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Blended learning on medication administration for new nurses: Integration of e-learning and face-to-face instruction in the classroom

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Summary
Purpose: This study analyzed the effects of a blended learning program on medication administration by new nurses using a non-equivalent groups design.
Method: A medication education program using blended learning (including e-learning) was administered to 26 new nurses, while face-to-face instruction in the classroom was given to 24 new nurses. The following dependent variables were compared: degree of knowledge of medication, self-efficacy of medication administration, medication-administration ability, and satisfaction with the learning program.
Results: The experimental, blended learning group showed a significantly higher level of knowledge of medication and satisfaction with the comprehensiveness of their medication learning, but the self-efficacy of medication administration, medication-administration ability, and other items related to their learning satisfaction did not differ significantly from that in the control group.
Conclusion: These results suggest that blended learning integrating e-learning and face-to-face instruction in the classroom is useful for enhancing medication knowledge. An e-learning program can reduce the lecturing time and cost of repeated topics such as medication, suggesting that it can be an effective component in nurse education programs.

Introduction

Medication administration is one of the most important roles and responsibilities of registered nurses. Reducing medication errors has recently

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become a critical issue in the fields of risk management and nursing service quality in hospitals, which has prompted active efforts to reduce such errors. Although improving organizational processes is being strongly emphasized as a strategy for preventing medication errors, the importance of educational preparation of nurses and nursing students cannot be overestimated (Sung et al., 2005). Unit-dose systems have not been widely introduced yet, especially in Korea, which increases the responsibility of nurses in preparing medications.

The continuing advances in medical research and the increased severity and complexity of patient ailments mean that countless new drugs and medications are being developed and introduced into clinical nursing practice. In order to administer these drugs safely, knowledge of basic medication-administration techniques, the actions and side effects of various drugs, and the ability to observe and interpret patients' responses to them has become a prerequisite for nurses.

However, despite its considerable content, nursing education has been criticized for its lack of relevancy to clinical practice circumstances and the insufficient training in actual medication-administration practice (Manias and Bullock, 2002; Latter et al., 2001; Um et al., 1998). The reluctance of patients to receive medication from inexperienced nurses makes it more difficult for nursing students to gain practical medication-administration experience (Lee and Choi, 2002). Therefore, the clinical performance of new nurses, or their 'fitness for purpose' has become a central professional and corporate issue and highlighted as a central causes for the improvements recommended by the Peach report in UK (UKCC, 1999).

The above situation indicates the urgent need to maximize the medication-administration ability of new nurses and to improve their self-confidence in clinical situations by improving their knowledge of medication administration and drugs and providing a firm connection to clinical practice. This has prompted hospitals to include education classes on medication administration in their orientation programs for new nurses. However, the limited time available for educating new nurses makes it difficult to provide them with all of the necessary information on medication administration, and hence education programs need to be improved.

E-learning education, which promotes self-directed learning, has been expanding recently. E-learning education has been introduced into the nursing field as an instruction method for creative and critical thinking via the reorganization and restructuring of various new learning activities (Haigh, 2004; Simpson et al., 2008). Several studies on nurses and nursing students have shown that the provision of e-learning reduces the required learning time and increases academic achievement and satisfaction with the learning program (Belfry and Winne, 1988; Kim, 2001; Park et al., 1998). Considering the difficulties in providing education for nurses in a clinical environment due to heavy workloads and limited time and space, e-learning can be a good tool for enhancing the quality of education (Chung, 2000). This has prompted the development and evaluation of a clinical-practice-oriented e-learning program on medication administration that includes various clinical cases on the basis of pharmacological knowledge (Sung et al., 2005). Verification of the effects of this new educational method would allow its application to be expanded to both new and practicing nurses, and for it to contribute to improving clinical nursing education and the medication-administration abilities of nurses.

Aims of study

The aim of this study was to determine the effects of a medication education program utilizing blended learning with e-learning on new nurses' knowledge of medication, self-efficacy of medication administration, medication-administration ability, and satisfaction with the learning program.

Method

Design

This was a quasi-experimental study with a non-equivalent groups design. Traditional classroom teaching and blended learning with e-learning were administered to control and experimental groups, respectively. Fig. 1 provides an overview of the study design and the measurements made.

Sample and setting

The subjects were new nurses who were first employed in 2004 and assigned to the departments of internal medicine and surgery at Samsung Medical Center. Fifty nurses participated in the medication-administration education program, of whom 26 were taught in a blended learning environment (i.e. they received face-to-face instruction in the classroom and also used Web-based materials) and 24 were taught by lecture only (i.e. they received face-to-face instruction in the classroom).