SYNOPSIS

KEY POINT SUMMARY

OBJECTIVES

The objective of this study was to evaluate the long-term efficacy of patient-handling devices to address musculoskeletal injuries in nursing personnel in different healthcare facilities.

DESIGN IMPLICATIONS

The installation of patient-handling devices may involve design decisions; their use and implementation are a policy matter.

Long-term efficacy of an ergonomics program that includes patient-handling devices on reducing musculoskeletal injuries to nursing personnel

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Key Concepts/Context

The Bureau of Labor Statistics, according to the authors, reports that nursing staff face musculoskeletal injuries (MSDs) in all types of healthcare facilities. Nurse aides (NAs) in particular have the highest rate of staying away from work because of these injuries. Authors point to literature that attributes lower back and shoulder pain and injuries to the manual handling of patients – lifting and transfer. Studies also indicate that patient-handling devices have been effective in reducing MSDs in nursing personnel. A comprehensive ergonomic intervention was introduced in six long-term care (LTC) facilities and in a chronic care hospital (CCH). For this study the intervention program was evaluated for effectiveness vis-à-vis MSDs in nursing personnel at the above facilities. The study showed that patient-handling devices are very effective in reducing injuries, lost workdays, modified-duty, days and workers' compensation claims associates with patient handling.

Methods

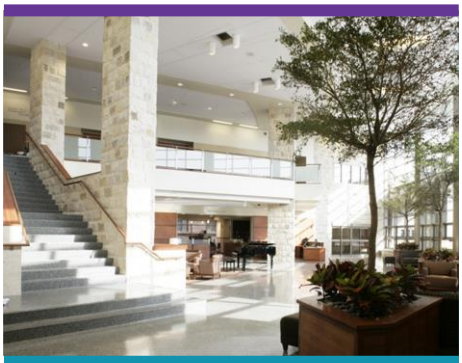
This study involved a pre- and post-intervention evaluation of six LTC facilities and one CCH. The patients in all facilities were a mix of dependent, extensive assist, minimum assist, and supervised residents. At the time of the study ergonomic interventions were already in place in three facilities and were developed and introduced in the other four. The participatory ergonomics program with a focus on no-manual-lifting was implemented at these facilities and involved (1) developing a well-represented team, (2) selecting and purchasing patient-handling devices for individual teams, (3) training of nursing personnel in using the devices, (4) matching patient with device, and (5) monitoring the use of the devices. The patient-handling devices purchased included portable total-lift hoists for transferring non-weight-bearing patients, portable sit-stand hoists for transferring partial-weight-bearing

patients, walking belts with handles for transferring fully weight-bearing patients, shower chairs for toileting and showering, shower gurneys, friction-reducing sheet for bed, friction-reducing sheet and walking belt for wheelchair, and ramp-type weighing scales. Data collection took place during and after interventions. For the facilities that purchased the devices, the following data was collected: during the intervention period, 12 NAs and nurses (simulating caregiver and patient) rated the devices for back and shoulder injuries and for patient comfort. Post-intervention data pertained to patient transfer time, perceived exertion to back and shoulders (for nursing personnel), perceived comfort and perceived safety (from patients). The three facilities that already had the devices provided data pertaining to staff injury and program cost. The pre-intervention injury data varied in availability from 29 to 54 months and the post-intervention data varied from 36 to 60 months. Data were provided by the facilities from their OSHA logs and insurance records, and pertained to patient-handling injuries, lost workdays, modified-duty days, and workers' compensation costs associated with patient-handling injuries.

Findings

The study yielded the following findings:

- The number of patient-handling injuries, lost workdays, modified-duty days, and workers' compensation costs was significantly lower in the post-intervention period, compared to the pre-intervention period. ($P<0.001$).
- Overall for all facilities there was a significant reduction in (all $P<0.001$)
    - Patient-handling injuries by 59.8%
    - Lost workdays by 86.7%
    - Modified-duty days by 78.8%
    - Workers' compensation costs by 90.6%
- In six facilities, rates of patient-handling injuries ($P<0.05$) and workers' compensation costs ($P<0.001$) were significantly lower post-intervention.
- Rates of lost workdays were significantly lower post intervention in all seven facilities ($P<0.001$)
- Rates of modified-duty days decreased significantly ($P<0.001$) in four facilities and increased in one facility (data were available for five facilities only).
- The mean payback period in terms of the cost of the devices and the cost incurred for workers' compensation was 15 months for six facilities.
- On comparing the patient-handling and non-patient-handling injuries for pre- and post-intervention periods it was seen with regard to the non-patient-handling
    - Number of injuries remained the same
    - Number of lost workdays decreased
    - Modified-duty days and workers' compensation costs increased
- Post-intervention perceived exertion, comfort, and safety ratings



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  - Perceived stress to lower back and shoulders rated by nursing personnel between light and very light
  - Devices were rated to be comfortable and safe by three of four patients
  - The patient-handling device, walking belt with handles, was rated as comfortable and safe by over 80% of patients and the friction-reducing sheet by 59%
- During the intervention period, the devices were compared with the manual method for patient transfers and it was found that
  - The devices were rated as less stressful on
    - Lower back ($P<0.001$), shoulders ($P\leq0.008$), wrists ($P\leq0.005$)
  - Total lift and sit-stand lift were comfortable ($P\leq0.007$) and safe ($P\leq0.01$)
  - The walking belt with handles was rated as safer ($P<0.001$)

Limitations

The authors considered the absence of an external control group to be a limitation.

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