UNNATURAL CAUSES ...is inequality making us sick?

A four-hour series airing on PBS and a national public impact campaign

**ASK THE EXPERTS FORUM #5: YOUR POSITION IN SOCIETY**

*Nancy Adler, Bruce McEwen, and Peter Schnall address chronic stress, the wealth-health gradient, unemployment, and why women live longer than men.*

**QUESTION #1: If wealth determines health, then why do women – who are routinely paid less than men – live longer?**

**NANCY ADLER:** First, we should note that women live longer than men but have higher rates of a number of chronic diseases. So if you actually look at what's called "quality-adjusted life expectancy," the gap isn't as great.

But why do women live longer than men? I think the short answer is there appear to be some biological advantages that women have, particularly estrogen, which protects women against cardiovascular disease, the biggest single cause of death in the United States. So pre-menopausally, women are protected and it shifts the mortality from heart disease a number of years. We also see a female biological advantage even at birth. Female fetuses survive at greater rates than do male fetuses, particularly if the pregnant woman is stressed, suggesting that female fetuses may have a little bit of a biological advantage.

But it's also important to think about some related issues. Wealth isn't the only social determinant of health. If you stuff your pockets with money, it doesn't make you healthier. It's what money gets you, along with other social resources, that matters. And women have other resources. Education is an important determinant of health, and women are graduating from high school and from colleges at somewhat greater rates than men. Women also have social ties that tend to be a little stronger then men and may buffer them from health threats.

One of the best examples of this was after the former Soviet Union collapsed. We saw a dramatic fall in life expectancy there. I think it was around nine years for men, but only one or two years for women. One factor that seemed to help women was that they had stronger social ties that allowed them to buffer the social disadvantages and the stress associated with turmoil, chaos, and economic decline.

But this question also raises the distinction between a health difference or disparity and a health inequity. There are differences between people and between groups due to their biological endowment or to the natural geography where they live, such as the altitude. We can't do much about those things. Where a health difference becomes a health inequity is when it's unjustified, when it's avoidable, and when it's unfair because it could have been avoided and it prevents people from living up to their biological potential.

It may just be, for example, that we have a disparity between men and women because biologically, women can live longer than men. If wages and other bases of power were more equal, the gap between male and female longevity might actually increase. In sum, we can't look just at absolute differences, but rather at the *avoidable* difference.

**PETER SCHNALL:** I would add one concern about women. When we take social class (education, income, and occupation) and race or ethnic minority status into account, there are still differences between women in life expectancy. One possible explanation is the nature of work being performed by women. Historically, many women worked outside the home as service workers and in manufacturing. But over the past half century, more women than ever have entered the workforce and, overall, more

women have been undergoing a profound change in their social lives, including working and having a family or delaying childbirth. Many women are found in some of the poorest paid positions and some of the most stressful jobs. These jobs are characterized by both lower income, higher demands, and lower control and they expose women to negative psychosocial stressors. This, in turn, may accelerate negative cardiovascular outcomes such as high blood pressure and heart disease. There are some data from the Framingham Heart Study suggesting that job strain (jobs high in demands and low in control) is a coronary risk factor for women. So I wonder if in fact the development of dual wage-earner families and a growth in poor quality jobs occupied mainly by low SES women, won't lead eventually to a narrowing of the life expectancy differences between men and women.

**BRUCE MCEWEN:** I like both responses. As Nancy pointed out, there are socioeconomic gradients of health among women. Plus, women are more likely to develop depressive illness whereas men are more likely to develop anti-social behavior and substance abuse. So there are differential vulnerabilities, possibly biologically based.

As Peter mentioned, women entering the workplace struggle with the conflicting goals of family, work, and other factors, and that puts additional stress and strain on women and also on men. I agree that we may be seeing, perhaps, a narrowing of these differences in health over time.

We haven't mentioned yet the post-menopausal period of a woman's life, which is an increasingly significant part of one's life as life expectancies rise. So I think we are already finding a narrowing of differences in health.

**QUESTION #2: Isn't stress about a state of mind? Some people are just high strung and uptight and others go with the flow. Rather than point to outside factors as the culprit, wouldn't it be more effective to teach people to mediate and cope with their stress better?**

**BRUCE MCEWEN:** I think this question artificially separates cause and effect. But it's a common question. Certainly, chronic stress does involve anxiety, sleep loss, poor health behaviors, and many things that are, in a sense, a state of mind. Somebody who's anxious will certainly display these things.

Yes, there are certainly genetic differences, different predispositions, among people. But there are also the effects of life experiences, especially early life experiences, on people. For example, child neglect and abuse and growing up in a difficult environment can have a huge effect on predisposing people to anxiety disorders as they grow up. And events of early life adversity tend to be encountered more often by people who have less income and education. Therefore, the environment has a huge effect on chronic stress levels.

Then, once you get to the point where a person presents with these kinds of disorders, the question implies a sort of middle-class solution. Yes, it would be nice if we had the resources and the time to treat these things with good coping strategies and so forth. But when you consider the whole spectrum of people across income and education, especially those at the lower end, these are not luxuries many have access to.

**PETER SCHNALL:** Can I comment about what I think might be a false issue raised by this question that I'm not sure Bruce completely addressed? There is an assumption that the "high strung and uptight" people have different health outcomes than those who "go with the flow." It turns out that personality types (like Type A and Type B personality) may not be very salient predictors for things like high blood pressure and cardiovascular disease.

We did a lot of research in the New York City blood pressure study examining psychosocial stressors and the development of high blood pressure. One of the things we observed, which has been found in other

studies as well, is that you can't really differentiate the people who are going to have high blood pressure from those who won't on the basis of their personality characteristics, or even psychological states such as anxiety. We published a paper[1] in Psychosomatic Medicine in 2001 where we looked at a whole range of psychological characteristics and both casual and ambulatory high blood pressure. We found no differences between people's blood pressure on the basis of their personality characteristics.

**NANCY ADLER:** I'd like to add, when we see somebody whom we would characterize as "high strung" or "uptight," it may well be because of their circumstances and not because of some internal personality state. If you are at the bottom of the socio-economic hierarchy, you're hit with a double whammy when it comes to stress. A) you're exposed to a lot more stressors and threats, and B) you have a lot fewer resources for dealing with them.

The other point I think we should make is, if you help people cope individually with stress yet they continually face differential exposure to stressors based on their socio-economic status, we're going to continually have new people enter the at-risk population who have to deal with that stress. But if we were to tackle the circumstances that are creating the stressors in the first place, that would reduce the need for us to work with each person individually on coping strategies.

**PETER SCHNALL:** Prevention, prevention, prevention.

**NANCY ADLER:** Exactly.

**BRUCE MCEWEN:** It should also be noted that people at the lowest end, rather than suffering from chronic anxiety and being high strung and uptight, if anything, tend to be depressed and in a state of helplessness. They may be very passive, and that in itself is a difficult, stressful condition that leads to adverse health outcomes.

**QUESTION #3: "Control over destiny" is a pretty big and abstract concept. How might that concept translate into tangible changes in our jobs and our communities?**

**PETER SCHNALL:** I'm not quite sure what was meant by "control over destiny." But the objective social aspects of class are reflected in the kinds of jobs people have. We do have a lot of knowledge about job control and health. Specifically, control over the work process seems to buffer the impact of highly demanding work. This research started back in the 1970s with Marianne Frankenhauser in Sweden and her studies around "effort distress." She found that people who had lots of demands on them at work but who had high levels of control (like top executives) experienced effort without distress, whereas people with lots of demands and low levels of control at their jobs (like urban bus drivers) experienced both effort and distress.

So how does this translate into tangible changes in our jobs and communities? To me, this whole body of literature about psychosocial stressors and the importance of control as a buffer against demands and stress translates into the notion of what constitutes "healthy work." In other words, workers need to have reasonable levels of control and autonomy over their work processes, over their work situations. That also includes more job security. These are important protectors of health. I think this argument could be broadened to suggest that actual control in the larger social environment is also a buffer against stress.

[1] Friedman R, Schwartz JE, Schnall PL, Landsbergis PA, Pieper C, Gerin W, Pickering TG. Psychological variables in hypertension: relationship to casual or ambulatory blood pressure in men. *Psychosom Med*. 2001 Jan-Feb;63(1):19-31. http://tinyurl.com/4vubvh

**BRUCE MCEWEN:** Exactly. Lack of control in the broader sense translates into feelings of helplessness and hopelessness. What we're talking about – and you very aptly pointed out – is that we should be providing opportunities for people to have more control not only over their jobs, but over the other uncertainties in their lives, including the fact that they may have no jobs or have very unstable jobs and time pressures.

**NANCY ADLER:** Our own research has been more situational. We haven't captured general control over destiny well enough. But in situations, people's perceptions of how much control they have are very important, probably because these do they reflect how much control they actually have. So workplace redesign seems a very important policy. Giving workers more autonomy and control over the pacing and design of the job may actually increase productivity as well as increase health.

At the level of society, the concept of *collective efficacy*, I think, is close to the question of control. Collective efficacy is the extent to which people in a neighborhood or a community feel they have power over the conditions in their area. So, for example, if a firehouse were threatened with closure, do they feel they could exert some pressure to keep it open? If a child were walking around lost, would somebody in the neighborhood pay attention to the child, take care of it?

What the study of Chicago neighborhoods showed is that neighborhoods with greater collective efficacy have lower rates of homicide and lower rates of a whole number of diseases. So we should be thinking about control not only as an individual characteristic, but as a social characteristic.

**QUESTION #4: Is the link between socio-economic status and health relatively new, or has this been the case for centuries? And, is it true in all societies where large inequalities of this sort exist?**

**NANCY ADLER:** Well, it's not new and it's not unique, although the U.S. is probably unique in how powerful that wealth-health relationship is. It's hard to make direct comparisons, because health statistics are not kept in the same way in all societies, and they certainly haven't been kept over the years.

But there's evidence from hundreds of years ago of gradients in health. One of the ones I like the best is a study done in a Glasgow graveyard.

Back in the 19th century, it was the fashion of the day to build these obelisks over your grave. The wealthier you were, the taller your obelisk was, so even after death you could show off your wealth. An enterprising epidemiologist crawled around the graveyard, read the dates on the obelisks, and found a graded relationship: the higher the obelisk, the longer the person had lived.

Having said that, there are two caveats. One is that the steepness of the wealth-health association differs in different societies. The other is that there are times when there are reversals. In non-human primate studies, during unstable conditions – when colonies are reorganized so the dominant animals have to keep reasserting themselves – or in unstable social situations, being dominant may be a risk factor. So it's good to be on top when it's stable, and maybe not so good when things are unstable. It's similar when countries are in transition. So in developing countries, higher social status has actually correlated with higher levels of cardiovascular disease. For example, when the English Whitehall study of civil servants was redone in Nigeria, the higher strata of Nigerian civil servants actually had more arteriosclerosis.

The reason for that may have been twofold. One was that the more affluent were able to use their money to buy themselves all the bad habits that we have. They ate more red meat; they began smoking. That was true, too, in the United States in an earlier era. Early in the 20th century, higher social-class folks indulged more in what we now say are health risk behaviors but at that time were just pure perks of being affluent.

**PETER SCHNALL:** I would just want to echo Nancy's point about the patterning of cardiovascular disease. Both in the U.S. and Great Britain, cardiovascular disease first emerged at the beginning of the

20th century as a disease of the upper classes: excess cholesterol due to dairy intake and meat ingestion, cigarette smoking, low levels of physical activity. But over several decades these changed into a disease of the lower socioeconomic classes. That pattern's also being repeated to some extent in China, which now has a burgeoning epidemic of cardiovascular disease hitting the emerging middle class in China. So it's not just that social inequality and low socioeconomic status is invariably a cause of disease. It patterns the likelihood of exposure to risk factors. But it depends what and where the risk factors are as to who gets sick.

**QUESTION #5: Is there a relationship between chronic stress and who gets fat?**

**BRUCE MCEWEN:** Well, this is a relatively straightforward question. Yes. When it comes to diet, stress enhances consumption of sugar and comfort foods - fatty foods. In some people, of course, it can cause anorexia. But in others, we know from some fairly recent animal model studies, sugar can be addictive, in many ways similar to cocaine, using the dopamine reward system. Our colleague Mary Dallman, at the University of California San Francisco, has shown that comfort foods reduce anxiety in part perhaps by reducing cortisol production in the short term. But this has a paradoxical effect over time; the consumption of comfort foods can lead to metabolic overload and obesity and other conditions which are counterproductive.

It's like an addiction. In the short term, you're taking something in to make you feel better, a form of self-medication. And yet in the long term, it creates a problem in the same way that smoking a cigarette may make you feel better in the short term but harm you in the long term. In the same sense, eating something that makes you feel better in the short run may in fact lead to behaviors and physiologic conditions that can cause major cumulative problems in the long run.

**PETER SCHNALL:** Just as a complement: A recent research study using the Whitehall study, the study of British civil servants, published in the *American Journal of Epidemiology* last year showed that work stress predicted obesity, the more work stress one reported the higher the obesity.[2] There are also some recent studies suggesting that chronic work stressors are associated with the development of diabetes. A paper that came out of the BELSTRESS (Belgian stress) study in 2003 found a two-fold increased risk for diabetes in the face of chronic job strain.[3] There are a few other papers like that relating job strain to hemoglobin A1C. So I think that fits with this argument about the impact of chronic stress and diet.

**QUESTION #5: For years we were told that ambitious, hard-charging CEOs with Type A personalities were the ones who were in danger of heart attacks. Are you saying that's not true? If so, why was that idea so widely propagated?**

**PETER SCHNALL:** I like this question. The answer is yes, we did believe that for several decades. In the '70s, Rosenman and Friedman, cardiologists, noted that their patients who were having heart attacks seemed to have characteristics in common. They "sat on the edge of their seats," for example. They were impatient. They tended to interrupt people and had some sense of aggressiveness. The Western Collaborative Group Study in the 1970s then found a relationship between Type A behavior and heart attacks.[4] I think in 1981 the government officially endorsed Type A behavior as a risk factor for coronary heart disease.

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[2] Brunner EJ, Chandola T, Marmot MG. Prospective effect of job strain on general and central obesity in the Whitehall II Study. *Am J Epidemiol*. 2007;165:828-837. http://aje.oxfordjournals.org/cgi/content/abstract/kwk058v1

[3] Leynen F, Moreau M, Pelfrene E, Clays E, et al. (2003). Job stress and prevalence of diabetes: Results from the belstress study. *Arch Public Health* 61(1-2):75-90. http://www.iph.fgov.be/aph/abstr2003617590.htm

[4] Hecker MH, Chesney MA, Black GW, Frautschi N. Coronary-prone behaviors in the Western Collaborative Group Study. *Psychosom Med*. 1988 Mar-Apr;50(2):153-64. http://www.psychosomaticmedicine.org/cgi/reprint/50/2/153

Unfortunately for the whole concept, the same Western Collaborative Group Study went on to study second heart attacks and found that Type B behavior predicted second heart attacks.[5] That kind of let the wind out of the sails for the whole idea, which stands pretty discredited now.[6]

But there's still evidence that one component of the Type A behavioral complex has been found to be a risk factor for heart attacks, and that's anger and hostility.

**NANCY ADLER:** It's worth noting, I think, that the Type A typology really focused the public on the idea of this harried, stressed executive. It didn't focus so much on the hostility piece. It also didn't focus at all on the resources side of the equation, which I think is very important, because as we discussed earlier, stress is a subjective state that happens when you feel like you don't have the resources to deal with a specific threat.

**PETER SCHNALL:** Executives usually have high levels of control over their work experiences. They can marshal resources to help them, and they don't get as many heart attacks.

**NANCY ADLER:** Exactly. If there's a threat or a challenge and you feel that you can deal with it, you get more of a challenge response, which is actually sort of invigorating, and people can thrive on that. That's quite different than this sort of beaten down, "I can't cope with this; this is more than I can deal with," response. So I think that the early view of the "stressed" executive focused way too much on the demand side and not nearly enough on the incredible resources and buffers executives have for dealing with demands.

**QUESTION #7: How does the wealth-health gradient in the U.S. compare to other countries?**

**NANCY ADLER:** It's hard to make direct comparisons, because each country gathers their data a little differently. But it looks like we have a stronger, steeper gradient in the U.S. than in any other rich country. And there are probably two reasons for that.

We have greater income inequality than all the other rich nations. We have a far greater gap between the people at the top and the people at the bottom and in between. And in recent years, income and wealth inequality have gotten much worse. So we actually have a longer "ladder."

At the same time, we have fewer social policies that buffer the effects of being lower on that socioeconomic ladder. For example, in other countries you may have less income, you may have less education, but that doesn't have such strong implications for whether you have healthcare coverage, whether you can live in a safe neighborhood, whether you can get a good education. So we also have fewer policies that buffer the effects of low socioeconomic status.

**QUESTION #8: Japan is one of the healthiest countries in the world but they seem to be a highly stressed people living in a society with highly circumscribed social codes and pressures. Doesn't this go against your thesis?**

**BRUCE MCEWEN:** Well, I don't know the details for Japan, and I suspect things are changing now. But I did spend a month there a decade ago. I took some of the commuter trains and I saw some incredibly tired people on those trains. I also had a Japanese post-doc who introduced me to a Japanese

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[5] Ragland DR, Brand RJ. Coronary heart disease mortality in the Western Collaborative Group Study: Follow-up experience of 22 years. *Am J Epidemiol*. 1989 Aug;130(2):429-30. http://aje.oxfordjournals.org/cgi/reprint/127/3/462

[6] This article rebuts the original theory: Ragland DR, Brand RJ. Type A behavior and mortality from coronary heart disease. N *Engl J Med*. 1988 Jan 14;318(2):65-9. http://content.nejm.org/cgi/content/abstract/318/2/65

word called *karoshi,* which means "death by overwork." Because his name was Yoshi and because he worked very hard, I used to call him Yoshi Karoshi, which was kind of our standing joke for decades. I suspect that the impression that is described in the question is somewhat of a simplification and exaggeration, but since I don't really know the details, I better let somebody else comment.

**PETER SCHNALL:** I do think that long work hours are a serious issue in Japan. You know, Japan several years ago passed a law trying to encourage its citizens to take vacation time.

But we in the U.S. now work even longer hours than Japan. Many people work two jobs to make ends meet. The flip side of longer work hours is less vacation time. A large percentage of our work force doesn't even get paid vacations. Many people don't take their vacation time; they're afraid to leave work because they know when they return, work will all be piled up on their desks.

There's some pretty good evidence that one of the ways long work hours harms our health is through reduced sleep time, and that means less recovery time, and that fits into this notion of the importance of vacation time and breaks from work. It may not be so much that the total amount of hours worked at any given time period is so bad, but rather the fact that we don't have a chance to recover from them.

**BRUCE MCEWEN:** I saw a study comparing the decrease in sleep time over the last several decades to body mass, which was increasing. To a lesser extent Europeans are also sleeping less than they did before, but not nearly as dramatic a drop and they haven't had as large an increase in obesity as we have.

**PETER SCHNALL:** What they don't have in Japan is a lot of coronary artery disease, which may well reflect the differences in their diet. They're not huge dairy and meat consumers. They probably don't ingest as much cholesterol as the United States.

But there's also much less income inequality in Japan than here. At the same time, the fact that many Japanese have a well-defined place in that hierarchy may actually be protective. It may give people a sense of predictability about their lives, a clear sense of where they are in society. One thing not addressed in *Unnatural Causes* is the chaotically changing nature of our society. Many people are afflicted by a growing sense of worthlessness when they get older in our society, a sense of being used up and discarded. I think in Japan it may be somewhat different than it is in the United States, and it may be protective.

Unpredictability and chaos are serious stressors. I think you can link those things to low wages and fear of unemployment, to better understand why people are so stressed at work. I think the fact that most of us have no job security is an important stressor.

**NANCY ADLER:** I'd just add one other thing. I know the least probably about Japanese society, but I think Peter's point is a good one about stability at work and less unpredictability. But I suspect social networks in Japan are stronger and are more stable there, and we know that's also a protective factor.

**QUESTION #9: I've recently been laid off and I know my stress levels have gone way up as I try to cope with bills and plan for the future. Are you now telling me I have to worry about my health too? What can someone in my position do?**

**PETER SCHNALL:** Unfortunately, there's good evidence that unemployment is associated with increased cardiovascular disease risk. Unemployment decreases one's resources and capacity to manage all life's stressors and it's a serious problem.

I think the solutions to many of these issues are societal. There are large scale societal processes that have created these detrimental social environments, be they poverty or workplace exposures and noxious

working conditions. They're getting worse and they have been getting worse for several decades and they reflect, in my opinion, the changing nature of power relationships between the corporate world and working people.

Forty or fifty years ago we had a social contract in the United States between workers and businesses, which basically gave many working people a sense of job security and a notion of lifetime employment with a corporation. That's changed dramatically in the last thirty or forty years. It's also changing, unfortunately, in many countries, though less so in Japan and Europe, but still, it's definitely changing. So the work environments are becoming more restrictive, more demanding, work is intensifying, and that reflects long term pressures by businesses to increase productivity and profitability.

But if you ask me what needs to be done, I'd say we need to change the laws that govern the workplace. First, we need to start by enforcing the laws we do have. Then I would expand OSHA (the Occupational Healthy and Safety Act) to include work-related psychosocial stressors. That's where I would start.

For example, the Scandinavian countries have outlawed job strain. Does that mean they actually enforce it and penalize companies that have high demand and low control jobs? No, they don't, as far as I know. But what this law does is encourage enhanced control over the work process, more utilization of skills, and more training and tools that allow people to have more of a sense of control over their job processes. Japan also has similar things in their healthy work law.

**NANCY ADLER:** One thing we haven't mentioned is the role of unions. Unions have declined precipitously in the United States. I don't know if there's been much work looking at the health of workers in unionized vs. non-unionized work environments.

**PETER SCHALL:** I've looked for that but I've never actually seen a study comparing two occupational groups, one unionized and the other one not. However, unions in principle give working people a say over their working conditions, provide some legal provisions for protecting wages and other benefits of employment, which all should be health protective.

**NANCY ADLER:** A much higher percentage of the European workforce is in trade unions. In Sweden I think it's more than 70%. And here in the United States, we're down to what, 12%? And about 8% of private sector employees are unionized now.

**QUESTION #10: There are many population groups in this country that are below the radar, e.g. the homeless, the undocumented, etc. Have we managed to embrace all of America's subpopulations to determine the true extent of health disparities in our country?**

**NANCY ADLER:** A lot of our national health data is done by phone survey, where you have to have a landline. So I think those groups probably are not captured by the data. For the homeless, I'm sure we'd find huge disparities in health. The undocumented would be an interesting population. On the one hand, they have the stresses of being undocumented in the U.S., but on the other hand, it looks like recent immigrants actually have better health because they've had less exposure to the toxic U.S. environment.

**PETER SCHNALL:** They may have better social networks as well and may tend to be the healthiest people leaving their home countries to find better work than they could find at home.

**NANCY ADLER:** They have a variety of characteristics that seem to make them more or less resistant to some of our health problems, but we really don't know too much about that. This question points to the importance of our national data systems. It's only been since the 1990s that we've put education on death certificates. Before that we only had race. So our national data on death statistics tended to focus wholly

on racial differences. We do now have education. But we collect nothing on other resources, such as income or wealth. So we don't have the kind of data that would really let us document health disparities as well as we should.

**PETER SCHNALL:** Good point, Nancy. Let me add that we also have no national data system on work and health. There's nothing – other than the single-coded occupation – where we collect any national data that allows us to analyze the relationship between work environments and job characteristics and health outcomes. Many of us feel that this is not an accident, that these are deliberate social policies to avoid collecting data which would implicate various work environments in causing negative health outcomes.

In contrast, the Swedish "level of living survey," for example, collects data on one percent of its population and it includes job characteristics and health outcomes.

But back to immigrants: *Unnatural Causes* notes that recent immigrants tend to be healthier than the average American, but within a generation their descendants come to reflect the overall pattern of health in the United States. And one thing that happens is that they often work very long hours, and may have multiple jobs. It's very common in the Asian community. In Orange County (CA) where I work, for example, immigrants often work 70 or 80 hours a week. They also tend to have more stressful kinds of jobs. So this may be one of the reasons, over the course of time, that we see this changing pattern of illness among immigrants in the United States.

**QUESTION #11: Most reports about health gaps point to smoking and obesity as causes. Why do you ignore these issues? What about the effectiveness of wellness and healthy lifestyle programs? Are you saying those don't work?**

**BRUCE MCEWEN:** Smoking and obesity certainly contribute to poor health. But patterns of health behaviors aren't just marks of character strength; they also flow from some of the broader aspects of social organization we've been discussing. In the case of smoking, the gradient still remains even after you take smoking into account.

Earlier, we talked about smoking and eating comfort foods as part of a pattern of self-medication. So, it's like drug abuse. Is drug abuse a cause of social problems or an effect of social problems? Clearly it's both. But you can't address drug abuse unless you also tackle the underlying social climate that affects the mental health of people who take drugs.

**NANCY ADLER:** I think there is a tension between our understandings of what the individual can do and how society shapes things. On the one hand, we do want to empower people to make changes in their lives. There certainly are people who manage under adverse circumstances to engage in healthy behaviors and to remain healthy.

At the same time, we have to acknowledge how much more difficult it is to adopt healthy behaviors when people are under the kinds of stresses we're talking about, and how much more effective it would be to work at the social level. But I don't think we should be denying either level of influence.

**PETER SCHNALL:** I'm very passionate about this issue as a social epidemiologist. Obesity is one of my favorite whipping horses, because the medical profession usually treats obesity as an individual characteristic: people should have more self-control; they should eat the right things, not the bad things. And I think that totally ignores all of the social determinants of our eating behavior. It also ignores the fact that weight is an equation: calories-in versus energy expended. This whole argument about obesity as an individual responsibility ignores the fact that for the last 100 years jobs have become less physically active and more sedentary and we are working longer hours and more hours in a year on average at

sedentary work. Also, as we age, our jobs usually become less physically demanding as we are promoted and achieve more authority and responsibility.

So, the average person – if they didn't do anything else – as they went through their work career would find that they expend less energy as they age and they will gain weight unless they cut their caloric intake.

To me, this is always frustrating because all of these "risk factors" are usually conceptualized as individual responsibilities, which is characteristic of American society. In one sense that's very empowering, because it says "Gee, you could do something about all these things." But it ignores the fact that many of these behaviors arise out of conditions that we as individuals have no control over, like the work environment.

**NANCY ADLER:** We've been trying to introduce the idea of "behavioral justice" to parallel the environmental justice movement. I think people understand that it is unfair and inequitable for people to have differential exposure to carcinogens, pathogens, and toxins based on the racial or class make-up of their neighborhoods. So if we're going to hold people accountable for their personal health behaviors, don't they also need to have equal access to health-promoting resources?

When people are being killed by sedentary work, by high caloric and high fat food, by lack of time or opportunities to exercise, isn't it unfair to then turn around and blame the victim? People make choices as individuals, but those choices are constrained by their circumstances.

**PETER SCHNALL:** These chronic diseases are socially determined and they're preventable. But there's an ideological headwind which *Unnatural Causes* is trying to address. That headwind is extraordinarily pervasive in the U.S. and it's this dominant ideology of individual responsibility.

I think our health problems also grow out of the enormous inequality in power between the wealthy and working people and the poor, and that's been getting worse over the last 50 years as the labor movement diminishes in terms of numbers and influence. Job environments are becoming more noxious as work intensifies, as hours increase, as pressures on people increase. There's more off-shoring and part-time labor that makes work more insecure. These all contribute to the development of chronic illnesses.

**QUESTION #12: If you could pick one thing to change in order to improve health outcomes, what would it be?**

**BRUCE MCEWEN:** Since I am a neuroscientist and I think the brain is the key organ in all this, I would say in the broadest sense, education. That means improving both self-efficacy and formal education.

**NANCY ADLER:** I have a policy suggestion that might have ripple effects. Rather than focus on different policy domains, what if we were to conduct an analysis of the health effects of every policy? This is actually one of the suggestions that came out of the Acheson Commission in England, which was trying to reduce health disparities. If the Congressional Budget Office did a health impact assessment of every piece of legislation that would affect education, it would affect labor, it would affect housing. That way we could factor in the health costs and benefits of different policies. That could have a huge impact across a whole range of determinants. And we need to do that because there is no one single determinant, they're all so intertwined.

Some of the European countries are already doing this. And it's being done locally in some places even here in the U.S. Some people in the health department here in San Francisco, for example, conducted an analysis of the health impacts and the healthcare savings of passing a living wage ordinance that was on the ballot a few years ago. I think that analysis factored into the successful passage of that measure.

**PETER SCHNALL:** This is one of those impossible questions to answer because, as the PBS special and our conversation make clear, the causes of ill health are complex and there are so many factors involved in health and well-being. But if there's one thing that needs to changed and that can be changed, I'd say it's our attitude about human beings in this society: how do we want to treat each other and how do we want to be treated by them? My sense is human beings are being treated more and more as commodities, and replaceable commodities at that. People's rights and entitlements are diminishing. There's a basic set of moral issues at work here: people have the right to work, food, housing, education, and healthcare. That's not honored in our society, and it's increasingly not reflected in our social policies. And I think that's devastating our lives and our health.

**QUESTION #13: Name three things that every person can do to work towards health equity.**

**PETER SCHNALL:** Since I'm a social epidemiologist, I would say join a political organization intending to remake America. That would be number one. More specifically, get involved in your community or in your labor union. I think underlying political involvement is important; educate yourself about what's going on; learn about your own position in society, and translate that increased knowledge into some sort of civic engagement. Take control of your life by getting involved in social and community advocacy.

**NANCY ADLER**: I don't know if there's a one-size-fits-all for what people should do. It depends on where they are and what parts of society they interact with. I totally agree with Peter that they need to become involved and engaged, but whether that's best focused at the federal level, locally… I think it's important that people do something, but what that something is has to do with their life circumstances.

**BRUCE MCEWEN:** I think things at the local and state level may be more malleable than at the national level. I keep discovering that many of the solutions that we'd like to see can be found at the local level and at the state level. To become involved in those activities may be more meaningful and rewarding than at the national level, which will ultimately begin to reflect what's going on at those local and state levels.

Boston city public health officials recently told us about their programs tackling racial disparities. Jack Shonkoff's Network on the Developing Child is advocating interventions. I believe the state of Hawai'i has passed landmark legislation that would protect and foster the health of children. There are attempts in Minnesota to change the food offered in schools. There are many, many examples. As you come to be aware of them, you realize there are solutions all over the place that could be implemented on a larger scale.