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## Evaluation of nursing students' work technique after proficiency training in patient transfer methods during undergraduate education

A. Christina E. Johnsson<sup>a,\*</sup>, Anders Kjellberg<sup>b,1</sup>, Monica I. Lagerström<sup>a,2</sup>

<sup>a</sup> Karolinska Institutet, Department of Nursing, 23 300, SE-141 83 Huddinge, Sweden <sup>b</sup> Centre for Built Environment, University of Gävle, SE-801 76 Gävle, Sweden

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**Summary** The aim of this study was to investigate if nursing students improved their work technique when assisting a simulated patient from bed to wheelchair after proficiency training, and to investigate whether there was a correlation between the nursing students' work technique and the simulated patients' perceptions of the transfer. Method: 71 students participated in the study, 35 in the intervention group and 36 in the comparison group. The students assisted a simulated patient to move from a bed to a wheelchair. In the intervention group the students made one transfer before and one after training, and in the comparison group they made two transfers before training. Six variables were evaluated: work technique score; nursing students' ratings of comfort, work technique and exertion, and the simulated patients' perceptions of comfort and safety during the transfer. The result showed that nursing students improved their work technique, and that there was a correlation between the work technique and the simulated patients' subjective ratings of the transfer. In conclusion, nursing students improved their work technique after training in patient transfer methods, and the work technique affected the simulated patients' perceptions of the transfer.

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## Introduction

\* Corresponding author. Tel.: + 468 524 83610; fax: + 468 348265.

E-mail addresses: christina.johnsson@ki.se (A.C.E. Johnsson), anders.kjellberg@hig.se (A. Kjellberg), monica.lagerstrom@ki.se (M.I. Lagerström).

Nursing students are at risk of developing musculoskeletal problems during their education. Studies have shown that about 40–60% of nursing students report musculoskeletal problems at some stage during their education (Klaber Moffet et al., 1993; Smith et al., 2003). It has been shown that

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<sup>&</sup>lt;sup>1</sup> Tel.: +4626 648114: fax: +4626 648181.

<sup>&</sup>lt;sup>2</sup> Tel.: +468 524 83923; fax: +468 348265.

these problems coincided with working on wards rated by students as physically heavy, where tasks such as lifting and handling patients were frequent (Klaber Moffet et al., 1993). These patient transfer tasks, for example when nurses assist patients to move from a bed to a chair, have also been reported as physically exerting tasks by nursing and caring staff, working in a variety of settings (French et al., 1997; Ando et al., 2000; Nuikka et al., 2001; Trinkoff et al., 2003) and as such result in a high load, for example on the spine (Marras et al., 1999), leading to musculoskeletal problems (Engkvist et al., 1998; Lagerström et al., 1998a; Engkvist et al., 2000; Retsas and Pinikahana, 2000; Engkvist et al., 2001; Yip, 2001; Dellve et al., 2003; Ore, 2003; Smedley et al., 2003a,b; Trinkoff et al., 2003).

Using a safe work technique during patient transfer is considered as one preventive strategy. The concept of work technique has been suggested by Kjellberg et al. (2000) to involve two basic elements: the method of carrying out a work task and the individual performance of the work task. The first element, the method, refers to established methods of patient transfer learned by nurses. The second element, the individual performance, focuses on individual variations when performing a given task or using a given transfer method.

Training programmes in patient transfer methods, have been a common strategy to learn a safe work technique (Lagerström et al., 1998a; Hignett, 2003b). There are two types of training programmes: on-the-job training and proficiency training as part of the basic nursing education. Most training programmes that have been evaluated are of the first type, and an increased use of safe work techniques during patient transfers has been reported after such programmes (Feldstein et al., 1993; Engels et al., 1997; Lagerström and Hagberg, 1997; Engels et al., 1998; Lagerström et al., 1998b; Johnsson et al., 2002). To our knowledge, only one study of work technique in patient transfers in a nursing education programme has been done. The study performed reported improvements in work technique after training in patient transfer methods (Hellsing et al., 1993). This indicates that there is a need for evaluations of such training programmes.

The patient transfer technique chosen by the nurse when assisting a patient to move, is not only a means to prevent the development of musculoskeletal problems for the nurse, but is also an aspect of nursing care often neglected in nursing education. The importance of the transfer being safe and comfortable for the patient has been pointed out in studies (Hignett and Richardson, 1995; Hignett, 2003a), as well as in documentation of transfer methods (Lagerström et al., 1999).

## Aims

One aim of this study was to investigate whether nursing students improved their work technique when assisting a simulated patient from bed to wheelchair after proficiency training. A second aim was to investigate if there was a correlation between the nursing students' work technique and the simulated patients' perceptions of the transfer.

## Method

A quasi-experimental non-equivalent comparisongroup pretest-posttest design was used in this study. In one group the work technique was assessed before and after proficiency training in patient transfer methods. In the other group both assessments were made before the training.

#### Undergraduate education in nursing

This study was performed at a medical university in Sweden where a 3-year undergraduate programme in nursing is conducted at several departments. Hundred and eighty students enter the nursing programme each semester and they are, according to normal procedure, divided into two classes, A and B, by the administration at the university. During their education, as one among other teaching methods, the students perform basic group work and are therefore divided into study groups consisting of a maximum of 10 persons. During the second semester of the first year there is a five-week course consisting of two subcourses: 'general nursing' and 'clinical education general nursing'. In the general nursing course the students receive 3 h of proficiency training in patient transfer methods (Fig. 1) before they start their clinical education. The proficiency training in patient transfer methods is carried out with 15 participants, coming from at least two of the study groups.

## **Participants**

In all, 172 students registered for the second semester, 86 in class A and 86 in class B. According to the schedule class A attended the five-week course right at the beginning of the semester and

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