

Development of Dental Specialties in Iran: A Qualitative Study

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Abstract

Objectives: Dental specialties in Iran were first established in 1970s, and developed over time. Considering that information is essential for health policymaking, and lack of it is the main problem; therefore, policymakers require adequate knowledge about development and alterations of healthcare providers to recognize the influential factors on them. Regarding the information gap on development of dental specialties in Iran, this qualitative study aimed to assess it.

Methods: This qualitative case study was conducted through 12 semi-structured interviews with the experts and pioneers of the oral healthcare system in Iran who were selected by purposive and snowball sampling. Data were analyzed by content analysis method, which included transcribing, identifying the meaning units, abstracting the content, sorting codes, and formulating themes using Atlas.ti software.

Results: After data analysis, three main themes were extracted regarding development of dental specialties in Iran according to the interviewees: (A) trend of development, (B) challenges of development, and (C) necessities of development. Trend of development of dental specialties included two comprehensive phases, and one phase focusing on quantity and inadequate attention to quality. The challenges of development of dental specialties included management and policy-making problems, interactions outside the system, popularity of specialization, and process of admission to specialty programs. The necessity of need assessment, paying attention to the costs of healthcare interventions, defining the range of specialization, and revision of dental specialty programs are among the necessities of development of dental specialties.

Conclusion: Dental specialties in Iran were developed at a time with inadequate attention to shortage of infrastructure based on political interactions. The popularity of specialization in dentistry and the associated high costs in a free educational system highlight the significance of need assessment regarding the number of specialists required in academic and therapeutic fields, and setting some criteria for development of specialty programs.

Keywords: Higher education, dental education, postgraduate, professional training, health care provider

Introduction

Dental specialists receive education and training beyond general dentists, and acquire a higher level of expertise and competence in a field of specialty. The number of specialists and fields of specialties in a country are related to the oral healthcare provision system and socioeconomic factors.¹ There is variation in the number of dental specialties, especially in European countries. Austria, Luxemburg, and Spain have no officially recognized dental specialty. In the United Kingdom and Iceland, there is a high number of officially recognized dental specialties. Dental specialties in countries like Iceland, Poland, Sweden, and United Kingdom have developed in response to public pressure with the aim of protection of public health.² Advances in dental technology, the need for complex procedures, demographic changes, population aging, improved level of wealth, and changed lifestyle are among the reasons proposed for increased number of dental specialties.¹ Financial considerations and economic factors play a fundamental role in development of specialties in medical field.³ Several studies have assessed the variations, number, reasons for development, and trend of changes of dental specialties, mainly in developed and high-income (HI) countries. Little information is available regarding dental specialties in developing and low-middle income countries (LMICs). Since the influential factors on the development and number of medical specialties are different in HI and LMICs,⁴ case studies of LMICs can be valuable to obtain comprehensive information in this regard.⁵

Iran is a developing and LMIC.⁶ Establishment and development of dental specialties in Iran dates back to 1970s. Tehran University was the pioneer in this process, and over time, dental specialties were also established in other universities. Higher education in Iran is provided to Iranian citizens free of charge and by financial support from the government. Currently, there are 190 dental specialty fields-locations in 19 public and private dental schools in Iran. Approximately 360 postgraduate students are accepted and admitted annually in 12 specialty fields in Iran. Since the pattern and severity of oral and dental diseases have a significant impact on dental education strategy planning, type of service provider, and service provider system,⁷ it appears that the number of trained dental specialists in Iran does not match the high rate of unmet needs,⁸ and the high share of out of pocket expenses of patients for dental services.⁹ The reason is that the need for specialized services is lower and such services are more expensive than other levels of care.¹⁰

To date, no study has been conducted on dental specialties in Iran, and no information is available regarding their trend of development. Conduction of a qualitative study on a topic regarding which, scarce information is available, can help better scrutinize the topic.⁵ Thus, this qualitative case study was designed aiming to assess the trend of development of dental specialties in Iran. Information obtained from such studies can be used by policymakers since lack of information is the main problem in health policymaking, and adequate information can play an influential role in healthcare policymaking.¹¹

Methods

The case study design was selected for this qualitative study due to its applicability to enhance the understanding and perception of complex contemporary phenomena in different fields of life, such as medical and social domains.⁵ The participants were selected by purposive and snowball sampling. Data collection was continued until data saturation. In 2020, 12 semi-structured interviews were conducted with experts of the healthcare system. The participants of the present study comprised of experts, policymakers, and pioneers of oral healthcare system in Iran who were well aware of the history of establishment and development of dental specialties in Iran (Table 1). The objectives of the study and its ethical guidelines were explained to the participants prior to the interview, and written informed consent was obtained from them at the onset of interview. The location and time of interview were scheduled according to the preferences of the participants. The interviews were audio-recorded. The information provided by the participants was reported anonymously. One researcher conducted face-to-face interviews. The main question of this study was that “how was the development of dental specialties in Iran?” (Box 1). Each interview took approximately 30 minutes. After each interview, its contents were transcribed verbatim. The interviewee was then provided with the transcript to confirm the data’s accuracy and make the necessary revisions, if required.

Data were analyzed using Atlas.ti software (version 7.57).¹² Data analysis was conducted by the content analysis method.¹³ Since one researcher (TR) performed the interviews and prepared the transcripts, and was completely familiar with the data, she also performed data analysis. The contents of the interviews were reviewed several times, the meaning units were identified, and the primary codes were extracted from the meaning units. After defining the meaning units, the contents of each interview were divided into meaning units.

Table 1. Number and composition of participants in semi-structured interviews

Organizational ranking	Number of respondents
Former heads of the dental education and specialty council secretariat, Ministry of Health and Medical Education	3
Former managers or members of the committee for educational programming in the Ministry of Health and Medical Education	4
Experts in different dental specialties	5
Total	12

Box 1: Main questions of the interviews

-What do you know about the development of dental specialties in Iran?
-How was the trend of development of dental specialties in Iran? And what modifications they have undergone so far?
-What are the main challenges in the process of development of dental specialties in Iran?
-Do you have any suggestions to improve the current status of dental specialties in Iran?

The related meaning units were further abstracted to obtain the research codes. After assessing the differences and similarities of the existing codes, subcategories were formed, and finally, the themes were extracted. Peer debriefing and member-checking were used to ensure the correct extraction of themes. All ethical guidelines were followed in this study, which included obtaining written informed consent for participation in the study, confidentiality of information, avoiding bias, the right to quit the study at any time, and anonymity of the participants.

Results

After data analysis, three main themes including (A) trend of development of dental specialties, (B) challenges of development of dental specialties, and (C) the necessities of development of dental specialties were extracted (Table 2).

Trend of Development of Dental Specialties

According to the participants’ opinion, the trend of development of dental specialties in Iran can be divided into three phases, influenced by the number of dental schools in Iran. It included an initiation phase with establishment of specialty programs in 5 primary dental schools in 1970s. The second phase included increasing the number of dental schools from 5 to 18 in year 2000, and the third phase included increasing the number of dental schools from 18 to 66 in the next years (of 66 permits given for establishment of dental schools, 44 schools are now active).

The first phase (in 1970s) was part of the development process, which was pioneered by foreign-graduate experts (mainly graduated from the United States and United Kingdom universities). The majority of such experts had received full scholarship from the government for their education abroad, and were obliged to work for the government and service their country after graduation. These graduates later became the instructors of the newly established dental schools in the second phase in undergraduate and residency programs. One respondent stated: “They [foreign graduates] were the pioneers of development of dental specialties in the country.”

For some years (1980s), dental auxiliaries trained to increase dental care access for underserved people. In the

Table 2. Contents and subcategories related to development of dental specialties in Iran

Theme	Subcategories
Trend of development of dental specialties	- First and second phases: Comprehensive, with optimal quality and quantity - Third phase: Non-comprehensive, with special focus on quantity and inadequate attention to quality and elimination of infrastructural shortcomings
Challenges of development of dental specialties	- Management and policymaking problems - Interactions out of the system - Popularity of specialization - Process of admission to specialty programs
Necessities of development of dental specialties	- Necessity of need assessment - Significance of paying attention to the costs of healthcare interventions - Defining the extent of development of dental specialties and their revision

second phase, schools for the training of dental auxiliaries were converted to dental schools. In this phase, the physical infrastructure was available, and the number of specialty programs increased to train instructors required for general dentistry programs in the increasing number of dental schools. Development of specialty programs in this phase was comprehensive, had optimal quality and quantity, and was based on precise programming. The graduates of this phase had the required competencies in their field of specialty, and became successful clinicians and academic instructors. According to one participant: "They were very well-trained, because of the quality of training."

In the third phase, according to the interviewees, increasing the number of admitted students for specialty programs became competitive among dental schools, such that the quality of instruction in postgraduate residency programs was seriously compromised. Increasing the number of dental schools, establishment of several dental schools in some provinces, establishing specialty programs in universities that did not have the required infrastructure, and immethodical increase in admission capacity of universities without taking into account the actual requirements of the country all indicated absence of a strategic plan with respect to training of dental specialists. One participant said: "At first, quantitative development was proportionate to qualitative development, but later, we had quantitative development but quality was no longer important."

Challenges of Development of Dental Specialties

1. Management and policymaking problems: According to the opinion of the interviewees, development of dental specialties in Iran, especially in the third phase, had several problems and challenges, one of which, was management and policymaking problems in the healthcare system. These problems included: (A) non-responsiveness of the authorities, (B) impaired problem solving, (C) political influence over appointments, and (D) implementing programs only to leave a mark from management period of managers.
 - A. In the healthcare system of Iran, monitoring and evaluation of managers has been rarely conducted, resulting in their poor responsiveness regarding the consequences of their actions and decisions. In other words, no difference exists between the managers that improve the healthcare system status and those who intensify the problems. One participant stated: "They are not responsive and have no worries in this regard either."
 - B. Absence of a mechanism for corrections in the system results in continuation of old problems and development of new problems. According to one participant: "The system has not been defined for corrections and revisions; thus, old problems continue to exist and new problems emerge."
 - C. Managers in the healthcare system are often appointed based on their political party. One participant stated: "when your political party wins, you get a position, depending on your level of cooperation with them."
 - D. Another management challenge is the interest of the newly appointed healthcare authorities and managers in changing the existing system, and implementing programs only to leave a mark from their management period. One example of such activities is the permit

given for establishment of numerous dental specialty programs in different universities. One participant added: "Their goal was to do something to be recognized by it later."

2. Effect of interactions outside of the system on decision-making was another challenge. According to the participants, these interactions affected the decisions made in the Ministry of Health and Medical Education regarding dental specialties. The majority of participants pointed to the significant role of lobbying in budget allocation and provision, and role and influence of some certain people out of the Ministry of Health on development of new dental schools and establishment of dental specialties in Iran. According to one participant: "Well, there was quite a competition at that time! All provinces somehow acquired a permit that all province capitals can have a dental school. Some provinces such as [X] even established several dental schools! They wanted to do something big, and later brag about it that this particular dental school or specialty program was developed under my management and gain people's support as such."
3. According to the participants' opinion, popularity of specialization is another problem that led to offering specialty programs by some service providers, and they focused their activities on a specific field of specialty. One participant said: "The majority of dental requirements of our people can be provided by general dentists, and there is actually no need to train such a high number of specialists."
4. According to the participants, the process of admission to specialty programs is another challenge. The test score acquired in the national residency examination is currently the only criterion for admission to a residency program in Iran, and there is no other assessment. One participant explained that: "test score is a necessity; but now, it is the only requirement."

Necessities of Development of Dental Specialties

According to the participants, development of dental specialties in Iran requires attention to some necessities. Need assessment is imperative for development of dental specialties. The goal and purpose of specialty programs should be defined as well. The number of specialists required for academic educational purposes differs from the number required for therapeutic purposes; also, such needs vary depending on the time and distribution patterns. Therefore, the needs should be identified and periodically updated. One participant explained: "when making a decision, we should see what we need."

In healthcare interventions, especially in the field of specialization, the costs need to be taken into account as well. In addition to the possible achievements, the costs should be also considered in decision making, and decisions should be made to minimize the costs inside and outside of the health domain. One participant added: "dental education is costly; so, you should watch for the costs and see what decision is better."

According to the participants' opinion, considering the necessity of specialty programs, the need for specialists should be quantified. Type of healthcare system and its priorities, model of service provision, and technique of management of the market of specialty services can all affect this decision. The

criteria for development and expansion of specialty programs should be clear, and the existing programs should be revised accordingly. One participant added: "We have to set something straight; for example, we don't yet know how many specialists we need." Another participant stated: "We should know how to manage specialty services, and what are the criteria for development of a specialty program."

Discussion

The present results revealed that development of dental specialties in Iran had three phases. The first and second phases were based on the current needs and logic; however, the third phase had drawbacks such as immethodical increase in the number of specialty programs and ignoring the shortcomings of infrastructures. Mohammadpour et al.¹⁴ evaluated the challenging in oral health policymaking in Iran and mentioned that insufficient and inadequate infrastructure for dental education was one of the existing challenges. Isiekwe et al.¹⁵ evaluated the perception of Nigerian dental students regarding their educational curricula, and concluded that insufficient infrastructure affected dental education. They added that the challenges of dental education are different in developing and developed countries with adequate infrastructure. Bailit¹⁶ discussed that financial problems of publicly-supported dental schools were one reason for inadequate infrastructure. Jawaid¹⁷ in his study entitled "plight of dentistry in Pakistan" pointed to the shortage of infrastructures in dental education institutes in Pakistan.

Specialization of dental education in Iran has been associated with some challenges. Many challenges, such as management and policymaking problems, and interactions outside of the system, are not exclusive to development of specialties, but affect it. The ministers of the next government that takes over are rarely interested in interacting with the previous ministers. Personal capture is another problem, which is also considered as a healthcare system problem by the World Health Organization. It leads to instability in implementation of programs, and results in no commitment to implementation of programs after the ministers and managers are changed. By changing of the managers and ministers of the political party that loses the election, their policies are also canceled before implementation and assessment, because the new ministers and managers are reluctant to continue implementation of programs designed by the previous team. Proper stewardship can decrease the risk of policy orientation.¹⁸ The effect of interactions out of the system on health policies is another challenge, which is also a threat to the healthcare system. Decision-making by individuals who may not even be healthcare experts, consider the healthcare market to be similar to any other market, and intentionally or unintentionally aim to attract public support without recognizing the consequences of their actions and decisions can further complicate the problems in a system that already has a high volume of unmet needs. Shadpour,¹⁹ in his study, aimed to criticize the activities for correction of healthcare system in Iran and highlighted the impact of political decisions made outside of the healthcare system on health policies. Presence of legislative and regulatory bodies in the system can be helpful, given that they are not used for political goals of parties and individuals; however,

unfortunately, political and factional tendencies often dominate the national goals.²⁰

According to the interviewees, the process of admission to specialty programs is another challenge in development of dental specialties in Iran. In the current model of student admission for residency programs in Iran, a national entrance exam is held, and the students select a specialty program based on their test score. In a study on challenges of dental education in India, holding one entrance exam for all students was mentioned as an existing challenge. The authors suggested holding a separate standard examination for each program accompanied by personal interviews to determine the level of interest of the candidates in a particular fields.²¹

To train adequate human resources, the admission frequency increased in many countries worldwide as recommended by the World Health Organization.²² In Iran, the number of dental schools increased aiming to serve justice in provision of services. Over time, the number of dental schools offering specialty programs, and the number of admitted students for such programs also increased. Although such educational developments can enhance accessibility of services, they have regulatory challenges as well.²³ The Australian Research Centre for Population Oral Health stated that establishing new dental schools would be effective for enhancement of geographical distribution of dental specialists, but there is no evidence in this respect.²⁴ Maia et al.²⁵ evaluated the characteristics of expanding private dental education, and discussed that increasing the number of dental schools can affect the dental job market but cannot guarantee better and fair distribution of dentists and dental services. Moreover, increasing the number of dental schools not only does not improve oral health status of the public, but also creates some concerns with respect to the quality of instructions.¹⁴ Jawaid¹⁷ pointed to the decreased quality of education due to absence of the required infrastructure.

Social status and earning more income are among the factors that contribute to acquiring a specialty degree.⁴ It is possible that by training higher number of specialists and lack of supervision on their distribution, competitions form between them to attract more patients and make more money, which would lead to an increase in certain treatments. Also, specialists may compete with general dentists to make more money.²⁶

In Iran, higher education is mainly public and free, aiming to serve justice in accessing higher education and minimize injustice in this respect. However, informal estimates reveal that in the recent years, the share of benefitting from higher education has been positively correlated with the socioeconomic status of the families. Increasing the number of universities and expansion of higher education were performed in some countries for the purpose of privatization and commoditization of higher education, which has an economic justification.²⁷ Jawaid¹⁷ reported uncontrolled increase in the number of dental schools in Pakistan; he added that making more money was the main goal behind establishment of new dental schools. Cumulative increase in number of dental specialists in Iran occurred with the aim of provision of human resources following population growth and increased public demands; however, considering the type and quality of instructions, it does not have economic justification. Expansion of higher education especially in countries with free public education

would be associated with a considerable rise in costs.²³ Moreover, considering the limited financial resources and high cost of undergraduate and postgraduate dental educations,²⁸ it is imperative to estimate the number and type of oral health service providers according to precise need assessment. Eklund and Bailit²⁹ believed that high number of dental graduates in the United States had little scientific justification, and discussed that study of supply and demand should be prioritized to establishing a new dental school. Not performing need assessment and no access to adequate information are among other challenges of the healthcare system, and it has been demonstrated that many decisions related to human resources in oral health domain are made in absence of precise local data, and only based on models implemented in other countries.³⁰ Therefore, further attention should be directed to acquire and use precise data. Also, it is imperative to devise policies to maintain the specialists in the country; otherwise, the outcome of training of specialized forces would be the human capital flight.³¹

This study focused on the less addressed topic of dental specialties in Iran. Uncertainty about the commitment of the reviewers regarding the accuracy of the provided information was a limitation of this study. To prevent its confounding effect, data were interpreted with caution. Peer debriefing and member-checking methods were also applied to ensure data verifiability. Considering the wide reference of the interviewees to the role of political interactions in health decisions, further studies are recommended to comprehensively assess the effect of political interactions and develop strategies to control them. According to the opinion of the interviewees, process of admission to specialty programs was one of the challenges in development of dental specialties in Iran. Since addressing this topic was out of the scope of this study, further studies are required to address this topic.

Conclusion

The trend of development of dental specialties in Iran included two phases with optimal quality and quantity, and one phase of focusing on quantity with less attention to quality of educations and elimination of the shortcomings of infrastructures. Although the challenges in the process of development of dental specialty programs in Iran are not exclusive to this field, they impacted it. A suitable stewardship can decrease the consequences of some challenges such as policy orientation. Political interactions and decisions have also affected the development of dental specialization in Iran. Popularity of specialization in dentistry and high costs of education in a free educational system highlight the significance of need assessment for human resources. According to the perspectives of the reviewers, determining the required number of dental specialists in academic and therapeutic fields, and setting some criteria for development of specialty programs are among the necessities for development and expansion of dental specialties in Iran.

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Conflict of Interest

The authors declare that they have no conflict of interest. ■

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