

## Development of a Research Mentor Quality Rating Scale for Medical Students

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**Background:** Programs encouraging medical student research such as Scholarly Concentrations (SC) are increasing nationally. Students rate the most important aspect of these programs as the opportunity to develop a mentoring relationship with a faculty member. However, there are few measures of mentoring quality.

**Hypotheses/Aim:** We sought to develop a mentoring scale for medical student research experiences.

**Methods:** SC faculty modified a validated graduate student scale of mentorship, the Ideal Mentor Scale, by selecting 10 of the 34 original items that were most relevant for medical students. We added an item on project ownership that was critically important to the SC program and not otherwise represented. We administered this modified 11-item assessment to second year medical students in the Johns Hopkins University SC Program from 2011-2016, and performed factor analysis with oblique rotation to determine items for inclusion and specific subscales. We correlate the mentoring quality rating and each subscale with four student outcomes: 'very satisfied' with mentor, 'more likely' to do research in the future, project accepted at a national meeting, and highest SC faculty rating of student project.

**Results:** 598 students across five concentrations responded (90% response rate). After factor analysis, we eliminated three items producing a final scale of overall mentoring quality (8 items, Cronbach's alpha= 0.92) with three subscales: 1) advocacy (putting student first and giving sense of ownership, 3 items, alpha=0.87), 2) responsiveness (availability for meetings and email, 2 items, alpha=0.86), and 3) guidance (teaching specific skills, 3 items, alpha=0.86). The overall mentor quality scale was significantly associated with all four student outcomes, and the subscale of mentor advocacy was significantly associated with students being more likely to do future research (OR 1.22 95%CI 1.06-1.41) and having the highest faculty rating of their project (OR 1.29 95% CI 1.01-1.65).

**Conclusion:** Mentor quality can be reliably measured and associates with important student outcomes. To our knowledge, this is the first tool specifically addressing mentorship in medical student scholarly experiences, and can be implemented at SC programs nationwide. Our results also suggest that the construct of mentor advocacy might be most important in predicting student experiences and performance.