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Graduate nursing students' evaluation of EBP courses: A cross-sectional study

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SUMMARY

Background: There is a lack of appropriate tools for assessing the effectiveness of teaching evidence-based practice in nursing.
Objectives: The objective of the study was to develop the instrument evaluating the students' perception of the effectiveness of EBP courses and to verify its psychometric properties.
Design: A descriptive cross-sectional study design was used to verify psychometric properties of the questionnaire measuring the students' perception of the effectiveness of EBP courses.
Participants: The psychometric properties were evaluated in a group of 129 graduate nursing students who completed EBP courses.
Methods: The instrument for measuring the students' perception of the effectiveness of EBP courses was inspired by Kirkpatrick's evaluation model, which advocates evaluating interventions at four levels — reaction (satisfaction), learning, behavior change (transfer) and results (benefits). A web-based survey was used for data collection. Data was collected from the middle of January 2013 through the end of March 2013.
Results: A thirteen item instrument was developed for measuring the students' perception of the effectiveness of EBP courses. The internal consistency of the scale, based on standardized Cronbach's alpha, was .93. The results of factor analysis identified three factors of the instrument. The highest rated items on a scale of 1 (strongly disagree) to 7 (strongly agree) were 'implementation of EBP can improve clinical care' (mean 6.16), 'EBP instructors had a thorough knowledge of EBP' (6.13), 'EBP instructors were enthusiastic about teaching EBP' (5.65), and 'I can use my EBP knowledge and skills in my practice' (5.58).
Conclusions: The results of testing of the psychometric properties of the questionnaire showed at least satisfactory validity and reliability. The majority of students perceived EBP courses as effective. The instrument may be used to assess the students' perception of the effectiveness of EBP courses.

Introduction

Nurses' attitudes and their perceptions of their EBP training and skill levels are key in ensuring that evidence-based practice is incorporated into their nursing practice, and critical in ensuring positive patient outcomes. Lack of knowledge has been identified as a barrier to the implementation of evidence. Therefore teaching EBP courses to graduate nursing students is an important element of the implementation of evidence in clinical practice, and effectiveness of teaching evidence based practice is vital. Unfortunately, there is a lack of appropriate tools for assessing the effectiveness of teaching evidence-based practice in nursing.

Various instruments for assessing competency in evidence-based medicine have been developed. A recent summary of these concluded that few valid instruments are available for evaluating specific domains of EBP (Spek et al., 2012). Assessing competence in evidence-based practice can be difficult due to the diverse cognitive skills and knowledge that must be tested (Ilic, 2009). In their systematic review, Shaneyfelt et al. (2006) found that instruments used to evaluate EBP, which were most commonly administered to medical students and postgraduate trainees, evaluated skills in searching for and appraising evidence. There is also a critical need to evaluate trainees' competence in applying evidence to

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individual patient decision making, while taking into consideration the evidence (customized for the patient), clinical circumstances, and patient preferences (Shaneyfelt et al., 2006). It must also be mentioned that among the instruments available for evaluating EBP behaviors, most continue to measure the performance of EBP steps on the basis of self-reporting. The purpose of this study was to determine the psychometric properties of an instrument developed to evaluate students' perception of the effectiveness of their EBP courses upon completion.

Background

A well developed methodology for evaluating the learning process is Donald Kirkpatrick's four-level evaluation model first published in 1959, which advocates evaluating interventions at four levels — reaction (satisfaction), learning, behavior change (transfer) and results (benefits). Evaluation of the last two levels is very difficult due to the fact that training is not the only relevant factor (Stokking, 1996). The transfer of learning and results in particular can be influenced by several factors including individual and contextual. Ruona et al. (2002) defined the transfer system as all relevant factors pertaining to the person, the training program, and the organization that influence the translation of learning into actual job performance. From a student's perspective it is difficult to evaluate all of these factors (e.g., the organizational, individual, and contextual factors). Evaluating results of learning should also focus on the tangible results of the training, such as reduced cost, improved quality and efficiency, increased productivity, and employee retention, among others. Because evaluation of the results requires pre- and post-training measurement, future tools must incorporate measures for assessing how EBP competence affects clinician behavior and attitudes as well as clinical outcomes in real-time situations (Ilic, 2009).

These four levels are important, and they should be understood by all professionals in the field of education, training and development. The end result is simply to increase knowledge, improve skills, and change attitudes. In these cases only two levels apply. But if the purpose of the training is to get better results by changing behavior, then all four levels apply (Kirkpatrick, 1998). Our instrument is based on modified four-level evaluation model.

In addition to exploring students' perception of effectiveness of evidence-based practice courses we would like to know how nursing students evaluated their EBP skills. Melnyk et al. (2008, p. 12) presented a list of essential EBP skills for the graduate students. Their list of these skills includes, for example formulating searchable, answerable clinical questions requiring evidence to answer them; locating and critically appraising the relevant body of evidence, and other skills.

Aim

The objective of the study was to develop an instrument to evaluate students' reaction, learning, behavior change and results of taking the evidence-based practice course and to verify the instrument's psychometric properties.

Methods

Design

A descriptive cross-sectional study design was used to examine psychometric properties of the questionnaire evaluating the effectiveness of EBP courses.

Instrument Development

When developing the instrument, emphasis was placed on content validity, namely the measurement aim, target population, item selection and item reduction. Expert consensus was used to develop thirteen items of the questionnaire. Seven point Likert-type scale was chosen for students' rating of each item. Participants were to rate each item on a scale of 1 (strongly disagree) to 7 (strongly agree).

In addition, fourteen questions were generated to measure perceptions of graduate nursing students' competence in EBP skills on a scale of 1 (not at all competent) to 7 (extremely competent). The list of these skills was derived from the work of Melnyk et al. (2008), with some skills being paraphrased and some new ones being added. Permission from Dr. Melnyk was obtained prior to survey construction.

Sample

The psychometric properties were evaluated in a group of 129 graduate nursing students who completed EBP courses.

Inclusion criteria for graduate nursing students were: full-time or part-time graduate nursing students who completed the courses 'Research for EBP 1' and 'Research for EBP 2'. A list of graduate nursing students was obtained from the Office of Student Services. An email was sent to graduate nursing students at the University of Pittsburgh through Student Services in the School of Nursing, inviting them to participate in the study. An E-newsletter was created to be sent out to alumni. This was done in cooperation with the Director of Advancement and External Relations at the School of Nursing, University of Pittsburgh. The E-newsletter, with a link to the web-based survey, was sent via the Pitt Alumni Association.

Data Collection

A web-based survey was used for data collection. Data collection was realized by sending respondents an email with a hyperlink to the web-based survey. Students agreeable to participating clicked on a link in the email directing them to a study-specific secured Survey Monkey® website.

Data were collected from the middle of January 2013 through the end of March 2013. Approximately 800 emails were sent to current graduate nursing students and alumni. 149 questionnaires were returned (17% response rate). Twenty questionnaires where more than 5% data were missing were excluded. For the final statistical analysis 129 completed questionnaires from graduate nursing students were used.

Statistical Analysis

Descriptive statistics were used to describe the sample characteristics. Mean and standard deviation were calculated for each item of questionnaire. The Spearman Correlation Coefficient was used to examine the correlation between the total score for the instrument and the score for each item. Reliability of the scale was measured by Cronbach's alpha. Inter-item correlations were calculated and an item-total analysis was performed. Kaiser–Meyer–Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity were conducted followed by factor analysis with Varimax rotation. Statistical analysis was conducted using the Statistical Package for the Social Sciences 16.0 for Windows (SPSS, Chicago, IL).

Ethical Considerations

Approval was obtained from the Institutional Review Board of the University of Pittsburgh prior to participant recruitment. A cover letter explaining the study was attached to all surveys. The cover letter also addressed the voluntary nature of the survey and ensured confidentiality. The survey was set up in such a way that the potential subject must click on a "button" or type in a response indicating that he/she has read the information and agrees to participate before gaining access to the actual survey. That is, the survey questions are not viewed by the subject until he/she clicks on or types in a response to indicate his/her