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# Can Multiple Mini Interviews Work in an Irish Setting? A Feasibility Study

**Abstract:**

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**Abstract**

Multiple Mini Interview (MMI) is a new selection tool for medical school applicants. Developed at McMaster University in 2004 it comprises a series of interview stations designed to measure performance across a range of competencies including communication skills, team work, and ethical reasoning. In September 2012, 109 First Year Medical students underwent the MMI. It consisted of 10 stations. The median total score, out of 150, was 100 (min 63, max 129). Cronbach Alphas for the 10 individual stations range from 0.74 to 0.80.Overall Cronbach Alpha of MMI items was 0.78. Staff and student feedback was positive. The outline cost per student was estimated at 145. This study demonstrates that it is feasible to hold a MMI with acceptable levels of reliability and stakeholder approval in an Irish setting. Further work is ongoing to establish the concurrent and predictive validity of MMI in this cohort of medical students.

**Introduction**

Medicine is a highly sought after career choice amongst Irish school leavers. In 2010, for example there were 3,292 applicants for 434 medical schoolplaces . An ideal selection tool would reliably rank applicants in accordance with valid criteria enabling predictions that they would make good doctors'. However there are many facets to being a good doctor . Designing a selection tool that measures across these facets in a reliable and valid way is challenging. One newer tool that is gaining popularity is the Multiple Mini Interview (MMI)<sup>4</sup> . First developed at Mc Master University in 2004 it comprises a series of interview stations, each designed to measure performance on a different non cognitive competency such as communication skills, team work, moral reasoning and ethical decision making. It takes place in a timed circuit, similar to an OSCE. MMI is emerging as a promising selection tool with respect to its ability to predict student performance in undergraduate tests. A recent systematic review has indicated that MMI is growing in popularity across Canada, UK, Australia and USA. It has been applied in both undergraduate and graduate Medical Schools as well as higher professional training. Its use has spread to dental, health sciences, pharmacy and veterinary programmes. The average number of stations is 10, each lasting 8 minutes and generally with one interviewer per station . The aim of this study was to establish the feasibility of running a MMI in an Irish setting.

**Methods**

All students enrolled, for the first time, in First Year Medicine, NUI Galway, September 2012 were eligible. Ethical approval was granted by NUI Galway Research Ethics Committee. Participation was voluntary. Volunteers were entered in to a draw for an iPad. Funding was granted by WestREN (<http://westren.nuigalway.ie/>). Interviewers and administrators were recruited from the School of Medicine, Nursing and Health Sciences and Western Training Programme in General Practice. Role-players were selected from the Simulated Patients Group. A small number of senior cycle medical students assisted with role playing and administration. One of the authors (MK) and an acting coach trained the role players. MMI interviewers received written information in advance while interviewer briefing on station content and marking grids was conducted immediately,before the MMI (by MK). Interviewers underwent online training to use OMIS software to electronically mark the MMI . This software enables live psychometric analysis of station and interviewer performance.

The MMI circuit consisted of ten, seven minute stations, with one interviewer per station. Material for the stations was provided by Dundee Medical School and blueprinted against the Irish Medical Councilâ s eight domains of professional practice . Minor station modifications were made to ensure authenticity in an Irish setting. Five stations involved an interviewer, a role-player and the candidate. The other five stations were interview based (one interviewer: one candidate). Each station was scored across three domains and one global rating scale. Domain scores ranged from 0-5 (0= poor; 5 =excellent) with detailed written descriptors of excellent and poor performances. Global score were on a five point scale ranging from unacceptable to excellent performance. The MMI circuit ran over two days. Post MMI students received a debriefing lecture. In addition students obtained individual written feedback on their performance. Post MMI student and interviewer evaluation was collected anonymously by electronic questionnaire, entered into SPSS and analysed.

**Results**

There were 241 eligible students. Of these, 109 students (45% of class) completed the MMI comprising 41 males, 68 females. There were 64 (58.7%) EU nationals and 45 (41%) were Non-EU which is reflective of class norms. There were 49 interviewers, nine role-players, nine senior-cycle medical students and three administrators. An MMI cycle consisted of two parallel circuits. The MMI cycle was repeated 6 times to accommodate up to 120 students. Each station was scored out of a total of 15. The median total score, out of 150, was 100 (min 63, max 129). Cronbach Alphas for the 10 individual stations range from 0.74 to 0.80. Overall Cronbach Alpha of MMI items was 0.78. Feedback was returned by 71 students (65% response rate). Ninety per cent either agreed or strongly agreed that the content of the MMI was relevant to their understanding of the practice of medicine (see Figure 1). To put that in context of the students who had undergone a traditional selection interview (n=30) only 60% thought that the issues raised during the interview were relevant, correspondingly only 38% (n=47) of students who had taken an admission test (such as the HPAT) (n= 47) thought the issues covered in the test was relevant. There was no significant difference in these opinions based on student gender or nationality.

Students rated the suitability a number of selection tools on a five point Likert scale ranging from very unsuitable to very suitable (see Figure 2). MMI was considered almost on a par with academic achievement as suitable grounds for selecting medical students MMI 73%; Academic achievement 79%; whereas the other tools were less favoured. Student feedback was collected on the best and worst aspects of the MMI. Representative favourable feedback is that MMI â â falls for a more wholesome picture of the candidateâ . A criticism was that â The time allocated for each station is too short. I didn't really have time to think of the issues askedâ . Another concern was that interviewers might be subjective rather than objective in marking applicants. There was a 49% (n=24) response rate to online interviewer feedback. Three quarters of interviewers felt that MMI was relevant to the practice of medicine and that the stations reasonably tested candidatesâ ability. Almost two thirds thought that the content was sufficiently important to the practice of medicine to warrant inclusion in a selection test. The majority of respondents (70.83%) thought that an MMI would be a useful addition to medical student selection in Ireland (see Table 1).

Interviewers felt that the main advantage of MMI was its ability to â assess candidatesâ actual performance objectively and consistently in tasks that are relevant to performing as a clinicianâ (n=4). A second advantage was that it was a â good assessment of non-cognitive and inter-subjective skillsâ (n=4). As one interviewer put it â The MMI seems to provide a 'best of all' option in terms of selection methods by striking a balance between

objectivity, aptitude, and 'the human factor.' However MMI was considered 'Expensive in terms of personnel, time and resources' (n=3); with the 'Potential for enhanced inequity in student selection due to potential for preparation at 'grind schools' (n=4) and the potential exists for quieter or international students to underperform' 'The MMI can struggle to allow for cultural and language differences' (n=6). An analysis of the cost involved in the running an MMI was conducted, based on an assumption that hosting the MMI would be external to core academic activity and hence would incur additional costs. As interviewers and administrators who took part in this study received no payment, we estimated costs based on typical OSCE rates for licencing exams (see Table 2). The total cost excludes the cost of investing in software support and station development. The cost per applicant, based on 120 applicants, is estimated at 145 per person.

Discussion

Medical student selection is a complex and emotive issue. At its heart is a sense of social responsibility to select, from amongst hundreds of very able applicants, those best placed to become good doctors. This study demonstrated that it is feasible to hold a MMI in an Irish setting. Due to the level of expertise with OSCE examinations, the move to MMI proved both practicable and achievable. Student performance was comparable to that of Dundee applicants, as was the station item Cronbach alphas which demonstrated a satisfactory level of reliability. Station material was blueprinted against the eight domains of professional practice, thus ensuring both face and content validity. Feedback from students indicated that the test achieved an acceptable level of approval amongst this stakeholder group. Interviewers were overall supportive of MMI as a selection tool. This is in keeping with reports from MMI feasibility studies internationally which also note stakeholder approval.

Economics are an important aspect of feasibility as MMIs are labour intensive and potentially costly. Our estimated costs assume that no cost is absorbed by the respective medical schools which would not necessarily be the case. Redistributing these costs to applicants risks giving rise to socioeconomic bias and due consideration needs to be taken to avoid this. In Canada and UK faculty involvement in selection is seen as core academic activity. Evidence from international experience is that MMIs are a more economical use of faculty time than traditional interviews. Costs can also be kept to a minimum by utilising senior cycle medical students as trained role players and venue rental costs could be avoided if MMIs become core institutional activity. The study did have some important limitations. Participants were already selected to medical school, therefore the range of scores achieved is unlikely to represent the spectrum from an applicant pool. Secondly the students who volunteered for the study may differ from their class mates in some important respects. This paper reports on the feasibility and face validity of the process of MMI as opposed to establishing its concurrent or predictive validity. Further work is required and is currently underway to determine these in an Irish setting as well as establishing the impact of age, gender and nationality on performance.

The real question is whether MMI would be implementable on a national level. The main determinant of this is the numbers of places available in medical school, coupled with the ratio of applicants called to MMI for places offered. For example with approximately 450 undergraduate places a ratio of 3:1 would imply 1,350 applicants are called to MMI. Such numbers would be best accommodated via a central process. It may be possible to shortlist applicants by rank ordering them either on Leaving Certificate or Leaving Certificate/HPAT combined scores. The timing of release of Leaving Certificate results would necessitate hosting the MMI in late August. Scheduled MMI dates could be announced by the CAO at the time of application to medicine, with advice for all applicants to keep these dates available. Invites to MMI could be made via the CAO system, once Leaving Certificate/ HPAT results were available. The use of OMIS software in the marking of MMI would facilitate a quick turnaround of final offers to medicine. MMIs require time, effort and commitment on the part of medical schools. One may ask, is it worth it? Reforms to entry and selection to medical school in Ireland have provoked debate and are under review. Attrition in medical schools in Ireland is low and therefore those enrolled are highly likely to graduate. Therefore is it not a necessity to employ the best available tools to ensure we enrol, educate and graduate the most suitable candidates? We contend that the use of MMIs is worthy of further consideration in the Irish context.

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