

they are probably kept where they are convenient. If they are convenient for the adult, they may be easy for the child to reach as well. A young child, if given pills daily, might see no danger in taking the entire bottle. The pervasive use of medication also raises questions about the messages being given, probably inadvertently, to children. If they are accustomed to taking pills and drugs, will they be more open to suggestions that they "try" another—perhaps illicit or inappropriate—drug when it is offered?

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**Smoking in the Workplace:
Review of Critical Issues**

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Synopsis

The relationship among various occupations, smoking, and disease has been studied extensively,

but few investigators have looked closely at smoking in the workplace, particularly among blue-collar workers. The authors discuss the phenomenon of smoking in work settings and suggest reasons why tobacco use has been accepted on the job. The fate of heavy smokers in the wake of workplace smoking bans is considered. The authors discuss the relationship between smoking and work-related stress, particularly among blue-collar workers. The influences of job tasks, workflow, and employee social networks on smoking are examined. The authors suggest that, until recently, work settings have provided little support for cutting back and many opportunities that reinforced smoking habits. Worksite cessation is reviewed briefly, followed by suggestions for improving present worksite-based cessation strategies. The authors pose an agenda for future descriptive and applied research on smoking in the workplace.

THE RELATIONSHIP AMONG occupational hazard, smoking, and disease is long established. Smoking rates of various occupations, from asbestos workers to physicians, have been studied (1–3). Researchers have recognized the importance of the work setting in determining smoking habits (4,5) and the potential of the workplace in fostering smoking cessation (4–6). Smoking is rapidly being curtailed in many work settings (7,8). To date, however, the relationship between smoking and work has been studied in piecemeal fashion. This paper examines smoking in the workplace and considers the influence that the

job setting may have on both smoking continuation and smoking control.

Smoking Norms in the Workplace

Until recently, smoking has been accepted in all but a few work settings. Even eating, a universal need, is typically more socially bounded than smoking. Considering that nicotine is a drug with immediate psychoneurological and physiological effects (9,10), the phenomenon of smoking at work is remarkable. In contrast to smoking, drinking alco-

Work, Stress, and Smoking

'Smoking appears to occur at times and in places that fit social and task patterns of the work environment, but increasing evidence suggests that this fit may be at company expense.'

Physiological aspects of smoking may interact with the demands of the workplace. When the smoker's preferred level of nicotine is not maintained, the user experiences a craving and unpleasant feelings that can impair concentration and performance (23,24). Nonetheless, smoking appears to increase workers' ability to screen out competing stimuli and has been shown to improve performance on certain tasks requiring concentration (11b,25). These findings give some credence to smokers' claims that cigarettes improve their work performance, but the effects of smoking on overall performance are not well understood (15). The benefits of tobacco use may be illusory. External stress may lower nicotine concentration in the blood, resulting in increased craving for cigarettes. Smoking probably only relieves the distress of nicotine withdrawal, but the smoker may believe that cigarettes reduce externally caused stress (26–28).

The workplace is a major source of stress (29–31), and many smokers perceive cigarettes to be a means of reducing stress (32–34). Studies have demonstrated that high and low arousal situations differentially affect the smoking behavior of "high and low arousal" smokers (35). Workers who smoke to relieve tension may view smoking as a necessary means of adapting to the work setting (36,37). Some investigators have suggested that smoking is a form of coping (32), a way of adapting to work-induced stress (38). It is important, however, to distinguish between smokers' beliefs in the stress-reducing properties of cigarettes and the degree to which smoking actually improves performance under stress. One research group found that smokers perceived smoking as relaxing, and that tobacco users experienced a strong desire to smoke under stress (26). But neither the smoking ritual nor nicotine content had an effect on preparation for or actual performance of a psychosocially stressful task.

Smoking habits of "Type A" executives have received considerable attention. Two less-studied groups of workers who may be prone to stress are women and men in pink- or blue-collar jobs. Women, more than men, report using cigarettes to reduce tension (39,40). Analog experiments suggest that women smoke more than men during stressful tasks and that female smokers are more susceptible than male smokers to distraction (37,41). Women also tend to be employed in stressful work environments (29,42,43).

Levi, Frankenhaeuser, and Gardell (44) outlined

holic beverages is virtually never allowed at work stations and is proscribed in the larger work setting except at designated functions or times. Although inhaling is "an exceptionally fast and efficient way of getting a drug to the brain" (11a), it is likely that most people do not perceive tobacco as a mood- or performance-altering substance. In contrast to other chemical substances, including alcohol, tobacco apparently does not impair judgment or most aspects of motor coordination (12). Smoking therefore does not evoke the strong disapproval that would result from using alcohol or other chemical substances on the job. Ashtrays and cigarette machines in offices and factories serve as official sanctions for smoking. Smoking appears to occur at times and in places that fit social and task patterns of the work environment (13,14), but increasing evidence suggests that this fit may be at company expense (8,15).

The movement to protect nonsmokers' rights in the workplace is gaining momentum. Recent developments indicate that smoking may be restricted in virtually all enclosed work settings within a few years (16,17). One result may be that some heavily addicted smokers will suffer irritability (18,19), sensitivity to pain (20), and overresponsiveness to stress (21) when they are forced to abstain for long periods during the workday. As smoke-free work environments become the norm, employers and nonsmoking employees will have to decide how to accommodate nicotine-dependent smokers. For instance, should frequent breaks or convenient smoking areas be provided as freely as restrooms and drinking fountains (22)? If so, will supervisors and nonsmoking workers resent smokers who must leave the work station for a cigarette? Will smoking on the job come to be regarded as a deviant behavior? If so, will offenders be counseled to seek treatment, even as drug and alcohol abusers are persuaded to obtain help? Issues such as these merit consideration during the present rapid transformation of smoking norms in the workplace.

four properties of the work environment that are associated with job dissatisfaction and poor health:

- Quantitative overload—too much work, short deadlines, and repetition;
- Qualitative underload—narrow and one-sided job content, lack of stimulus variation, and lack of opportunities for meaningful social interaction or creativity;
- Lack of control—an inability to influence pace and other working conditions; and
- Lack of social support—inadequate social networks both at home and at work.

Many traditionally female occupations such as nursing, food service, and clerical work fit this stress-associated model (45–47). Women experience additional work stresses due to discrimination and the competing demands of family and career (42,48).

Blue-collar workers have smoking rates that are higher than those of their white-collar counterparts (49,50). Blue-collar workers are often exposed to toxic gases, liquids, and particles. Some of these agents act additively or synergistically with tobacco, contributing to high rates of disease for certain groups of smokers. Less understood are the stress-producing conditions of the blue-collar work environment (51–53). Tobacco use is positively correlated with such on-the-job stresses as strain, anger, workload, fatigue, and fear (36). Although they typically have less responsibility than their white-collar counterparts, blue-collar workers experience increased stress related to danger, job security, tight supervision, boredom, physical strain, and restrictive working conditions (30,54).

The effects of technological innovations on workers' psychological health are disputed. Changing technology may be creating new stresses for non-managerial workers. Some observers have argued that increased use of technology results in reduced control for nonprofessionals, who will spend less time interacting with people and more hours interacting with machines (55). If newly created work environments are more stressful for workers, then advancing technology may have particularly adverse implications for workers who smoke to control stress.

Patterns of Smoking in the Workplace

Smoking is probably related to patterns of stress on the job. From this hypothesized relationship spring several questions worthy of study. Are cigarettes consumed during and after high-stress pe-

riods, for example, when supervisors are present or when production quotas are not met? Can smoking rates be predicted by fluctuating patterns of stress during the day, week, or month? How is smoking related to inactivity and boredom on the job?

Although stress influences smoking habits on the job, workers also maintain rituals or predictable patterns of tobacco use that are unrelated to stress (13,56). Unlike white-collar workers, who are more often free to smoke throughout the workday, blue-collar employees can smoke only under certain conditions. Some jobs are incompatible with smoking, either because of formal proscriptions or the demands of occupational tasks (38,57). Health and safety codes or protective masks may curtail workers' opportunities to smoke. In many occupations, workers may smoke only during transitions or while doing less critical duties.

If patterns of tobacco use are determined by work activities, smoking at the worksite is also regulated by social factors less directly connected to production (58). Although most smokers establish their tobacco habits before they begin full-time work, the social environment of the workplace continues to shape their smoking behavior (59,60). Social factors such as modeling and peer pressure influence the onset, topography, and rate of smoking (61,62). The social aspects of smoking are evident when smokers congregate during meetings, lunchtime, and rest breaks. In this context, smoking becomes the reason for socializing. Nonsmokers find smoke offensive, but until recently, they have been reluctant to risk violating existing norms by voicing their displeasure (63,64). As employers place more restrictions on smoking (65), smokers will increasingly become segregated from nonsmokers. Light and moderate smokers may be inclined to curtail their habit during the workday rather than subject themselves to the inconvenience, isolation, and stigma resulting from locational or temporal restrictions (66). Heavy smokers may become a socially distinct subgroup within the work setting.

The workplace often provides little support for cutting back and may undermine workers' attempts to quit (67). Failed quitters report that social pressure is one of the most important reasons for their return to tobacco use (68,69). Participation in a "smokers' subgroup" may inoculate the smoker from antismoking influences (5,45). The effect of such a group, which may extend to gatherings with fellow workers before and after work, may be particularly powerful for blue-collar workers, who tend to have frequent contact with a restricted number of people (70). Because friends and associates may

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affect smokers' decisions to quit and subsequent success in remaining abstinent (71,72), better understanding of such influences is crucial in designing strategies to decrease smoking among working populations.

Worksite Cessation

Industry-based approaches to control smoking have been underresearched and underutilized, particularly among minority and blue-collar populations (73,74a). Business and industry have humanitarian, legal, and economic motives to help smokers quit (75,76). Social climate, peer support, efficiency, convenience, and communication are characteristics of the work environment that may enhance the feasibility of cessation programs (4,77). Official company policy, increasingly affected by nonsmokers, is perhaps the most important determinant of smoking in the workplace (78). As early as 1980, smoking restrictions were in place in almost half of U.S. businesses (79). A health management consultant claimed that every major employer in the Seattle area either has a smoking policy or is in the process of preparing one (16). According to Weis (65), workplace restrictions and preferential hiring of nonsmokers are common and increasingly frequent business practices. Local and State ordinances—San Francisco and Oregon are prominent examples—are rapidly curtailing smoking in public areas including the workplace (80,81).

Self-help kits, risk assessments, incentive programs, and sponsored cessation clinics are used by a small but growing proportion of American industry (5). A 1981 survey (82) found that 8 percent of California employers offered some kind of smoking cessation activity. Although proximity and incentives may encourage some smokers to try worksite cessation programs, the typical participant will be

less motivated than those attending community-based clinics (5,83). Few blue-collar workers presently use cessation clinics (84,85); they will likely require incentives before they participate in industry-based programs. Workers may feel that personal habits—even those detrimental to their health—are their own business (86). Providing intensive cessation programs for certain high-risk groups such as asbestos workers may be justified, but more effort should be directed toward motivating workers to quit on their own (87). Health experts are beginning to look beyond conventional stop-smoking programs, because most persons who give up cigarettes do so without the help of cessation clinics (71,88,89).

Effective ways of reducing smoking should be in harmony with workers' values, habits, and interests. Some forms of persuasion, such as group incentives or favoring nonsmoking job applicants, have met strong resistance from worker groups and civil liberties advocates (90,91). Japanese-style work groups, increasingly promoted in American business and industry, could generate novel ways of encouraging abstinence (77,92).

Employers might consider special arrangements or individually negotiated contingencies for workers who desire to quit smoking. For instance, a worker in the process of quitting could negotiate flexible hours to avoid having to deal with other smokers before and after work. Two or more workers in the process of quitting might arrange for the same shifts, rest periods, and locker areas, thereby supporting one another while avoiding contact with smokers (93). With permission of the individual, employers might publish names of former smokers as they pass weekly, monthly, and quarterly milestones. Nonsmokers' athletic teams could be outfitted by employers. When nonsmoking policies are instituted, workers could be asked to redesign lounge areas. Games, headphones, and windows might replace ashtrays, cigarette machines, and tobacco-stained furniture. By redesigning work environments for nonsmokers, business and industry could reinforce alternatives to smoking. Locating smoking lounges away from halls and gathering areas may help smokers reduce their consumption, and may facilitate continued abstinence for quitters. Employers could reserve rooms for smokers in the process of quitting. In such places, workers could maintain social supports, sample low-calorie snacks, or obtain nicotine gum.

Stachnik and Stoffelmayr (74a) have piloted novel worksite cessation programs designed to attract the many smokers who would not ordinarily

sign up for cessation clinics. Intervention strategies included lotteries, contracts, and contests between teams of program participants. A potentially controversial element was a mandatory legal agreement authorizing "program staff to determine if a program rule has been broken, and to communicate with any person known to the participant" (74b). As with most smoking interventions, the program has not been attempted with blue-collar populations.

Agenda for Future Research

Investigators have yet to do onsite observational studies of smokers in stressful and nonstressful working conditions. Also needed is a greater understanding of the social aspects of smoking on the job, including effects related to peer pressure, modeling, and social network membership. Investigators might begin by simply observing the phenomenon of smoking in and around the factory, job site, and office. Open-ended interviews with workers and managers might yield material for subsequent investigations employing quantitative data-collection procedures. Observational methods could be used to record social and behavioral patterns relating to smoking on the job. Controlled experiments in large organizations might investigate the effects of peer pressure and job class on workers' smoking behavior.

The functional aspects of worksite smoking merit investigation. Analog designs have been used to study the effects of smoking on cognitive, psychosocial, and motor tasks (9,41). Some of the costs associated with employee smoking have been documented (15,94), but little is known about how smoking affects employee performance, especially among blue-collar workers. Informed by laboratory studies of smoker performance, field researchers might begin to determine what kinds of work are impaired or facilitated by smoking or abstinence.

Applied researchers stand to gain from descriptive studies that look closely at the patterns and determinants of smoking on the job. Naturalistic experiments could trace the effects of changes in management- and worker-generated smoking policies. Controlled cessation experiments could be instituted in companies with multiple sites or segregated units. Onsite studies could determine whether abrupt, forced tobacco abstinence might lower worker performance. Such information will be critical to employers who seek humane policies and programs to protect the health of smokers and nonsmokers. When smoking in the workplace is

better understood, health specialists will be in positions to design creative and effective cessation strategies for the work environment. Until then, the promise of worksite-based smoking cessation is likely to remain unfulfilled.

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