Peer Assessments May Predict Objective Long-Term Academic Performance

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Introduction

Creating medical curricula that delivers competent and personable physicians represents a challenge in medical education. Peer assessment surveys are a prominent tool to measure perceived performance. In this study, 673 first-year medical students were given a survey in their first year to judge their anatomy group members on personal attributes ranging from preparedness to empathy based on the Likert Scale. We hypothesized that these subjective scores in year 1 will positively correlate to objective academic performance outcomes in years 2, 3, and 4, namely STEP1/2 scores and class ranking.

Methods

During the first year of SKMC, students are required to assess their peers from their anatomy group of four, twice on a 1-5 Likert Scale. The questions in the survey:

- Were they prepared for sessions and supported their thoughts with references?
- Were they able to clearly explain their reasoning?
- Did they take initiative and provide leadership?
- Do they consistently demonstrate respect, compassion, and empathy?
- Do they share information and resources to truly help the group learn?

The Likert scores for each student were averaged, and then compared to each student’s performance on USMLE Step 1, Step 2, and their final class rank. Step 1 and Step 2 are national board exams while class rank is determined by school tests, clinical rotations, and professionalism.

A multivariable regression was used for each question matched with each independent metric. Our sample consisted of 673 students from the classes of 2012, 2013, & 2014 at SKMC. Students missing one or more variables from the survey or outcomes measured were excluded from the study.

Results

Tables 1-3 display the p-values of our multivariable analysis examining the correlation of the individual questions from the peer assessment to the objective metrics of Class Rank, Step 1, and Step 2. Green boxes indicate a significant p-value<.05. Sample Size: N=231 (2012), N=229 (2013), N=213 (2014), & N=673 (One Sample). Table 4 is a linear regression of class rank to Step 1 & Step 2 scores.

Discussion

- Overall, the multivariable regression shows a strong positive correlation between the perceived preparation in peer assessment and all metrics studied.
  - Better prepared students perform better on exams.
  - Students can perceive who will perform well on national examinations over 2 years before they are taken and class ranking 4 years prior to its measurement.
- No other questions show a strong, consistent correlation to positive academic performance.
  - This could be due to questions not capturing the persona of students or the attributes measured have negligible effect on academic performance.
- Table 4 validates that SKMC class ranking is an excellent predictor of student performance on national board exams.
- A limitation to this study was the skewed distribution of peer assessment scores with less than 3% of our sample having scores lower than 3 in at least one category. However, the average scores have a normal distribution (Fig.1).

Future Research

The results from this study indicate that peer assessment can be a valuable tool in predicting academic performance and potentially identifying struggling students early. It follows that peer assessment may also help predict other outcomes. Specific to this research group, future research will include correlating peer assessments to certain validated health factors such as:

- Jefferson Scale of Empathy
- Leadership Potential
- Mental health throughout pre-clinical years
- Loneliness

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