Research Suggests Multiple Reasons for Health Care Worker Injuries

In the health care sector, work-related musculoskeletal injuries are the most common and costly occupational health and safety issue. However, health care workers are an understudied group. The Ph.D. research work of Mieke Koehoorn has led to the consideration of factors such as work organization and the role played by the individual alongside the traditional biomechanical issues. She has also recommended that steps be taken to increase job control, support options, and resource availability for health care workers.

After many years working in the health care industry in B.C., Koehoorn, the Institute’s Mustard Fellow (see page 2), wanted to understand why health care workers have upper and lower-body musculoskeletal injuries. Simply believing that it was from all the physically demanding tasks health care workers do did not seem to be the full story. There were certainly biomechanical reasons, but she also found that factors relating to work organization, together with individual factors, were important.

Claims Among Health Care Workers, Koehoorn examined three aspects of a health care worker’s life that could contribute to musculoskeletal injuries. These were adverse work organizational factors such as low job control, low work support, high job demands or time pressures, and high levels of workload. She also looked at how the design of the physical workplace, awkward postures, and the continual lifting of patients contribute to musculoskeletal injuries. As well, she looked at the individual...
characteristics of the workers to see whether they were contributing factors. There is no doubt that workers do a lot of necessary but repetitive and physically demanding tasks in a health care setting, such as lifting and bending during patient care, data entry of health records, cleaning of equipment and patient rooms, and the filling of hundreds of food trays. There is an increase in paper work and a higher demand for detailed record keeping and reporting. Many of these tasks lead to awkward postures and back and neck problems.

“But, organizational restructuring can also be a cause of stress. On the large scale, the changing health care system is a source of stress. There are departments closing and hospital mergers. The layoffs in the health care industry have also led to feelings of job insecurity.”

“The way in which work is organized can also be a risk factor,” says Koehoorn. “Work organization factors are the more global influences of work structures and processes that may affect the health of workers. They include such factors as time pressures, workload levels, social structures or support and control over work decisions.”

“For example, organizational scheduling that determines when you have to do certain functions by a specified time can relate to back injuries. Within a hospital or long-term-care nursing home patients have to be bathed, fed, and exercised. They must take their naps, receive medication, or go for tests within specified time periods, and that puts a lot of strain on health care workers during certain times of the day.”

“It is difficult for workers to negotiate their schedule to moderate the demands of the job over the work day. The health care workers don’t always have the ability to balance these activities throughout the day. They end up having peak times during the day when they are extremely busy and must meet organizational deadlines, and this may be associated with musculoskeletal injury.”

**Four Year Study**

For four years, Koehoorn followed 4,020 health care workers in an acute-care hospital in B.C. The group included clerical workers, dietary aides, housekeepers, pharmacists, and physiotherapists, as well as nurses.
“Health care workers are an understudied group,” she says. “Most of the research on musculoskeletal injury, and occupational health in general, has been on industrial workers. But health care workers are becoming a priority. Their health is now seen as integral to the delivery of good health care.”

Moreover, in the health care sector, work-related musculoskeletal injuries are the most common and costly occupational health and safety issue. It is possible that the recurrent and chronic nature of musculoskeletal injuries obscures their impact on the population as a whole, and thus reduces their perceived importance when compared to rare occupational diseases or those associated with mortality on the job.\(^1\)

Koehoorn was interested in looking at how health care workers were affected by the control they had over their jobs, the demands they experienced, the amount of overtime they were doing, the amount of sicktime in the department (which would increase the workload of those on duty), and just how busy they were. This workload factor was quantified by looking at measures such as how many kilograms of laundry were processed in a month, how many meals were prepared in the kitchen, the number of visits made to the clinic, the number of patient days, and the number of tests completed in the laboratory.

Interestingly, Koehoorn found a difference between the factors associated with lower body injuries, and those related to upper body injuries. Lower body injury seems to be primarily associated with ergonomic factors (e.g., too much lifting from awkward angles), although work organization factors were also important. But upper body injury (neck, shoulders and arms), seems to be equally associated with a combination of ergonomic factors, individual factors, and work organizational factors.

“There are multiple risk factors for musculoskeletal injury. Lower job control and support, and high workload due to department sick time, are examples of organizational factors that seem to relate to these injuries. Perhaps it is the unexpected surge of workload when someone is off work ill that is an important component of increased workload levels.”

**Difficult Relationship**

“It’s difficult to work out the relationship between organizational factors and stress,” says Koehoorn. “The one thought is that work stress can directly cause muscle pain and discomfort. On the other hand, it’s possible that stress factors interact or mediate other risk factors such as the physical demands of a job, and this can lead to pain and discomfort.”

**RELATED RESEARCH**

**How are nurses doing?**

The Institute is researching how nurses in acute-care hospitals are managing in today’s restructured health care system. The health care system has experienced a decrease in staffing and an increase in the number of patients under nurses’ care.

As a result, nurses have become a group that is considered at particularly high risk for injury and illness. The risk is thought to come not only from increased physical demands, but also because the restructuring itself has increased stress levels in the workplace.

This study is part of a much bigger survey on registered nurses that is being conducted in Pennsylvania, Alberta, British Columbia, and Ontario, as well as in England, Scotland and Germany. The Institute’s component of the study is designed to examine if there is any relationship between nurses’ health and the workplace psychosocial environment.

Institute scientist Mickey Kerr and others are partnering on this study with Dr. Judith Shamian, Donna Thomson, and Dr. Linda O’Brien-Pallas from the Faculty of Nursing at the University of Toronto. The study has been funded by competitive research grants from the WSIB and HEALNet (MRC).
Koehoorn concluded her study with some intervention recommendations to increase the amount of control that health care workers have over their work activities and tasks, to improve co-worker and supervisor support, and to provide additional resources during periods of high sick time within the department.

**Future Work**

The next research project that Koehoorn is embarking upon will also be looking at the relationship between work organization factors and musculoskeletal injuries, but will be investigating how general health care costs and utilization rates for employees with a musculoskeletal claim differ from those without a claim and from those with a non-musculoskeletal claim. The research will involve a cohort of approximately 5,000 health care workers from one large acute-care facility in the lower mainland of British Columbia.

The expectation is that the findings from the study will provide occupational health and safety decision-makers with a comprehensive profile of risk factors for the development, implementation and evaluation of prevention strategies. Findings will also provide workplace, industry and government decision-makers with evidence upon which to set priorities and allocate resources to address the burden of musculoskeletal disorders within the health care sector.

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**Sources**


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**Feedback on InFocus**

**Future issues of InFocus**

will provide insight into contemporary issues of workplace safety and health as they relate to our audience. Along with healthcare providers, we will focus on researchers and policy makers, as well as employers, employees and other workplace parties.

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