

**How U.S. Laws and Social Policies  
Influence Chronic Stress and Health Disparities**

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*“The structural contexts of people’s lives are not extraneous to the stress process  
but are fundamental to that process.”*

(Pearlin, 1989)

## ABSTRACT

Chronic overactivity of the body's physiologic response to stress can result in pathophysiologic consequences such as: hypertension and cardiovascular disease; diabetes; visceral obesity and metabolic syndrome; respiratory illness; depression; low birth weight; and progression from HIV to AIDS. *These diseases correspond almost exactly with the health disparities identified in Healthy People 2010 for people of color and low socioeconomic status.* Structurally disadvantaged groups that experience discrimination based on race and/or socioeconomic class are more likely to be exposed to stressors and experience them on a chronic basis than their more advantaged peers. But stress-related disease does not result from exposure to stressors. Four requirements must be met before an individual will become sick from stress: (1) exposure to a stressor, (2) perception of the stressor as stressful, (3) vulnerability to the stressor through high task engagement and low personal control, and (4) lack of sufficient stress buffering resources. We can predict which *individuals* are most likely to get sick from stress by identifying those who are vulnerable to stress and those who lack sufficient stress buffering resources. But there is a paucity of research to explain why *groups* of people get sick from stress. An exploration of the sociological constructs of social closure and relative deprivation can help explain why disadvantaged groups may experience more stress-related disease. Social closure helps us understand the structural context that reduces the resources and sense of control some social groups might feel while striving for rewards that are highly valued in our society. Mechanisms for social closure might include racism, literacy, educational and professional credentialing, property and tax laws, and access to healthcare, transportation, and technology. Relative deprivation explains how social and economic comparisons can impact every stage of the stress process, especially when disparities are greatest, resulting in consistent and striking correlations with stress-related disease. Mechanisms promoting relative deprivation include individual and corporate property and tax laws, media saturation, and consumerism. Such findings suggest that reductions in stress-related health disparities must be addressed both from an individual and systematic perspective. While *Healthy People 2010* offers objectives to reduce health disparities, it does not address stress or structural causes. Most stress research is funded by agencies organized around disease states, resulting in research that is fractured and underestimates the total impact of stress on disease. If we truly want to reduce the health disparities in our country, we must first recognize the role that stress plays in those disparities, and then address the social structures that contribute to that stress. Policy implications include: recognition of stress as a contributing factor to health disparities; restructuring agencies that fund health research to broaden research topics and initiate research from the disempowered; restructuring of healthcare to incorporate issues addressing structural causes of stress through literacy, education, transportation, and job-skills services; recognition that social policy is health policy, with resulting advocacy on the part of public health organizations for issues such as a livable wage, affirmative action, the end of corporate welfare, and universal healthcare.

## **INTRODUCTION**

In this essay, I will review the health disparities experienced by structurally disadvantaged groups; identify the stress-to-illness process; review the documented associations between stress and disease; explore the constructs of social closure and relative deprivation as concepts that might further illuminate our understanding of the stress process.

## **WHAT ARE HEALTH DISPARITIES?**

The U.S. Department of Health and Human Services (2000) has identified health objectives and priorities for our nation in the document *Healthy People 2010*. The document contains 467 specific objectives, organized into twenty-eight focus areas. The focus areas cover topics such as access to healthcare, food safety, and public health infrastructure, and a variety of specific diseases and conditions such as arthritis, cancer, heart disease, and obesity. In addition to the focus areas, there are two overarching goals: (1) “increase quality and years of healthy life” and (2) “eliminate health disparities.”

The document focuses on health disparities experienced by specific ethnic groups and social statuses. For example, it reports that African Americans are 40% more likely to die from heart disease, 30% more likely to die from all kinds of cancer, and 7% more likely to die from HIV/AIDS than whites. Hispanics are twice as likely to die from diabetes and more likely to suffer from high blood pressure and obesity than whites, and Native Americans are twice as likely to have diabetes than whites. Heart disease, diabetes, and obesity are reported to be associated with socioeconomic status, and the document suggests that inequalities in income and education may underlie many of the health disparities in the United States. Although *Healthy People 2010* mentions the need to take a multidisciplinary approach in achieving health equity, including improving education, housing, labor, justice, transportation, agriculture, and the environment, the primary focus is on improving access to healthcare and using health communication and health education techniques to improve individual health behaviors and reduce the incidence and prevalence of specific diseases.

Cohen, Kaplan, and Salonen (1999) explain that the association between socioeconomic status and health exists at every level of the SES hierarchy, not just for those below the poverty line. Wilkinson (1999) reports that attempts to explain this phenomenon with access to medical care, individual health behaviors, and functional arguments of reverse causality have not proven

fruitful, suggesting that the Healthy People 2010 techniques for addressing health disparities may be misguided and ineffective. Sapolsky (1998) argues that the strongest SES gradients occur for diseases with the greatest sensitivity to stress. Yet there is no discussion of stress in the Healthy People 2010 document. A search of all 467 objectives reveals no mention of stress or distress in any of them.

## **STRESS PROCESS**

Four requirements must be met before an individual will become sick from stress. First, they must be exposed to a stressor. Second, they must perceive the stressor to be stressful (i.e., perceive their demands to exceed their resources). Third, they must be vulnerable to the negative effects of stress by perceiving high task engagement and low personal control. Fourth, they must lack sufficient stress buffering resources to compensate for this exposure and vulnerability. If all of these events occur, illness is likely to result (see Figure 1).

### **Exposure to Stressors**

Exposure to stressors is influenced by positions in the social hierarchy (Aneshensel, 1992; Lennon, 1989; Turner et al., 1995). Structurally disadvantaged groups, such as those who experience discrimination based on race, class, or gender, are more likely to experience stressors and experience them on a chronic basis than their more advantaged peers (Carroll, 1998; Lennon, 1989). In fact, some researchers suggest that stress is so constant and pervasive for these groups that membership in these social groups should serve as a proxy for exposure to chronic stress, with age serving as a proxy measure of the degree of cumulative stress over time (Anderson et al., 1991; Williams, 1995).

Membership in multiple disadvantaged groups not only creates added exposures, it also creates *different* exposures and sometimes *multiplies* the individual effects of those exposures. As Aneshensel (1992) says, “Stress-reactivity may depend upon constellations of social statuses” (p. 24). For example, poor blacks report more psychological distress than poor whites or higher-income blacks, perhaps because of the combined burden of poverty and racism (Anderson et al., 1991). Similarly, low SES blacks living in neighborhoods with high social instability had higher blood pressure than low SES blacks living in more stable neighborhoods (Anderson et al., 1991). Krieger et al. (1993) also point out that the types of sexism women experience may vary depending on their social class and racial/ethnic group.

## **Stress Perceptions**

Matheny and Riordan (1992) suggest that stress is what happens when you perceive that your demands exceed your resources. They emphasize that stress is not synonymous with exposure to a stressor – there must also be a perceptual incongruity between the threat of the stressor and a person’s assessment of their structural, material, and psychosocial resources to deal with the threat. For example, imagine two people riding a roller coaster. One person enjoys roller coasters and experiences the event as entertainment, while the other fears roller coasters and perceives the ride as a threat to their safety. Each person has a different physiological response to the event, based on their differing psychological perceptions. The person who fears roller coasters will experience a stress reaction while the other person will not, even though both were exposed to the same “stressor.”

## **Vulnerability to Stress**

Although many different psychological vulnerabilities have been identified and tested, two primary themes include high task engagement and low personal control. In fact, both must be present to experience negative health outcomes from stress.

High task engagement means the person must be psychologically and emotionally engaged in the event. Essentially, they have to care about it. Several studies have shown that participants have higher reactivity to a stressor when they are engaged in an event, and lower reactivity when they are disengaged or do not care about the outcome (Anderson et al., 1991; Cohen et al., 2000; Ewart, 1995). Researcher Sherman James (1983) coined the phrase “John Henryism” to explain the phenomenon of blacks working against the overwhelming odds of multiple structural barriers to gain control over their environments, a construct similar to task engagement. James showed that black men high in John Henryism experienced higher blood pressure than those scoring low in the construct.

Individuals who feel a lack of control over events, whether this feeling is measured in terms of mastery, personal competence, self-esteem, or locus of control, are more likely to be vulnerable to stress (Aneshensel, 1992; Krieger et al., 1993; Lin and Ensel, 1989; Williams, 1990). Some researchers posit that a lack of perceived control may make a person more vulnerable to stress by reducing their chances of utilizing stress-buffering resources (Williams,

1990). Others report that the psychological benefits of perceived control are directly related to social status. Social status-related control has no limits in psychological benefits, but when perceived control is not based on social status, there are limits to how much it is effective in buffering stress (Aneshensel, 1992).

### **Lack of Sufficient Stress Buffering Resources**

Stress buffering resources include social support networks, individual psychological coping skills such as resiliency and hardiness, and the often-overlooked economic and political resources available to the upper social strata. Aneshensel (1992) reports that coping and social support are complementary functions, with one referring to actions taken by an individual on their own behalf, and the other referring to actions taken by another person. It is important to point out that it is not merely the existence of resources that buffers stress, but the existence of resources *in sufficient quantities/strengths* to buffer the stresses experienced. Groups that are exposed to more stressors should need more stress buffering resources to meet their demands. The experience of an illness after exposure to multiple stressors does not necessarily imply a lack of stress buffering resources – only a lack of sufficient quantities/strengths of stress buffering resources.

With social support, as with so many other variables related to stress, it is the perception that matters most. Perceived emotional and social support have been shown to buffer stress more than objective membership in social networks (Aneshensel, 1992). This is consistent with other research showing that social networks for the poor can provide stress and support in almost equal quantities (Williams, 1990), thus emphasizing the importance of the perception of support received over the existence of a support network. Turner and Noh (1983) found that a combination of high perceived social support and high personal control was sufficient to explain the class/distress relationship in their study population. Lin and Ensel (1989) argue that social resources do not necessarily reduce physical symptoms by themselves, but when the resources are absent, the stress symptoms are exacerbated. This is supported by Williams (1990), who reports that comparable stressful events have stronger negative effects on lower-SES individuals, who have fewer resources available.

Cognitive coping skills can also buffer the negative impact of stress by providing the individual with a positive comparison, perceiving the stressor as a challenge rather than a threat,



and finding a sense of commitment to pursue the problem rather than avoid it (Kobasa, 1979; Kobasa and Puccetti, 1983). Some researchers have suggested that specific social groups may be deficient in these coping skills. Although groups differ in their behavioral responses to stress, studies have not shown any consistent selection of ineffective strategies, reflecting more of an individual than group variation in this area (Aneshensel, 1992). Williams (1990) also addresses the fact that higher-SES groups have differential access to goods and resources that can improve health status. However, more research is needed in the area of structural monetary and power resource differentials and their impact on stress vulnerability and coping.

## **HOW EXACTLY DO PEOPLE GET SICK FROM STRESS?**

### **Fight-or-Flight Response**

Once a person is exposed to a stressor and perceives the event as stressful, if they are vulnerable to that stressor and lack sufficient stress buffering resources to counteract the stress, they are likely to become ill. Especially if they are exposed to chronic stress. First, a person experiences the fight-or-flight response (Sapolsky, 1998), also known as the General Adaptation Syndrome (Selye, 1956). This physiological response was adaptive for survival when we were living on the savanna with saber-toothed tigers. Imagine a tiger charges toward you. You've just been exposed to a stressor. You perceive that your chances of outrunning it or killing it by yourself aren't great. Survival is important to you and you don't have any control over whether or not the tiger is charging you, so you're vulnerable to this stressor. No one in your social support network is available to help you fight off the tiger and thinking about the situation differently won't help, so your stress buffering resources aren't sufficient to deal with the challenge. You're stressed.

Your body responds with the fight-or-flight response. It releases free fatty acids and glycerol into your bloodstream to give your body the extra fat and sugar it needs for an extra-quick energy supply. It diverts blood circulation away from the extremities and surface of the skin toward your major muscle groups, then increases blood pressure, heart rate, and breathing rate to make sure you get the blood and oxygen you need quickly. Digestion is stopped and reproductive hormones are suppressed in order to divert energies to more immediate needs. For a short while, pain sensations are suppressed in order to allow you to escape if you are injured, and the immune system is enhanced to provide additional protection from infection if an injury

occurs. You are prepared. You fight off the tiger or run away, and in the process of doing so, your body uses up the extra fats and sugars in your bloodstream. Once the emergency is over, all systems return to normal (Sapolsky, 1998).

### **Allostatic Load**

Unfortunately, most of the stressors in today's society don't work that way. If you're stressed out by your boss, it's not socially acceptable to beat him up or run away. But if you don't respond physically to the stressor, your body doesn't know when to return to normal. And if you're constantly exposed to multiple stressors over time, the system could break down. Bruce McEwen (1998), a neurobiologist, established the concept of allostatic load. Allostasis is the body's ability to adapt or adjust. When the body is exposed to chronic stressors, it may experience allostatic load, and lose its adaptability, which could lead to disease (see Table 1). This could cause the stress responses in the body to get stuck. Some systems may get stuck in the "on" position (continually releasing extra fats and sugars into the bloodstream and increasing blood pressure), while others could get stuck in the "off" position (continually suppressing sex hormones) or constantly fluctuate between "on" and "off" (irregular heart beat and fluctuating diarrhea/constipation). Some of the body's systems experience tissue fatigue, which occurs when too much of a neurotransmitter is released from one cell and the receiving cell doesn't have sufficient receptors to receive all of the chemical. Both cells will compensate by reducing their ability to send out and receive that neurotransmitter. In the case of pain, this means that the body could respond to repeated stressors by wearing out the pain suppression system and making you more sensitive to pain. The immune system might drop below normal levels and lose its ability to fight off normal infections like the cold, flu, and dental cavities. Sustained immune suppression could leave a person more vulnerable to cancer. A person with a suppressed immune system might be more likely to contract HIV if they are exposed to it, and more likely to progress to full-blown AIDS if they already have HIV. Tissue fatigue also contributes to depression. The hormones that help the body block pain (endorphins) and increase heart rate (norepinephrine) also serve to elevate mood and increase a person's ability to pay attention and focus. When tissue fatigue occurs with these hormones, the opposite reactions occur, and a person experiences depression and an inability to focus (Matheny and Riordan, 1992).

## **Stress-Related Diseases**

Research on the relationship between stress and disease has shown an association between stress and: the development and poor control of diabetes (Gaskill et al., 2000; Moody-Ayers et al., 1999); hypertension and cardiovascular disease (Carels et al., 2000; Espino and Maldonado, 1990; Orth-Gomer et al., 2000; Pickering, 1999; Shaw et al., 1999; Siegrist et al., 1992); immune and pain response, including rheumatoid arthritis, chronic fatigue syndrome, fibromyalgia, and chronic pain syndromes (Cutolo et al., 2000; Heim et al., 2000; Shanks et al., 1998; Van Houdenhove et al., 2001); gastrointestinal problems (Dancey et al., 1998); visceral obesity and metabolic syndrome (Peeke and Chrousos, 1995); respiratory illness (Sandberg et al., 2000); depression (Evans et al., 1987); low birth weight (Wadhwa et al., 1993); and progression from HIV to AIDS (Leserman et al., 2000). These illnesses correspond exactly with the SES gradient between health and disease. Adler and Ostrove (1999) report, “In terms of specific diseases and syndromes, there is a strong and consistent SES gradient for cardiovascular disease, diabetes, metabolic syndrome, arthritis, tuberculosis chronic respiratory disease, gastrointestinal disease, and adverse birth outcomes” (p. 8).

## **WHY DO PEOPLE OF COLOR AND LOW S.E.S. GROUPS HAVE MORE STRESS-RELATED DISEASE?**

The constructs of social closure and relative deprivation can help us identify who is more likely to be exposed to stressors; describe the social context in which people perceive their demands, their resources, and the importance of their stressors; and identify the social structures that can reduce their control of stressors and their access to stress-buffering resources.

### **Social Closure**

Aneshensel (1992) describes one major pathway linking structure to stress as exclusion from full participation in the social system. Weber (1968) describes a closed social relationship as one in which “participation of certain persons is excluded, limited, or subjected to conditions” (p. 146). Parkin (1979) further defines social closure as the closure of social and economic opportunities to outsiders and the restriction of access to resources. Mechanisms for social closure include racism, housing, education, literacy, educational and professional credentialing, and access to healthcare, transportation, and technology.

**Racism:** Much social closure for racial groups is grounded in the historical implications of overt racism. The restriction of First Nation peoples to reservations without honoring the subsequent treaties, the enforcement of slavery for African Americans, the use of internment camps for Asian Americans, the use of restrictive immigration laws which especially impact Chicanos, and the segregation of most of these groups to separate lower-quality schools and living environments are all reflections of laws and social policies that will continue to reverberate throughout the affected racial and ethnic groups for years to come by restricting access to resources and excluding full participation in society.

**Housing:** The legacy of the racist laws and policies of the past meant that many racial and ethnic groups in the U.S. were excluded from home ownership. Most people of color and low SES groups were not allowed access to jobs that would pay well enough to purchase a home without assistance. Qualifying for a federal loan to purchase a home was blatantly discouraged for people of color many years. Duster (1995) reports that loans through the Federal Housing Authority (FHA) or Veteran's Administration (VA) were explicitly restricted to neighborhoods with "racial integrity" and Jackson (1980) reports that properties in or near black neighborhoods were rated ineligible for loans. In fact, Duster goes on to state that in 1962 less than two percent of the financing provided by the FHA and VA for new homes was available for nonwhite families.

Restricted access to affordable housing continues to exist today, although perhaps in a less covert fashion. Fisher et al. (1996) report that multiple studies have shown black home-seekers with equivalent credentials to whites were not shown the same neighborhoods as whites, were told that there were no apartments available when whites were told differently, and were actively steered to black neighborhoods. Such social closure in the housing market has profound ripple effects through many other facets of life in our society. Without access to a home of their own, people of color and low SES groups lack a major financial asset that would allow them the opportunity to leverage additional loans in the future. They are also restricted in their ability to pass on wealth to future generations.

**Education:** Access to quality education is directly affected by the neighborhood in which one lives. De facto segregation occurs when people of color and low SES groups are excluded from certain neighborhoods – usually the suburbs. This segregation is compounded when public housing is consolidated in inner-city areas. Laws that structure the funding of

schools on property tax values ensure that low-income neighborhoods receive less funding for education. When children of parents who have not had access to quality education, good-paying jobs, or affordable housing are grouped together in a school system that is under-funded and overwhelmed, pessimism, resentment, and subsequent disciplinary problems emerge at a higher rate than what would be expected based on the individual backgrounds of the youth (Fischer et al., 1996). In response, students are more likely to drop out of these schools. If they don't drop out, they are more likely to score poorly on standardized tests, including intelligence tests and college entrance exams. In fact, Fischer et al. (1996) report that lower scores on intelligence tests occur consistently for disadvantaged groups in a variety of countries, including in Israel, Japan, and South Africa, where the groups are differentiated by social status, but not race. The legacy of limited and poorer quality education includes limited literacy for many in these groups, which further restricts their access to good paying jobs and other social and financial resources.

**Higher education and professional credentialing:** Another form of social closure is restricted access to higher education and the credentials necessary to obtain higher-paying jobs. When laws and policies limit the financial aid available for low-income students to attend institutions of higher education, access to this path to upward mobility is limited. When standardized tests are used as entry requirements to these institutions, poor students coming from overwhelmed schools are further limited in their future possibilities. But Parkin (1979) describes an even more insidious activity – closure due to credentialing. The process of raising the minimum requirements for entry into an institution of higher learning or a well-paying job means that those who do not have access to these requirements are once again closed out of full participation in society. When entry into a job depends not only on a high school degree, but a bachelor's degree, or a master's degree, and then only from a "reputable" school, each increase in minimum qualifications restricts access to another group of people.

**Access to healthcare, transportation, and technology:** Restriction of access to good-paying jobs also has ripple effects for access to other goods and services in our society. Although many people consider healthcare, transportation, and technology privileges and not rights, Jencks et al. (1972) point out that the "cost of living" in a society "is not the cost of buying some fixed set of goods and services. It is the cost of participating in a social system" (p. 405). The truth of the matter is, without quality healthcare, reliable transportation, and basic

technology such as a telephone, answering machine, and access to the internet, it is becoming increasingly difficult, if not impossible, to fully participate in our society today.

These exclusions from resources not only limit the economic assets available to deal with a stressor, they also increase the likelihood that these groups will be forced into lower-status jobs with increased exposure to stressors and decreased control. Carroll (1998) reports that barriers to equitable educational opportunities and housing options, job discrimination, and unequal access to a wide variety of quality services contributes to the African American experience of “mundane extreme environmental stress.” Engagement in the excluded resources is assured by the social values they represent (Pearlin, 1989). Thus, the construct of social closure contributes to the stress process by explaining how social groups that are exposed to this phenomenon experience reduced resources, increased opportunity for additional exposures to stressors, and reduced sense of control, all while maintaining high engagement in mostly unattainable rewards.

### **Relative Deprivation**

Panning (1983) argues that relative deprivation affects the behavior of social groups only when individuals compare their own lot with that of others, discover inequalities, and become dissatisfied. Keith and Schafer (1987) suggest that social comparisons are the only way in which persons determine what they deserve and whether or not resources have been distributed fairly. According to this theory, structurally disadvantaged groups would not experience stress from their disadvantages as much as they would experience stress from the *relative* disadvantages they perceive in comparison to the advantages of other social groups. Wilkinson (1999) states, “Perhaps what hurts most about relative poverty is not so much the lack of material possessions itself, but the affront to one’s dignity that it represents” (p. 54).

**Property taxes:** One way in which U.S. laws contribute to relative deprivation is the property tax structure in our country. Homeowners can make deductions from their taxes for the interest on their mortgages, no matter how many homes they own or how much money they make (Fischer et al., 1996). Those who do not make enough money to own a home or pay taxes do not usually receive such tax breaks. The gap between the two groups widens even more when the tax deduction for the rich means less money to spend on housing subsidies for the poor. But it is not just the lack of money, it is also the way the money is spent. “By the early 1990s, the cost of the mortgage interest and property tax deductions amounted to more than \$60 billion

annually, over four times as much as was spent on direct housing assistance for low-income families” (Fischer et al., p. 137).

**Wealth gap:** This issue further contributes to the wealth gap between people of color and whites in our society. Oliver and Shapiro (Oliver and Shapiro, 1997) differentiate between wealth and income when they state, “wealth is what people own, while income is what people receive for work, retirement, or social welfare. Wealth signifies the command over financial resources that a family has accumulated over its lifetime along with those resources that have been inherited across generations” (p. 637). Property tax deductions for the rich without appropriate levels of housing subsidies for the poor means that the poor and people of color are often trapped without the equity to leverage resources for the future. Fischer et al. (1996) compare the median young, two-earner black couple to the median young, two-earner white couple. The black couple’s annual income is 81 percent as much as the white couple, but their net worth is only 18 percent as much as the white couple.

**Corporate welfare:** Corporate welfare and union busting has also had a profound affect on low-wage workers in this country. Many communities compete for businesses by offering tax breaks, commitments to build roads or provide other infrastructure at tax-payer expense, and promises to regulate union activity (Grant and Wallace, 1994). Since unions help to regulate wages, limitations on union activity means greater wage inequality between the lowest paid worker and the CEOs for most corporations. Although many people believe this is the best way to foster competition and productivity, there remains only a weak relation between executive compensation and productivity (Crystal, 1991). Western Europe’s productivity exceeded ours between 1970 and 1990, even though they had more centralized wage-setting systems (U.S. Census, 1995; Freeman, 1994). The amount that low-wage workers earn compared to high-wage workers is half as much for Americans as it is for Europeans (Fischer et al., 1996).

**Media and consumerism:** The media may have also had a great impact on our society in recent years in terms of relative deprivation. Drentea and Lavrakas (2000) report that in the past, Americans used to match their life style with their neighbors and local reference groups. Now, perhaps because of the ever-present media and its hyper-consumer messages, people choose reference groups that are three to five times that of their own salary, creating an immediate sense of stress when their monetary resources are not sufficient to meet their

consumer demands. Of course, this is most likely to negatively impact those with the least resources, who will see the biggest discrepancies between their resources and their demands.

**Changing reference groups:** Whether or not a person voluntarily migrated to this country can also affect their perception of relative deprivation. Tilly and Tilly (1998) report that migrants who have recently entered our country often compare their current job to the job opportunities of their previous location and feel fortunate for the opportunity to have a job or make the money they are making. However, as they or their offspring begin to see themselves as permanent members of the economy, their reference group changes. They begin to compare their job to the other jobs and wages available in this country and feel relatively deprived, creating a source of stress.

Evidence of a connection between relative deprivation and the stress process is striking. When the health/SES relationship is compared between different countries, or even between different states in the U.S., it is not the absolute living standards or material circumstances that explain these disparities. Instead, in country after country and state after state, the disparities in health status directly reflect the degree of disparity in income. In other words, a more egalitarian society with little disparity in income will have little disparity in health status of its members, regardless of the median income or standard of living. This suggests that the disparity is not a reflection of what the lower-SES groups are unable to buy to improve their health, but rather the social pressures and inequalities they are unable to escape.

Animal studies confirm this hypothesis. Researchers studying baboons and monkeys monitored their health status in reference to their social standing. The animals with the lowest social standing had the highest incidence of risk factors. They had higher cholesterol levels, central obesity (part of metabolic syndrome), glucose intolerance, increased atherosclerosis, and higher levels of stress hormones in their blood as compared with the animals of higher social standing in their groups. The monkey experiments were able to control diet and environment, so “health behaviors” were ruled out. Reverse causality was also ruled out, as these risk factors were found consistently in members of the lowest social standing, even if they had previously held a higher social standing, either due to natural circumstances or experimental manipulations of the social groups.

Adler and Ostrove (1999) report, “Similar associations with health have been found no matter which SES indicator is used. Together with the animal literature on the effects of



dominant versus subordinate status, this suggests that there may be some common element of social ordering that may be operating to influence health” (p. 10).

## CONCLUSION

The *Healthy People 2010* guide prepared by the U.S. government documents the disparities in health status experienced by different racial and socioeconomic groups in our country and offers objectives to reduce these disparities. However, none of the objectives, focus areas, or goals in the guide identify stress as an underlying cause of these disparities, nor do they offer any suggestions for structural interventions to address the disadvantages these groups experience.

Despite a newly developed theory explaining the potential disease consequences of chronic stress and a preponderance of research showing a relationship between stress and specific diseases, it is not surprising that stress has yet to be recognized as an underlying cause of health disparities. When exploring only one disease at a time, researchers assume that individuals who did not develop a specific disease were unaffected by stress, which underestimates the negative health consequences of stress. The fact that most stress research is funded by agencies organized around disease states also means that researchers may not be aware of similar findings in other fields, further fracturing the stress research field and limiting the possibilities of forming a cohesive argument for the relationship between stress and multiple disease states.

Exploring the relationship between stress and health disparities from a social stratification perspective may prove to be a much more meaningful endeavor. If we look at the entire stress process, the process of exposure → perception → vulnerability → stress buffers → disease, we can see that there are several ways in which structurally disadvantaged groups may be more susceptible to stress-related disease. The structures related to social stratification explain why structurally disadvantaged groups not only are more frequently exposed to stressors, but also why those stressors are perceived as stressful, why the stressors are important, why the stressors are beyond their control, and why they have insufficient stress buffering resources to counteract those effects, thus explaining why they may be more likely to experience negative health outcomes such as those identified in health disparities.

Social closure helps us understand the structural context that could reduce the resources and a sense of control some social groups might feel while striving for rewards that are highly valued in our society. These groups may subsequently be exposed to more stressors as a result. Relative deprivation explains how social comparisons can be psychologically stressful, especially when disparities are greatest, and how that stress could translate to disease.

Given this information, the *Healthy People 2010* objectives to reduce health disparities through increased access to healthcare and improved health education seem illogical. As Williams (1990) states, “It is important to recognize that attempts to modify the behavior and lifestyle of the poor while leaving social structures intact are unlikely to be effective in eliminating SES differentials in health” (p. 90). If we truly want to reduce the health disparities in our country, we must first recognize the role that stress plays in those disparities, and then address the social structures that contribute to that stress.

## **POLICY IMPLICATIONS**

If U.S. laws and social policies have influenced the stress that people of color and low SES groups experience in this country and contributed to their disproportionate burden of disease, then changing these laws and policies may help to improve their health and quality of life. There are several ways in which this may be done. First, it is important for national health organizations such as the United States Department of Health and Human Services (HHS) and the National Institutes of Health to recognize psychosocial stress as a contributing factor to disease and health disparities. This can be done through the inclusion of stress in the next HHS version of Healthy People – Healthy People 2020.

Second, the structure of federal public health research funding must be changed to more easily and accurately address psychosocial causes of disease which do not fit neatly into a single disease category and to initiate more research from the disempowered themselves. Although the NIH is currently attempting to address concerns about disease-focused research through the development of the Office of Minority Health and the Program of Action on Health Disparities, these departments are vastly underfunded in comparison to those which are aligned with disease categories and their relative political power is minimal. In addition, public health research seems to be based on the trickle-down economics philosophy. Those who most directly benefit from public health research are the researchers themselves and their respective academic institutions.

It is assumed that the researchers will share their findings with colleagues and students, who will use the information for yet more research and perhaps some of the information will trickle down to the community. But there is little guarantee that community members will benefit from or even become aware of this government-funded research, other than perhaps a sound byte on the local television station if the research is published in a well-recognized journal. Instead, community organizations should receive the funds directly, with the researchers serving as research consultants to help them procure the funds and administer the research within the confines of everyday limitations of service delivery. If the research proves efficacious, demonstration grants should then be available to continue the more effective services.

Third, healthcare itself should be restructured to incorporate issues addressing structural causes of stress. This could be accomplished by offering literacy, education, transportation, and job-skills services in a hospital or healthcare setting, by educating healthcare professionals about the relationships between these services (or lack of services) and disease, and by creating referral systems for healthcare providers to refer a patient with heart disease for literacy services and allow the healthcare system to receive reimbursement for this service as well.

Finally, we must recognize that social policy is health policy. Our national public health organizations, such as the American Public Health Association, the American Medical Association, the American Psychological Association, and the Society for Public Health Educators, must expand their respective battles against disease by addressing the underlying structural and social causes and advocating for social change. Each organization could advocate for issues such as a livable wage, affirmative action, the end of corporate welfare, and universal healthcare.

But it is also important to recognize that the two main sources of structural stress addressed in this essay – social closure and relative deprivation – are not specific to any racial or ethnic group, nor to any socioeconomic class. Instead, they are related to the broader topic of inequality. This means that funding to reduce health disparities for African Americans or advocating for social policies to increase the minimum wage will not succeed in reducing overall health disparities if other ethnic or social groups continue to be oppressed and if the high-wage earners continue to see their earnings rise. If we want to reduce the gap between those who live with disease and those who are healthy, we must also reduce the gap between those who have a little and those who have a lot, regardless of what the minimum levels are. This is not an issue

that is relevant only to the United States. It is also a global issue. If we want to reduce worldwide poverty and disease, we must take a critical look at the degree to which our American culture contributes to these issues by widening the gap. According to the Ecological Footprints of Nations (Wackernagel et al.), one average American requires 25.45 acres of land in order to supply all the energy, food, paper, building materials, and consumer goods to keep us living the life to which we have grown accustomed. At that rate, if everyone on our planet used as many resources as we do, it would take four and two thirds Earths to sustain us all (Kraft, 1998). Americans love to believe that other cultures are jealous of our quality of life and that the assumed goal is for everyone to strive to be like us. But if it would be impossible for our planet to sustain each person based on the level of consumption of the average American, relative deprivation can never truly decrease by bringing everyone else to our level. We must critically examine the need to decrease our own use of resources, in order to fully participate in the creation of a more just global society.

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Table 1

## HOW DO PEOPLE GET SICK FROM STRESS?

Immediate Health Effects		Long-Term Health Effects		Potential Chronic Disease Consequences
<i>Fight-or-Flight Response</i>				<i>Allostatic Load</i>
Fats released into blood	→	High cholesterol		Atherosclerosis Heart disease Stroke
Increased blood pressure	→	High blood pressure	→	
Increased heart rate	→	Irregular heart beat		
Sugars released into blood	→	Glucose intolerance	→	Diabetes
Surface circulation diverted	→	Skin rashes	→	Chronic dermatitis
Digestion stopped	→	Diarrhea Constipation	→	Irritable bowel syndrome
Sex hormones blocked	→	Low sex drive Irregular menstrual cycles	→	Decreased fertility
Pain is blocked	→	Increased pain sensitivity	→	Arthritis Fibromyalgia
Immune system increases	→	Autoimmune response		Rheumatoid arthritis Chronic fatigue syndrome Lupus
	→	Suppressed immunity: Colds Flu Dental cavities	→	Cancer Contract HIV (if exposed) HIV → AIDS

# Stress-to-Illness Process

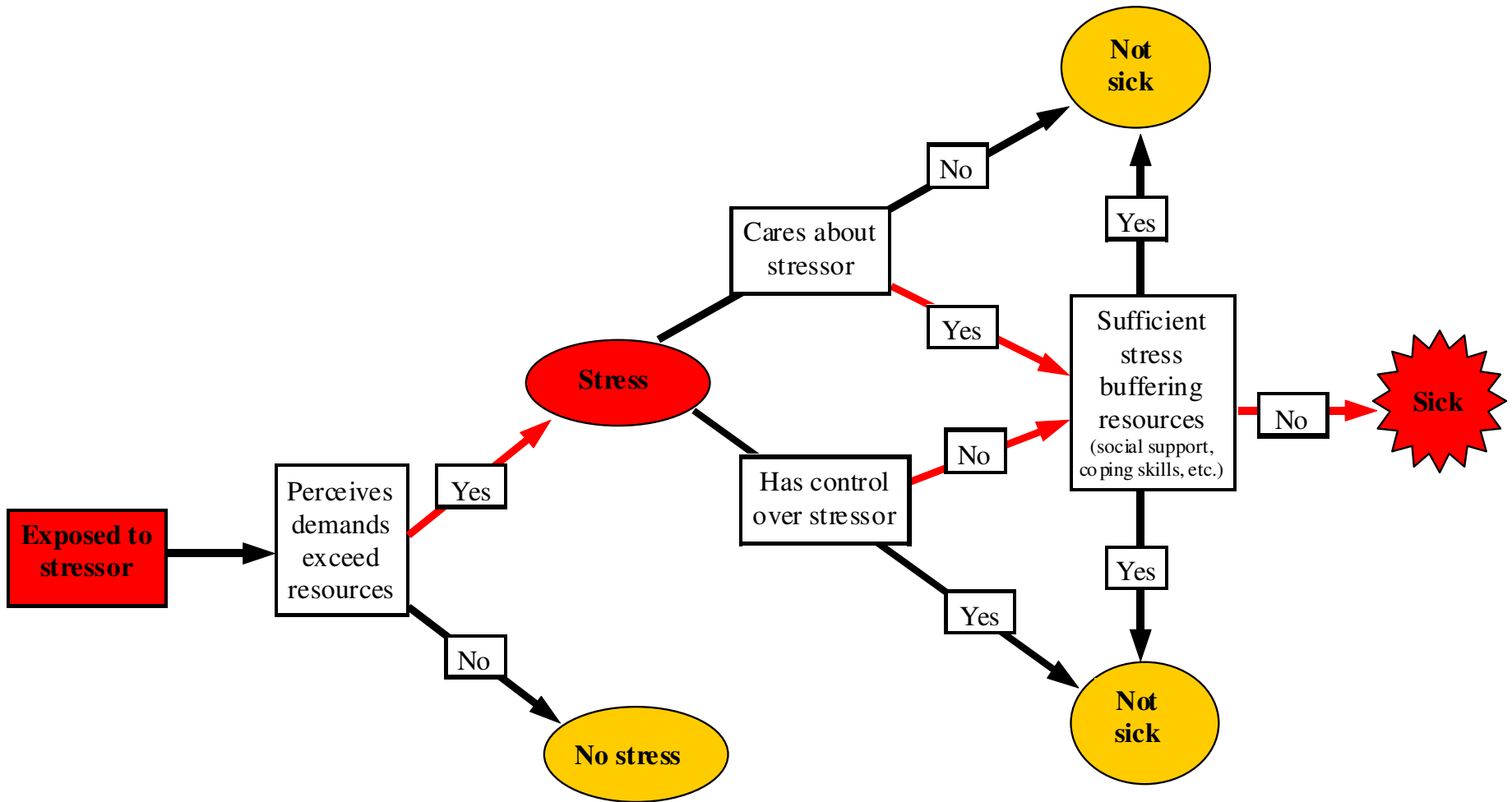


Figure 1