Assessing medical students' competency in evidence-based medicine using the ACE tool- a cross sectional study of medical students across different stages of the curriculum

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Background

Whilst most medical schools teach core EBM topics, very few require students to practice EBM in clinical encounters nor do they assess students' skills in applying EBM [1]

There is a need to evaluate the effectiveness of EBM curriculum

The 15-item ACE tool has been shown to be a reliable and valid instrument to assess students' competency in EBM [4]

Aims

The aims of this study were to

- carry out a cross sectional study to test the feasibility of administering the ACE tool as a formative assessment and

- compare performance in ACE from medical students in different years of EBM training to analyse if the test scores corresponded to their levels of training

EBM curriculum in UBMS

Phase I		Phase II	
Year 1	Year 2	Year 3	Year 4
Teaching			
Formulating question as **Literature searching** using Medline and PsychInfo-	Literature searching with Cochrane –workshop	Clinically integrated teaching of EBM	Clinically integrated teaching of EBM
	Screening	**Apply EBM** to patient care	**Apply EBM** to patient care **and assess impact**
Epidemiological study designs	Health Economics	Students becoming **peer teachers of EBM**	Conference with submissions of educational prescriptions presented as posters
Critical Appraisal	Library projects		Choosing **EBM champions**
Assessment			
Formative	**Formative**	**Formative**	**Formative**
	Fresno test	**ACE Educational prescriptions**	**Supervised Learning Event** in e-Portfolio
Summative	**Summative**	**Summative**	**Summative**

Methodology

ACE was administered as a formative assessment in years one, two and three in 2019

Performance data from 212 students (83 first years, 83 second years and 46 third years) was analyzed
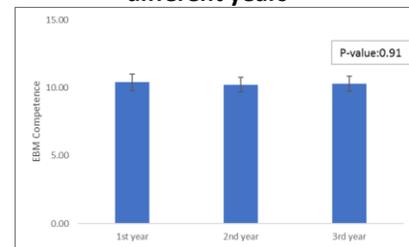
Total ACE scores, item discrimination and internal reliability were analysed

Students' perception of EBM teaching

-"Originally it wasn't science so I thought it was a waste of time why are we learning it but then I think it's quite helpful…important to know when changes are being made as you are constantly learning… New research coming through"- second year MB ChB student

Results- Feasibility

The ACE test was very easy to administer and score, compared to other validated EBM tools such as the Fresno

Students found it very useful as a learning resource, demonstrating the application of EBM steps to a realistic clinical scenario

Results

Comparison of ACE scores across different years

(mean score +/- 95% CI)

Individual item discrimination was good except for one item
- item discrimination index ranging from 0.27-0.93

with internal reliability consistent across most items
- item total correlations were all positive ranging from 0.14- 0.60

Conclusions

It is feasible to administer the ACE tool as a formative assessment in undergraduate medical education

It helps assess the application of the first four steps of EBM to a simulated clinical scenario

It is a valuable tool to evaluate the effectiveness of EBM teaching

However, the ACE tool may not be a good discriminator between different levels of students' competencies

References
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