The Validity of Multiple-True-False and One-Best-Answer in the Final Professional Undergraduate Medical Examination

Education in Medicine Journal • Article • *Open Access* • 2025 •
DOI: 10.21315/eimj2025.17.2.2

Besar, Mohd Nasri Awang [a] ; Aziz, Karimah Hanim Abd [b] ; Halim, Heliza Abdul [c]

[a] Department of Medical Education, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

Abstract

Multiple-True-False (MTF) and One-Best-Answer (OBA) are commonly used multiple-choice question (MCQ) formats in higher education to evaluate cognitive components. While both evaluate factual knowledge, a well-written OBA question can also stimulate problem-solving and knowledge application in clinical case scenarios. This study aimed to evaluate the convergent and predictive validity of MTF and OBA formats in undergraduate medical education assessments. This cross-sectional study analysed archival records of 143 students sitting for the 2022 final professional undergraduate medical examinations. SPSS version 24.0 was used to enter and analyse the data. Pearson's correlation test was used to assess the convergent validity of MTF and OBA, while a linear regression test was used to evaluate predictive validity. Pearson' s correlation test showed moderate convergent validity (r = 0.25 to 0.6) between the MTF and OBA and other assessment methods. OBA

outperformed MTF in predicting key feature question (KFQ) theory assessment (β = 0.40, p < 0.01 vs β = 0.26, p < 0.01), while MTF had stronger predictive validity for clinical components (manned Objective Structured Clinical Examination [OSCE], unmanned OSCE, and modified long case) as compared to OBA (β = 0.43, p < 0.01 vs β = 0.28, p < 0.01). The results are consistent with the literature in that OBA can determine know-how levels compared to MTF. However, a quality improvement exercise must be conducted that focuses on the assessment process of each assessment method, including the assessment blueprint, question structure, examiner calibration, and question vetting. These findings contribute to the enhancement of the quality and validity of assessment practices in medical education.

Author keywords

Assessment; Malaysia; Multiple-True-False; One-Best-Answer; Validity

Funding details

Details about financial support for research, including funding sources and grant numbers as provided in academic publications.

Funding sponsor	Funding number	Acronym
Universiti Kebangsaan Malaysia See opportunities by UKM		UKM
International Islamic University Malaysia See opportunities by IIUM		IIUM
Medical Education Unit		

Funding text

The researchers would like to express heartfelt gratitude to the Medical Education Department, Universiti Kebangsaan Malaysia (UKM) and Medical Education Unit, International Islamic University of Malaysia (IIUM), for their invaluable support. This study was conducted without any external funding or grant references.

Corresponding authors

Corresponding author: M.N.A. Besar

Affiliation: Department of Medical Education, Faculty of Medicine, Universiti Kebangsaan Malaysia, Jalan Yaacob Latif, Cheras, Kuala Lumpur, 56000, Malaysia

Email address: drmohdnasri@gmail.com

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Funding details

Corresponding authors