Abstract

Purpose: As assessment is known to drive learning, this paper looks at the relationship between assessment practice across UK medical schools and graduates preparedness for practice.

Materials and Methods: It uses data on written and practical assessment at each medical school and the association with students' self-reported preparedness for working as a foundation doctor on graduation, and in particular the preparation related to clinical skills.

Results and Conclusions: A negative relationship ($ß = -0.003$, $p < 0.001$;) was observed between total duration of written assessment and preparedness, while a positive relationship was seen between 'skills learned' and the proportion of assessment time focusing on practical skills ($ß = 0.461$. $p < 0.001$). This suggest that graduates from medical schools with a greater emphasis on practical skills in their assessment plan are better prepared to practise as a junior doctor on gradation; something that may be of relevance when designing a national licencing examination.

Keywords: Assessment of practical skills, Preparedness for practice

Introduction

It has been demonstrated throughout medical education that the learning goals of medical students are driven by the topic of assessment (Wormald et al. 2009). This task prioritisation is logical as students are concerned with passing exams, and it highlights the responsibility of educators when designing the format and blue-printing the content of assessments: specific links have been found between the weighting of a subject within an assessment scheme and students reported motivation toward learning that subject (Wormald et al. 2009).

With these insights it is somewhat surprising that while accrediting organisations broadly specify what medical curricula should cover, the methods and patterns of assessment are determined independently by each school: the style of assessment at each medical school is therefore likely to determine the knowledge and skills profile of the graduating class. These themes have become prominent in medical education after the General Medical Council (GMC) approved the introduction of a UK National Licensing Assessment (UKMLA) in 2014, bringing the content and type of assessment involved in such examinations into national consideration (General Medical Council 2015).

Drawing on data on assessment volume, intensity and type, (Divine et al. 2015) and from data from the GMC national training study (General Medical Council 2014), this paper aims to explore the relationship between UK medical school assessment format and volume and the perception of preparedness for practice reported by newly qualified doctors.

Methods

The duration of written and practical assessment at each medical school was extracted and compared with data on number and percentage of foundation year one (FY1) junior doctors agreeing or strongly agreeing with the statement "I was adequately prepared for my first foundation post" and "The skills I learned at medical school set me up well for working as a foundation doctor" available from the GMC's report (General Medical Council 2014)

Descriptive statistics were calculated for all data sets (means and standard deviations (SD), with normality tested for graphically and through other statistical methods). The relationship between assessment and self-reported preparedness was examined using weighted linear regression. Statistical significance was taken at the $p = 0.05$ level. Analyses were performed using IBM SPSS Statistics for Macintosh, Version 22.0 and Stata Statistical Software: Release 14.

Results

Data on assessment and preparedness was available from 23 medical schools. Appendix 1 summarises the data on assessment format and volume and the perception of preparedness. Total assessment time varied from 1400 minutes (23.3 hours) to 4000 minutes (66.6 hours), with the proportion of time spent in practical assessment ranging from <10 to 43%. The mean percentage of FY1s who felt "adequately prepared" was 70.2%, ranging from 60 to 83%, and the mean percentage who felt that "skills learned set me up well" was 75.36%, ranging from 62 to 95%. There were small, but significant negative association between preparedness for practice and total assessment time ('adequately prepared' ß = -0.003, p< 0.001; 'skills learned' ß = -0.005. p <0.0.001), and small but significantly positive association with practical assessment time ('adequately prepared' ß = 0.006. p < 0.001; 'skills learned', ß = 0.014, p <0.001). A greater association was seen between both measures of preparedness and the proportion of assessment time devoted to the assessment of practical skills ('adequately prepared' ß = 0.215. p <0.001; 'skills learned', ß = 0.461. p <0.001), Figure 1.

Discussion

The results presented here suggest that UK medical schools with a greater emphasis on the assessment of practical skills are delivering students more confident, and perhaps more proficient, in the skills necessary to function as an FY1 trainee. To a lesser extent these students also report being better prepared. In contrast, graduates of schools with a greater emphasis on written assessment are less prepared for clinical practice. This contrasts with data showing that graduates from the written assessment 'heavy' schools were more likely to perform better in both knowledge assessments and clinical examinations of the MRCGP and MRCP (UK) (Devine et al. 2015). The reasons underlying this association remain unclear. The confidence of the FY1s may simply be a direct reflection of the assessment of practical skills required of FY1s, or may relate to students at schools with a heavy written assessment load disproportionately focusing on what seems to them at the time, the more important.

The underlying motivators remain unclear but the association is not and we must consider how to best prepare future doctors to undertake the roles they are required to perform after graduating. Primary medical education in the UK aims to prepare students to become safe and effective FY1 doctors, yet they will only be in such posts for a short period of time, and most medical graduates will continue their medical education, moving on to take higher medical qualifications. Are schools who are more effectively delivering the prime objective of safe and effective FY1 doctors, simultaneously disadvantaging their students' later development?

The wider reach of these data comes into sharper focus when considering the current

developments by the GMC of a national UKMLA for all medical graduates who wish to practice in the UK (General Medical Council 2015). It is the responsibility of medical educators to understand the impact that such an assessment could have on the learning goals of those in medical education and the potential impact of the format of such an assessment on the future medical workforce. Will having a final common assessment reduce the variability reported here? and if so, will it result in all graduates being as well prepared as the best reported here?

The authors recognise the limitations of the work presented here. The use of self-perception of preparedness is not an objective assessment of competence. Graduates have been shown to rate themselves as more prepared then their seniors rate them, (Tallentire et al. 2011) although it is unclear why this might differentially impact on those from schools with greater emphasis on practical assessment. Furthermore, the timing of the assessment is pooled across all undergraduate years, and the details and timing of what comprises 'practical' assessment may vary by school, and is unknown. Thus, it is not possible to determine whether greater emphasis on practical training in the later years impacts on preparedness. Moreover, school curricula change over time, so although the data included in this study were collected at similar time points, it is not possible to determine whether the FY1 doctors describing their preparedness experienced the hours of assessment reported.

Conclusion

Graduates from medical schools with a higher proportion of practical assessment felt more prepared for practice and felt they had better skills then graduates from medical schools with a lower proportion of practical assessment. These findings are of relevance when the design of the UKMLA is finalised.

Declaration of interests:

The authors report no conflicts of interest

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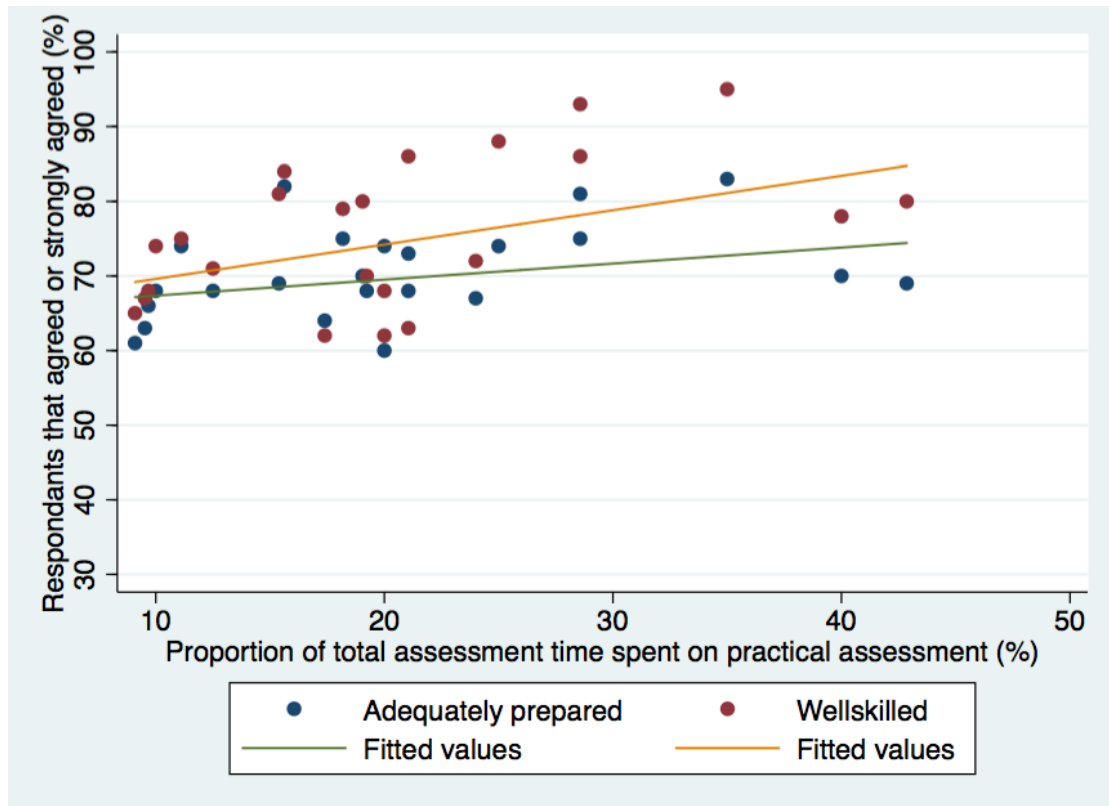
Appendix 1

Descriptive Statistics for assessment and 'preparedness' (*n*=23)

	Range (min-max)	**Mean**	**SD**
Total assessment (minutes)	1400.00 - 4000.00	2478.26	602.99
Written assessment (minutes)	1000.00 - 3200.00	2028.00	589.15
Practical assessment (minutes)	200.00 - 1000.00	482.61	208.14
Proportion of practical assessment* (%)	9.09 - 42.86	20.28	9.41
"I was adequately prepared" (%)	60.00 - 83.00	70.20	6.08
"Skills learned set me up well" (%)	62.00 - 95.00	75.36	9.67

* Proportion of total assessment time

Figure 1: Relationship between proportion of total assessment time spent on practical assessment and preparedness to practice and skills learned

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