

# Association between Medical Student Grit and United States Medical Licensing Examination Performance

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**SCHOOL OF MEDICINE**

# Background

- Achievement likely results from differences in malleable characteristics<sup>1</sup>
- In challenging domains, baseline intelligence is comparable but differences in performance still exist<sup>2</sup>



# Background

- Grit is a characteristic defined by passion and perseverance to pursue long-term goals<sup>2</sup>



# Background

- Among surgery residents, grit predicts:
  - Better psychological health
  - Lower burnout<sup>3</sup>
  - Marker for attrition risk<sup>4</sup>
- Senior surgeons are grittier than trainees<sup>5</sup>



# Background

- Medical school is difficult in numerous ways:<sup>6,7</sup>
  - Initial transition is challenging
  - Workload
  - Academic performance concerns
  - High-stakes exams (USMLE Steps 1 and 2)
  - Transition to clinical years



# Objective

- Primary objective was to assess relationship between grit and medical students' USMLE performance on Steps 1 and 2
- We also sought to determine if the third year of medical school impacted students' grit



# Methods

- Incoming third year medical students (MS3) (2017-2018 academic year) were recruited
- Consenting MS3s completed the Short Grit Scale (Grit-S)<sup>8</sup>
- Grit-S produces three factors: grit score, perseverance of effort, and consistency of interest



# Methods

- MS3s completed Grit-S at the conclusion of third year
- MS3 USMLE Step 1 and step 2 (Clinical Knowledge; CK) scores compiled
- Multiple linear regressions were performed and are reported as:
  - Coefficient([95% confidence interval], p-values)
- Paired t-tests were performed to assess grit changes





# Results

- 223 MS3s completed the initial administration of the Grit-S (43.2% female)
- 107 MS3s completed the second administration of the Grit-S (47.1% of the initial assessment sample, 38.9% female)

	<b>Pre-MS3</b>	<b>Post-MS3</b>	<b>P-value</b>
Single Grit Factor	3.99±0.46	3.87±0.49	p<0.001
Consistency of Interest	3.8±0.54	3.74±0.55	p<0.15
Perseverance of Effort	4.18±0.48	4±0.51	p<0.001



# Results

**Table 2. Relationship of grit factors and USMLE Step 1**

	<b>Coefficient</b>	<b>95% CI</b>	<b>p-value</b>
Pre-third year Grit	4.4	-0.4,9.3	0.08
Pre-third year Perseverance of Effort	4.5	-0.3,9.2	0.07
Pre-third year Consistency of Interest	2.9	-1.2,6.9	0.16
Post-third year Grit	6.7	0.1,13.3	0.048
Post-third year Perseverance of Effort	7.3	1,13.6	0.02
Post-third year Consistency of Interest	4.1	-1.8,10	0.17



# Results

**Table 3. Relationship of grit factors and USMLE Step 2 CK**

	<b>Coefficient</b>	<b>95% CI</b>	<b>p-value</b>
Pre-third year Grit	6.7	2.2,11.2	0.003
Pre-third year Perseverance of Effort	6.4	2,10.8	0.005
Pre-third year Consistency of Interest	4.5	0.9,8.2	0.02
Post-third year Grit	7.3	-0.4,14.2	0.04
Post-third year Perseverance of Effort	9	2.6,15.3	0.006
Post-third year Consistency of Interest	3.3	-2.8,9.3	0.28



# Conclusions

- Grit predicts USMLE performance
- Medical student grit deteriorated significantly from the beginning to the end of third year
- It is necessary to consider offering interventions to enhance medical student grit



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# Questions

Thank you!

Questions?

