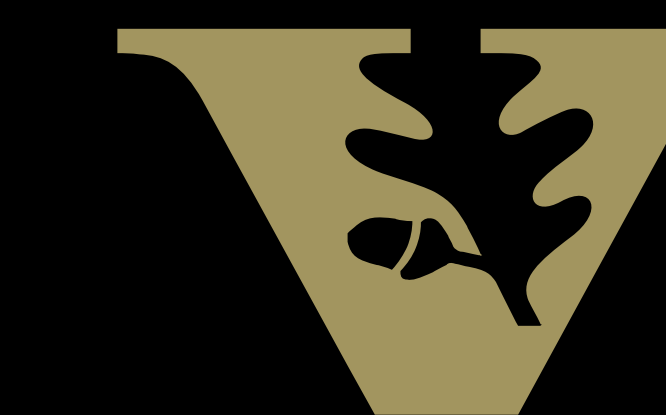




Improving Practice Guideline Knowledge and Adherence: Impact of an Ambulatory Cardiology Curriculum



Karl M. Richardson, Jai Singh, Dan Muñoz, Julie B. Damp, Lisa A. Mendes; Vanderbilt University Medical Center, Nashville, TN

Background and Objective

Background/Needs Assessment:

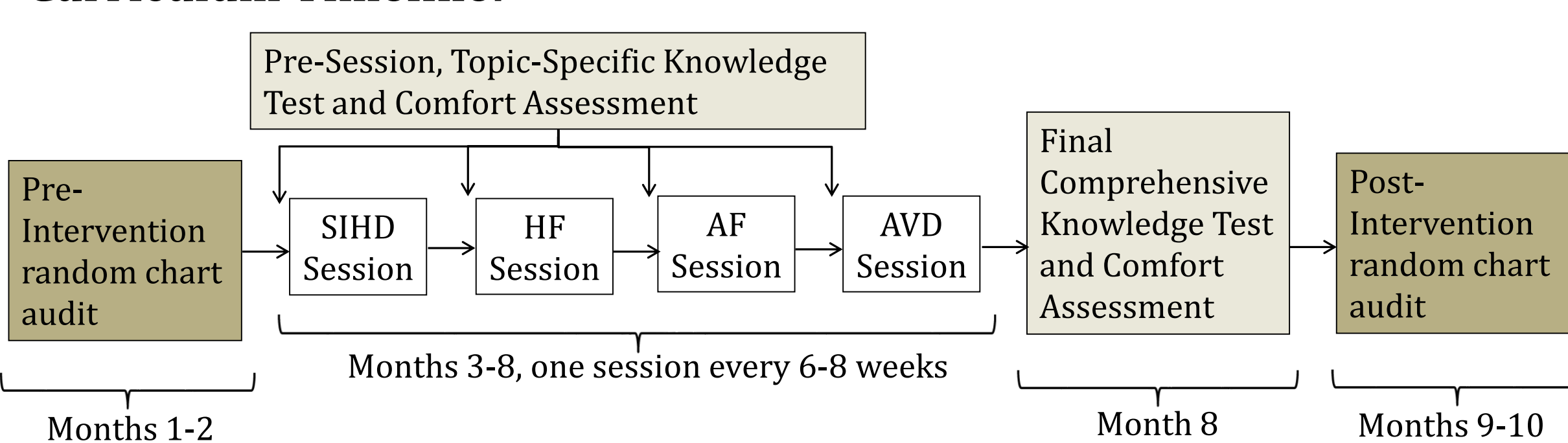
- The Accreditation Council for Graduate Medical Education (ACGME) recommends cardiology fellowships integrate core competencies, including practice-based learning and improvement and systems-based practice.
- Given that self-assessment and reflection are vital elements of practice improvement, the American Board of Internal Medicine employs practice improvement modules (PIMs) to facilitate this form of quality improvement.
- Few validated approaches exist to incorporate these skills into training.
- Structured education regarding ambulatory cardiology topics and clinic note documentation is often under-prioritized.

Objective:

- To develop, implement, and evaluate a pilot curriculum similar to a PIM using peer chart review coupled with evidence-based discussion.
- To improve guideline knowledge, adherence, and chart documentation among cardiology fellows in an ambulatory setting.

Curriculum Implementation

Curriculum Timeline:



Session Format: 4 dedicated 1-hour sessions – 1) stable ischemic heart disease (SIHD), 2) heart failure (HF), 3) atrial fibrillation (AF), 4) aortic valvular disease (AVD).

- Peer review of 4-5 de-identified outpatient fellows' clinic charts, focusing on topic-specific guideline adherence and documentation.
- Discussion of the topic-specific class I guidelines and key supporting data.
- Review of a summary handout and a suggested optimal clinic note template.

Components of Evaluation:

- Comfort with the guidelines:** Likert scale 1-5 assessment of comfort with and self-reported adherence to topic-specific guidelines.
- Knowledge of the guidelines:** Multiple-choice test of topic-specific guideline knowledge.
- Effective documentation and adherence to guidelines:** Using a novel chart audit score, maximum of 4 points awarded for each reviewed disease process covered in note:

- 1) Presence of disease stage/severity assessment.
- 2) Documentation of functional status.

Documentation effectiveness

- 1) Adherence to relevant class I therapies.
- 2) Documentation of adherence to additional relevant class I recommendations.

Guideline adherence

Curriculum Evaluation

Improvement in Self-Assessed Guideline Knowledge (Likert 1-5)

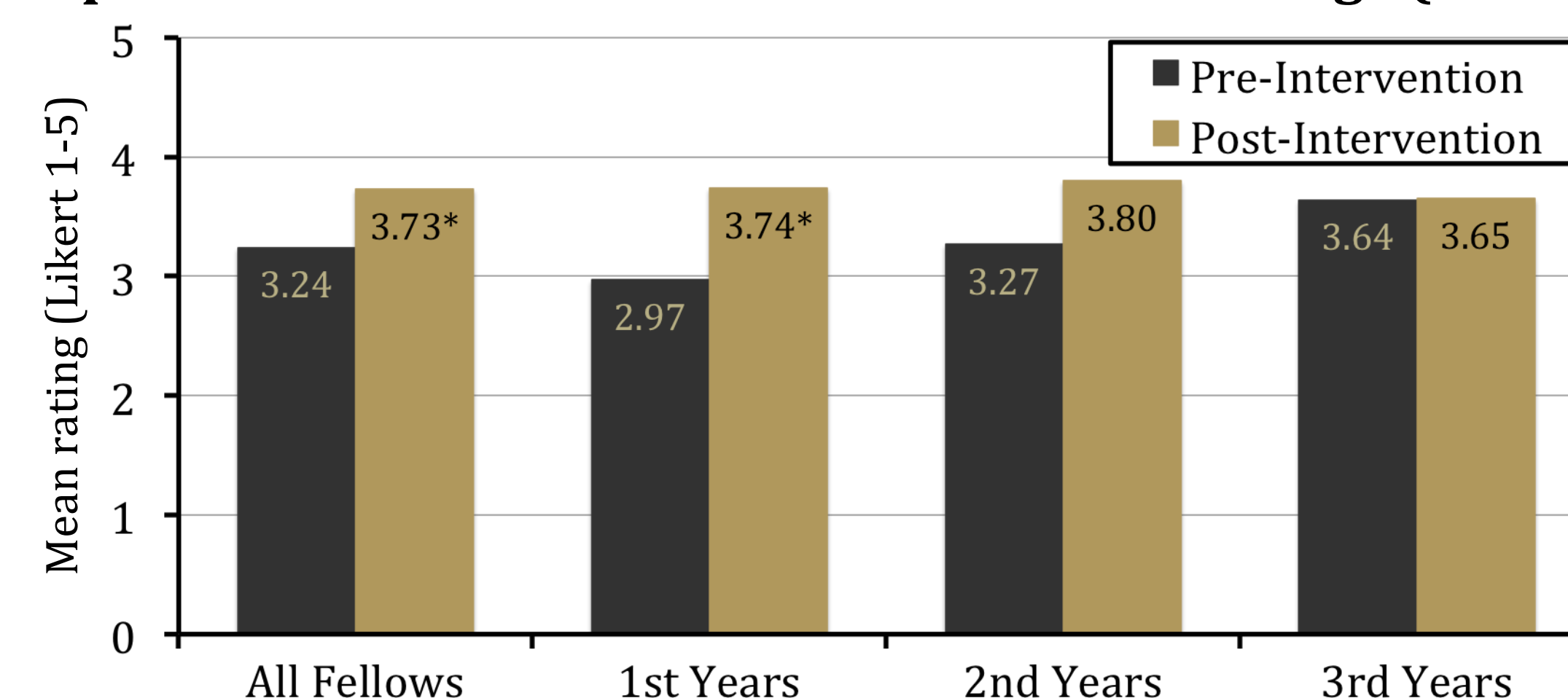


Figure. Among all fellows, self-assessed guideline knowledge improved by a relative 15.1% (95% CI: 6.2-24.0, P = 0.002).

Improvement in Self-Assessed Documentation Efficacy (Likert 1-5)

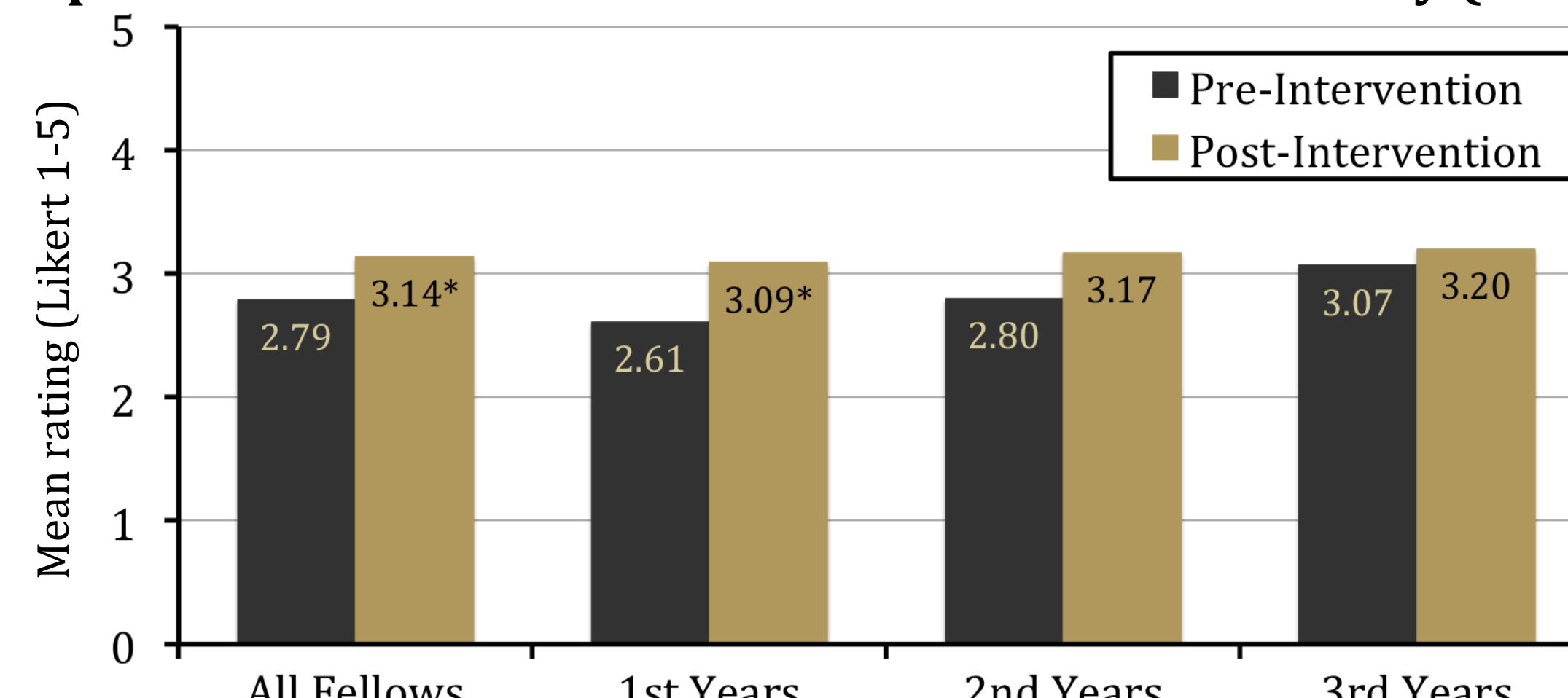


Figure. Among all fellows, self-assessed documentation efficacy improved by a relative 12.7% (95% CI: 3.8-21.7, P = 0.008).

Improvement in Mean Multiple-Choice Guideline Knowledge

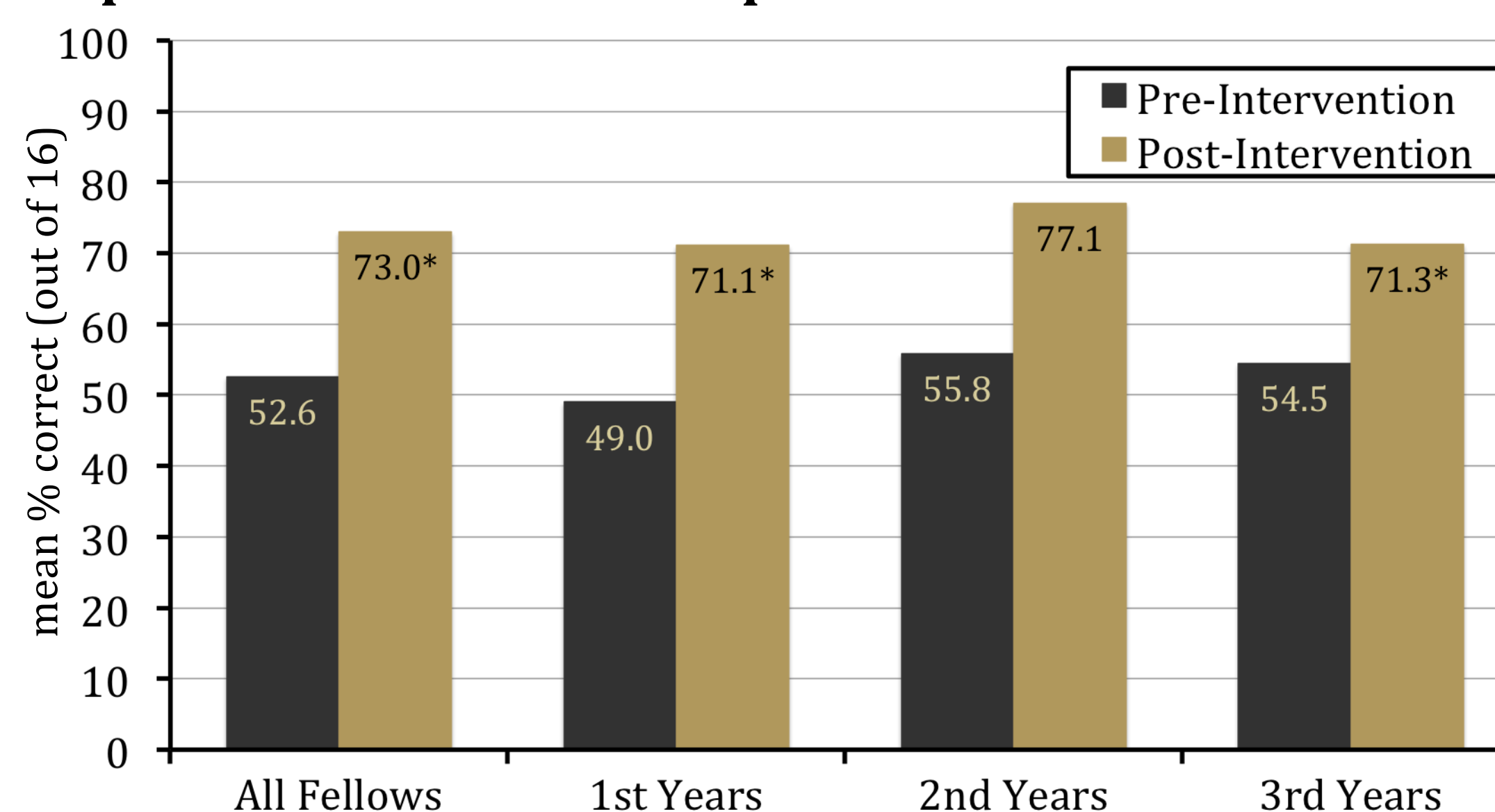


Figure. Among all fellows, mean knowledge test scores improved by an absolute 20.4% (95% CI: 13.6-27.2, P < 0.001).

* Indicates a significant result, P < 0.05

Criteria by Disease Process for Scoring System Utilized in Chart Audit

Points in Chart Audit Score	Documentation Effectiveness		Guideline Adherence	
	1) Disease severity	2) Functional status described	3) Adherence* to class I therapies or explanation of deviation	4) Documentation of additional class I recommendations
SIHD Charts audited: Pre-intervention – 125 Post-intervention – 124	Coronary Anatomy; Extent of disease	1. Functional status OR 2. Canadian Cardiovascular Society Angina Class	1. Aspirin 81-325 mg daily AND 2. Guideline-directed statin therapy*	AT LEAST ONE of the following: 1. Cardiac rehabilitation 2. Tobacco Cessation 3. Aerobic exercise 4. Dietary counseling
HF Charts audited: Pre-intervention – 21 Post-intervention – 38	AHA Staging (A-D)	1. Functional status OR 2. NYHA class	ALL of the following: 1. Guideline-directed beta-blocker^ 2. ACEI or ARB 3. Aldosterone antagonist if NYHA II-IV	AT LEAST ONE of the following: 1. Presence of ICD 2. Discussion of ICD planning 3. Reasoning for deferring ICD
AF Charts audited: Pre-intervention – 35 Post-intervention – 46	Characterization (parox, persistent, long-standing pers, permanent)	1. Functional status OR 2. Presence of AF-related symptoms	1. Anticoagulation w/ NOAC or coumadin for CHADS2-VASc ≥ 2 OR 2. Justification of no anticoagulation	1. Rate or rhythm control plan AND 2. Relevant medications
AVD Charts audited: Pre-intervention – 11 Post-intervention – 13	AHA Staging (A-D)	1. Functional status OR 2. Presence of AVD-related symptoms	Appropriate surveillance performed: - Mild AS: TTE every 3-5 years - Moderate AS: TTE every 1-2 years - Severe AS: TTE every 6-12 months	1. Appropriate surgical plan discussed OR 2. Appropriate surgical plan implemented

*Medication listed in note documentation or electronic medication list; +High intensity statin (atorvastatin 40-80 mg, rosuvastatin 20-40 mg) for age < 75; moderate intensity statin (atorvastatin 10-20 mg, rosuvastatin 5-10 mg, simvastatin 20-40 mg, pravastatin 40-80 mg) for age ≥ 75; ^Guideline-adherent beta-blocker: carvedilol, metoprolol succinate, bisoprolol

Improvement in Mean Chart Audit Score

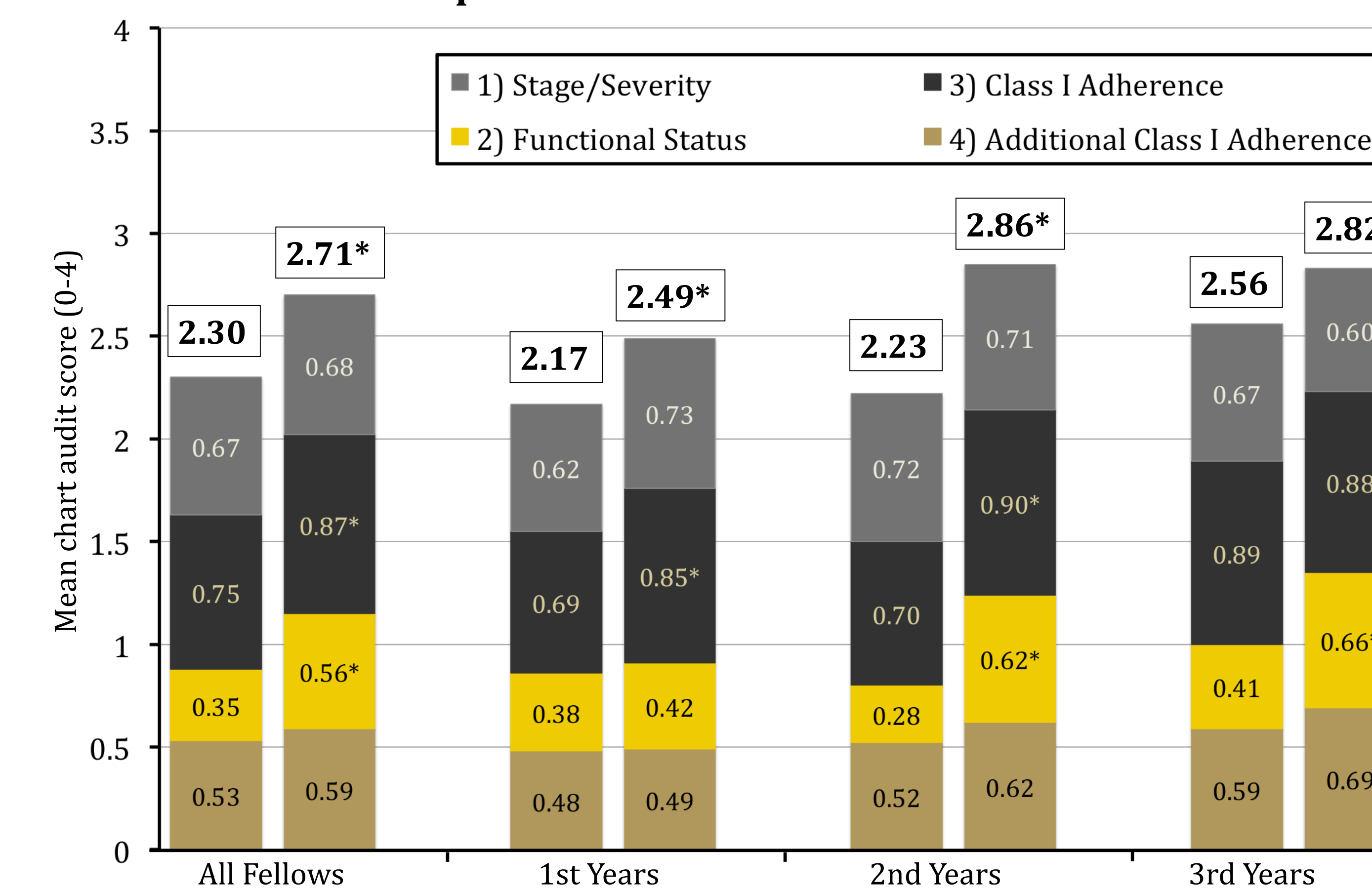
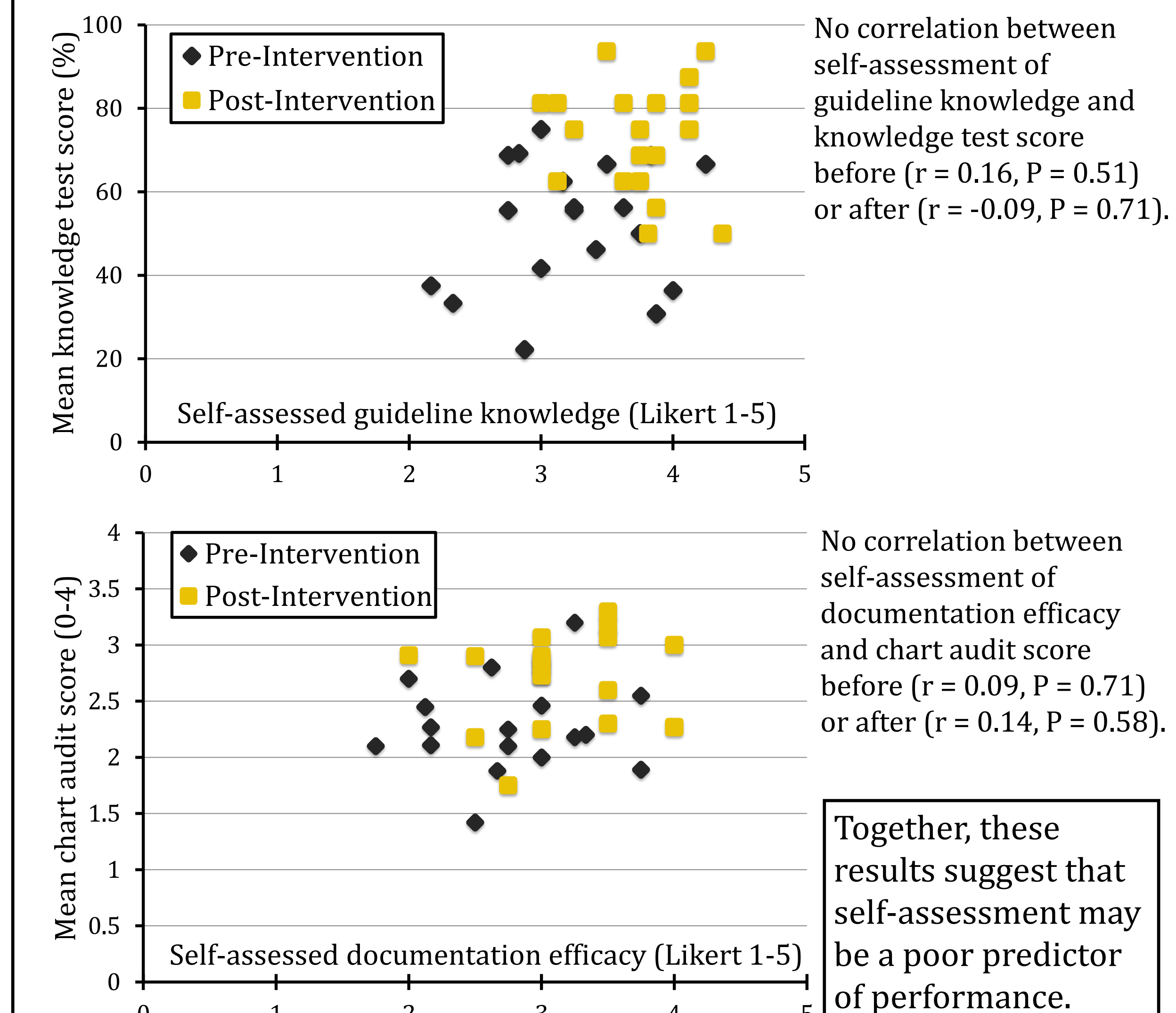


Figure. Mean chart audit scores by class comparing pre-intervention to post-intervention scores. Among all fellows, chart audit scores improved by 17.8% (95% CI: 10.6-25.0%, P < 0.001), driven by a 16.4% improvement in adherence to class I therapies (P = 0.001) and a 60.0% improvement in functional status documentation (P < 0.001).

Self-Assessment Validity



Limitations

- No control group for comparison.
- Limited ability to account for standard learning curve of fellowship.
- Single center study limits external validity.
- Small sample size limiting subset analysis.

Conclusions

- Baseline knowledge of, comfort with, and adherence to clinical guidelines in 4 key topics were suboptimal independent of fellowship class, indicating an opportunity for education.
- A targeted curriculum combining peer chart review and guideline discussion was associated with significant improvement in fellows' knowledge of and adherence to evidence-based therapies.
- Results suggest a favorable impact of a curriculum based on self-assessment and reflection into the ambulatory realm of fellowship training.

Disclosures

None of the authors report disclosures relevant to this abstract.