Sustainable Improvement in Work-related Musculoskeletal Disorders After an Ergonomic Intervention Program in Community Nurses

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Introduction
Community nurses are at risk for work-related musculoskeletal disorders as they have to visit patients at home while carrying a heavy backpack and frequently have to work in constrained environments and adopt awkward postures. An intervention program with the participatory ergonomics approach has been implemented since 2007 in AHNN. The program was designed by physiotherapists of NTEC and the Hong Kong Polytechnic University, with collaboration of the NTEC Community Nursing team. Preliminary results, right after the program showed significant improvement in the intervention group, and the results were presented in HA Convention 2010. This paper presented the results at one-year after the intervention.

Objectives
The present study aimed to develop a specific and effective intervention program for these community nurses to address problems in their physical workloads.

Methodology
The study was carried out from mid-2007 to mid-2009. All participants underwent a baseline assessment period of 3 months before participating in the intervention program. The intervention program consisted of group and individual onsite ergonomic training, equipment modification, exercise training (Figure 1) and computer workstation assessment conducted by physiotherapists. The program empowered the nurses by showing them how to solve the highly variable ergonomics problems they faced at patients’ home or (de) aged home(s), with the assistance of audiovisual aids. It also empowered the nurses to solve their own ergonomics-related problems in the future (Figure 2). The intervention program lasted for about 3 months, and nurses were evaluated at pre- and post-intervention (6 months apart) for outcome measures, which included musculoskeletal symptom scores, functional outcome measures, rate of perceived exertion (RPE), perceived physical and psychosocial risk factors of work, and flexibility and grip strength measures. The nurses were evaluated against before one-year follow up for the same outcome measures.

Result & Outcome
There were no significant changes for most of the dependent variables after the (initial) 3-month observation period in the pre- and post-intervention comparisons. Musculoskeletal symptom scores were significantly reduced in major body regions such as neck, back, and shoulders (p < 0.001). Functional outcome measures also showed significant improvement in the neck, back, upper limb and knee regions. Physical and psychosocial risk factors, as well as RPE also reported significant declines after the intervention program. At one-year follow-up, the significant post-intervention improvements in pain and functional outcome measures were maintained in the nurses (Figure 3). The results showed that the present intervention program is effective in reducing the musculoskeletal disorders in nurses on a long-term basis. It is highly recommended that all community nursing teams should adopt this program as part of their occupational health training for their staff.

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Reference