



Original article

The characteristics and distribution of dentist workforce in Saudi Arabia: A descriptive cross-sectional study

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ABSTRACT

Background: The Kingdom of Saudi Arabia has shown steady growth in the dental workforce over the last 20 years. Although the number of dental colleges has significantly increased in the last decade, there is not any study so far that described the status of the licensed dentist workforce in the kingdom. The present study aimed to explore the demographic distribution and professional characteristics of licensed dentist workforce in Saudi Arabia.

Methods: This was a descriptive cross-sectional study using the Saudi Commission for Health Specialties (SCFHS) database to identify the number of licensed dentists in Saudi Arabia as well as their professional and demographic characteristics as of December 2016. The data was categorized based on gender, nationality, dental specialty, health sector, geographic location, and professional rank.

Results: The number of licensed dentists working in the kingdom as of December 2016 was 16887 dentists, and the vast majority of them are professionally registered as general dentists (70.27%). The percentage of general dentists among the professionally registered female dentists is significantly higher than their male counterparts (79.71% vs. 64.80%; $P < 0.001$). Only 22.08% of the dentists working in the kingdom are Saudi. Most of the dentist workforce in the kingdom are male (61.06%). The mean age of the Saudi dentists is slightly but significantly younger than non-Saudi dentists (37.7 vs. 40.7 years; $P < 0.001$). Over 80% of the Saudi dentists are working in the regions of Riyadh, Makkah, and Eastern province. About 66% of the Saudi dentists are working in the public health sector in comparison to only 20.46% of the non-Saudi dentists ($P < 0.001$).

Conclusions: Most of the dental care in Saudi Arabia is provided by non-Saudi dentists in both private and public health sectors. With the rising unemployment rate among Saudi dentists, the governmental bodies that are responsible of dental labor market regulations such as the ministries of health, economy and planning, and labor should come up with a policy to gradually but carefully replace the non-Saudi dentists in both public and private sectors with Saudi dentists.

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1. Introduction

Oral health is a critical and integral part of the overall health and well-being (American Dental Association, 2006). Many health conditions can affect the oral health resulting in acute or chronic orofacial pain, oral sores, throat and oral cancer, oral defects such

as cleft palate and lip, tooth decay and tooth loss, and periodontal (gum) disease (Preamble to the Constitution, 1946). Individuals are not considered healthy if they do not have a good oral health. To improve and maintain an optimal oral health, a trained, knowledgeable and comprehensive oral healthcare team is required in every country. Therefore, the World Health Organization (WHO) has stated in its 2006 report the following: “developing capable, motivated, and supported health workers is essential for overcoming bottlenecks to achieve national and global health goals. Healthcare is a labor-intensive service industry at the heart of every health system, the workforce is central to advancing health” (World Health Organization, 2006).

Significant barriers exist in every country to ensure that their population receive basic healthcare including oral healthcare

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(Nash et al., 2008). Ignorance, poverty, and lack of adequate numbers of trained and educated healthcare workers are common barriers. Furthermore, the lack of financial resources in developing countries greatly limits their ability to provide quality dental education and training to fill the gap in dental care in their countries (Nash et al., 2008). Even in developed countries, financial resources are not always efficiently allocated to guarantee that their populations have access to healthcare including dental healthcare (Nash et al., 2008).

The Kingdom of Saudi Arabia has shown rapid growth in the educational sector including dental education. The college of dentistry was established at King Saud University back in 1976. Thereafter, King Abdulaziz and King Faisal universities have opened dental colleges in the western and eastern regions, respectively. However, the number of dental colleges has increased from three to four colleges in whole kingdom back in the year of 2000 to over 20 colleges of dentistry nowadays. This dramatic increase in the number of dental colleges in the kingdom, which happened in less than a decade, resulted in a significant increase in the number of dental graduates. Expectedly but unsurprisingly, those graduates are finding it harder nowadays to find a job in the public health sector something that was not heard of in the past. However, the good news is that the increase in the number of dental graduates will hopefully bring the ratio of dentist-to-population in the kingdom down. In 1987, the number of practicing dentists in the kingdom was 786 (dentists-to-population ratio, 1:8906) (Shalhoub and Badr, 1987). As per recent ministry of health statistics data released in 2014, the number of dentists was 12,785 (dentist-to-population ratio, 1:2666), which indicates a growth rate of 4.11 dentists per 10,000 inhabitants in Saudi Arabia (MOH, 2014). Previous studies reported that the Organization for Economic Cooperation and Development (OECD) member countries, excluding Scandinavian countries and Greece, have variable dentists-to-population ratio from 5 to 8 with an average of 6.1 dentists per 10,000 inhabitants (Organisation for Economic Co-operation and Development, 2011; Organisation for Economic Co-operation and Development, 2009). In addition, most of the European countries have dentists-to-population ratios ranging from 5.07 to 7.3 (Organisation for Economic Co-operation and Development, 2011; Organisation for Economic Co-operation and Development, 2009). Among Asia-Pacific countries, China has the lowest dentists-to-population ratio of 0.12, and Japan has the highest dentists-to-population ratio of 7.7 per 10,000 inhabitants (Huang et al., 2013).

Saudi Arabia has shown a rapid population and economic growth that demands an increase in the dental workforce and job opportunities to the fresh dental graduates. Future dental workforce plans should focus on how to achieve a balanced demographic distribution of dental practitioners and creating job opportunities to the Saudi dental graduates. The present study aimed to examine the status of demographic distribution and characteristics of dentist workforce in Saudi Arabia.

2. Methods

To explore the current status of dentist workforce in Saudi Arabia, the Saudi Commission for Health Specialties (SCFHS) was approached and officially requested through formal communications between King Saud University college of dentistry and the SCFHS to provide data on the status of the licensed dentist workforce in the kingdom including the following variables: (1) number of dentists; (2) geographic locations of dentists; (3) specialties of dentists; (4) professional ranks of dentists; (5) dentists' age and gender; (6) place of work; and (7) nationality. The SCFHS is the official regulatory body responsible of the registration and licensure of healthcare providers in the kingdom (Saudi Commission for Health

Specialties, 2009). The data was further organized and classified based on the healthcare sector that the licensed dentist works in (e.g., private and public healthcare sector). In addition, the geographic location of the dentists was categorized into 13 categories based on the administrative subdivisions of the kingdom into 13 regions. The nationality of dentists was categorized into Saudi, if they were Saudi citizens, or non-Saudi if they were not Saudi citizens. Descriptive statistics including frequency and percentage was calculated to characterize the study sample. Statistical significance was defined at an α of 0.05. All analyses were performed using SAS, version 9.2 (SAS Institute Inc., Cary, NC, USA). The study was approved by the Institutional Review Board (IRB) of the College of Dentistry at King Saud University in November 2016.

3. Results

There are 16,887 licensed dentists in the SCFHS database as of December 2016. The Saudi dentists only represent 22.09% of the licensed dental workforce in the kingdom, which translates into 3720 dentists. Table 1 details the characteristics and distribution of licensed dentists in the SCFHS database based on their nationality. The mean age of the licensed dentists is 40.09 years with the Saudi dentists being slightly but significantly younger than their non-Saudi counterparts (37.7 vs. 40.76 years; $P < 0.001$). The majority of the licensed dentists in Saudi Arabia are males (61.06%) with no significant difference in the percentage of males and females between the Saudi and non-Saudi dentists. Almost 70% of the licensed dentists in Saudi Arabia are working in the three main regions of the kingdom (Riyadh, Makkah, and Eastern province). Approximately 81% of the licensed Saudi dentists are working in the three aforementioned regions compared to 65.81% of the non-Saudi dentists ($P < 0.001$). Around 80% of the non-Saudi dentists are working in the private health sector compared to only 33.65% of the Saudi dentists ($P < 0.001$). The percentage of Saudi dental specialists, who are working in the public health sector, is significantly higher than their non-Saudi counterparts (24.77% vs. 8.30%; $P < 0.001$). On the other hand, the percentage of non-Saudi dental specialists in the private health sector is significantly higher than their Saudi counterparts (19.15% vs. 11.47%; $P < 0.001$).

Table 2 shows the professional registration in the SCFHS for both Saudi and non-Saudi dentists. The majority of licensed dentists in Saudi Arabia are professionally registered as general dentists. The percentage of general dentists among the non-Saudi dentists is significantly higher than their Saudi counterparts (71% vs. 67.7%; $P < 0.001$). Most of the licensed dentists who are professionally registered as dental registrars are non-Saudi (78.12% vs. 21.88%; $P < 0.001$). There are 356 licensed dentists who are professionally registered as senior dental registrars in the kingdom, and almost 70% of them are non-Saudis. Although the percentage of licensed Saudi dentists who are professionally registered as dental consultants among the Saudi dentists is significantly higher than their non-Saudi counterparts (9.36% vs. 6.54%; $P < 0.001$); their percentage of total number of licensed dental consultants in the kingdom is lower (28.86% vs. 71.13%). There are 660 licensed dentists who are professionally registered as dental residents, and the non-Saudis represent 78.94% of them. There are also licensed dentists who are professionally registered in the SCFHS as non-practicing, visiting, and others as shown in Table 2. As shown in Fig. 1, the percentage of registered male dentists is predominantly higher than female dentists across all of the SCFHS professional ranks.

As shown in Fig. 2, the percentage of dental specialists among the licensed Saudi dentists is higher compared to their non-Saudi counterparts (36.25% vs. 27.45%). Also, the percentage of dental

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