

STRESS AND HEALTH: ISSUES IN RESEARCH METHODOLOGY

Edited by
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Stress and Health: Issues in Research Methodology

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Stress and Health: Issues in Research Methodology



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**WILEY SERIES ON
STUDIES IN OCCUPATIONAL STRESS**

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Editorial Foreword to the Series

This book, *Stress and Health: Issues in Research Methodology*, is the tenth book in the series of *Studies in Occupational Stress*. The main objective of this series of books is to bring together the leading international psychologists and occupational health researchers to report on their work on various aspects of occupational stress and health. The series will include a number of books on original research and theory in each of the areas described in the initial volume, such as Blue Collar Stressors, The Interface Between the Work Environment and the Family, Individual Differences in Stress Reactions, The Person-Environment Fit Model, Behavioural Modification and Stress Reduction, Stress and the Socio-technical Environment, The Stressful Effects of Retirement and Unemployment and many other topics of interest in understanding stress in the workplace.

We hope these books will appeal to a broad spectrum of readers — to academic researchers and postgraduate students in applied and occupational psychology and sociology, occupational medicine, management, personnel, etc. — and to practitioners working in industry, the occupational medical field, mental health specialists, social workers, personnel officers, and others interested in the health of the individual worker.

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Introduction

Research into stress is growing by leaps and bounds (Cooper, 1983). This applies to the occupational as well as the health psychology fields. The studies are multiplying at such a rate that there has been little attempt to reflect on the variety of research methodologies employed and the future direction of the research generally. Many of the areas of concern or the methodological focal points are similar, but the specific measures, research designs, and methods of analysis are as diverse as the populations they focus on. The purpose of this volume is to correct this imbalance and begin the slow process of assessing what is being used, its usefulness, and where research methodology should be going in the future.

The first part of the book will examine disciplinary perspectives (e.g. epidemiology, health psychology) and more general methodological issues, such as measurement bias in stress and health research, stress reduction intervention designs, data analysis and research design strategies in the field generally.

The second part of the book will focus on several important specific topic areas, which seem to predominate in the stress literature. The intention here is to deal with several issues for each of these topics: (a) the measures that are available and measures still lacking or needed; (b) if comparisons are possible, to highlight the better and inferior measures (and why); (c) special problems typically encountered when these measures are utilized in stress and health studies; (d) a review of some of the main studies and results. Our contributors explore the areas of the family as a context of the stress process, social support, stressors at work, Type A behaviour, and coping.

Finally, we conclude the volume with brief chapter on salient issues in stress research methodology, highlighted by the previous chapters. We hope that this work will make a contribution to the ever burgeoning research literature on stress and health.

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PART ONE

Methodology of Stress Research

Chapter 1

An Epidemiological Perspective on Stress and Health

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INTRODUCTION

Epidemiological approach

Epidemiology has made significant contributions to our knowledge of the aetiology of disease and premature death. The crucial role of environmental factors in disease has been emphasized and many of the ways in which physical and biological factors affect health have been teased out. It is largely from epidemiological investigations that we appreciate how well-being and longevity are affected by lifestyle, e.g. diet, smoking, levels of hygiene, physical activity.

Despite these advances in our knowledge about the development of disease at the population level, our ability to predict an individual's health status remains limited. Partly this is inevitable. The necessary crudity of measurement techniques in population studies cannot take account of the full range of an individual's characteristics and circumstances. In part, however, it may stem from a narrower view of factors affecting health. In particular, it has increasingly been stressed that our powers of explanation are due to a failure to take the role of the psychosocial environment properly into account. A growing view is that many forms of psychosocial stress—at work, in personal relationships, following from life events and so on—predispose towards disease and warrant more study than they have been accorded in the past. The call for investigation in this area has been widely answered by researchers in many fields, including epidemiologists who have now provided a proliferation of research evidence.

The aim of this chapter is to examine some of the achievements, limitations, and potential of epidemiology in examining the links between psychosocial stress and health. We do not attempt to present a comprehensive overview of knowledge across the breadth of the area—this is done in many other chapters in this volume—but rather focus on methodological issues, using empirical findings only selectively by way of illustration.

Stress must be studied epidemiologically

Within epidemiology there have been two poles of opinion on stress research (Marmot, 1986). One has it that the concept is too vague and general to be useful: stress cannot be defined or measured or measured adequately and cannot therefore be studied. The other appears to believe that standard psychosocial instruments can be administered and their results entered into multivariate analyses and causal inferences thereby derived. In our view, the first has not taken account of the detailed work attempting to define and measure specific aspects of the psychosocial environment. The second pole perhaps has a tendency to err in the other direction and treat 'stress' variables as if they were like height or vital capacity.

To study stress epidemiologically one must recognize that it is more difficult than and different in important ways from, say, studying smoking. On a spectrum of difficulty of measurement, smoking would be at the relatively easy end, stress at the other, with physical activity and diet somewhere in-between. What has made smoking accessible to study is the relative ease of quantification, the now ready availability of data that allow the charting of time trends and international comparisons, and the ease of interpreting what smoking 'means' biologically in different cultures and social sub-groups. All of these are more problematic in the study of psychosocial factors. Lack of attempts to solve these problems may, in part, account for the widespread scepticism with which stress research is greeted by researchers in other fields. It is our contention that stress can, and must, be studied epidemiologically—but these problems must be addressed.

CHARACTERISTICS OF EPIDEMIOLOGICAL INVESTIGATIONS

Traditionally the epidemiologist, from a medical perspective, is concerned with establishing the incidence and prevalence of disease both within and across populations. Comparisons are made between populations in different places, or in the same places at different times. An important variant is to study the effects of migration by, say, comparing two stable population groups with the mobile members who have moved from one of the groups to the other. The epidemiological strategy has usually been to collect extensive information on large numbers of people using vital statistics, and other readily available

population data, data from special surveys, and clinical data collected on individuals. The business of epidemiology is to generate, test—and, if necessary, reject and regenerate—hypotheses of the causes of specific diseases.

These methods clearly have implications for the type of information that can be collected. It is easy to see how vital statistics lend themselves to the study of smoking and disease, or social class and disease, in countries such as England and Wales where such data are regularly reported. The type of psychosocial data that can be gathered from such sources is, of course, limited. Nevertheless, some such approaches are possible. For example, in England and Wales, nationally collected data have been used to look at the impact of the death of a spouse on the mortality of the surviving partner (Jones, 1986). Marital status has similarly been studied. In Sweden, disease rates by occupation have been used to test hypotheses on job stress (Karasek et al., 1982). These data cannot be used to look at individual differences in response to social class membership, occupation, bereavement, or marital status but they are useful in indicating general patterns.

Sample surveys conducted for a specific purpose are in a position to gather more detailed data on individuals. However, if they are conducted to determine prevalence or incidence of disease they must be very large. This, of course, limits the complexity of data that can be collected. More detailed data on individuals can come from more clinically orientated studies. These have other drawbacks.

The strength of epidemiology is that it studies diseases where they occur—in populations. It is difficult to see how conclusions about aetiology can be drawn without some form of epidemiological investigation complementing other types of research. But epidemiology must accept the relative crudity of measurement of psychosocial data. This will lead to imprecision in classifying individuals, and has implications for study design. For example, if comparisons are made between individuals within a population, misclassifying them will reduce apparent associations between the characteristic and the disease under study. By contrast, if groups are characterized and compared, such imprecision may not seriously bias the comparison.

The major limitation of epidemiology in the study of stress and disease is inherent in the above. The need for mass information necessitates standardized, reproducible measures of both psychosocial factors and health. This limits the subtlety of detail that can be collected and hence the insight that is possible into the human processes involved in links between putative causal and outcome measures.

STUDYING STRESS AND HEALTH EPIDEMIOLOGICALLY

Defining and measuring stress

How has the epidemiologist dealt with stress, and how well equipped is he to investigate a variable which has little in common with the more physical or

biological characteristics to which he is accustomed? Stress does present very different measurement challenges from diet or blood pressure or serum cholesterol. The latter are not always straightforward to investigate, but they are on the whole easy to conceptualize, they are somewhat easier to measure, and there are established routes whereby a specified cause can lead to a specified outcome. The case of stress is quite different. There is disagreement about the meaning of the term, there is disagreement about how it should be measured, and there is a lack of understanding about quite how aspects of the psychosocial environment might actually make a person ill.

The absence of a consensual definition of psychosocial stress provides a fundamental empirical difficulty. At one level, there is some confusion about whether stress refers to a 'stressor' or to 'perceived stress'. Some investigators have assumed that stress means environmental circumstances which affect health directly or indirectly, whereas others have emphasized the individual's state of being stressed. Selye (1956) and Wolff (1953), who were among the first to examine stress in a social context, regarded the bodily reaction to unpleasant external stimulations as critical. Some subsequent research—for instance investigations of personality or Type A behaviour—has followed in this tradition, but other forms of enquiry—as in most studies of social networks and social support—have focused almost exclusively on situational factors. In some cases there have been attempts to take both processes into account. Holmes and Rahe (1967) did this to some extent in their early work on stressful life events as, although it was the presence or absence of a variety of life events which were in the end related to health, the stress rating of these events followed from the testimonies of large numbers of individuals. A parallel strategy is found in work on the effects of stress and work reported by Karasek and colleagues (1982). The strategy adopted to identify stressors in the work environment was to ask individual employees to report on aspects which increased their perceived stress, and then to amalgamate responses to provide population measures.

Brown and Harris (1978) have argued that taking self-reports of stress is leaving the job of measurement up to the subject. It belongs more properly with the investigator. Their stress measures are therefore neither the simple 'bereaved', 'divorced', 'unemployed', of the usual epidemiological approach that assumes that, on average, these will be stressful for individuals. Nor are they the individual responses to environmental circumstances, but something in-between. The investigator assesses the context and makes a judgement as to whether a life event is stressful for the individual concerned. This has the advantage of having individual based measures of stress that have meaning to the individual. The major drawback is logistical. These contextual measures are based on several hours of interviewing, rating recordings and transcriptions of interviews.