CDC Home | Search | Health Topics A-Z

MMWR

Weekly

October 03, 1986 / 35(39);613-4,619-21

Leading Work-Related Diseases and Injuries

The National Institute for Occupational Safety and Health (NIOSH) has developed a suggested list of 10 leading work-related diseases and injuries and has described the first nine categories on that list.* A discussion of the tenth and final category, Psychological Disorders, appears below. PSYCHOLOGICAL DISORDERS

There is increasing evidence that an unsatisfactory work environment may contribute to psychological disorders. Studies have shown that factors contributing to an unsatisfactory work environment may include work overload, lack of control over one's work, nonsupportive supervisors or co-workers, limited job opportunities, role ambiguity or conflict, rotating shiftwork, and machine-paced work (1-4). Psychological disorders that can result from such factors may be classified as a) affective disturbances (e.g., anxiety, irritability), b) behavioral problems (e.g., substance abuse, sleep difficulties), c) psychiatric disorders (e.g., neuroses), and d) somatic complaints (e.g., headache, gastrointestinal symptoms). In addition to psychological disorders, stressful working conditions may have a systemic influence, possibly affecting the etiology and/or prognosis of other disease states, as suggested by recent studies of stress-related immunologic suppression (5).

Although data bases currently available for determining the extent of work-related psychological disorders are limited, several indicators suggest that these problems impose substantial health and financial costs in the United States. A recent study in California showed that claims for the development of "work-related neuroses" more than doubled during 1980-1982; claims for all other disabling work-related injuries during the same period actually decreased by about one-tenth (6). A study of representative medical claims throughout the country showed that during 1980-1982 claims for "mental stress" that developed gradually (i.e., a chronic problem unrelated to a single traumatic incident or to any physical work-related disorder) accounted for about 11% of all occupational disease claims (7). Average medical costs and indemnity payments in 1981-1982 for these forms of mental stress actually surpassed the average amounts for other occupational diseases (7). The American Psychiatric Association now lists occupational stress in its Diagnostic and Statistical Manual as a subcategory of the major diagnostic axis of "psychosocial stress" (8).

There are increasing data on the relationship between specific working conditions and psychological disorders. For example, in a questionnaire survey of over 2,000 workers in 23 different occupations, strong occupational differences were found in psychosocial job stressors and in somatic and affective complaints (1). Ratings of boring, repetitive job tasks and role ambiguity were more prominent among several classes of blue-collar workers (e.g., assembly-line workers, fork-lift truck drivers, and machine operators) than among white-collar professionals (e.g., professors and family physicians). The most satisfied occupational groups were physicians, professors, and white-collar supervisors. Groups experiencing the highest levels of job stressors and their resultant ill effects were assemblers and relief workers on machine-paced assembly lines.

NIOSH investigators ranked 130 occupations by rate of admission to community mental health centers in Tennessee to determine the relative risk of psychological or stress-related disorders by occupation (9). Heading the list were jobs in health care, service occupations, and blue-collar factory work--which tend to be characterized by stress-producing conditions such as a lack of control over the job by the worker, repetitive work, shift work, and a responsibility for others.** In other studies, workers on night and rotating shifts (including the health-care occupations) reported more disturbances of sleep; altered eating habits; and higher rates of visits to clinics, absences due to sickness, and on-the-job injuries than did those on fixed day shifts (10-12).

Work environments characterized by technological innovation have also been investigated; a major focus has been on office work influenced by the introduction of computers (13,14). "Adverse working conditions" (e.g., poorer physical environment, reduced job control and social support) tend to be reported more frequently by workers using new-technology office equipment such as video display terminals. Some of these conditions have been linked to chronic stress-related disorders (4,15).

Worksite studies by NIOSH have revealed that job stresses may contribute to acute disturbances among groups of workers, including those termed "mass psychogenic illness" (16). The sudden appearance of symptoms, usually in response to some "trigger factor" such as a strange odor, may result in spread of the apparent "illness" throughout the plant, with symptoms such as headaches, dizziness, and nausea. Investigations often fail to detect specific physical or chemical causative agents. However, factors such as heavy work load, strained labor/management relations, and physical discomfort at work may be present and related to the reporting of symptoms.

Emerging trends in technology, the economy, and demographic characteristics of the work force may lead to increased risk for psychological disorders. For example, a 26% increase is projected for employment in the health services, an area that may be associated with elevated risk (9, 17). Computers and robots are expected to affect seven million factory jobs and 39 million office jobs (18). According to some forecasters (18), possible consequences may include job displacement, reduced skill requirements, and lower-paying jobs. It has been projected that in the next decade, nine of every 10 new jobs will be in the service sector (19). Routine service jobs may not provide the compensation and benefits associated with the more traditional industrial and manufacturing jobs (18). Six of 10 new jobs in the next decade will be filled by women (19), and dual job/home role demands and constrained occupational opportunities for women may result in an adverse impact on their mental health. Reported by Div of Biomedical and Behavioral Science, National Institute for Occupational Safety and Health, CDC.

Editorial Note

Editorial Note: A prevention strategy for psychological disorders should take into account both the causal mechanisms and the factors that perpetuate these disorders. Work-related psychological disturbances are known to be influenced by both the physical and psychosocial characteristics of given job situations. Moreover, these factors operate in concert with factors unrelated to the job--such as life events; familial demands and support; and the traits, capacities, and needs of the workers themselves (e.g., personality, age, sex, experience/learning). The interaction of these variables is complex, and the relative influence of each is not thoroughly understood. Nevertheless, approaches to prevent work-related psychological disorders should still be taken using the information currently available.

Stress-reduction techniques (e.g., meditation, biofeedback, muscle relaxation, cognitive restructuring, and anxiety management) have been taught to both blue- and white-collar workers in worksite training sessions. Follow-up studies have shown decreases in psychophysiologic activity (e.g., muscle tension and blood pressure levels) and reductions in subjective reports of anxiety, sleep disturbances, and other health complaints with each technique (20). However, improvement in all these parameters persisted less than 3 months after training ended.

Stress management treats only the symptoms of the problem--not the cause. Therefore, efforts to control risk factors at the worksite are also important. Some previously described suggestions for controlling worksite risk factors for psychological disorders are listed below (21). These suggestions appear to have merit for reducing work-related psychological disorders, but further evaluation and study are needed for a complete understanding of their impact.

1. Work schedule. Design work schedules to avoid conflict with demands and responsibilities unrelated to the job. Schedules for rotating shifts should be stable and predictable, with rotation in a forward (day-to-night) direction.

2. Participation/control. Allow workers to provide input for decisions or actions affecting their jobs.

3. Workload. Ensure assignments are compatible with the capabilities and resources of the worker, and allow for recovery from especially demanding physical or mental tasks.

4. Content. Design tasks to provide meaning, stimulation, a sense of completeness, and an opportunity to use skills.

5. Roles. Define work roles and responsibilities clearly.

6. Social environment. Provide opportunities for social interaction, including emotional support and help directly related to one's job.

7. Future. Avoid ambiguity in matters of job security and career development. In addition to evaluation of these suggested actions, efforts are needed to advance the understanding of work-related psychological disorders and of methods appropriate for their control, including:

1. Improving the systems for surveillance of psychological disorders in the workforce as related to working conditions.

2. Improving research techniques for investigating stressful working conditions and their health consequences.

3. Improving training of occupational health professionals and workers in recognizing stressful workplace conditions and signs of worker stress and in effecting remedial measures.

4. Furthering the development of mental health components in occupational health and safety programs.

References

1. Caplan RD, Cobb S, French JR, Harrison RV, Pinneau SR. Job Demands and Worker Health; main effects and occupational differences. Cincinnati, Ohio: National Institute for Occupational Safety and Health. (DHEW {NIOSH} publication no. 75-160), 1975.

2. Holt RR. Occupational stress. In: Goldberger L, Bresnitz S, eds. Handbook of Stress. New York: The Free Press, 1982.

3. Beehr TA, Newman JE. Job stress, employee health, and organizational effectiveness: a facet analysis, model, and literature review. Personnel Psychology 1978;31:665-99.

4. Karasek RA. Job Demands, job decision latitude, and mental strain. Journal of Occupational Behavior 1979;24:285-307.

5. Kiecolt-Glaser JK. Stress and the immune function. In: Measures of job stress: a research methodology workshop. Workshop sponsored by NIOSH, New Orleans, Louisiana, 1985.

6. California Workers Compensation Bulletin, April 20, 1983.

7. National Council on Compensation Insurance. Emotional stress in the workplace-new legal rights in the eighties. New York 1985.

8. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, 3rd ed. Washington, DC: Amercan Psychiatric Association, 1980.

9. Colligan MJ, Smith MJ, Hurrell JJ Jr. Occupational incidence rates of mental health disorders. J Human Stress 1977;3:34-9.

10. Smith MJ, Colligan MJ, Frockt IJ, Tasto DL. Occupational injury rates among nurses as a function of shift schedule. Journal of Safety Research 1979;11:181-7.

11. Colligan MJ, Frockt IJ, Tasto DL. Frequency of worksite clinic visits and sickness absence among nurses as a function of shift. Applied Ergonomics 1979;10:79-86.

12. Smith MJ, Colligan MJ, Tasto DL. health and safety consequences of shift work in the food processing industry. Ergonomics 1982;25:133- 44.

13. Smith MJ, Cohen BG, Stammerjohn LW. An investigation of health complaints and job stress in video display operations. Hum Factors 1981;23:387-400.

14. Sauter S, Gottlieb M, Jones C, Dodson V, Rohrer K. Job and health implications of VDT use: initial results of the Wisconsin-NIOSH study. Communications of the ACM 1983;26:784-94.

15. House JS, Wells JA. Occupational stress, social support, and health. In: McLean A, Black G, Colligan M, eds. Reducing Occupational Stress: Proceedings of a Conference. Washington, DC, 1978. (DHEW publication no. 78-140.)

16. Schmitt N, Colligan MJ, Fitzgerald M. Unexplained physical symptoms in eight organizations: individual and organizational analyses. Journal of Occupational Psychology 1980;53:305-17.

17. Silvestri GT, Lukasiewicz JM. Occupational employment projections: the 1984-95 outlook. Monthly Labor Review, November 1985:42-57.

18. Bezold C, Carlson RJ, Peck JC. The future of work and health. Dover, Massachusetts: Auburn House, 1986.

19. Bureau of Labor Statistics. Bureau of Labor Statistics News. Washington, DC: Department of Labor, November 1985.

20. Murphy LR. Occupational stress management: review and appraisal. Journal of Occupational Psychology (in press).

21. Levi L. Preventing Work Stress. Reading, Massachusetts: Addison- Wesley, 1981.