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Socioeconomic Stress and Death

Poor socioeconomic status is consistently associated with increased death rates. This finding has been replicated on repeated occasions over the past 80 years for all socioeconomic levels, and in geographically diverse populations. How is this best explained? What are the mechanisms involved? Cardiovascular disease is the leading cause of death, and over the past 4 decades, a consistent inverse relationship between coronary heart disease and socioeconomic status has been confirmed by prevalence data, as well as with retrospective and prospective cohort studies. This pattern has changed in recent decades, and it has been suggested that improved living conditions may account for some of the decline in coronary mortality since the mid-sixties. However, this does not appear to have affected all segments of society equally, and areas with the poorest socio-environmental conditions seem to show a delayed onset in reduction of cardiovascular mortality.

Numerous so-called "risk factors" have been identified, but as previously pointed out, a more appropriate term might be "risk markers". The vast majority of the more than 300 current risk factors really represent statistical associations, rather than actual causes, or even contributors to cardiovascular disease. Psychosocial influences are a significant aspect of this steadily growing list, and attention has recently focused on the importance of socioeconomic stress. Unlike earlobe creases and vertex baldness, these are modifiable factors that can significantly affect both the likelihood and consequences of coronary heart disease.

It seems quite plausible that poor living conditions in childhood and adolescence could contribute to increased risk for arteriosclerosis. However, defining socioeconomic stress and assessing its impact on health can be tricky. It could easily be argued that poor health causes socioeconomic stress, and that this is largely responsible for any increased correlation. The major measurable components are education, occupation, and income, or some combination of these. Education is most frequently utilized because this information is readily available, does not change as much as occupation or income after age 21, and it is less likely that poor health as an adult would

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ALSO INCLUDED IN THIS ISSUE

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Paul J. Rosch, M.D., F.A.C.P.
Editor-in-Chief

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influence the level of education. For whatever reason, there is little doubt that individuals with little education, and dead end low paying jobs, are far more likely to suffer from heart disease and stroke, compared to age matched, college educated, upper income professionals. With respect to proving any relationship between education, income or occupation to cardiovascular disease, other factors such as job stress must be taken into consideration. Increased job stress, as defined by the demand-control model, is clearly associated with a higher incidence of heart attacks and hypertension, regardless of income and occupational status.

In recent years, increased hostility has been promoted as the Type A trait most predictive for heart attacks. Low socioeconomic status could predispose to higher levels of hostility, as well as anger, which is also frequently cited. Most researchers use the Cook-Medley scale or some variant to support the specific relationship between hostility and cardiovascular disease. Critics question the validity of this approach for several reasons. They point out that this questionnaire was originally designed to measure other traits, and that hostility, like Type A behavior, is best rated by actual observation, rather than self appraisal with a pencil and paper quiz. Evaluations based on structured personal interviews often do not demonstrate concordance with self evaluation questionnaires. In addition, Cook-Medley scores correlate with all cause mortality, rather than coronary heart disease selectively. Similarly, socioeconomic status also relates to death rates in general, rather than specific causes such as cardiovascular disease. One possible explanation may be that emotions such as hostility and anger could also contribute to other major causes of death, such as cancer, infectious diseases, accidents and homicides.

Education, Wealth and Health

The conclusions reached from reviewing 40 years of research into the effect of socioeconomic status on illness, are that Americans who are richer and more educated, are much less likely to die from heart disease, stroke and other disorders. Greater income and education will obviously make you wealthier and wiser. However, they are also linked to a healthier and longer life, and education also seems to increase how long you will live actively and independently. This observation holds true regardless of sex or race. Some of the statistics confirming this are:

- Adults with salaries of less than $5,000 a year died at twice the annual rate of those receiving $50,000.
- The poorest people had 3 to 7 times higher death rates than the richest.
- Among people aged 65 or more, those with 12+ years of education, lived 2.5 to 4 years longer than controls with less education.
- In the 25 and older age group, death rates dropped steadily as educational levels rose.
- High school graduates live two to five years longer than those with less schooling.
- White professional men aged 35-74 had 30% lower death rates from all causes than craftsmen, laborers and service workers.

The President of the American Heart Association believes that socioeconomic status should join smoking, high cholesterol, hypertension, and sedentary status as risk factors for heart disease, adding that "It is particularly important that we find ways

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to keep children in school so they can achieve their educational potential". As another physician from the National Institute on Aging pointed out, "education level is a risk factor that can be changed".

Paul J. Rosch, M.D., F.A.C.P.
Editor

Mortality Due to Recession

Numerous prior surveys have shown a relationship between economic recessions and increased stress related illnesses or antisocial behaviors. A recent report provides further confirmation, suggesting that the current poor economy has been responsible for such things as:

- 6.7% more murders (738 per year)
- 3.1% more deaths from stroke (1,386 annually)
- 5.6% more fatal heart attacks (17,654 yearly)

Another study blames the current recession for 1,170 more suicides nationwide, representing an increase of almost 4% compared to more prosperous times. The investigation studied the effects of unemployment in 30 large cities with a combined population of eighty million from 1976-1990. It found that every percentage point rise in unemployment was associated with a 3.4% increase in violent crimes, and a 2.4% rise in non-violent crimes. One economist is convinced that "the health and social well being of the country is directly affected by the behavior of the economy". Another explains that "stress can be directed inward, like smoking, drinking, or having higher blood pressure, or outward, like beating your wife and abusing your child".

USA Today-7/8/93, 12/12/93

Strokes in Blacks: Genetics or Psychosocial Stress?

Afro Americans may be more susceptible to cardiovascular disease not only because of socioeconomic stress and racial prejudice, but also a hereditary predisposition. It is well known that blacks may have as much as 60-70% more deaths due to strokes compared to white controls, although these differences decline with age. This has generally been attributed to socioeconomic factors. In a recent attempt to evaluate such influences, 190,000 individuals over the age of 45 were followed for 5 years, or until death. White males fared best, followed by white females and black males, with black females being the lowest. Over the period of the survey, there were approximately 1,600 fatalities due to strokes. Black males and females were more than 4 times more likely to die than their white counterparts. When the statistics were adjusted for income, education, and relative social status, the excess risk of stroke deaths was reduced by only a third, implying that other factors are relevant. Blacks are also about 5 times more likely to die from complications of hypertension, such as kidney failure and heart disease. Financial and psychosocial influences could increase susceptibility to stroke by encouraging lifestyle and dietary patterns that promote cardiovascular disease, and limited access to adequate health care for many blacks might be another factor.

However, some authorities believe that heightened sensitivity of the nervous system to stress may be even more important, and higher calcium turnover rates may influence this. Calcium is a major factor regulating the activity of muscle cells, and elevated levels in those located in blood vessel walls could cause chronic vasoconstriction and high blood pressure. Calcium control mechanisms in blood platelets are similar to those in muscle cells, and are much easier to evaluate. In one study, the platelet calcium content of black subjects was dramatically higher than that seen in white controls. The reason for this is not clear, although blacks tend to have higher concentrations of ouabain, a chemical which acts much like digitalis in blocking the exit of calcium from cells. This may also help explain why hypertensive blacks tend to respond well to calcium channel blocking drugs which inhibit cellular uptake of calcium, and are relatively resistant to beta blockers and angiotensin converting enzyme inhibitors which are widely used in whites.

Some studies have focused on the importance of race in the evaluation of socioeconomic status,

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which an Editor of *The New England Journal of Medicine* believes may be a more important mortality risk factor than smoking. As she noted, "No one knows quite how status affects health", emphasizing that in addition to the social and political costs of inequity, medical expenses are also inordinately high for those at the lower end of the scale. In addition to genetic influences, other factors such as demographic and psychosocial milieu considerations may also play a role. Even the city you live in may be important, according to the following report.

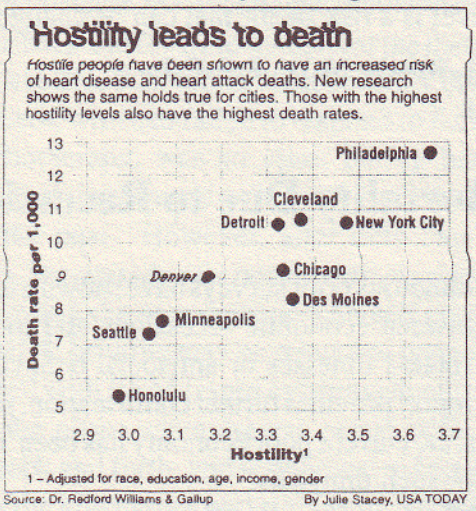
Internal Medicine News & Cardiology News
May 1, 1994

Hostile Cities and Heart Attacks

As noted, an association between various societal stresses and cardiovascular disease has been demonstrated in a number of studies. Particular locales, such as Glasgow, Eastern Finland, and some U.S. cities have unusually high heart attack rates, presumably because of greater environmental stresses. It has also been shown that certain Type A personality traits increase risk for coronary heart disease. Since it has been suggested that the hostility component of Type A behavior is largely responsible for this relationship, a Duke researcher wondered whether hostility might also contribute to the increased cardiac mortality found in certain U.S. cities.

A recent Gallup poll was designed to measure levels of hostility and mistrust in ten cities from states with the highest and lowest death rates from heart attacks, to see if there might be some such correlation. Philadelphia proved to have the highest hostility rating score as well as the highest death rate. The lowest levels of hostility were found in Honolulu, which also had the lowest death rate. Average death rates in the five cities with the highest hostility ratings were 40% greater than those at the lower end of the scale. (see chart below) The probability of this correlation representing a chance observation is less than one in ten thousand.

A spokesman for the Mayor's office, who resents this tarnishing of Philadelphia's image as "The City of Brotherly Love", explained "they musta caught us in the middle of a Philly's losing streak".



Paradoxically, one month after this report came out, another survey conducted by 100 urban experts hired by a non profit organization found that Philadelphia was one the nation's "Most Livable Communities". The ranking, which is published every ten years, is based on visionary government, vigorous attempts to rectify errors, and quality of life. In addition, Philadelphia also made the top ten All-American Cities list of the National Civic League. The Mayor's reaction was "It's inconceivable that a city could be one of the most livable cities and be hostile. We're so proud of this that we're going to buy all those Duke banners and rip them to shreds." Further information on the best places to live can be found below.

Leading Locales for Living

Partners for Livable Communities' list for the 1990s:

* Austin, Texas
* Charleston, S.C.
* Charlotte, N.C.
* Chattanooga, Tenn.
* Denver
* Indianapolis/Marion Co., Ind.
* Las Vegas
* Orlando
* Philadelphia
* Pittsburgh
* Portland, Maine
* Greater Portland, Ore.
* San Diego
* Shelby Co., Tenn.
* Somerset Co. region, N.J.
* Minneapolis/St. Paul

USA Today-5/13/94, 6/13/94

Serotonin, Stress, and Sleep

Serotonin is a brain neurotransmitter that has been increasingly linked to a variety of emotional disorders and stress related complaints. Low serotonin levels seem to be associated with feelings of irritability, frustration, sadness, apathy, insomnia, eating disorders, sexual dysfunction, and lack of energy. When serotonin deficiency is severe and/or chronic, marked depression may result. Most of the newer and more effective anti-depressant drugs act by blocking the metabolism of serotonin, so that more can be made available. Serotonin is not effective when administered orally. The only way it can be manufactured in the body is from tryptophan, an essential amino acid precursor present in most proteins. Because of past problems related to blood disturbances, possibly due to contamination during the manufacturing process, tryptophan supplements can no longer be sold in health food stores, and require a prescription.

For most individuals, the best way to raise or maintain serotonin blood levels, is to increase dietary intake of tryptophan. Some of the foods highest in this are turkey, chicken, sea food, and various nuts. Concentrations of tryptophan and serotonin in the brain can be further specifically raised by the subsequent intake of carbohydrates. This triggers an insulin response that selectively increases the brain concentration of tryptophan over other amino acids, resulting in greater levels of brain serotonin. For some individuals who have difficulty falling asleep, a tryptophan rich diet, followed by eating carbohydrates about an hour before bedtime, may literally provide a one-two knockout punch that can be extremely effective in alleviating insomnia and other sleep disorders.

Serotonin is also involved in other disturbances of body rhythms, such as premenstrual syndrome, which has a monthly cycle, and seasonal affective disorder, which recurs annually. These are also frequently associated with depression, sleep disturbances, and carbohydrate craving, and are often improved by drugs which increase serotonin levels.

Muscle Fitness and Health-Feb. 19, 1994

"I do not know what a brain is, and I do not know what sleep is, but I do know that a well-fed brain sleeps well."

Sir William Gull

EMDR - Breakthrough Treatment for Post-Tramatic Stress Disorder?

Post-traumatic stress disorder (PTSD) occurs following a psychologically traumatic event that is outside the range of normal human experience. Affected individuals re-experience the trauma in recurrent intrusive dreams or horrifying recollections of the event. There is often an accompanying and uncontrollable fear that the event itself will recur, and such feelings are particularly apt to be precipitated by some stressful environmental or mental stimulus. PTSD became classified as a specific psychiatric disorder in 1980, when this syndrome began to be increasingly encountered in Vietnam War veterans, affecting as many as 20% of those who had been wounded in combat. However, it is clearly described in Greek and Roman accounts of warriors' reactions to battlefield experiences, and is vividly portrayed in Shakespeare's *King Henry the Fourth*.

In recent years, PTSD has been steadily surfacing in civilian life, particularly victims of kidnapping, rape, robbery, natural disasters and car accidents. Of particular concern has been the marked increase in children who are victims of parental abuse, sexual molestation or violence in school. In acute cases, symptoms begin within a few weeks or months after the shocking event and tend to subside or disappear after six months. In chronic or delayed PTSD, the symptoms last for longer periods of time, or start to appear more than six months after the traumatic event. Affected individuals tend to become increasingly detached from others, with frequent guilt feelings about surviving when close friends or family have been victims. Difficulties with concentration, memory and restful sleep are common because of a heightened state of vigilance,

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alertness and apprehension. Any activity or location that might arouse the faintest recollection of the precipitating alarming and frightful incident is scrupulously avoided. However, attacks can be triggered by anything that even remotely resembles or symbolizes the original experience. During an attack, the victim may act in an alarming and violent fashion over which they have little control, and PTSD has even been used as a defense for murder.

Several therapeutic interventions have been tried, ranging from various antidepressants, tranquilizers and anticonvulsants, to psychoanalysis, group therapy and cognitive restructuring strategies. One of the most popular techniques is "flooding", or "exposure", in which the victim is encouraged to keep focusing on the memory of every detail of the event, until it becomes less threatening. In general, the results have not been very rewarding because of the need for chronic treatment, inability to predict which drug or approach will be successful in any given patient, and failure to significantly prevent the frequency of recurrent attacks or their severity. All investigators agree that it is essential to institute prophylactic measures as soon as possible after the traumatic event by debriefing, clinical counseling and group therapy by qualified professionals. Advances in this area have been presented for the past few years at our International Montreux Congress on Stress in sessions organized by The International Critical Incident Stress Foundation, which has been a pioneer in this area. Their research has clearly demonstrated the efficacy of prompt intervention in preventing PTSD. This holds not only for trauma victims, but also friends and relatives who may not have been directly involved, but frequently also suffer recurrent, disturbing symptoms resulting from the event.

Considerable interest has recently focused on an entirely new and novel method of treatment known as EMDR, an acronym for "eye-movement desensitization and reprocessing". Touted as a "miracle cure" in the press, a Yale psychiatrist describes it as "the most significant advance since the introduction of pharmacologic drugs", and over 7,000 therapists have taken weekend seminars to learn the technique. EMDR was serendipitously stumbled upon when a psychologist discovered that disturbing thoughts and feelings seemed to dissipate when she moved her eyes rapidly from side to side. The treatment consists of having the patient relive and discuss the experience, while their eyes track the back and forth movements of the therapist's waving hand for 90 minutes. One severely disabled rape patient, who had failed to respond to 6 months of psychotherapy, was so upset during her first session, that she urinated on herself, as she had done during the rape. However, after only two more sessions, her attitude and personality changed dramatically and she now considers herself cured.

EMDR benefits may be related to phenomena associated with REM (rapid eye movement) sleep. This is the phase when dreams occur as the eyes twitch back and forth, and is believed to be responsible for the processing and storage of the memory of sensory events. It is also characterized by increased heart rate and blood pressure, possibly due to stimulation of the sympathetic nervous system and adrenaline secretion, as is seen in the response to stress. Increased sensitivity to adrenaline and other stress related hormones have been demonstrated in patients with PTSD, as well as reduced sensitivity to pain related to endorphin secretion, and it is conceivable that the benefits of EMDR are mediated by such neuroendocrine mechanisms.

Critics caution that most of the support for EMDR comes from testimonials, and that we may be witnessing a placebo effect. Beneficial results have not been reduplicated in some reports, and more controlled studies are obviously required. However, it is essential that these be conducted by professionals who have been adequately trained in the procedure before any conclusions may be reached. This is a fascinating subject which we hope to further explore in the Subtle Energy session of our next Congress. It is not inconceivable that this technique, like stroboscopic photic stimulation, may be useful for the treatment of other stress related disorders, particularly anxiety attacks and panic disorder. EMDR may facilitate the completion of cognitive processing interrupted by the traumatic event, thus allowing victims to deal with their problems more rationally.

Newsweek-June 20, 1994

Workers Compensation For Job Stress Due To Termination

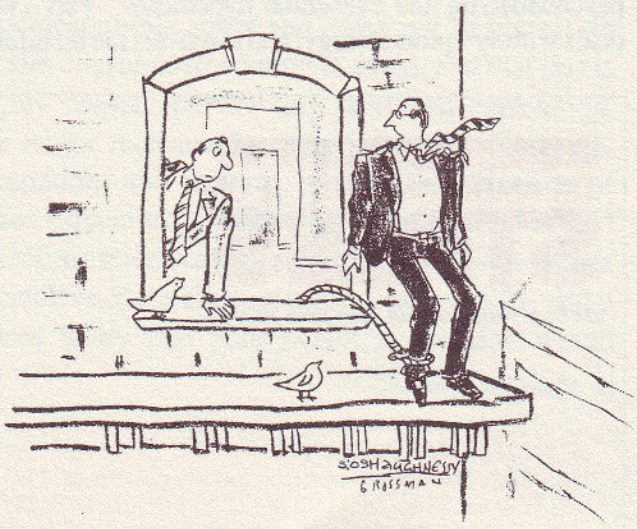
Workers compensation awards for job stress vary from state to state. California and Michigan are quite liberal, but other states do not even allow any such mental-mental claims. Thus, workers for a large corporation with facilities scattered around the country could receive either a generous or puny settlement, or nothing at all, even when the complaint and surrounding circumstances are identical. It depends entirely on the state in which the action is filed, and what previous precedents have been set, particularly with respect to claims for stress resulting from loss of a job.

In one recent Connecticut ruling, a male music teacher in the school system had been accused of sexually touching by one of his female students. The allegations were publicized extensively by the local media, with one newspaper carrying no less than 52 articles relating to the story. The teacher was terminated four months after the complaint was registered. In the interim, he had developed various stress related symptoms eventually requiring hospitalization, and he filed for workers compensation benefits. At the hearing, the school board failed to provide adequate evidence for the basis of his removal, and the student's allegations could not be substantiated by other witnesses. Additionally, the claimant explained that since he was blind in one eye, he occasionally had to lean over a student's shoulder during lessons to see their music books. The hearing officer concluded that any touching was inadvertent, and resulted from the teacher's need to get closer to improve his vision so that he could see the music clearly. The decision was appealed to The Supreme Court, which reaffirmed the award of benefits in this case, holding that the stress disorder was employment related. In its ruling, it stated that the stress resulted from the allegations of misconduct, rather than the termination itself, and therefore was a compensable injury.

In New Jersey, a 61 year old claimant who had been a 33 year employee of the city of East Orange, was not as fortunate. He had been warned in routine fashion, along with others, that he might be terminated. Since he had previously received similar preliminary notices of potential layoffs and no further action had ever been taken, he paid little attention to this warning. However, when the city began to implement a downsizing plan, he started to suffer severe stress symptoms because of fears that he would now lose his job. He was diagnosed as suffering from a form of post-traumatic stress disorder, and since this was clearly tied to the layoff notices, he filed for workers compensation benefits because of disability due to job stress. The hearing officer held that his stress induced disorder was not a compensable injury that fell under workers compensation liability regulations, and this was subsequently reaffirmed on appeal. The Appellate Court ruling explained that termination or layoff is a common risk of all jobs. It is not, from the standpoint of workers compensation, a risk of employment, but rather, an economic hazard that is simply unavoidable.

In California, suits claiming job stress due to termination filed by workers dismissed at the end of their probationary period reached record numbers a few years ago. As a result, legislation was enacted to prohibit mental-mental or psychiatric claims for job stress by workers who had been employed less than six months. Other states also prohibit such claims if termination was unavoidable in the normal course of business because of economic conditions, mergers, or downsizing.

The American Journal of Health Promotion
May/June 1994



"Yeah, I lost everything. But don't worry, I'm using a bungee cord."

Book Reviews • Meetings and Items of Interest

Book Review

Anxiety and Related Disorders: A Handbook Wolman, B.B. Editor, Stricker, G. Co-Editor, John Wiley&Sons New York, 1994 462 pgs. $60.00

This is the most recent addition to the **Wiley Series on Personality Processes,** and it is a welcome contribution. Fear serves as an alarm signal that triggers immediate and automatic "fight or flight" responses that have been exquisitely honed over the lengthy course of evolution. For our primitive ancestors, these were appropriate and essential in life threatening situations. Under such circumstances, fear represents a rational, normal and useful response. As indicated in the Preface to this volume, many contemporary fears are often irrational reactions to non existent threats, and often do not disappear even when there is obviously no danger. Anxiety is characterized by persistent feelings of hopelessness and helplessness that are inherent in the individual, and persist in the absence of any obvious threat. There are various forms of anxiety, ranging from acute anxiety in response to sudden stress, to performance and social anxiety due to fears of inadequacy. Anxiety-prone individuals are inveterately apprehensive because they expect that the worst things will always happen to them. They tend to worry incessantly, because they are equally certain that they will not be able to cope with a real or imagined problem, sometimes developing a Sisyphus complex. Anxiety is often a component of most other psychiatric diagnoses, particularly depression, phobias, obsessive-compulsive disorder, and post-traumatic stress disorder. Certain types of anxiety are apt to occur in specific age groups, especially childhood and old age.

Part One of this volume is devoted to various theories of the etiology of anxiety, including genetic and biochemical factors, as well as behavioral, cognitive psychoanalytic and existential hypotheses. Part Two deals with symptomatology, and discusses the manifestations of anxiety in all the different diagnoses and situations described above. Part Three covers diagnosis and treatment, with chapters on pharmacotherapy, psychoanalysis, behavioral and cognitive approaches, and family and group therapy. The thirty contributors represent academicians, practitioners and researchers from the U.S. and England. Despite their varied backgrounds and levels of expertise, the presentation is unusually even for a multiauthored work of this nature, and there is little reduplication or redundancy. Although the chapter dealing with biochemical factors is quite good, it did not cite any of the literature after 1990, save for one in 1991, suggesting it had been written several years ago. However, in general, the References are extensive and up to date. This book will be of interest and value to all mental health professionals, and those interested in any aspect of anxiety.

Meetings and Items of Interest

July 25-29 Short Term Dynamic Psychotherapy, Albert Einstein College of Medicine, Bronx, NY, call Dr. Levin (718) 430-2307

July 31-Aug.3 Management of Pediatric Diabetes, University of Colorado School of Medicine, contact: (800) 882-9153

Aug. 8-12 Psychopharmacology Consultations AIDS/HIV Mental Health Issues, Medical College of Wisconsin - Columbia Hospital, Landmark Resort, Egg Harbor, WI, call (414) 257-5995

Aug. 24-28 Comprehensive Review of Adolescent Medicine Course: Specialty Areas Related to Adolescent Health, Society for Adolescent Medicine - American Academy of Pediatrics, Hotel Sofitel Chicago O'Hare Airport, Chicago, IL, call (800) 433-9016, ext. 6796

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