

A Review of Indonesia's Dental Health - Past, Present and Future

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Access to dental health care markedly improves citizens' dental health status, which in turn improves the national quality of life. This paper aims to review the literatures of the Indonesian Dental Health. All of the related factors that influence dental health were described from 1995 to 2013. Economic and geographic barriers to access dental care still exist in Indonesia. Periodic evaluation on government policy is essential to develop an adequate dental health care system, which then could improve outcomes of the national dental health status.

Keywords: oral health, dental care, Indonesia

Introduction

Indonesia is one of the largest countries in South East Asia. It consists of many islands and is divided into 34 provinces. Based on 2010 census data, the Indonesian population was 237,641,326. Indonesia is the 4th largest country in the world after China, India and the United States [1]. Based on the 2004 Human Development Index, the life quality of Indonesians, as compared to other countries, was still in the intermediate category [2]. Access to dental health care has a significant impact in improving citizens' dental health status, which in turn improves the national quality of life. Nonetheless, economic and geographic barriers to access dental care still exist in Indonesia [3]. All of the related factors that influence dental health shall

be described and analyzed herein. A developed dental health care system could improve outcomes of the national dental health status and should be evaluated periodically.

According to the Ministry of Health the programs for improving dental health care in Indonesia involve (1) Developing and increasing the use of specialist dentistry in oral surgery, orthodontics and prosthetics in all hospitals; (2) Developing dental health care centers in teaching hospitals and increasing the referral system especially for the elderly; (3) Improving promotive oral health care in the community, especially for preschool, school children and pregnant woman in all community health centers through active community participation; (4) Increasing the use of promotive, preventive and simple curative dental health care for school children in all community health centers that have dental facilities; (5) Improving basic dental health care services in community health centers; (6) Increasing the use of systemic fluoridation to prevent caries in provinces with a caries index of more than 3; (7) Improving the skills and knowledge of dentists, dental nurses and dental technicians in community health centers and hospitals [4,5].

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Materials and Methods

To identify literatures on the Indonesia's dental health, a broad search was conducted to include as many relevant publication as possible. If the publications contained the search thesaurus, they were selected to generate a list of potentially eligible studies to be included in this review. A manual search was carried out on the list of potentially eligible studies. The full papers of the selected publications were obtained. The bibliographies of the publications deemed eligible were searched manually and additional relevant publications were included in the review.

Results

The number of registered and active dentists in Indonesia is small compared with the workforce of other health fields. In 2003, there existed 301,215 health professionals working in the various regions; only 7,324 (2.4%) were dentists, 607 (0.2%) were specialist dentists and 5,796 (1.9%) were dental nurses. The dentist-population ratio (per 100,000 people) was 3.4, meaning that on average, every 100,000 people are served by only 3 to 4 dentists. The ratio of specialist dentists is 0.3 and the ratio of dental nurses is 2.7. The highest ratio of dentists is in Jakarta (8.9), the capital of Indonesia, and the lowest ratio of dentists is in Lampung (1.8). The low number of dental health professionals could be due to the limited number of dental schools in Indonesia. There are only 8 (of 34) provinces that have dental schools, 22 that have dental nursing schools and 1 that has a dental technical school associated with the Ministry of Health [6]. To equitably address the national needs of the dental health workforce, the Ministry of Health has a program in which recent dental graduates are placed in rural community health centers. From 1994-1999, 3,490 dentists participated in this program, with 2,504 placed in common areas, 196 placed in remote areas and 190 placed in very remote areas. The dental placement program was one of the requirements to obtain a dental practice license from the Ministry of Health. Community Health Centers have the responsibility to increase the surrounding community's dental health, mostly by planning and implementing preventive and promotive programs, such as dental health care programs in schools and community empowerment dental health programs [3].

Dental health care in Indonesia is provided by various types of health institutions including government hospitals, private hospitals, private dental practice, community health centers, sub community health centers and integrated health posts. According to the 1998 National Socio Economic Survey, the highest percentages of the population seeking dental treatment

according to type of health institution were 35.5% visiting community health centers and 25.2% visiting private dental practice. Results demonstrate that community health centers play the biggest role in increasing dental health. Efficient and effective preventive and promotive dental health would have a substantial impact on increasing Indonesians' dental health. Nevertheless, in 1998, only 71% of hospitals and 75.6% of community health centers provided dental health care services and programs due to limited resources. The ratio of dentist to community health centers is only 0.7 and not every community health center has dental health care facilities [3].

Because of the shortage of dental health professionals and subsequent problems due to the limited workforce, the government should evaluate the Indonesian dental workforce system. In 2011, the Indonesian government legitimated the dental technician abolishment. This regulation came into force 6 months after its legitimization, which was sufficient time to socialize the government's short and long terms planning and to reach consensus among stakeholders. The first regulation (1969) regarding dental technicians legalized the profession with the sole authority to make and insert full and partial removable acrylic dentures. This regulation was established to increase access to dental care due to the high need for dentures and a greater dental workforce. At the time, it was very common for dental technicians to perform fillings, fixed dentures, orthodontics and extractions without proper education. In 1989, only dental technician license extensions were permitted and no new registrations were allowed. Although stakeholders argue over the real cause of the dental health crisis, it might due to many complex interrelated factors. Regulations must be evaluated for ethical reasons, professional competence, quality of care, community protections and the growing dental workforce. Socio-economic disparity creates an imbalance in accessing dental care; access to care is dependent on the ability to pay rather than on the need for care, thus reinforcing the issue of dental care inequity [7]. The absence of pricing regulations has led to high-cost dental treatments, forcing the poor to rely on dental technicians to maintain their stomagnognatic functions, subsequently resulting in a high demand for dental technicians and potential illegal practice which has so far been negligible.

Recent published papers describe high unmet need and persistent dental care inequity in Indonesia due to the dental health workforce shortage, geographic barriers and economic barriers [1,8]. Less commitment to preventive community-based dental health might also be a factor. Investing in prevention is still rare in Indonesia. We could learn from the Japanese dental care delivery system, which realized the importance of collaboration among dental technicians in its health insurance system. The Indonesian government has already demonstrated a willing-

ness to improve its citizens' dental health and a commitment to establishing universal health care coverage. However, this is the time to evaluate the dental workforce system, synergic collaborations and distinguishing between dentists, dental technicians and dental hygienists. With Indonesia's universal coverage initial implementation, planning mandatory duties for dentists to foster dental technicians and dental hygienists is essential. Moreover, increasing the quality and quantity of the dental health workforce based on need is necessary for global market competition.

Government, private and community sectors fund Indonesia's health care system. An indicator of health funding is per capita health funding. However, data on per capita health funding are difficult to obtain because it involves gathering funding data from various sources such as the government, private sector and the community. From 1997 to 1998, the budget for dental health care development decreased due to the economic crisis. In 1993, the governmental allocation for dental health care was only 2.8% from the overall health care budget; the allocation mostly targeted curative treatment [3]. Based on data gathered from 218 District Health Offices in 2003, the total percentage of the Regional State Health Budget was only 2.6%, which is less than the agreed allocation of 15% [6]. In 2004, 87% of the population paid for health care by out of pocket payment. In general, dental health care is financed from out-of-pocket payments by households, and the insurance payment system is still limited [2]. Payment system by insurance is still limited. Therefore, income affects people's ability to pay for dental health services. Various methods have been developed to provide health insurance for the Indonesians in order to improve communities' participation in health funding. In 2004, the community participation level in managed healthcare was only 27% from the overall population. The existing health funding methods are the health fund, health insurance for government employees, health insurance for private sector employees, managed care, other health insurances, and the health card which is government subsidized for the low income population [2].

The implementation of the Indonesian universal health care scheme (UHCS) just began in January 2014 and is widely seen as a significant step towards increasing the quality and access to medicine and medical treatment for the entire Indonesian population. Indonesia's policymakers are committed to providing coverage for every citizen by 2019. The UHCS policy implementation is expected to make impressive strides towards improving welfare coverage and increasing the accessibility of health services among Indonesians. This recent introduction of the UHCS may affect dental care. It is a daunting task to provide dental care to 240 million people living in diverse geographic regions. From policymakers to healthcare providers, dental tool

and material manufacturers to distributors, all stakeholders in Indonesia's dental care sector are now facing the critical task of defining their roles within this changing environment including the government, dental health professionals as well as the community. The incidence of dental diseases in the country is still considerably high, and previous government policies have yet to improve the dental health status of Indonesians. The UHCS may significantly reduce economic barriers to accessing dental care, which may result in improving Indonesia's dental health. Nevertheless, current dental education opportunities are still concentrated in the western part of Indonesia, causing an uneven distribution of dental care services. Subsequently, citizens in central and eastern Indonesia have limited access to dental care. Likewise, Indonesian people who live in remote areas do not have sufficient access to dental care. Consequently, the limited number of competent dental practitioners and lack of equitable distribution of dentists require special attention from the government and educational institutions to reduce geographic barriers to dental care and to ensure the course of UHCS. This is a challenging issue, considering that Indonesia is the world's largest archipelago with over 17,500 scattered islands. The UHCS is expected to promote pro-poor dental care utilization at public facilities; primary care facilities substantiate the concerted effort to reducing inequitable dental care delivery for Indonesians. Concerns of the Ministry of Health over the poor state of Indonesia's healthcare facilities have resulted in the government focusing on increasing access to and quality of care. However, the effectiveness of dental health practitioners does not solely depend on their competencies, but also relies on the quality and availability of dental instruments and materials. Currently, the majority of dental instruments and materials are imported. The absence of local production and price control regulations on dental instruments and materials might cause high and unstable dental care costs, which could endanger the success of the UHCS. Analyzing and overcoming challenges will be necessary to achieve efficient and effective dental care [3].

Discussion

The 2004 household health survey report indicates that the prevalence of pulp and periapical disease was the 8th most common disease, among the diseases that were treated in outpatients in hospitals. It was reported that the prevalence of caries was 90.9%, with an average Decayed Missing Filling (DMF-T) of 6.4 [3]. The prevalence of caries and the number of DMF-T were higher in elderly people, those with lower education and those of lower economic status. The increasing number of DMF-T is due to increasing numbers of Decayed and Missing Teeth, not

because of increasing numbers of Filling teeth. This phenomenon can be seen in the Performance Treatment Index (PTI), which is only 5%. The number of untreated dental problems is still high. In total, 52.3% of the population aged 10 years and older had untreated caries. This outcome may be related to the significant decrease of available resources due to economic barriers. In 2004, 7% of Indonesians lost all their teeth. We can conclude that the Indonesian population is still unmotivated to treat their damaged teeth by going to the dentist. Only 18.6% of the population attended a dental checkup in the last month. We can see that little attention is paid to oral health. In total, 46% of the population aged 10 years and above has dental calculus, and this incidence increases with age. The percentage of the population that brushes their teeth correctly is only 8.1%. Based on SKRT 2001, the percentage of active caries in rural and urban preschool children was 58.5%. In total, 91.2% of the population aged 35 to 44 years has normal teeth function, meaning that a minimum of 20 teeth have normal function. Only 30.4% of the population aged 65 years and older has normal teeth function. The DMF-T index indicates that the highest score of DMF-T is in age 65+. Most curative treatments in rural areas are extractions, which are cheaper and do not require many dental materials or equipment as compared to other treatments.

Based on the national socio economy survey (1998), 22.8% of the Indonesian population do not brush their teeth. The average population disturbed by toothache is 62.4%, with a length of 3.9 days. Toothache ranks 6th based on reported health complaints, after runny nose, cough, fever, headache and diarrhea. The percentage of the population who regularly get dental checkups is only 2.4%. Based on the national socio economy survey (1998), 71.3% of children ages 1 to 4 years do not brush their teeth, and 27.8% of children ages 5 to 9 years do not brush their teeth. At 12 years of age, the Required Treatment Index ($RTI=D/DMF-T \times 100\%$) is 76, and Performed Treatment Index ($PTI=F/DMF-T \times 100\%$) is only 4.5. The dental health problem awareness is low, especially in populations with lower educational attainment. The perceived treatment options for a toothache are limited; patients prefer extraction to filling because they think it is the easiest and fastest way to stop toothache pain. The description of dental health in recent years has not changed significantly. Basic health research conducted by the government in 2007 and 2013 showed that the rates for perceived need of dental health were 23.5% and 25.9% with DMF-T of 4.9 and 4.6, respectively [9,10]. In a recent 2012 publication, the prevalence of caries in mothers living in a suburban area was 90% with DMF-T of 7.8 [11].

Conclusion

Preventive care such as topical fluoridation and plaque control has to be improved. Dental health socialization should be accomplished as early as possible especially among school children and their parents. Promotive actions should also be taken by the media including television, radio, magazines, newspaper, tabloids and also pamphlets in the streets. Encouraging people to have regular dental checkups is important, because prevention is much easier and cheaper. Regular school preventive and promotive programs should be conducted [12]. Teachers should have module books to guide them in implementing dental health programs, with the active support and supervision of local dentists. Every dentist should be obligated to be proactive to promote dental health in the community, beyond providing treatment and rehabilitation. Empowerment is also key for program sustainability. The government-mandated program for dentists to work in community health centers throughout Indonesia should be maintained, which would ensure the equitable access to dental health care. However, dentists should be well prepared to provide preventive and promotive care rather than treatment and rehabilitation prior to providing care in community centers in remote areas.

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