CHAPTER 1: INTRODUCTION

Beyond the Individual: Connecting Work Environment and Health

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Work, so fundamental to basic survival and health, as well as to wealth, well-being, and positive social identity, has its darker and more costly side too.[1] Work can negatively affect our health, an impact that goes well beyond the usual counts of injuries, accidents, and illnesses from exposure to toxic chemicals. The *ways in which work is organized*—particularly its pace, intensity and the space it allows or *does not allow* for control over one's work process and for realizing a sense of self-efficacy, justice, and employment security—can be as toxic or benign to the health of workers over time as the chemicals they breathe in the workplace air. Certain ways in which work is organized have been found to be detrimental to mental and physical health and overall well-being, causing depression and burnout [1-2], as well as contributing to a range of serious and chronic physical health conditions, such as musculoskeletal disorders, hypertension, chronic back pain, heart disease, stroke, Type II diabetes, and even death [3-5]. Accordingly, many occupational health scientists refer to these particularly noxious characteristics of work as hazards or risk factors of the psychosocial work environment to which employees are exposed. Consider, for example, some of the following research findings linking work organization and health:

- Employees who remained at their jobs throughout a major downsizing at a factory in Sweden were twice as likely to die in the next 7-1/2 years from heart disease (and 30% more likely to die from all causes) as those who had no downsizing at their workplace [6];

[1] This introduction was in many ways a collective product of all the editors of this volume for which we are extremely grateful. We particularly acknowledge the invaluable and generous contribution of Dr. Marnie Dobson to its form and content.

- Men who experienced having little control over meeting the high demands of their jobs—what is called job strain—were three times more likely to have high blood pressure than those who experienced more control, even when all other risk factors were taken into account [7];
- Men and women employees who felt they were insufficiently rewarded for their efforts at work—what is called effort-reward imbalance—were twice as likely to suffer from cardiovascular disease, depression, or alcohol dependency compared to those who felt sufficiently rewarded for their efforts at work [8]; and
- Employees who felt that their boss was not fair-minded had almost a third more incidents of cardiovascular disease compared to employees who felt that their boss was fair-minded [9].

These studies show employees' experiences of job insecurity, intensified workload with little control, imbalanced reciprocity, and unfairness in the workplace can negatively affect their physical and mental health.

As we understand it today, a major pathway from these characteristics of the work environment to health or disease or injury is through the mechanism of *prolonged, chronic stress*. Stress is commonly thought of as a biological and psychological process located within the individual. The *sources* of stress, however, can be internal or external. Some occupational health researchers—including the editors of this volume—describe these sources of stress as "work stressors" as they arise in the work environment itself, specifically the social environment. Scientific evidence supports the conclusion that one connecting thread by which work stressors impact health is through the mechanism of *lack of control* over one's work environment or one's job. Low levels of control over work are closely related to and in fact part of the definition of being in positions of lower socioeconomic status, and importantly, people in these positions have a higher risk of developing more diseases and dying prematurely (see chapter 3). Ultimately, work stressors reflect an imbalance of power between employer and employee, an imbalance which is growing under the pressures of globalization, neoliberal policies [10], and economic competition. This imbalance is manifested in dwindling union membership [11], longer work days, decreasing vacation time, intensified work pace, greater work demands, and less employment and income security. Yet this social environment and its impact are often invisible, ignored, or overshadowed by the prevailing idea that locates the cause and cure of stress primarily in the individual, specifically the mind and emotions, and that considers stress at work essentially a psychological problem of individuals.

While the identification and elimination of physical health hazards at work continues to be a contested battleground for prevention and regulation in the United States [12-15], exposure to particular physical work environments, such as chemical toxins, radiation, noise, or needle sticks*, have* been recognized as legitimate work-related health hazards. Such widespread consensus, however, are still far off for hazards embedded in the way work is organized, leaving debate about how to control them even more distant.

This book grew from the conviction that a convincing international body of evidence *already exists* which demonstrates the negative health effects of particular types of work organization. In fact, stress in the workplace constitutes a "fast-growing literature" [16] and sociologists in the United Kingdom, where job stress is officially recognized, have already analyzed it in terms of "the making of a new epidemic" [17]. Yet this body of knowledge still has minimal circulation and impact in the United States, not only among employees, the group most directly affected by work risk factors, but also among employers, unions, physicians, government agencies, and other important stakeholders (see chapter 10).

This limited impact in the United States calls for inquiry and explanation, particularly as it sharply contrasts with other industrialized countries, particularly in Western Europe [18]. We believe it results not only from obvious and powerful political and economic forces [12] against identifying and limiting hazards related to work organization, but from less visible cultural forces as well, particularly the predominant value of individualism in the United States which manifests itself in the overwhelming tendency to locate the causes and responsibility for getting sick (disease etiology) and for getting better squarely on the shoulders of the individual. This focus makes it difficult to recognize the power of the social environment to influence disease or health, despite evidence to the contrary. In addition, dominant philosophical assumptions that sustain scientific preference for causal explanations that are measurable, material (biological), and close to a health outcome—for example, explaining heart disease by looking at high blood pressure as opposed to the workplace influences that can lead to both high blood pressure and heart disease—often make social explanations appear vague, as they are difficult to locate materially, invalid, as they are considered *immeasurable*, and of weak influence, as they are too far *upstream* from the real causative action. It is the synergistic combination of political, economic, cultural, and philosophical forces, we argue, that helps support and sustain a primary focus on individual rather than work or social environment causes of illness and that accounts for much of the limited response in the United States to the extensive research documenting hazards of the social-psychological work environment.

We begin this introduction with the premise that a good society must have as a moral basis the well-being of its working people. Five sections then follow that briefly address: 1) the political and economic context in which work has evolved into the current globalized system; 2) approaches to measuring and explaining sources of stress in the workplace and their impacts on health; 3) why a social approach to the workplace and health is so difficult in the United States; 4) a social approach to occupational health; and 5) the evolution and structure of this book.

A "GOOD SOCIETY" PROTECTS WORKERS FROM HARM AT WORK

As a society, we count our civility among a number of valued traits. High among them is our belief that people are entitled to work in conditions that are safe and not knowingly harmful to their health and to be fairly rewarded for their work. Since

such conditions do not happen automatically or gratuitously, bitter struggles have been waged over the decades, often led by the collective power of organized labor, in order to pass laws to protect workers from unsafe working conditions that contradict basic human needs. Thus we place limits on age (such as prohibition of child labor), number of hours of work per day and week, and on how much a worker may carry. We institute rest breaks, lunch time, weekends, safety regulations, environmental protections and procedures, and minimum wage requirements. We require hard hats, masks, and other personal protections to limit exposure to known physical and chemical hazards. We view these hard-won protections as signs of our civility, community, and respect for each other, as progress from meaner Dickensian times to an ever more enlightened society, what we consider a good society.

Working conditions, most agree, should be safe from injury and avoidable illness or harm. Work should *not* make people ill in the process, and when it does, workers should be compensated accordingly. This understanding has become part of a basic, agreed-upon "social contract," in which the government is given some power to govern employers, employees, and the work environment. Our value for safe and healthy work was written into law in the Occupational Safety and Health Act (OSHA) of 1970.

The globalization of work and neoliberal practices of deregulation, however, are presenting serious challenges to established protections of worker health as well as posing new risks to health. As employment and work is continually reinvented in the United States, concern for the conditions of work is increasingly eclipsed by a growing attitude, "just be glad you have a job!"

GLOBALIZATION: THE CHANGING NATURE OF WORK AND CHALLENGES TO THE SOCIAL CONTRACT

Profound changes in the ways in which work is organized and carried out have taken place over the last 200 years, particularly in the Western world and more recently in the rapidly industrializing nations of Asia. Farming and craftwork, which predominated for many centuries, were largely replaced by the industrial revolution, and with it, skilled workers who had once exercised substantial control over their work processes were replaced by lower-skilled labor in new machine-based production technologies [19]. The introduction of Taylorism at the beginning of the 20th century—a new "scientific" approach to maximizing productivity—further reshaped the workplace by breaking down complex, traditional craft-based work processes into small, individual tasks to be performed in a specified amount of time, in a repetitive manner, and controlled by supervisors or mid-level management, leading to the birth of the assembly line. And while originally used for manufacturing, this lead to the assembly line mode of work organization has been transposed to service-sector and white-collar office jobs and to centralized multinational organizations which now divide up work tasks and processes often across national borders. The result of these and other 20th century developments: deskilled workers in many occupations with the power to control the production process increasingly concentrated in the hands of employers and management.

A second premise in this book, clearly influenced by globalization, is that the transformations in work and work organization that began 200 years ago are now accelerating so much as to even be considered another industrial revolution [20]. Globalization has included, among other things: outsourcing of labor to developing countries; feminization of the work force; increases in unemployment, underemployment, and employment insecurity; increases in temporary, part-time, flexible labor—"precarious work"; and a sharp increase in the economic gap between the rich and the poor (see chapter 2). In the 1998 Tokyo Declaration, occupational health experts from Europe, Japan, and the United States described this new world of work—"organization restructuring, mergers, acquisitions and downsizing, the frantic pace of work and life, the erosion of leisure time and/or the blending of work and home time" [21]—and the motor behind it: ". . . driven by economic and technological changes aiming at short-term productivity and profit gain" [21].

The social and economic forces brought about by global economic competition are determining the ways in which work is unhealthy, how noxious it is, and who are most exposed. In fact, these changes disproportionately affect people in lower socioeconomic positions, particularly women and immigrant ethnic minority groups, whose health is already more vulnerable. Women are becoming the poorest component of the workforce, and in turn, the most numerous, being employed in low-income service-sector and manufacturing jobs (see chapter 2). Migrant workers searching desperately for employment are being pulled into developed nations where they often become part of disadvantaged minority groups concentrated in the lowest-skilled work and marginal sectors of the economy that offer minimal or no benefits, such as health insurance.

In industrialized countries, this globalization of the economy over the last 30 years has led to a second round of new systems of work organization, such as lean production [22], and the intensification of work through increased work demands on a reduced workforce. Consider some of the following data:

- one-third or more major organizations broadly reduced their workforce in the 1990s and between January 1999 and December 2001;
- 9.9 million jobs were eliminated, and temporary employment multiplied six-fold to nearly three million between 1982-1998 [10, pp. 184-185];
- the average work year for working age couples in the United States has increased by nearly 700 hours in the last two decades of the twentieth century [23], more hours per year than any other industrialized country. Time away from home, due to commuting, has increased significantly while vacation time has decreased [24].

Although little addressed in the United States, these changing working conditions are negatively affecting worker health, indicating that the gains of "lean" production for employers come at a high cost to workers' health (see chapters 6 and 7). For example, in a 2007 U.S. survey, about three-quarters (74%) of workers at all occupational levels reported feeling stress from work [25]. And this stress proves very costly: disability reported as due to job stress in 1997 (23 days) was four times

greater than the median for all other injuries and illnesses combined [26]. In a 1998 study of 46,000 workers, health care costs were nearly 50% greater for employees reporting high levels of stress in comparison to those who were "stress-free" [27].

While the causes of ill health may be in question, the spiraling costs of employee health—both due to work injuries and payment of health insurance—has moved health and work to front and center stage. Clearly, not all stakeholders (e.g., management, labor, employees, government) share the same interest in protecting worker health [12, 15], with many in management/business seeing it primarily as a cost and a drain on profits. More recently, however, efforts are being made to redefine worker health as an investment and source of profit. This book addresses how these social and economic processes are changing both work and the health of working populations.

Notwithstanding the abundant problems around work in developing countries, this book focuses mainly on the detrimental health effects experienced by working people in industrialized countries, particularly in the United States, albeit with the aim that this knowledge can be applied in developing countries as well.

PSYCHOSOCIAL STRESSORS AT WORK LEAD TO POOR HEALTH

By what mechanisms do social factors—from class differences to poverty to racism to work organization—become embodied in human experience? In other words, how does the social enter the body? In this book, we focus on stress as a fundamental pathway between the social world (the work environment) and the body. Although debate continues over exact definitions of the term *stress*, it is generally agreed that stress is best understood as a *process* originating in 1) environmental demands or stressors, which 2) if appraised (evaluated or experienced) as threatening, will trigger 3) acute (immediate) emotional and physiological reactions, which if repeated and prolonged, will give rise to 4) biological (for example, high blood pressure) and behavioral (for example, smoking or alcohol use) effects, which in turn can lead to 5) long-term health consequences, such as chronic disease (e.g., hypertension) and eventually death. Throughout the *stress process,* other factors, either within us or within the environment, 6) may protect or *buffer* people exposed to stress from its potentially adverse health impact [28].

The study of stress and work—variously referred to as work stress, job stress, and occupational stress—approaches an industry of publications in itself. Theories of work stress abound [29-32], each with its own important distinctions and specific technical languages. This book aims to translate and demystify those languages so that non-experts and researchers can better communicate and learn from each other. One main approach to work stress, and the one proposed throughout this book—a public health approach that originated in Scandinavia [19, 33, 34]—has focused on the links between work, stress, and cardiovascular disease (heart attacks and strokes) (see Chapter 6) and the determining power of the UK environment.

Another dominant approach to work stress considers the sources of stress as primarily an "interactional/transactional" relationship between the work environment *and* the individual worker, often referred to as person-environment fit [35]. This

approach considers physiological response to stress (as indicated by biological arousal such as elevated blood pressure) as dependent upon a subject's perception (appraisal) of stress. In other words, stress is only registered if a person consciously experiences something as stressful. In contrast, the public health approach argues that work stressors are an *objective* part of the work environment. Regardless of whether environmental demand is actually experienced at any one time as stressful or not, *chronic* encounters or exposures with such situations will lead to a physiological arousal of stress in the body if not the mind of *most* people, at *most* times, and in *most* places [29, p. 3]. This argument is supported by recent research that confirms that physiological arousal (such as increased blood pressure or heart rate) can take place even when individuals do not report feeling "anxious" or "stressed," particularly when the situations they encounter are normal and routine, as in everyday work [28]. Importantly, then, stressors can apparently affect our health *even* if we are not always conscious of them or are feeling anxiety. In this way, the public health model expands the traditional occupational health approach of objective hazards and exposures to include a new type of environment neither chemical nor physical, but what is referred to as *psychosocial* or simply social.

To be sure, correctly understanding what chronic or repeated and prolonged exposure means is critical to identifying *unhealthy* levels of stressors. Some level of stress enhances performance in life situations, including work. However, the increasing consensus in the scientific community is that occupational stressors are a threat to human health, a burden *in and of themselves*, not only as they contribute to the risk of developing chronic diseases [28]. In this sense, stress is rarely referred to as something positive and good.

Thus, the key distinction for the public health approach is between stress and stressors—the distinction between *self-reported stress,* on the one hand, which is what most people think of or refer to when they talk about stress, and *exposure to psychosocial work stressors*, on the other. Hypertension, "the silent killer," exemplifies this process: infrequently associated with symptoms of stress or anxiety [36] but strongly associated with job stressors (such as job strain and effort-reward imbalance).

In turn, the survey questions used to measure and analyze these stressors aim primarily at evaluating *workplace conditions, not the emotions* of the people involved. Several particular job characteristics have been identified as hazardous. In the demand-control or job strain model [19], one of the most widely accepted models of work stress [29], strain (physical or mental distress) results from a combination of high psychological demands coupled with low control or decision latitude over carrying out the work tasks. Decision latitude is a technical term meant to combine both the authority to make decisions, e.g., having a say over how one organizes one's work tasks, with the chance to use and develop skills on the job (skill discretion). Together with social support at work, control helps us deal with, or *buffer,* the effects of work demands [37]. Workers exposed to high demands yet who have high levels of control over how the work is to be done—a common situation among managers and professionals, for example—evidence fewer stress-related health problems than those lacking control or social support at work [37].

A second model within the public health approach, referred to as the "effort-reward imbalance model" [35], locates the source of stress-related illness in a perceived imbalance between the effort one puts out on the job and the rewards one receives. In other words, a perceived lack of reciprocity or fairness (high effort plus low rewards) can lead to adverse health consequences for the people involved. This model assesses both the characteristics of work and the subjects' evaluation/appraisal of the importance such characteristics have to them.

Research has consistently shown that workers in jobs with high demands and low control (job strain) are at increased risk of developing and dying from cardiovascular disease, *even* after taking into account known biomedical and behavioral risk factors, including high serum cholesterol, cigarette smoking, and high blood pressure [3, 7]. Thus, while the dominant approach to work stress and to cardiovascular disease in the United States focuses on getting individuals to change their individual behaviors (offering programs for weight loss, smoking cessation, and exercise, for example), evidence shows that even taking these factors into consideration, workers showing evidence of job strain are *still* at a greater risk of early death from cardiovascular disease than those who don't. Work stressors also have been regularly linked to an increased risk of musculoskeletal disorders (such as back pain and tendinitis) [4] and with psychological ill health [1, 38].

"Organization of work" (or work organization) is a term recently taken up by the National Institutes for Occupational Safety and Health (NIOSH), the U.S. government research agency concerned with work and health, to capture particular characteristics of the work environment [39]. The term was first used to refer to high demand, low control, high effort, and low reward characteristics, but gained additional meaning in the 1990s and beyond as major changes in the organization of work, such as lean production and precarious work, have spread around the world. Stress at work was recognized as a leading health and safety problem by NIOSH, and in 2002, "organization of work and occupational health and safety" was identified as one of 21 priority agenda items of the National Occupational Research Agenda (NORA) [39].

Together, these risk factors capture threats to workers' *social survival*, as opposed to their physical survival [40]. Such was the conclusion of medical anthropologist Bev Davenport in a recent study of hypertension among transit operators, based on the bus drivers' sense that "your job was on the line at all times, . . . someone was looking over your shoulder and you could get busted for almost any infraction and then lose your security" [40, p. 143]. Some experience of uncontrollability of the work environment or the job is echoed in the *constrained agency* experienced by many people on the bottom of unequal situations, which physician/anthropologist Paul Farmer and others refer to as "structural violence"[2] [41].

[2] The term "structural violence" refers to a form of violence embedded in the systematic ways a given social structure or social institution assaults human dignity and constrains human freedom, while at the same time slowly killing people by preventing them from meeting their basic needs. In *Mountains Beyond Mountains: Healing the World: The Quest of Dr. Paul Farmer* by Tracy Kidder, Random House, New York, 2004.

It is reasonable to conclude that one of the mechanisms by which social class contributes to ill health is through exposure to stressful working conditions. The current increase in social inequality—the unequal distribution of wealth and opportunity—in the United States (see chapter 3) undoubtedly means that greater proportions of the working population are and will be exposed to poor working conditions. Recognizing this threat is a fundamental task for those concerned with occupational health and population health.

POLITICAL, ECONOMIC, AND CULTURAL DIMENSIONS OF WORK-RELATED DISEASE ETIOLOGY

A third premise of this book is that political, economic, and cultural forces play major roles in how the work-health relationship is conceptualized, studied, diagnosed, and treated. As many historians have carefully documented, social forces such as politics and economics have much to say about what we know and do not know in science [42], much as they clearly influence what impact particular scientific findings will have. Similarly, some historians, social scientists, and analysts of medicine have long challenged the idea that disease categories and etiology reflect objective, natural states free from social and cultural influence. Sociologist Sylvia Tesh [43], for example, could have been thinking of contemporary approaches to work and health etiology and prevention in the United States and Scandinavian countries when she argued that embedded in approaches to illness prevention lie "hidden arguments" of a social, political, and economic nature. Which scientific knowledge and theories are used, which are ignored, are all affected by political struggles among diverse interests, which reflect different beliefs about the relative responsibilities of the *individual* or *the group (collective, community)* for people's health.

Arriving at the answers to these many questions involves debates and disagreements over data, evaluations of cause and effect, and battles over regulation and prevention that reflect assumptions, interests, and power well beyond the specific topics discussed. Objective scientific data constitute only one part of the picture and rarely provide simple or unambiguous answers. Rather, science is also a collective, social process in which consensus and authority are required in order for something to be legitimately identified as a "work-related illness." Political and economic forces fight to influence which scientific findings are produced and circulated, which diseases are recognized and officially designated as "work-related." In many developed countries such as Scandinavia, Canada, Italy where political and economic systems are oriented to the good of the collective—exemplified by universal policies of national health insurance, guaranteed paid vacation time for all workers, minimum pensions for all—and where not coincidentally the labor movement remains powerful, data connecting specific working conditions to health are routinely collected and the study of work and health significantly developed. In striking contrast, no national databases assessing working conditions and health of the same person even exist in the United States [23], making the scientific documentation of connections between workplace characteristics and health effects

extremely difficult. In the United States, businesses might be subject to increased regulatory monitoring and loss of profit and control in the workplace if more common health problems (such as hypertension, cardiovascular disease, and depression) are recognized and defined as by-products of demanding, low control, and insecure work. In the absence of a national health plan in the United States, health costs are borne by businesses through the provision of health insurance and Workers' Compensation.

The tendency to ignore the potential impact of work on health is most strikingly demonstrated in the near complete absence of questions about work and working conditions in the routine medical history taken by physicians in the United States, whereas "job strain" is illegal in a number of European countries [18].

A final premise of this book is that one of the main "languages" in the United States is *individualism*: we think, talk, act, evaluate, explain, and blame first and foremost in terms of the individual rather than a community or a social context. We think of disease and illness in terms of risk factors or health habits or lifestyle or genes *of an individual*; we think of prevention as directed toward changing the individual—for example, through stress management techniques, more exercise, or healthy eating habits—rather than toward the workplace, community, economic, or political systems. The individual is considered responsible not only for his or her health but also for his or her achievement or failure at work, under the assumption of equal opportunity and meritocracy, a philosophy of, "you get what you deserve (or earn)" [44]. Those who fail, by being sick, unemployed, underemployed, or poor, are often considered second-class citizens.

The dominance *of individualism* shows up in our everyday and professional language in which social phenomena are often referred to in psychological and/or individual terms. For example, work stress researcher Cary L. Cooper writes about, "The new psychological contract and associated stressors," while asking: "How can organizations continue to demand more and more of their employees, including loyalty, while providing less and less job security and support? Is the *psychological* contract between employer and employee worth the metaphorical paper it is written on?" [27, p. 1, italics ours].

Disease risk factors, such as smoking, drinking, and exercise behaviors, are approached as if they were entirely individual when in fact they are strongly affected by social factors, including work stress and social class, in their genesis and reinforcement. Cigarette smoking, as an example, arose as a common behavior in the early 20th century with the mass production of cigarettes and their widespread dissemination and use among troops during World War I to cope with combat stress. Weight is affected by work that requires less physical labor, and by work stress, which can exhaust people and limit their ability to exercise—factors not entirely within the control of individuals. Similarly, the experience of stress itself is often approached as a matter of individual will, as many stress management programs teach that "it's up to you whether stress affects your health or not." This book will show why this standard stress management advice is only one side of the story; even if we put them out of our minds and "get used to them," chronic, everyday stressors in our work environment can still affect our health [28].

Final obstacles to greater recognition of social causes of illness lie in dominant approaches to knowledge in science in the United States. For example, social environmental conditions, such as social climate or a sense of powerlessness or job insecurity, which many people suspect affects their health, are readily dismissed as scientifically intangible and non-measurable, and thus receive little explanatory and preventive attention. Similarly, the fact of individual variation in response to environmental stressors is also used as support for individualist approaches. If response is varied, if not all people get equally stressed from the same situation, so the argument goes, the prime mover must be individual, not environmental. This approach to environmental toxins, including cigarettes, often reflects an ideology of survival of the fittest; rather than setting the bar to the threshold that protects the weakest so that everyone will be protected, the weakest individuals are "eliminated."

Finally, most chronic illnesses have no one single cause, but rather result from multiple influences, one of which may be work. Working conditions can cause, contribute to, accelerate, or trigger symptoms of ill health. Requiring evidence that work is the *only* cause of an illness raises the threshold criteria for labeling something work-related so high it discourages official recognition and prevention of the *contribution* of many working conditions to ill health and injury.

CONNECTING THE DOTS: WHAT NEEDS TO BE DONE?

One of the purposes of this book is to bring into awareness the connections between the political and social hierarchies in which we live and work and experiences of physical strain and distress [45]. It may seem easy, but *making the connections between social conditions and individual health is, not accidentally, quite difficult.*

While healthy work can **appear** expensive to employers in short-term and monetary terms, when one takes into account the social burdens on the health care system, or on families and increasing household debt and household bankruptcy due to the costs of ill health or unemployment due to ill health, the costs of disability payments or workers' compensation insurance for employers—prevention of disease **saves** money. But this way of thinking requires a shift from considering businesses as autonomous entities, fully responsible for all their costs themselves, to considering work and businesses as part of a larger collective which shares responsibility. The prevailing assumption is that if an illness is labeled "work-related," then the employers are responsible for cause, costs, and cure. This undoubtedly discourages interest in learning about the impact of work on health, much less preventing it. Nevertheless, while companies do bear some burden for rising health care costs and workers' compensation, most costs for occupational disease today are not paid by employers but by individuals and their families and the Social Security system [46].

In this global economy, U.S. companies must compete with prices world-wide, including those based on minimal worker protection. Hard-earned elements of our social contract are being altered, high among them the formation and power of labor unions, sometimes in plain sight, more often secretly, but most importantly, without the engagement, discussion, and agreement of working people. Thus, two

fundamental problems, the changing nature of work and the costs of health and health care, move in parallel: the search for profit in an increasingly competitive global economy—where enough profit is becoming a contradiction in terms—through intensified and insecure work, on the one hand, and a chronic concern for people's health and the cost of it, on the other. It appears to be a zero-sum game.

By connecting some often invisible dots between work and health, this book presents a social approach to occupational health, one that focuses on unhealthy workplace practices and their health, human, and economic costs to workers and employers alike. The strongest appeal to employers is usually made by showing how worker health costs affect their bottom line. Yet this presents a societal challenge—the need for companies to survive and grow, which requires that work processes be efficient and competitive—while ensuring that work is sufficiently safe, humane, and financially rewarding to meet employees' needs. As a society, we must go beyond the bottom line as our ultimate justification. This book argues for embracing healthy practices and humane working conditions not only to save money and to increase economic productivity, but "*because that is what good societies do and what human beings need and deserve"* [47].

The work ethic appears to be very strong and dominant in the United States. However, as Lipscomb et al. write, "We live in a society that values work, yet this value does not always extend to the worker" [48, p. 42]. While working hard is a fundamental American cultural value, working ourselves to death—literally—or into chronically ill health, is not worthy of pride as a nation. Whereas labor unions and collectively bargained agreements limited workload and required employers to provide vacation, sick leave, and pensions, increasingly companies employ workforces that are non-unionized with little or no protections and enforcement of existing laws. As individuals we must question the power of the employer to allow and even require unnecessary suffering at work and remember that suffering (or stress) will find its way into our bodies and have effects throughout our lives. The effects do not end with the shift.

OVERVIEW: FROM THE FORUM TO THE BOOK

The beginnings of this book are rooted in a forum organized in 2004 among various stakeholders in California, *The Way We Work and Its Impact on our Health,* aimed at finding a common ground and connecting the dots between work and health. The initiators of the Forum are university researchers in occupational health, committed to producing accurate scientific knowledge that is also understandable to all people and that leads to appropriate practices. The follow-up of the conference is partly to be found in this volume, which built upon the initial presentations of authors from various disciplines and backgrounds with input from the editors.

The book focuses on both problems and solutions related to noxious work environments and their health impacts. Part I presents the social context of work within the forces of globalization today and the important changes taking place in work in the United States and Canada; Part II presents scientific findings that link the globalization of work and particular modes of work organization with their

consequences and costs of ill health and lowered productivity for employees, employers, taxpayers, and the broader society. And Part III asks, "what can and should be done to reduce and prevent these health consequences?," and offers some answers through actual case examples of strategies used by labor unions, researchers, and businesses.

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