

[Review]

A Description of Dental Health in Indonesia

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Abstract

The condition of Indonesia as an archipelago country that has numerous islands and a huge population gives it a diversity of cultures and customs with different characteristic. Diversity is also associated with many aspects of health behavior. Although the Institution of Dentistry was founded long ago in Indonesia (1928), Indonesia still encounters problems in the field of dentistry, including a high prevalence of dental caries (72.1%), a high prevalence of periodontal disease (62.7%) and low public awareness of dental health. The fact that Indonesia consists of numerous islands also makes it difficult to achieve distribution of dental care.

Rural communities in Indonesia have less access to dental care than urban communities do. To overcome these problems, the government of Indonesia has undertaken efforts to increase the promotion, preventive and basic dental care in community health centers, hospital, school (*UKGS*), in the community (*UKGMD*) and dental health partnerships. In addition, to produce an adequate quality and quantity of health personnel who are skilled and professional, the Indonesian Medical Council has prepared a set of Competency Standards for dentists since 2006. Therefore, Indonesian people are expected to obtain prime dental care.

Key words : Dental Health Problems, Indonesian Government Policy.

1. Regional Overview of Indonesia.

Indonesia is located between 6° north and 11° south latitude and 97°–141° east longitude ; it is located between two continents of Asia and Australia. Indonesia is the largest archipelago country in the world, consisting of 17,500 islands. There are five major islands : Sumatra, Java, Kalimantan, Sulawesi, Papua (bordering Papua New Guinea). More than 80% of Indonesia is covered with water ; the country's land area is about 1,860,360 km².

With a population of 237.56 million people (2010), Indonesia is the world's fourth-largest country in terms of population. Around 60% of the Indonesian population lives on Java, though Java comprises only 7% of the country's total area. Indonesia is administratively divided into provinces and districts. Between 2001 and 2006, the number of provinces expanded from 27 to 33. Each province is subdivided into districts : decentralized

administrative units and municipalities (Ministry of Health, 2011).

To realize the national goals, national development need to proceed in a planned, organized, comprehensive, integrated, targeted and sustainable manner. It takes strong, independent, and qualified human resources for national development to be organized well ; also, for health development, it is necessary to raise awareness, willingness and the ability to live in a healthy manner among everyone (Article 3 of the Health Act., 2009).

2. History of Dentistry in Indonesia.

Before 1928, there were no institutions of dental education in Indonesia ; therefore, dental health professionals (dentists) needed to come directly from Europe (usually the Netherlands). However, the number of dentists who were willing and able to work in Dutch East Indies (Indonesia) at that time was very limited, and even then, they mostly served Europeans who lived in Indonesia. If

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native Indonesian people suffered from dental disease, they were mostly taken to shamans or healers, who used traditional medicine or left the problems to heal by themselves. The common people assumed that dental hygiene was not important. To anticipate that condition, in April 1928, Dr. Lonkhuizen, Head of the Department of Public Health (Dienst den Volkgezondheid) proposed to the Director of NIAS (Nederlandsch Indische Artsen School) that the school provide education in the field of dentistry. Therefore, the Institute of Dental Education was founded and named STOVIT (School Tot Opleiding Van Indische Tandartsen) in Surabaya. The first Director was Dr. Schoppe. In July 1928, the school officially opened with 21 students. The curriculum was designed such that students could complete their dental education in 5 years. When the Japanese army invaded Indonesia, STOVIT suspended operations for 1 year.

In 1943, the Japanese government reopened some of the education Institutions in Indonesia. In May 1943, Ika Daigaku Senmenbu Sika (Institute of Dentistry) was established in Surabaya. The first head was Dr. Takeda and in November 1943, he was succeeded by Prof. Dr. Imagawa.

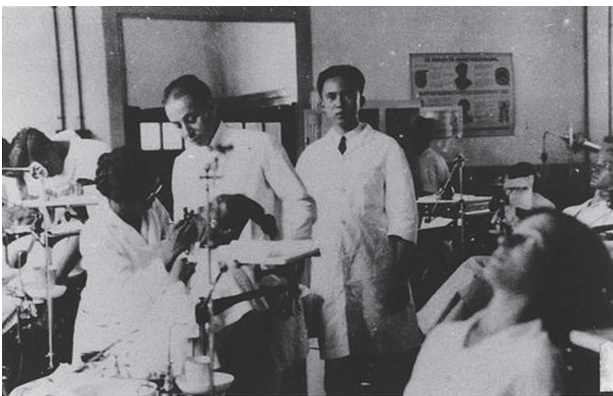


Fig. 1. STOVIT in 1928–1941



Fig.2. Symbol of NIAS 1942–1945

When Indonesia independence, Ika Daigaku and Ika Daigaku Sika Senmenbu were liquidated. In 1946, the government of Indonesia established The Higher Education of Gadjah Mada in Yogyakarta. In 1949, The Higher Education of Gadjah Mada became Gadjah Mada University and The College of Dentistry changed its name to the Faculty of Dentistry (Rintoko, 2011).

Today, the disciplines of dentistry specialization in dentistry are conservative dentistry, orthodontics, oral surgery, periodontics, pediatric dentistry, oral medicine, prosthodontics and dental radiology. In addition, aesthetic dentistry has begun to be developed in Indonesia.

3. Dental Health Problems in Indonesia.

Despite the longstanding availability of the field of dentistry to the population of Indonesia, the prevalence of dental caries and periodontal disease are still high. According to *Riskesdas*, in 2007 (Basic Health Research), the prevalence of dental caries was 72.1% and as many as 46.5% were active caries that had not been treated. In addition, dental caries tend to be more prevalent and tooth decay tends to exist to a higher degree among older individuals. Dental caries is a chronic disease that generates frequent complaints. The disease is disruptive children and adults, having a profound impact on overall welfare, daily performance, and maintenance costs (Subagyo, 2010).

The prevalence of periodontal disease is also high, at around 62.7% (Maduratna, et al., 2010). Periodontal disease is chronic disease and usually painless; therefore, people do not realize that they have it. If not treated, periodontal disease leads to premature tooth loss. This has an impairing impact on quality of life.

The other data from *Riskesdas*, 2007 indicated that



Fig.3. Faculty of Dentistry, Gadjah Mada University, Jogjakarta at present.

although 91.1% of Indonesian people over the age of 10 years brush their teeth daily, only 7.3% do so properly ; the results of this study indicate that the Indonesian people's awareness of dental health is still low (Wibowo, 2010).

The Chairman of the Indonesian Dental Association (*PDGI*) revealed that Indonesians have an average of 5 damaged teeth ($DMF-T=5$) per person, only 1% are successfully treated. Approximately 25% of these teeth are still in a state of decay, and 75% of them may contract gangrene or need to be extracted because their condition is too severe. These data reflect the lack of dental care accessible to the people of Indonesia. Therefore, a larger number of direct efforts to prevent caries and maintain healthy teeth must be made (Wibowo, 2010).

Another problem with dental health services in Indonesia is that an average of only 720 new dentists per year are generated, and the current ratio of dentist to the population of Indonesia is 1 : 30,000. Further, these dentists are not evenly distributed and tend to gather in urban areas, whereas 70% of the population of Indonesia is located in rural areas (Moeis, 2004).

4. Solving the Problems of Dental and Oral Health in Indonesia.

To solve the problems of dental and oral health in Indonesia, the government have taken some steps :

- a. Promotion, prevention and basic dental health services in community health centers.
- b. Promotion, prevention and individual dental health services in hospitals.
- c. Promotion, prevention and dental health services in schools through The School Dental Health Effort from the kindergarten to senior high school.
- d. Community- Based Health Efforts (*UKBM*).
- e. National and international oral health partnerships (Sec. Gen. of Ministry of Health, RI, 2011).

To realize these steps certainly requires adequate levels of skilled, professional personnel in terms of both quantity and quality. To produce qualified health workers, a quality educational process is needed as well. There are currently 16 institutes of dental education in Indonesia. To improve the quality of dentists in Indonesia, Competency Standard were implemented in 2006.

The objective of Indonesian Dentist Competency

Standards is to stipulate minimal capabilities that need to be possessed by dentists who perform dental services in Indonesia. Because of these standards, the community of Indonesia is expected to obtain oral health care of almost uniform quality. The Competency Standards represent a statement of required competencies that attempts to describe the levels of knowledge, skills and attitudes that need to be held by new dentists.

The Standards of Competency are as follows :

Domain I : Professionalism.

Skilled, responsible, and ethical practice in the field of dentistry in accordance with relevant laws.

Main Competencies :

1. Ethics and jurisprudence
2. Critical, scientific and effective analysis of health information
3. Communication with patients, community, peers and other health professionals.
4. Sociocultural aspects of dental and oral health.

Domain II : Mastery of Medicine and Dental Science.

Main Competencies :

5. Basic medical sciences (to support for diagnosis and treatment).
6. Clinical medical sciences (for consideration during dental treatment of medically compromised patients).
7. Basic dental science (oral biology, biomaterials, etc.)
8. Clinical dental science.

Domain III : Physical Examination of General and Stomatognathic Systems

Examination, diagnosis and treatment intended to achieve optimal oral health through promotive, preventive, curative and rehabilitative activity.

Main Competencies :

9. Examination of the patient.
 - 9.1. General examination of physical and stomatognathic systems by using clinical, laboratory, radiologic, psychological, and social data in order to evaluate the patient's medical condition.
 - 9.2. Recognition and management of the behavior of patients in a professional man-

ner.

The agreed-upon Standards of Competency are useful for institutions providing education in dentistry, especially in the preparation of their curricula. Each educational institution may add to and develop the competencies, which are considered to be important to the graduates (as they are needed in local public services) (Indonesian Medical Council, 2006).

In recent years, oral health care in Indonesia has been considered in terms of aspects of environmental health. Hence, green dentistry has begun to be developed in Indonesia. Green dentistry is the provision of oral health care by using technology, procedures, and materials that maintain environmental health and care for the earth ; it uses technological innovations that improve efficiency and effectiveness of the treatment in addition to reducing the amounts of waste and pollution in the environment. The steps toward green dentistry can be summarized as follows : 1. Management of medical waste : using dental materials that are non-toxic in order to reduce waste. Some ways to reduce toxicity are to reduce or eliminate the use of hazardous materials through methods such as setting up equipment for environmentally safe disposal and the use of other materials that are safer ; 2. Reduction of energy consumption, for example by using energy-saving lamps and avoiding the use of air conditioning in dental practice ; 3. Reduction of water consumption, for example, by using mouthwash glasses that can be recycled ; 4. Use of recycled and environmentally friendly products ; 5. Understanding and application of the concept of green building : eco-friendly concept is to maximize the utility of ventilation and windows in order to reduce the use of air conditioning and artificial lighting ; 6. Use of digital X-rays : because they do not require processing with chemicals, they reduce the patient's and the operator's exposure to radiation (Sedyaningsih, 2011).

5. Conclusions

Dental and oral disease is an integral part of general health. By increasing life expectancy of Indonesia population, oral health plays an important role in quality of life. To overcome dental health problems in Indonesia, the cooperation among government, university and community must be increased. Government develops efforts

to increase the promotion, preventive and basic dental care. Universities produce an adequate quality and quantity of health personnel that is based on the Standards of Competency. Community is expected to maintain and improve their awareness of dental health. Oral health care must consider in terms of aspect of environmental health.

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Education

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Experiences

- 1989 – 1992 As dentist in PHC, South Borneo.
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- 1995 – 2001 Teacher in Yogyakarta.
- 2001 – Present Lecturer in Polytechnic of Health in Yogyakarta.
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Membership in Professional Organization

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