

Changing Patterns of Work Organization in the United States: Safety and Health Concerns and NIOSH Initiatives¹

Steven SAUTER, Ph.D.

Linda ROSENSTOCK, M.D., M.P.H.

National Institute for Occupational Safety and Health

Technological innovation, the growth of service and knowledge work, the economic pressures of globalization and deregulation, and other forces have dramatically reshaped the nature of work in post-industrial countries, including Japan, the U.S., and European countries. In the U.S., companies have responded to these forces by restructuring themselves, becoming flatter and smaller; new management practices involving, for example, self-managed teams have been adopted; and leaner, streamlined production methods, such as “just-in-time” and outsourcing, have been implemented.

These adjustments by industry have had significant effects on the conditions of work and employment in the U.S. The demand for skilled or multi-skilled workers has increased with the growth of information technology and leaner, flexible manufacturing processes that require workers to learn and perform multiple tasks. Supervisory conditions have changed with the introduction of teamwork, the evaporation of middle management, and the trend toward flexiplace or “at home” work arrangements. It has estimated that 15 million workers in the U.S. will be telecommuting by

the year 2002¹⁾. Workload demands continue to grow, and hours of work have increased for all occupations. For example, in the period 1985–1993, the percentage of the nonagricultural, salaried U.S. workforce that worked “long” hours (in excess of 48 hours weekly) grew 30 percent, to over 21 million workers²⁾. Of special concern, jobs have become less stable and secure. One-third of American Management Association firms downsized their workforce in the period 1990–1995³⁾. Complementing this trend, survey data show a doubling (22%–44%) of the percentage of workers with lay-off concerns in the period 1988–1996⁴⁾.² Additionally, alternative employment practices (other than full time, direct hire) are on the rise. For example, temporary employment has increased nearly 400% in the U.S. since the early 1980s⁵⁾, ⁶⁾. Projections are that a quarter of the workforce could be working in non-traditional employment arrangements by the year 2020⁷⁾.

Health and safety implications

There has been insufficient research to ascertain the health and safety risks posed by these recent changes in the organization of

¹This paper was also presented at the European Agency Conference A The Changing World of Work ≅ Oct. 19-21, 1998.

²This information is provided by International Survey Research, a leading global opinion research firm headquartered in Chicago with offices worldwide.

Key words : work organization, job stress, occupational health

Correspondence : Steven Sauter, Chief, Applied Psychology and Ergonomics Branch, National Institute for Occupational Safety and Health, Robert A. Taft Laboratories 4676 Columbia Parkway Cincinnati OH 45226
Email: sls4@cdc.gov

work and employment conditions. However, trends in occupational illness and injury statistics in the last two decades suggest a pattern of effects consistent with intensified organizational demands and stresses in the workplace. Job stress-related disorders have mushroomed since the 1980s. Insurance industry data indicate that related disability due to stress-related illness comprised 13% of all disability claims in 1990—up from 6% in 1982⁸⁾. Data from the United States Bureau of Labor Statistics indicate that disability due to anxiety and stress are currently among the most disabling conditions in terms of lost time, averaging about 20 days lost per incident during the 1990s⁹⁾. Extrapolating from several studies, it can be estimated that approximately 30% of the U.S. workforce is presently working under high levels of perceived stress^{10), 11)}.

Increasing job stress is not the only health indicator of new and intensified organizational demands at work. Within the last decade, the proportion of work-related musculoskeletal disorders has grown to about 60 percent of all occupational illnesses in the U.S.¹²⁾. Although the mechanisms are not fully established, there is now a substantial literature implicating work organization factors (e.g., highly routine or fragmented work, uncertain job future, time pressure, heavy cognitive demands, reduced social support) in the etiology of these disorders^{13), 14), 15)}.

Evidence specifically linking recent work organization and employment innovations to illness and injury risk is also beginning to emerge. Studies in Finland and the U.S. point to increased sick-leave absence, trauma, and musculoskeletal and stress-related disorders among the “survivors” of downsizing^{16), 17)}. Some studies also suggest that so-called “lean production” practices, which attempt to increase productivity through continuous improvement, new inventory systems, and elimination of wasted time and motion, may increase injury risk in the automotive industry^{18), 19), 20)}. (See Landsbergis, Cahill and Schnall, *in press*²¹⁾, for a broader discussion of this issue.) New employment practices associated with efforts to reduce labor costs have also raised concerns. Researchers at the Massachusetts Institute of Technology found, for example, that contingent workers employed in the petrochemical industry were less educated and

experienced than direct-hire workers, and received less safety and health training than direct hire workers (5). An even stronger implication of increased safety and health risk among contingent workers is found in a recent cross-European study showing that, in comparison to permanent workers, “precarious” workers (workers with fixed-term contracts and temporary jobs) have increased exposure to painful or tiring work postures, repetitive tasks, and increased noise at work²²⁾.

NIOSH initiatives to address these concerns

Responding to health and safety concerns in the new organizational environment, NIOSH has established an interdisciplinary team of researchers and practitioners from industry, labor, and academia to develop a national research agenda on the “organization of work” as it relates to occupational safety and health. This initiative is part of a broader, collaborative effort by NIOSH to develop a “National Occupational Research Agenda” (NORA) to guide occupational safety and health research into the next decade, not only for NIOSH, but for the entire U.S. occupational safety and health community²³⁾. Based on input from over 500 individuals and organizations, NIOSH has developed a priority list of 21 topics for research, including the topic of work organization. In the past 18 months, the organization of work team has conferred with industry and labor stakeholders, seeking to identify essential research and other requirements to better understand how work organization is changing, safety and health implications of these changes, and prevention measures. Examples of specific needs under consideration by the team include³⁾:

- # Need to further embed work organization as a discipline in the occupational health field.

- # Need for improved mechanisms for surveillance of changing work organization and effects on job characteristics.

³⁾Because the work of this NORA team is still in progress, these points of emphasis should be regarded as provisional and examples of discussion points, and not final recommendations of the NORA team or of NIOSH.

Need for targeted health effects studies of changing work organization.

Need for increased emphasis on (organizational) intervention research.

Need for improved research methodologies in studies of work organization and health.

As part of the NORA initiative, NIOSH has also accelerated its internal program of research to address causes, effects, and prevention of health and safety risks related to the changing organization of work. For example, NIOSH is collaborating with Boston University in a major study of health effects (among survivors) of downsizing in the nuclear energy industry, and with the University of Minnesota to identify organizational interventions linked to improved employee health and organizational performance among nearly 1000 companies. NIOSH is also collaborating with the American Psychological Association and several universities to develop graduate training programs in work organization and health. At present, three national universities (Bowling Green State University, University of Minnesota, and Kansas State University) have implemented degree programs and curricula in work organization and health under this initiative. In March 1999, NIOSH will join with the American Psychological Association and over 30 other health organizations from the U.S., Europe, and Asia to host an international scientific conference on work organization and health in a global economy.

Conclusions

Recognition and concern that work organization is changing in ways that may increase illness and injury risk surpass present capacity for surveillance of these changes, for epidemiologic study of safety and health effects, and for promulgation of guidelines and best practices for prevention. Working in partnership with stakeholders, NIOSH is addressing these shortcomings through an accelerated program of research (both intramural and extramural) and training in work organization and health.

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