

Original article

Dental Education: Restorative dentistry in Malaysia

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Abstract

Objectives: The aim of this study was to identify the requirements in restorative dentistry that undergraduate dental students have to fulfill in order to sit for final examinations in dental schools in Malaysia and to compare those requirement with the competencies stipulated by the Malaysian Qualification Agency (MQA). **Materials and Methods:** Questionnaire from a study done previously was modified and used in this study. All questionnaires were sent by post with a reply envelope. Eight dental schools had responded (72%) to the survey and the results showed that although dental schools may differ in the number of numerical requirements, their assessments were quite similar. One school does not practice numerical requirements at all. **Results:** In term of requirement for full crown, majority of the schools (88%) agreed that porcelain bonded to metal crown should be included in the numerical requirement. In contrast, majority of the schools (88%) did not include inlay/onlay in their numerical requirements. For plastic restorations like composite resin, amalgam and glass ionomer, majority of the schools (88%) used numerical requirements. Majority of the schools also agreed on numerical requirements for conventional bridge (88%) and incisor to molar endodontics (88%), but not for resin bonded bridge (75%). **Conclusion:** This study shows that there is a disparity among institutions in Malaysia in terms of finals requirement in restorative dentistry. Ideally, all requirements should be similar among institutions and should closely follow the guidelines provided by the MQA.

Introduction

Nowadays, every university has their own system in determining students' readiness to sit for their finals examinations. Generally, it is base on their capability to achieve certain requirements of treatment within the area of restorative dentistry¹. In UK and Ireland, the General Dental council suggest that their graduate must achieve a certain number of competencies prior to qualification but dental institution are given the freedom to determine how they are going to achieve it¹. However in Malaysia, there is no guideline yet being distributed as how to assess the undergraduate student here, but majority of the school is still depend on the numerically-based system in their assessment.

Youngson et al (2007) in their report stated that most of the general dental practitioners in United Kingdom and Ireland were not satisfied with the current training given to the undergraduate in United

Kingdom and Ireland. They felt that the program has 'dumb down' compare to the training given to them previously¹. Base on the findings in this paper, we believe that it is consider valuable to examine the quality of recent graduate from dental school in Malaysia. Thus, the purpose of this study is to identify the requirement in restorative dentistry that dental student has to fulfill before their final examination and to compare those requirement with the competencies stipulated by the Malaysian Qualification Agency (MQA).

Materials and Methods

This is a cross sectional study done to determine undergraduate requirement in restorative dentistry in Malaysia. This study involved eleven universities/colleges with faculty/school of dentistry, namely University of Malaya, faculty of Dentistry, Universiti Kebangsaan Malaysia, faculty of

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Dentistry, Universiti Sains Malaysia School of Dentistry, Kulliyah of Dentistry IIUM Kuantan, Univerisiti Teknologi Mara Dental Faculty, Universiti Sains Islam Malaysia Dental Faculty, MAHSA University College School of Dentistry, Manipal College of Dental Sciences, IMU School of Dentistry, AIMST University School of Dentistry, and Penang International Dental College.

Anonymous questionnaires, obtained by modifying questionnaire from a study done by Youngson, et al. (2007) titled “Undergraduate Requirement in Restorative Dentistry in UK and Ireland” is used. Permission to use the questionnaire has been given by the author of this paper. This questionnaire has open and closed question design, it is sent by post to the dean of each dental school to be passed to the most appropriate member of staff for completion. The questionnaire consist of two components involving the numerical information on total number

of procedures that were required to be completed in undergraduate restorative dentistry and second section which was designed to obtain information on what are the criteria used to determine the undergraduate’s readiness for the final examination in restorative dentistry¹.

Results
Section A

A total of eight replies (73%) were received. One institution emphasized that they do not have ‘numerical requirements’ and only assess their student by competencies and patient’s satisfaction. The remaining seven institutions have numerical requirement for their student and some form of competency test to assess their student before sitting for the finals. For simplicity, the data is presented in a few groups. The graphs show the number of school which have numerical requirement for each selected specialty.

Figure I: Requirement for crowns

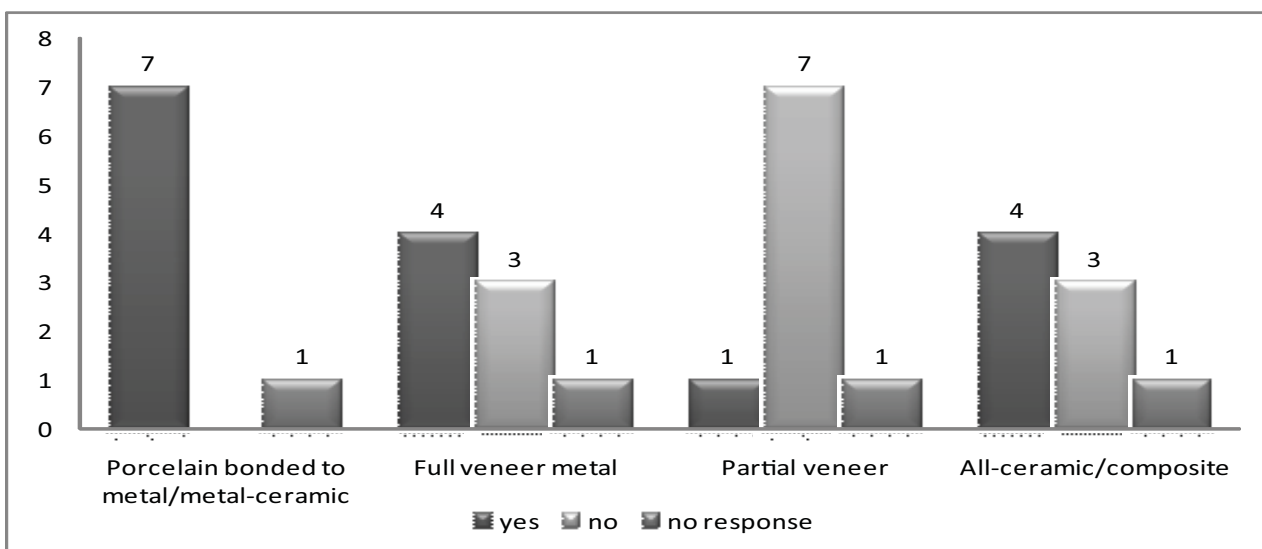


Figure I shows the requirements for crowns. All responders claimed that porcelain bonded to metal /metal ceramic is a must for the students to progress to finals. Four schools included full veneer metal and all ceramic/composite crowns in their requirement and only one included partial veneer as a requirement. Generally, three units of crown are required to be completed the student. Only one of the schools set a requirement of five units crown for their students. Seven out of eight responders did not include other type of competency test apart from numerical requirement in assessing their students, while one school assesses their student base on competency and patient satisfaction.

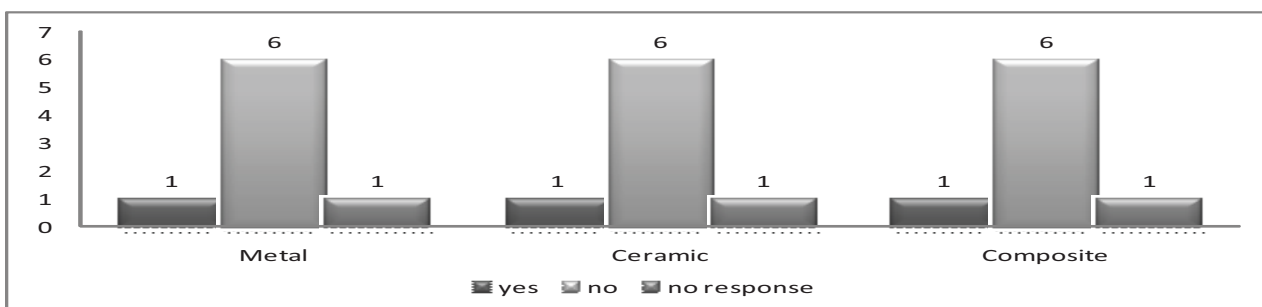


Figure II: Requirement for inlay/onlay

The requirement for inlay/onlay is shown in figure 2. From the graph, one school claimed that inlay/onlay is a requirement for their students while two more schools claimed that it was optional for their student to do inlay/onlay. The other five schools do not assess their students on this.

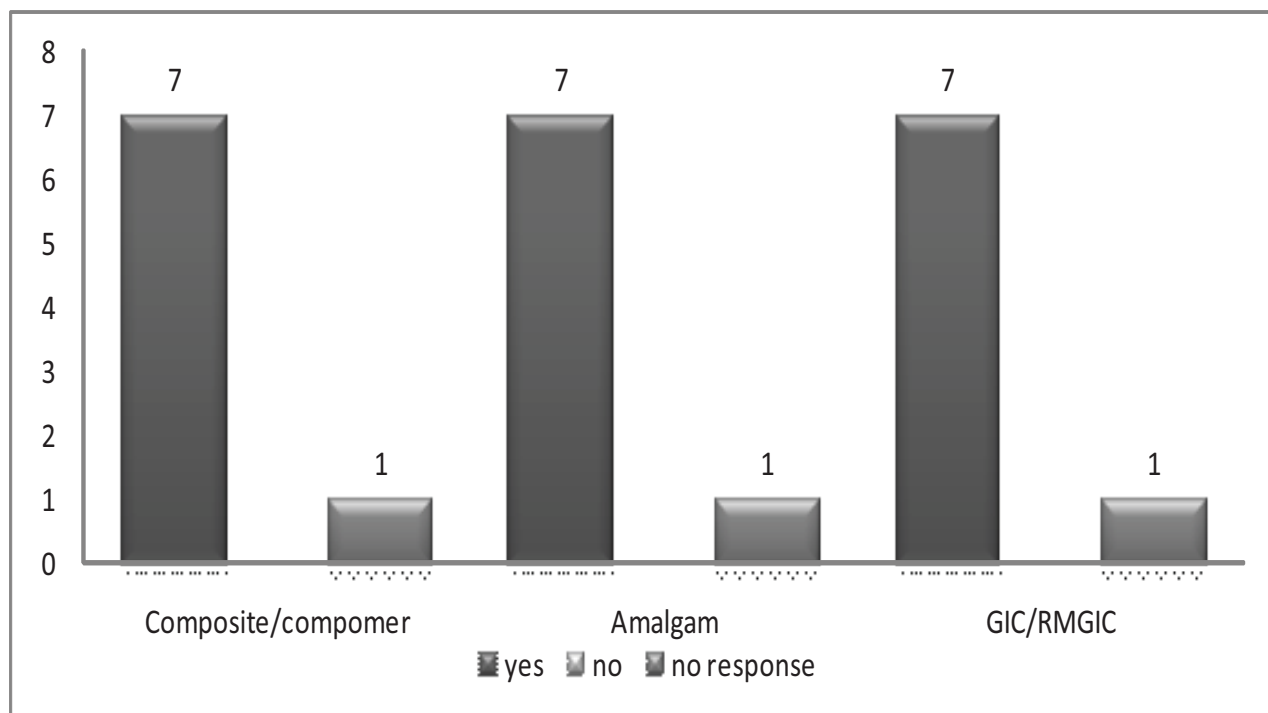


Figure III: Requirement for plastic restorations

Figure III shows the requirement for plastic restoration needed for the students to sit for their final. Generally, seven schools assess their student on these three types of restorations. However, only five schools use numerical requirement to assess their student, while another two use pointer system to determine their student's competency. Class 1 amalgam restoration carries one point, Class 2 amalgam restoration carries two points, and a minimum of twelve points is required to progress to the finals. Out of seven schools, five schools has competency test for their students, either in a form Class 2 amalgam restoration or deep caries management, while two more school did not respond to this part.

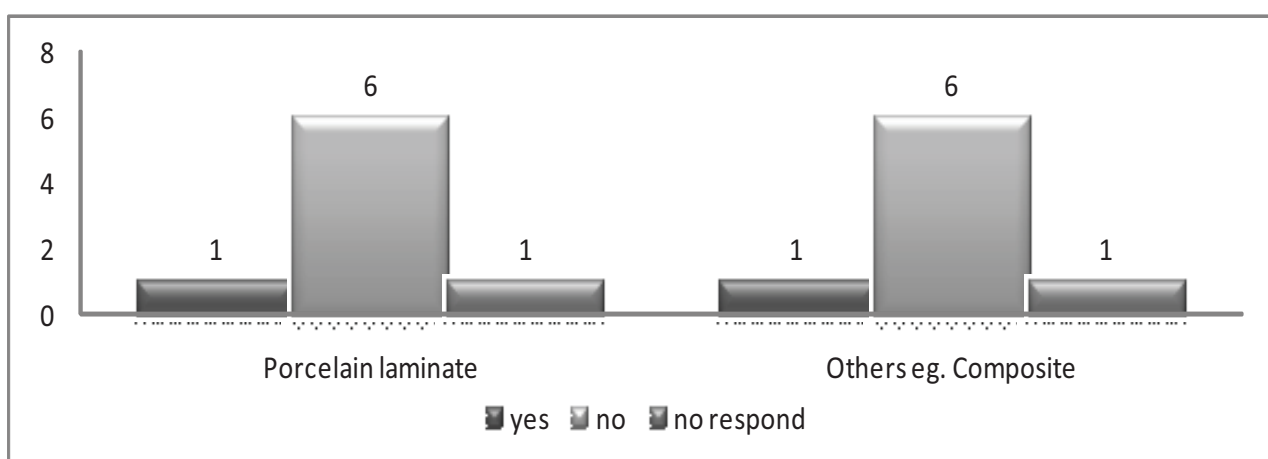


Figure IV: Requirement for veneers

Figure IV is a summary of the requirement for veneer for all eight schools. Only one school required their students to do veneer and their requirement is one unit for porcelain laminated veneer and one for composite veneer. One school among the 'no responder' claim that this requirement is optional, while the other five schools does not include this in their requirement.

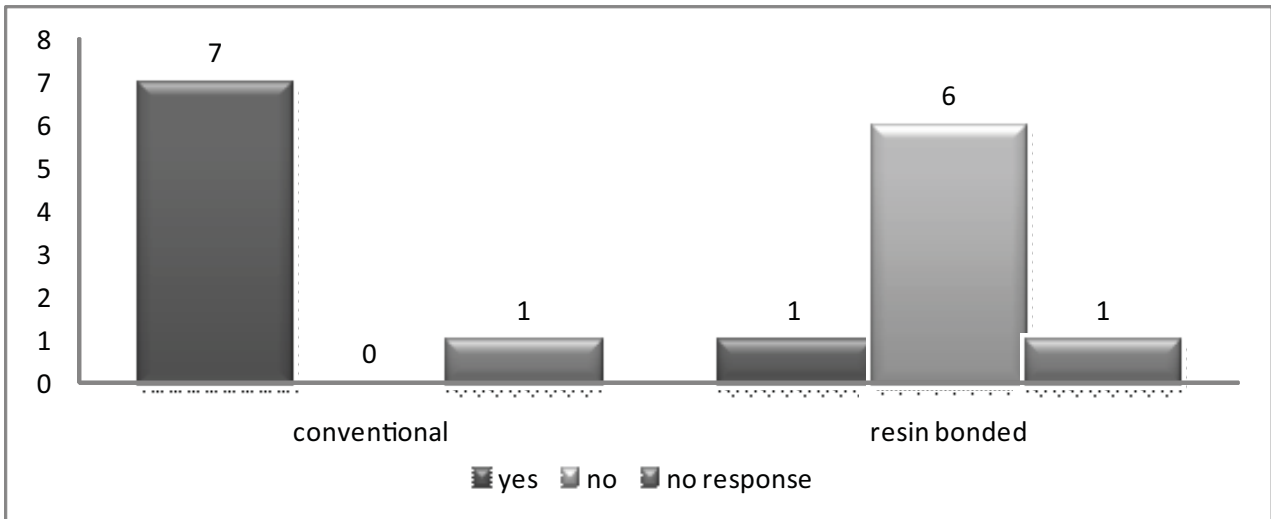


Figure V: Requirement for bridges

Figure V conclude the requirements for bridges. Six schools required their students to do conventional bridge, with three of them specifying a minimum of two abutment tooth must be involved. One of the school claims that it was optional for their student to do conventional bridge or resin bonded bridge, but a minimum of one unit is required. Seven of the responders did not have any form of competency test in this subject (assessing their student base on numerical requirement), while one school assess their student base on competency and patient satisfaction.

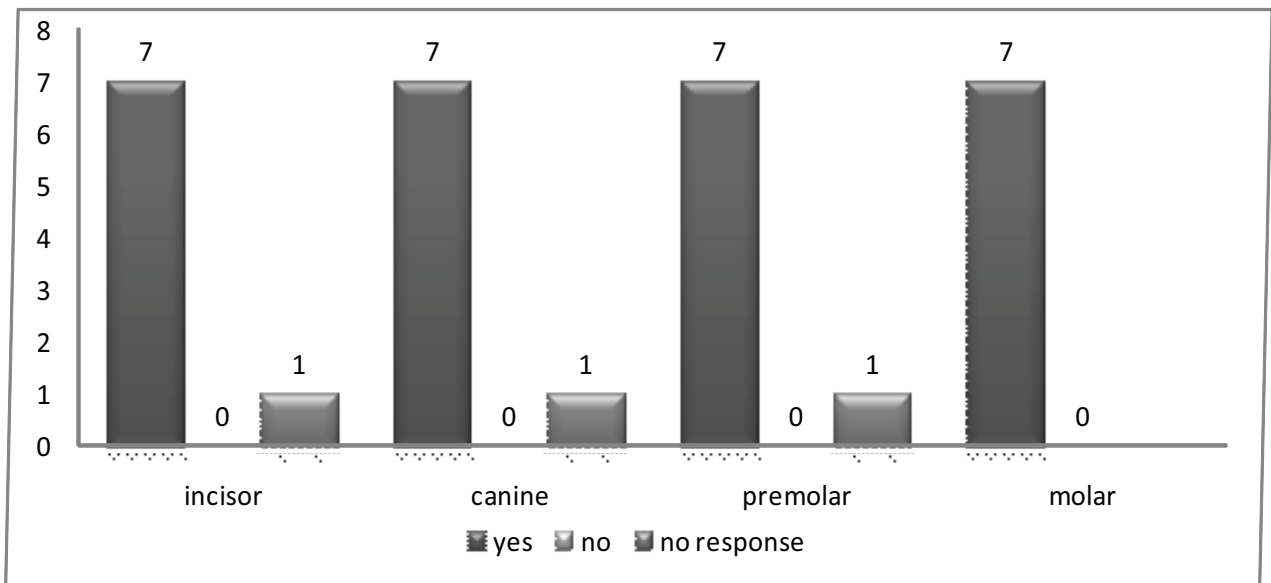


Figure VI: Requirement for Endodontics

In figure VI, the requirements for endodontic is shown. Generally, all seven responder required their students to perform endodontic on all anterior and posterior teeth. Four out of the seven school required students to complete a minimum of three canals, two schools requested four canals and one did not state the number of requirement, from an incisor, canine or premolar. Molar endodontic is a must with a minimum of one unit for the students to progress to the finals. Six institutions out of the seven do not have competency test on this subject, and one institution tested their students on single canal Endodontics before their final.

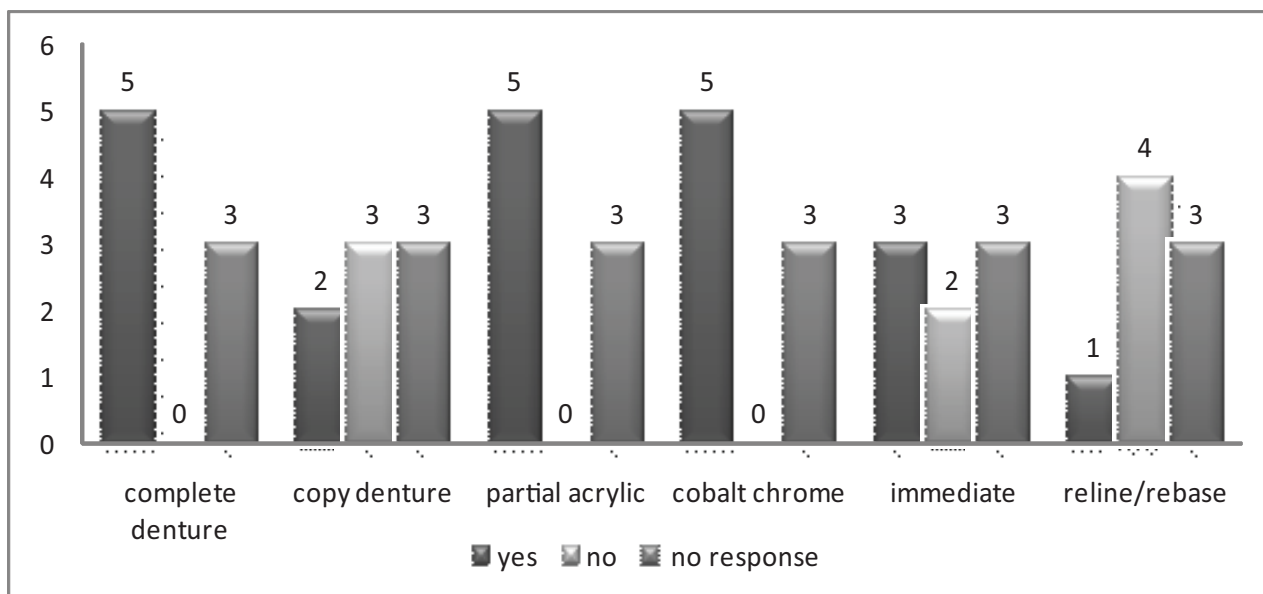


Figure VII: Requirement for removable prosthesis

Figure VII shows the requirement for removable prosthesis. As for removable prosthesis, five schools assess their student on complete denture. Two of them require their student to complete three units of complete denture while one school required their student to do four units; another two requires their student to do six units. Out of eight schools, only two schools assess their student on copy denture as a must requirement. As for partial acrylic denture, all responders assess their student on this part, with one school requesting their student to complete two units, three schools requesting their student to complete four units, while another one school request their students to complete five units. All of the responders claim that cobalt chrome denture is also in their requirement, with one school requesting their student to do two units, another one requesting their student to complete three units, one more school requests their student to complete four units, and the other two requires their student to complete eight units. Besides that, three schools assess their student on immediate denture. Only one school required their students to perform relines/rebase of denture as part of their removable prosthesis requirement. Seven of the responders did not have any form of competency test in this subject (assessing their student base on numerical requirement), while one school assess their student base on competency and patient satisfaction.

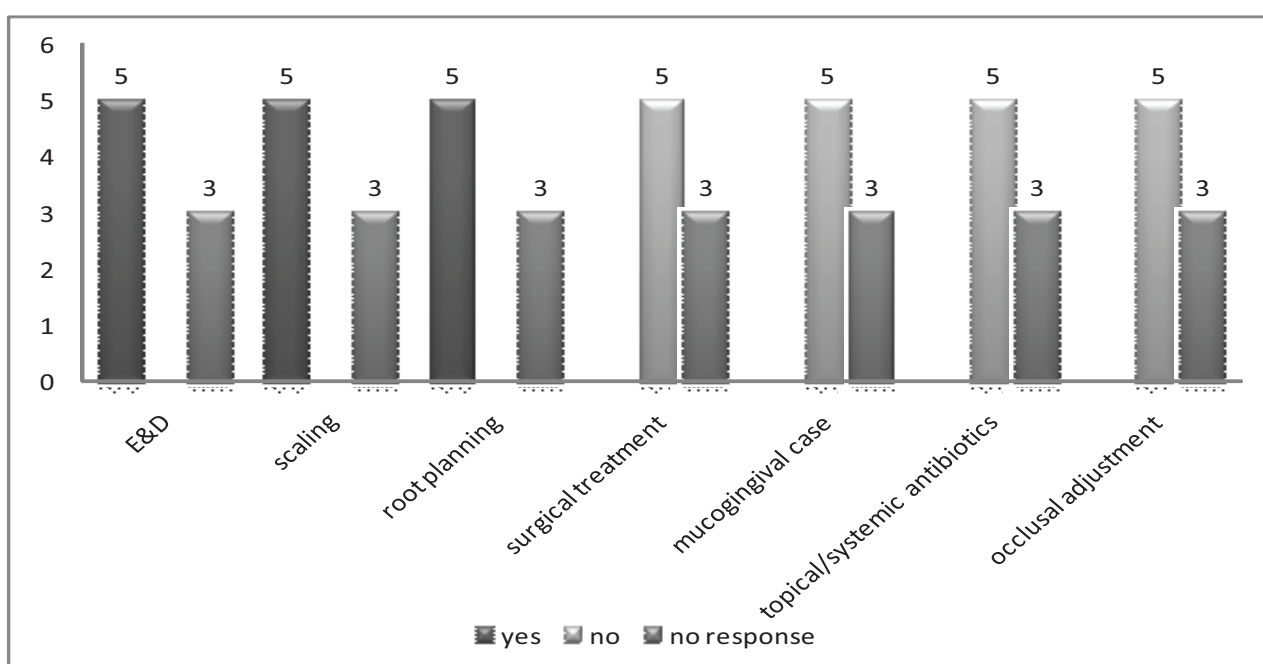


Figure VIII: Requirement for Periodontology

Figure 8 shows the concluded requirement for periodontics. All five responders claimed to assess their student on examination, diagnosis and treatment planning, scaling, and root planning. one school request their student to perform four E&D, another one school request their student to perform five E&D, two more school request their student to perform six E&D, while one more request their student to perform thirteen E&D. The requirement for scaling in each school varies from three to hundred cases respectively. As for root planning, four out of five schools asked their students to perform root planning on ten teeth, while the other one school measure it by case where the students need to complete five cases to sit for their finals. Seven of the responders did not have any form of competency test in this subject (assessing their student base on numerical requirement), while one school assess their student base on competency and patient satisfaction.

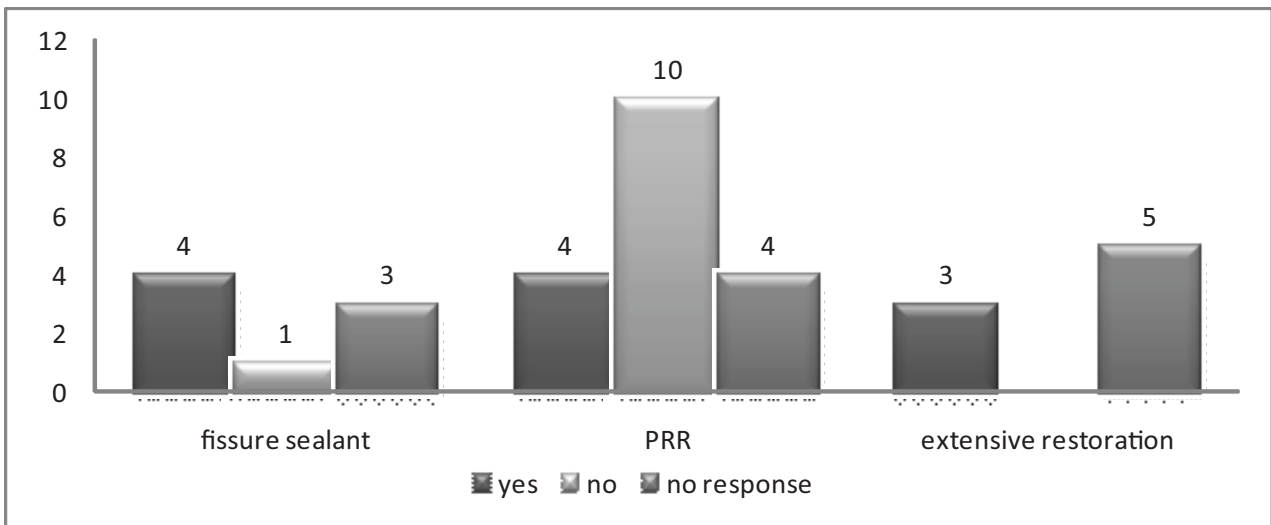


Figure IX: Requirement for other restoration

Requirement for other restoration is shown in figure IX. Four schools claimed to assess their student on fissure sealant and preventive resin restoration while three schools assess their student on extensive restoration.



Figure X: Requirement for case completion

Figure X shows requirement for case completion. Five of the responders claimed to assess their student on case completion, with the requirement ranging from three to ten cases respectively

Section B

Schools	School A	School B	School C	School D	School E
Section B					
Competency test	Base on clinical patient	Conservative dentistry in 4 th year	Class 2 restoration	Operative dentistry and Endodontics	Deep caries management
Monitoring progress	Supervisor and patient satisfaction	Log book, practical, VIVA		Folder checking	Folder checking
OSCE/SCOT	OSCE	OSCE	OSCE	OSCE	OSCE
Other assessments	MCQ,SAQ,MEQ, projects	MEQ, OBA/MCQ	SEQ, MCQ	Preclinical projects	No
Has MQA benchmarking affect your requirements	No	No	No	No	Yes
Will there be change in assessment in next 5 years?	Electronic examination will be introduce	From numerical to point or merit system	Not sure	After evaluation of previous badge	Start intergrated curriculum in 2010/2011

As for Section B, only 62% responded for this section. Base on the result, one school does not have specific competency test or numerical requirement for their students, and they are monitored base on patient feedback and clinical supervisor in their clinical years. The other schools assess their students either on conservative class2 restoration, single canal endodontic or deep caries management² respectively. These schools monitor their students via log book completion and folder checking. Besides, all responders claimed to have case presentation in clinical dental practice, operative dentistry or Endodontics³. All of them use OSCE in the restorative domain and other assessments are such as MCQ, SAQ, MEQ and projects. Four out of five schools claimed that the MQA benchmarking for dentistry did not affect their requirements or competency assessments while another school claimed otherwise. Most of the school suggested that their assessment in terms of restorative dentistry will not change within the next five years. However, one claimed that they are introducing electronic examination, while another claimed that they are changing from numerical requirement to point or merit system or maybe competency only.

Discussion

This is a study done to determine undergraduate requirement in restorative dentistry in Malaysia. The main methodology used is cross sectional survey. An alternative to this method will be interview. However, we choose to perform a survey as it has some advantages compare to the later. A survey has its strength and weakness. It is easy to perform, require less time to perform, and cheaper compare to interview. Besides, the questionnaire can be standardized to ensure that similar data can be collected from groups then interpreted comparatively^{4,5}. The weakness of a survey is that errors due to non response may exist, other than that, survey question could lead to vague data sets because sometimes, they are relative only to a personal abstract notion, what is most appropriate to many respondents may be missing⁶. However, survey is still chosen due to time and budget limitation.

Currently, there are two main stream of dental school teaching, namely the numerical requirements and competency assessment¹. Both have their own advantages and disadvantages. Completing all numerical requirements does not prove that one is competent, but as the saying goes 'practices makes perfect' therefore numerical requirement still have a

strong stand^{1,7}. As for competency test, passing the test does not mean competency is maintained after the test. Thus, most of the dental schools in Malaysia match numerical requirement with competency assessment as this seem to be a sensible approach. The views regarding future development appears that majority of the schools will still maintain numerical component for the foreseeable future¹. Only one of the schools seems to be moving toward competency base. Lynch and Allen observed that there are differences between dental school in terms of amount and content of teaching program in the UK and Ireland, Youngson et al. endorses that conclusion and add that assessment between these schools also varies¹. However, in Malaysia, even though dental school may differ in the number of numerical requirement, but their assessments are quite similar, which is a combination of numerical requirement and competency test. Besides, their competency test mainly involves operative dentistry, only one school reported assessing their students on single canal endodontics. Dental institution in Malaysia also depends heavily on MCQ, SEQ, MEQ, OSCE in their assessment process.

From the results, majority of dental school do not expect their undergraduates to perform many bridge and endodontic procedure. As undergraduate has relatively low numbers of requirement in these field, it

is unlikely that they are competent in bridge-work and multi-rooted endodontic upon qualification. Thus, further training is still need after their graduation as the university just provides them with the basic knowledge. It is the responsibility of the person in-charge for the fresh graduate at the hospital/clinic to monitor their competency before they can stand alone to perform this kind of procedure. Other than that, dental schools emphasize less on inlay/onlay and veneer. In term of prosthodontics, less concentration in place on immediate denture, copy denture, reline and rebase cases. In periodontics, none of the institution exposes their students on surgical treatment. This finding is quite similar to what has been practice for the undergraduate in United Kingdom and Ireland base on the study done by Youngson et al (2007)¹.

Conclusion

This study shows that they is some different between all dental school in Malaysia in the methods use to determine the achievement of the undergraduate student in restorative dentistry before they can sit for their final exam. Even there is some disparity; all schools are still dependent on the exam base method in order to evaluate their students apart from their daily clinical work. Ideally, there should be a clear guideline in how they should be assessed to standardize the assessment method that meets the guideline provided by MQA.

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