

## INTRODUCTION

- Suturing is a fundamental skill for medical students but there is a gap between desired and perceived proficiency.<sup>1,2</sup>
- Self-directed learning is a skill required of doctors throughout their profession and it is imperative that medical students learn strategies to teach themselves.<sup>3,4</sup>
- It is unknown in what ways student self-assessment might be biased relative to assessment by a physician.
- Aim: to obtain an estimate the agreement in suturing skills assessment between medical students and physicians.



## RESULTS

- N=71, most had no prior suturing instruction or experience with surgical instruments, and a plurality of students completed 0-9 sutures during the eight-week period.
- Three faculty raters exhibited strong agreement with an inter-class correlation coefficient of 0.91.
- Total scores for student self-rating (25±6) exhibited no bias relative to the mean faculty ratings (26±6, p=0.353), but correlation between faculty and student ratings was low (Pearson's r=0.26, Table 1).
- The Bland-Altman plot (Figure 1) illustrates limited agreement between student and faculty data.

Table 1: Student and Physician Rating Comparison (n=71)

Variable	Mean Difference (Paired Test P-Value)	Pearson Coefficient (p-value)	Lin's Rho C (p-value)
Respect for Tissue	-1 (0.034)	0.19 (0.119)	0.16 (0.111)
Time and Motion	0 (<0.001)	0.28 (0.020)	0.24 (0.016)
Instrument Handling	0 (0.021)	0.16 (0.182)	0.15 (0.174)
Suture Handling	0 (0.738)	0.16 (0.182)	0.16 (0.172)
Flow of Operation	1 (0.158)	0.21 (0.079)	0.20 (0.069)
Knowledge of Procedure	1 (0.002)	0.12 (0.312)	0.11 (0.307)
Overall Appearance	0 (0.395)	0.15 (0.202)	0.15 (0.192)
Overall Performance	0 (0.009)	0.30 (0.012)	0.28 (0.008)
Total Score	-1 (0.353)	0.26 (0.029)	0.26 (0.021)



## CONCLUSION & DISCUSSION

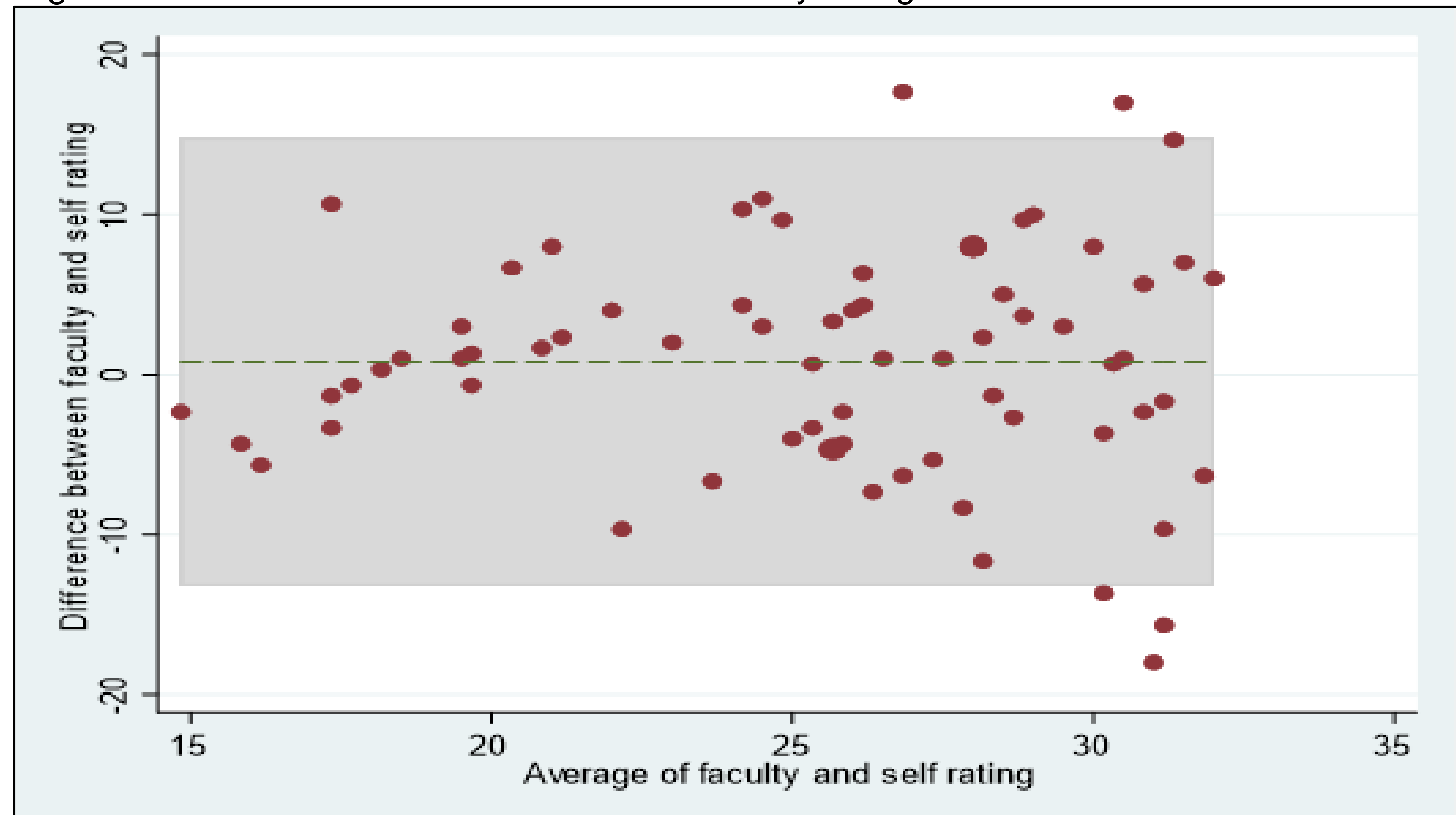
- Ratings were weakly correlated but not systematically biased suggesting under- and over-estimation of skill.
- Students were unable to accurately assess their own performance without direct faculty instruction.
- Faculty instruction is a financial and logistical burden and self-directed learning must be optimized for students to learn suturing skills.<sup>7,8</sup>



## MATERIALS & METHODS

- Second-year medical students were provided a video-based, self-directed curriculum to use over eight weeks.
- Students were video recorded while placing three simple-interrupted sutures, which three faculty viewed and provided ratings using a global validated rating scale.
- Students used this same rating scale to evaluate their own performance.
- Student and faculty assessments were compared to assess bias, correlation, and concordance.

Figure 1: Bland-Altman Plot of Student vs Faculty ratings



## REFERENCES

1. Cianna Pender, Vladimir Kiselov, Qingzhao Yu, Jennifer Mooney, Patrick Greiffenstein, John T. Paige, All for knots: evaluating the effectiveness of a proficiency-driven, simulation-based knot tying and suturing curriculum for medical students during their third-year surgery clerkship, *The American Journal of Surgery*, Volume 213, Issue 2, 2017, Pages 362-370, ISSN 0002-9610, <https://doi.org/10.1016/j.amjsurg.2016.06.028>.
2. Dehmer, Jeffrey J. MD; Amos, Keith D. MD; Farrell, Timothy M. MD; Meyer, Anthony A. MD, PhD; Newton, Warren P. MD, MPH; Meyers, Michael O. MD Competence and Confidence With Basic Procedural Skills, *Academic Medicine*: May 2013 - Volume 88 - Issue 5 - p 682-687. doi: 10.1097/ACM.0b013e31828b0007
3. Eva, K.W., Cunningham, J.P., Reiter, H.I. et al. How Can I Know What I Don't Know? Poor Self Assessment in a Well-Defined Domain. *Adv Health Sci Educ Theory Pract* 9, 211-224 (2004). <https://doi.org/10.1023/B:AHSE.0000038209.65714.d4>
4. Knowles MS. *Self-directed learning*. Englewood Cliffs, NJ: Prentice Hall Regents; 1975.
5. Healing a broken clerkship grading system Justin Bullock, MD, MPH; Karen E. Hauer, MD, PhD February 20, 2020 AAMC
6. Harvey JC, Katz C. *If I'm so successful, why do I feel like a fake? The impostor phenomenon*. London: St. Martin's Press; 1985.
7. Alsoufi A, Alsuyhili A, Msherghi A, Elhadi A, Atiyah H, et al. (2020) Impact of the COVID-19 pandemic on medical education: Medical students' knowledge, attitudes, and practices regarding electronic learning. *PLOS ONE* 15(11): e0242905. <https://doi.org/10.1371/journal.pone.0242905>
8. Nassar, A. K., Waheed, A., & Tuma, F. (2019). Academic clinicians' workload challenges and burnout analysis. *Cureus*, 11(11).