The Effect of Job-specific Occupational Health Education Program on Prevention of Work-related Musculoskeletal Back Injury

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Introduction:
Work-related musculoskeletal disorders are a common health problem and a major cause of disability (Bernard, 1997). The majority of work-related musculoskeletal disorders consist of sprains and strains of the trunk, particularly the back. Back injuries account for more than 24% of all work-related musculoskeletal disorders and are commonly caused by overexertion while handling/managing objects, equipment, or other people (U.S. Bureau of Labor Statistics, 2002) which refers to manual materials handling. Studies have shown that work-related musculoskeletal injuries arise from manual materials handling (Lin et al., 2006). In Hong Kong, injury while lifting or carrying loads is the second highest cause of occupational accidents and constitutes 19% of the total (Labor Department of Hong Kong, 2013). Construction workers are at significant risk of work-related musculoskeletal injury as they are frequently engaged in different degree of manual materials handling. Several specific reviews about the preventive strategies of work-related back injury have been published. These strategies consist of ergonomic intervention (Westgaard & Winkel, 1997), physical activity (Dishman et al., 1998), use of lumbar support (Jellema et al., 2001), and education (van Poppel et al., 1997). All of these involve a teaching-learning process. The success of an intervention to cause a behavior change depends on how to disseminate the message, to make it has an impact to the participants, and to help them take some course of preventive action. The purposes of this study were to examine the effect of individual job coaching and use of participatory ergonomics principles in developing a job-specific occupational health education program to prevent work-related musculoskeletal back injuries during manual materials handling among construction laborers.

Methods:
Two hundred and five construction laborers were recruited by 3-stage cluster sampling process and randomly assigned to receive different education programs on manual materials handling. Control group was given a conventional program, whereas experimental group received a job-specific program developed under participatory ergonomics principles. Outcome measures include changes of knowledge and practical skills in manual materials handling at the end and six months after the training compared to baseline assessment; program evaluation survey; and 1-year cumulative incidence of new musculoskeletal back injuries between experimental and control group.

Results:
The results of two-way repeated measures analysis of variance test showed that there was a statistically significant group difference in the knowledge and practical skills on manual materials handling after training (P <0.0001). Those participants in the experimental group receiving a job-specific occupational health education program showed higher scores than those in control group. Furthermore, the results from 1-year cumulative incidence revealed a significantly lesser number of first-time reports of work-related musculoskeletal back injuries in the experimental group.

Discussion:
These results indicate that job-specific education is an effective preventive strategy for work-related musculoskeletal back injury. To be effective at injury prevention, workplace health education programs need to attract the attention of the participants and be relevant to them. In addition, the starting point for the occupational health education program should include a formal planning stage, which actively involves all major stakeholders including managers, safety officer, and workers in the workplace. Such a partnership
ensures that an intervention is both relevant and acceptable and encourages participant ownership of the program, which boosts sustained participation.

References


