

Case Study

Multiple Mini-Interviews for Selection of Medicine Students

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In 2012/13 The University of Birmingham Medicine courses (5-year and graduate-entry) successfully introduced a multiple mini-interview (MMI) process for selecting students. This report describes why our interview process was changed and a preliminary analysis of the impact of this interview format.

A need for change?

Selection for medicine typically involves an interview following short-listing using UCAS applications. Interviews are high-stakes, involving intense applicant preparation and significant resource implications for universities. For health professions programmes, a meta-analysis of the effectiveness of selection interviews demonstrated only a modest ability to predict clinical performance, with almost no benefit for predicting academic success (Goho & Blackman, 2006). Additional reported concerns with interviews are a lack of reliability (inconsistent scoring among interviewers) and even unfairness (interviewers preferring applicants who are like themselves) (reviewed in Prideaux et al., 2011).

Multiple mini-interviews

The reliability of an interview process is correlated with its structure. The interview format used by the Birmingham medicine programme before 2012/13 was moderately structured (panel interviews with predetermined discussion topics and score guidance). MMIs are a series of 5-10 minute interviews. Each interview setting (station) is commonly a one-to-one interaction, involving defined questions and scenarios designed to assess specific characteristics, scored with reference to detailed interviewer guidance. MMIs were introduced at Canada's McMaster University and have been shown to have better reliability and also significant correlation with performance in clinical medical school examinations (Prideaux et al., 2011). A number of UK Medical Schools have started to use MMIs.

Having decided to introduce MMIs, our first task was to define the qualities and characteristics (domains) to be assessed, which had to be measurable in a fair, effective, efficient and accurate manner. Medicine is a diverse profession requiring a variety of qualities (Cleland, Dowell, McLachlan, Nicholson, & Patterson, 2012), so we chose a diverse range of domains, including self-insight and an ability to interpret data. Each station was trialled at least twice with current students.

A process that involves simultaneous interviews for a number of applicants requires extensive organisation and planning. We have the second largest medical student intake in the UK, and we interview around 1100 applicants annually. Therefore, for our first year (2012/13), we started 'small' with only four interview stations: Interactive task (a role play station involving a discussion with fourth year medical students); Data Interpretation (candidates presented with data from a published study); Motivation and Insight (evaluation of what has been gained from work experience); Resilience & Probity (how candidates cope with challenges and how they will deal with a hypothetical ethical problem). We increased the number of stations to six in 2013/14 (Debate topic; Clinical ethical scenario) but we recognise that reliability would be greater with even more stations (eight is considered to be the minimum).

Analysis of MMIs

We have taken advantage of the introduction of MMIs as a research opportunity. Ethical approval was granted for a research study that involved a detailed questionnaire provided to applicants and interviewers, as well as an analysis of applicants' scores.

Acceptability by station

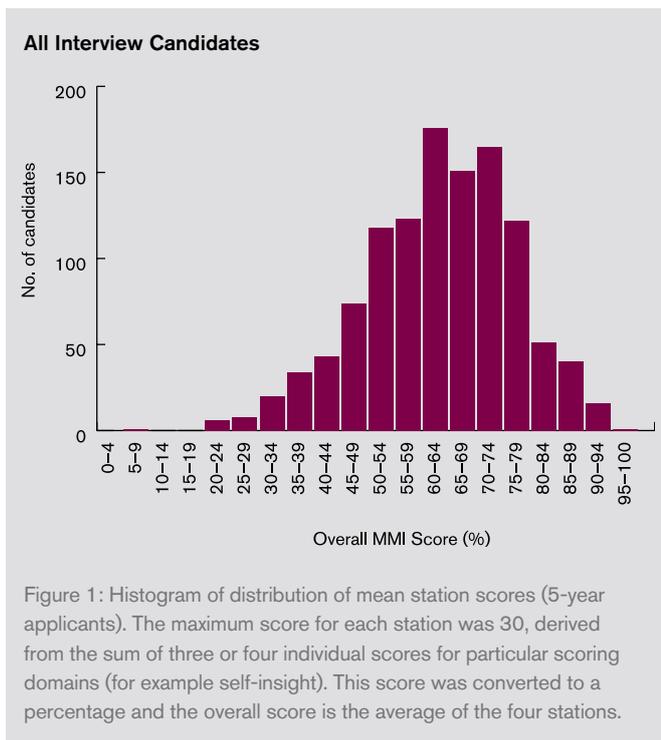
	Applicants		Interviewers	
	Relevant % Agree	Fair % Agree	Relevant % Agree	Fair % Agree
Data Interpretation	76.4	77.0	96.6	93.1
Interactive Task	73.2	88.2	87.1	96.8
Motivation and Work Experience	98.4	92.6	97.8	95.6
Coping and Resilience	93.8	91.6	95.7	97.8

Table 1: Questionnaire analysis (5-year applicants). Participants were asked to rate the acceptability of each station. Applicants (n = 1072) and interviewers (n = 79) indicated whether they agreed with statements that each of the stations were relevant to a selection process for medicine and were a fair means of judging suitability for studying medicine.

Table 1 addresses the issue of face validity (i.e. appearing relevant) and shows good overall appreciation by participants. Lower scores given by applicants for Data Interpretation and Interactive Task (as well as free text comments) led to us re-designing the scenarios for 2013/14. Reliability was estimated at 0.66 (below the optimal range of 0.7-0.9) although we expect this to improve with more stations. We have yet to analyse predictive validity (does the MMI score statistically correlate with measures of student performance?), and, in particular, incremental validity (how much additional value does it provide over other selection measures). This will be possible when first year examination results are available in summer 2014.

There is concern over a lack of social diversity in medicine and some view attempts by medical schools to address this issue as insufficient (Medical Schools Council, 2013). Therefore, it is important to demonstrate that widening access applicants are not unfairly discriminated against in the MMIs. In our analysis, two measures of socioeconomic status were used: school type (whether selective and/or fee-paying or neither) and POLAR3 quintile (based on proportion of young people who progress into Higher Education in the Census Areas Statistics Wards). We were reassured by the finding that neither school type nor POLAR3 quintile were significantly correlated with MMI scores (Taylor, Green, & Spruce, 2014).

On a practical level, any criterion used for decision-making in a selective admissions process must be sufficiently discriminatory. Following interview, an offer was based primarily on the overall score (average of the four stations). Figure 1 shows this distribution for all applicants.



We identified a cut-off score to determine who received an offer. Even though we used a threshold score for an individual station (16.7%), we did not attempt to define an acceptable overall score. Even without the constraint to make a certain number of offers, we would still be unable to identify what score predicts success.

In summary, we have successfully introduced a complex but fair interview process for selecting medicine students. The School of Dentistry at the University of Birmingham have introduced an 11-station MMI this year.

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