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Health Issues at Work

Opportunities for Industrial/Organizational Psychology

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ABSTRACT: The workplace provides an excellent setting for addressing issues of health, and industrial/organizational psychologists have a great deal to contribute to this effort. Five models for addressing health at work are presented along with the recommendation to use the broader systems approach. A set of criteria for health research and practice is introduced, and the potential contributions of industrial–organizational psychology for addressing these criteria are discussed.

The health of the work force is one of the most significant issues of our time, and yet it is an issue that we as industrial/organizational psychologists have for the most part ignored. Behr and Newman pointed out this deficiency in 1978; little has changed since that time. This stance should change. In this article I discuss the domain of health issues at work and present potential ways for industrial/organizational psychologists to contribute to it.

Why Health?

A Timeless Concern

The health of the work force has always been a concern, for obvious humanitarian and utilitarian reasons. In the early part of this century, the muckrakers made vividly clear the human suffering brought on by employers and whole industries when they ignored their social responsibility to provide safe and relatively disease-free environments in which to work. Chapters on accidents and safety appeared in the early textbooks in our field (Tiffin, 1942; Viteles, 1932). Although accidents and safety are researched less today, avoiding accidents and designing safe environments are of no less importance, as evidenced by the legal and regulatory mechanisms that have evolved to ensure that these concerns are not ignored. Turnover and absenteeism are the more likely targets of attention in which industrial/organizational psychologists might raise health issues, albeit indirectly. Johns and Nicholson (1982) echoed Smulder’s (1980) earlier plea for paying greater attention to absences due to illness and to the psychosocial factors that influence individuals’ experience of sickness or wellness. Data from a European sample showed that around 60% of the hours lost to absenteeism were due to illness.

Economic Reasons

In the last 10 years, there has been a major increase in the economic stakes related to health in the workplace. Spending for health care by private sources, primarily employers, tripled since 1975 to an estimated $40 billion in 1986 (Polankoff & O’Rourke, 1987). It is estimated that the United States will spend approximately 12% of its gross national product on health care by 1995 (Arthur Anderson and Company and American College of Healthcare Executives, 1987). Lee Iacocca (1984) wrote that upon becoming chairman of Chrysler Corporation, he was surprised to learn that Chrysler’s primary supplier in terms of dollars spent was not U.S. Steel or Goodyear Tire and Rubber, but Blue Cross/Blue Shield. Clearly, if one is concerned about the productivity of a corporation, one has to be concerned about health care—in particular, the costs of health care to the corporation.

Societal and Demographic Trends

From the standpoint of societal values, health is “in.” Weight-loss clinics, diets, exercise programs, and smoking cessation programs are but a few of the ways to try to maintain or change behaviors with health in mind. Demographically, the population in the United States is growing older. Modern medicine has made great strides in advancing the average age of the population, but with advancing age comes an increasing probability of morbidity. At first glance, it might seem that it would not be particularly problematic to work organizations if employees leave the work force before the age where there is a major positive reflection in the morbidity curve. However, such a conclusion ignores the practice of providing health care benefits to retirees. The effects of the retirees on health care systems are just beginning to be understood as data accumulate. But these data are limited because they do not include the changing demographic characteristics of the retiree population. For example, Don Galvin (1989) of the Washington Business Group on Health noted that it will soon be quite common to have four living generations in one family, with two of them retired. As corporations assume more and more of the financial responsibility for the health care of former members along with that of current employees and their dependents, the health-related behaviors of those persons not on the payroll become important concerns of the corporation. A glimpse of what may be to come occurred at the Ford Motor Company headquarters in Dearborn, Michigan, in 1988 when the company attempted to cut
health care benefits to retirees. Retirees formerly holding blue-collar, white-collar, and managerial jobs picketed the headquarters in response to rumors of change.

**Why Industrial/Organizational Psychology?**

Matarazzo (1980) defined behavioral health as a new interdisciplinary subspecialty of behavioral medicine concerned with the healthy people and labeled psychology's role in behavioral medicine as *health psychology*. Two years later, he challenged psychologists to become more involved in health psychology (Matarazzo, 1982). Many accepted the challenge, as evidenced by an edited handbook (Matarazzo, Weiss, Herd, Miller, & Weiss, 1984), a division of health psychology in the American Psychological Association, and the generation of sufficient literature to warrant two recent chapters in the *Annual Review of Psychology* (Kranz, Grunberg, & Baum, 1985; Rodin & Salovey, 1989).

Behavioral perspectives on health are also present at the work site. Terborg (1986, in press; Glasgow & Terborg, 1988) described the work done in health promotion and the way it was being brought into the workplace through wellness programs involving health risk appraisals, exercise, smoking cessation, diet, and substance abuse treatment. Psychologists, primarily clinical and counseling psychologists, and persons from a wide variety of other professions are involved in such programs. These include physical therapists, dieticians, counselors, recreation directors, and those in sports medicine, to name a few. Yet in spite of the interest and activity related to health at the work site, few industrial/organizational psychologists have ventured into the growing market of health promotion/wellness.

I feel that it is this very lack of involvement in health promotion at the work site, coupled with the scientist-practitioner model of industrial/organizational psychology, that makes industrial/organizational psychologists well suited for addressing health at work. Almost without exception, the current actors in health promotion are committed to a particular solution to health problems. Clinical and counseling psychologists tend to look to counseling or some form of behavior modification to address problem behaviors such as smoking, overeating, or substance abuse; physical therapists focus on a regimen of exercise to solve health problems; dieticians attempt to improve eating habits through education or by changing foods and beverages available at the work site; and safety officers look to changes in the physical work environment to prevent accidents, injury, or exposure to harmful substances. Whereas all those interested in health promotion at work may correctly see a need for it, they tend to be limited in their approach to the problems of health by the nature of the discipline from which their interests have evolved.

Industrial/organizational psychologists come to the problem of health at work without being limited by a dominating orientation. The problem-solving strategy that forms the foundation for the field advocates applying the scientific method to important concerns at work. Thus, industrial/organizational psychologists are likely to approach health issues at work by (a) defining the problem, (b) conducting a needs analysis to ascertain whether the problem is or is not one of importance in that setting and what its potential determinants may be, (c) considering a wide variety of approaches that could be taken to the problem, (d) implementing some intervention based on the analysis of the problem and potential responses to it, and (e) gathering data to evaluate the implementation. Although this approach is not uniquely the domain of industrial and organizational psychology, it is what is needed and it represents a potential contribution of industrial/organizational psychologists to health at work.

In what follows, I will describe some approaches to health at work and propose a systems model as the most appropriate response to employee health. Next, I will identify subsets of the health domain relevant to organizations and discuss them as sources for potential criteria for studying and developing programs and practices directed at health. Finally, I will discuss potential areas for contributions by industrial and organizational psychologists.

**Approaches to Health at Work**

Before turning to the content of health at work, I will briefly review past, present, and future models for addressing health at work. These models represent a progression that began with an almost exclusive concentration on safety and progressed to a broader concern that now includes occupational health promotion.

**Safety**

By the late 1930s and early 1940s, public concern over dangerous working conditions led to the establishment of governmental agencies such as the National Safety Council and other units like the Industrial Fatigue Research Board (Viteles, 1932) that addressed safety and the development of safe conditions at work. In addition, workers' compensation plans were devised to provide aid for workers who were injured on the job. These early efforts took a very mechanistic causal approach to safety by looking for working conditions that were likely to influence the safety of employees and then attempting to change those conditions. The nature of cause was viewed as unidirectional, from the job environment to the worker.

Changes and regulations that resulted from the early...
safety research and legislation were extremely beneficial. Work in industries such as agriculture, mining, meat packing, and construction still remains relatively dangerous in comparison to some other types of work, but, in general, today's work sites are safer than they once were (Riley, 1986).

**Early Ergonomics**

The safety focus on health gave way to what can be labeled *early ergonomics*. The major changes in the safety model to that of early ergonomics were the inclusion of the workers in the response to safety and health and the recognition of the interaction between work environments and those who populate them. Thus, attempts to improve the safety of the workplace included training workers in safe behaviors, developing incentives to encourage safe behaviors, and selecting people and/or placing them on jobs with safety and health in mind. The early ergonomics view is perhaps best captured in the regulations and practices spawned by the Occupational Health and Safety Act (OSHA) of 1970 and the regulatory agency that it created. The agency plays a major role in regulating the nature of the workplace today in the United States with respect to conditions affecting safety and health.

**Wellness**

In the late 1970s and early 1980s, the early ergonomics model gave way to programs labeled *wellness* or *occupational health promotion* (Glasgow & Terborg, 1988). Wellness represented two major changes from the previous approaches. First, wellness shifted primary concerns for health from preventing injury or harm to encouraging health. Prior to that time, health was defined primarily in terms of the absence of injury or disease. In wellness, the absence of disease or injury was seen as the neutral point on a scale ranging from illness/injury to health. Points beyond the absence of illness and injury dealt with developing and maintaining a physically and psychologically healthy life-style. This perspective is similar to that of Everly and Feldman (1984), who illustrated the wellness focus with respect to disease prevention rather than injury.

The second change in emphasis on wellness was that of looking to persons (workers/employees) as primary precursors of health. How people behave (e.g., what they eat or drink, the amount they exercise, whether or not they smoke) is the focus of wellness programs. The programs are directed at either changing unhealthy behaviors and replacing them with healthful ones or establishing healthy behaviors in the first place. Typical health-related behaviors targeted by wellness programs are diet, exercise, smoking cessation, substance abuse prevention and treatment, and the provision of health-related feedback to employees. In contrast to previous approaches that looked to job environmental conditions for the causes of unhealthy outcomes and attempted to change the conditions or train people to deal with them, the wellness approach focuses almost exclusively on changing employee behaviors believed to increase the likelihood and seriousness of illness or other forms of incapacitation at some time in the future. Today it is estimated that as many as 50,000 organizations have some form of health promotion activity in place, and that number is growing rapidly (Glasgow & Terborg, 1988).

**Medical**

The fourth model is the medical one. This well-established model does not fit chronologically with the first three models; it predated all of them, spanned the whole time period, and is very much present today. Typically, workers with symptoms of illness are referred to physicians, who treat them. The relationship between the employee and the physician is the standard patient–doctor relationship similar to that present in other medical settings.

Without a doubt, safety, ergonomics, wellness, and medical practices related to health in the workplace have made great strides. The workplace is safer. Training and placement improved employees’ ability to deal with potentially dangerous conditions. Likewise, there is every reason to believe that improving the healthful behaviors of people should, in the long run, lead to better health (Rowe & Kahn, 1987). In sum, these approaches have contributed a great deal to the health of people at work and are likely to continue to do so.

**Systems Views**

There are, however, several limiting features shared by all of these approaches. Perhaps the most severe is the reliance on rather simplistic cause-and-effect models of illness and health. All assume that certain variables exist that, either alone or in simple interaction with each other, cause the condition that is of concern. The linear causal assumption is most apparent in the biological model of medicine. Here, illnesses are assumed to result from a single cause or a limited set of causes. With this assumption, when the causes are unknown, medical research looks for them. Once "the" cause(s) is (are) isolated, attempts are made to combat it (them). Smallpox, measles, and polio are just a few of the many cases in which the biological model of medicine has been applied successfully.

The biological model works best when the causal determinants of the disease are few in number or when one has the luxury of being able to consider only one disease or health problem in isolation. Neither of these options is prevalent today. The major health issues of the day—cardiovascular diseases, cancer, and acquired immunodeficiency syndrome (AIDS)—result from a complex and yet-to-be-understood combination of biological, psychological, and social factors (Ilgren & Swisher, 1989). In addition, the treatment of one disease often opens up other interdependent problems that were never imagined. For example, the control of measles among small children in some areas of the Third World has further fueled population explosions and increased the threat of starvation, a case in which application of a medical solution turned a medical problem into a sociopolitical and economic one.

Multifaceted complexity also exists for health at
work. Consider the problem of handling potentially hazardous chemicals that often do not affect health until years after exposure to them. Biological differences in sensitivity to the chemicals (Olian, 1984), short-term needs for employment and profitability, resistance to wearing bulky protective clothing, and many other factors, often unknown or unanticipated, make the task of protecting health at work in this case extremely difficult.

Systems models provide the best framework for structuring multifaceted problems. Such models have been around a long time in organizational theory and application (e.g., Katz & Kahn, 1978). They have also existed in medicine, behavioral medicine, and psychology, but their acceptance has not come without resistance. Engle and his colleagues from the University of Rochester espoused a biopsychosocial (BPS) model of medicine, arguing that all phenomena related to health and disease have three inextricable dimensions: biological, psychological, and social (Engle, 1977). According to the model, one cannot understand health or disease without an understanding of the interrelationships of all three domains. Guze, Matarazzo, and Saslow (1953) proposed a similar systems approach to health in psychology (Matarazzo, 1980). The nature and complexity of health issues at work demand multifaceted approaches, but, for the most part, these issues have tended to be addressed within narrowly drawn disciplinary lines.

Health-Related Criteria

When health issues facing work organizations are the overarching concern, the primary focus has been and will continue to be the maintenance of health and the prevention of illness and injury. Nevertheless, regardless of this focus, people will be injured and will become ill. Therefore, two other sets of behaviors that are the consequence, rather than the antecedents, of illness and injury are important for understanding and responding to health issues at work. The first of these is the set of behaviors that occur when persons become ill or are injured and are in need of accessing health-care system for treatment; they pertain to health-care usage. The second set of behaviors deals with the recovery process.

Health Maintenance

Accidents and safety. Little needs to be said about the importance of accident prevention and safety in the workplace. These issues have received a great deal of attention for a long time, and with the passage of the Occupational Health and Safety Act of 1970, the legal mandate alone should sustain interest. From a research standpoint, the work of Komaki (Komaki, Barwick, & Scott, 1978; Komaki, Heinzmann, & Lawson, 1980) made a major contribution by stressing the need for more proximal criteria of safe behaviors rather than the more distal criteria of accident rates. A focus on health may add impetus to the need to look closely at safe behaviors, but it adds little that is new regarding safety at the work site.

A health maintenance perspective does expand the domain of safe behaviors of interest; in particular, off-work behaviors become important. If the concern is with reducing the use of the health-care system and maintaining the health of the employee, then the use of seat belts, the wearing of safety glasses when playing raquetball or squash, or any other off-work behaviors that involve risks to personal health become concerns of the organization. Furthermore, the safety behaviors of dependents and retirees are nearly as important as those of employees because the health-care usage rates of these people affect the costs of the health-care system. When the issue is understanding and predicting such behaviors among employees and other groups of users of the health-care system, there are a number of research issues to which industrial/organizational psychologists could easily respond. A real challenge is to attempt to influence such behaviors while at the same time avoiding the creation of some Orwellian control system.

Wellness. Wellness criteria exist primarily within the person as opposed to the work setting. The criteria are behaviors associated with what might be called seven "deadly sins" that have been shown to affect longevity and the aging process. Three of the seven include diet-related behaviors (sodium chloride consumption, caloric intake, and snacking); the remaining four are smoking, substance abuse, too little rest, and a lack of exercise (Rove & Kahn, 1987). Although the effectiveness of wellness programs in organizations is mixed (Glasgow & Torborg, 1988), the research on aging that provides evidence regarding the importance of the targeted behaviors is quite compelling. A recent article in Science by Rowe and Kahn (1987) entitled "Human Aging: Usual and Successful" suggests that many of the age-related proclivities that were once attributed to the "natural" aging process, such as hearing and vision losses, decreased in glucose tolerance, increases in blood pressure, decreases in bone density, and decreases in immune system functioning, may be modifiable through diet, exercise, and other behavioral changes. Thus, regardless of the relatively low level of success of many of the current wellness programs (Torborg, 1986), their potential contributions, as indicated by basic research, warrant their continuation.

Stress. Stress is another important health-related criterion, but it is not one to be addressed by those with a low tolerance for ambiguity. The meaning of stress continues to elude us (Kasl, 1984). Nevertheless, evidence of the effects of sleep loss on immune systems (Adler & Cohen, 1984), of job loss due to plant closings on perceptual and physiological indicators of stress (Kasl & Cobb, 1970), as well as interactions between individual differences and unemployment (Rodin & Salovey, 1989)—all of which are consistent with stress-related interpretations—clearly indicate that stress is a criterion worthy of further study and not one solely driven by the Zeitgeist.

Health Care Usage

Health care usage refers to the decisions and behaviors associated with seeking and obtaining health care services. At some time, everyone has a need for health care and will access the health-care system. Yet the timing (i.e.,
how soon after the onset of injury or the appearance of physical symptoms implying illness), the frequency, and the nature of that access have important consequences both to employees needing treatment and to their employing organizations. For the individual, the effects are primarily in terms of health and quality of life; for the organization, the effects are financial, both direct in terms of processing and paying for health care and indirect in terms of losses in worker productivity.

When health care benefits were first instituted, little attention was paid to their use. Employers obtained health care pretty much on demand, and the health care insurance company paid for that care according to the specifications of the policy. Organizational units responsible for employee benefits directed most of their attention to serving as administrative liaison with the insurance carrier, informing employees of their insurance options, handling claims, and other maintenance tasks. With the exponential increase in medical insurance costs in the 1980s, health care services came under closer scrutiny. This attention revealed that both the frequency and the nature of the services used by system members had major financial implications for the organization as well as potential health implications for employees (Herzlinger & Calkins, 1986). The result was the installation of systems that attempt to manage the type and frequency of services accessed by health care users (Galvin, 1989). However, although these health care system access behaviors are extremely important for both employee health and organizational productivity, they are not well understood. Understanding factors that influence decisions (a) to seek health care, and then, once that decision is made, (b) to select a particular type of health care, would contribute a great deal both to the quality of health care and its cost. In addition, it is important to know whether the managed health care approaches have any effect on the quality of health care services received by employees.

There is also a dark side of health care access: fraud. Opportunities for misuse of such systems by users and suppliers clearly exist. However, there is no reason to believe that fraudulent behaviors could not also be objectively measured using common practices for developing any valid and reliable criterion measure. Certainly, fraudulent behaviors are important to the organization; they represent a second set of health care usage criteria that deserves attention.

Recovery

Criteria related to recovery are predicated on the well-accepted assumption that it is both the employee's and the organization's benefit for the employee who is disabled to recover and return to the workplace as soon as possible. For purposes of discussion, these criteria can be clustered into those associated with the individual and those associated with factors outside the person.

Disabled employee criteria. Two sets of behaviors can be mapped primarily onto the individual. The first consists of compliance with treatment recommendations. It is estimated that 50% of those under medical treatment do not comply (Gerber & Nehemkis, 1986). From 10% to 20% of prescriptions issued by physicians are never filled (R. Stillwill, June 10, 1988, personal communications). The extent of noncompliance increases with the length of the illness and with the effort required or the restrictiveness of the treatment itself (Gerber, 1986). For example, only 7% of diabetics under treatment conform to their diet and insulin dosage regimen (Gerber, 1986). The medical profession has studied compliance behavior and identified such predictors as education and income level (Gerber & Nehemkis, 1986).

An employee recovery condition that has received considerable attention has been labeled the sick person syndrome. Those concerned with worker's compensation and employee disability have long been concerned with this phenomenon, in which, over an extended period of time, an injured or ill person shifts his or her self-concept from that of a healthy person to that of one who is sick (Galvin, 1986; State of Michigan, 1987; Yelin, 1986). Such a shift in self-image affects the rate of recovery and may also permanently reduce the likelihood of full recovery (Galvin, 1989).

Other recovery-related criteria. There are a large number of factors outside the individual that could legitimately serve as criteria related to employees' recovery and return to work. At the level of the organization and the governmental agencies with which it interacts, the most frequently mentioned recovery criteria are those policies and practices that are feared by some to serve as disincentives to recovery (Galvin, 1986; State of Michigan, 1987; Yelin, 1986). A common belief is that disability reimbursement policies may actually encourage people to recover more slowly so that they can continue to receive disability benefits. These behaviors are often viewed as malingering (Yelin, 1986), which implies volition, but they may also be relatively unconscious changes in responses, such as failing to adhere to an aversive exercise routine to strengthen the lower back and, as a result, delaying, or worse, denying recovery.

Finally, other persons in the employee's work environment are valuable sources of variables important to recovery. The attributions that others hold about the causes of illnesses affect the way that they behave toward those who are ill (Rodin & Salovey, 1989). Feelings of hostility toward treatment noncompliers have been shown to affect how medical personnel respond toward patients (Gerber & Nehemkis, 1986). It is reasonable to expect similar responses from co-workers and others, such as supervisors faced with continued alcohol abuse among employees referred to Employee Assistance Programs (EAP) as problem drinkers.

The above list of health-related criteria is by no means exhaustive; it was not intended to be. It was intended to suggest that a focus on health opens up a number of behavioral criteria that are important both for the welfare of employees and for the organization. As such, these criteria fall solidly within the domain of behaviors that are important to industrial/organizational psychology. How industrial/organizational psychologists and
other psychologists interested in affecting behaviors at work might respond to issues raised by these criteria is addressed in the following sections.

Responses to Health at Work: Individual and Group Levels

Job Design

The field of industrial/organizational psychology has a long history of concern for the way in which jobs are designed. The early work, that of scientific management, focused on matching the demands of the task with the capabilities (abilities) of the task holder and then superimposed an incentive system (e.g., a piece-rate or bonus system) on the job to encourage effective task performance. Lately the emphasis in job design has shifted attention to matching employee needs and values as opposed to abilities, although task performance is still a primary criterion for the design of jobs (see, for example, Hackman & Oldham, 1980). A concern for health would not replace the traditional concerns but would expand them in at least two ways.

The first of these is in the design of healthier jobs. A major component of this is the traditional safety emphasis that has already been mentioned. However, beyond safety, findings in other settings suggest some intriguing possibilities for future job design. Let me mention just two. Rodin (Rodin, 1986; Rodin & Salovey, 1989) studied the effects on health and aging of giving people more control over their environments. Providing individuals with more control over their daily lives is not only improved psychological reports of well-being, but it also had positive effects on people’s immune systems as evidenced by their better physical health. The sample for Rodin’s research consisted of nursing home residents, but the consistency of her results with those of controlled studies using laboratory animals suggests that control over conditions (often labeled autonomy) in the workplace may enhance the probability of more healthy responses.

Somewhat related to control is Lazarus’s (1984) work regarding daily hassles, or events over which the individual has little control or which the individual at least has not fully anticipated. Like lack of control, hassles too have been found to wear on people. To the extent that jobs can be structured to reduce interruptions and hassles or at least be managed by schedules that control the flow of these types of events, health may be affected.

Clearly, focusing on health in the design of jobs would expand the concerns in this field beyond the effectiveness, political, and humanistic concerns (Dachler & Wilpert, 1978; Wagner & Gooding, 1987) that have dominated it in the past.

The second area in which a concern for health in job design would expand the traditional concerns of the field is that of redesigning the jobs of disabled workers who have recovered sufficiently to return to work but who may never recover enough to do their previous jobs in the same way. Although Galvin (1989) lists job design as one of the five primary domains of disability manage-

ment, to my knowledge there has been little research or other systematic effort to address the redesign of work in this fashion. The closest thing to such an effort is some work in Europe on “transactional workshops,” in which jobs are redesigned to aid recovery (G. Chao, July 20, 1988, personal communication). For example, a person with a sprained ankle may be provided a foot pedal under his or her desk for exercise/physical therapy. Given the psychological and financial benefits of returning disabled employees to the work force, redesign of jobs to take disabilities into account could be important. Such job redesign would involve case-by-case evaluations of job demands and employee capabilities combined with the openness that would allow the disabled employee to modify his or her work practices in ways that would not compromise task performance. The redesigned job might be similar to, but it might also be quite different from, the way others with the same job title conduct their jobs. The problem of redesigning jobs to fit the specific changes in the capabilities of disabled job incumbents will likely contain not only all of the typical requirements of studying the interaction of job and human capacities but also the additional task of gaining acceptance of the redesigned job by the job incumbent and those with whom that person must interact.

Motivation

Terborg (1986) distinguished health protection, which involves protecting as many people as possible from threats to health, from health promotion, which attempts to influence people to make informed choices that will enhance both physical and mental health. Whereas job design is targeted at the former, motivational approaches to health address the latter. In particular, with respect to health promotion from a motivational perspective, the interest is in both understanding and encouraging people to choose those behaviors believed to increase the probability of good physical and mental health. For purposes of discussion, health promotion can be further divided into promotion of health among healthy persons and promotion of health among persons recovering from injury or illness.

Well persons. I have already pointed out that health promotion at work among those not suffering from any particular health problems is a growing industry. Wellness programs include one or more of three primary components: screening, education, or behavior change (Terborg, 1986). Motivational issues arise at two important junctures affecting all three components of health promotion programs. The first of these involves participation in such programs, and the second involves compliance with the healthful behaviors targeted by the programs.

Participation in health promotion programs at work is almost always voluntary (Conrad, 1987). Yet selectivity among program volunteers is one of the most serious problems confronting evaluation of such programs (Terborg, 1986). When the more healthy individuals volunteer for the programs, the use of nonequivalent control groups
yields little information of value regarding the effectiveness of the programs. What influences the behavior of voluntering and how to increase the probability that those who most need the health-related program will volunteer are motivational issues that need to be addressed.

The second juncture at which motivational concerns arise is in program compliance. Instilling healthy behaviors in people's daily routines often involves major changes in previous behavior patterns, many of which possessed very positive reinforcers. Thus, the problems of recidivism in health promotion at work are no different from those in any other setting, and the data from other settings show that the frequency of long-term change is not high (Rodin & Salovey, 1989). However, one major advantage of work settings is that they often offer more control than other settings and, therefore, may be able to offer stronger incentives for change (Kranz et al., 1985). Consider the example of targeting diet and hypertension by changing cafeteria menus and removing salt shakers and sugar bowls from the tables. Another example is the potential effect of recent legislation and voluntary action that make it less convenient to smoke at work.

Industrial/organizational psychologists have given a great deal of attention to motivational issues related to performance, attendance, turnover, and the transfer of learned behaviors from training programs to the work site. Changing the targeted behaviors to those linked to health promotion should represent only a minor change in focus; the transfer of knowledge from behaviors that have tended to dominate past research and practice to health-related behaviors should be positive.

Persons recovering from illness or injury. Several interesting motivational issues are associated with attaining a level of recovery from illness or injury required to return to the status of an active participant in the work force. Some of these deal with general behavior patterns regarding compliance with health care treatment (Gerber & Nehemikis, 1986) or the maintenance of self-defeating behavior patterns (Baumeister & Scher, 1988). Many of the generalizations from this literature are likely to hold for work. Consider, for example, the finding that compliance with a treatment is better in the short run, particularly if the patient is suffering some degree of pain, but that as the time expands or the pain dissipates, compliance drops off (Baumeister & Scher, 1988). This finding stresses the necessity for quick responses to injury and accidents when structuring programs for recovery. Waiting until the employee is approaching the end of a typical recovery cycle to begin thinking about implementation of some modifications in the job when the employee returns to work may be too late for an effective response by supervisors.

Two recovery topics in the literature that fit very well into the domain of industrial-organizational psychology are those dealing with the role of self-schemata and those dealing with system-level incentives in the recovery process. One of the factors that influences both the level and the rate of recovery is the person's self-perception. (This was mentioned earlier in the discussion of the “sick person” perception.) Framing it in a cognitive perspective, Bishop and his colleagues (Bishop, 1987; Bishop & Converse, 1986) argued that people have disease prototypes that allow them to organize their perceptions of their symptoms and make sense out of their current states. Although the sick-person syndrome is frequently mentioned in the literature on work-related disability (see Galvin, 1989), there is little research on the way in which it develops, its likely impact on the person returning to work, or the effect that returning to work with less capacity to perform certain functions than before the disability has on a person. A cognitive perspective on the sick-person syndrome would suggest factors that may influence both the development of such a self-schema and the impact of such a self-view.

Finally, frequently addressed inhibitors to recovery are disincentives created by specific policies and practices related to worker's compensation and social security disability compensation. Insurers and employers often believe that a great deal of abuse of the worker's compensation and other disability benefit systems exists, but the evidence for malingering is far from convincing (Yelin, 1986). However, regardless of employees' intentions, systems designed to protect the health and welfare of the injured worker can be and have been designed in such a way as to serve as disincentives for recovery under some conditions. A motivational analysis of these systems should prove useful for recognizing present and potential motivational forces and is the first step in attempting to create conditions that minimize such conflicts.

Individual Differences

Individual differences are rich sources of potential variables related to health. They are also variables with which psychologists are familiar, although the set of individual differences relevant to health may differ somewhat from the set with which industrial/organizational psychologists most commonly work.

When addressing individual differences, a careful distinction should be made between those that are likely to predict health-related behavior and those that are likely to be directly related to physical or psychological health. With respect to health-related behaviors, there is surprisingly little work on individual differences. The work that has been done provides little reason to believe that noncompliant or self-defeating behavior is related to individual difference variables typically called personality variables (Baumeister & Scher, 1988), nor is health care neglect predictable from these types of variables (Haynes, Taylor, & Sackett, 1979). However, research does suggest that there are gender differences in reports of psychological stress and in experiences of stress-related illness, with women reporting higher psychological stress and men more physical illness (Jick & Mitz, 1985). In other cases, dispositional variables were shown to affect health through their effects on a third variable. Personal tendencies to persist on harmful courses of action affect health to the extent that the behaviors themselves threaten health (Baumeister & Scher, 1988), and strong ego involvement
may affect health because of its effect on hypertension (Kasi & Cobb, 1970). Finally, interaction effects between personality variables and situational conditions have been observed. Kobasa (Kobasa, 1979; Kobasa, Maddi, & Kahn, 1982), in studying 161 executives who either did or did not become ill over a certain time period, developed a construct of “hardiness.” Hardiness was construed as having three dimensions: belief in control/influence over one's environment, ability for deep involvement/commitment to activities in life, and the ability to anticipate change and see it as a challenge. Those who faced demanding job situations and were high on hardness showed fewer adverse health affects than those in similar jobs who were low in hardness. Unfortunately, later work with the hardness scale found effects less strong than those in the earlier work (Krantz et al., 1985).

Turning from health behaviors to health in general, it is clear that individual differences have an effect on health itself. A large number of illnesses can be traced to genetic predispositions and to gender and age differences. However, in many respects, these differences lose their appeal to psychologists interested in health at work in spite of their tendency to use individual differences in their models and practice. Psychologists are less interested in these variables because many of them fall more within a medical/biological domain than a behavioral one. Even if predictive behavioral relationships were to be found, ethical and legal constraints would militate against using them as predictors for many personnel decisions. For example, it would not be acceptable to make hiring decisions on the basis of family history of diabetes because of the employer’s fear of paying potential health care costs. On the other hand, it has been suggested that genetic screening regarding sensitivity to certain chemicals may be beneficial both to employees who work with these chemicals and to their employers (Olian, 1984).

Social Settings

The impact of social-interpersonal variables on individuals' health is both direct and indirect (Cohen & Wills, 1985). In the case of direct effects, conditions in the social environment are believed to provide the stimulus for individual responses that can be scaled on some dimension of health. More commonly, social-interpersonal factors are believed to affect health indirectly.

Social support. Cohen and Wills (1985), in an extensive review of the social support literature, found that social support had a direct impact on health when social networks provided regular positive experiences and a set of stable, socially rewarding roles. Such support contributed to an overall sense of well-being. Social support also provided an indirect effect on health by buffering psychological distress when individuals were faced with a crisis (Cohen & Wills, 1985; Holahan & Moos, 1986; Pearlin, Menaghan, Lieberman, & Mullan, 1981; Rodin & Salovey, 1989). For example, Cassel (1963) argued that shift work was a form of stressor and that remaining with the same set of co-workers when shifting from one time schedule to another should provide a buffer against the physiological and social disruption of altering work and sleep patterns. He found that shift workers who stayed with the same group had lower cholesterol levels than those who worked with different sets of co-workers when shifted from one schedule to another.

The role of social support systems in the work-related crisis of unemployment has been of interest since the 1930s (Kasi & Wells, 1985). The common belief is that those with strong social support from family, friends, or other sources should experience less psychological stress when faced with unemployment. Unfortunately, in spite of the popular appeal of this hypothesis, to my knowledge there are few data that address the link between social support and responses to unemployment due to plant closings or other reasons for laying off employees.

A recent study in Europe did provide an excellent causal analysis of social support, work stressors, reports of psychological stress, and health (Marcelissen, Wannenst, Buunk, & de Wolff, 1988). Over 2,000 employees in 21 Dutch companies in the eastern part of The Netherlands responded to a survey instrument and received a medical examination. The results were consistent with the conclusion that social support reduced psychological stress when this stress was inferred from reports of role ambiguity and overload, but a link between the stress and physiological responses was not observed.

Although social support is most frequently considered a positive influence on health, the possibility of a negative effect should not be ignored. Among teenagers, strong ties to social groups can increase the likelihood of substance abuse if the group supports such behavior (Kandall & Maloff, 1984). With adults, group norms and pressures have been found to influence individuals’ avoidance of treatment by physicians and, thus, to lengthen the time between experiencing physical symptoms of illness and seeking medical help (Pilisuk, Boylan, & Acrelato, 1987).

In spite of the intuitive appeal of social support as both a direct and indirect influence on health at work, few data support this popular belief. This is due, in part, to lack of research that incorporates stressors, psychological responses, and physiological measures. It is also due to the quality of data that exist. Much of the data is survey data with self-report measures of predictors and criteria. Both methodological limitations (e.g., intercorrelated variables obtained from a single survey) and conceptual limitations (e.g., self-report measures) severely limit confidence in such data. In addition, a great deal of ambiguity surrounds the social support construct both conceptually and empirically (Kasi & Wells, 1985). With respect to measurement, Bruhn and Phillips (1984) reported 14 different instruments in use. If social support is to become a viable construct related to health at work, a great deal more work is needed both theoretically and empirically.

Other social constructs. A number of other socially generated constructs have been suggested as potentially related to health. Frequently, the mediating variable assumed to operate between the social variable and health is some form of psychological stress. For example, su-
Supervisory behaviors that affect levels of tension, degree of control over the job through participation, or perhaps feelings of anger may have an impact on an employee's health in the long run (Rodin & Salovey, 1989). As was the case with social support, the theoretical possibilities are more interesting than the data. However, an absence of data, rather than the presence of disconfirming findings from well-conducted studies, is the more common state of affairs. Therefore, future research is certainly justified.

The discussion of social variables affecting health has been limited to interpersonal variables in employees' immediate social environments, that is, among their work groups, supervisors, families, and so forth. At a broader level, it has been suggested that companies or organizations may develop a climate for health. Without presenting data, Galvin (1989) suggested that disability management works best when the top management develops (a) a commitment to returning disabled workers to the work force as soon as possible and (b) a climate for helping and accepting disabled workers back onto the job. A State of Michigan (1987) annual report on workers' compensation concluded that the most successful responses to workers' compensation were among companies with a company-wide commitment to cooperation between labor and management rather than among companies where litigation was the preferred response to injury. A comparison of companies matched on the nature of the work but differing in the number of workers' compensation claims found that a management climate of support and concern for health was one of the major variables differentiating the companies on the number of claims filed in a particular year (Haback, Leahy, & Hunt, 1988). Supportive management climates were associated with fewer claims. In eight American companies, Schmitt, Colligan, and Fitzgerald (1980) found significant differences among reported physical symptoms that could not be explained by the nature of the work or the populations of individuals from which the companies drew their employees. The authors suggested that climates for health may develop within organizations and may affect the frequency of the appearance of various physical symptoms. Although the data did not allow a precise test of this hypothesis, they are interesting. The idea is intriguing and suggests the desirability of further work related to organizational climates supporting health.

**Responses to Health at Work: System Level**

The previous discussion of the contributions of industrial-organizational psychologists to health at work has concentrated on the match between the employee and his or her immediate work setting—either the job itself or its social setting—that is, on individual behavior. From the perspective of the broader organizational setting, there are three additional areas in which industrial/organizational psychology can contribute.

**Program Development**

**Training.** One of the primary methods of addressing health at work has been through the use of some health promotion program or activity. Here again the focus of industrial/organizational psychology in training and development is directly relevant. Although the actual content of such programs may not coincide with the particular expertise of industrial/organizational psychologists, the identification of critical content areas, the selection of training methods, and the evaluation of the training program are all consistent with our expertise. Working with a team of experts in the medical, clinical, and counseling disciplines may be the most likely way in which industrial/organizational psychologists can contribute to the development of health-focused programs at work.

**Needs analysis.** First introduced by McGeehee and Thayer (1963) and further elaborated on by Goldstein (1974, 1982, 1985) and others (e.g., Ford & Noc, 1987), needs analyses were proposed for assessing the training requirements for an entire organization, taking into account current skill and ability levels, projected flows of personnel through the system, and future job demands. In a similar fashion, health needs could be assessed. In this case, the current state of health of the work force and projected changes in its make-up would lead to evaluations of programs and other actions that could be taken to maintain and improve the health of the pool of persons employed by the firm. The techniques for this should, for the most part, be similar to needs analyses developed for other purposes.

**Evaluation**

Contributions to the evaluation of health-focused activities at work are of two types. The first of these is the standard program evaluation. Here skills in research design can be applied at the time that health promotion activities are implemented, and data can be collected over some period of time so that conclusions can be drawn about the program's effectiveness. Like many other program-driven systems in organizations, health promotion programs are severely underevaluated (Terborg, 1986).

A second form of evaluation is that of utility analyses. Methods that have been established for attaching dollar values to job satisfaction and other important behaviors and systems in organizations (see, Casio, 1982; Casio & Ramos, 1986) can be applied to health promotion programs and other health-focused activities to evaluate their dollar value. Such evaluations should prove particularly valuable for assessing the potential economic impact of health benefits systems as well as health-oriented interventions, such as wellness programs and changes in opportunities for control or social support.

**Conclusions**

Industrial/organizational psychology has advanced more quickly as a field and has made its greatest contributions to the discipline of psychology and to the effective behavior of people at work when practical problems, often of crisis proportions, existed. The most dramatic examples of this occurred during the First and Second World Wars when psychology was faced with the need to select, place, and train large numbers of individuals called to
military service and was asked to address the problems of aircraft accidents and soldier morale. More recently, the challenges of integrating the work force and guaranteeing fair treatment of minorities and women have loomed large as societal issues, to which industrial/organizational psychologists have responded and responded well.

My purpose has been to suggest that health issues in the workplace are approaching crisis proportion and deserve attention. Today, the financial impact of health at work is enormous; tomorrow it will be even greater as health costs increase and the pool of persons to whom organizations are financially responsible expands. I believe psychologists in general and industrial/organizational psychologists in particular are well prepared to respond to the need to address health at work. At the same time, I am not suggesting that industrial/organizational psychologists become health psychologists. Rather, my point is that the knowledge base and research skills that have been developed in industrial/organizational psychology since the field was formed are well suited for addressing health at work. To date, industrial/organizational psychologists have tended to sit on the sidelines when it comes to attacking issues of health at work. I have suggested throughout this article that they abandon this stance; in doing so they are likely to make valuable contributions to the study of health issues at work, to the design of settings and practices that have a positive impact on the health of the work force, and to the overall effectiveness of organizations.

REFERENCES


