Journal of Korean Society of Dental Hygiene

Review Article

The fifty-year history of dental hygiene education in South Korea

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Received: June 26, 2019
Revised: August 23, 2019
Accepted: August 24, 2019

ABSTRACT

The aim of this study was to review the history of dental hygiene education in Korea on its 50th anniversary in 2015. Internal resources and documents from the Korean Dental Hygienists'Association and other accessible resources were examined to verify the historical facts of dental hygiene education in Korea. From 1965 to 1967, the first class of four dental hygiene students graduated, and the legal basis for dental hygiene as a profession was established, which led to the start of the profession Registered Dental Hygienist in 1971. From 1977 to 1993, 13 higher educational institutions started dental hygiene programs. The Korean Dental Hygienists' Association (1977) and Korean Association of Dental Hygiene College Professors (1987) were established in this period. From 1994 to 2006, the duration of major-intensive course programs in dental hygiene was extended to three from the two years of 1994, and the first bachelor's degree program in dental hygiene started in 2002. In this period, studies on dental hygiene became significantly active owing to vigorous activities by academic societies. The master's degree program in dental hygiene was established in 2007. Academic dental hygiene journals, the Journal of Dental Hygiene Science, and Journal of Korean Academy of Dental Hygiene Education were promoted as the registered journals of the Korean Research Foundation. From 1965 to 2015, dental hygiene education in South Korea expanded both quantitatively and qualitatively and is now ready for further progress in the future.

Key Words: Dental hygiene education, Dental hygiene history, Dental hygiene profession, South Korea

Introduction

Dental hygiene or dental hygiene education in South Korea initially began in 1965 as a course specifically aimed to educate dental hygienists through Yonsei University Medical Center Institute

J Korean Soc Dent Hyg 2019;19(5):625-33 https://doi.org/10.13065/jksdh.20190054 pISSN : 2287-1705 eISSN : 2288-2294
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of Medical Technology (YUMCIMT). This was 50 years after when Alfred Civilion Fones (1869-1938) first came up with the term and definition of dental hygienist as a profession and started offering dental hygiene education and training in 1913. Dental hygiene in Korea has grown into its current status overcoming various obstacles along the way over the last 50 years. To look through the history of dental hygiene in Korea is much more than simply looking at some outdated artifacts as it is our way of remembering those significant moments and also a way to seek a brighter future. Therefore, commemorating the footsteps of dental hygiene in Korea over the last 50 years is an important duty of our generation as this process would allow us to see the present objectively and give us a broader perspective for our future. In this study, we systematically organized the process of establishing the Korean Dental Hygiene, which marks its 50th anniversary, to compile feed covering the entire period of dental hygiene in Korea. This result can not only serve as historical feed encompassing the whole of dental hygiene in Korea, but also promote the correct perception and pride of the history of that by recording and preserving important historical materials that will remain in the history of dental hygiene in Korea. In the future, it is expected that these records will contribute to the continuous development and promotion of dental hygiene in the 21st century by being utilized as basic research data in the areas of dental hygiene, such as academic research, human resources development, knowledge dissemination, and policy making etc. Therefore, this study is to analyze how dental hygiene has developed by year and region based on historical data on dental hygiene so far, and how it can interpret its tendency and characteristics. Considering this background, the aim of this study was to assess the change of dental hygiene history during 50 years in South Korea.

Text

1. Data source

Open access articles published by Korean Dental Hygienists' Association (KDHA) and documents of related associations such as National Research Foundation of Korea, International Federation of Dental Hygienists, Ministry of Health and Welfare, Ministry of Education, and books (Introduction to Dental Hygienics, Preventive Dentistry and Public Health) etc. was examined to verify historical facts of dental hygiene education in South Korea. Certain associations, institutions, laws and publications without English names or titles or English contents were arbitrarily translated into English by the authors.

2. The dawning of dental hygiene education in Korea (1965~1976)

The origin of dental hygiene education in Korea could be traced back to the dental hygienist training course offered at YUMCIMT. The Christian Dental Society (CDS) which was founded in 1962 in Miami, USA aimed to establish dental clinics all around the world as a means of Christian missionary activity. As a part of such approach, Dr. John W. McInnes[1]. the founder of CDS and his fellow missionary dentist, Dr. Roy D. Ribble contacted their acquaintance, Dr. Gui-Sun Kim[1] and proposed that a dental college and a dental hygiene school should be founded at Yonsei University.

YUMCIMT's dental hygiene program was only dental hygiene program in Korea for 12 years, from 1964 when it was established by Dr. Heun-Taik Jhee until 1977, when dental hygiene education began at junior colleges.

3. The early phase of dental hygiene education in Korea (1977~1993)

The early phase of dental hygiene education in Korea refers to 16 years from 1977 to 1993, and is when four colleges started a two-year dental hygiene program. During this period, 13 higher education institutions all over Korea established dental hygiene programs, training dental hygienists actively. On January 1st, 1970, the government of Korea launched 'junior college system'(Education Law, law article number 2175, revised on Jan 1st, 1970) which was designed for two-year programs that aimed to replace entry-level colleges and vocational schools that existed previously. Following this change, a total of 112 junior colleges (75 two-year colleges and 37 nursing schools offering three-year programs) were established in South Korea from 1970 to 1978. In March, 1977, four junior colleges (Gwang-Ju Seowon Junior College, Dae-Gu Health Junior College, Shin-Gu Junior College, Won-Guang Health Junior College) newly founded two-year dental hygiene programs. Dr. Nieusma and Nancy L. Kane played significant roles over the process of opening a dental hygiene program at Seowon in 1977[1,2]. The dental hygiene program at the four junior colleges was the first dental hygienist training program offered by higher educational institutions. In the same year, Kyung Hee University Dental Hospital was designated as a dental hygiene training center and a three-year dental hygiene program was established. Following this trend, Dae-Jeon Health Junior College also opened a two-year dental hygiene program in 1978. During this period, Jin-Ju Health Junior College (1981), Dong-Nam Health Junior College (1982), Gim-Cheon Health Junior College (1983), Ma-San Nursing and Health Junior College (1984), and Dong-Woo Junior College (1985) started dental hygiene programs and the Dan-Guk University Dental Hospital was also appointed as a dental hygienist training institution in 1987. The academic period of the dental hygiene program at YUMCIMT was extended to three years from its original two-year format due to the medical technician act, section number 4, article number 3. A total of 14 dental hygiene education programs including YUMCIMT (11 junior colleges and 3 University Dental Hospitals) existed in Korea over the 28 years from 1965 to 1993. Ministry of Health and Society (currently, the Ministry of Health and Welfare) made an advanced notice of legislation for the revision of medical technician act which would eventually lead to the abolition of the medical technician training system at medical institutions. As a result, the issues of establishing a four-year undergraduate program in the nation's dental hygiene education emerged as an important and urgent issue.

4. The established phase of dental hygiene education in Korea (1994~2006)

The established phase of dental hygiene in Korea was from 1994 and 2006, and the dental hygiene related degree program was extended from 2 years to 3 years in 1994. The first 4 years' dental hygiene

education program was established in 2002 and the first bachelor's degree students were graduated in 2006. From 1994 to 2000, during the seven years, 14 junior colleges newly opened dental hygiene programs, increasing the entrance quota to 1,210 students per year. From 1994 to 2006, a total of 37 junior colleges founded or developed dental hygiene programs, training numerous dental hygienists [3]. The South Korean government liberalized the process of school naming for junior colleges in 1998. According to higher education law (section number 18) and the enforcement rule (section number 8), higher education institutions were allowed to have their names differently from their legal categories. The ministry of education instructed 'guidelines for higher education institutions on school naming' on March 26th, 1998[4]. After this, most junior colleges eliminated the word "junior" from their names and started using various titles such as 'information colleges', 'health colleges' and 'science colleges'[5].

Nevertheless, obstacles on the way towards launching a four-year dental hygiene program <Table 1> existed within the field of dentistry as well. In an effort to open a four-year educational program, the KDHA submitted comments on the establishment of dental hygiene and foreign cases to the Ministry of Education and Health and Welfare. In this opinion, it is necessary to improve the quality of dental hygienist education in order to improve the oral health of the people, and it is inevitable to secure professors and establish a four-year department of dental hygiene. Also, at the meeting between the presidents of the national trials, a resolution on the establishment of the department of dental hygiene and the revision of the scope of dental hygienists was adopted and KDHA submitted their opposition to the Blue House [6]. But the major reason why they objected to the idea of a four-year dental hygiene program was that such changes would not relieve labor shortage issues and rather significantly increase economic burden of dental clinics. Enlargement of facilities that could cause concentration of population such as universities was strictly regulated because of the Seoul Metropolitan Area Readjustment Planning Act (Law article number 3600, established on December 31st, 1982) at that time. Due to this political and legal situation, launching a four-year dental hygiene program in Seoul was virtually impossible. This restriction led KDHA (Kyung-Sook Mun as the president at the time) to submit a petition for Yonsei University Wonju College of Medicine to be an appointed institution for a four-year dental hygiene program in Korea on March 24th, 2001. Ministry of Education & Human Resources Development notified KDHA of the results from 'the 2002 entrance quota adjustments' on October 23rd, 2001, announcing the establishment of a four-year dental hygiene program with an admission quota of 40 seats. In the following year, on March 4th, 2002, the very first four-year dental hygiene program was finally established <Table 1> [7]. In March, 2003, four-year dental hygiene programs were founded in Namseoul University and Han-Seo University. Also, Konyang, Young-Dong and Cho-Dang University launched four-year dental hygiene programs as well in 2006. The same year, a junior college called Gachon-Gil College was merged into Gachon Medical Science University and this merger allowed the school's three-year dental hygiene program to become a four-year (bachelor's degree) dental hygiene program. Ultimately, the first 35 dental hygienists with Bachelor of Science in Dental Hygiene degrees in Korea (including the first 5 male and 29 female dental hygienists with bachelor's degree) graduated from the department of dental hygiene at Yonsei University Wonju College of Medicine (YUWCM) in

https://doi.org/10.13065/jksdh.20190054

February, 2006.

5. The growth expansion phase of dental hygiene education in Korea (2007-2015 present)

The growth expansion phase of dental hygiene in Korea consists of the 18 years between year 2007 in which a Master's degree program in dental hygiene was newly established and year 2015 in which the field of dental hygiene in Korea celebrated the half-century anniversary. During this period, the

Table 1. Major events in the establishment of Korea's first four-year dental hygiene program [8]

Year	Event details
1986	Members of the Alumni Association of Dental Hygiene Program at YUMCIMT file a petition to establish the first four-year dental hygiene program at Yonsei University College of Dentistry.
1988	A meeting with the vice-chancellor of Yonsei University Wonju Campus is held in order to request for the establishment of the department of dental hygiene within the College of Health Sciences.
1989	A proposal (recommendation letter) for the establishment of a four-year dental hygiene (BSc in dental hygiene) program is sent out to the chancellor of Yonsei University and other related parties. Professors in the department of dentistry at Yonsei University vote for the establishment of a four-year dental hygiene Program.
1991	The establishment of a four-year dental hygiene program is requested by members of the Yonsei University College of Dentistry.
1993	The academic affairs office at Yonsei University submits an application form for the establishment of a four-year dental hygiene program to the Ministry of Education. The attempt to establish a four-year dental hygiene program is rejected by the Ministry of Education.
1995	The request form for the establishment of a four-year dental hygiene program is resubmitted to The academic affairs office at Yonsei University by members of the department of Dentistry at Yonsei University. Members of the academic board at Yonsei University reach an agreement internally that YUMCIMT should be reorganized into a four-year dental hygiene program from 1996. KDHA submits a report for the establishment of a four-year dental hygiene program to the Ministry of Education and the Ministry of Health and Welfare.
1996	Yonsei University's attempt to establish the department of dental hygiene with an entrance quota of 20 is rejected by the Ministry of Education.
1997	Dankook University department of dentistry attempt to establish a four-year dental hygiene program is rejected by the Ministry of Education. KDHA submits a report for the establishment of a four-year dental hygiene program at a breakfast meeting hosted by President Dae-Joong Kim. KDHA emphasizes the urgency of the establishment of a four-year dental hygiene program at an education policy forum hosted by the Education Minister. KDHA declares that members of KDHA would continue pushing toward the establishment of a four-year dental hygiene program through KDA's bulletin, Daily Dental.
2001	KDHA files a petition to YUWCM for the establishment of the department of dental hygiene. YUWCM submits an application form for the establishment of a four-year dental hygiene program to the Ministry of Education. The Ministry of Education and Human Resources announces their agreement on the establishment a four-year dental hygiene program.
2002	The first four-year dental hygiene (BSc in Dental Hygiene) program is established at Yonsei University Wonju College of Medicine

Advanced Course for Bachelor's Degrees, which allows dental hygienists with major-intensive courses, was newly offered by several junior colleges. Also, some universities offered master's and doctoral programs in dental hygiene. The first master's degree program in dental hygiene was established in Yonsei University Graduate School in March 2007, with three students admitted that year. After two years, the first two students with master's degrees in dental hygiene (Master of Science in Dental Hygiene, MSDH) graduated from the school in February 2009. There are 10 graduate schools that offer master's degree programs in dental hygiene such as Yonsei, Han-Seo and Eulji University while the three schools that offer doctoral degree programs in dental hygiene are Dong-Eui, Namseoul and Gangneung-Wonju National University (updated in March 2015) <Table 2>.

Starting from March 2008, if a dental hygiene with major-intensive courses has over one year of work experience in the clinical field, he or she is allowed to attend a degree completion program in dental hygiene which would award the individual a bachelor's degree upon graduation. From then on, restrictions in work experience within the clinical field were mitigated in 2012, hence allowing dental hygiene with major-intensive courses to advance toward degree completion programs right away without additional clinical experience. The total number of schools that offer degree completion programs in dental hygiene is 17 throughout Korea with a total admission quota of 400 students (last updated in April 10th, 2014) [9].

A subcommittee of Korean Association of Dental Hygiene Professors (KADHP) (Jung-Ran Park as the president at that time) called 'the Special Committee for Academic Advancement of Dental Hygiene' conducted a study titled–A study on academic classification formulation of the dental hygiene discipline– (Jung-Sook Ryu as the principal investigator)[10]. From then on, members of KADHP held numerous meetings and conferences to share their expert opinions and finally requested the National Research Foundation of Korea to include dental hygiene (basic dental hygiene, clinical dental hygiene, social dental hygiene, educational dental hygiene, dental hygiene care, and other fields of dental hygiene) to their classification system of academic research areas <Fig. 1> [11]. Ultimately this effort allowed dental hygiene (divided into three class; clinical dental hygiene, social dental hygiene, educational dental hygiene) to become a new group of academic areas under the division of dentistry.

Table 2. The classification of dental hygiene education institutions in Korea

Diploma / undergraduate programs in dental hygiene	A total of 82 schools, average admission quota of 5,090 students [a]	(Unit)	Three-year (Diploma)	Four-year (Undergraduate)	Three-plus-one (Degree completion)
		Schools	54 (66%)	28 (34%)	17 [b]
		Students	3,930 (77%)	1,160 (23%)	400 [c]
Post-graduate programs in dental hgiene	10 schools	Master's degree programs in dental hygiene: 10 schools			Doctoral degree programs in dental hygiene: 3 schools

[a] Because 10 % of the admission quota gets to be admitted additionally, the total admission quota of dental hygiene programs would be about 5,500 students per year. [b] These schools are included in the 54 schools that are classified as offering three-year programs. [c] These students are not included in the admission quota of the 54 three-year program schools (updated in March 2015).

KDHA and KADHP realized the urgent need for more suitable guidelines and standards for educational quality control within the dental hygiene education settings which in turn resulted in formation of organizations and subcommittees that focus on these issues [12,13]. At the first meeting of KDHA's 14th board of directors, members agreed on setting the agenda for developing evaluative criteria or standards for universities that offer dental hygiene programs on February 18th, 2006[4]. KDHA (Kyung-Sook Mun as the president at that time) and KADHP (Min-Jung Cho as the president at that time) reported the results of their joint study titled, A Study on Credential and Evaluative Standards for Dental Hygiene Education (Mi-Young Hwang as the primary investigator)[14,15]. A subcommittee of KDHA called Korean Council for Dental Hygienist Education agreed on establishing (tentative title) Korean Dental Hygiene Board of Educational Evaluation in August 2009, and the next month, members of KDHA (Won-Sook Kim as the president at the time) formed (tentative title) the founding committee of Korean Dental Hygiene Board of Educational Evaluation commencing their vigorous activities[16]. In June 2014, (tentative title) the promotion committee of Korean Dental Hygiene Board of Educational Evaluation briefed their evaluation and accreditation standards at KADHP's annual summer conference, and reported then-current evaluation and accreditation standards within the field of dental hygiene education in Korea and future prospects at the 36th annual KDHA symposium. The first simulation evaluation was held at YUWCM by (tentative title) the promotion committee of Korean Dental Hygiene Board of Educational Evaluation on February 4th, 2015. This evaluation was done on 6 areas (Vision "prospects" and operative system, Curriculum, Learning outcomes, Students, Professors, administrative and financial stabilities and the quality of equipment and facilities) which included 12 categories and 31 items.

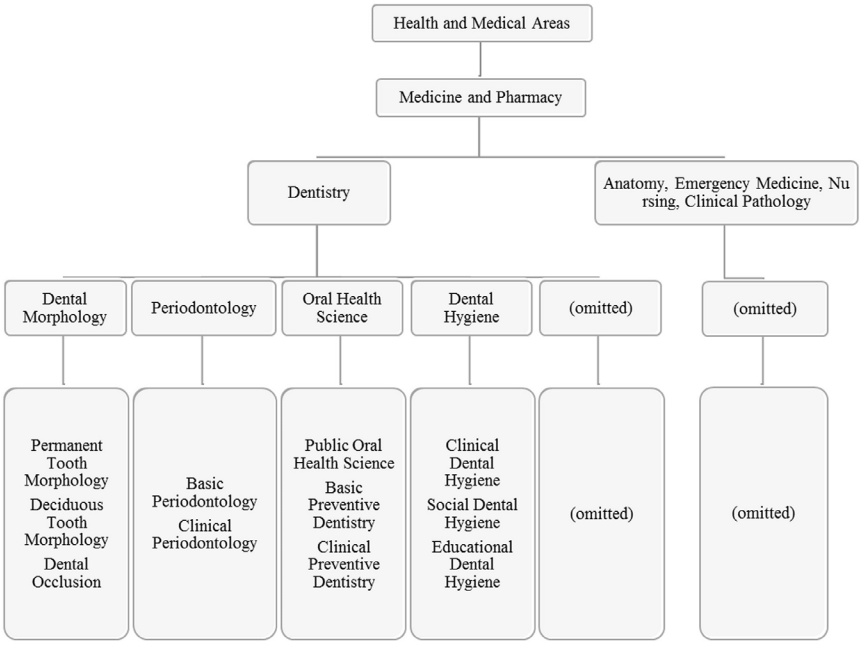

Fig. 1. Example of National Research Foundation of Korea's classification of academic research areas

Conclusions

The collective field of dental hygiene and dental hygiene education in Korea should be try to continue establishing its social status as an oral health professional beyond educational and clinical settings based on the lessons from the last 50 years.

Acknowledgements

This study was supported by the Korean Dental Hygienists' Association Research Fund of 2014. Furthermore, contents of this study were submitted to the 20th International Symposium on Dental Hygiene in Basel, Switzerland via a poster presentation titled "50 Years of Dental Hygiene Education in Korea".

Conflicts of interest

The authors declared no conflict of interest.

Authorship

Conceptualization: WG Chung; Data collection: SJ Mun, SY Han; Formal analysis: HJ Noh, SJ Mun, SY Han, JH Yang, EH Jung; Writing - original draft: AR Lee, WG Chung; Writing - review & editing: HJ Noh, JH Yang, EH Jung, JH Jeong

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