomic disparity is an important mechanism by which racial and ethnic disadvantage shapes health has a long history in health disparities research in the U.S (68). Deleted the link between socioeconomic status and health disparities produced by the availability of measures of socioeconomic status and health outcomes that could be used across settings (35). Initially, researchers explored education and occupational disparities in self-rated health as well as the admission and recovery process for myocardial infarction and stroke patients (68). Most studies found that education was an important mechanism by which a race was associated with self-rated health and survival; however, several studies produced weak findings in instrumental variable analyses (69). When scholars unpacked SES more explicitly, educational and occupational health disparities were attributed to physical and emotional health. Likewise, although wealth was found to account for part of the difference in health between whites, blacks, and Latinos, significant disparities remained (69).

Gender and Health Disparities

Disparities in the prevalence and consequences of chronic health conditions between men and women have been highlighted across cultures and ethnicities (70). In general, women report higher rates of anxiety disorders, post-traumatic stress disorder, and depression than men in contemporary industrialized societies, while men report more alcohol, cocaine, and any substance abuse disorders (71). Nonetheless, gender/sex differences in the consequences of chronic stressors on health have received limited attention (72). The health gap between men and women due to chronic disease has narrowed in recent decades, primarily because cardiovascular diseases are becoming more prevalent among women and declining among men (70). Nevertheless, the current epidemiological evidence remains contentious (70). While there is consistent documentation of the higher rate of major depression and anxiety disorders among women, men are documented to show higher rates of adult-onset substance use disorders (SUDs) caused by environmental risk factors such as illness, trauma, or family and community disintegration (71). However, sex differences in chronic stressors and their consequences on mental health remain unexplored (72).

Chronic stressors, chronic social adversities, cumulative chronic socio-environmental stressors, and long-lasting structural conditions generate chronic daily stressors and, as a consequence,

poor mental health (73). Yet, prevalence and incidence rates of chronic stressors may be strongly gendered (74). Largely a structural and systemic concept, a chronic challenge to the social environment is the underlying reason for the disproportionate exposure of women to chronic daily stressors (64). Gendered socialization regarding family responsibilities translates into mechanisms mandating women to prioritize traditional kin caregiving and social service roles, sometimes at the expense of the self (75). Gendered structural roles such as workloads, profiles, and power positions interfere with worries and concerns about kin interactions, which have a universal tendency to worsen with age (75). Nonshared personal attributes such as personality traits as well as network configurations and characteristics may interact with the chronic exposure to those demands, thereby contributing to gendered differences in mental health following chronic social adversities (73). Gendered and culture- and society-embedded life styles of stress may also partially explain gender differences in the consequences on health (74). For instance, older age at the time of becoming a grandmother may interact with kin assistance to improve the mental health of women (75).

Children and Health Outcomes

Childhood morbidity and mortality rates vary considerably between racial and ethnic groups (76). The incidence of infant mortality is roughly 2.3 times higher for African American infants than for white infants, and the health care access gap between low-income and other infants is over one-third greater for African American infants (77). Although research has focused on the disproportionate neonatal mortality burden in non-Hispanic Black infants, mortality rates are higher among infants from single-parent homes, and there cannot be major disparities unless there are differences in risk factor prevalence (76). The family environment is critical to child development (76). Poverty, single parenthood, and a large number of children can be reasonably assumed to be necessary but not sufficient for deprivation (77). These conditions may adversely affect child health only when coupled with other factors, including parental education, parental social isolation, and poor parental health (78). Parents are children's primary socializers (78). They are responsible for ensuring access to material goods and social opportunities, negotiating access to health care, shielding children from risk, and stimulating cognitive and educational development (79). Traditionally, attention has focused on the nexus of poverty and parenting (79). Poverty, its emotional toll, and unmet basic needs have been found to contribute to parenting stress and, in turn, child health outcomes (80). Since adult health is associated with parenting behaviors and with child health outcomes, poor parental health may stack the deck against child health (80). The number of children was also found to be associated with lower levels of cognitive and educational outcomes (81). Poor parental mental health was hypothesized to adversely affect parenting behaviors, resulting in less positive child health outcomes (81). A stressed parent may focus more on pressing needs such as finances, nutrition, and housing, and less focus on health maintenance and disease prevention strategies for the child (82).

Elderly Populations

Given demographic trends in Western countries, health problems in the elderly population will be of mainstream importance (83). These health problems will be viewed as chronic diseases, such as cancer, diabetes, and cardiovascular disease (83). Older adults will continue to be viewed largely as a collection of chronic diseases and disabilities, defined by various declines, disabilities, losses, and illnesses (84).

While chronic diseases and declines plague the elderly population, sources of stress may play an equally important role in health problems among the elderly population. Problematic life events

are more common in elderly adults than in younger adults (85). Stressors typically considered to be of little consequence for health, such as the death of a distant relative or the loss of a favorite caregiver, are more prevalent among the elderly population (86). Neglected health-promoting and healing resources available to this population are properly conceptualized and modeled as health issues in their own right (86).

Despite advances in the biomedical paradigm, the health of older adults remains impoverished (87). New diseases and treatment equally hard to understand, and advances to older adults remain equally inaccessible (87). Interpersonal tensions reinforce the estrangement between the sick elderly and the rest of society (88). The elderly feel rejected and outside, and they cope with feelings of despair, worthlessness, and loneliness by retreating to worse physical, psychological, and economic health (88). The elderly lives with silent suffering (89). Their relative poverty is becoming more acute, and their risk of meeting deprivation is mounting (89).

Reinforced by powerlessness and helplessness, the elderly health can deteriorate, making their situation worse (90). Failure to cooperate with such treatment as medications further alienates them from the health care delivery system (90). The elderly stress and health experience may be more complicated than expected, since it consists not just of the perception of health problems, but also of perceptions of social regard and wealth, aspirations and access to resources (91). Such personal and social stresses may leak into elder health behavior, enabling a clearer distinction of the pathways linking stress to health through cognitions and behaviors (91).

Community Resources and Support

Despite evidence of associations between community skills and individual health behaviors, few studies examine how lower levels of community resources or better access to them contribute to health disparities (92). Community resources include parks, recreation centers, lifestyle education opportunities, and health service providers (92). Parks and recreation access promotes physical and psychological health (93). For neighborhoods with fewer community resources, nearby urban neighborhoods are more likely to increase perceived community cohesion and physical activity compared to rural areas (94). Marginalized populations are also affected by residential segregation and increasing income inequality (94). Studies on community resources and health disparities increasingly acknowledge the influence of local government policies and actions (93). However, definitions used to measure community resources vary widely, and the growing literature on community resources and health disparities tends to focus on parks and recreation facilities (95).

Other important community resources are less examined, such as neighborhood shops that serve healthy foods, lifestyle education opportunities, and centers that provide health and care services (96). From the standpoint of the social ecological model, inequitable access to community resources and skills expands the gap between affluent and disadvantaged populations and their physical activity levels (97). However, little research has been conducted to examine these aspects (96). Different community social participation types were used to provide information on community resources and skills, which positively influenced the adoption of physical activity (97). This study advances the community perspective on health disparities by examining how lower levels of community resources or better access to community resources contribute to health disparities (96). Population traits include disadvantaged social background, racial, ethnic, and social isolation, both in terms of international studies and population-level studies (98).

Policy Implications

Policies designed to ameliorate socioeconomically driven disparities incorporate a knowledge base that recognizes the fundamental cause status of SES (99). For example, policies that target education, income security, workplace stressors, literacy, social networks, and neighborhood residence can improve health outcomes, particularly in more distal populations that are lower SES (99). However, policy approaches that do not affect SES will be less effective at addressing health disparities. Socioeconomic status (SES) encompasses the economic and social factors that influence access to resources, power, and social networks that can shape health (100). For decades, researchers and theorists have observed that SES so profoundly shapes health that the material disadvantage it entails considers fundamental a cause of health disparities (100).

Health disparities are driven by a broad range of market-determined conditions that lead to excess risk of social disadvantage such as poverty, low education, poor housing, and unsafe neighborhoods (101). These conditions, broadly defined as the social determinants of health, are theorized to acceptably account for the majority of the racial or ethnic and educational attainment disparities in health in countries across the globe (102). While the model would need considerable expansion to account for the — broadly speaking — quantile-specific health outcomes and longevity produced in a capitalist system, it is a promising strategy for explaining why these disparities exist (103). In the context of the U.S. health system, inequalities in health are manifold (98). Rigorous study of racial, ethnic, and educational attainment disparities in a wide range of health outcomes has shown that these disparate distributions of health follow an SES gradient at every age (11). Furthermore, a nontrivial proportion of these disparities enter on changes in the social determinants of health as a corollary of the profound macroeconomic changes unleashed during the early to mid-1970s (1).

Interventions to Mitigate Stress

A wide range of effective interventions exist to mitigate the effects of socioeconomic and environmental stress (103). Interventions to address structural racism are gaining traction, although they are resource-intensive and challenging to implement (104). Other novel stress interventions, such as embedded community health workers, have great promise in reaching high-risk populations, although research to support capacity-building frameworks for establishing community health worker programs is still evolving. Interventions to address residential stressors such as food, housing, and transportation insecurity are disparate and may need companies, municipalities, and non-profits to work collectively to provide residents with effective services (105). Similarly, while health-system based programs to address access under-utilization have shown effectiveness, they are under-utilized due to various barriers (105).

Stress is increasing difficult to escape on the population level, a burgeoning field of evidence continues to link chronic exposure and poor health (67). Understanding the social determinants of health, especially the mechanisms by which they are embodied biologically, is becoming an increasingly important ask for public health researchers, practitioners, and policy makers (106). This systems-oriented understanding will lead to a more robust understanding of evidence-based ways to ameliorate the impact of social adversities on health (106).

Research addressing structural determinants of health is burgeoning, especially in regard to stress (107). However, relatively little work has investigated the biological mechanisms whereby structural stressors get under the skin (108). A combination of cellular- and population-health based approaches will be needed to advance in this crucial area (107). The shift from ‘what are

the social determinants of health' to 'how do social determinants get under the skin and basic biological pathways by which these determinants manifest health disparities are essential lines of inquiry in the development of effective intervention strategies (107). These novel ideas, especially if incorporated into interventions, will also lead to better ways to study adverse exposures by assessing mental load in addition to economic hardship and discrimination (108).

Role of Education

Education is one of the most well-established social determinants of health (109). The connection between education and health has been long known and is simple to convey: greater educational attainment is, on average, associated with better health longitudinally (109). Despite the persistence of the education-health gradient, inequalities exist not only in education but also in health (110). For instance, whereas many ethnic enclaves are thriving in metropolitan areas across the United States, measures of educational attainment among some immigrant groups are relatively low (111). These recent arrivals tend to be foreigners with limited education, and many lack the necessary resources to feed the health trajectory of their children in the new contexts (111). This illustrates that inequalities in health are enduring across generations and that they could be heightened further with the consideration of educational inequality where compounded disadvantages reside (110). This study has the further motivation of determining whether efforts at targeting disadvantageous cohorts more complexly, such as by ethnicity/race and education attainment, will pay greater dividends (109).

Educational attainment is conventionally formulated (and used) as a meaningful proxy to capture and quantify social status (111). The social gradient in health, whereby those of lower socioeconomic status tend to have worse health than those of higher status, is well established; this consistency is strong evidence that education is an important indicator of social status (112). Economically and ecologically unfriendly environments have psychological effects that influence health (113). Education affects several aspects of life that are health-relevant, and these might operate through social mechanisms that vary contextually (114). Importantly, educational attainment is one means of evading both health and educational inequities, as well as associated behaviors (113). The focus on education as social stratification captures and unpacks selective mechanisms by which ethnicity and education coevolve subtly (by education) and persist (in health) over generations (112).

Economic Policies and Health

Health inequality has been recognized for more than a century and has been the focus of many researchers in numerous academic disciplines (115). The term health inequality refers to measurable differences in health-related outcomes among individuals or collectives, e.g. countries or regions (116). Health inequalities cut across the entire social hierarchy and typically involve clustered social factors associated with poverty (53). Differences in the incidence and prevalence or severity of disease and differences in access to the necessities of life or the chances of avoiding premature death constitute health inequalities (117).

Socioeconomic disparity in the health distribution can be conceptualized as a combination of health information indicators, and the gap between groups of varying SES is termed socioeconomic health disparity (118). Socioeconomic, or social, factors, such as income and education, and neighborhood characteristics, such as income level, have been well recognized as key determinants of the disparities, while there is growing empirical evidence that the aggregate health distribution also depends on social arrangements and inequalities (119).

Economic policies are assumed as the main candidates of the factors that shape the aggregate health distribution, as they determine income and wealth distribution among nations or localities (17).

Global Perspectives on Socioeconomic Stress

Socioeconomic disparities are a significant source of health inequities (53). To understand how social determinants of health impact health, social epidemiologists are working to elucidate the pathways through which social factors affect health (120). At the population level, five pathways linking income inequality or poverty rate to population health, which are thought to represent the psychosocial impact stemming from human nature in responding to more or less inequality of interpersonal relationships within a society, including social comparison, relative deprivation, loss of social cohesion, failure of political and economic institutions, and poverty raters are adopted (121). The hypotheses on these pathways have been investigated in relation to multiple measures of income inequality, including the Gini coefficient, the ratio of income at the ninetieth and tenth percentiles, and the low income rate. One major area of research is macroeconomic shocks, particularly focusing on the impacts of economic crises and subsequent factors related to macroeconomic policies on population health (122).

Regarding the socioeconomic differentials in health from an individual perspective, Kondo worked on the wealth-health problematic with respect to income, education, and the employment status, and the psychological mechanisms through which educational attainment affect subjective health, with special attention given to a matching effect on occupational stress between education and job required mental aptitude (123). Established health categories on mortality and morbidities were also applied (123). The conceptual aim of equivalent analyses on the wealth-health problematic from the population and individual perspectives was to gain insights into cross-country variations in socioeconomic differentials in health (124). Upon investigating the scientifically plausible model of a combined influence of the income inequality and the poverty rate, it became evident that Japan belonged to the adversely affected societies in which increases in both the income inequality and the poverty rate were expected to adversely affect the self-ranked health (125), judging from cross-country population health and PES data (125).

Mental stress is a pervasive aspect of life. Severe and persistent stress may induce poor health, and adversely influence quality of life (125). The market transition has greatly promoted social economic development and provided improved living standards, and increased choices in consumption, education, health, and employment for the Chinese population (126). However, the transition has also created many social problems, such as, an imbalance between urban and rural development, regional development differences, rampant corruption, and a widening chasm between the rich and poor (125). The system of socialism in China with a central planned economy collapsed, and the new market oriented economy commenced in the early 1980's (127). As a result, millions of people escaped from the poverty level, the economy grew rapidly with more than 10% annually during the past two decades, and living conditions and health has improved considerably (126). However, in stark contrast, the Gini coefficient rose significantly, and income inequality began in the 1980's, rose sharply in the 1990s, and continued to increase in the 2000s (128).

Public Health Strategies

There has been substantial progress in the past decade on the concepts and measurement of

socioeconomic status (SES) inequalities in health (129). Not only are clear associations between socioeconomic status and premature mortality seen, but increasingly sophisticated analyses of panel and cohort studies are highlighting the timelines of the emergence of health disadvantages for poorer sub-populations (130). Globally, too, there is a growing realization of the importance of consideration of the social determinants of health and social inequalities in health and health care (130). However, this progress has not been matched by a similar impact on the policy space available for consideration of strategies to reduce socioeconomic inequalities in health (129).

The community development model and developmental assets framework have been applied in public health applications in a variety of areas since the early 1990s (131). More recently, the community development model has been used in an effort to eliminate population health disparities (132). A brief description of the community development model and its application in public health is given, followed by a description of how the community development model has been used to address population disparities in health in various locales within the United States (133). The originally designed framework to implement the community development model is presented (132). It is designed to assist policymakers and community leaders in understanding and solving barriers to healthy living in underserved communities (133).

The community development model is deliberative in nature, capacity building in perspective, and operates from an empowerment point of view (134). It is a framework consisting of knowledge assets, human resources, and networks that are attitudinal in character (135). It is concerned with developing analysis and synthesis in areas with a high degree of uncertainty or ill-defined boundaries (136). It seeks to improve decision making by improving understanding of a complex situation. Community peers, brokers and facilitators play an integral role in community-driven processes that have been used in Australia and other settings (137). In addition, a community-driven approach fosters collaborative public-private partnerships that yield multiple benefits. Such partnerships develop natural social networks or associations among residents which create new assets (137).

Conclusion

Understanding how and why some social groups experience differences in health relative to others is one of the central questions in population health research (138). A burgeoning literature spanning disciplines from sociology to epidemiology and psychology provides evidence that social characteristics of individuals, such as their gender, race, ethnicity, and socioeconomic status (SES), play important roles in shaping patterns of health, illness, and death (1). In many sociodemographic contexts, disadvantaged group members tend to exhibit poorer objective and subjective health outcomes, while more socially privileged group members tend to enjoy better health (139). In particular, the health disparities faced by racial and ethnic minorities—and by African Americans in particular relative to whites—have long garnered interest from scholars, public health officials, and policymakers (140).

Much research has sought to understand the large and persistent disparities in health and mortality faced by some demographic groups, using the notion of the "Black-White health gap" as a focal point for investigation (141). One of the challenges that researchers faced in understanding the persistence and size of racial disparities in health is how to depersonalize the understanding of why health disparities exist (142). Specifically, how to center structural social forces and the ecology of demographic and contextual positions rather than individual attributes in the search for causal mechanisms? (143). Beginning in 1995, an approach termed "fundamental causes of disease" emerged, which posits that "the persistent social inequalities in

health that have characterized contemporary industrialized societies can be traced to underlying social factors…and that these social factors manifest themselves through a diverse set of mechanisms" (141). Though a vast body of research has emerged advancing this perspective in regard to neighborhoods, gender, and SES, many remain on the fundamental causes of racial health disparities specifically (144).

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