Social Psychological Foundations of Health and Illness

Edited by

JERRY SULS

and

KENNETH A. WALLSTON

Blackwell
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Social Psychological Foundations of Health and Illness

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Preface

This volume grew out of the opinion, arrived at independently by the editors, that the social psychology of health and illness has grown from infancy to active maturity. Scores of social psychologists working at the interface of social and health psychology have provided strong theoretical and methodological orientations generating evidence relevant to the etiology, prevention, treatment and adaptation to physical illness. Furthermore, we have also seen that phenomena from the physical health arena offer challenges and inspiration to basic theories of social psychology. Of course, no claim can be made that we now have all the answers. Rather, to paraphrase some scholar, we might still be confused, but we are confused on a much higher plane and about more important questions concerning the role of the "social" in physical illness and well-being.

This volume cannot purport to be comprehensive because space limitations did not permit us to invite, and circumstances did not allow, some researchers to contribute. Nonetheless, a broad spectrum of research is presented by the series of leading scholars who contributed chapters to this volume. The pieces were written to be accessible to advanced undergraduates and graduate students but also to offer new information to new doctorates, established health psychologists, and members of the allied health professions and other social sciences. Although there is an emphasis on recent advances, we have tried to make sure that the "the classic" theories and phenomena are represented here.

We are hugely indebted to Howard Tennen and Glenn Affleck, editors of the Behavioral Medicine series, who gave us encouragement and helpful feedback. At Blackwell Publishing, Otis Dean, Steve Smith and Sarah Coleman gave us all of the support book editors should expect and more. Thanks, too, to Phyllis Wentworth for her role in the book's production.

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Introduction

Jerry Suls and Kenneth A. Wallston

The idea that social factors play a role in physical health and well-being is not a new one. The basis of this idea has been around for hundreds of years. Hippocrates, the father of medicine, observed that the social relationship between patient and physician was important for recovery. The ancient Greeks also believed that the balance between the four humors (i.e., air, water, fire, and phlegm) was linked to the development of particular diseases. This balance could be disturbed by many factors, including the social environment. However, an empirically based approach that focused on the role of social psychological processes for etiology, prevention, treatment and adaptation to physical illness was only pioneered in the 1950s and did not gather full-steam until the 1970s. Why did it take so long for a social psychology of health and illness to develop? At least two things needed to be in place: a conceptual framework within medicine that acknowledged the role of psychosocial influences, and a social approach within scientific psychology consisting of persuasive theories, strong methodologies and a body of empirical evidence. Both conditions did not begin to emerge until the middle of the twentieth century.

An early conceptualization that offered a role for psychosocial factors was found among the ancient Greek holistic philosophers who taught that people get sick because a combination of factors has gone askew. Physical illness was thought to be the result of interactions among the mind, physiology, and the physical and social environment. Medical treatment (rarely successful for the ancients) somehow was assumed to restore the balance of factors implying the recognition that an *entire individual* gets sick, not just a part of him and not just an organ (Nuland, 1988: 306, italics added).

Another school of thought among the ancient Greeks, however, proved to be more influential. The philosophy of dualism considered the body as part of the material world and therefore subject only to physical laws. In contrast,

mind was non-material, much like the soul and not subject to physical laws. Consequently, for the dualists, the body is like a machine and physical illness or health is a function of physical causes. Interpersonal relationships, social context, and socialization were seen as distal, minor players in the competition between physical health and illness.

Dualistic philosophy dominated Western thought for centuries. When, in the 1600s, Descartes recognized that there had to be some interaction between the material body and the non-material mind, his solution was to maintain that the mind and body were separate but were connected and could communicate. (Lacking sound knowledge Descartes thought the pineal gland was a good candidate for this connection because it was located in the center of the brain.) However, the emphasis on the body as machine persisted and dominated medicine and philosophy (the precursor of psychology) until the late nineteenth century. Physicians of that era considered physical health as quite distinct from psychological health and not affected by psychological factors.

The advent of germ theory at the end of the nineteenth century reinforced this dualistic way of thinking. Germ theory, originally proposed by Galen, argued that bacteria, viruses, and other pathogens were seen as the major causes of specific diseases. Evidence for germ theory awaited the development of appropriate technologies, such as the microscope and the experimental method. Rudolf Virchow generally is credited with the first definitive evidence validating a germ theory that emphasized organs and, more specifically, processes at the cellular level. The success of germ theory reinforced the dualism where physical and psychosocial processes were seen as separate mechanisms. Medical scientists also tended to be reductionistic, ignoring the complexity of factors that influence health status, and disease-focused. In medicine at the turn of the century, health was defined as the absence of disease, and wellness received little attention. Dualistic thinking, physical mechanisms, reductionism, and disease-focus characterized the *biomedical* model of illness that became dominant through the first two-thirds of the twentieth century.

Medical scientists working from the biomedical model influenced by germ theory successfully identified pathogens for malaria, pneumonia, rabies, and tuberculosis and facilitated the development of vaccines that significantly improved the health of the human population. Other medical treatments following the biomedical perspective, such as new medications and surgical procedures, also contributed to and continue to contribute to advances in eradicating disease and prolonging life. The popularity of the biomedical approach to medicine makes sense in light of these discoveries and benefits.

Whether the biomedical approach deserves all of the credit, however, is debatable. The threat of infectious diseases began to significantly decrease several decades before the advent of effective vaccines (Grob, 1983). Declines in prevalence and mortality from infectious diseases such as tuberculosis and diphtheria appear to have occurred as a result of preventive measures such as improved personal hygiene, greater resistance to disease (owing to better nutrition) and public health measures such as sewage treatment (Runyon

et al., 1982). Many of these changes were not prompted by medical science or the biomedical model but represented the results of socio-cultural changes. Nonetheless, optimism about the potential for "magic bullet" cures inspired by the biomedical model made its success more salient than more distal contributions of the physical or social environment.

Limitations of the biomedical model, however, have become apparent in part because patterns of illness changed during the twentieth century. Contagious diseases were the leading causes of death in 1900, but, by mid-century and continuing to the present, non-contagious diseases such as heart disease and cancer are the leading killers. Success of the biomedical approach and improvements in public health have played a role in this shift. People live longer which makes them more susceptible to chronic illnesses. However, the major causes of death currently involve behavior or lifestyle patterns involving health-compromising behaviors, such as smoking, overconsuming calories and alcohol, and not exercising. Once the role of behavior in health was better appreciated the biomedical model seemed incomplete. A new perspective, the biopsychosocial model (Engel, 1977), was advanced which admitted psychological and social factors as equal partners with biological factors (cf. Schwartz, 1982).

The biopsychosocial model represents a return to the "holism" that the Greeks, such as Hippocrates, advocated, but its contemporary form employs modern scientific methods. Interestingly, Rudolf Virchow, the scientist mainly responsible for the early validation of germ theory was also a holistic thinker. While tracing the role of disease to the cell, he also was a leading exponent of the thesis that man is the product of his life situation. Virchow argued as vociferously for attention to environmental influences, such as occupation and social class, as to the microbes he viewed through his microscope.

We should acknowledge that the social psychological foundations of health and illness that are described in this volume probably look very different from the social factors that Virchow thought were important. For him, social conditions pertained mainly to social class and occupation. The scientific field of social psychology, which focused on the implied, actual, or anticipated impact of people on the beliefs and behavior of others, did not emerge until some decades after Virchow's death.

Contemporary social psychologists are concerned with basic interpersonal processes such as affiliation, interpersonal attraction and attachment, comparison processes, conformity, persuasion, group decision making, and collective action. Further, social psychologists attempt to identify fundamental and general processes that apply across cultures and different eras. As such, "the social psychologist typically seeks a level of generalization that falls between broad cultural abstractions and accounts of individual learning experiences" (Jones, 1998: 8). When social psychologists turned their attention to the physical health arena, they became concerned about how basic interpersonal principles and processes influence health. Further, the areas of inquiry and application extended from the etiology of disease – Virchow's focus – to social influences on prevention, treatment of acute conditions, management of chronic illness, and delivery of medical services (Taylor, 1978).

The application of social psychology could not occur until the discipline had assembled a set of theories and experimental methodologies for the study of basic interpersonal processes. Most of the foundations of experimental social psychology emerged in the 1940s and 1950s with the efforts of Kurt Lewin, Leon Festinger, Carl Hovland, Solomon Asch and Muzifer Sherif. The beginnings of a social psychology of physical health and illness appeared in the 1950s with Irving Janis's (1958) study of patients awaiting surgery, Howard Leventhal's work on fear and health communications (e.g., Leventhal et al., 1965), and the development of the Health Belief Model (Rosenstock, 1966). Shortly afterward, Stanley Schachter (1971; 1980) and his students (e.g., Rodin, 1978) explored implications of his earlier analysis of the determinants of emotion for obesity, smoking, and other health-relevant states.

Meanwhile, David Glass and Jerome Singer (1972) were examining the role of noise and controllability in understanding effects of urban stress. The utility of the control conception to broader questions in physical health soon became apparent. Glass (1977) adapted research from learned helplessness to elucidate the nature of the Type A coronary-prone personality. These pioneers trained a cadre of researchers who combined their theoretical acumen and experimental skills to examine questions about disease etiology, prevention, treatment, and management. The application of classic theories and concepts from attitude change, person perception, social comparison, emotion, and social learning theory produced a series of new insights that brought more recruits to this new field of study.

We also should acknowledge the parallel developments in the psychology of personality (Allport, 1937; Murray, 1938). This tradition posits the existence of stable internal structures and processes in the person that explain molar behavior. Whereas social psychologists emphasize the importance of situational factors for behavior, personalogists focus on dispositional causes. Although there is a tension between these perspectives, they also have some natural intellectual affinity with the understanding that human action represents the result of dispositions playing out in the actor's social environment. In any case, many important "individuals defy an easy classification as being either a social or a personality psychologist and have theorized about one in such a way as to incorporate the other" (Jones, 1998: 6). Such persons as Adorno, Allport, Murphy and Rotter come to mind. In any case, the fuzzy boundaries between social psychology and personality psychology provided fertile ground for the study of the effects of personality on health.

Several other social sciences, of course, were concerned with physical health earlier than psychology. Medical anthropologists examined how illness is thought of differently and treated differently across cultures. Medical sociology emphasized the effects of the larger social structure and the structure of medical delivery systems. Psychiatry, early on, focused on personality- or disposition-based causes of illness. Although these fields overlap somewhat with our discipline, social psychology is unique in its examination of how basic psychological principles and processes influence the individual and the group. Furthermore, social psychology can be the vehicle by which an

integration of cultural, structural, and personality factors can be achieved through its focus on the individual operating in a group and within a wider cultural context (Taylor, 1978).

As mentioned above, social psychologists began turning their attention to health-related matters in the middle of the twentieth century, but this activity received a real boost with the founding of the field of health psychology in the 1970s (see Wallston, 1993; 1997, for the history of the development of this new field). Although social psychologists make up a small minority (perhaps ~10 percent) of the membership of the Division (38) of Health Psychology of the American Psychological Association, individuals trained as social psychologists have played a disproportionate leadership role in this emerging discipline. For instance, seven of the first 20 Presidents of Division 38 were trained as social psychologists, as were three of the first five editors of the journal, *Health Psychology*. Thus, the field of health psychology today owes a great deal to social psychology which, in turn, has been enriched by a focus on physical health-related phenomena.

The Present Volume

The present volume attempts to represent the advances of the field after more than 30 years of intense activity by social/health psychologists. As such, this book represents a continuation of earlier efforts by several authors and editors. Shelley Taylor (1978) edited and contributed an influential mini-series of articles for the *Personality and Social Psychology Bulletin* that argued persuasively for the developing role of psychology in medicine. Summarizing and integrating knowledge to that point, M. Robin DiMatteo and Howard Friedman published an entire text book, entitled *Social Psychology and Medicine* in 1982. Andrew Baum, Jerome Singer and collaborators began an important edited series on health and psychology (e.g., Baum et al., 1984) that presented several notable essays reporting the developments in social aspects of health. Glenn Sanders and Jerry Suls published a collection of essays, *Social Psychology of Health and Illness* (1982) by established researchers and some of the then "young turks" of this evolving field of study. Since then, several more texts and edited volumes have appeared.

Our purpose here is to present classic and contemporary developments in the social psychology of health and illness. This includes research on symptom perception, social support, social influence, coping, individual differences, gender, stress reactivity, health behaviors, risk perception, and attitude and behavior change. The editors conceive of this volume as a compendium of the leading research in social-health psychology. To accomplish this aim, the editors have contacted several distinguished leaders in the field to provide state-of-the-art summaries of their research programs. The topics include virtually all of the major issues considered in the contemporary field of social-health psychology. Each chapter provides a brief survey of classic developments in each area of study followed by extended discussion of the authors' research programs.

Rather than impose a rigid format, the editors have allowed authors considerable flexibility in presentational style. Some contributors have chosen to present the material in the form of personal narratives. Other chapters, when the subject matter was more diverse, followed a more conventional format with more extensive reviews. Still other authors focus on a single program of research or theory. Throughout, the authors integrate past findings and offer speculations for future developments.

The editors cannot claim that the volume is comprehensive. Because of the limits of space, for example, we were unable, with one exception, to represent the many substantial efforts of European social psychologists and other colleagues around the world. Some specialized topics also do not receive attention because of the limits of space. However, we submit that social, health, social-health psychologists, physicians, nurses, allied health researchers and practitioners and laypeople can gather a broad and deep understanding of how far the social psychology of health and illness has come in a few decades by reading this volume.

Organization of the Present Volume

The chapters in this volume are organized in the four areas that we think have produced some of the most important insights and evidence for the role of psychosocial factors in physical health domain. Part I is devoted to "Models of Health/Risk Behavior and Behavior Change." The seven chapters present material on risk perception and worry, how cognitive factors influence responses to health messages, a specialized theory of adolescent health behavior and two general models of health behavior promotion.

Part II is devoted to "Social/Cognitive Processes in Health" and consists of five chapters. The material considers how people interpret and act on symptoms, how affiliation, disclosure and communication influence reactions to stress, the role of psychological factors on restoration of health, and how interpersonal comparisons influence physical well-being from disease etiology to adaptation to chronic illness.

The three chapters in Part III focus on "Personality and Health." These chapters focus on different approaches to the role of dispositions and well-being. Some perspectives are trait-based while others are rooted in general models of action and behavior such as control/systems theory and interpersonal theory.

The final part, "Adaptation to Stress and Chronic Illness" consists of four chapters. One covers restorative processes and their relationship to stress reduction. The other contributions focus on coping and social support. The need to examine the dynamics of interpersonal relationships is emphasized in this part. There also is attention paid to domain-specific measures of coping and to in situ methods to assess the coping process as it unfolds.

Although we think that our classification scheme for the chapters has heuristic value, there are many themes that extend across parts, for example between the "Social/Cognitive Processes" and the "Adaptation to Stress and

Chronic Illness" or "Personality and Illness" parts. Some chapters could just as well fit in other parts. In fact, we hope that readers will discern common threads that we overlooked and thereby inspire more research and study. Below we give a brief overview of each of the chapters organized by sections of the book.

Part I: Models of Health/Risk Behavior and Behavior Change

The seven chapters in this section fall into two subcategories, the first of which has to do with basic processes underlying health and risk behavior. Health promotion efforts are too often built around a pathology model, derived from traditional conceptions of "treating" disease. These approaches often ignore the social context of people's lives, and the psychosocial influences that push and pull them in healthy or unhealthy directions across time. In his chapter, Howard Friedman describes data from the Terman Life Cycle Study demonstrating that psychosocial and behavioral factors look different in their relation to health when they are considered across the context of the life-span than they do when considered at one point in time. Friedman contends that rather than taking a piecemeal approach and educating people about endless lists of things *not* to do, it may prove more efficient and effective to launch people onto healthy life paths. Attempts to confirm the most basic idea of prevention, that people take precautions to protect themselves from harm, have produced a morass of contradictory findings and a plethora of inappropriate research designs.

Neil Weinstein's chapter describes a careful, 20-year program of research examining the interplay between risk perceptions and behavior and the fascinating inconsistencies between what people believe about their risk and what that risk really is. Messages designed to promote healthy behaviors can be framed in different ways. Peter Salovey and Duane Wegener's chapter describes research comparing the effectiveness of messages emphasizing the benefits of adopting health behaviors (such as mammography, HIV testing, using sunblock, etc.) versus those emphasizing the risks of not adopting these behaviors. Borrowing from the social psychological literature on persuasion and attitude change, the authors then describe some of the mechanisms that might account for these framing differences.

The next chapters in Part I present four models of health behavior or health behavior change. The Information–Motivation–Behavioral Skills Model is presented in the chapter by Bill Fisher, Jeff Fisher, and Jennifer Harman as a general social psychological conceptualization for understanding and promoting health-related behavior across diverse domains of such behavior. Their chapter reviews the origins of the IMB model, the constructs and relationships it proposes, and the procedures it employs for translating this approach into conceptually based, empirically targeted, and rigorously evaluated health promotion interventions. Empirical support for the general utility of the IMB model across health behavior domains is reviewed and the chapter concludes with examples of the IMB approach to understanding and promoting diverse

health behaviors. The next chapter, by Frederick Gibbons, Meg Gerrard, and David Lane, presents an outline of their prototype/willingness model of adolescent health behavior. Their model describes social and cognitive factors that influence adolescents' decisions to engage or not engage in risky behaviors, such as substance use, unprotected sex, and sun exposure. Findings from laboratory and field studies are described and implications for prevention and intervention programs are discussed.

In the following chapter, Kevin McCaul and Amy Boedicker Mullens suggest that most theoretical models used to explain self-protective health behaviors overemphasize cognitive variables (e.g., beliefs) at the expense of affective variables (e.g., worry). They make the point concretely by showing that worry is an important predictor of screening for cancer. The culminating chapter in this section, by Britta Renner and Ralf Schwarzer, describes some psychosocial factors that influence health behavior change. The role of risk perceptions, outcome expectancies, perceived self-efficacy and behavioral intentions is explored in conjunction with a stage model that lends a special focus on post-intentional processes. Research examples from the domain of preventive nutrition are used to illustrate such a health behavior change process.

Part II: Social/Cognitive Processes in Health

The opening chapter in this section, by René Martin, Nan Rothrock, Howard Leventhal and Elaine Leventhal, reviews how common sense models of illness influence symptom perception and people's decisions about illness self-management and treatment seeking. The authors explore how characteristics of the social environment shape symptom interpretation. Most interesting, they describe how stereotypes about gender and heart disease vulnerability encourage symptom misattribution and treatment delay for female heart attack sufferers. Next, Jerry Suls' chapter reviews health-related research emanating from Festinger's theory of social comparison of opinions and abilities and Schachter's extensions to affiliation and emotion. The chapter reviews evidence showing how comparisons are involved in a broad range of illness-related phenomena. Interpersonal comparison can make people ill, affect prevention efforts, and facilitate coping with acute and chronic health threats.

The following chapter by Bob DeVellis, Megan Lewis, and Katherine Regan Sterba examines specific theories related to dyadic processes and mood management that are well established in social psychology but have been largely overlooked by health researchers. The authors summarize how interpersonal and emotional factors have been viewed historically, give overviews of selected theoretical approaches, and provide examples of how these theories can be applied in the context of health research. Ever since the mid-1980s, James Pennebaker and other researchers have been investigating the mental and physical health benefits of writing or talking about upsetting emotional experiences. In his chapter for this volume, Pennebaker explores the social, linguistic, physiological, and personality correlates of writing about traumatic

or emotional experiences as opposed to writing about non-emotional control topics. Finally, the chapter by Shelley Taylor, Laura Klein, Tara Gruenewald, Regan Gurung, and Sara Fernandes-Taylor addresses social support and the fact that people often cope with stress by turning to others for advice and comfort. The authors review evidence of potential biological underpinnings, suggesting that oxytocin, endogenous opioid peptides, and other hormones may promote these social responses to stress, especially in women.

Part III: Personality and Health

Although many of the chapters in this volume are concerned with individual difference factors, three in particular deal explicitly with what might be termed personality traits. Personality traits (e.g., anger and hostility) and features of the social environment (i.e., isolation versus support) confer risk of coronary heart disease, presumably through mechanisms involving heightened cardiovascular reactivity to interpersonal stressors. The chapter by Tim Smith, Linda Gallo, and John Ruiz illustrates the conceptual and methodological value of the interpersonal tradition in social and personality psychology for refining what is known about the social psychophysiology of cardiovascular risk. Next, Vicki Helgeson's chapter examines the implications of two gender-related traits, unmitigated agency (focus on self to the exclusion of others) and unmitigated communion (focus on others to the exclusion of self), for psychological and physical well-being. Evidence on the relationship of these traits to health is presented along with an examination of behavioral and interpersonal mechanisms that explain these relationships. Finally, the chapter by Michael Scheier and Charles Carver presents basic elements of current models of behavioral self-regulation. A central point is that coping, at its core, reflects self-regulatory processes during times of stress. Empirical findings are reviewed that link dispositional optimism, a personality-like trait, to physical and psychological well-being, and show how those linkages seem to be mediated by variations in the coping tactics that people use to respond to threat (both illness-related and non-illness-related in nature).

Part IV: Adaptation to Stress and Chronic Illness

The first chapter in this section is by Ashley Smith and Andy Baum. Smith and Baum discuss the importance of engaging in restorative activities as a means of reducing stress and promoting physical and emotional functioning. Restorative activities appear to be effective ways of reducing stress and promoting improved mental and physical health. Their chapter reviews research on sleep, exercise, relaxation, vacation, social interaction, and spending time in natural environments that support restoration, and discusses potential psychological mechanisms that may be involved in the relationship between restoration and health. Emotional response and social processes, particularly

those related to interpersonal relationships, offer explanations for the restorative effects of many of these activities. Next, Craig Smith, Ken Wallston, and Kathy Dwyer examine the advantages and disadvantages of using coping checklists in the study of adaptation to chronic illnesses. A number of theoretical and methodological issues related to this use are considered, and several research recommendations are made. The potential value of using increasingly sophisticated statistical techniques to analyze checklist data, and of using checklists in concert with alternative methodologies (e.g., qualitative analysis, experimental interventions), are illustrated with examples drawn from the authors' work on coping and adjustment to rheumatoid arthritis.

The next chapter in this section is by Howard Tennen and Glenn Affleck, the series editors for this volume, along with Stephen Armeli. Their chapter describes a daily process approach to studying health-related phenomena. They review studies of daily stress and risk for cardiovascular disease, the dynamics of coping, adjustment to chronic pain, and substance use. The contribution by Tennen, Affleck, and Armeli highlights the ability of daily process designs to address clinically relevant questions, and evaluates a variety of methods and statistical approaches unique to daily process studies.

As many chronic stressors and life strains involve the whole family – if not the neighborhood, community and school – it is often advantageous to extend the study of stress, coping, and adaptation beyond the individual level of analysis. Tracey Revenson's chapter presents a framework for studying dyadic coping processes among married couples coping with chronic illness. Two themes central to understanding marital coping processes are woven throughout the chapter. First, how do contexts – specifically, the interpersonal, medical, and temporal contexts – affect couples' patterns of coping with chronic illness? Second, how does gender fit into the equation? Is the experience of living with a chronically ill spouse the same for men and women?

Conclusion

In 1982, Sanders and Suls' aim was to convince the reader "that a social psychological orientation is a useful conceptual tool for the analysis of health and illness" (p. ix). The present editors no longer think readers will need to be persuaded. The authors of the chapters in this volume document the many important contributions to the understanding of the causes, adaptation, prevention, and treatment of physical illness made by social psychologists. It is our hope that this volume will spur even more work in the field of social/health psychology.

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PART I

Models of Health/Risk Behavior and Behavior Change

CHAPTER 1

Healthy Life-style Across the Life-span: The Heck with the Surgeon General!

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Introduction

Health times are changing. Eggs are again a healthy food. Avoiding cholesterol-laden eggs won't solve elevated-cholesterol problems for most people. Salt intake, however, can lead to high blood pressure, and thereby perhaps threaten cardiovascular health. Except, maybe eggs are not so healthy, possibly because of their high levels of saturated fat. And the threat from salt intake seems only true for certain people who are sodium sensitive. Butter is full of saturated fat, so you should switch to margarine. Wait. Margarine, containing hydrogenated oils, is loaded with trans fatty acids, which makes it a poor alternative to butter. Try the new and expensive kind of cholesterol-lowering margarine.

Where does all of this conflicting health advice come from? Some of this changing advice results from new scientific discoveries. New studies constantly address a piece of the puzzle of the development of chronic illness. Since cardiovascular disease is by far the greatest killer in the Western world, it and its risk factors (serum cholesterol, blood pressure, diet, stress) receive lots of research attention, usually fragmentary. Another part of this contradictory advice results from clinicians and reporters who overstate their findings. Individual studies are rarely multi-faceted, long-term, and definitive. So as each finding emerges, it receives more attention than justified; then later, another, different piece of the picture is revealed.

But part of the confusion results from scientists who misunderstand their findings. It is this scientific mis-step that is the subject of this chapter.

In 1989 I wrote a book entitled *The Self-Healing Personality*. I wrote:

> "Since eggs are high in cholesterol, some scientists have urged people to make drastic changes in their diets – avoid all eggs. However, cholesterol does not go

> directly from our stomachs into our blood. The human body processes the cholesterol in food and makes its own cholesterol. The level of cholesterol in our blood is affected by hereditary factors, by the amount of fat (especially saturated fat) in the diet, by exercise, and by stress. It is also affected by other, as yet unknown, factors. Avoiding eggs will by itself have little or no effect on blood cholesterol in most people.
>
> Many products on the supermarket shelves are now advertised with the ridiculous slogan, 'No cholesterol!' Believe it or not, I recently purchased a bunch of bananas that had a 'No cholesterol' sticker attached to them. This labelling indicates a grave public misconception of the best ways to promote health.
>
> For a whole host of reasons, it is healthy to eat lots of fruit and vegetables. Bananas do fall into this category, but no scientist really knows all the exact details of why fruits and vegetables are good to eat. Certainly a lot more than cholesterol content is involved . . .
>
> How many people are now feeling guilty when they eat a steak? The guilt is likely a greater problem than the steak. It is true that there is substantial evidence that high animal fat intake is unhealthy. At a restaurant near my home, I observed a fat man devour a huge fatty chunk of prime rib. He concluded the meal with a large piece of chocolate cake a la mode. If he does this often (as he evidently did), his arteries may pay the consequences. But people who occasionally enjoy eating a trimmed piece of broiled steak as part of a varied diet are giving themselves an excellent source of protein and minerals" (Friedman, 1991/2000: 130).

Now, more than a decade later, both the popular and scientific literatures are filled with articles questioning the "ban" on eggs and steak. They claim there is "new research" (e.g., "Eat your heart out: Forget what you know about eggs, margarine and salt", *Time* magazine, 1999). So how could I presciently write those words so long ago? All I had to do was read the scientific literature and think about its full context. There was never any convincing study even remotely indicating that eliminating high-cholesterol eggs from breakfast would improve the health of the population. Similarly, eating an occasional steak (full of essential proteins and minerals) was never shown to be worse for one's arteries than many other common foods, including drinking milk. But scientists misunderstood their own findings.

As we shall see, our health promotion efforts and our public health systems are too often built around a pathology model, derived from traditional conceptions of "treating" disease. These approaches often ignore the social context of people's lives, and the psychosocial influences that push and pull them in healthy or unhealthy directions across time. In the scientific arena, this orientation often means that each result from a particular scientific study is seen as an important and direct causal step on the road to disease. Anything that seems to be associated with an increase in a risk factor is a threat! Thus we encounter a litany of health advice – do's and don't's sometimes relevant to the proximal causes of ill health but ignorant of the long-term causal patterns.

Furthermore, such advice appears in isolation, disease by disease. All together, in the popular arena, this faddish approach produces people who have had it up to their noses with conflicting medical advice. They have had their

fill of half-baked baloney casseroles. So they junk all the advice and return to eating junk food. They say, "The heck with the Surgeon General!"

The truth be told, this exclamatory subtitle is not original. Rather, it was stolen from a huge billboard on the highway between San Diego and Riverside. The huge letters proclaim, "The heck with the Surgeon General." This is followed by the phrase "Inhale a big juicy star." It is an advertisement for Carl's Junior star hamburgers. Forget about warnings, and inhale loads of fatty hamburgers! Millions do. The burgers are accompanied by fries and shakes.

Backlash

A study in the *Journal of the American Dietetic Association* documented this backlash against promulgated nutritional advice (Patterson et al., 2001). This research used a random digit telephone survey of residents of Washington state, weighted to be representative of the population. More than two-thirds of the respondents asserted that the government should not tell people what to eat, and many complained about low-fat diets. More importantly, people evidencing high "nutrition backlash" ate more fat and fewer servings of fruits and vegetables.

The causal direction of these associations with nutrition backlash is not established. Patterson et al. (2001) concluded that it is likely that people who are annoyed with constant government and media harping on low-fat diets are more likely to disregard the advice altogether, and eat a fat-laden and low-fruit diet. The government advice backfires. This is also the prediction of psychological reactance models, which forecast that threats to one's personal freedom produce negative reactions that increase one's resistance to persuasion. This reactance against health advice may be especially true among people concerned with control issues (Rhodewalt and Davison, 1983). It is also the case that people may generally see themselves as less susceptible to such influence when the persuading entity is an irrelevant "outgroup" such as the government (Terry et al., 1999).

On the other hand, social psychological theory and research on cognitive consistency predicts that people who know they are eating high-fat, low-fruit diets will be more likely to evidence this "nutrition backlash" when asked about their diet. That is, if one is eating French fries, pork chops, and ice cream on a regular basis, then one is unlikely to assert that the government is doing a fine job in warning people about the health risks of such diets. Such thoughts and behaviors would be inconsistent, dissonant, and unperceptive. In this case, it is not annoyed people who ignore health advice, but rather misbehaving people who become annoyed with the advice (Abelson et al., 1968).

It is likely, however, that both sorts of causal directions account for the association between poor dietary habits and dissatisfaction with government preaching and scientific reversals. Some people will not attend to health messages, will not believe them if they hear them, and will not change their behaviors even if they hear and believe the message. Various cognitive, emotional, and informational processes are at work. On the other hand, other people will

form unhealthy habits and behave in unhealthy ways for a variety of interpersonal and situational reasons, and they then will form negative attitudes about health promotion as a function of these behaviors (Rodin et al., 1990).

The Skinny on Fat

Human beings have evolved to enjoy eating fat. In fact, people cannot live without fat in their diets. There are many different types of fats. There are fats from dairy products and fats from meats, there are artificial fats from food processors, and there are fats from produce ranging from soy and nuts to olives and avocados.

There are fat people who do not eat much fat, and there are skinny people who eat a lot of fat. Many people gain weight as they age, but many do not. Although it is known that some people who eat a lot of saturated fat will raise their cholesterol levels, a subsequent long-term causal link to all-cause premature mortality from this single behavior has not been directly documented as a major risk to the population.

Medical advisors who recommend addressing high serum (blood) cholesterol in people at high risk for cardiovascular disease through dietary changes in fat intake are piecing together different sorts of findings. But it has always been controversial whether simple diet-based attempts (such as avoiding eggs) at serum cholesterol reductions are needed for healthy young or middle-aged adults, especially given the often minimal or unexpected effects on serum cholesterol and health of moderate dietary changes (Kaplan et al., 1992; Taubes, 2001; Taylor et al., 1987). Further, any beneficial effects preventing deaths from cardiovascular disease might be offset by increased risk from other diseases.

Fat and carbohydrate metabolism in the body is complicated, and it is not clear that a high carbohydrate diet is especially healthy as a replacement. Add in considerations of physical activity, stress, alcohol, and culture, and the complexity multiplies dramatically (Epel et al., 2001). Note that during the years since the government and some health advisors have begun preaching fat intake reduction, the incidence of obesity among Americans has increased dramatically.

Of course such issues do not negate the documented associations between certain habits and disease. For example, there is a vast amount of evidence associating fruit intake with good health, and increasing one's fruit consumption of delicious fresh fruit might yield better health as a lagniappe (extra gift) for the lucky.

Other Health Promotions

Strangely reminiscent of the fat controversies, there is currently a governmental effort to increase the amount of exercise individuals do, as part of "Healthy People 2010" (http://www.aoa.gov/factsheets/LONGEVITY.html).

There is good correlational evidence that people with good cardiovascular fitness are at lower short-term risk of morbidity and premature mortality (US Department of Health and Human Services, 1996). But what will happen if we attempt massive public persuasion campaigns? Will we increase the numbers of anorexics? Will we increase the use of diet pills or weird diets? More bulimia? Will we have people injuring themselves running, or dropping dead from heart attacks? There are sure to be unintended consequences. A similar campaign was launched when John Kennedy was president, and now, 40 years later, many segments of the population are more obese and less fit than ever.

Many other health campaigns, similarly based on short-term and fragmentary evidence, are now underway. People are advised to use liberal doses of sunscreen when out in the sun. They may hear that an alcoholic drink a day is a good idea. They are advised to seek friends, go to church, stay married, meditate, lift weights, take vacations, get more sleep, eat breakfast, express their feelings, be cheerful, get more hugs, massage their children, floss their teeth, use disinfectant soaps, take supplements and herbs, and make other substantial (and often expensive) changes in their lives so that they will live longer. In all of these cases, there is mixed evidence, sometimes suggesting that the recommended interventional practices can be harmful, economically wasteful, or have unanticipated consequences over the long term. The clearest exception here is cigarette smoking, for which there is excellent evidence that avoiding or stopping smoking will improve health and longevity.

Scientific Inferences about Health

Much of the difficulty with health promotions derives from that abiding bugaboo of epidemiology, namely the conundrum that correlation does not mean causation. We observe associations among peoples, behaviors, customs, places, and health, but we do not usually know whether a corresponding intervention will have long-term salutary effects. For example, although it has been recognized for more than half a century that people better integrated into the community have better health, the implications for intervention are still unclear (Burg and Seeman, 1994; House et al., 1988; Stout et al., 1964).

Even with cigarette smoking, causal relations to health were controversial for decades, as we could not randomly assign half of the teenage population to be smokers, and then follow them for 50 years. What sort of evidence was finally mustered? First, there is a much higher incidence of disease and premature death among those engaging in the behavior. Second, there is clear temporal priority (e.g., smoking precedes lung cancer). Third, there is a dose to response relationship (heavier smokers have greater risks). Fourth, the relationship is consistent with other existing physiological knowledge (cigarette smoke has substances that damage living cells). Fifth, the association is consistent in different populations (men, women, in different ethnic groups, and in countries around the world). Sixth, there are animal analogs. Seventh, intervention seems to have an effect (people who stop smoking often have

better subsequent health than those who continue smoking). Together, these sorts of evidence almost completely rule out competing explanations for the observed relationship between smoking and cancer and premature mortality, and so make us very confident in our casual inference. Even here, however, it may be that there are complex relations among genetics, personality, smoking, and disease (Eysenck, 1985).

In an attempt to address the complexity, indeed messiness, of the naturally occurring interactions of individuals and varying environments, the medical community has increasingly turned to the randomized clinical trial. This has led to some odd, artificial, and perhaps dangerous studies. For example, the drugs tamoxifen and raloxifene are being studied (and used) for the prevention of breast cancer in healthy women who are at risk of breast cancer, despite sometimes significant side effects and risks (National Cancer Institute, 2001). Will we go down similar paths for personality and social psychology and health? That is, will we pursue similar litanies of healthy psychosocial characteristics? Will we then pursue drug or genetic interventions on personality and social relations?

How could we possibly pursue randomized clinical trials of personality, stress, social relations, and community? Should we make certain children more cheerful and optimistic, make certain adults more sociable and extroverted (preventive Prozac?), and test effects of divorce, recession, and community disharmony through randomized clinical trials? I hope not.

In many ways and for many reasons, the best means of ascertaining healthy lifestyles and understanding health-promoting life pathways is through long-term longitudinal study. By amalgamating the lessons of careful and comprehensive longitudinal research, a sensible and scientific approach to psychosocial health promotion can be constructed. Such longitudinal research often yields unexpected implications. The remainder of this paper reports illustrative findings from one such comprehensive effort, the eight-decade Terman Life Cycle Study.

The Terman Cohort

The Terman Gifted Children Study (later renamed the Terman Life Cycle Study) began in 1921–22 when most of the 1,528 participants were in elementary school. Continued until the present, it is the longest study of a single cohort ever conducted, and the only such major study with rich data collected regularly throughout the life-span (from childhood to late adulthood and death). My colleagues and I (especially Kathleen Clark, Michael Criqui, Leslie Martin, Joseph Schwartz, Carol Tomlinson-Keasey, and Joan Tucker) have made major efforts to follow up on and improve the data set. Data have been collected and refined on the subjects' social relations, education, personality, habits, careers, families, mental health, life stress, physical activities, and physical health; most importantly, we have collected death certificates and coded date and cause of death (Friedman et al., 1995c). Until our project began, the study