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[REVIEW]

General Introduction of Dental Education in Universitas Indonesia

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As the world's fourth most populous country, Indonesia has a major concern with improving the quality of life. According to the Human Development Index, the quality of life index of Indonesians changed from a value of 0665 in 2010 to a value of 0684 in 2014. As compared to other countries, Indonesia was still in the intermediate category, which indicates that Indonesians' quality of life did not improve from year to year. The low quality of life can be seen in the low income and poor health problems of many Indonesians. One of the health problems that frequently occur in Indonesia is

the poor oral health status. Indonesia has diverse, numerous islands and a pluralistic culture, resulting in dental care disparities between geographic areas. Therefore, professional and skilled dentists are required in Indonesia. However, to yield the quantity and quality of dentists required by the condition of Indonesian society, the dental education system should be comprehensive and integrated. This paper shares some basic information about dental education in Universitas Indonesia, including academic courses, admission requirements, curriculum, and tuition fees.

1. Indonesia

Indonesia is the world's largest archipelagic state. It consists of approximately 17,508 islands and is divided into 34 provinces. The population in Indonesia was 237.6 million according to 2010 census data. This makes Indonesia the fourth most populous country in the world after China, India, and the United States of America. Indonesia lies along the equator ; therefore, it has a tropical climate. Furthermore, Indonesia has significant diversity of culture due to differing geographical regions, histories, and ethnic groups. This causes all sorts of problems, such as problems in transport and communications. These problems can increase the lack of oral health care awareness among the public.

2. Oral Health Problem in Indonesia

According to the 2013 national report on basic health research (Riset Kesehatan Dasar/RISKESDAS), 53.2% of the population—93,998,727 individuals—have active caries. In addition, dental caries tends to be more prevalent and tooth de-

cay tends to exist to a higher degree among older individuals. The data showed that 17.6% of Indonesians aged 65 or older had lost all their teeth. This percentage is far from the WHO target of less than 5% edentulous for 2010 and indicates that oral health care awareness among the public is lacking.

3. Dentist Distribution in Indonesia

Disparities in the geographical distribution of dentists remain a major concern and especially affect low-income populations in rural areas. Hence, this is a significant issue affecting quality of life in Indonesia. According to the Indonesian Medical Council, there are 17,252 registered dentists in the country. In other words, only 2.4 dentists were available for every 30,000 individuals, which is far less than number that Indonesian community health centers need to provide. Therefore, to get sufficient professional and skilled dentists, the education system in dental schools needs to be reformed.

In 2003, education systems in Indonesia were changing

because of globalization. Therefore, the government released a new system of national education (based on Undang–Undang No. 20 tahun 2003). This required national standards for the educational system throughout Indonesia. It also stated (article 35) that national education standards should cover content standards, processes, competence of graduates, staff, facilities and infrastructure, management, financing, and assessment of education, which must be improved in a planned and periodic manner. These standards are used as a reference in the development of curriculum, staff, facilities and infrastructure, management, and financing.

The Faculty of Dentistry in Universitas Indonesia was the first dental school in Indonesia that was very responsive to these new criteria. In 2003, the faculty established the competence–based curriculum, based upon problem–based learning (PBL) and a multidisciplinary integrated approach. There are few published papers on the dental education system in Universitas Indonesia. Here, we attempt to remedy this with a general review of the current dental education system in Universitas Indonesia, hoping to provide some basic information for readers.

4. Universitas Indonesia

Universitas Indonesia is internationally recognized as one of Asia’s top universities. It ranks 1st in Indonesia, 79th in Asia, and 358th among world universities (QS World University Rankings 2015/16). Founded in 1849, UI is one of the oldest universities in Asia, and it is steadily growing into a modern center for a sophisticated multi–cultural community. Currently, a number of disciplines are covered in three clusters : The Technology Sciences cluster (Faculty of Mathematics and Natural Sciences), Social sciences and humanities cluster (Faculty of Economics, Law, Social Sciences, Political Sciences, Psychology and Humanities) and Health Sciences (Faculty of Medicine, Faculty of Dentistry, Faculty of Nursing, School of Public Health and Faculty of Pharmacy).

5. Faculty of dentistry in Universitas Indonesia

5.1. The History of Dental Education

The faculty of dentistry in Universitas Indonesia was the fourth dental school in Indonesia. It was established in Jakarta in 1960 by the Minister of Education and Culture’s Decree No. 108049, dated December 21, 1960. Today there are at least 30 dental schools in Indonesia. The faculty of dentistry has been accredited at level A by the Indonesian

board of national accreditation (Badan Akreditasi Nasional / BAN) because of its history, facilities, educational quality, and research achievement.

The faculty of dentistry has 11 departments : Public Health and Preventive Dentistry, Dental Material, Oral Biology, Radiology Dentistry, Oral and Maxillofacial Surgery, Conservation Dentistry, Oral Medicine, Orthodontics, Pediatric Dentistry, Periodontology, and Prosthetic Dentistry.

5.2. Degree Program

Five types of degree are currently offered in the dental school Bachelor of Dentistry (SKG) degree, Dentist Profession (drg), Master of Science (M.Si) degree, Doctor of Philosophy (Dr.) degree, and Specialist degree.

5.2.1. Bachelor of Dentistry degree

The program comprises two stages ; there is an academic program with bachelor of dentistry degree and a graduate degree program with the dentist profession. The dentist profession program is a terminal one ; therefore, all graduates are expected to become dentist. The five–year bachelor of dentistry degree is similar to the six–year Doctor of Dental Surgery (DDS) degree in Japan.

The bachelor of dentistry program has academic courses and clinical–skills laboratory sessions, which take place over ten semesters. This program is divided into two stages. The first stage includes both the academic course and clinical skill laboratory. It continues until the end of the first semester of the fourth academic year. This period consists of seven semesters. There are two blocks in each semester with three to five modules in each block (Table 1), with each block lasting for three months.

The second stage is clinical practice, which consists of three semesters. It runs from the second semester of the fourth academic year until the end of year five. In this period, students are involved in an integrated clinical practice where they work in a team under the supervision of clinical tutors.

The academic program integrated curriculum is described in Table 1.

In the first year, the module is called Basic Program of Higher Education. In the next module, given in block two, students are introduced to health sciences, ethics, and law. In the second semester, the students learn about basic medical and dental sciences.

Table 1 : The Integrated Curriculum of the Faculty of Dentistry in Universitas Indonesia

The Integrated Curriculum Of the Faculty of Dentistry in Universitas Indonesia				
Academic Year	Odd Semester		Even Semester	
1	Block 1	Block 2	Block 3	Block 4
	Basic Program of Higher Education	Introduction to Health Sciences, Ethics and Law	Basic Medical Sciences	Basic Dental Sciences
	University	– Community Dental Health and Preventive Sciences – Ethics and Law Sciences	– Oral Biology – Basic Medical Radiology	– Oral Biology – Basic Medical Sciences – Dental Materials – Dental Radiology
2	Block 5	Block 6	Block 7	Block 8
	Clinical Dental Sciences 1	Clinical Dental Sciences 2	Clinical Dental Sciences 3	Clinical Dental Sciences 4
	– Clinical Dental Sciences – Basic Medical Sciences – Community Dental Health and Preventive Sciences	– Clinical Dental Sciences – Oral Biology – Dental Material Sciences – Clinical Medical Sciences	– Clinical Dental Sciences – Clinical Medical Sciences	– Clinical Dental Sciences – Community Dental Health and Preventive Sciences
3	Block 9	Block 10	Block 11	Block 12
	Clinical Dental Sciences 5	Clinical Dental Sciences 6	Clinical Dental Sciences 7	Clinical Dental Sciences 8
	– Clinical Dental Sciences – Oral Biology – Dental – Material Sciences	– Clinical Dental Sciences – Oral Biology – Dental – Material Sciences	– Clinical Dental Sciences – Oral Biology – Dental Material Sciences	– Clinical Dental Sciences – Oral Biology – Dental – Material Sciences
4	Block 13	Block 14	8 th Semester	
	Community Dental Health Program, Statistic 2	Scientific Report and elective Program	Clinical Case Seminars	
	– Community Dental Health and Preventive Sciences – Clinical Dental Sciences	All Faculty member	Integrated Clinical Practice	
5	9 th Semester		10 th Semester	
	Clinical Case Seminars		Clinical Case Seminars	
	Integrated Clinical Practice		Integrated Clinical Practice	

In the second and third years, the students learn about clinical dental sciences. The students learn about biomedical and dental sciences in integrated modules, including diagnosis, etiology, and treatment of oral health problems. This allows them to understand about treatment and prevention.

In seventh semester in the fourth year, students complete the community and dental health module, which is based on epidemiological data. Meanwhile, they undertake research activity, which is presented in a final report, either individually or in groups. This final report must be completed in order to continue to the next stage, which is clinical practice.

5.2.2. Dentist Profession

Upon completion of the bachelor of dentistry academic program, dental education proceeds to the stage of integrated clinical professional practice, for a total of 26 credits. In the professional program, students are trained to be comprehensive in their treatment plans, according to the standards of competence required by the Indonesian Medical Council (Konsil Kedokteran Indonesia / KKI). This ensures that, in the future, students will perform tasks in society while meeting professional standards. Evaluations are conducted regu-

larly in the dental education programs—for both the academic stage and the integrated clinical professional stage. At the clinical professional stage, the evaluation is based not only on the skills acquired, but also professional behavior, such as legal and professional ethics.

5.2.3. Master of Science (M. Si) degree

The program was established on November 19, 1998. The program aims to produce graduates of international quality and high integrity in science, able to develop knowledge through research to support the development of dental and oral health services in the community and able to apply this knowledge in solving problems of oral health in Indonesian society. The master's degree can be completed in four semesters. The master's program has two courses. These are (1) Science Program Dentistry Basic with specialization in Oral Biology (40 academic credits), Dental Material (41 academic credits), or Forensic Dentistry (42 academic credits). (2) Science Program Dentistry Community (40 academic credits). Learning strategies in the master's program include lectures, discussions, active learning, and research. Since its establishment, Faculty of Dentistry Universitas Indonesia has

graduated more than 37 master's degree students.

5.2.4. Doctor of Philosophy (Dr.) degree

The program was formally established in 1993 by decree of the director general of higher Education (Keputusan Direktur Jenderal Pendidikan Tinggi), Department of Education, Republic of Indonesia (Number : 577 / DIKTI / 1993, on the Ratification Implementation Master and Doctoral Studies Program at the University of Indonesia). However, the first class had started two years before, in 1990 to 1991. Guidelines for education, too, had been drawn up in 1992. The doctoral program aims to produce qualified graduates who have high integrity, openness, and responsiveness to the development of dentistry science and technology and changes in society. Graduates should be capable of organizing and carrying out research, developing themselves as scientists, and be active in science and technology internationally, as well as being broad-minded and have deep powers of reasoning. The learning strategies includes public lectures on a range of health science topics, as well as more specialized studies which may include lectures, individual independent tasks, discussions, seminars, and research. The program can be completed in three years (6 semesters) with a study load of 48 credits. FKG UI has graduated more than 60 doctoral students.

5.2.5. Specialist degree

The specialist degree program started in 1948. The purpose of the program is to produce dentists who are professionals with both general and specialized knowledge and high ethical standards. The dental specialists' education program has seven courses that (confirmed by director general

of higher education, Department of Education, decree No. 141 / Dikti / Kep / 1984). These are (1) Oral Surgery (10 semesters with 120 academic credits) (2) Pediatric Dentistry (5 semesters, with 55 academic credits) (3). Conservative Dentistry (5 semesters with 56 academic credits) (4) Oral Medicine (5 semesters with 56 academic credits) (5) Orthodontics (5 semesters with 55 academic credits) (6) Periodontology (5 semesters with 57 academic credits) (7) Prosthodonty (5 semesters with 57 academic credits). The specialist dental education system uses learning strategies in the form of lectures, individual assignments, discussions, practical work, presentations of case reports, surgical journals, and research at the end of the degree. This program can be completed within 2.5 years, except for the Oral Surgery courses, which take 5 years. Faculty of dentistry in Universitas Indonesia has graduated more than 500 specialist. A summary of the dental program in faculty of dentistry is shown in Table 2.

5.3. Admission requirement

Those who want to enter the university dental school SKG program are selected in two ways, the state university entry selection (Seleksi Bersama Masuk Perguruan Tinggi Negeri / SBMPTN) organized by the national committee or the entry selection UI (Seleksi Masuk Universitas Indonesia / SIMAK UI) organized by Universitas Indonesia. Students who do not pass through the SBMPTN have an opportunity to be accepted through SIMAK UI. Similarly, in the master's, doctoral, and specialist program can be entered through SIMAK UI.

Table 2 : Academic programs and Degrees

Programs	Degrees				
	Bachelor	Master	Doctoral	Specialist	Professional
Dentistry	◆				◆
Community Dental Science		◆			
Conservative Dentistry				◆	
Dental Science			◆		
Basic Dental Science		◆			
Oral and Maxillofacial Surgery				◆	
Oral Medicine				◆	
Orthodontics				◆	
Pediatric Dentistry				◆	
Periodontology				◆	
Prosthetic Dentistry				◆	

5.4. Tuition Fees

In general, dentistry tuition fees at the Universitas Indonesia for the undergraduate program to the doctoral program are around 120,000 JPY per year (by the current exchange rate), compared to 500,000–600,000 JPY for the National Dental School in Japan. As in Japan, students in Indonesia are required to purchase pre-clinical training instruments themselves.

5.5. Dental Education System

Previously, the faculty of dentistry in Universitas Indonesia used traditional teacher-centered learning strategies. However, there are some disadvantages to this system; for example, student difficulty in integrating theoretical knowledge and practical skills. Due to the rapid development of science and technology in the present time, it is not possible for all the material to be taught. Consequently, the faculty of dentistry felt that this curriculum was no longer adequate.

Since 2003, academic education has been organized by way of active learning using problem-based learning (PBL), which emphasizes a student-centered approach. Before starting the PBL program, all lectures include a discussion on modules, PBL cases, teaching goals, related resources, curricular timetable, etc.

In 2006, the KKI established a nationally accepted competency-based curriculum, to be implemented by dental educational institutions beginning in the 2007/2008 academic year. Faculty of dentistry in Universitas Indonesia has organized its curriculum so that graduates can meet the competencies required by the KKI.

Here is the brief information about PBL system and impact of the PBL system in the faculty of dentistry in Universitas Indonesia.

5.5.1. Problem-based learning (PBL) is an alternative pedagogical model.

It was first introduced to medical education in 1969 at the McMaster University School of Medicine in Ontario, Canada. PBL has now become an integral part of curricula and teaching strategies around the world. Although the precise format of PBL implementation varies, in general it consists of an emphasis on learner-centered exploration of case-based patient problems and the utilization of patient case histories. This system was established to help the students conduct the identification, diagnosis, and treatment plan as

needed to solve the problem.

5.5.2. The advantages and disadvantages of the PBL system

There are a number of advantages to this system: (1) Self direction of the student will increase, because students will be more active and will enjoy the learning process. Student will select resources as needed from the journal, textbook, discussion etc.; (2) Both individual and interpersonal skills will be developed, because PBL provides applicability and relevancy to classroom materials, also it promotes student interaction and teamwork, thereby enhancing students' interpersonal skills; (3) It develops a self-motivated attitude because this system can provide a more challenging, motivating and enjoyable approach to education; and (4) level of learning will be enhanced because the student will learn context, definitions, information, theories, correlations, and principles in a context where they are explored and integrated with one another.

However, there are some disadvantages to this system: (1) Academic achievement can suffer. Sometimes, student find difficulty building up layers over layers of knowledge from simple to sophisticated as is the case in traditional instruction; (2) Time demands can be high. Students find it difficult to prepare the materials or to complete the task on time due to the inefficiency of problem-based learning. (3) Operational costs are very high. The typical ratio of lecturers to students in PBL is 1 : 10. Lecturers are required to modify their teaching techniques and skills to make them more integrated and comprehensive.

5.5.3. The impact of PBL system in the faculty of dentistry in Universitas Indonesia

PBL system develops several abilities in the students, such as active and significant learning, collecting data, autoanalysis and synthesis, integration of knowledge, mind's logic for the detection and solution of problems, written and oral communication skills, teamwork skills and ethical behaviour. It influenced in a positive way of the students' perception to solve problems and their motivation to achieve a good academic performance. Through this system, students were scheduled and prepared with certain discussion topics that they difficult to understand. This system provides benefits to the faculty and students. Students might propose the discussion topics they need to know, specifically. Meanwhile

lecturers could teach their students either individual or small groups more effective. One of the impact of PBL system is the number of academic graduation in the national level examination (Uji Kompetensi Mahasiswa Program Profesi Dokter Gigi/ UKMP2DG). It showed that the percentage of academic graduation in UKMP2DG was very high, ie 100%, in this year (2016).

6. Conclusion

The educational system cannot remain stagnant, and it is necessary to evolve in order to meet changing societal needs. Additionally, examining core educational values is the first and most important step during the process of modernizing existing dental education in order to incorporate new methods of teaching and learning. With respect to the profession which the students are being prepared that procedural knowledge such as self-directing learning, teamwork skills, problem-solving skills, ethical behavior, concern for the warfare of community and environment, are vital to the students' responsibility in the future. Therefore, additional research is now necessary to monitor and evaluate the outcomes of these new innovations in the dental education system in Universitas Indonesia. These evaluations are needed to determine the ideal dental curriculum so that an optimal learning environment is provided for students and so that the best learning outcomes are achieved in the future.

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