Fig 2. Lifting into a crib.

DISCUSSION

Many of the tasks perceived and rated as physically stressful involved body postures that exerted large compressive and shearing forces against the lower lumbar vertebral discs. The tasks rated as most physically stressful by those interviewed were lifting tasks.

To decrease compressive and shear forces when lifting, Rodgers recommended that the worker not twist the back; keep feet apart with one foot in front of the other for balance; keep the load close to the lifter's body; and lift when the load was 10 to 50 in. above the floor.[3]

An ergonomic approach which identifies stressful tasks, determines methods to change task demands, and implements these changes is necessary to prevent musculoskeletal problems resulting from high compressive and sheer forces.[5]

On the basis of responses of workers interviewed and observed, the following recommendations are presented to help day-care workers reduce the physically stressful tasks necessitated by their jobs:

1. Raise the level of awareness among workers and supervisors that lifting, squatting, bending, and carrying can be hazardous and that physical stress resulting from these hazards can be reduced.
2. Decrease the job demands of these physically stressful tasks by studying the tasks in depth and testing and evaluating various approaches.
3. Use low, self-help toilets or step stools up to the toilet.
4. Use small chairs with good back support for workers to replace squatting and bending for feeding, playing, and interaction with the children.
5. Use regular-height sinks with recessed steps or a stool for the children.
6. Use cribs that have one side that can be lowered for placing the child into and out of the bed.
7. Expand the opportunities for workers to improve their physical fitness by participation in wellness and fitness programs.
8. Have two people work together to put a child in a push cart.

Day-care workers should also ask themselves the following questions: Do the tables have to be so low? Can the cots be stored in a different manner? Is job rotation a possibility so that workers care for small children for several weeks and then rotate to care for older children for several weeks?

As a result of the responses given by the day-care workers and the observations made by the author, it is strongly recommended that all those who work in the day-care field carefully evaluate their work practices and make ergonomic changes that will decrease the demands of the job. Through this approach, it is anticipated that the physical stress of common tasks can be decreased significantly.

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Occupational Health and Safety Issues in Child-Care Work*

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Data from the Census Bureau indicate that there are approximately 8 million children under the age of 5 who have working mothers. All but an estimated one-twelfth of these children receive care during the workday from adults other than their parents.[1] A rapidly expanding child-care industry has emerged to fill the child-care needs of these working parents. The expansion is expected to continue throughout the decade; employment in the child-care industry is projected to grow at a rate of 2.2% per year through the 1990s, as compared with a 1.3% growth rate for the entire economy.[2]

The growing number of child-care workers is of concern from an occupational safety and health perspective. First, child-care work is stressful with regard to wage and benefit issues. Child-care workers earn less than two-thirds the salary of the rest of the labor force; few are covered by workers' compensation and unemployment compensation or receive other types of common employment benefits (eg, paid overtime).[3] Second, a number of work hazards and stressors in child-care work can have a direct impact on the workers' health. To date, the health risks of this occupation have received little attention by researchers, and little is known about the prevalence and extent of different types of work hazards. However, recent studies are providing a glimpse at some of these hazards and their effects on workers. In the Occupational Safety and Health in Day Care session of the International Conference on Child Day-Care Health, seminal work was presented on three classes of occupational health hazards: communicable diseases, occupational stress, and ergonomic hazards. The authors included Graville,[4] Curbow,[5] Kushnir,[6] and Owen.[7] A brief summary of the presentations at this session follows.

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*See also "Occupational Health and Safety Issues for Child-Care Providers," page 1072.

COMMUNICABLE DISEASES

Graville[4] pointed out that little research has examined the problem of infectious diseases for workers in child-care settings. Current recommendations for the prevention of these diseases stem from research on communicable disease transmission routes, disease incidence among children in group-care settings, and characteristics of these group-care settings. In such settings, primary routes of disease transmission are the respiratory and fecal-oral routes. Inadequate hygiene (eg, insufficient hand washing) and inadequate isolation procedures for sick children all contribute to the spread of infectious diseases to child-care workers. Unfortunately, infectious diseases contracted from children in group-care settings are not always merely a temporary inconvenience to the workers. Infectious diseases that produce relatively mild symptoms in children may produce quite severe symptoms among adults (eg, chicken pox). Additionally, some common childhood infectious diseases pose serious risks for the fetus of a pregnant child-care worker (eg, rubella and cytomegalovirus). Thus, it is important that measures be taken to greatly reduce transmission of infectious diseases within the child-care setting. Graville recommended the following preventive measures: ongoing, regular health assessments of staff; exclusion of sick children and staff from the child-care setting until they are no longer ill; separate staff assignments for food preparation and for diapering; and an emphasis on hand washing for both staff and children.

OCCUPATIONAL STRESS

Little is known about the types of job stressors encountered by child care workers and the impact of those stressors on their physical and psychological health. We do know that a number of factors present in child-care work are stressful. For example, responsibility for others is a potent stressor, and frequent face-to-face interactions with others play a important role in burnout, a state of emotional, physical, and cognitive exhaustion resulting in loss of interest in the job and the clients.[8] However, the degree to which these stressors influence a worker depends upon a number of other factors (eg, resources, social support, work load) present at the work place. These factors may vary significantly for different types of child care workers (eg, suburban and urban child-care providers, family child-care providers, and day-care center workers).

Curbow et al[6] described the in-depth interviews with urban and suburban family day-care providers conducted to determine how these two groups differ in terms of their resources and work stressors. Important quantifiable differences between the two groups were found. Urban workers had more experience providing child care, were more likely to view their work as a small business (ie, professionalism), were more comfortable with their provider role, and were more likely to have had special courses in child care. The suburban workers were more highly educated and more likely to have young children of their own. Because many of the suburban child-care providers had worked before having children, they felt that the child-care job resulted in a reduction in status. They were less likely to have taken special courses in child care and reported lower levels of professionalism. The differences in resources and risk factors between these two groups suggest that stress interventions will be most successful when they are tailored to the special needs of each subgroup of child-care workers.

Interventions to reduce stress responses among child-care workers may be highly effective. Kushnir[6] reported on the results of a stress- and burnout-prevention training workshop that was designed to provide new coping strategies for dealing with chronic stress among directors of day-care centers in Israel. Center directors may be particularly susceptible to the effects of stress because they bear responsibility for the physical and emotional well-being of both children and staff. The goals of the workshop were to reinforce psychological coping resources to make directors more resilient to potential and existing sources of stress and to prevent chronic exhaustion. The workshop took place weekly for 10 weeks to ensure better assimilation of new skills. Immediately after the workshop, participants reported less depression and somatic complaints, greater life satisfaction, and significant positive changes in resources (eg, self-efficacy, assertiveness, anger control). These positive changes were still evident 6 months later, indicating that the new stress-control skills had been incorporated into the day-care center directors' set of coping skills.

ERGONOMIC HAZARDS

No research has been found in the literature that has focused primarily on the ergonomic hazards involved in child-care work. Some of the first work in this area was presented by Owen,[7] who reported the results of an observational study focused on the hazards related to back injury in child-care work. Risk factors prominent in jobs where there is a high frequency of back injuries are prevalent in child care work. These risk factors include lifting, bending, stooping, squatting, and carrying loads. Examples of each include lifting children up onto a diapering table or into and out of carts, strollers, high chairs, and walkers; bending down to help children wash hands at a sink placed at child height; squatting to interact with a child at face level; and carrying and holding children and child-care supplies or play equipment. Owen stated that initial emphasis on preventing injuries needs to be placed on raising the level of awareness among workers and supervisors about lifting hazards in their work place. In addition, simple interventions can greatly reduce the risk of back injury to staff (eg, placing sinks at adult height with steps for the children and providing short chairs with good back support for child-care workers to use while feeding children at child-sized tables and while interacting with children).

CONCLUSIONS

Child-care work obviously contains a range of health and safety hazards for the care providers. We are only beginning to delineate these hazards, and determine their prevalence and seriousness in different types of child-care work. Only with the development of systematic information on health and safety hazards in child-care work can we formulate the most effective types of interventions to reduce or prevent these hazards. The need for such information may be crucial because of the potential link between the health of child-care workers and the health of the children in their care.

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