Nurse Education Today 69 (2018) 14–19

Contents lists available at ScienceDirect

Nurse Education Today

journal homepage: www.elsevier.com/locate/nedt

The efficacy of simulation-based and peer-learning handover training for new graduate nurses

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ARTICLE INFO

Keywords:
Clinical competence
Clinical judgment
Graduate nurses
Nursing handover
Patient simulation

ABSTRACT

Background: Nursing handovers are a crucial nursing practice for patient safety and continuity of nursing care. As a strategy to improve nursing handovers, it has been suggested that new graduate nurses receive training in how to conduct handovers.

Objectives: The purpose of this study was to examine the effects of simulation-based handover training and peer-learning handover training on clinical competence regarding handovers and clinical judgment among new graduate nurses.

Design: Quasi-experimental research using a nonequivalent control group post-test design.

Participants: A convenience sample of 55 new graduate nurses with no clinical experience who expected to work at a university hospital were selected.

Methods: We measured participants' clinical competence regarding handovers and clinical judgment immediately after completing a training program and after 1 month of working at a hospital to examine the immediate and latent effects of simulation-based and peer-learning handover training, respectively. A researcher-developed clinical competence instrument regarding handovers and a clinical judgment instrument based on the Lasater Clinical Judgment Rubric were used. To identify differences in the effects of simulation-based and peer-learning handover training, we analyzed the data using the independent *t*-test and paired t-test. When evaluating the latent effects, the participants wrote self-reflection reports.

Results: There were no significant differences in the immediate effects of the simulation-based training and the peer-learning training. In contrast, in the evaluation of the latent effects, new graduate nurses who received simulation-based training showed significantly higher clinical competence regarding handovers ($p = .020$) and clinical judgment ($p = .033$) than their counterparts who received peer-learning training. In the self-reflection reports, 19 participants stated that they had gained more confidence with handovers.

Conclusion: We suggest that simulation-based handover training contributes more to the improvement of new graduate nurses' clinical competence regarding handovers and clinical judgment than peer-learning training.

1. Introduction

Nursing handovers are a process in which patient-related information, responsibilities, and duties are transferred at shift changes. As a crucial element for patient safety and the continuity of nursing care, handovers are a very dynamic and complex process, requiring excellent communication skills and the ability to comprehensively understand patient-related information (Anderson et al., 2015; Australian Commission for Safety and Quality in Health Care, 2005). As recent reports have revealed that inappropriate handovers delay patients' treatment and diagnosis and prolong patients' duration of hospitalization, inadequate handovers are being recognized as a high-risk factor that threatens patient safety (National Health Service, 2004; Till et al., 2014). Accordingly, strategies are being developed to improve the handover competence of medical staff and their effects are being examined (Brown et al., 2012; Farnan et al., 2010).

Until now, no systematic training in handovers for new graduate nurses has been provided in Korea; without standardized protocols, most new graduate nurses merely observe what senior nurses do or are taught in lecture settings (Kim et al., 2013). Against this backdrop, new

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https://doi.org/10.1016/j.nedt.2018.06.023
Received 6 January 2018; Received in revised form 16 April 2018; Accepted 24 June 2018

graduate nurses have been reported to be poor at identifying patients' conditions and receive criticism for omitting essential information in their handovers, placing a psychological burden on them (Jeoung, 2014). Therefore, considering the complex traits of handovers, it is necessary to establish handover training strategies for new graduate nurses suitable for the circumstances of Korean hospital settings.

For effective handovers, using the SBAR (Situation-Background-Assessment-Recommendation) tool, checklists for structured handovers (Lim and Pajarillo, 2016; Nagammal et al., 2016), or exemplary models and education to improve handover competence are known to be essential (Joint Commission Center for Transforming Healthcare, 2007). Approaches including simulation-based education or education using role playing have been suggested as ways to improve nurses' ability to identify patient conditions and communication skills as part of improving handover competence. Additionally, the awareness that handover training should be included in the college nursing curriculum is increasing (Brown et al., 2012; Riesenberg et al., 2010).

Specific educational methods discussed in prior studies reviewing approaches for improving the handover competence of medical staff include lectures, group discussions, simulations, debriefings, role playing, feedback, videos, and online education protocols (Anderson et al., 2015; Gordon and Findley, 2011). Among these options, simulation-based education has been reported to improve the communication ability, clinical judgment, ability to manage patient safety, and confidence of medical staff (Berkenstadt et al., 2008; Brown et al., 2012). Simulation-based education is a learning method that reproduces clinical situations and enables learners to repeatedly practice firsthand in a safe environment that allows mistakes. This approach is thought to be useful for training learners to carry out complex processes that include assessing the patient, synthesizing data, performing nursing practices, and giving handovers to another nurse (Berkenstadt et al., 2008; Jeffries, 2005).

The peer-learning approach used in the present study is a teaching method that integrates knowledge and skills through interactions among peers. It contributes to improving nursing students' problem-solving skills and self-efficacy, and is therefore applied in both clinical and theoretical settings (Hellstrom-Hyson et al., 2012; Palsson et al., 2017). Additionally, peer-learning education is a process in which learners achieve their learning objectives through demonstrations, discussions, and reflections among peers, without the intervention of a preceptor. This method has been suggested to be a suitable form of handover education using real-life examples and role-playing to improve cooperation among nurses (Riesenberg et al., 2010). In light of the above-discussed evidence, this study was conducted to explore how simulation-based and peer-learning handover training influenced new nurses' clinical competence and clinical judgment in carrying out handovers.

1.1. Study Aim

This study aimed to i) examine the effects of simulation-based and peer-learning handover training on handover-related clinical competence and clinical judgment among new graduate nurses, and ii) to provide basic data to assist in establishing strategies for handover education in the future.

2. Methods

2.1. Study Design

This study employed a quasi-experimental nonequivalent control group post-test design, to provide simulation-based and peer-learning training on handovers to new graduate nurses and to examine the effects of the training sessions.

2.2. Sample Characteristics

The study participants were a convenience sample of 55 new graduate nurses who graduated from nursing college in 2015 and who expected to begin work in a university hospital. The selection criteria included: i) being a new graduate nurse who had not worked in a hospital yet and ii) providing consent to participate in this study. The provision of training and data collection took place over a total of 14 weeks, between February 28 and June 13, 2015.

The required sample size of this study was computed to be 26 participants in each group, based on the significance level ($\alpha = 0.05$), power ($1\text{-}\beta = 0.8$), and effect size (ES = 0.70) using G-Power version 3.0. However, considering the possibility of dropout, we determined the sample size to be 30 for each group. In the beginning of the study, we enrolled 60 participants who met the selection criteria. However, due to reasons including resignation, a total of 55 participants (28 from the simulation-based training group and 27 from the peer-learning training group) completed the study, and the data of these 55 participants were used in the analysis.

2.3. Setting and Process

The overall process of the study is presented in Fig. 1. The content of the pre-handover training included the definition of handovers, the responsibilities and duties of nurses performing handovers, the consequences of errors in handovers, and the order and methods of handovers. The same scenarios were used in both the simulation-based and peer-learning training sessions.

The 2 scenarios were developed by incorporating the educational needs of the new graduate nurses who would receive the handover training, the preceptor nurses who would provide the training, and nurse managers (Kim and Kim, 2017). In the simulation-based training, high-fidelity simulators (METI 3G) and standardized patients were used. Each group consisted of 3 participants (Jeffries, 2005), who completed 2 scenarios (patient with abdominal pain, patient admitted for hypoglycemia). For each scenario, participants were asked to solve the problem for 20 min and perform handovers in turns. Later, in the debriefing session, the participants discussed their handover experience and feelings about handovers.

In the peer-learning training, each group consisted of 5 participants to enhance feedback exchange and to ensure that handovers were performed by all group members, as described in previous studies (Yu and Kang, 2017; Wang et al., 2015). The participants were asked to discuss topics such as nursing assessment and nursing interventions based on the scenario and gave handovers to each other. The participants were then asked to listen to their peers' handovers and to give positive and negative feedback about each other's handover (i.e., what was good and what could be improved). Then they were asked to complete handovers while improving their weaknesses.

The immediate effect of the training after its completion was measured. Moreover, the latent effect of the training sessions a month after the participants had started their nursing practice in the hospital was measured. The reason why we decided to evaluate the latent effect after a month of working in the hospital was that the job orientation of the study participants usually lasted for a month, and the participants took part in handovers during this period (Kim et al., 2014). In addition, the participants wrote a self-reflection report on the handover training and how they had applied their training in the clinical setting at the time when the latent effect was measured.

2.4. Instruments and Measures

Clinical competence regarding handovers was defined as a nurse's ability to give a handover to the incoming nurse according to the handover criteria without omission, after watching the scenario on a patient with dyspnea from a video clip. The evaluation instrument was