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APPLICATION OF THE MULTI-FACET RASCH MODEL TO VALIDATE CHIEF RESIDENTS SURVEY: A TWO-YEAR STUDY

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BACKGROUND
Chief Resident (CR) selection process is described by many residency programs as a collective effort from the residency program leadership, key faculty members, and resident peers. Unfortunately, the literature does not show any established guidelines, methods, or psychometric sound instruments to aid this process. In our Pediatric Residency Program, we annually select three self-nominated residents during their PGY-2 year for the PGY-4 CR position. All applicants interview with the residency program leadership. To include the resident peer perspective, we developed a survey to capture personal and leadership characteristics of the candidates. After utilization of the results in the first implementation for the CRs selection in 2015, this instrument had its second-round validation process for the CRs selection in 2016.

PURPOSE
To compare CR candidate’s characteristics and leadership qualities within and across two years and to further validate the CR peer selection instrument.

METHODS
This study utilized the Multi-Facet Rasch Model (MFRM) to analyze two-year data from the CRs peer selection surveys. Candidates’ performance across two years are compared by utilizing common item equating method.

RESULTS
Four pediatric residents (Candidate 1-4) in 2015 and six pediatric residents (Candidate 5-10) in 2016 were considered for the position of CR. The results of the Facets analysis revealed that Candidate 1 has the highest performance among all four candidates while Candidate 3 scored highest while Candidate 5 is the second best. However, the second year CRs (Candidate 7, 10, 5) have relatively higher ranking when comparing all 10 candidates together (Tab1). Further analysis of the interaction plot between candidates and survey items showed that Candidate 5 received very low score on item 4 (Confident) and item 19 (Listen for ideas, not just words) (Fig1). Further analysis of the interaction between candidates and survey items showed that Candidate 5 received very low score on item 4 (Confident) and item 19 (Assertive) (Fig1). This study demonstrated the design and validation process of a psychometric sound survey instrument in the medical field for CRs peer selection through the utility of MFRM. More importantly, the common item equating method enabled us not only to compare candidate’s performance but also to assess survey items quality. The findings are promising since our surveys can differentiate candidates’ performance based on their peer perceptions.

CONCLUSION
This study utilized the Multi-Facet Rasch Model (MFRM) to analyze two-year data from the CRs peer selection surveys. Candidates’ performance across two years are compared by utilizing common item equating method.

Table 1: Candidates’ performance across two years: four candidates from 2015 (subset1) and six candidates from 2016 (subset2).

Table 2: Candidate’s relative performance on survey items.

REFERENCES