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Requirements of the endodontic board certifications and master's degrees in Saudi Arabia and the United States

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ABSTRACT

Objective: The objective of this study was to compare the regulations and clinical requirements of the endodontic board certifications and master's degrees in the Kingdom of Saudi Arabia (KSA) and United States of America (USA).

Materials and Methods: This study was performed in the year 2012. Documents from the American Board of Endodontics (ABE) and the Saudi Specialty Certificate in Endodontics (SSC-Dent [Endo]) were collected from their official websites. Fifty-two American and 3 Saudi endodontics programme directors were requested to submit their institutional requirements for obtaining board certification.

Results: The response rates of directors from the KSA and USA were 100% ($n = 3$) and 32.7% ($n = 17$), respectively. In KSA, dentists with a bachelor's degree in dental surgery are eligible to join the 4-year SSC-Dent (Endo) programme or a 3-year master's degree programme. In the USA, dentists who graduate from a specialty accredited by the American postgraduate programme in endodontics are qualified to become board-certified through the ABE voluntary examination process. Both the SSC-Dent (Endo) and the ABE offer a variety of modules that equip the candidate with greater knowledge regarding endodontics. The two programmes consist of written and oral examinations and vary in terms of the number of clinical procedures involved. The didactics and clinical requirements of master's degree programmes in the KSA and USA are comparable.

Conclusion: The regulations and clinical requirements of master's degree programmes in the KSA and USA are comparable, and both the SSC-Dent (Endo) and ABE have a variety of modules that can be completed.

Keywords: Endodontics, Saudi Arabia, specialisation, United States

INTRODUCTION

Dental professional development is defined as refining the status of an individual in terms of relevant professional attributes, which include updating and changing

processes.^[1] An index of professional development was described by Mercer *et al.*^[2] This index included attending continuing education courses, participation in professional associations, reading journals and participating in practice meetings. Professionalism, as evidenced by dental board certification, has become mandatory for most professional careers. Maintaining professional competencies is a core responsibility for all health professionals.^[3] Endodontics is a specialty in the

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field of dentistry that requires professional certification before clinical practice. Almost all of the countries that have medical/dental schools have board certifications to ensure that practicing medical/dental professionals are fully qualified. The Kingdom of Saudi Arabia (KSA) and the United States of America (USA) are two such countries, whose certification procedures could provide a blueprint for many dental specialty boards based on how their board certification procedures are conducted.

The pioneering objective of the higher education commission in KSA is to establish a world-class institution throughout the country and upgrade the existing institutions.^[4-6] For its population of approximately 20 million, KSA government has 23 dental schools and 6 private schools^[7,8] and the number of graduates are increasing yearly. This annual influx of new dentists in the Saudi system has encouraged several graduates to attain postgraduate education to distinguish themselves in a competitive professional system.^[9] In KSA, the university postgraduate programmes and board certification provided by the Saudi Commission for Health Specialties (SCHS) provide high-quality dental education that closely adheres to international standards. Board certification is logically understood to provide an assurance of quality, as indicated by measures of clinical care and measures of clinical acquaintance and training.^[10] In KSA, the board of endodontics is known as the Saudi Specialty Certificate in Endodontics (SSC-Dent [Endo]). This programme lasts for 4 years after a student graduates from dental school with a bachelor's degree and fulfills the needs of those who wish to improve their skilfulness, experience and knowledge in clinical endodontics.^[11] However, in USA, an endodontist is a qualified dentist recognised by the American Dental Association-accredited graduate programme in the specialty of endodontics.^[12] In addition, American endodontists are eligible to become board-certified through the voluntary examination process of the American Board of Endodontics (ABE).^[13] It is, therefore, pondered whether there are any similarities between the endodontics programmes of the two countries. This question is of interest because no previously published study has compared the American and Saudi endodontics programmes. Therefore, the aim of this study was to compare the regulations and clinical requirements of the endodontics board certifications and master's degrees in KSA and USA.

MATERIALS AND METHODS

Ethical approval

The present study was approved by the Research Ethics Review Committee of the King Saud University, Riyadh, Saudi Arabia (Institutional Review Board # 2287).

To attain the desired objectives of this study, the following methods of data collection were used:

- The ABE and SSC-Dent (Endo) programme documents were obtained from their respective websites for review
- A list of the advanced master's degree specialty programmes in endodontics accredited by the Commission on Dental Accreditation (CODA) was obtained from the official website of the American Association of Endodontics. The list included 52 programme directors. In addition, three Saudi endodontics postgraduate master's degree programme directors were E-mailed and asked to return their institutional requirements
- Dentistry and endodontics journals were used as key reference points.

RESULTS

Master's postgraduate programmes

A total of 17 (32.7%) American and 3 (100%) Saudi endodontics postgraduate programme directors replied. The lengths of the American and Saudi master's postgraduate programmes were both 3 years; moreover, the didactic and clinical requirements were nearly the same [Tables 1 and 2].

Saudi Specialty Certificate in Endodontics

This programme can be performed at any training centre that fulfils the requirements of the SCHS in terms of overall administrative control and responsibility for conducting the programme. A certified endodontist with good experience is required to supervise the residents. A clinical report is submitted quarterly to the local committee by the supervisor. All necessary endodontic materials should also be available in the training centre. Residents rotate in more than one training centre over the 4 years. The programme offers didactic (basic and clinical sciences) and advanced clinical training.

Table 3 presents the clinical requirements that should be completed by each resident before graduating. A resident is expected to complete 469 different procedures, following up with at least 50% of all finished cases. Residents are evaluated in a series of examinations throughout the 4 years of the programme, which includes yearly clinical and oral examinations.

Furthermore, residents are allowed to optionally conduct a research project during the programme and those training at dental schools are required to help teach undergraduate students.

Table 1: The clinical requirements of the American Endodontics master's programmes

University	Minimum programme duration*	Non-surgical procedures	Surgical procedures	ABE format cases	Implant	Recall
Harvard University School of Dental Medicine	3 years	175 - 200	20 - 30	10		
University of Alabama at Birmingham	2 years	300 - 450	15 - 20		Optional	
St. Louis University	2 years	300	20			
New York University	2 years	250	25		5	
University of Michigan	25 months	325 canal RCTs 40 retreatments	20			
Lutheran Medical Center	2 years	250	15			
University at Buffalo	2 years	200	20	20		75
Keesler Medical Center	26 months	225	15 - 20			
University of Minnesota	2 years	500 canals	20			
Wildford Hall Medical Center	2 years	225				
Indiana University	2 years	175	25	15		
Oregon Health and Science University		450 canal RCTs 75 retreatments	10	10		
University of Missouri	2 years	200	25			80
University of Detroit Mercy	2 years	200	15			
University of Nebraska Medical City	2 years	175	5			

*Enrolment in the optional master's programme would require an additional 6 months to 1 year to complete. ABE: American Board of Endodontics, RCTs: Root canal therapies

Table 2: The clinical requirements of the Saudi endodontic master's programmes

University	Minimum programme duration (years)	Number of cases to be finished during the programme			
		Non-surgical	Surgical	Implant	Recall
King Saud University	3	205	20	5	Without restricted number
King Abdulaziz University	3	250 including non-surgical retreatment and traumatised teeth, revascularisation, bleaching	30	0	Without restricted number
Riyadh Dental Colleges	3	200 including 7 trauma and 3 bleaching	20	0	No fewer than 25% of all treated cases per year for follow-up

Table 3: Clinical requirements for the Saudi Specialty Certificate in Endodontics

Clinical procedure	Number of cases
Non-surgical endodontics	400 teeth as follows 50 anterior 50 pre-molar 200 upper and lower molars 100 retreatment cases, including cases with calcified canals, curved/long canals, unusual anatomy, etc.
Surgical endodontics	30 cases, including >10 molar teeth with root-end resection and filling
Emergency treatment	10 cases, including incision for drainage, trephination, etc.
Traumatic dental injuries	14 cases of different management modalities of traumatic injuries and their sequel, such as crown/ root fractures, luxations, avulsions, open apices, resorptions, etc.
Bleaching of endodontically treated teeth	5 cases
Others	10 cases of different complications that may include perforations, root hemisections and amputations, replanted and transplanted teeth, endo-perio, endo-pedo, endo-ortho, vital pulp therapy, management of open apices of necrotic pulp
Recall of finished cases	50% of the treated cases should have at least 1-year of recall
Total	469 cases

American Board of Endodontics

For a candidate to be eligible to enter the ABE examination, he/she must complete a postgraduate endodontics programme accredited by the CODA of the ADA. To become a board certified candidate, he/she is required to successfully complete three examinations, including a comprehensive written examination, a case history and an oral examination. The requirements of standard number 4 must be met for each programme.^[14]

DISCUSSION

The majority of the information regarding the SSC-Dent (Endo) and ABE programmes was acquired from their official websites.^[11,13] The SCHS exhibited an interest in continuing medical education, including dentistry.^[15] This interest was reflected in their preference for most of KSA's dentists to receive more dental education.^[9,16] More than 50% preferred to be enrolled in one of the dental broad programmes and 42.3% preferred attaining master's and doctoral degrees within KSA. Newly graduated dentists in KSA frequently chose the SSC-Dent (Endo) programme, as supported by the large number of acceptance into the SSC-Dent (Endo) programme and the lack of endodontics master's degree programme acceptance. In addition,

the employment rates and salaries of SSC-Dent (Endo) programme graduates are better than those of master's degree holders. McNally *et al.*,^[17] reported similar findings for endodontics residents enrolled in endodontics postgraduate programmes in the USA.

Al-Dlaigan *et al.*,^[9,18] reported that approximately 77% of Saudi male and 81% of Saudi female dentists who graduated from university, completed their postgraduate dental education. Approximately, 7.7% of males and 5% of females specialised in endodontics and 23% of males and 32% of females obtained board certifications from different countries, including KSA and USA.^[9,18] This number could increase in the future.

The SCHC is responsible for evaluating the degrees of healthcare providers through scientific committees. Based on the results of these evaluations, participants are granted their respective titles. Periodic clinical reports submitted by clinical supervisors help determine whether residents are meeting the qualitative and quantitative requirements of a programme. In addition, each resident must fill out a case history report form for each clinical case to fulfil the minimum requirements. All cases must be presented to the clinical evaluation committee at the conclusion of each training year. For the ABE, an applicant must submit 10 cases with a minimum of a 1-year follow-up with original radiographs for the case history examination.^[13]

Two of the yearly written examinations (at the end of the 1st and 4th year) are promotional. The resident must complete his/her clinical requirements before being allowed to take the 4th year promotional examination. This examination includes didactic and clinical evaluation, along with a comprehensive oral examination shared by an external examiner. The presence of the external examiner is critical and encouraged by the scientific committee of the programme. An experienced higher education external examiner offers an independent assessment of academic standards and guarantees the quality of assessment to the appointing institution.^[19] This procedure is similar to that of the ABE oral examination, in which a team of expert endodontics question the ABE applicant.^[13]

The response rate of master's programme directors regarding the detailed clinical requirements was high (100%) for the Saudi postgraduate programmes and low (32.7%) for the USA. The USA programme directors were mainly contacted through E-mails. Alternative ways of communication, such as phone calls, interviews, site visits and survey questionnaires, would have significantly improved the response rate and collection of more information.^[20,21] This mixed method of research has exponentially increased in

health disciplines.^[22] We found that the master's endodontics programmes in KSA were similar to the American programmes in terms of content, requirements and years of study [Tables 1 and 2]. This similarity was not surprising because most of the staff teaching endodontics in KSA graduated from American endodontics programmes.

In KSA, the SSC-Dent (Endo) programme committee approves residents to join the Endodontics Board, then trains, examines and certifies them in 4 years.^[11] This system is unlike the ABE, for which the training centres, such as dental schools or hospitals, are not the same institutes that examine the residents for board certification. However, in the ABE, the resident has to complete a three-part examination process when he/she is ready for a process that can take several years.

The written examination of the ABE tests a wide range of knowledge of anatomy, pathology, biochemistry and other related disciplines.^[13] This process is similar to the Saudi SSC-Dent (Endo) programme's first end-year examination.^[11] The case history examination by the ABE involves presenting an assorted collection of intricate cases from the aspiring dentist's practice. For the Saudi SSC-Dent (Endo) programme, the examination is conducted 4 times at the end of each year. During the oral examination, the ABE candidate displays his/her elevated level of ability in endodontic judgement, assessment, study, creativeness, decision-making and crises management skills. Saudi SSC-Dent (Endo) programme residents are also expected to demonstrate these attributes during their oral and case history examinations. Upon completing the ABE's three assessment examinations, the endodontist is certified as a 'Diplomat of the American Board of Endodontics'. Finishing the Saudi SSC-Dent (Endo) programme enables the candidate to be an endodontics consultant. However, the graduate cannot join an educational institute in KSA dental schools as a teaching staff if he/she did not obtain a master's degree.^[23]

The clinical requirements of the SSC-Dent (Endo) programme are significantly higher than those of the ABE because a resident joins the programme after obtaining a dental bachelor's degree, which is different than for the ABE.^[11] These clinical requirements received more attention because they are part of the programme's structure that helps improve the quality of clinical work.

At least 50% of the treated cases should be subject to recall 'follow-up' in the SSC-Dent (Endo) programme. Achieving such a number of recall cases seems to be

very difficult. However, the length of the programme provides a better chance of following up with a large number of cases. The ABE does not require more than ten cases for recall, and a few of the American and all of the Saudi Endodontic master's programmes do not specify the number of recall cases. Having the patients recall their endodontic therapy outcomes is very important for those studying and practicing endodontics. This process helps the practitioner understand the healing process of pulp and periradicular pathosis to avoid the factors that result in a higher incidence of failure.^[24-26]

The programme supervisors are an integral part of clinical training. In the American endodontics postgraduate programmes, the programme director has to be board-certified; in contrast, the Saudi master's degree programmes require associate or full professors, which is similar to the required qualifications for clinical supervisors in the SSC-Dent (Endo) programme. However, a graduate of the SSC-Dent (Endo) programme can also be a supervisor. The chairman of the scientific committee of the SSC-Dent (Endo) programme is preferred to be an expert in the specialty with a higher degree rank. However, no such specification exists among the Saudi board instructors.

It is generally assumed that when more requirements are asked from students, the more stress they experience.^[27] While most of these symptoms are not so severe that they require intervention, they may eventually compromise the dentist's professional performance and quality-of-life.^[28] Therefore, evaluating the importance of these requirements in the face of their impact upon the lives of clinicians is highly important.

An international standard should be developed to ensure equality and balance in certification requirements. Comparing the KSA and US programmes serves as a good example in which a lack of standards highlights where the two sets of programmes differ. Common standards would ensure the existence of global professionals who are able to practice under any platform without discrimination. The College of Dentistry in King Saud University was trying to cooperate with the SCHS to implement the ABE's system for their master's degree programmes.

The main objective for attaining professionalism through certification by various fields of boards is either continuing further studies or practicing the profession studied. The educational institutes of KSA and USA have thorough regimes for ensuring endodontics certification. Thoroughness is emphasised by the inclusion of independent bodies to ensure effective certification processes, namely the ABE and (SSC-Dent [Endo]) programme. Although these

two organisations use different procedures to vet aspiring endodontists, their key objective is to initiate endodontists into professional practice and grant licenses to pursue further education. Both of their processes entail assessment and examinations, including a given number of procedures that each aspiring endodontist must have practiced in the field. Their procedural proficiencies have given these boards higher priorities than other postgraduate dental educations.

CONCLUSION

It is highly evident from this study, that endodontics is a sensitive profession that requires professional certification. This tendency applies to other professions that are considered to be critical to human life and economic activity, such as law, engineering and dental and medical practices. Bodies such as the ABE in USA and the SSC-Dent (Endo) in KSA, which were studied in this paper, reveal the emphasis on professional bodies in the medical world. The numerous demanding requirements that are necessary to reach full certification only increase the importance of this issue of certification. High penalties are typically imparted when one practices without certification. Thus, certification assessments and final examinations must be strictly followed in most professions, not just dentistry, in which the prerequisites of certification are high standards for procedures and knowledge of related fields.

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Conflicts of interest

There are no conflicts of interest.

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