



ORIGINALES

Measuring the educational environment in ambulatory settings



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Abstract

Background and objectives: Students' perceptions of their educational environment (EE) have been studied in undergraduate and postgraduate curricula. The Ambulatory Care Learning Educational Environment Measure (ACLEEM) is an inventory that was recently developed to measure the EE in postgraduate ambulatory settings. The aim of this study was to assess the psychometric properties of the inventory.

Methods: A mixed methodology was used to develop the ACLEEM including: Grounded theory (8 focus groups); a two-round Delphi technique to identify consensus; and a pilot study. The inventory was refined to 50-items after the pilot study and it was prospectively administered to a large cohort of clerks and residents in Chile during 2010-2011. Psychometric measurements included factor analysis followed by Varimax rotation for construct validity, Cronbach's alpha coefficients for internal consistency and Generalizability theory for test reliability.

Results: Four-hundred and eleven students responded: 151 clerks (83.9% of the target population) and 260 residents (74% of the target population) from 31 postgraduate programs. The factor analyses showed an eight factor instrument. ACLEEM was found highly reliable with a Cronbach's alpha of 0.94 and D-study revealed a reliable outcome for residency programs with at least 15 respondents with a G coefficient of 0.831. The EE perceived by residents and clerks was positive without differences between groups: 152.52 ± 23.36 (76.26%) and 150.61 ± 24.62 (75.30%), respectively ($p=0.761$).

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PALABRAS CLAVE

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Conclusions: The 50-item ACLEEM inventory is a multidimensional and valid instrument requiring only 15 respondents for reliable results. We recommend using it to measure the EE in the ambulatory postgraduate Spanish-speaking programs.

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Medición del ambiente educacional en contextos ambulatorios

Resumen

Introducción y objetivos: Las percepciones de los estudiantes sobre el ambiente educacional (AE) han sido estudiadas en programas de pregrado y posgrado. El cuestionario *Ambulatory Care Learning Educational Environment Measure* (ACLEEM) es un instrumento desarrollado para medir el ambiente educacional en programas de posgrado ambulatorios. El objetivo de este estudio fue evaluar las propiedades psicométricas de este instrumento.

Métodos: Se utilizó metodología mixta para desarrollar el instrumento ACLEEM, incluyendo: teoría fundada (8 grupos focales) y panel Delfi de 2 rondas (consenso). Se realizó un estudio piloto y luego se refinó el cuestionario a 50 ítems, que fue administrado prospectivamente en una cohorte de internos y residentes chilenos durante los años 2010-2011. Las evaluaciones psicométricas incluyeron análisis factorial seguido de rotación Varimax (validez de constructo), coeficiente alfa de Cronbach (consistencia interna) y teoría de la generalizabilidad (confiabilidad).

Resultados: Se obtuvieron 411 respuestas: 151 internos y 260 residentes (tasa de respuesta: 83,9% y 74%, respectivamente) correspondientes a rotaciones de internado y 31 programas de posgrado en Medicina. El análisis factorial mostró un instrumento de 8 categorías. ACLEEM presentó una alta confiabilidad (alfa de Cronbach 0,94) y un estudio de generalizabilidad que mostró resultados confiables en programas con al menos 15 encuestados (coeficiente G de 0,831). El ambiente educacional percibido por los residentes e internos fue positivo, sin diferencias entre ambos grupos: $152,52 \pm 23,36$ (76,26%) y $150,61 \pm 24,62$ (75,30%), respectivamente ($p = 0,761$).

Conclusiones: El cuestionario ACLEEM de 50 ítems es un instrumento multidimensional y válido, que requiere solo 15 encuestados para contar con resultados confiables. Recomendamos su uso para medir el ambiente educacional en programas de posgrado ambulatorios de habla hispana.

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Introduction

Educational environment (EE) can be defined as “the impressions, beliefs and expectations held by members of the school community about their school as a learning environment, their associated behaviour, and the symbols and institutions that represent the patterned expression of behaviour”¹. In other words, the EE is the learning climate within a school seen through the eyes of all of its members. Moreover, it is known that the EE is an important aspect that must be considered in postgraduate medical education. Particularly, its impact is well recognized and accepted because of its real influence over students’ achievement, satisfaction and success²⁻⁴.

In the last years, many new instruments have been developed and validated to evaluate the EE in healthcare professions. Specifically related with postgraduate medical education, Soemantri et al. found 9 instruments that have been used in this level, but none of them have been designed particularly for the ambulatory setting⁵. The World Health Organization in the document “Primary Health Care: Now more than ever” evidenced the importance of the primary health care (PHC), considering it as the most impor-

tant level in the healthcare systems⁶. This is also supported by scientific evidence showing that health systems with stronger PHC has better health outcomes, reduce inequities and has less healthcare costs⁷⁻⁹. These are some of the reasons why international agencies such as the Pan American Health Organization have recommended medical schools to orientate their curricula more strongly towards components of PHC¹⁰. This setting is clearly different from the in-hospital location where the teaching characteristics are substantially different¹¹.

Given the agreed relevance of ambulatory care and in the absence of a specific instrument to evaluate the EE in this setting, it becomes an imperative to develop a valid and reliable instrument to measure EE in postgraduate ambulatory medical education. Our team started to carry out this task and the results related to the qualitative research process and the development of the 50-items inventory that we called “Ambulatory Care Learning Educational Environment Measure” (ACLEEM) are published elsewhere¹².

The aims of the present study were to prospectively administer the ACLEEM inventory to clerks and postgraduate residents at the Pontificia Universidad Católica Medical School (PUCMS) and to analyze the psychometric properties

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