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Article *in* Journal of Management · June 1999

DOI: 10.1177/014920639902500305

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Karen Danna and Ricky W. Griffin

Journal of Management 1999; 25; 357
DOI: 10.1177/014920639902500305

Journal of Management
1999, Vol. 25, No. 3, 357–384

Health and Well-Being in the Workplace: A Review and Synthesis of the Literature

Karen Danna
Ricky W. Griffin
Texas A&M University

Health and well-being in the workplace have become common topics in the mainstream media, in practitioner-oriented magazines and journals and, increasingly, in scholarly research journals. In this article, we first review the literature that serves to define health and well-being. We then discuss the primary factors associated with health and well-being, the consequences of low levels of health and well-being, and common methods for improving health and well-being in the workplace. Finally, we highlight important future directions for future theory, research, and practice regarding health and well-being from an organizational perspective. © 1999 Elsevier Science Inc. All rights reserved.

Health and well-being in the workplace have become common topics in the mainstream media (cf. Coleman, 1997), in practitioner-oriented magazines and journals (cf. King, 1995; Neville, 1998) and, increasingly, in scholarly research journals (cf. Briner, 1994; Cooper & Cartwright, 1994; Smith, Kaminstein, & Makadok, 1995; Warr, 1990). There exists a vast but surprisingly disjointed and unfocused body of literature across diverse fields that relates directly or indirectly to health and well-being in the workplace. This literature addresses health and well-being from physical (cf. Cooper, Kirkaldy, & Brown, 1994), emotional, psychological (cf. Cartwright & Cooper, 1993), and mental perspectives (cf. Anderson & Grunert, 1997). Because of the broad domain reflected in this literature, there is also considerable variation in the meanings and definitions attached to the terms *health* and *well-being*. Despite this lack of clarity, however, employee health and well-being in the workplace are important concerns that should continue to receive attention. Indeed, for a variety of reasons these issues should occupy a much more prominent niche in mainstream organizational research.

Direct all correspondence to: Ricky W. Griffin, Department of Management, Lowry Mays College & Graduate School of Business, Texas A&M University, College Station, Texas 77843-4221; Phone: (409) 862-3962; e-mail: rgriffin@tamu.edu.

For one thing, an individual's experiences at work, be they physical, emotional, mental, or social in nature, obviously affect the person while she or he is in the workplace. In addition, these experiences also "spill over" into non-work domains. Workers spend about one-third of their waking hours at work, and don't necessarily leave the job behind when they leave the work site (Conrad, 1988a). Indeed, the overlap between non-work and work has become a popular research area, with the recognition that a person' s work and personal lives are not separate entities but, instead, interrelated and intertwined domains having reciprocal effects on each other (cf. Caudron, 1997; Zedeck & Mosier, 1990). For example, work-related stress combined with the stress from everyday life can lead to detrimental physical and emotional outcomes because of the excess physical and mental demands placed on the human body and mind (cf. Cooper & Cartwright, 1994).

Second, workers' health and well-being should also become more important concerns because of the growing awareness that other elements in the workplace pose risks for workers. For example, workplace characteristics ranging from health and safety practices by the organization (Patterson, 1997) to work design issues associated with basic ergonomics (Hoke, 1997) can have major consequences for workers. Other potential threats include recent increases in workplace aggression (cf. Neuman & Baron, 1997; O'Leary-Kelly, Griffin, & Glew, 1996), revenge (cf. Bies, Tripp, & Kramer, 1997), and workplace violence (cf. O'Donovan, 1997), as well as sexual harassment (cf. Martell & Sullivan, 1994) and other forms of dysfunctional behavior (cf. Griffin, O'Leary-Kelly, & Collins, 1998). Even the nature of the working relationship between subordinates and their bosses has been implicated in health and well-being outcomes (Blanchard, 1993; Cooper & Cartwright, 1994; Hornstein, 1996), as have Type A behavioral tendencies as exhibited by supervisors (Ganster, Schaubroeck, Sime, & Mayes, 1990).

Third, health and well-being are also important because of their consequences for workers. Researchers and managers have generally recognized that health and well-being can potentially affect both workers and organizations in negative ways. For example, workers experiencing poor health and well-being in the workplace may be less productive, make lower quality decisions, be more prone to be absent from work (Boyd, 1997), and make consistently diminishing overall contributions to the organization (Price & Hooijberg, 1992). For the individual, numerous physiological, psychological, and/or emotional costs may also arise (Bourbeau, Brisson, & Allaire, 1996; Cartwright & Cooper, 1993). Indeed, the true breadth of consequences, not to mention their costs, to workers, organizations, and society in general are only now becoming apparent. The popular media (cf. Coleman, 1997), for example, have reported that job-related injuries and illnesses are more common than most people believe, costing the U.S. far more than AIDS or Alzheimers and at least as much as cancer or heart disease (when considered occupationally related).

The purpose of this paper is to summarize and integrate the extant literatures dealing with health and well-being in the workplace, with the goal of moving this topic toward the mainstream of organizational research. To begin, we present an

organizing framework for the discussion that follows and then examine commonly used definitions and conceptualizations of health and well-being. Second, we discuss factors associated with health and well-being, including personality factors, dangerous work settings, and occupational stress. Third, the consequences of low levels of health and well-being in the workplace are discussed. Fourth, we address how health and well-being can be improved through various interventions in the workplace. Finally, implications and future directions for theory and research regarding health and well-being in the workplace are discussed.

An Organizing Framework

Figure 1 presents an organizing framework that both guides our discussion and highlights the major elements of the nomological network of health and well-being in the workplace. This framework draws partially from the work of Cooper and Marshall (1978), partially from the work of Smith, Kaminstein, and Makadok (1995), and partially from our own knowledge, understanding, and perspective on health and well-being in the workplace.

The core constructs of health and well-being in the workplace are shown at the center of the framework. Consistent with our perspective, the concept of well-being is seen as the broader and more encompassing construct. Specifically, well-being is viewed as comprising the various life/non-work satisfactions enjoyed by individuals (i.e., satisfaction and/or dissatisfaction with social life, family life, recreation, spirituality, and so forth), work/job-related satisfactions (i.e., satisfaction and/or dissatisfaction with pay, promotion opportunities, the job itself, co-workers, and so forth), and general health. Health, in turn, is seen as being a sub-component of well-being and comprises the combination of such mental/psychological indicators as affect, frustration, and anxiety and such physical/physiological indicators as blood pressure, heart condition, and general physical health.

Health and well-being are presumably affected by any number of antecedent factors. As we discuss more fully later, the literature currently suggests three general sets of antecedent factors. One set of factors relates to the work setting itself. Health hazards, safety hazards, and other hazards and perils can obviously create dangerous work settings, which, in turn, negatively impact health and well-being among workers. By direct implication, then, the absence of these various hazards may positively affect health and well-being. Personality traits, particularly Type A behavioral tendencies and locus of control, but including other traits as well, also play a role in determining the extent to which any given individual will display indicators of high or low-levels of health and well-being in a given organizational setting. In a related but subtly distinct way, occupational stress will also have a direct impact on health and well-being. Our framework reflects Cooper and Marshall's (1978) categories of stress, but this usage is intended to be more representative than declarative.

The framework also identifies two interrelated sets of consequences of health and well-being in the workplace. One set of consequences having the most direct implications for individuals includes physical, psychological, and behavioral

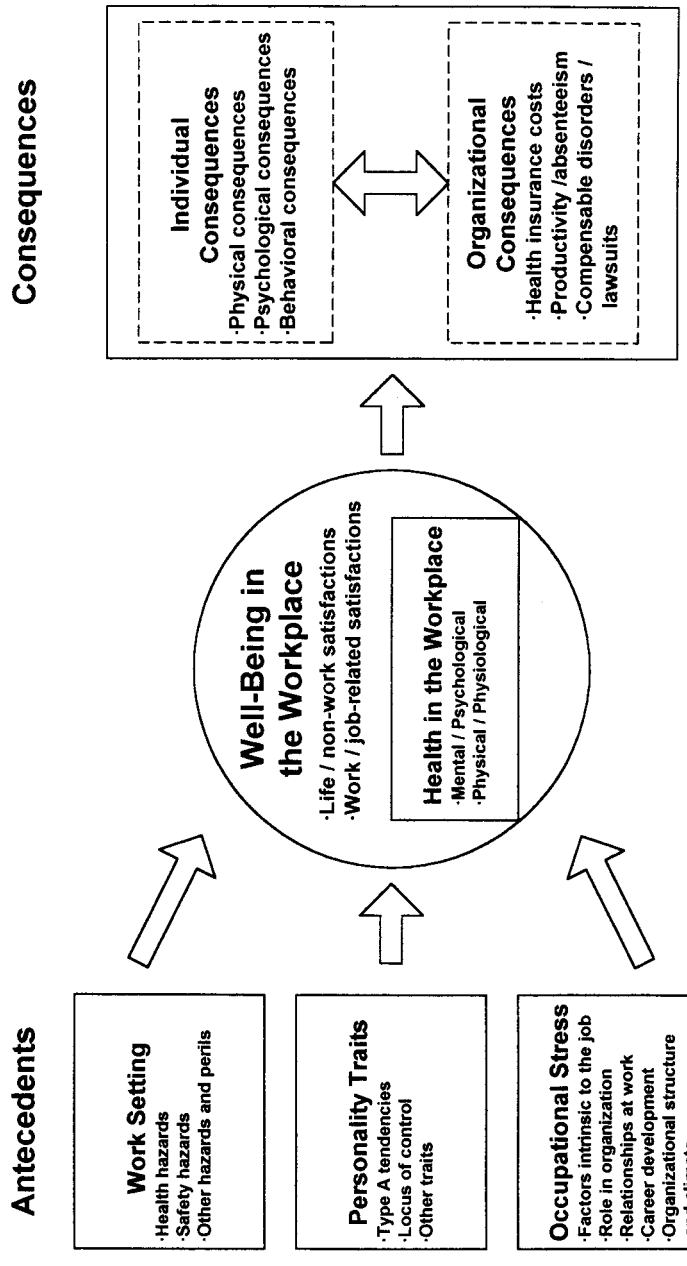

Figure 1. A Framework for Organizing and Directing Future Theory, Research, and Practice Regarding Health and Well-Being in the Workplace

consequences. The other set of consequences, including health insurance costs, productivity and absenteeism, and compensable disorders/lawsuits, is more directly relevant to organizations. But these sets of consequences are not orthogonal. For example, physical consequences at the individual level may clearly be related to health insurance costs at the organizational level.

Finally, the role of interventions is highlighted showing their potential impact on antecedent factors, actual health and well-being, and the consequential factors. For example, many interventions targeted at the organizational and individual levels have been implemented in an attempt to improve the safety and working conditions in the workplace, alleviate or lessen the potential occupational stressors, and/or improve the individual's coping mechanisms with these stressors. This, in turn, should correlate to increased employee well-being and health with concomitant improvements in individual and organizational consequences.

Conceptualizations of Health and Well-Being

The central portion of the organizing framework illustrates our conceptualization of well-being and health. While definitions and measures of health and well-being vary, there tend to be two salient person-related concepts that are often combined with a more societal-level perspective. The first is that *health and well-being* can refer to the actual physical health of workers, as defined by physical symptomatology and epidemiological rates of physical illnesses and diseases. The second is that *health and well-being* can refer to the mental, psychological, or emotional aspects of workers as indicated by emotional states and epidemiological rates of mental illnesses and diseases. Adding to these two person-related dimensions are the societal dimensions of health and well-being, such as alcoholism and drug abuse rates and their consequences (cf. Shahandeh, 1985).

General Conceptualizations of Health and Well-Being

Even at its most general, *health* is a difficult construct to define. Emmet (1991), for example, notes that health is generally synonymous with the absence of disease, in contrast to diseases per se, which are carefully defined and classified. Other definitions of "health" are even more encompassing. For example, the World Health Organization defines health as a "state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (World Health Organization, 1998), while the Organization for Economic Cooperation and Development defines health as "a physical, psychological, mental, and social state of tolerance and compensation outside the limits of which any situation is perceived by the individual ...as the manifestation of a morbid state ...[so] as far as the individual is concerned, his opinion is the only one that counts" (cited in Emmet, 1991: 40).

The general conceptualization of *well-being* is equally vague. Warr (1987, 1990) has provided some of the most extensive reviews and examinations of the concept of well-being. He generally uses health, in turn, as a framework by suggesting that "affective well-being" is one component of mental health; the

others are competence, autonomy, aspiration, and integrated functioning. Affective well-being is conceptually similar to the primary medical criterion of "ill" or "not ill" and has been found to be a multi-dimensional construct (Warr, 1987, 1990; Daniels, Brough, Guppy, Peters-Bean, & Weatherstone, 1997). Further, Warr (1987) suggested that affective well-being be treated as two independent dimensions called "pleasure" and "arousal." Competence, autonomy, and aspiration are aspects of a person's behavior in relation to the environment. They often determine the level of an individual's affective well-being, tend to be valued as indicators of good mental health, and are distinguished on both "objective" and "subjective" bases. Subjective assessments of competence, autonomy, and aspiration are major elements of self-esteem. Integrated functioning is qualitatively different from the previous features, typically refers to the person as a whole, and can be thought of as being the subjective summation of the interrelationships between the other four concepts.

Diener (1984) has used the term "subjective well-being" to describe a person's overall experience in life and suggested that it essentially reflects a person's self-described happiness. Diener also explained the dynamics surrounding the measurement of subjective well-being. First, well-being has been defined by external criteria as some "ideal condition" that differs across cultures. Second, subjective well-being has been labeled as life satisfaction because in attempts to determine what leads to the positive evaluation of life, researchers have discovered that this subjective form of happiness is a global assessment of the quality of one's life guided by a person's own set of criteria. Third, the meaning of happiness is used to denote a preponderance of positive affect (e.g., being energetic, excited, and enthused) over negative affect (e.g., anger, disgust, guilt, depression) (Tellegen, 1982), and this is how happiness is generally used. Diener concluded that subjective well-being essentially stresses pleasant emotional experience.

Negative affect is a general dimension of subjective distress subsuming a broad range of aversive mood states such as anger, disgust, scorn, guilt, fearfulness, and depression. Positive affect, on the other hand, reflects level of energy, excitement, and enthusiasm (Watson & Pennebaker, 1989). Both are measured as state (transient) or trait (stable) qualities. Tellegen (1982) coined the terms "negative affectivity" (NA) and "positive affectivity" (PA) for these qualities, explaining they represent predispositions to experience the corresponding mood factor. Watson and Pennebaker (1989) suggest that high NA individuals tend to be more introspective, dwell on shortcomings, focus on the negative side of the world, hold a less favorable self-view, and to experience significant levels of distress and dissatisfaction in any given situation. Low NA individuals tend to be content, secure and self-satisfied. Trait NA has been measured by a variety of scales and has been variously labeled neuroticism, trait anxiety, and general maladjustment. Trait PA, assessed by measures of well-being and extraversion, reflects general levels of energy and enthusiasm, with high trait PA subjects leading a full and happy life and maintaining a high activity level.

Within health and well-being research, NA has actually been called a "nuisance factor" (Burke, Brief, & George, 1993) when self-reported measures of

health or well-being are used because of the potential for high NA individuals to have inflated reports of the frequency and intensity of physical and psychological distress that do not correspond to actual physical or objective measures or long-term health status. In their study to determine if psychological factors cause physical illness, Watson & Pennebaker (1989) found that although trait NA may be correlated with complaints of angina and chest pain, NA is unrelated to actual cardiac pathology as measured by blood pressure, serum cholesterol level, and actual coronary heart disease. They also noted that this holds true for cancer, immune functioning, mortality rates, health relevant behaviors and lifestyle variables, and, in fact, high NA may actually act as a buffer against some of these ailments, whereas high NA individuals may be more susceptible. In addition, their research found little evidence that physical problems lead to higher trait NA, and explained that high NA individuals may complain because they tend to have more of an internal focus, dwell more on physical sensations, and are hypervigilant in their scanning for signs of impending trouble.

Specific Conceptualizations of Health and Well-Being

The exact meanings of health and well-being are typically implied through operational definitions in empirical investigations. This accounts for the numerous definitions for both health and well-being, as well as for the numerous measurement strategies that have been used in the studies of these constructs. A multitude of subjective and objective measurements or indexes are used in health and well-being research, each of which is accompanied by its own implicit definition or conceptualization of the concept(s) being studied. Researchers are also inconsistent with the terms they use to refer to psychological and/or physical concerns. For example, some of the more frequently used terms researchers use to describe what they are measuring are "psychological well-being," "physical well-being," "mental health," "physical health," or "subjective well-being." Some researchers, however, discuss "health" or "well-being" in a broader sense, sometimes referring to both mental and physical attributes as a single entity, while others explicitly see them as separate constructs.

One strategy often adopted by organizational researchers is to use self-report measures of health and well-being. These subjective or self-report measures, although valid and useful instruments, must be used with care. Fried, Rowland, and Ferris (1984), for example, cautioned that when self-reports are used for both stress and stress-reaction measures, there is a risk of common method variance in the resulting statistical relationships. Commonly utilized self-report indexes include job satisfaction, life satisfaction, anxiety, depression, personality, perceived stress, psychosomatic symptomology measures, as well as other instruments presumably tapping into various combinations of these more distinct factors. Objective physiological indicators of health and well-being are also numerous and have often proven useful, especially within stress related research (Steffy & Jones, 1988). Still, however, McIlroy & Travis (1981) have warned that rigor in statistical and procedural controls is mandatory to manage the potential contamination of physiological measures. Fried et al. (1984) note that (1) an individual's genetic make-up, gender, age, weight, and health habits, (2) diet, exercise, and

caffeine intake prior to providing various physiological measures, (3) the season of the year or time of day, (4) the relative precision of measurement procedures from individual to individual, and (5) the quality of equipment used in research may all cause variation in biochemical measures. Commonly used objective indexes include cardiovascular assessments of heart rate and blood pressure, biochemical measures of uric acid, blood sugar, steroid hormones (i.e., cortisol), serum cholesterol, catecholamines (i.e., adrenaline and noradrenaline/epinephrine or norepinephrine), and gastrointestinal symptoms, especially peptic ulcer (Fried et al., 1984).

Both self-report and objective measures can, of course, be used within the same research. For example, Steffy and Jones (1988) used both forms of measures in their investigation of workplace stress and indicators of coronary-disease risk. They evaluated the effects of perceived job stressor, job dissatisfaction, and recent stressful life events on five biochemical indicators of stress obtained through blood or urine specimens: ratio of HDL (high density lipid) cholesterol to serum cholesterol); triglyceride serum; uric acid level; systolic blood pressure; and diastolic blood pressure. Also measured was a composite index of stress-related coronary-disease risk called the Framington Index that combines a number of individual variables (e.g., glucose intolerance and electrocardiogram abnormalities), and self-reported psychosomatic complaints such as experienced headaches, muscle fatigue, backaches, chest pains, and sleeping problems. Results did not uncover the expected relationships between perceived stress and the battery of blood chemistry measures, and weak correlations were also found between self-reported stresses and biochemical measures. Other researchers (cf. Frew & Bruning, 1987) have used objective measures of heart rate, blood pressure, and galvanic skin response with subjective measures of perceived work factors (role conflict and clarity and job design characteristics), but failed to find a correlation between physiological measures and job factors except for one anxiety measure.

Proposed Conceptualizations of Health and Well-Being

In an effort to provide some synthesis and consistency to the terminology used within research and taking into consideration the previous discussions of the concepts of health and well-being, we propose the following conceptualizations as potentially effective ones for organizational research. The term "health" generally appears to encompass both physiological and psychological symptomology within a more medical context (e.g., reported symptomology or diagnosis of illness or disease); therefore, we suggest the term *health* as applied to organizational settings be used when specific physiological or psychological indicators or indexes are of interest and concern. Following from Warr (1987, 1990), on the other hand, well-being tends to be a more broad and encompassing concept that takes into consideration the "whole person." Beyond specific physical and/or psychological symptoms or diagnoses related to health, therefore, *well-being* should be used as appropriate to include context-free measures of life experiences (e.g., life satisfaction, happiness), and within the organizational research realm to include both generalized job-related experiences (e.g., job satisfaction, job attachment), as well as more facet-specific dimensions (e.g., satisfaction with pay or co-workers).

Antecedent Factors Associated with Health and Well-Being

Our framework begins with antecedent factors (i.e., work setting, personality traits, and organizational stress) influencing employee health and well-being. Health-related issues in the workplace were not of particular concern at the beginning of the industrial revolution, when workers were viewed as "interchangeable cogs in a large production machine" (Baker & Green, 1991: 5). And it was "industrial carnage" that led Upton Sinclair to write *The Jungle* in 1906, which ultimately resulted in the establishment of the first pure foods legislation (Stellman & Snow, 1986). But in the years after 1900, as employment boomed and government regulation began to emerge in its various forms, workers started suing negligent employers for unsafe and/or unhealthy working conditions. While judicial decisions almost invariably favored employers in the beginning, the legal community gradually became more astute and refined in its approaches, and legal decisions eventually began to shift in the favor of plaintiffs in circumstances where the evidence was clearly in their favor. The recognized field of occupational health also first emerged and then grew during World War I (Baker & Green, 1991). Since that time, there has been growing awareness of the relationship between people's working lives and their health and well-being. A major landmark in this progression came in 1970 when the Occupational Safety and Health Act (OSHA) was passed to ensure that Americans would be "guaranteed a workplace free from recognizable hazard" (Stellman & Snow, 1986: 270). The safety and health of U.S. workers has continued to receive increasing attention ever since, prompting King to comment that American society seems to be "in the midst of a major shift in values" with more importance placed on understanding and promoting employee health (1995: 36). And indeed, there is now a large and growing volume of work related to health and well-being in the workplace.

Smith, Kaminstein, and Makadok (1995) identified three major areas of research that relate organizational life to the health of workers: (1) the relationship of hazardous work settings with particular illnesses and diseases; (2) the relationship of stress to work conditions; and (3) the relationship of specific illnesses with personality characteristics or types of work environments.

The most voluminous literature addresses work-related or occupational stress. Ganster and Schaubroeck (1991), for example, identified over 300 work-stress related articles published in the last 10 years prior to their review article on work stress and which had appeared in a diverse array of fields including "psychology, sociology, engineering, public health, epidemiology, management, criminal justice, and law" (1991: 236). Add in the popular press and media, and the amount of literature encompassing the three dimensions is almost overwhelming in terms of both its volume and its breadth. Following the framework of Smith, Kaminstein, and Makadok (1995), as noted above, we will briefly summarize this literature as it relates to dangerous work settings, personality factors and types of workplace environments, and the influence of work stress on workers' health and well-being.

Dangerous Work Settings

A variety of conditions that make the workplace hazardous to workers' health has been noted by researchers, especially in the occupational health literature (e.g., Baker & Landrigan, 1990; Spurgeon, Gompertz, & Harrington, 1996; Stellman & Snow, 1986). Ironically, however, although many firms have been providing better workplace health and safety training and boosting health and safety programs, the U.S. workplace has been characterized by Mike Wright, safety and health director for the United Steelworkers Union (USW), to be growing "more, not less hazardous" (Berry, 1997: 50). This appears to be so because of the structural changes in the U.S. economy. For example, the rapid implementation of new technology, more frequent responsibility changes among key managers, a healthy economy pushing many companies to production capacity, increases in overtime to avoid hiring new permanent staff, outsourcing, and a less aggressive OSHA that has "shirked" some of its "watchdog responsibilities." Pressure from businesses and the Republican Congress have been suggested as possible causes of this alleged trend (Berry, 1997: 50). Some companies may have even decreased efforts to safeguard their employees. In fact, OSHA has now launched a study to determine if safety awards and incentive programs skew the reporting of injuries, and also to determine if companies are substituting them as primary safety and health programs instead of comprehensive plans (Finnegan, 1998).

The claim of increasing dangers in the workplace has been apparently substantiated by numerous sources. Most of this information is contained within statistical reports and practitioner/trade oriented journals. To give readers a broad understanding of the nature and scope of workplace perils, we are presenting the more statistical type of information contained in these sources, as well as a brief discussion of some of the empirical research within this domain. We must point out, however, that empirical investigations of workplace dangers conducted within the management realm are obviously lacking and is an important topic area that management scholars are encouraged to pursue.

According to the Census of Fatal Occupational Injuries (1997), between 6,000 and 6,600 workers have been fatally injured each year since 1992, with highway fatalities being the leading cause of job-related deaths and violence in the workplace being the second leading cause of job-related deaths. Emmet (1991) claimed that in the U.S. alone, there are approximately 65,000 chemicals in use in business and approximately 700 new ones are introduced into the workplace each year. The work by Baker and Landrigan (1990) alone specifies more than 35 different illnesses, their causal agent, and the industries where they are found. A 1988 report by The National Institute for Occupational Safety and Health claimed that psychological disorders in the workplace have been recognized as being among the 10 leading work-related diseases and injuries in the United States (Quick, Murphy, Hurrell, & Orman, 1992).

In the last few years, more attention has also been paid to other workplace perils that seem to be increasing: violence (O'Donovan, 1997; Stage, 1997; Umiker, 1997); ergonomic hazards related to musculoskeletal problems (Bruen-

ing, 1997; Finnegan, 1997; Skov, Borg, & Orhede, 1996); respiratory diseases such as tuberculosis (Hooten, 1997); dangers from second-hand smoke (Werner & Pearson, 1998); and increasing rates of fatal pneumonoconiosis lung diseases from crystalline silica, coal dust, and asbestos, work-related asthma, and exposure to "nuisance dust" (Figura, 1997). An interesting phenomenon discussed by Spurgeon, Gompertz and Harrington concerns the increase in the frequency and severity of a variety of non-specific symptoms, including "headache, backache, eye irritation, nasal congestion, tiredness, memory problems, and poor concentration" (1996: 361). The World Health Organization (1983) earlier recognized the "sick building syndrome," characterized as the excessive prevalence of irritative symptoms of the skin and mucous membranes, and a host of other symptoms including fatigue, headache, and difficulty concentrating among the people occupying a building.

Workplace perils in the home are also of concern as the health and safety of telecommuters has also come under recent scrutiny. McClay (1998) reported that estimates of Americans working at home range from nine million to 43 million (at least part of the time), and telecommuting practices are being used by many firms. Furthermore, two-thirds of *Fortune* 1000 currently have telecommuting programs, and predictions suggest that this trend will continue to rise (Banham, 1996). OSHA is currently developing guidelines for telecommuting safety, because homes are now considered satellite workplaces and the OSHA act of 1970 covers any work performed by an employee at any U.S. workplace (Banham, 1996). Given the 1996 report by the National Safety Council claiming that 10,000 accidental deaths occurred at home, employers may need to consider implementing workplace safety programs for the home that include defining exact work times, identifying home hazards, ensuring availability of safety equipment (e.g., smoke detectors, fire extinguishers), consideration of safe or unsafe neighborhood locations, employee training, home inspections, workstation ergonomics, air quality, and incident investigation (McClay, 1998).

The relationships between work settings and health and well-being are complex. The simple consideration of potential physical hazards is inadequate, with widespread agreement that any model of occupational health must account for physical and psychological factors in the environment, as well as their interaction, and that workers in all occupations are at risk (Stellman & Snow, 1986). King (1995) noted that people in the lowest socioeconomic group have the highest mortality and psychological and cardiovascular disease morbidity rates. King suggests that this circumstance may relate to a perceived lack of control over their destiny and learned helplessness, making these workers more psychobiologically susceptible to stress from repetitive work resulting in prolonged increases in the secretion of stress hormones (i.e., adrenaline, noradrenaline, and cortisol), which, in turn, can lead to pathological effects.

Furthermore, many workers are typically exposed to multiple hazards, resulting in a synergistic effect that may have greater influences on health than if confronted with single hazards. Bourbeau, Brisson, and Allaire (1996) found that a history of asthma and allergy, high job strain, low social support at work, and working for more than 20 hours a week on a video display terminal were

collectively associated with an increased prevalence of sick-building syndrome, especially for women. These symptoms, however, decreased by 40% to 50% when office workers were moved to a building with improved ventilation. Sexual harassment has also been shown to be destructive to psychological conditions and job satisfaction, and even indirect exposure, labeled "ambient" sexual harassment, can have the same effects as direct exposure (Glomb, Richman, Hulin, & Drasgow, 1997). Finally, Skov, Borg, and Orhede (1996) found that among a sample of salespeople, high job demands, lack of control, and lack of social support were associated with musculoskeletal symptoms.

The safety culture of an organization has also been recognized as being an important determinant of the safety and health of employees. OSHA's strategic plan for fiscal years 1998–2000 shows an intense involvement in workplace safety and health by altering the workplace culture to increase employer and worker involvement (LaBar, 1997). Champ (1997) asserted that a key element of a safety culture is that it ensures that responsibility for safety is an integral part of every employee's job and that it must start from the top down, with senior management's commitment and responsibility, as it increases adoption and acceptance from all employees. DuPont Canada was offered as an example of an organization that has worked hard at building a safety culture. Safety is always discussed in a company presidential speech and, as part of performance reviews, managers' safety records are taken into consideration and affects their promotional opportunities. Safety professionals have also developed so-called "hazard-related incident causation models" to explain factors that contribute to a hazardous incident. One such model presented by Manuele (1997) suggests that an organization's culture determines the level of safety attained, and management's commitment or noncommitment to safety is an outward sign of that culture. Foster (1998) discussed how chemical plants have improved employee health and safety by implementing employee behavior modification programs. All employees are encouraged to bring attention to unsafe practices they observe, such as not wearing safety goggles. Annual illness and injury rates for the industry have declined from 2.8 lost workdays per 100 employees in 1992 to 2.4 in 1996, and boasts being the lowest of any industry.

Personality Factors and The Workplace

Evidence also exists supporting the relation between personality factors, type of work environments, and health and well-being concepts. As noted by Smith, Kaminstein, and Makadok (1995), certain types of work environments have been found to be related to certain health risks, including those involving emergency situations and job termination. More research exists on the influences of personality factors within the workplace or particular types of settings. For example, support has been found for the influential effects of neuroticism (Nelson, Cooper, & Jackson, 1995) and self-esteem (Brockner, 1988).

The two most widely researched personality factors, however, are Type A behavior patterns and locus of control. Type A behavior patterns generally mean that the individual is hard driving, competitive, job involved, and hostile; and the basic element linking Type A individuals to cardiovascular disease is elevated

blood pressure. Substantial research has found that certain types of illnesses appear more frequently in workers with Type A tendencies (Smith, Kaminstein, & Makadok, 1995). As noted by Ganster, Schaubroeck, Sime, and Mayes (1991), since the Friedman and Rosenman pioneering study, research has consistently found evidence for a psychobehavioral risk factor that partially explains negative health outcomes, such as coronary heart disease and coronary artery disease. The link between Type A tendencies and coronary risk was further supported by Rosenman et al. (1964). Ganster and Schaubroeck (1991), however, concluded that the research results actually tend to be equivocal. One particular component of Type A behavior patterns, however, does seem to be clearly related to health risk. Ganster et al. (1991) found that the hostility component of the widely used Structured Interview (SI), that assesses Type A behavior patterns, was related to coronary heart disease and high physical reactivity and slow recovery. Chronic heart disease has been found to be more prevalent in both men and women with type A personality characteristics.

Personal control over one's life also seems to play an important role in health and well-being (Ganster, 1989). Personal control, in turn, has both objective and perceived components. According to Parkes (1989), perceived control is a function of objective control and generalized perceived control. Measures of locus of control, perhaps the most studied variety of personal control, generally focuses on generalized perceived control: people with a so-called "internal locus of control" believe their own behaviors are the primary determinants of what happens to them, whereas people with an "external locus of control" believe that external influence such as luck or powerful others are more important determinants of what happens in their lives (Rotter, 1966).

King (1995) discussed findings that cardiovascular mortality, a stress dependent disease, is lower in upper-class occupations when compared to lower-class occupations because of the more readily available resources to the upper classes, as well as having more control through higher "decision latitude," in which workers learn new skills and are better able to predict future situations more effectively, feel more secure, and are better able to make decisions (Karasek & Theorell, 1990). In a study of senior British police officers, Cooper, Kirkaldy, and Brown (1994) found locus of control and coping had an indirect effect on physical health through the mediating influence on job stress and overall job satisfaction, with Type A behaviors and job stress also having a direct causal influence on physical health. Kirkaldy, Furnham, and Cooper (1994) found that subjects with high levels of Type A behavior and high perceived internal locus of control reported least stress and more satisfaction in comparison to those with high levels of perceived external locus of control. Subjects with Type B personalities with an internal locus of control were physically and mentally healthy, while those with an external locus of control reported being tense, overcontrolled, or helpless. Personality alone was not clearly linked to physical or psychological health.

Social support has been hypothesized to have a major influence on health and well-being. First, it may have a direct effect on well-being (Ganster, Fusilier, & Mayes, 1986). In addition, social support also appears to act as a buffer between stressors and well-being (Seers, McGee, Serey, & Graen, 1983). Daniels and

Guppy (1994) noted that research has found support for both type of effects, but when the "buffering" hypothesis has been tested specifically in regard to the workplace, the results have been less than clear. The "buffering" hypothesis has also been criticized as being too simplistic because it ignores individual cognitions. Daniels and Guppy (1994) tested the effects of social support, job control, participative decision making practices, and locus of control on the occupational stress and psychological well-being of accountants in a one-month lag designed study. Results indicated that internal locus of control and the presence of control synergistically buffered the effects of stressors upon psychological well-being, and main effects on psychological well-being were found for stressors, work locus of control, and social support. External locus of control and low autonomy/social support were also related to poor well-being, regardless of the levels of stressors. In a study of full-time police officers and firefighters, Fusilier, Ganster, and Mayes (1987) found main and interactive effects of social support, work role stressors (role conflict and role ambiguity), and locus of control on three health variables (depression, somatic complaints, and epinephrine excretion levels). Social support has a buffering effect on depression and somatic complaints, but role stressors worsened these same health measures. Two-way interaction effects indicated that social support buffered the effect of job stress on somatic complaints, and those with external locus of control responded more strongly to job stress than those with an internal locus of control. Three-way interactions suggested that locus of control and social support may jointly determine how workers respond to stress, but it was unclear as to whether this relationship represented a short-term alarm reaction or a longer-term health outcome.

Occupational Stress

Aside from its interactions with personality traits and other factors, stress per se is also recognized as an important component and major problem of everyday life threatening individual, organizational, and societal health. Stress-related disability claims, for example, are now the most rapidly growing form of occupational illness within the workers' compensation system (King, 1995). Stress is presumed to result from a complex set of phenomena and is not just as a consequence of a single external event acting on a person (Karasek & Theorell, 1990). The interactionist approach (found in Cooper & Cartwright, 1994) depicts stress as the consequences of the lack of fit between individual needs and demands and those of the environment. A number of studies investigating work-related stress have found links between stress and the incidence of coronary heart disease, mental breakdown, poor health behaviors, job dissatisfaction, accidents, absenteeism, lost productivity, family problems, and certain forms of cancer (Cooper & Cartwright, 1994).

Quick, Horn, and Quick (1986) noted that occupational stress can cause behavioral, medical, and psychological problems. Behavioral changes tend to be the earliest and most overt signs of stress, and include: (1) greater alcohol and drug abuse; (2) increased cigarette smoking; (3) accident proneness; and (4) violence. Psychological consequences include: (1) family problems; (2) sleep

disturbances; (3) sexual dysfunction; and (4) depression. Medical problems include: hastening the appearance of disease and worsening the impact of illness.

Ganster and Schaubroeck (1991) provided a thorough review of the work stress and employee health literature, and wanted to provide readers not familiar with work stress literature a general overview of the major trends in the field. Ganster and Schaubroeck first provided a brief history and accounting of the work stress research, and then made a critical appraisal of the current literature according to how well causal inferences could be made about the effects of working experiences on the mental and physical health of workers. They noted that although there has been "tantalizing" support from a broad literature in behavioral medicine and epidemiology that prolonged exposure to stressful job demands leads to a variety of pathological outcomes, "close inspection of research investigating specific work-related factors fails to produce a satisfying picture of how, or even whether, certain work experiences lead to physical or mental disorders" (Ganster & Schaubroeck, 1991: 235–236). Ganster and Schaubroeck concluded that although evidence does not strongly support a job stress and health outcomes link, the indirect evidence from occupational studies showing differences in health and mortality not easily explained by other factors, as well as within subject studies indicating a causal effect of work experiences on physiological and emotional responses, does indicate a work stress effect.

Perhaps research methodology and practices have hindered our clear understanding of the work stress and health relationship. Existing research designs do not approximate the methodological criteria needed to reach conclusions regarding the casual claims of stress's involvement in the etiology of disease (Kasl, 1978, 1986). Brief and Atieh (1987) also questioned what we study, concluding that correlational evidence has not strongly substantiated that commonly measured work stressors (e.g., role conflict) are strongly related to measure of subjective well-being outside of the work domain, and suggested a focus on more specific types of stresses (e.g., economic).

Several occupational stress models have been proposed within the literature that have focused on organizational dimensions that are considered common causes of stress. Cooper and Marshall (1978) developed a comprehensive model which conceptualizes the sources of occupational stress as falling within six broad categories. These categories are used below to organize our discussion of stress-related health and well-being research.

Factors intrinsic to the job. A variety of intrinsic job factors that are potentially stressful include: work overload or underload, shift work, long hours, travel, risk and danger, new technology, and the quality of the physical working environment (as discussed in dangerous work settings). Glowinkowski and Cooper (1986) note that work overload or underload can lower self-esteem and increase smoking and various physical and psychological problems. Smith, Kaminstein, and Makadok (1995) found that jobs high on demand but low in decision latitude are sources of stress, as are some jobs that do have high decision making latitude but deal with a multitude of variables simultaneously (e.g., police, air traffic controllers, and nurses).

Uncertainty and abstractness in advanced manufacturing technology produces psychological strain (Mullarkey, Jackson, Wall, Wilson, & Grey-Taylor, 1997). Bell and Tellman (1980) found that rotating shift-work is implicated in increased accident proneness among male factory workers, with increases in collisions with objects/people, quarrels, loss of balance, and product damage. de Rijk, Le Blanc, Schaufeli, and de Jonge (1998) criticize Karasek's job demand-control model on the grounds that empirical studies often fail to demonstrate the predicted interaction effect of high job demands and low job control on measures of strain, perhaps because of the conceptualization of the control dimension and failure to include individual characteristics. In their recent study of Dutch nurses from intensive care units, these researchers included a more focused measure of control and two potential moderating individual characteristics, active coping and need for control, in their measures; results indicated that active coping moderated the interaction between job demands and job control.

A longitudinal study of male and female bus drivers by Rydstedt, Johansson, and Evans (1998) found over an 18-month period, changes in workload influenced spillover of fatigue from work to leisure, perceived effort at work, and psychosomatic symptoms. Additionally, there were no detectable gender differences or any interactions between gender and stressors, and controls for negative affectivity did not alter any of the results. Results of a meta-analysis of work hours and health studies by Sparks, Cooper, Fried, and Shirom (1997) found a small, but significant, positive trend of increased health symptoms with increasing hours of work. These health symptoms covered a broad range from mild psychosomatic symptoms (e.g., headache) to more severe health problems (e.g., myocardial infarction).

Several potential moderators were indicated. For example, those working 48 hours a week or more had greater health problems than those working less hours; heart complaints had much higher correlations with work hours than other health measures, mental stress tended to be the most frequent psychological complaint; individual level of analysis resulted in lower correlations than group level of analyses; and actual techniques used (i.e., interview, self-report, lab tests) produced different outcomes. Although further moderator analyses were not conducted on any other factors, these researchers also asserted that type of job, working environment, age, choice of working hours, domestic working hours, lifestyle factors, and Type A characteristics were all potential moderators.

Role in the organization. Role ambiguity, role conflict, and the degree of responsibility for others are also major sources of potential stress (Glowinkowski & Cooper, 1986; Cooper & Cartwright, 1994). In a meta-analysis of research conducted on role ambiguity and role conflict in work settings, Jackson and Schuler (1985) found that average correlations between role ambiguity and role conflict and affective reactions (e.g., job satisfaction, tension/anxiety, commitment, involvement, and propensity to leave) were greater than for correlations with behavioral reactions (e.g., absence and performance). The average correlations using role ambiguity were also higher than those using role conflict, and they are not necessarily associated with the same individual or organizational variables. These results also indicated that most of the relationships describing

potential causes and consequences of role ambiguity and role conflict are most likely to be influenced by moderator variables.

Frone, Russell, and Cooper (1995) found that job involvement moderated the relationship between role ambiguity and physical health, role ambiguity and heavy alcohol use, and work pressure and heavy alcohol use, with high levels of involvement having an exacerbating affect. Jamal (1990) found that work overload, role ambiguity, conflict, and resource inadequacy were significantly related to job satisfaction, organizational commitment, psychosomatic health problems, and turnover in a sample of nurses. Emotional exhaustion has been found to occur under conditions of role ambiguity and role conflict (Kelloway & Barling, 1991).

The impact of responsibility for others in care-giving roles has also been examined. For example, in a study U.S. dentists, Cooper, Mallinger, and Kahn (1978) found that a high level of conflict originating from the dentist's idealized caring/healing and the actuality of their infliction of pain during dental procedures was a major predictor of abnormally high blood pressure. In a group of nurse managers, Baglioni, Cooper, and Hingley (1990) found a potential role conflict between patient care goals and managerial goals. Levels of anxiety and somatization were related to the interaction of role ambiguity and exit pressures of caregivers working in group home for the mentally ill (Price & Hooijberg, 1992).

Relationships at work. Relationships with superiors, colleagues, and subordinates have also been identified as potential stressors. Studies have found that mistrust of co-workers is related to high role ambiguity, poor communication, low job satisfaction, and poor psychological well-being (summarized by Cooper & Cartwright, 1994). Strong emotions, such as workplace jealousy and envy amongst employees, have even been blamed for pathological outcomes such as workplace violence and harrassment (Vecchio, 1995). Employee relationships offering support and attachment have very positive effects. Harris, Heller, and Braddock (1988) investigated potential gender differences of psychological health problems during a facility closure. Gender had a main effect on psychological well-being, with women reporting more symptoms (although the magnitude was fairly small). Cognitive appraisal, administrative support, and attachment were highly correlated and some gender differences were noted, although gender did not moderate the relationship between psychological health and its determinants. Supervisors have an impact on subordinates in a variety of ways. For example, Type A behavior patterns exhibited by supervisors has been found to positively correlate with the physical health symptomology reported by subordinates who expressed a feeling of chronic irritation. (Ganster et al., 1990).

Career development. Cartwright and Cooper (1993) report that job insecurity and career development have increasingly become sources of occupational stress with multiple negative outcomes (e.g., job dissatisfaction, poor work performance, etc.). This is likely the result of mergers, acquisitions, and downsizing prevalent in corporations in recent years (Cooper & Cartwright, 1994). Noting that past research has found that paid employment can have beneficial consequences for psychological well-being for men and women, Adelmann (1987) investigated the facets of paid employment that led to this effect. She found that even though patterns differed between men and women, overall results

indicated that occupational characteristics (personal income, complexity, and control) are related to psychological well-being (happiness, self-confidence, and lack of vulnerability to negative experiences) in employed men and women even after controlling for the effects of age and education.

Organizational structure and climate. Sources of stress relating to organizational structure and climate may actually result from organizational culture and management style (Cooper & Cartwright, 1994). These sources include the lack of participation and effective consultation, poor communication, politics, and the consequences of downsizing (e.g., major restructuring, ambiguous work environments, and individual cultural incongruence). Blanchard (1993) discussed how a "bad boss" can make people sick by subjecting them to unnecessary stress by behaving unpredictably, eroding workers' sense of self-confidence and self-worth, placing workers in win-lose situations, or providing too much or too little stimulation. Macroeconomic forces such as massive federal deficits, increased foreign competition, trade imbalances and the then-weak U.S. dollar led to strong organizations merging with other companies and less successful companies restricting their holdings, with resultant changes in employees' jobs and increases in employee layoffs or terminations (Kuhnert & Palmer, 1991). This, no doubt, equates to very insecure and stressful work environments that research has shown to have detrimental effects on workers' health, as well as threats to workers' identity and self-worth. Kuhnert and Palmer (1991), for example, found that for workers in a large state agency, job security was related to both intrinsic and extrinsic work factors, with the strongest ties to intrinsic factors, and perceptions of job security contributed significant variance to the prediction of employee health as measured by a self-report symptom survey. An earlier study by Kuhnert, Sims, and Lahey (1989) raised questions about the potential moderating effects of the work environment on the relationship between job security and self-reported health. Manufacturing employees in two separate organizations were surveyed and, again, a linkage was found between employees' perceptions of job security and self-ratings of health or well-being, regardless of tenure, educational level, salary, or gender. Additionally, in one organization, perceptions of job performance accounted for significant variance in all four of the health subscales (e.g., somatization, depression, anxiety, and hostility); but in the other organization company growth and job performance were primarily related only to reported symptoms of depression.

Home/work interface. Managing the link between work and home has apparently become an increasingly potential source of stress, particularly for dual career couples and those experiencing financial difficulties or life crises (Cooper & Cartwright, 1994). Glowinkowski and Cooper (1986) discussed the interaction between work and the family relationship as a source of "spillover" stress. Work and non-work domains were implicated in the formation of attitudes towards work in a study of salespeople (Boles, Johnston, & Hair, 1997). In this study, role conflict was related to emotional exhaustion, work-family conflict was related to emotional exhaustion and job satisfaction, and emotional exhaustion and job satisfaction were related to propensity to leave.

Recent surveys have also found that overwork can be related to marital conflicts. Interestingly and contrary to popular belief that women with families are most pressed from demands at home, one such survey found that it was men, single and dual earners without kids that were the most likely to consider changing jobs because of work/life conflicts (Caudron, 1997). Evidence exists suggesting that the transmission or "spillover" of occupational stress is unidimensional in marital relationships with the direction flowing from the man to the woman, especially when men have high strain jobs (high demand-low work support, Jones & Fletcher, 1993). This is consistent with the findings of Fletcher (1988) that work stress affects the psychological health, physical health, life expectancy, and marital satisfaction of marital partners.

Consequences of Low Levels of Health and Well-being

Our framework includes the many potential individual and organizational consequences of high or low levels of health and well-being of employees. Individual physical, psychological and behavioral consequences were included in the previous discussion of antecedent factors; therefore, more focus will now be devoted to organizational outcomes.

Factors that influence employee health and well-being can have a significant impact on the financial health and profitability of an organization (Cooper & Cartwright, 1994). This can come from direct and indirect financial costs, as well as from maladaptive behaviors exhibited by employees. According to information cited in Karasek and Theorell (1990), the total cost of stress to U.S. organizations resulting in absenteeism, reduced productivity, compensation claims, health insurance, and direct medical expenses is more than $150 billion a year. In regard to employee behaviors brought on by workplace pressures, a survey conducted jointly by International Communications Research, American Society of Chartered Life Underwriters & Chartered Financial Consultants, and the Ethics Officer Association sheds some light on these effects (Boyd, 1997). The results of the survey revealed that 56% of employees reported being under immense pressure and 48% reported acting on this stress in a variety of ways, such as cutting corners on quality control, covering up incidents at work, lying about sick days, and deceiving customers. A staggering 88% of respondents reported physical and or psychological reactions to their pressure, with insomnia, headaches, depression, weight changes, and panic attacks being the most frequent in the listed order. Rapidly changing work environments, such as mergers and acquisitions, were cited as the main source of pressure, but were joined with reported work-family imbalances, poor leadership, poor internal communications, and work load. Interestingly, most of the unethical and illegal employee behavior was reported in the computer and software industry, followed by advertising and marketing industries.

Neville (1998) discussed the indirect costs associated with workplace accidents, including the immeasurable costs of lost production and efficiency on a company-wide basis stemming from wages for lost time of uninjured co-workers, equipment and material repair and replacement, training replacement workers,

overtime, a variety of other factors related to lost productivity time, remedial and compliance costs for equipment safeguard, and criminal negligence costs. According to the National Safety Council, the indirect costs of industrial accidents can approximate four times the direct costs (Neville, 1998).

Health insurance costs. The increasingly high cost of employee health care has been well-documented (Conrad, 1988b; Cooper & Cartwright, 1994). According to Conrad, U.S. corporations pay about 30% of the national health bill by providing medical insurance as an employee benefit. Between 1965 and 1985, individual insurance premiums rose by 50% and employers' contributions increased by over 140% (Cooper, 1985). This trend may be changing, however. One recent report revealed that companies are saving money by more employees opting for managed care programs, and with the price competition of HMOs, employers' health care plan costs remained nearly stable in 1997 (Geisel, 1998). Ironically, though, the perception of the quality of healthcare coverage has been waning, with a reported 25 percent of employed Americans believing that the overall quality of health care is worse today than it was five years ago. Half of these expressing this view blame the growth of health maintenance organizations (Brostoff, 1997).

Costs of lost productivity and absenteeism. U.S. industry loses approximately 550 million working days annually to absenteeism, with an estimated 54% of these absences being stress-related (Elkin & Rosch, 1990). The cost of replacing staff is also expensive, with an estimated $700 million per year being spent by U.S. employers to replace the 200,000 men aged 45 to 65 who die or are incapacitated by coronary artery disease alone (Cooper, 1985). Johnson and Indvik (1997) reported that clinical depression strikes more that 17.5 million adults each year, and much of it has been attributed to workplace stress. They also estimate its costs in 1990 to be $43.7 billion, with absenteeism alone contributing $12 billion.

Costs of compensable disorders/lawsuits. A growing number of diseases and injuries have been deemed compensable under workers compensation statutes, with cardiovascular disease claims, workplace stress induced injury claims, and cumulative trauma or repetitive motion disorders claims being the most common (McElveen, 1992). Carpel tunnel syndrome, a repetitive stress injury (RSI), has become the most prevalent type of such injury. A 1996 study by the National Council on Compensation Insurance reported it ranked third out of 10 injury categories in terms of expense for treating workers' compensation claims at $12,730 per claim (Esters, 1997).

Because of the potential large sums of money that must be paid out, as well as potential financial gain by employees filing claims, determining the legitimacy of such claims has become of great concern for organizations. Organizations are faced with having to detect if employees are malingering when complaining about unobservable or undetectable stress disorders or chronic pain (Lees-Haley, 1986). Lawsuits for these types of injuries with large sums of money being involved are also expected to increase. One example, labeled a "wake-up" call for companies, was a 1996 product liability lawsuit against Digital Equipment Corporation resulting in a jury awarding a combined total of $6 million to three women

claiming injuries stemming from use of the company's keyboards (Esters, 1997). New diagnostic tests are being developed to quantitatively measure vibration sensation and may prove instrumental in detecting and preventing repetitive stress injuries (RSI). This is good news for both organizations and workers who are at risk because the prolonged use of keyboards has been empirically linked with RSI. More specifically, individuals with RSI symptoms are less able to perceive vibrations when compared to those not at risk for injury (Safety & Health Practitioner, 1998).

Sexual harassment lawsuits are also increasing and are extremely costly. The number of sexual harassment complaints filed with the EEOC was 15,889 in 1997, more than double the 6,883 complaints in 1991; and monetary awards in federal sexual harassment suits rose to $49.4 million from $7.1 million for the same time period (Ahmad, 1998). Pedone (1998) reported that a survey of *Fortune* 500 companies revealed that an ordinary company spent $6.7 million a year for sexual harassment cases. These statistics have caused a boom in the employment practices liability insurance business which covers sexual harassment, discrimination, wrongful termination, and other employment-related lawsuits (Ahmad, 1998).

Improving and Enhancing Health and Well-Being

Concerns for the health and well-being of workers is becoming an increasingly important issue. Corporations have long been involved in health issues in terms of occupational health and safety, providing disability and insurance packages and employee assistance programs (Conrad, 1988a). A substantial portion of employees' compensation packages include healthcare coverage (Brostoff, 1997). But beyond this historical involvement, an increasing number of U.S. corporations have implemented programs aimed at improving the safety of the workplace and a variety of health promotion programs. Studies in the 1980s found that an estimated 21.1% to 37.6% of U.S. companies have some sort of program available offering a variety of services under the health promotion umbrella (Conrad, 1988a) serving to benefit both employees and the corporation itself, especially through lower health insurance costs. These initiatives or interventions include combinations of educational, organizational and environmental activities (e.g., health education, screening and intervention, aerobic exercise and fitness, stress management, to name a few) aimed at facilitating the health of employees and their families through lifestyle and behavior changes (Conrad, 1988b). The bottom portion of our framework (see Figure 1) illustrates the importance of these intervention strategies.

These interventions and programs appear to be advantageous. Individuals are increasingly taking part in these programs and making important lifestyle changes, such as the consumption of healthier diets, exercising, losing weight, smoking cessation, and learning stress reduction techniques (Conrad, 1988a). The benefits of such programs have included improving employee health and fitness, decreasing medical and disability costs, reducing absenteeism and turnover, improving employee mental alertness, morale and job satisfaction, increasing production, and enhancing the corporate image (Conrad, 1988b).

Employees who used a corporate health and fitness club report better psychological mood states and physical well-being than employees who did not use the facility, and also have fewer days absent from work and report more satisfaction with their jobs (Daley & Parfitt, 1996). Cancer screening programs, combined with educational sessions have also proven useful in the work setting by early detection and prevention of this potentially devastating disease (Burton & Schneider, 1997). Post-traumatic stress disorder, the most commonly diagnosed psychiatric disorder made after workers sustain work-related injuries which often results in avoidance of the workplace, has favorable response to behavioral therapy focused on coping strategies and symptom reduction, thus facilitating the worker's return to work in the setting where the injury occurred (Anderson & Grunert, 1997).

Alternatively, companies are also engaging in the traditional occupational health mission of health protection by preventing occupational diseases or insuring safe working conditions (Conrad, 1988b). It has been estimated that 85% of all workplace injuries and fatalities can be avoided by proper employee training, introducing and enforcing safe workplace practices, and getting commitment for worker safety from management (Neville, 1998). Companies have become increasingly concerned about the ergonomics or "human factors" elements of the workplace. Although some may believe that expansive ergonomic changes to work stations are hard to justify from a financial standpoint, evidence from a recent case study in the automobile industry revealed that ergonomic adjustments not only have an impact on the health and safety of plant-floor workers, they can also make workers more efficient and increase their productivity by decreasing the amount of bending, stretching, leaning, or pushing workers engaged in during a task (Larson, 1998).

Another physical workplace change that is very beneficial involves ventilation systems. A 1990 study by the World Health Organization revealed that 30% of office buildings may have an indoor air quality problem contributing to indoor air pollution, Sick Building Syndrome, and building-related illnesses stemming from known specific fungus or bacteria (Frazer, 1998) . This alarming statistic is most likely due to modified indoor air recycling ventilation systems that were used in new building constructions or installed in existing buildings within the past 20 years to combat increasing energy costs. Improving air circulation and introducing more outdoor air into the system seems to be a fairly simple solution.

Alleviating workplace stressors is another tactic. Organizational directed strategies to prevent or limit stress are often measurably successful (Cooper & Cartwright, 1994). Eliminating or reducing stressors that are intrinsic to the job may involve ergonomic solutions, task/workplace re-design, and alleviation of work overload/underload by recruitment, skills training, appropriate selection decisions, and more delegation. Clearly defining roles and negotiating roles can help reduce role-related stress. Improvements in personal relationships and office communication can be achieved through interpersonal skills training and rearrangement of physical office layout. Career development-related stressors can be alleviated by regular appraisals, retraining opportunities, sabbaticals, and career counseling. Outplacement facilities have also become increasingly important as

job loss has become common within some organizations. Home/work interface difficulties may be alleviated by counseling services and the introduction of flexible working arrangements and "family friendly" policies.

Some organizations have also recently gotten involved in less traditional aspects of their workers' lives. Some health promotion programs have included sexual health education (Weyman, 1997), providing spiritual type of support in the realm of pastoral counseling (Bruer, 1997b), and helping the terminally ill employee adjust to the realization of impending death (Bruer, 1997a). In this later case, HR professionals have been advised that allowing these workers to remain employed and productive is seen as emotionally important for the sick employee. Even the use of humor in the workplace has been found to have beneficial effects on employees' health (Heath, 1997), and some organizations have realized the stress reducing benefits of pleasant fragrances (*Personnel Journal*, 1993).

Despite the seeming advantages to organizations' role in creating and maintaining healthy workforces, criticism does exist. In a review of two stress-related books, Briner undoubtedly disagreed with "the unquestioned assumptions that the employer can and should have responsibility for the management of employees' health and that any attempt to do so is necessarily A GOOD THING" (1994: 184). For example, he raised substantive concerns about confidentiality, ethical, and political issues surrounding the agreement to medical assessments and screenings conducted on behalf of employers, and questioned just how much workers should give of themselves to employers. In light of the potential for future workplace genetic screening (Greengard, 1997), there may be little left that employers will not know about their employees.

Implications and Future Directions

We have presented a broad overview of the health and well-being literature in an attempt to inform, educate, and perhaps stimulate interest among organizational researchers in these relatively under-recognized concepts. The real and potential importance of these constructs and their associated research is quite evident, given the implications of workplace dimensions that interact with individual level factors affecting workers' overall experiences of work and life.

As noted when it was introduced, we again point out that the framework presented in Figure 1, and used to organize our discussion, is not offered as a formal model or theory. Instead, as its label implies, it is simply offered as a mechanism for organizing what is known, to imply what is not known, and to suggest future directions in the areas of health and well-being in the workplace.

Consequently, therefore, a clear priority for future work in this area is the continued refinement and specification of frameworks, such as the one used here, but with an evolutionary goal of eventually creating a rigorous model or theory of health and well-being in the workplace. Such a model or theory should clearly draw from an interdisciplinary perspective. As both discussed and implied in this review, for example, literature from psychology, medicine, and other fields all have something to contribute to a unified understanding, yet none alone can fully capture the complex richness of health and well-being in the workplace. As part

of this evolutionary goal of developing a unifying model or theory, it will be necessary to further develop, refine, and define the core constructs of health and well-being in the workplace, to better articulate the nomological network surrounding these constructs, and to more clearly articulate the varying degrees of independence and interdependence among the constructs.

While this unifying model or theory can potentially serve as the ultimate framework for subsequent research, there are a wide array of intermediate research-related questions and goals that are apparent based purely on existing theory and knowledge. First, researchers need to continue to develop and refine measures of all of the basic constructs in the framework, but especially for the core constructs of health and well-being. We need to strive for greater consistency in how these constructs are operationalized, for example, so as to facilitate generalizability of findings across studies.

We also need a better understanding of when to use subjective or perceptual measures and when to use objective measures, of the appropriate kinds of research designs that are more and less effective in this area, and of the appropriate sampling procedures and time frames that provide the clearest answers to issues associated with health and well-being. For example, some constructs related to health and well-being (i.e., experienced stress/distress, PA and NA, satisfaction, etc.) are clearly perceptual in nature and are by implicit agreement in the field best operationalized through self-report instruments. But other constructs (i.e., work setting variables, individual and organizational consequences, etc.) are clearly more objective in nature and character, and thus should be assessed using objective methods.

Researchers will also need to make more frequent and sophisticated use of multiple research methods to make meaningful advances in this area. Laboratory studies, for example, may be effectively combined with field studies to better capture a fuller and more complete array of constructs and processes than might be the case if only one method is used (cf. Griffin & Kacmar, 1990). For instance, suppose a researcher wants to examine linkages among work setting and personality traits (as antecedents), mental/psychological health in the workplace, and physical and psychological consequences. Ethical and legal concerns make it problematic to manipulate health and safety hazards in the lab, although different conditions clearly exist in organizations. But personality traits and perceived health and well-being can be much more easily addressed in lab settings. Thus, a research might examine certain linkages experimentally in the laboratory and other linkages cross-sectionally in the field. By then combining the findings, the researcher may subsequently be able to demonstrate more and deeper understandings of health and well-being than if he or she had relied on only a single methodology.

Finally, while some constructs in the organizational sciences are relatively abstract and disconnected from reality, health and well-being are clearly linked to the everyday work and life experiences of all organizational members. Thus, this is an obvious area where the concerns and agendas for managers, executives, and care-providers are closely aligned with those of scholars and researchers. That is, the basic questions associated with health and well-being that a manager might

raise should be of clear interest and relevance to researchers. And likewise, the questions and hypotheses that might be developed from a research program are likely to be of clear and immediate interest to those in organizations. Clearly, then, the concepts of health and well-being in the workplace should be elevated to the same degree of importance to organizational scientists as the more commonly studied concepts of leadership, motivation, and attitudes. Hopefully, the overview and framework developed here can serve as a catalyst for just such a transition.

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