A preliminary study of the scope of practice of dental hygienists and oral health providers in Asia

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Abstract: The aim of the present study was to gather information to clarify the scope of oral health services in Asia, focusing particularly on the role of dental hygienists, anticipating that international exchange of data on oral health would benefit the establishment of such systems in other countries. Data on oral health providers were obtained from reliable sources, cited reports and professional websites, or from embassies of Asian countries located in Japan. The embassies were contacted by email, telephone, post, or interview. The survey was conducted from February 1, 2015, until June 18, 2019. Twenty-eight countries in Asia were selected according to their classification by the United Nations. Among them, 14 countries were found to recognize the professional status of dental hygienists. Nine of the 28 countries had no working dental hygienists, and their role was taken by other oral hygiene providers. It was unclear whether oral hygiene providers were operating in 5 of those countries. Many countries were found to lack formal oral health systems, and some had limited systems in rural areas. Dental hygienists work to prevent oral diseases in order to protect teeth and gums, as is the case in Japan. However, other oral health providers offer other dental services in other Asian countries, probably depending on individual national circumstances.

Keywords: Asia, dental hygienists, oral health providers, scoping study

Introduction

The concept of professional dental hygiene care was developed in the twentieth century, with the first dental hygiene school opening in 1913 in the United States. Dental hygiene care then spread throughout the world [1]; in Japan, for example, an act passed in 1948 determined the qualifications required for dental hygienists [2]. The required competencies for dental hygienists vary from country to country.

Oral health providers are called dental hygienists, dental therapists, dental nurses, or dental assistants. This article will use the term “dental hygienist,” which is a licensed primary healthcare professional who provides preventive, educational, and therapeutic services supporting total health for the control of oral diseases and the promotion of oral health. In Japan, dental hygienists are considered the sole medical practitioners who are nationally qualified to work as specialists in dental health. In New Zealand, training schools for dental therapists [3] teach students how to provide basic dental care for children. Those with dual scopes of practice (dental hygiene and dental therapy) are now known as oral health therapists in New Zealand [4]. Dental therapists are also often designated as dental nurses, as a means of improving access to care. Dental assistants and hygienists during a variety of treatment procedures [5]. Therefore, it is also important to understand what title is used for those performing oral health services in each country or region within the study group. Definitions for oral health providers used in this article are shown in Table 1.

The ultimate purpose of clarifying the role of oral health providers in Asian countries is to create the ideal form of oral health system for that region. The role of dental hygienists and other oral health providers has evolved over time and can differ across countries. Oral health providers throughout the Asian region, including Japan, have not been thoroughly studied. Only a few reports have examined the types of professional oral health providers that are specific to individual countries or areas in Asia. These include dental hygienists, dental therapists, dental surgery assistants, and dental assistants working in Hong Kong [6], dental hygienists working in the Republic of Korea (South Korea) [7], and dental hygienists working in Nepal [8]. In Taiwan, however, there is currently no dental hygiene profession [9].

This article attempts to gather as much information as possible about oral health providers as a step towards clarifying the role of dental hygienists and other oral health providers in Asian countries. It is anticipated that sharing information internationally about oral health systems would help to provide better oral health care throughout Asia, and facilitate a full scoping study of Asian oral health systems.

Materials and Methods

Reliable sources of information concerning dental hygiene professionals were divided into 5 levels depending on the criteria of previous research (Fig. 1) [10]. Firstly, the authors surveyed reliable reference papers and these sources were categorized as level 5 (i.e. the most reliable). The authors then collected data by accessing the web pages of organizations such as the Ministry of Foreign Affairs (level 4), Ministry of Tourism (level 4), and dental associations or dental hygiene associations in the respective countries (level 3); professional organizations were also contacted by email. Circumstantial data on the dental hygiene profession were obtained via the embassies for other Asian countries located in Japan through email or telephone (level 2), as shown in Table 2. The authors sent emails to the embassies of Bhutan and Timor-Leste in order to request interviews, and telephoned the P. R. China embassy. The Myanmar embassy introduced Dr. Karma working at Jigme Dorji Wangchuck National Referral Hospital. The authors also interviewed a representative from the Dental Association of Myanmar (level 1). They also visited some countries and areas individually for interviews, including Hong Kong and Taiwan (level 1). In Taiwan, the authors interviewed professor Shun-Te Huang Kaohsiung at the Medical University Department of Oral Hygiene and a dental hygiene student who had come to Japan from Macau on September 20, 2018 (level 1).

The survey period was from February 1, 2015, until June 18, 2019. The countries and areas of interest within Asia were selected for this study according to their classification by the Department of Economic and Social Affairs of the United Nations. The studied countries are listed in Table 2.

Results

In Asian countries, dental health providers work under various titles such as dental hygienists, dental therapists, dental nurses, dental assistants and/or dentists, as shown in Table 2. As seen in the table, only 14 countries were found to recognize the profession of dental hygienist. Among them, Brunei, India, Japan, Nepal, the Philippines, and South Korea have national qualifications that must be met before becoming a dental hygienist. Formal “dental associations” certify persons as dental hygienists in Bhutan, Hong

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J-STAGE Advance Publication: September 4, 2020

Color figures can be viewed in the online issue at J-STAGE.

doi.org/10.2334/josnusd.20-0087

DN/JST/JSTAGE/josnusd/20-0087
Table 1 Definition of oral health providers

| Profession                  | Description                                                                 |
|-----------------------------|-----------------------------------------------------------------------------|
| Dental hygienist            | A licensed primary healthcare professional, oral health educator, and clinician who provides preventive, educational, and therapeutic services supporting total health for the control of oral diseases and the promotion of oral health. |
| Dental therapist            | Provides oral health assessment, treatment, management, and prevention services for children and adolescents up to age eighteen. |
| Dental assistant            | Employed only by the government of New Zealand. They are engaged only in the performance of routine phases of children’s dentistry, such as restoration of caries teeth, prophylactic treatments, administration of local anesthetics, extraction of deciduous teeth, and topical application of sodium fluoride. They are the same as dental therapists nowadays. |
| Dental assistant            | Individuals who improve the efficiency of the dentist in the delivery of quality oral health. Responsibilities include, for example, assisting the dentist during a variety of treatment procedures, taking and developing dental radiographs, asking about the patient’s medical history and determining blood pressure and pulse, and so on. |

Table 2 Dental hygiene professions in Asia

| Country          | Dental hygienist (DH) | Dental nurse (DN) | Dental therapist (DT) | Dental assistant (DA) | Dentist | Population* | Level | Reference                                      |
|------------------|-----------------------|-------------------|-----------------------|-----------------------|---------|-------------|-------|------------------------------------------------|
| Afghanistan      |                       |                   |                       |                       | 120     | 37,172      | 5     | Tan PH et al., Singapore Dent J 32, 39-48, 2011. |
| Bangladesh       | Unknown               |                   |                       |                       | 6,528   | 161,377     | 5     | Wilson NH et al., Int Dent J 63, 49-55, 2013.   |
| Bhutan           |                       |                   |                       |                       | 65      | 754         | 1     | Mallow PK et al., Int Dent J 47, 148-156, 1997. |
| Brunei           | +                     | School dental nurses | +                     | 93                    | 183     | 429         | 5     | Hikiji H et al., J Dent Educ 75, 565-573, 2011. |
| Cambodia         | -                     | 1,000 (2005)      | Unknown               |                       | 377     | 16,250      | 5     | Lucjak-Donsberger C et al., Int J Dent Hyg 1, 84-88, 2003. |
| China            |                       |                   |                       |                       | 51,012  | 1,427,648   | 2     | Gao SS et al., Healthcare 6, 1-8, 2018.       |
| Hong Kong        | 387 (2014)            | +                 | 276 (2015)            | Transferred to DA from DN | 2,308   | 7,372       | 5     | Dewi FD et al., Dent Res J 8, 172-177, 2011.   |
| India            |                       |                   |                       |                       | 197,734 | 1,352,642   | 3     | Yang-S-S et al., J Clin Prev Dent 13, 27-30, 2017. |
| Indonesia        | Unknown               |                   |                       |                       | 12,740  | 267,671     | 5     | Takemoto T et al., Int J Dent Educ 13, 187-99, 2013. |
| Iran             | +                     | +                 | +                     |                       | 27,783  | 81,800      | 5     | Takemoto T et al., Int J Dent Educ 13, 187-99, 2013. |
| Japan            | 228,147               |                   |                       |                       | 99,466  | 127,202     | 5     | Hikiji H et al., J Dent Educ 75, 565-573, 2011. |
| Laos             |                       |                   |                       |                       | 341     | 7,061       | 5     | Roemer R, Public health Rep 85, 941-948, 1970.  |
| Macau            |                       |                   |                       |                       | +       | 632         | 1     | Puder EE, Am J Public Health 60, 1299-1303, 1970. |
| Malaysia         | -                     |                   |                       |                       | 120     | 31,528      | 3     | A A et al., Sri Lanka. Community Dent Health 5, 169-174, 1986. |
| Maldives         |                       |                   |                       |                       | 62      | 516         | 4     | Knevel RJ et al., Int J Dent Hyg 7, 3-9, 2009.  |
| Mongolia         |                       |                   |                       |                       | 652     | 3,170       | 5     | Ha Y et al., Int J Prev Dent 3, 11, 17-17, 2017. |
| Myanmar          |                       |                   |                       |                       | 3,355   | 53,708      | 1     | Roemer R, Public health Rep 85, 941-948, 1970.  |
| Nepal            | 350 (2006)            | -                 |                       |                       | 240     | 28,096      | 5     | Puder EE, Am J Public Health 60, 1299-1303, 1970. |
| North Korea      |                       |                   |                       |                       | 25,550  | 75,888      | 5     | Pakshir HR, Med Princ Pract 12 Suppl, 56-60, 2003. |
| Pakistan         |                       |                   |                       |                       | 16,652  | 212,228     | 5     | Hikiji H et al., J Dent Educ 75, 565-573, 2011. |
| Philippines      |                       |                   |                       |                       | 1,922   | 106,651     | 3     | Lucjak-Donsberger C et al., Int J Dent Hyg 1, 84-88, 2003. |
| Singapore        |                       | 401 (2016)        |                       |                       | 2,198   | 5,758       | 5     | Roemer R, Public health Rep 85, 941-948, 1970.  |
| South Korea      | 56,950                | -                 |                       |                       | 27,780  | 51,172      | 5     | Puder EE, Am J Public Health 60, 1299-1303, 1970. |
| Sri Lanka        |                       |                   |                       |                       | 1,390   | 21,229      | 5     | Kim SH, Int J Dent Hyg 1, 89-97, 2003.        |
| Taiwan           |                       |                   |                       |                       | 13,092  | 23,726      | 5     | Puder EE, Am J Public Health 60, 1299-1303, 1970. |
| Thailand         |                       |                   |                       |                       | 17,220  | 69,428      | 5     | Roemer R, Public health Rep 85, 941-948, 1970.  |
| Timor-Leste       |                       |                   |                       |                       | 18      | 1,268       | 5     | Poder EE, Am J Public health 60, 1299-1303, 1970. |
| Vietnam          |                       |                   |                       |                       | +       | 95,546      | 5     | Hung HT, Japanese society for oral health 57, 308-309, 2007. |

1. When we emailed the embassy, embassy members introduced us to Dr. Karma who was working at Jigme Dorji Wangchuck National Referral Hospital. According to a personal communication from him at the National Referral Hospital in Feb. 4, 2015, Bhutan offers an educational program for dental hygienists, but no additional information was offered.
2. Interview to Ms. Chang from Embassy of the People’s Republic of China in Japan by telephone, on Jan. 27, 28, 2015.
3. Dental Surgery Assisting Programme. http://www.projectscm.org/en/node/559. Accessed Sep. 14, 2018.
4. Dental Council of India notification, Dental hygienists course regulation. Accessed Sep. 14, 2018.
5. The Dentists Act, 1948. Accessed Sep. 14, 2018.
6. Dental Council of India notification, Dental Operating Room Assistants course regulation. Accessed Sep. 14, 2018.
7. Personal communication to Dr. Khiin Maung, Dental Association Chairperson on May 11, 2016.
8. Personal communication to Shun-Te Huang Kaohsiung from Medical University Department of Oral Hygiene on Sep. 8, 2017.
Myanmar, Sri Lanka, Taiwan, and Timor-Leste. This absence could be due to others in the dental field fulfilling these roles. China and Taiwan have no qualified dental hygiene profession, although dental hygiene education is offered in Taiwan (personal communication to Shun-Te Huang Kaohsiung Medical University Department of Oral Hygiene on April 19, 2018, level 1).

Discussion

Knowing the present status of dental hygienists and other oral health providers in Asia will help create guidance to ensure that services can be offered throughout the region. Unfortunately, the authors found it difficult to obtain many reliable sources of information that would allow them to grasp the scope of this issue, but some aspects were clarified to a degree. Therefore it is anticipated that this work will serve as a starting point for a more comprehensive scoping study.

It was clarified that there are many different oral health providers working in Asian countries. Given the number of countries in which dental hygienists are working, it seems evident that most governments realize the importance of dental hygiene. Other types of oral health providers are also working in Asian countries and are sometimes required to do jobs other than dental hygiene depending on their national circumstances.

In conclusion, the circumstances of oral health in Asian countries are still confusing to understand. However, the authors have revealed that Asian countries are developing systems of oral health and determining provider roles. It would be beneficial for countries to exchange information about oral health systems to improve the overall health benefits of such services. The authors hope that this article can serve as a step towards a full scoping study of the nature of oral health providers in order to improve oral health systems in Asia.

Acknowledgments
This study was supported by JSPS KAKENHI Grant Numbers 23390467 (Y. T.). The authors thank the following individuals who provided information about the dental hygiene profession: Dr. Karma Tobgyel, MS. Tsou lok-wa, Dr. K. Maung and Prof. Shun-Te Huang.

Conflict of interest
The authors declare that they have no competing interest.

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