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Original Research Article

Validation of the EFFECT questionnaire for competence-based clinical teaching in residency training in Lithuania

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ARTICLE INFO

Article history:

Received 20 October 2016

Received in revised form

6 February 2017

Accepted 8 May 2017

Available online xxx

Keywords:

EFFECT

Clinical teaching

Quality

Residents

Validation

ABSTRACT

Background and aim: In 2013, all residency programs at the Lithuanian University of Health Sciences were renewed into a competency-based medical education curriculum. To assess the quality of clinical teaching in residency training, we chose the EFFECT (evaluation and feedback for effective clinical teaching) questionnaire designed and validated at the Radboud University Medical Center in the Netherlands. The aim of this study was to validate the EFFECT questionnaire for quality assessment of clinical teaching in residency training.

Materials and methods: The research was conducted as an online survey using the questionnaire containing 58 items in 7 domains. The questionnaire was double-translated into Lithuanian. It was sent to 182 residents of 7 residency programs (anesthesiology, reanimatology, cardiology, dermatovenerology, emergency medicine, neurology, obstetrics and gynecology, physical medicine and rehabilitation). Overall, 333 questionnaires about 146 clinical teachers were filled in. To determine the item characteristics and internal consistency (Cronbach's α), the item and reliability analyses were performed. Furthermore, confirmatory factor analysis (CFI) was performed using a model for maximum-likelihood estimation.

Results: Cronbach's α within different domains ranged between 0.91 and 0.97 and was comparable with the original version of the questionnaire. Confirmatory factor analysis demonstrated satisfactory model-fit with CFI of 0.841 and absolute model-fit RMSEA of 0.098.

Conclusions: The results suggest that the Lithuanian version of the EFFECT maintains its original validity and may serve as a valid instrument for quality assessment of clinical teaching in competency-based residency training in Lithuania.

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<http://dx.doi.org/10.1016/j.medici.2017.05.001>

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1. Introduction

For the delivery of high-quality patient care, high-quality clinical teaching of residents is essential [1,2]. Clinical teaching is accomplished in real-life situations through health care services for patients under strict control of a residents' teacher. The quality of this process is crucially important to train young physicians who are able to provide evidence-based health care services, and to acquire necessary clinical skills, knowledge, and competencies [3–5].

Following the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG 2015), universities have to review their programs on a regular basis ensuring their compliance with international aims meeting learners' and social needs, especially on quality assurance [6]. After the Lithuanian University of Health Sciences renewed its residency programs according to the methodologies based on the intended learning outcomes and competencies (CBME), urgent need emerged to implement a quality evaluation system for clinical teaching based on scientific evidence [7]. There are many instruments available for the evaluation of clinical teaching [5,8,9]. One of these instruments is the EFFECT questionnaire (evaluation and feedback for effective clinical teaching), a theory-based, reliable, and valid instrument designed and validated by Fluit et al. from the Radboudumc Health Academy in the Netherlands [9].

This study aimed at validating the EFFECT questionnaire for quality assessment of clinical teaching in residency training.

2. Materials and methods

The EFFECT questionnaire is based on theories of workplace learning and clinical teaching, and incorporates the Canadian Medical Education directives for Specialists (CanMEDS) competences [9]. The authors have validated the questionnaire following five sources of validity described by Downing [10,11]. Although EFFECT relies on an international literature study and is based on the theory that is internationally recognized as highly relevant to medical education, the authors claim the caution that is warranted in extrapolating their findings to other countries with different residency training programs and different feedback cultures as one of its possible limitations [12]. The aim of our study was to assess the validity of the Lithuanian version of EFFECT.

The EFFECT questionnaire consists of 58 items in 7 domains of clinical teaching: role modeling, task allocation, planning, providing feedback, teaching methodology, assessment, and personal support. The role modeling domain contains 4 sub-domains: clinical skills, scholarship, general competencies, and professionalism. The items can be scored using a 6-point Likert scale (1, very poor; 2, poor; 3, intermediate; 4, satisfactory; 5, good; 6, excellent; and “not (yet) able to evaluate”). The option “not (yet) able to evaluate” was chosen if a specific item did not (yet) occur during clinical teaching. Having obtained the authors' agreement to use the questionnaire, we made its double translation from Dutch to Lithuanian by 2 professional translators. In addition to the original

items, information on gender, residency program, and the year of training was included.

To determine item characteristics, item means and standard deviation were calculated. For the assessment of internal consistency and reliability, the Cronbach's alpha was calculated. Finally, structural equation modeling was applied to determine the amount of interdependency between items and constructs using the existing factorial solution as a model for maximum-likelihood estimation. In addition, common incremental measures of the scale fit in structural and equation modeling – the Comparative Fit Index (CFI) and Root Mean Square Error of Approximation (RMSEA) – were calculated [13,14]. Correlations between the dimensions were determined by correlation coefficients from the estimated covariance matrix. Correlation coefficients with a magnitude of 0.7–1.0 indicated interdependency of the factors. All the calculations were run with SPSS 20 and AMOS 20.

The study was approved by Bioethics Centre of the Lithuanian University of Health Sciences. The study was performed as an online survey.

3. Results

The survey data were collected during 2015–2016. A total of 182 residents (48 men and 134 women) were asked to fill in the EFFECT questionnaire about the teachers who were their supervisors within a residency program. The residents could decide how many teachers they wanted to evaluate not necessarily filling in the questionnaire for every teacher they worked with. We received a total of 333 questionnaires: 67.9% ($n = 226$) were completed by women and 32.1% ($n = 107$) by men. Description of the study population and the number of questionnaires filled in per residency program are presented in Table 1.

The largest proportion (36.9%) of the questionnaires was filled in by first-year residents, followed by third-year (25.2%), second-year (24.3%), and fourth-year (13.5%) residents.

The results of the item characteristics are provided in Table 2. The items were rated on a 6-point Likert scale. The mean scores ranged from 4.58 (item 29, “reminds me of previously given feedback”, and item 50, “helps and advises me on how to maintain a good work-home balance”) up to 5.40 (the item 9, “applies to guidelines and protocols”). More than 20% of the answers in item 12 “have a bad news conversation”, item 40 “reviews my reports”, item 50 “helps and advises me on how to maintain a good work-home balance” were scored as “not (yet) able to evaluate”, while this proportion was over 70% for all the assessment domain items (51–58). Factor loadings varied from 0.788 (item 30) to 0.957 (item 74).

The Cronbach's alpha coefficients ranged from 0.91 to 0.97 indicating a high internal consistency of all subdomains (Table 3).

The “role modeling scholarship” subdomain was not included into the confirmatory factorial analysis as it has only one item – “apply academic research results.” The items of the “assessment” domain were not included due to high proportion of “not (yet) able to evaluate” answers. Therefore, only 9 subdomains of the questionnaire were used in analysis.

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