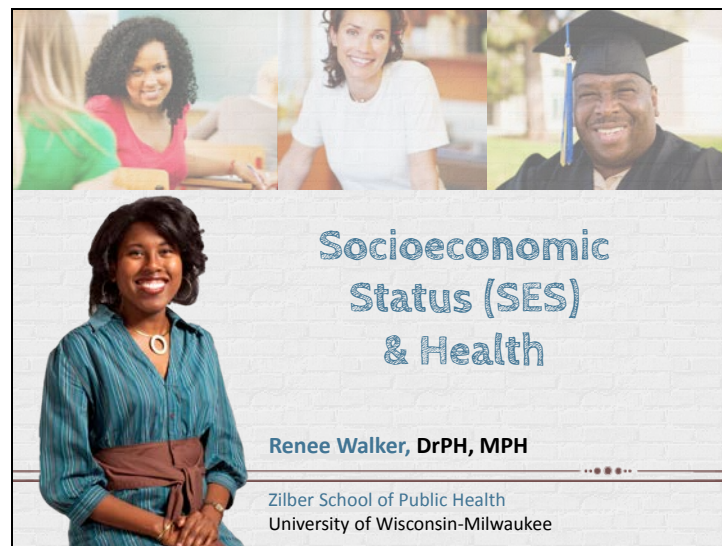


Slide 1

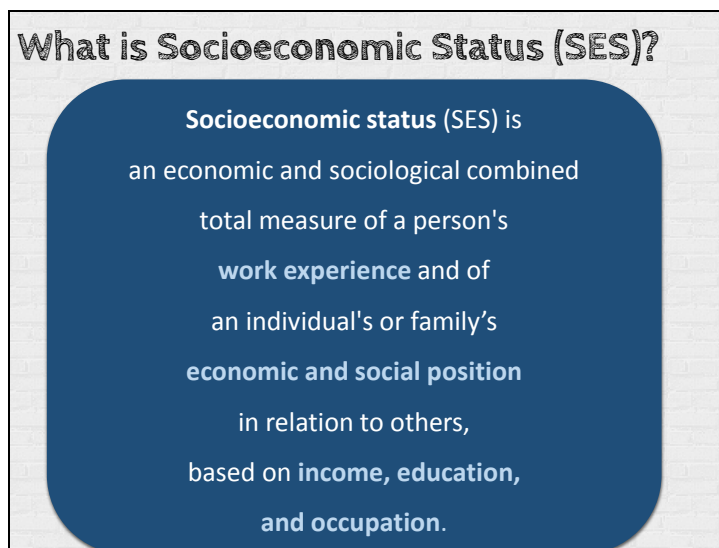


This week we will discuss the concept of socioeconomic status (or "SES") and its association with health.

In the past few decades, we have seen a marked increase in research on socioeconomic status and health. Research in the first part of this era examined the nature of the relationship of socioeconomic status and health, and revealed a graded association. SES is important to health not only for those in poverty, but at all levels.

On average, the more advantaged individuals are, the better their health.

Slide 2



Socioeconomic status is an economic and sociological combined total measure of a person's work experience and of an individual's or family's economic and social position in relation to others, based on income, education, and occupation.

When you analyze a family's SES, the household income, earners' education, and occupation are examined, as well as combined income.

National Center for Educational Statistics. 31 March 2008.

Slide 3



SES reflects different aspects of social stratification, and the traditional indicators at the individual level have been income, education, and occupation.

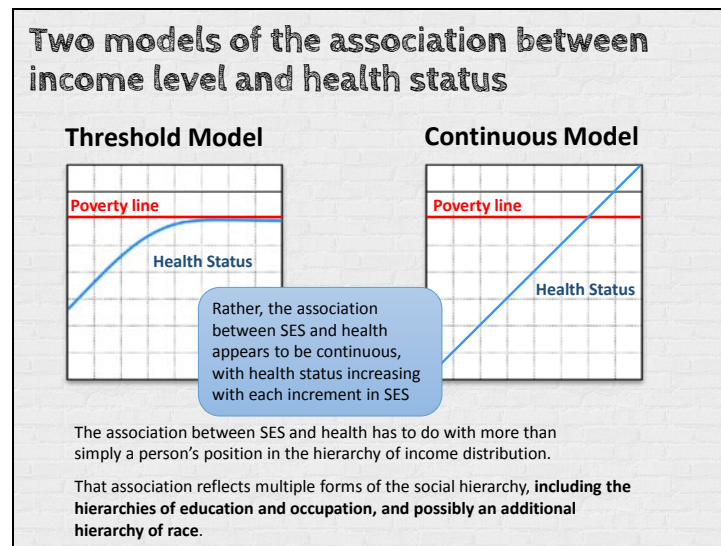
These are often used interchangeably even though they are only moderately correlated with one another.

In some studies in which more than one SES indicator is used, health outcomes may be more highly correlated with one indicator than another.

Such studies are useful in identifying specific resources associated with education, income, or occupation that have implications for health. At the same time, 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.

One common element among the SES indicators is social status, and a direct measure of subjective social standing may capture this. Studies have been testing a new measure of subjective social standing and are finding that it has very strong associations with health outcomes, even stronger than the associations of health with objective indicators of SES.

Slide 4



There are two conceptual models of the relationship between income and health. In the threshold model, those who live in poverty have lower health status than those who live above the poverty line (the poverty line measured by the federal government and used to qualify those who fall below it for a variety of benefits). Once a family receives a level of income sufficient to meet its basic need for food, clothing, and housing, there is no further health benefit to a rising standard of living.

By contrast, the continuous model suggests that there is, indeed, a health benefit to escaping poverty. However, the farther a family gets from poverty – the higher its income and the associated standard of living – the better its health becomes.

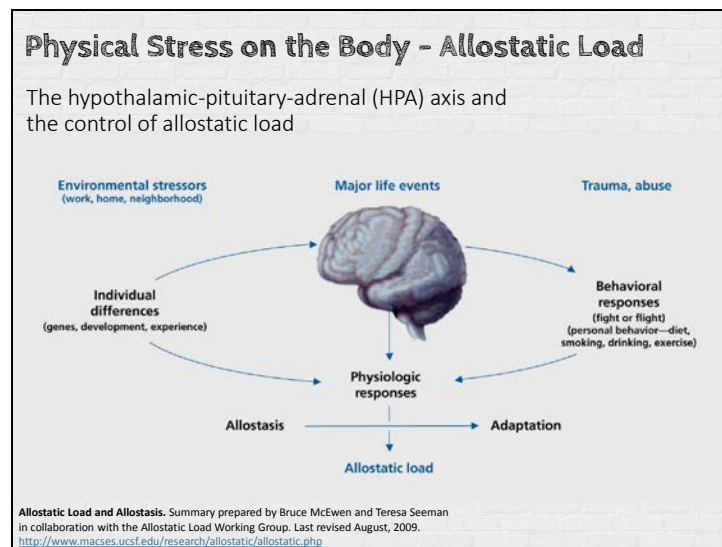
Slide 5

How does SES exert an influence on health?

1. Physical stress on the body – allostatic load
2. Economic inequality magnifying the differences in social status
3. Social capital/social network – association between inequality and health

There are three possible mechanisms that explain how socioeconomic status exerts an influence on health. Let's explore each of these mechanisms.

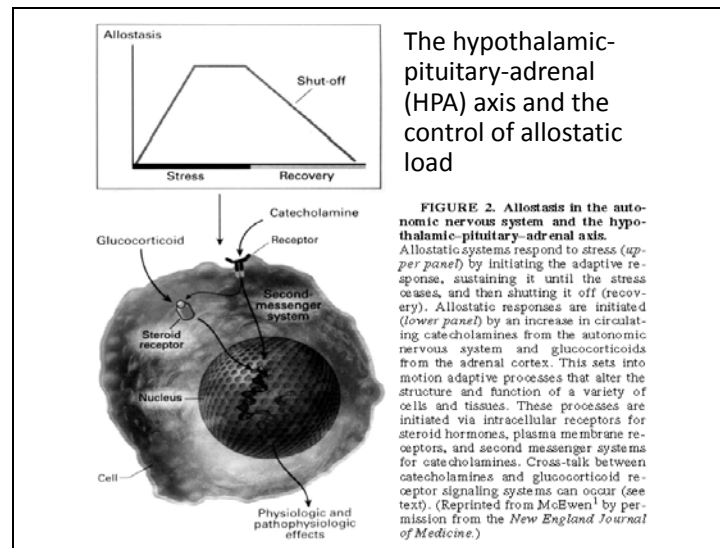
Slide 6



One of them is the hypothalamic-pituitary-adrenal (HPA) axis which involves sensing stress in the hypothalamus, sending control hormones from the pituitary that result in the release of epinephrine, norepinephrine, and cortisol from the adrenal gland. The level at which this allostatic control mechanism is functioning is referred to as the allostatic load. The higher the level of stress response hormones circulating in the blood, the higher the allostatic load.

Allostatic Load and Allostasis. Summary prepared by Bruce McEwen and Teresa Seeman in collaboration with the Allostatic Load Working Group. Last revised August, 2009. <http://www.macses.ucsf.edu/research/allostatic/allostatic.php>

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McEwen and Seeman summarized our current understanding of allostatic load in the context of differences in social status:

"Allostatic load appears to be a useful construct for conceptualizing how 'wear and tear' and increased morbidity and mortality are caused over long time intervals, not only by the more dramatic stressful life events but also by the many events of daily life that elevated activities of physiological systems.... All of these factors influence the temporal patterning and efficiency of turning on and turning off the hormonal mediators of stress".

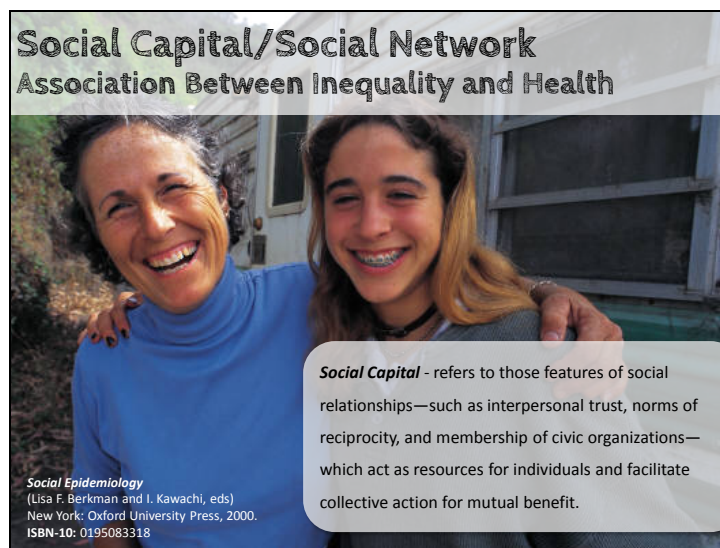
Allostatic Load and Allostasis. Summary prepared by Bruce McEwen and Teresa Seeman in collaboration with the Allostatic Load Working Group. Last revised August, 2009. <http://www.macsfes.ucsf.edu/research/allostatic/allostatic.php>

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We talked about individual indicators of SES previously, but SES also operates at the social level. The interesting work on income inequality has shown that the distribution of income within areas, be they countries, states, or cities, is associated with mortality. Populations living in areas with greater income inequality have shorter life expectancies, independent of median levels of income.

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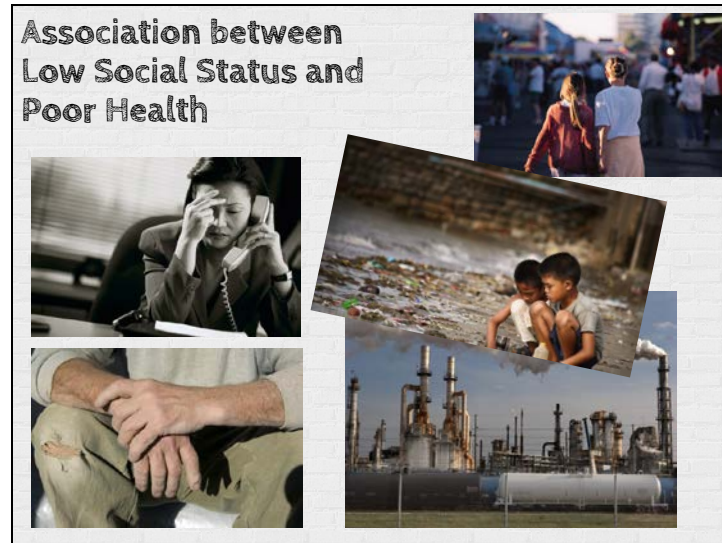


Why do communities, states, and national societies vary in their health status according to the level of inequality within them? Why would economic inequality affect health status independently of actual income levels?

Kawachi suggests that the answer lies in the differing levels of “social capital” inherent to societies of differing levels of economic or other forms of inequality.

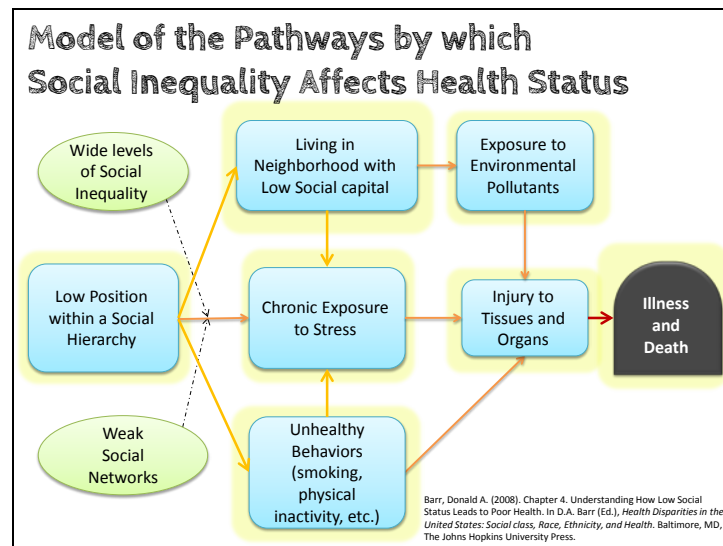
Social capital is defined as “those features of social relationships—such as interpersonal trust, norms of reciprocity, and membership of civic organizations—which act as resources for individuals and facilitate collective action for mutual benefit.

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Using what we have learned about physiologic processes by which chronic exposure to social and psychological stress leads to poor health outcomes, and combining it with what we learned about the effects of low social status on health-related behaviors and exposure to environmental pollutants, we can now build a model illustrating the probable causal pathways through which low social status results over time in poor health or premature death.

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In the model, the direction of the arrows suggests the direction of the causal relationship. When a person is in a position of relative low-status within an established social hierarchy, there are immediate consequences.

First, the low-status person is more likely to engage in individual behaviors that, over the long term, are likely to result in adverse health consequences. The most obvious of these is smoking, which shows a clear social gradient. Others may be alcohol or drug abuse, or physical inactivity with associated obesity. Over time, these behaviors contribute to cellular and tissue injury that lead to disease and/or death.

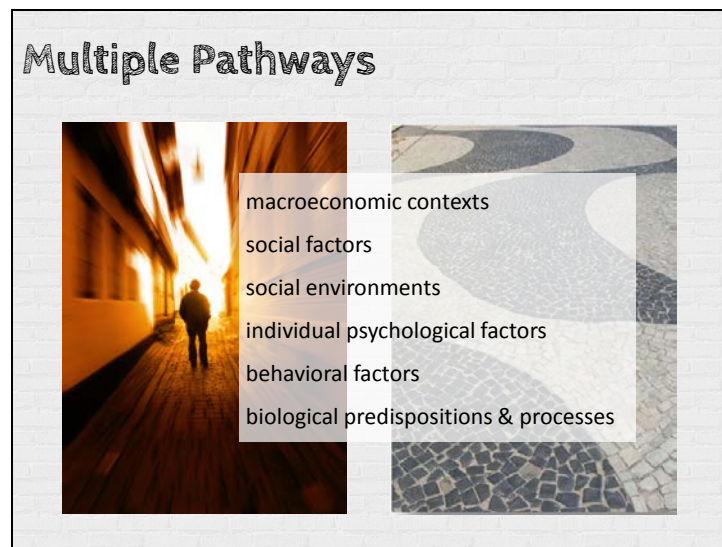
Second, the low-status person will likely live in a neighborhood or community with low levels of social capital. The lack of social cohesion and exposure to underlying hostility or violence within that community will result in two conditions, both with harmful health outcomes:
 In condition 1, there will be an increased level of psychosocial stress for those who live there, adding to the more general stress of being in a position of low social status.
 In condition 2, these neighborhoods and communities, often low-income and with little in the way of political power, are more likely to be exposed to high levels of environmental toxins or pollutants. These in turn contribute to the cellular inflammation and injury that results in illness and/or death.

Third, experiencing a position of low social status will lead to experiencing a variety of psychosocial stressors on a chronic basis. By elevating the individual's allostatic load on a chronic basis, these stressors will eventually contribute to cellular inflammation and damage, and eventually to illness and death.

In addition to this threefold effect of low social status (behavior, neighborhood environment, and stress), two forces enter into the model. These forces, indicated by the dashed lines, are social inequality and social network. These appear to act on the general level of stress experienced by either increasing or decreasing the stress response.

Barr, Donald A. (2008). Chapter 4. Understanding How Low Social Status Leads to Poor Health. In D.A. Barr (Ed.), *Health Disparities in the United States: Social class, Race, Ethnicity, and Health*. Baltimore, MD, The Johns Hopkins University Press.

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There are multiple pathways by which SES determines health.

A comprehensive analysis must include macroeconomic contexts and social factors as well as more immediate social environments, individual psychological and behavioral factors, and biological predispositions and processes.

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Acknowledgements

This presentation contains excerpts from several online mini-lectures that were originally offered as part of a fully online course in “Social Justice in Public Health”, offered to University of Wisconsin students interested in earning a Master of Public Health degree.

Dr. Alice Yan and Dr. Renee Walker—at the Zilber School of Public Health, University of Wisconsin-Milwaukee—narrated the presentations and have taught the online course.

The course was originally designed by Dr. Alice Yan and developed in collaboration with UW-Madison Division of Information Technology, Academic Technology and the Wisconsin Center for Public Health Education and Training, or [WiCPHET](#).



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(No narration)