

BACKGROUND & SIGNIFICANCE

- Medical consultations occur when one physician, often a specialist, reviews another physician's patient and their medical history and provides a recommendation regarding care.
- Previous literature recognizes that consultations are generally not standardized, and training in consultations in undergraduate medical education (UME) is not consistent¹.
- The 5C checklist model and Global Rating Scale (GRS) are rubrics developed to standardize consultations, and are being used in some UME settings².
- Adverse events due to human communication error occur in 1-2% of hospitalizations³.
- Implementing standardized consultation training into UME could improve communication within the hospital setting².

Performance characteristic	1	2	3	4	5
Introduction of involved parties	Not effective	Somewhat effective	Effective	Very effective	Extremely Effective
Patient case presentation	Not effective	Somewhat effective	Effective	Very effective	Extremely Effective
Specified consultation objective	Not effective	Somewhat effective	Effective	Very effective	Extremely Effective
Case discussion	Not effective	Somewhat effective	Effective	Very effective	Extremely Effective
Confirmation and closing	Not effective	Somewhat effective	Effective	Very effective	Extremely Effective
Interpersonal skills	Not effective	Somewhat effective	Effective	Very effective	Extremely Effective
Global rating	Not effective	Somewhat effective	Effective	Very effective	Extremely Effective

HYPOTHESIS & AIMS

The quality of UME training in consultation will be reflected in ability of residents to request consultations. Additionally, the online Oracle module is an effective standardized training mechanism.

Aim 1: Show that training improves resident's ability to request consultations, highlighting a need for standardized consultation training in UME.

Aim 2: Show that the online module was effective and prepared residents for giving consultations.

METHODS

Data Analysis:

Study data were collected and managed using REDCap electronic data capture tools hosted at the University of Chicago. Analysis was completed using t-tests, paired t-tests, and spearman rank correlations in Stata 14. Statistically significant data ($p < 0.05$) is marked with a *.

Online Oracle Module: Between May 24th and June 20th, 124 residents took an online pre-module, consisting of:

- Pre-Quiz:** A 4 question pre-quiz measuring UME training in consultations
- Quiz:** A review module with 7 questions that was repeated until residents demonstrated mastery
- Post-Quiz:** A 4 question post-quiz measuring success of the module

Figure 1: Oracle Quiz Questions (Number and Percent Correct were taken from their first attempt)

Question:	Which of the following is true about the definition of a consultation?	A curbside consultation is defined by...	In one study over the last decade, communication failures were the leading cause of what type of medical error?	Identify which of the following is part of the 5Cs of Consultation Communication:	Which of the following aspects of consultation has been demonstrated to improve consultation communication in patient care?	Curbside consultations should be avoided due to which of the following potential consequences?	Which of the following is the correct recommended timeframe for consultations to be initiated at the University of Chicago?
Percent Correct (n):	92.7% (115)	83.1% (103)	46.8% (58)	88.7% (110)	97.6% (121)	78.2% (97)	58.9% (73)
Percent Incorrect:	7.3%	16.9%	53.2%*	11.3%	2.4%	21.8%	41.1%*

* In the quiz module, two questions stood out as particularly difficult – one involving the time frame of consultation requests, and another involving understanding medical error.

METHODS

Graduate Medical Education Orientation Boot Camp: From June 20th–21st, 127 residents participated in an evaluative boot camp, which included handoff, consultation, informed consent, and mock hospital room evaluations.

The consultation evaluation consisted of:

- One of three standardized cases presented to residents (one for IM, surgery, and psychiatry residents, one for pediatrics residents, and one for emergency medicine and OB/GYNE residents).
- The resident then requested a consultation from the evaluator, and was evaluated on the 5Cs and GRS rubrics.

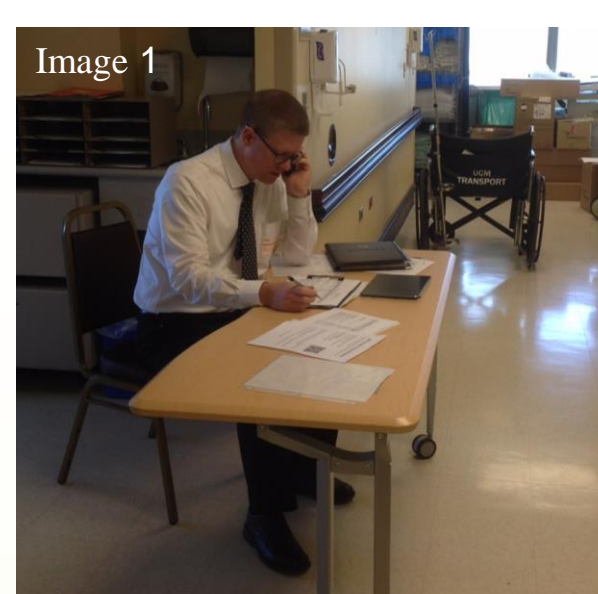


Image 1: Dr. John McConville takes a call from a resident during GME Orientation and evaluates them using the 5Cs rubric

Table 2: Percentages of residents correctly completing each item of the 5Cs Checklist

5Cs Category	Checklist Item	Percent Correct
Contact: Introducing the Consulting and Consultant Physicians	States name	99.18%
	States rank and service	80.33%
	Identifies supervising attending	31.15%
	Identifies name of consultant	82.79%
Communicate: Giving a concise story and asking focused questions	Presents a concise story	86.89%
	Presents an accurate account of information / case detail	81.15%
	Speaks clearly	98.36%
Core Question: Preparing a specific question and deciding on a reasonable timeframe for consultation	Specifies reason for consultation	95.08%
	Specifies timeframe for consultation	77.87%
Collaboration: Planning a course of action that results from discussion between consulting physician and consultant	Is open to and incorporates consultants recommendations	96.72%
	Reviews and repeats plan of care	78.69%
Closing the Loop: Ensuring that both parties agree to the plan and to maintaining proper communication about any changes in the patient's status	Thanks consultant for consultation	98.36%

RESULTS

Prior training and preparedness:

Specialty program	n (%)
Medicine	41 (32.8)
Pediatrics	23 (18.4)
Emergency Medicine	15 (12.0)
General Surgery	11 (8.8)
Anesthesiology	8 (6.4)
OB/Gyn	7 (5.6)
Psychiatry	6 (4.8)
Orthopedic Surgery	5 (4.0)
Meds/Peds	4 (3.2)
Neurosurgery	2 (1.6)
Plastic Surgery	2 (1.6)
Otolaryngology	1 (0.8)
Consult Training	
Prior Consult Training	83 (66.4)
Satisfied w/ Prior Consult Training*	56 (44.8)
Consult Experience	
No Experience	27 (22.0)
Experience in medical school	96 (78.0)
*Prepared to conduct consults***	63 (51.2)

*Resident responded "Agree" or "Strongly Agree" to the statement, "I am satisfied with the training I received related to requesting consultations in medical school."
**Resident responded "Agree" or "Strongly Agree" to the statement, "I am prepared to request consultations."
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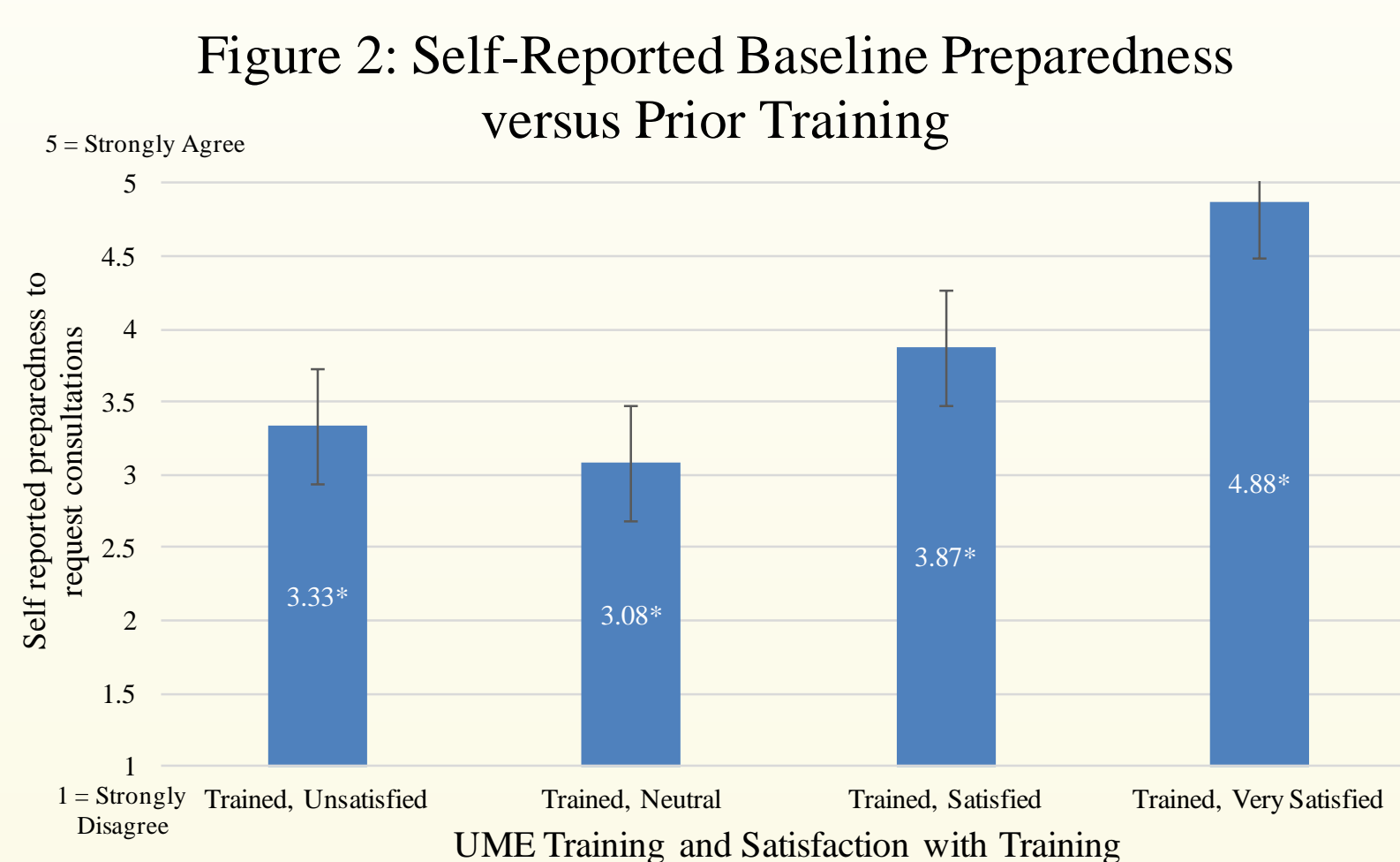


Fig. 2: Assessed at the time of the module. Preparedness and satisfaction were measured using a five point Likert scale and responses to the statements, "I am satisfied with the training I received related to requesting consultations in medical school," and, "I am prepared to request consultations." As satisfaction with training increased, self-reported preparedness increased. * $p < 0.01$

Effectiveness of the online module:

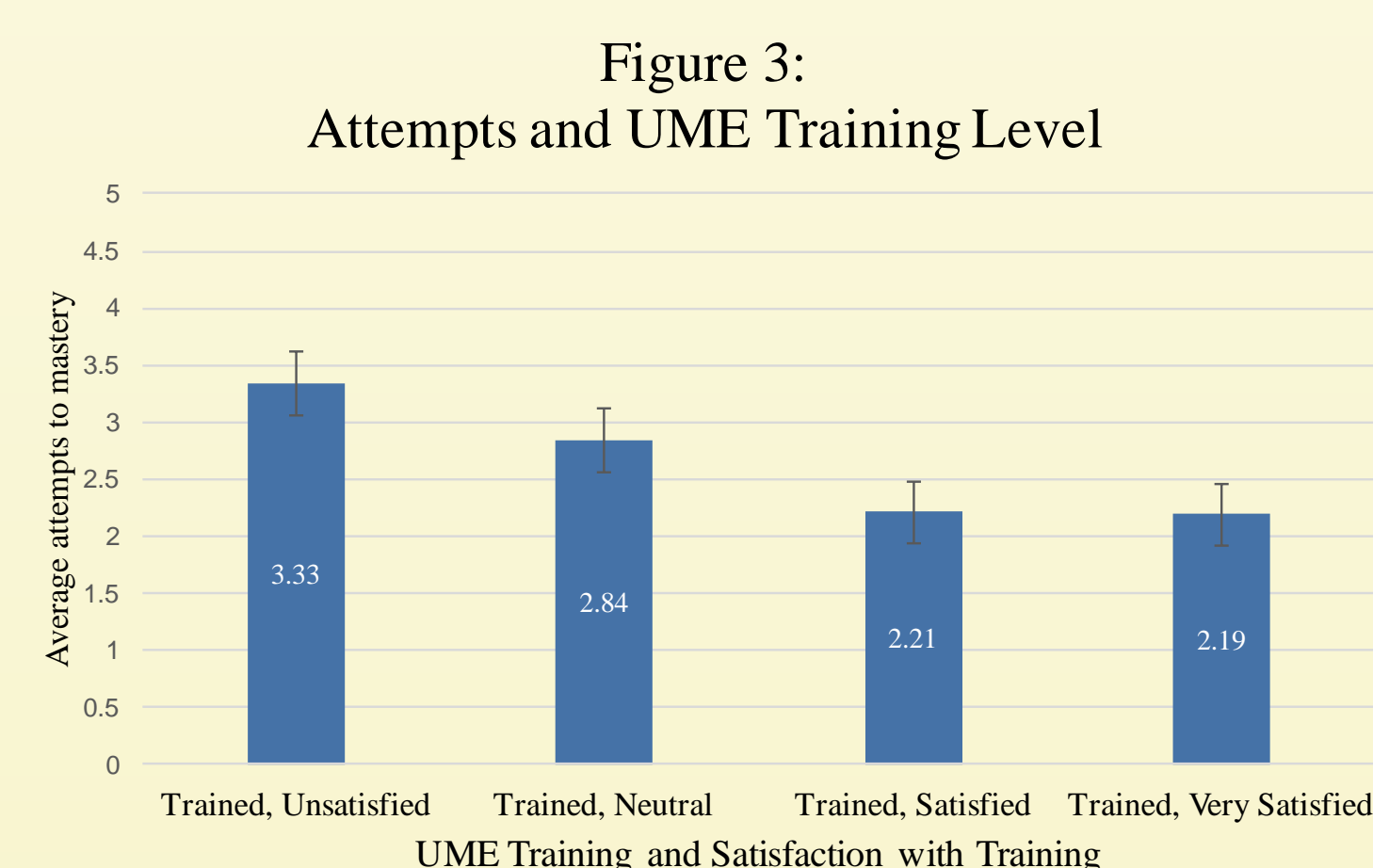


Fig. 3: Attempts to mastery were used as a measure of success in the online module – lower attempts to mastery reflected a better understanding of the material. Trained and satisfied residents took less attempts to master the material, though there was no statistical significance.

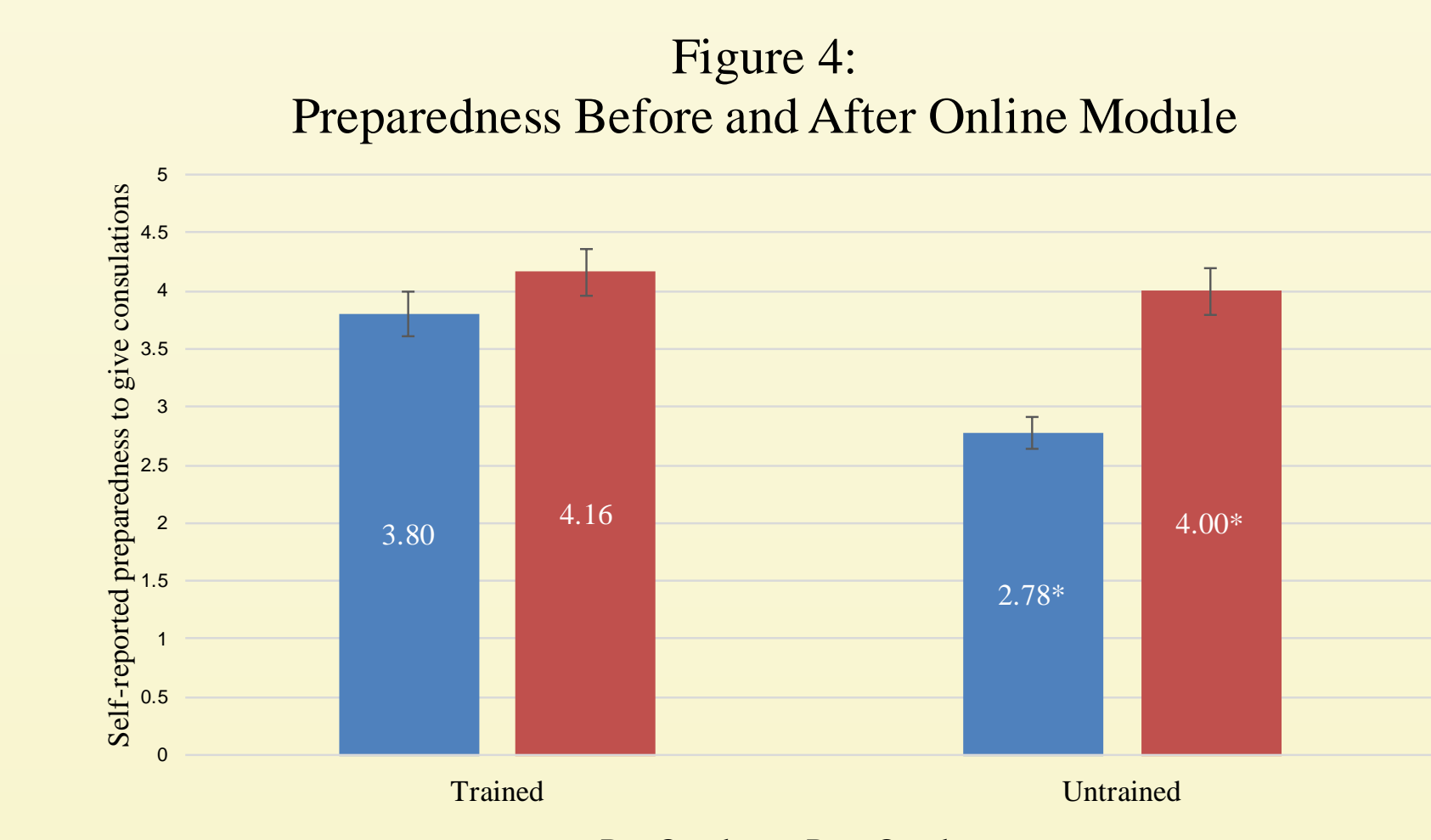


Fig. 4: Prior to the online module, untrained residents felt less prepared to request consultations. However, they improved significantly and felt as prepared as trained residents after the online module. * $p < 0.01$

RESULTS

GME Orientation Boot Camp Data:

Table 3: Average Trained and Untrained Resident Scores on each aspect of the GRS

Rubric	Trained	Untrained
Introduction of involved parties	3.854	3.775
Patient case presentation	3.573	3.375
Specified consultation objective	3.866	3.725
Case discussion	3.829	3.525
Confirmation and closing	4.012	3.75
Interpersonal skills	4.146	4
Global rating	3.72	3.575

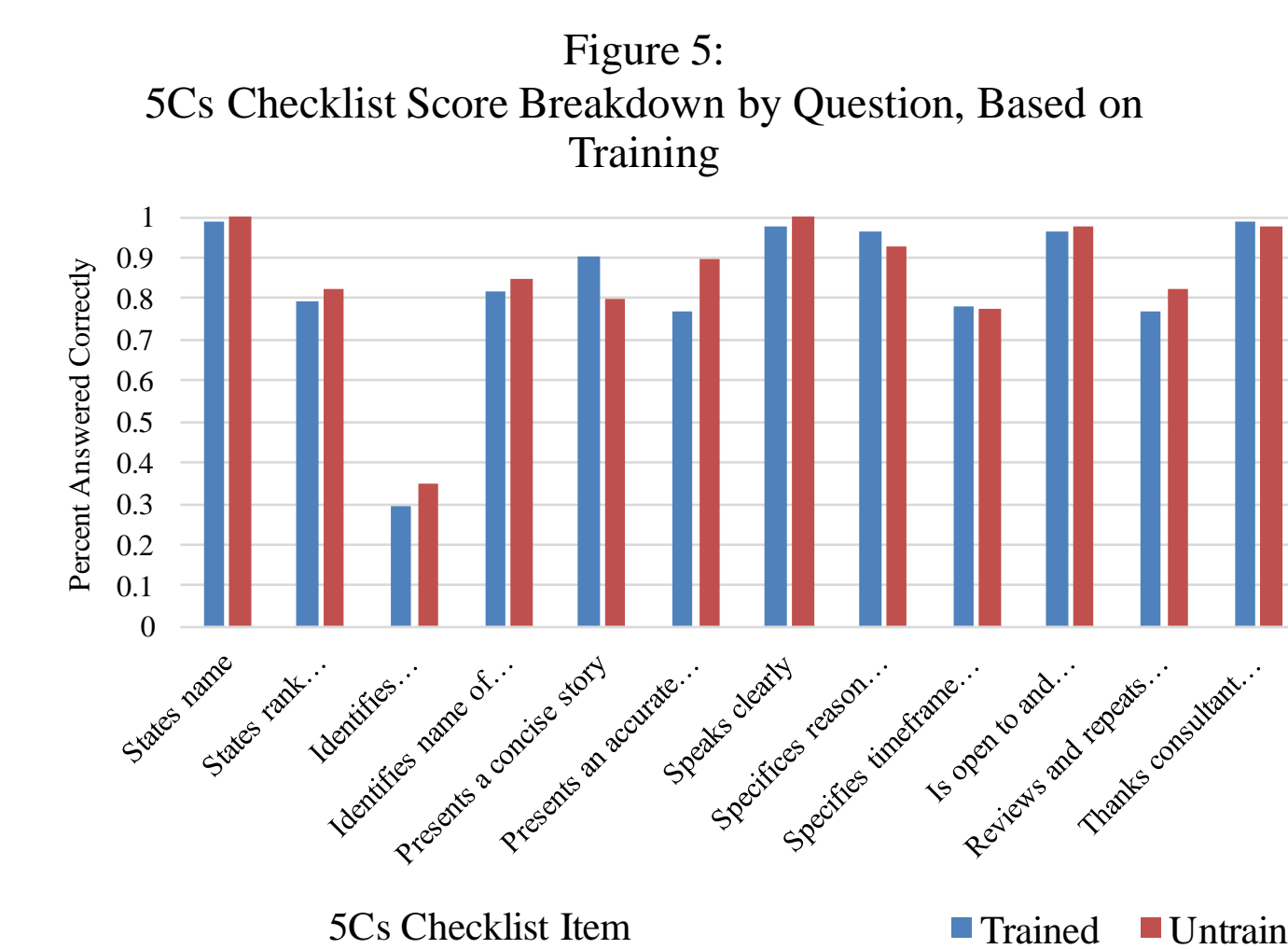


Table 3: Each GRS item fell on a scale between "1 Not Effective," and "5 Very Effective." There was no statistical difference between trained or untrained residents. There was no statistical difference between trained or untrained residents. There was no statistical difference between trained or untrained residents. There was no statistical difference between trained or untrained residents. There was no statistical difference between trained or untrained residents.

Fig. 5: The percentage correct of each item in the 5Cs checklist was measured for trained and untrained residents. There was no statistical difference.

CONCLUSIONS & FURTHER STUDIES

Current UME curricula in consultations is:

- Only formally offered at some medical schools.
- Varied, as shown by an array of resident satisfaction with their training.
- Effective at preparing residents to request consultations, when done well (as gauged by resident satisfaction, module scores, and GRS scores).

The online Oracle module:

- Was an effective training mechanism, as demonstrated by the fact that, post module, untrained residents felt as prepared as those that had been trained in requesting consultations.

GME Orientation Boot Camp:

- Further demonstrated that the Oracle module was effective at bringing residents to the same level, as there was no statistical difference between trained and untrained residents.
- Showed that UME consultation training is more effective in specific consultation based skills like "case discussion" and "confirmation and closing."

Further Studies:

- This study is limited because it occurred at a specific site with a single class of residents. Multiple years of data, as well as at multiple sites, could demonstrate that results are generalizable.
- Eventually, it would be beneficial to demonstrate that improved consultation training leads to improved communication in the medical setting.

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