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How Does USMLE Step 1 Examination Performance Predict Short-term Wellness and Perceived Stress?

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How does USMLE Step 1 performance predict wellness?

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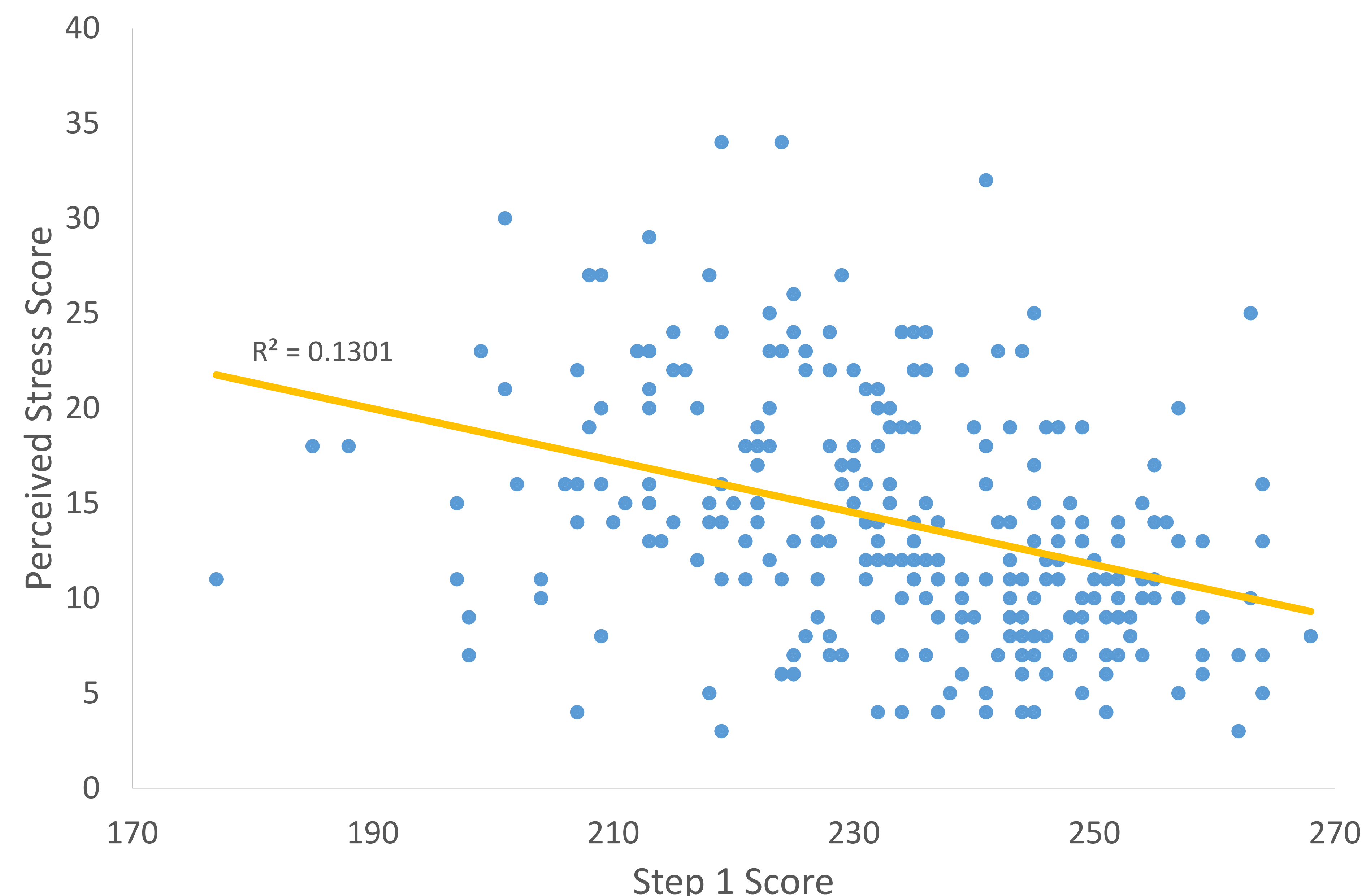
1. VCU School of Medicine 2. National Board of Medical Examiners 3. University of Michigan Medical School

Purpose

- Wellbeing and stress are areas of increasing concern in medicine. The three steps of the USMLE exam were originally developed as pass-fail requirements toward MD licensure, but their use has evolved to include eligibility for residency programs.
- There is increasing student distress around USMLE Step 1 performance, yet little is known about how Step 1 performance immediately impacts wellness.
- We examined the relationship between step 1 performance with perceived stress and wellbeing.
- We hypothesized that higher Step 1 scores would correlate with lower subsequent stress and improved wellbeing.

Methods

- MD students take the USMLE Step 1 examination following an 18 month pre-clerkship curriculum.
- Wellbeing and perceived stress measured after students returned from the post-Step 1 break, during required orientation to clerkships, using the WHO-5 Well-Being Index and the Perceived Stress Scale.
- Prior MCAT performance and class rank were also analyzed.
- Students who had not received their scores at the time of measurement were excluded.



Results

- There was no significant association between students' Step 1 performance and their subsequent well-being. ($F(3, 266)=0.845, p=0.47$)
- There was a significant but modest relationship found between Step 1 performance and students' perceived stress. ($F(3, 264)=13.871, p<0.000$), with an R^2 of 0.14. Lower performers reported higher stress and vice versa.
- Neither prior performance on the MCAT (slope=-0.04, $p=0.720$) nor class cumulative rank (slope=0.01, $p=0.196$) was significantly predictive.

Multivariate Regression on Perceived Stress Scores

Variable	Slope	SE	t value	P-value
Constant	39.029	7.93	4.92	0.00
MCAT Total Score	-0.04	0.11	-0.36	0.72
Step 1 Score	-0.11	0.03	-3.45	0.00
Class Rank	0.01	0.01	1.30	0.20

Multivariate Regression on Wellbeing Scores

Variable	Slope	SE	t value	P-value
Constant	23.49	8.75	2.68	0.01
MCAT Total Score	-0.03	0.12	-0.24	0.81
Step 1 Score	-0.03	0.03	-0.96	0.34
Class Rank	-0.02	0.01	-1.58	0.12

Discussion

Data from the high scorers suggest the rigors of Step 1 preparation did not lead to persistent downstream distress.

High-scoring students may have perceived decreased stress because:

- They were content with their Step 1 score.
- They felt less pressure to excel during clinical clerkships.
- They exhibit innate strength at taking multiple-choice exams and find success on exams more achievable.
- They naturally have increased resilience, allowing them to more quickly recover from the stresses of Step 1 preparation.

Conclusion

- Step 1 performance does not overwhelmingly impact students' perceived wellness.
- This allows us to intentionally plan stress and wellbeing measurement and interventions at other certain pivotal times in the curriculum.
- This data can also inform national conversations around the impact of Step 1 on the welfare of students.

1. Cohen, Sheldon, T. Kamarck, and R. Mermelstein. "Perceived stress scale." Measuring stress: A guide for health and social scientists (1994).

2. Topp, C. W., Østergaard, S. D., Søndergaard, S., & Bech, P. (2015). The WHO-5 Well-Being Index: a systematic review of the literature. *Psychotherapy and psychosomatics*, 84(3), 167-176.