Preliminary Analysis of Student Perceptions of STEP-1 Preparedness
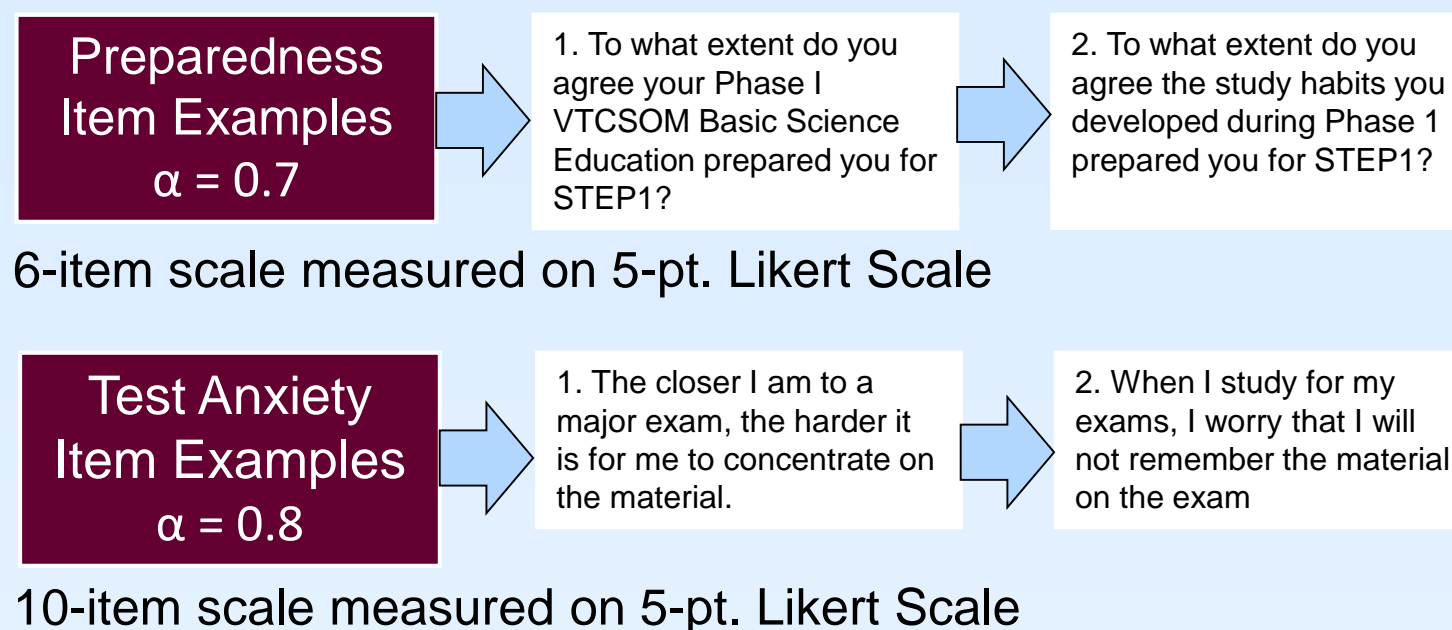
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Background

- Beginning in Academic Year 2021-2022, the USMLE Step 1 Exam reporting transitioned from a numerical score to Pass/Fail.

- Perceptions of exam preparedness has multiple inter-related dimensions, consisting of several factors including:
- ❖ Internal factors: student motivation, ability, self-efficacy; cognitive test anxiety
- ❖ External factors: curriculum and instruction quality; awareness of and access to study resources; peer support

- The goal of this research is to better understand, predict, and support student STEP-1 preparedness. The goal of this analysis is to identify sources of instrument validity.
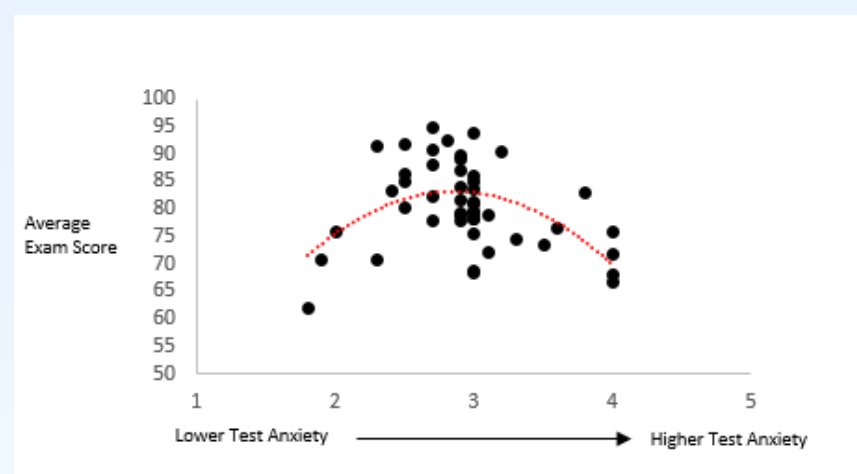
Methods

- We conducted a literature review and blueprinted a preparedness instrument, mapping Likert-items to dimensions.

- We adapted the Westside Test Anxiety Scale (2007) to estimate anxiety and to better understand the role of test anxiety in student performance. We developed a short qualitative protocol to assess supports and barriers.

- We implemented instruments using Qualtrics at the end of M2 year (T1) and after students had completed Step 1 (T2).

- For our preliminary analysis, we assessed instrument outcomes by demographic and performance-related factors using descriptive statistics and correlations at T1 and T2.

- Future data collection will help us aggregate qualitative comments and quantitative data to build a comprehensive validity argument for our instruments (Cook, 2015).

Preparedness Item Examples
α = 0.7

1. To what extent do you agree your Phase I VTCSOM Basic Science Education prepared you for STEP1?

2. To what extent do you agree the study habits you developed during Phase 1 prepared you for STEP1?

6-item scale measured on 5-pt. Likert Scale

Test Anxiety Item Examples
α = 0.8

1. The closer I am to a major exam, the harder it is for me to concentrate on the material.

2. When I study for my exams, I worry that I will not remember the material on the exam

10-item scale measured on 5-pt. Likert Scale

Results

Exhibit 1: Relationships Between General Test Anxiety and Phase-I Performance
As expected, we observe a curvilinear relationship between performance and perceived anxiety. This external relationship is consistent with the literature and provides one source of validity evidence for the adapted Anxiety instrument.

Performance	Basic Science		Intensive Study		Study Habits		NBME Satisfaction		CBSE Satisfaction		Pre-Prep	Post-Prep	Prep Delta
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post			
MCAT	-0.12	-0.03	-0.16	0.03	0.25	0.36*	0.23	0.18	0.31*	0.25	0.20	0.22	0.01
M1 NBME	0.15	0.01	0.01	0.23	0.28	0.24	0.58**	0.29	0.39*	0.19	0.46*	0.25	-0.27
M1 ICE	0.12	-0.08	0.11	0.24	0.35*	0.21	0.51**	0.21	0.24	0.1	0.42*	0.17	-0.12
M2NBME	0.26	0.16	0.02	0.25	0.43*	0.37*	0.45*	0.37*	0.39*	0.30*	0.50**	0.38*	-0.17
M2 ICE	0.19	0.05	0.05	0.24	0.31*	0.19	0.47**	0.24	0.39*	0.18	0.45*	0.23	-0.28
M1_M2 NBME Gains	0.16	0.23	0.00	0.02	0.22	0.18	-0.24	0.09	-0.03	0.16	0.02	0.18	0.18
M1_M2 ICE Gains	0.09	0.19	-0.09	-0.01	-0.07	-0.04	-0.1	0.02	-0.04	0.09	0.01	0.07	0.07

Note: *indicates sig. @ 0.05; **indicates sig @ 0.001

Exhibit 2: Relationships Between Academic Performance and Preparedness
Several perceived preparedness dimensions are associated with pre-matriculation and phase-I performance, before and after the STEP-I experience.

Conclusions

- The preparedness instrument has acceptable internal consistency (α = 0.7). The anxiety instrument has good internal consistency (α = 0.8).

- Preliminary observations indicate a curvilinear relationship between cognitive test anxiety and exam performance. This is consistent with the literature and provided validity evidence for our adapted anxiety instrument.

- Higher pre-matriculation and Phase-1 performance is associated with higher perceived STEP-1 preparedness on several dimensions.

- Qualitative comments capture post perceptions of losing focus, delayed memory, being worn out, and "feeling out of sorts".

Next Steps

1. Academic Year 20222-2023 will be year 2 of data collection. As sample size increases, we will explore internal structure and functioning of preparedness and anxiety latent constructs using advanced measurement methods. New data will also be linked to performance.

2. Preliminary qualitative analysis uncovered several important supports and barriers to STEP I preparedness. We will continue to explore these areas and incorporate them into our understanding.

3. More specifically, future data collection will also focus on social network analysis. This will involve further investigation into the supports and barriers to student preparedness by understanding frequency, magnitude, characteristics, and relationships between identified social networks.

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