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## **SOCIOLOGICAL FACTORS IN HIGH BLOOD PRESSURE\***

SIDNEY M. STAHL

High blood pressure is a silent killer and is therefore one of the most significant of the medically related problems that afflicts modern man. Approximately 25 million people living in the United States have the disease. In reality, it is not a "disease" in the classic meaning of that term; instead its sequelae, or subsequent effects, are diseases that are all too familiar and deadly: stroke, kidney disease and myocardial infarction (heart attack), to name just a few. In fact, there are more deaths in the United States each year attributable to the sequelae of high blood pressure than to cancer.

High blood pressure is a direct consequence of the heart having to force blood through excessively constricted blood vessels. Therefore, the heart is overtaxed and can fail; furthermore, blood vessels are exposed to high pressure and therefore have the potential for stroke, or the bursting of a blood vessel in the brain. In addition, the presence of high blood pressure accelerates the process of atherosclerosis or hardening of the arteries.

Despite these clear dangers and their growing prevalence, it was not until 1967 and 1970 when it was conclusively demonstrated that the treatment of both severe and even mildly elevated blood pressure had any effect on the reduction of the various morbidities mentioned above.<sup>1,2</sup> Now that the benefits of treatment have been documented, other problems have become apparent and demand answers from the various scientific disciplines involved in research in this field. One of these problems is the fact that the disease generally has no

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\*Dr. Stahl's verbal presentation at the symposium included recent data and findings from studies focusing on the recruitment into mass hypertension screening programs. These data are part of a report presently under consideration for publication by a copyrighted professional journal and accordingly are not reproduced here. The above report describes the general topics of high blood pressure and illustrates the sociological dimensions of high blood pressure control, the basis of Dr. Stahl's research. Originally published in *Perspectives on Contemporary Problems*, Volume 2 (April 1976), a publication of the Office of the Dean, School of Humanities, Social Science and Education, Purdue University, West Lafayette, this report is reproduced with permission.

symptoms until end organ damage has resulted some ten or more years after the onset of even a mild form of the disease. The only way that a person knows that he/she has high blood pressure is to have the blood pressure read by use of a sphygmomanometer (a blood pressure cuff). The procedure takes approximately 30 seconds, is simple to do and painless; but in only 66 percent of physician visits was this procedure performed.<sup>3</sup> Once high blood pressure is documented through a series of three or four blood pressure readings, the treatment of the vast majority of cases of high blood pressure is rather simple. The patient is put on an appropriate medication which he/she will probably have to take for the rest of his/her life. While that may sound simple enough, one of the most significance problems in blood pressure control is helping the patient toward self motivation to maintain him/herself on therapy. The maintenance of such therapy is problematic because the patient is asymptomatic and occasional undesirable side effects may accompany therapy thus militating against pill taking. Some of the research to be reported on here involves this issue of patient facilitation in maintaining clinical regimens.

The technical name for high blood pressure is hypertension. Yet, only 24 percent of a national sample and 45 percent of a sample of black inner city Indianapolis residents knew that hypertension and high blood pressure referred to the same disease.<sup>4,5</sup> For a majority of Americans, the word hypertension is thought to mean that the individual is nervous or high strung.

The issues of lack of knowledge of the disease and inadequate or lacking medication can be summarized in Figure I.

Public Knowledge and Behavior Related to High Blood Pressure



Approximately half of the hypertensives in the United States are not

aware of the fact that they have high blood pressure. Of those who are aware that they have the disease, about half are not being treated for it. For this group and the group unaware of the presence of the disease, their life expectancy, from time of onset, is under twenty years. Of those who have the disease, know it and are being treated, half are under control (only about 12.5 percent of all hypertensives) and the other half are either not getting adequate treatment or are unable to stay on their medication.

Hypertension has two broad categories: essential hypertension and secondary hypertension. The etiological or causative factors in secondary hypertension are being increasingly well documented and have generally been found to be correctable since they consist of adrenal tumors which can be surgically removed, decreased blood flow to the kidney, also surgically correctable, and certain hormonal imbalances which may be altered by chemotherapy. Essential hypertension, by definition, to date has no known etiological agents. Most frustrating is the fact that an estimated 90 percent of all hypertensives are categorized as having essential hypertension. Over 22 million of the 25 million hypertensives in the United States have no documented physiological or biochemical reason for having high blood pressure. To date there is no known cure for these 22 million people; modern medicine can achieve only *control* of the disease to prevent strokes and heart attacks.

If the precursor of "cure" is understanding the agents responsible for the onset of a given disease, then it is necessary more fully to document and understand those factors which separate essential from secondary hypertensives. It is in this area that the social sciences play one of a number of significant roles. Sociologists and psychologists have been involved in the study of undifferentiated hypertension for the last two decades. The results of these investigations have been impressive, but by no means definitive. (See Stahl, et al., 1975<sup>6</sup> for a review of literature in this area.) We know, for example, that black Americans have higher hypertensive prevalence rates than white Americans; we know that younger men have higher rates than younger women but that hypertension is more prevalent in older women than older men; we know that the disease is more prevalent in low socioeconomic status categories than in higher status categories; and we know that rural and small town dwellers have prevalence rates for hypertension which are about equal to those in the central parts of the largest U.S. cities such as Indianapolis and Chicago, but which are much higher than suburban dwellers who have the lowest rates. These latter findings are probably attributable, in part, to socioeconomic differences in these various locations and to the age structure of rural and small town America since the probability of having hypertension tends to increase with age.

In addition to these more demographically defined characteristics, we know that social and cultural change tends to produce "stress" which in turn could provoke elevated blood pressure readings which could lead to sustained elevated blood pressure or hypertension. Therefore, in a society in which there is a good deal of change between two generations, such as in the United States, we tend to find high prevalence rates for hypertension. A son who has an occupation which has a higher or lower prestige rank on a hierarchical structure of occupations than his father's occupation is more likely to have hypertension than is the son whose occupational status is similar to that of his father. Being raised in a small town and moving to a city, or the opposite migration pattern, is more likely to produce disease of any type, including hypertension, than is living in one community for an entire lifetime. Certain social psychological factors also seem implicated in hypertension including "coronary prone" characteristics, anxiety, self-esteem, depression, and hostility. While these factors, along with those studied most frequently by sociologists, have been useful in decreasing the unexplained variance in the etiology of undifferentiated hypertension (i.e., essential and secondary hypertensives combined) by some small fraction, a large fraction of the variability remains unexplained.

As a part of the effort at increased understanding of the disease, which is a critical first step before a "cure" can be found, research is now underway in cooperation with physicians of the Indiana University School of Medicine, Specialized Center of Research on Hypertension. One of the questions being most intensively explored is the etiological or causative distinction between secondary and essential hypertension as it relates to the role of social and psychological factors. Patients are being interviewed to determine if the "stress" factors cited above are more frequently implicated in essential than in secondary hypertension. If it can be demonstrated that social "stress" due to sociocultural change is more important in essential than in secondary hypertension, then this joint effort of sociology and clinical medicine will have found another missing thread in the highly complex fabric of high blood pressure.

While preliminary, the evidence for over 200 interviewed patients does support the thesis. (A control group of normotensives, hospitalized persons without high blood pressure, is also used to determine if all hypertensives differ from persons without the disease.) Essential hypertensives have lower incomes, more geographic moves, a higher rate of intergenerational occupational mobility (patients whose fathers have different occupational prestige ranks), a reportedly more difficult time adjusting to change, are more depressed, more anxious and more hostile than secondary hypertensives. It must be emphasized that these data are preliminary and require larger numbers of patients for adequate age-sex-race matching.

However, the evidence to date indicates that social and psychological factors previously implicated in undifferentiated hypertension are quite different between essential and secondary hypertensives and to a degree that was previously unexpected. The research is still ongoing; clearer answers should be available later.

Another part of this research tests a thesis that has not yet been adequately applied in sociological investigations of chronic diseases such as hypertension. It is hypothesized that not just the influence of sociocultural change, for example, is important in the etiology of the disease, but the patient-respondent's *perception* of the social change that he/she has experienced, will be a chief factor in understanding the relationship between social structures and disease.<sup>6</sup> At the same time that the essential/secondary hypothesis is being tested, the perception thesis is also being examined.

In addition to this project, research is underway with a team of physicians and nurse practitioners at Wishard Memorial Hospital in Indianapolis. This project involves an attempt at determining the least expensive and most effective means of finding those 50 percent of all hypertensives who have undiagnosed high blood pressures. The data indicate that the most effective means for finding previously undetected hypertensives is through door-to-door contact. Screening sites, such as in shopping centers, tend to screening disproportionately large numbers of previously detected hypertensives and few "new" hypertensives. Once these hypertensives have been found, the research attempts to design and evaluate various intervention programs for facilitating the maintenance of these persons on anti-hypertensive therapy. Among other techniques, these interventions include teaching patients to read their own blood pressure at home. This constitutes a form of biofeedback which, it is hypothesized, will provide the patient with adequate information on the course of the illness. It is felt that this technique should help to motivate the patient in continuing on medication.

The research reported on here is part of a growing awareness on the part of both clinical sciences in medicine, and social sciences such as sociology, of the critical interdependence of the various disciplines which have as an objective the understanding of human behavior. For too long there has been inadequate interaction between these disciplines due to a history of impenetrable boundaries around each. Sociologists have not adequately used concepts found in medicine and medicine is unaware of advances in the social sciences. With the increased conceptual depth and use of analytic tools in the social sciences and the awareness on the part of clinical medicine that the case study orientation will not answer many questions raised by the existence of killing chronic diseases, it has been possible to merge some of the orientations of these disciplines. The joint efforts of faculty in the Department of Sociology at Purdue and

the Department of Medicine at Indiana are promising in this regard. The future of this type of interdisciplinary research, as opposed to multidisciplinary research, promises to be both exciting and productive for understanding the categories of human behavior known as health, illness and disease.

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