



Effect of e-learning program on risk assessment and pressure ulcer classification – A randomized study



Ida Marie Bredesen ^{a,*}, Karen Bjørø ^{a,1}, Lena Gunningberg ^{b,1}, Dag Hofoss ^{c,1}

^a Department of Orthopaedic Surgery, Oslo University Hospital, Norway

^b Department of Public Health and Caring Sciences, Caring Sciences, Uppsala University, Sweden

^c Institute of Health and Society, University of Oslo, Norway

ARTICLE INFO

Article history:

Received 13 October 2015

Received in revised form 23 February 2016

Accepted 9 March 2016

Keywords:

E-learning

Classroom learning

Braden scale

Pressure ulcer classification

ABSTRACT

Background: Pressure ulcers (PUs) are a problem in health care. Staff competency is paramount to PU prevention. Education is essential to increase skills in pressure ulcer classification and risk assessment. Currently, no pressure ulcer learning programs are available in Norwegian.

Objectives: Develop and test an e-learning program for assessment of pressure ulcer risk and pressure ulcer classification.

Methods: Design, participants and setting: Forty-four nurses working in acute care hospital wards or nursing homes participated and were assigned randomly into two groups: an e-learning program group (intervention) and a traditional classroom lecture group (control). Data was collected immediately before and after training, and again after three months. The study was conducted at one nursing home and two hospitals between May and December 2012.

Analysis: Accuracy of risk assessment (five patient cases) and pressure ulcer classification (40 photos [normal skin, pressure ulcer categories I–IV] split in two sets) were measured by comparing nurse evaluations in each of the two groups to a pre-established standard based on ratings by experts in pressure ulcer classification and risk assessment. Inter-rater reliability was measured by exact percent agreement and multi-rater Fleiss kappa. A Mann–Whitney U test was used for continuous sum score variables.

Results: An e-learning program did not improve Braden subscale scoring. For pressure ulcer classification, however, the intervention group scored significantly higher than the control group on several of the categories in post-test immediately after training. However, after three months there were no significant differences in classification skills between the groups.

Conclusion: An e-learning program appears to have a greater effect on the accuracy of pressure ulcer classification than classroom teaching in the short term. For proficiency in Braden scoring, no significant effect of educational methods on learning results was detected.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

Pressure ulcers (PUs) are a problem in health care with a PU prevalence ranging from 0% to 46% in acute care and 4.1% to 32.2% in nursing home settings (National Pressure Ulcer Advisory Panel, 2014). Most PUs can be prevented. Staff competency in skin assessment and identification of patient risk factors are paramount to prevention (National

Pressure Ulcer Advisory Panel, 2014). Yet a Norwegian PU prevalence pilot study showed deficient knowledge among nursing staff in terms of reliable classification of PU and PU risk assessment (Bjørø and Ribu, 2009). However, currently no PU learning programs are available in Norwegian, thus development of a program for PU classification and risk assessment is deemed necessary.

E-learning programs are commonly considered an efficient and effective means of training large numbers of nurses, yet few studies have been conducted to develop and test the effect of e-learning programs on PU risk assessment and classification. Reviews have found that web-based training/e-learning program and traditional classroom instruction require equal administration time, and no differences have been found in staff knowledge or skills acquisition (Cook et al., 2008,

* Corresponding author.

E-mail addresses: i.m.bredesen@medisin.uio.no, uxidbr@ous-hf.no (I.M. Bredesen), karbjo@nsf.no (K. Bjørø), lena.gunningberg@pubcare.uu.se (L. Gunningberg), dag.hofoss@medisin.uio.no (D. Hofoss).

¹ These authors contributed equally to this work.

2010, Lahti et al., 2014, Militello et al., 2014). Thus, more research is needed to test the effectiveness of e-learning programs as a mode of teaching nurses PU classification and risk factor identification.

2. Background

Few studies have investigated the effect of training in use of a PU risk assessment tool. The Braden Scale for Predicting Pressure Ulcer Risk (Braden scale) was developed to help health professionals; especially nurses assess a patient's risk of developing a PU (Bergstrom et al., 1987a, 1987b). Braden scale is the most used and tested PU risk assessment tool. The scale includes six subscales (sensory perception, moisture, activity, mobility, nutrition and friction/shear). Each subscale is rated from one (worst condition) to four, with the exception of friction/shear rated one to three. This gives a sum score from six to 23, the lower the sum score, the higher the risk. Web-based training in risk assessment with the Braden scale increased performance (Magnan and Maklebust, 2008, 2009). New users of the Braden scale increased the accuracy of their subscale scoring significantly after training, whereas regular users of the scale did not increase their subscale scorings significantly (Magnan and Maklebust, 2009). Furthermore, in a post-test only study, regular users of the Braden scale correctly identified significantly more patient cases with high risk and moderate risk than new users (Magnan and Maklebust, 2008).

Studies investigating the effect of training on PU classification have shown that training improves performance (Beeckman et al., 2008, 2010, Ham et al., 2015). In a repeated measures design study, Beeckman and colleagues compared the effect of an e-learning (PUCLAS2, Pressure Ulcer Classification tool) and a classroom program with the same content on PU classification in a sample of nurses and nursing students (Beeckman et al., 2008). While both programs increased PU classification skills, the nursing students achieved better results with the e-learning program. In the nurse group, no differences between the methods were found (Beeckman et al., 2008). Beeckman et al. (2010) compared the classification skills of a group receiving PUCLAS2 as a one-hour classroom training with another group receiving a 15-min standardized rehearsal of the EPUAP classification system. Results showed increased classification skills in both groups, but significantly more so for the group receiving PUCLAS2. A one-group study involving classroom training found significant improvement in PU classification skills after training of emergency staff (Ham et al., 2015).

Most studies of training in risk assessment and classification have compared either an e-learning program or classroom training to a control group with no additional training or an alternative method of training. As far as we know, few studies have used a program with the same content to compare an e-learning program and classroom training in an RCT (Beeckman et al., 2008). Furthermore, we have found no studies testing both skills in PU classification and the use of a PU risk assessment scale in the same study.

Regularly updating knowledge is a challenge in health care. Often hospital wards experience high turnover and health care personnel have problems finding time to leave the ward for in-service education due to workload demands. Therefore, efficient methods of training nurses are needed.

3. Purpose and research questions

The purpose of this intervention study was to develop and test an e-learning program for assessment of PU risk factors and PU classification in a Norwegian setting. The research questions for the study were: 1) Is an e-learning program more effective than classroom lecture training for learning the use of a risk assessment scale and 2) Is an e-learning program more effective than classroom lecture training for learning PU classification?

4. Methods

4.1. Design

Participants were randomly assigned to one of two groups: the intervention group (e-learning program) and a control group (classroom lecture training). Three tests were carried out: a baseline pre-test before training, a post-test immediately after training (post-test I), and a three month follow-up test (post-test II). The effect of the intervention was measured by the post-test immediately after training.

The study protocol included a third group without additional training and a test six months after training, but because of massive dropout, we excluded this group and test from this study. Data were collected between May and December 2012.

4.2. Ethics

The privacy protection officials of each investigating hospital approved the study. All participating nurses gave written consent.

4.3. Setting and sample

Nurses from two hospitals and four nursing homes participated. Inclusion criteria: 1) registered nurse 2) employed in acute care hospital or nursing home. Testing was conducted at one nursing home and two hospitals.

We included 25 nurses in each group. We used block randomization with six in each block to ensure even distribution within the groups (Lin et al., 2015). A study coordinator prepared the randomization using closed, opaque numbered envelopes to conceal group allocation. When a participant who met the inclusion criteria agreed to participate, the principal investigator opened an envelope to assign group. The participant received information regarding the time and place of the testing. Information about their group allocation was given the day they performed testing. The study has reference number NCT01567410 in the Clinical Trials.gov Protocol Registration System (<http://clinicaltrials.gov/>).

Before the pre-test, the participants completed a form with questions about personal information including gender, work place, education and work experience. Five participants did not show up on test day, and one of those who came had not completed the necessary pre-test forms. Forty-four participants completed the pre-test. All forty-four nurses in the two groups completed the post-test immediately following the training. Eighteen nurses completed the post-test after three months (Fig. 1).

4.4. Development of the training programs

No training program was available in Norwegian for either the use of the Braden risk assessment scale or PU classification. Therefore, we developed two individual training programs, one for the use of the Braden scale and one for PU classification.

Pedagogical principles guided the development of the training programs including motivation for learning, active engagement of the learner, concrete material facilitate learning and individualization allowing learners to work at their own space (Hiim and Hippe, 2004).

4.5. The Braden scale program

One of the co-authors (KB) had previously translated the Braden scale into Norwegian. The Braden scale training program was based on patient cases published in an instructional CD purchased from the Braden scale homepage (www.bradenscale.com), other studies (Maklebust et al., 2005) and from a web site based on the Braden scale instructional CD (<http://ced.muhealth.org/resources/bradenCD/menu.html>), as well as on cases from our own experience. Each case

Download English Version:

<https://daneshyari.com/en/article/367868>

Download Persian Version:

<https://daneshyari.com/article/367868>

[Daneshyari.com](https://daneshyari.com)