Predictive Validity of Multiple Mini-Interviews (MMIs) for Clinical Performance:

A Systematic Review and Meta-Analysis of Longitudinal Outcomes

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Introduction

Selecting candidates who possess both academic rigor and interpersonal competence is a major challenge for medical school admissions. The Multiple Mini-Interview (MMI) was developed to objectively assess non-cognitive attributes. While its short-term reliability is well-documented, its ability to predict performance during clinical clerkships and residency is less clear.



MMI → Beyond Knowledge to Clinical Competence

Objective

To evaluate the longitudinal correlation between MMI admission scores and future objective clinical assessments using a meta-analysis.

MMI Admission Score → Future Clinical Performance

Methods

Databases
PubMed, Scopus, ERIC

Study Design
Longitudinal studies

Outcomes
OSCE scores + Clinical supervisor ratings

Analysis
Fisher's z-transformation & Random-effects meta-analysis

Records identified (n = 1,248)
PubMed: 521
Scopus: 487
ERIC: 240

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After screening (n = 38)

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Eligible studies (n = 12)

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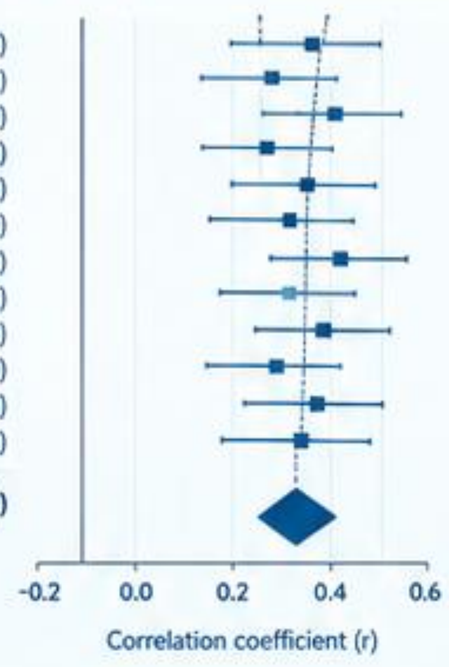
Total participants (n = 3,200)

Results

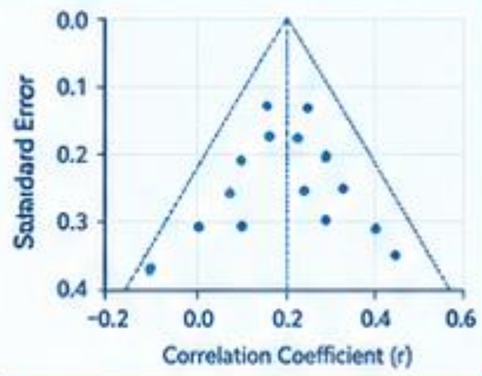
Outcome	No. of Studies	Pooled r (95% CI)	I^2 (%)
OSCE Performance	12	0.31 (0.24 – 0.39)	58
Clinical Clerkship Evaluations	10	0.28 (0.20 – 0.36)	52
Written Academic Exams (GPA)	8	0.12 (0.05 – 0.19)	46

Forest Plot: MMI and OSCE Performance

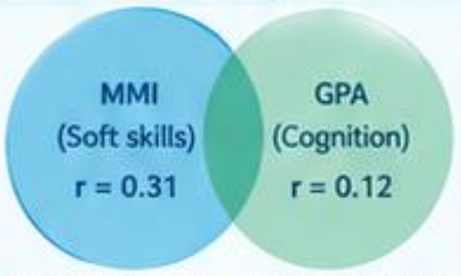
Study	r (95% CI)
Study 1	0.34 (0.21 – 0.47)
Study 2	0.28 (0.15 – 0.41)
Study 3	0.27 (0.24 – 0.50)
Study 4	0.22 (0.10 – 0.34)
Study 5	0.31 (0.18 – 0.44)
Study 6	0.26 (0.12 – 0.40)
Study 7	0.36 (0.25 – 0.47)
Study 8	0.29 (0.16 – 0.42)
Study 9	0.33 (0.21 – 0.45)
Study 10	0.27 (0.14 – 0.40)
Study 11	0.32 (0.20 – 0.44)
Study 12	0.31 (0.17 – 0.43)
Pooled	**0.31 (0.24 – 0.39)**



Funnel Plot (Publication Bias)



MMI Measures a Unique Domain



Conclusion

The MMI possesses robust predictive validity for future clinical and interpersonal performance. These findings support the continued use of MMIs in selection processes to ensure the admission of candidates with the requisite "soft skills" for medical practice.

Future research should investigate whether MMI performance also predicts long-term professional behavior and patient outcomes in postgraduate settings.



Keywords Multiple Mini-Interview; Medical School Admission; Clinical Competence; Educational Measurement; Predictive Validity.