Admission tests in medical education. Generalizability, predictive validity and dropout

Abstract

The most commonly used non-grade based selection criteria in medical education are admission interviews and written motivational or autobiographical submissions. Both are typically only moderately reliable instruments when used for selection in health science education. In addition, the reliability of most other non-cognitive selection criteria, as well as combinations of different non-cognitive criteria, is rarely reported in the literature. We found no literature reviews of factors generally associated with medical school dropout in the medical education literature on searching. In addition, little appeared to be published about the effect of non-cognitive selection on student dropout. Between 2002-2007, half the medical students at University of Southern Denmark were admitted based on highest prior grades (quota 1), while the other half went through a composite non-grade based admission procedure (quota 2).

The aims of the research presented here was therefore: 1) to examine the composite generalizability of quota 2 selection to medicine, chiropractic, and sports science at the University of Southern Denmark in the Spring 2007 selection, 2) to examine factors found to be associated with dropout in medical education generally, and finally 3) to examine if quota 2 admission was independently associated with dropout for medical students.

The study designs used were: 1) a multivariate generalizability study design, 2) a systematic critical literature review, and 3) a prospective cohort study.

We found good composite generalizability coefficients (G) for quota 2 selection for the three health science programs examined (G=0.80-0.84). The literature review revealed, that lower entry qualifications - very broadly defined - appeared to be the only consistent predictors of dropout. We found very few studies examining the association between non-cognitive selection criteria, or post-admission educational initiatives and student withdrawal. For medical students admitted to the University of Southern Denmark between 2002-2007, quota 2 selection (non-grade based admission testing) was superior to quota 1 selection (grade-based selection), when the outcome was student dropout within two years of matriculation (OR_{All}=0.56, $CI_{95\%}$ [0.39-0.80] & OR_{Danish}=0.58, $CI_{95\%}$[0.37-0.90]). The type of qualifying exam and the assigned priority of the program were also significant predictors of dropout. Selected social and demographic background factors did not seem to be related to medical school dropout.

Limitations, potential biases, and generalizability of the findings are discussed, and directions for future research are suggested