The analysis of the dental patients attending Geriatric Dentistry and Special Patients Care clinic, Faculty of Dentistry, Chulalongkorn University during 2016 to 2018

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Abstract

This study was to analyze the dental patients in academic programs. The data were collected from 130 patients at Geriatric Dentistry and Special Patients Care clinic, Faculty of Dentistry, Chulalongkorn University, from May 2016 to December 2018. Name list of the patients who completely received comprehensive dental treatment more than six months were reviewed, then socio-economic data and dental treatment history were collected. After that, there were telephone contacts with each individual to interview for the present dental problems. Descriptive statistics were used to describe the characteristics of the patients. The average age of the patients was more than 80 years, while the number of female patients was higher than males, and most patients lived in Bangkok (85%). About dental treatment, Prosthodontics was the main work (93%). The average waiting period before the treatment was 77 days, and the average treatment duration was 226 days. The main oral health problem when recalling was denture problems. The results indicated that when time passed, dental patients tend to be more dependent. The authors suggest that a regular recall within six months is a necessity for the elderly patients. Also, the procedures for successful oral hygiene instruction and skills to handle denture problems should always be revised. Oral health prevention and promotion in the Thai elderly are the keys to good oral health and quality of life. Moreover, as the patients are growing older, the physical dependency condition may become a burden to come to the dental office; home dental care will be the alternative option in future long terms care.

Keywords: *Thai Elderly, Dental patients, Special need, Geriatric clinic, Dental treatment*

1. Introduction

The elderly is defined as people aged 65 and over (Orimo et al., 2006). The aging world population is expected to be a total of 1.5 billion or 15.91 % in 2050. While in Thailand, the aging population was 9 million or 12.96 % of the population in 2019. The numbers of female and male elder population were 5 million persons or 56.41% and 3 million persons or 43.59%, respectively. It is expected that in 2050 or another 30 years, the number of Thai elder population will increase to 19 million persons or 29.64% of the total population. The importance of entering the "Aging Society" is focusing on the rapid increase of the number of persons aging 80 years or over the other age groups (World Population Prospects - Population Division - United Nations, 2019). The reason is as many reports (Woo et al., 1996: Yi & Vaupel, 2002: Smith et al., 2002) indicated that people after the age of 80 years will be more depending on the surrounding people and will not take good care to themselves when compared to other age groups.

The elders today and in the future are different from those in the past because the development of medical knowledge and service and health literacy in individuals makes people live longer. The major causes of disability and mortality are often from non-communicable diseases; therefore, the rapidly changing burden of chronic disease in the aging population is a great challenge to oral self-care. Moreover, the complex oral condition can also be a risk factor for systemic diseases that occur commonly in the elders. On the other hand, aged people are more susceptible to oral diseases due to the side effect of systemic disease treatment and functional decline, leading to the concept that oral health relates to general physical health and also psychological status. (Petersen & Yamamoto, 2005).

Several studies indicated that oral health has a strong association with socio-demographic, physical, psychosocial, cognitive, lifestyle, social participation, and social support (de Oliveira et al., 2013; Gil-Montoya et al., 2015; Chiesi et al., 2019). For oral health, the WHO's standard suggests people have at least

20 natural teeth (NT) or at least 4 posterior occluding pairs (POPs), which will give better OHRQoL than others. Besides, the previous study also showed that at least 5 teeth might be a significant clinical threshold for Thai elderly dental patients' quality of life (Somsak & Kaewplung, 2016).

The presence of systemic diseases does not only affect the ability of patients to maintain oral hygiene and promote oral health but might also actually be related to the occurrence of certain oral diseases. Although the impairments from that disease might not be life-threatening, it affects the self-care and the quality of life of an individual. Therefore, to give the dental treatment for the elders, the treatment plan should base on the understanding of chronic diseases. The rational treatment plan will be an important concept when taking care of the elderly (Kandelman, Petersen, and Ueda, 2008: Razak et al., 2014).

There are 13 dental schools in Thailand. The total number of graduates per year has been an average of 700 for the last five years (Thai dental council, 2019(a): Thai dental council, 2019(b)). The Dental council committees have set the standard for each dental school to manage the undergraduate curriculum to have the knowledge and the ability to take care of elderly patients. However, it may not be enough to provide oral care for elderly patients that had complex diseases. At present, the dentist to population ratio is around 1: 5,000. In 2026, it is expected to have the dentist to population ratio at around 1: 4,000. Within this number, it also includes a large number of the elderly. In 2050 or another 30 years from now, it is expected to have around 29.64% elderly population of the total population, which means that the dentist to elderly population ratio will be approximately 1: 1,186 (Jaichuen, 2018). As a result, the dentists need more ability, a positive attitude, and knowledge of geriatrics for coping with this problem.

The major oral diseases of the Thai elderly are still tooth loss, commonly caused by periodontal disease and dental caries (Dental Health Division, 2017), which causes dental works to need to be focused on oral rehabilitation to restore function while physically decline. However, shortly the number of the elderly, especially the oldest old group (more than 85 years), will increase rapidly, meaning that one dentist may need to reserve for the higher number of the oldest elderly patient group.

Ettinger (2007) suggested that the aging population can be categorized into three broad functional groups: functionally independent older adults, frail older adults, and functionally dependent older adults. Dependency status had many methods to be classified, such as activities of daily living (ADL), cognitive status, and sensory status. Some assessments could be used or modified for classifying dental patients.

A previous study (Youdying, 2011) found that most of the elderly patients attended at Faculty of Dentistry, Chulalongkorn University, in 2007-2009 seemed to be independent or semi-dependent and suggested that reaching the need of elderly patients should be an assessing of oral health-related quality of life and performance of prosthesis.

Finally, oral treatment in the elderly is complicated not only from physical to psychological change itself but also from the oral condition that sometimes is very difficult to manage. Therefore, dental care in the elderly requires holistic care and a rational treatment plan. As an academic institute, the Faculty of Dentistry, Chulalongkorn University, concerns about this issue. It's Geriatric Dentistry and Special Patients Care program was the first in Thailand and was established in 2016. At the clinic, the dental master student gave comprehensive dental treatment to elderly patients and special care patients. The selection criteria of the clinic mostly depended on the functional impairment of the patients rather than their age. The "special care patients" are defined as patients who require medical management, health care intervention, and/or use of specialized services or programs or special needs child who is growing up to be an adult and seek for oral care after the Pedodontic clinic. Those patients may have limitations in performing daily self-maintenance activities or substantial limitations in major life activity. It is interesting to collect information on various aspects of the elders who seek care here, then analyze the characteristics of those elderly patients who received comprehensive dental treatment for the foundation information to improve the quality of the service and dentist knowledge and to meet the need of the elderly and special care.

2. Objective

This study aimed to analyze the characteristics of dental patients attending the Geriatric Dentistry and Special Patients Care clinic.

3. Material and Methods

This cross-sectional study included 130 patients who received comprehensive dental treatment from the dental master student at the Clinic from May 2016 to December 2018. Comprehensive dental treatments in this clinic were the dental treatment that included systemic phase (medical consultation), emergency phase (reducing pain and discomfort), disease control phase (caries control, Endodontic treatment, oral hygiene instruction, behavior management, extraction, scaling and root planning), preparatory phase (other surgical procedures, filling), rehabilitation phase (prostheses), and maintenance phase. Thus, it might be a one-stop service clinic for every type of dental treatment. The study protocol of the present study was approved by the research ethics committee at the Faculty of Dentistry, Chulalongkorn University, Thailand (Study code: No HREC-DCU 2018-112).

Patient personal data were collected, including socio-demographic, health conditions, oral conditions, and oral treatment history by reviewing from patient charts.

Socio-demographic, namely, age (years), which was categorized into four age groups (<65 years, 65-74 years, 74-84 years, and ≥85 years), gender (male, female), work status (not working, working), and residential area (Bangkok, Not Bangkok) were obtained.

Health conditions were dependency status (Independent, Semi-dependent, and Dependent) and diagnosed underlying disease (No, High blood pressure, Diabetes mellitus, High Cholesterol, Cardiovascular disease, Kidney disease, Lung disease, Osteoporosis, Cancer, Parkinson's disease, and Dementia). Dependency was categorized from the clinical frailty scale (Rockwood et al., 2005) and divided into three levels: independent (very fit, well, and managing well), semi-dependent (vulnerable and mildly frail), dependent (moderately frail, severely frail, and very severely frail).

Oral conditions were the number of teeth and were divided into two groups; < 20 and ≥ 20, and posterior occluding pair, which was divided into two groups; < 4 and ≥ 4.

Dental treatment included types of dental treatment (Filling, Scaling and root planning, Prostheses, Endodontic treatment, Extraction, Other surgical procedures (Implant, torus removal)), the period of waiting prior to the treatment (days), which was divided into three groups; ≤ 3 months, above 3 to 6 months, and more than six months, and duration of treatment (days) that was divided into three categorize; ≤ 6 months, above 6 to 12 months, and more than 12 months.

Lastly, Oral health problems were collected by telephone calling for interviews after receiving comprehensive dental treatment for more than six months. The patients were interviewed about denture problems, other oral health problems, and information about dental recall. In case the patients cannot be interviewed, offsprings and caregivers can provide the patient's information.

The analyses were conducted using the IBM Statistics Package for the Social Sciences (SPSS) version 22.0 at a significant level of alpha = 0.05. Descriptive statistics were used to describe the characteristics of patients. For interval scale data, Means and Standard deviations (SD) will be presented, while the categorical data were described in frequency and percentage.

4. Results and Discussion

Table 1 presents the characteristics of all patients during academic programs (May 2016 – Dec 2018) (N=130). There were 124 elderly patients and 6 special care patients.

Socio-demographic characteristics

The average age of all patients was 78.00 ± 10.71 years (from 18 to 95 years). The average age of patients in the special care patient group (aged under 65 years) was 44.66 ± 17.55 years (from 18 to 60 years), and the average age of patients in the elderly patient group (N = 124) was 79.61 ± 7.01 years (from 65 to 95 years). Almost half of the patients were in the age group of 75-84 years. In particular, the number of patients aged 80 years or over was 61 cases or 46.92%. The authors can notice that the older patient group was almost half of the total patients in the clinic.

After excluding the special care patients, the number of female and male were 71 (57.26%) and 53 (42.74 %). However, the ratio did not change when including special care patients.

In the elderly patient group, the work statuses were “not working” (85.48%) and “working” (14.52 %), whereas the work status was “not working” (100%) in the special care patient group. About the residential area, most patients lived in Bangkok (84.61%), following by other provinces nearby Bangkok, such as Samut Prakan and Nonthaburi (13.08%), and other provinces such as Pathum Thani, Samut Sakhon and Trat (2.31%).

Health conditions

Dependency status of patients was 66.92% independent, 16.92% semi-dependent, and 16.16% dependent. For the independent group, there are two types of patients: 4 cases (3.08%) of sudden change (stroke and cancer treatment such as chemotherapy and radiotherapy) and 17 cases (13.08%). Of eurodegenerative, which means gradually change (Parkinson’s disease, dementia, cardiovascular disease, and kidney disease). In the semi-dependent group, 6 patients (4.62%) had physical limitations or psychological limitations caused by the mild state of Parkinson’s disease or dementia so that those patients may tend to more dependent due to the progression of the disease.

Majors of diagnosed underlying disease were non-communicable diseases (NCDs) such as high blood pressure (57.69%), high cholesterol (34.62%), cardiovascular disease (29.23%), and diabetes mellitus (27.69%). However, only 3.85 % of the patient was not diagnosed with an underlying disease.

Oral conditions

There are 111 patients (85.38%) that had numbers of teeth < 20 and 114 patients (87.69%) that had posterior occluding pairs < 4, meaning that more than half had both < 20 teeth and < 4 posterior occluding pairs.

Dental treatment

There were 74 (56.92%) new dental patients registered at the clinic and 56 (43.07%) old dental patients that had been received dental treatments in others clinic at the Faculty of Dentistry, Chulalongkorn University before referred to this clinic. The majority of types of dental treatment were prostheses (93.08%), scaling and root planing (68.46%), and filling (60.77%), respectively.

In this study, 6 special care patients (aged under 65 years) had individual needs, which were cerebral palsy, mental retardation, and hemiplegia by stroke, Maffucci's syndrome, neck cancer, and psychiatric disorder. The dental treatment was done under general anesthesia in the case of cerebral palsy, the behavioral management before the dental treatment in the cases of mental retardation and psychiatric disorder, and the modified dental treatment plan in the other cases. There were also medical consultations with the medical doctor, oral surgeons, and anesthesiologists before initial treatment.

When considering the period of waiting before receiving the treatment, it was 77.34 ± 83.99 days; however, 113 (86.92%) patients still had dental treatment within six months. Only 34 (26.15%) patients had no waiting period before treatment, while 17 (13.08%) patients had a waiting period for more than six months. Therefore, the standard deviations of the waiting period were extremely high. The main reason for the prolonged period of waiting is due to the academic clinic period and the limitation of the number of dental master students as compared to the patients.

Next, the duration of treatment was 226.72 ± 135.98 days. One hundred and eight (83.08 %) patients had completed dental treatment within 12 months. The patients that had a duration of treatment for more than 12 months (16.92%) may have a combination of treatment such as endodontic treatment or extraction and both removable and fixed prostheses. However, the too long duration of the treatment period was due to several factors such as the academic clinic period of the dental master student, the patients' health condition, and the patients' condition with the complexity of management of underlying disease and dental treatment. Also, the standard deviations of the treatment duration were too high.

Oral health problems

From 130 patients, 109 patients expressed their oral health problems, while only 21 cases were not able to reach due to (1) inability to contact 10 cases (7.69%) and pass away 11 cases (8.46%). In the group of patients that were interviewed through telephone, 35 (26.92%) patients had denture problems, 5 (3.85%) patients had tooth sensitivity, 2 (1.54%) patients had other oral health problems, and 67 (51.54 %) had no oral health problems. However, it was only perceived oral health. They, however, should receive the oral examination to find the hidden oral health problems, and they may say no problems because they did not want to visit the clinic due to some personal reasons.

Moreover, 29 (22.31%) patients refused to visit the clinic for a regular dental recall. In these groups, the authors can classify the patients according to their reasons as; 18 (13.85%) patients feel it challenging to visit clinic due to a change in physical limitation and illnesses, 7 (5.38%) patients changing to receive treatment from other clinics (outside Chulalongkorn University) due to dissatisfaction of denture treatment, and 4 (3.08%) patients moved to other provinces far from Bangkok. However, it could not imply that they did not have dental treatment and prevention needs.

Table 1 Characteristics of all patients during academic programs (2016 – 2018) (N=130)

Topic			**Numbers of patients (%)**		
			All (130)	Elderly (124)	Special care (6)
Socio-demographic characteristics					
Age: < 65 years			6(4.62)	-	6(100.00)
65 - 74			27(20.77)	27(21.77)	-
75 - 84			64(49.23)	64(51.62)	-
≥ 85			33(25.38)	33(26.61)	-
Gender: Male			56(43.08)	53(42.74)	3(50.00)
Female			74(56.92)	71(57.26)	3(50.00)
Work status:	Not working		112(86.15)	106(85.48)	6(100.00)
	Working		18(13.85)	18(14.52)	-
Resident area:	Bangkok		110(84.62)	106(85.48)	4(66.67)
	Not Bangkok		20(15.38)	18(14.52)	2(33.33)
Health conditions					
Dependency status:	Independent		87(66.92)	84(67.74)	3(50.00)
	Semi-dependent		22(16.92)	22(17.74)	-
	Dependent		21(16.16)	18(14.52)	3(50.00)
Diagnosed underlying disease:					
No			5(3.85)	5(4.03)	-
High BP			75(57.69)	73(58.87)	2(33.33)
DM			36(27.69)	35(28.23)	1(16.67)
High Cholesterol			45(34.62)	45(36.29)	-
CVD			38(29.23)	37(29.84)	1(16.67)
Kidney disease			7(5.38)	7(5.65)	-
Lung disease			5(3.85)	5(4.03)	-
Osteoporosis			14(10.78)	14(11.29)	-
Cancer			4(3.08)	3(2.42)	1(16.67)
Parkinson's disease			7(5.38)	7(5.65)	-
Dementia			15(11.54)	15(12.10)	-
Oral conditions					
Numbers of teeth:	< 20		111(85.38)	109(87.90)	2(33.33)
	≥ 20		19(14.62)	15(12.10)	4(66.67)
Posterior occluding pairs:		< 4	114(87.69)	111(89.52)	3(50.00)
		≥ 4	16(12.31)	13((10.48)	3(50.00)
Dental treatment					
Type of dental treatment:					
Filling			79(60.77)	73(58.87)	6(100.00)
Scaling and root planning			89(68.46)	84(67.74)	5(83.33)
Prostheses			121(93.08)	118(95.16)	3(50.00)
Endodontic treatment			9(6.92)	9(7.26)	-

Topic		Numbers of patients (%)		
Extraction		33(25.38)	32(25.81)	1(16.67)
Other surgical procedures (Implant, torus removal)		5(3.85)	5(4.03)	-
Period of waiting prior to treatment				
≤ 3 m		87(66.92)	82(66.13)	5(83.33)
Above 3 to 6 m		26(20.00)	25(20.16)	1(16.67)
More than 6 m		17(13.08)	17(13.71)	-
Duration of treatment				
≤ 6 m		51(39.23)	46(37.10)	5(83.33)
Above 6 to 12 m		57(43.85)	56(45.16)	1(16.67)
More than 12 m		22(16.92)	22(17.74)	-
Oral health problems				
Able to reach:	Denture problems	35(26.92)	35(28.23)	-
	Tooth sensitivity	5(3.85)	5(4.03)	-
	Others problem	2(1.54)	1(0.80)	1(16.67)
	No problems	67(51.54)	63(50.81)	4(66.66)
Unable to reach:	Unable to contact	10(7.69)	9(7.26)	1(16.67)
	Pass away	11(8.46)	11(8.87)	-

Each patient in each group may be in more than one category in diagnosed underlying disease and type of dental treatment.

Discussion

This study has shown the characteristics of Thai elderly dental patients who live in a big complex city like the capital. They are maintaining their natural teeth, though they have less than 20 teeth and 4 posterior occluding pairs, and will continue to need oral health care as they still have oral health problems.

Considering their "Age," this study group had the average chronological age of more than 70 years. Some of them had a physical age in their appearance older than a chronological age due to their lifestyles, exercises, nutrition, and perhaps genetic. For that reason, methods of patient classification or selection to the geriatric clinic should not use only the patient's age as criteria but should also depend on their dependency status. Oral health was significantly associated with the dependency level in daily living activities (Chiesi et al., 2019).

The aging population can be categorized by dependency status (Ettinger, 2007). There were many indexes of dependency status. At the clinic, the authors used "The Chinese-Canadian study of health and aging clinical frailty scale physician version (CSHA-CFS PV)" (Rockwood et al., 2005) to categorize the patients into three dependency statuses. First, functionally independent older adults (very fit, well, and well-controlled), secondly frail older adults (vulnerable and mildly frail), and lastly functionally dependent older adults (moderately frail and severely frail). In this study, the majority of the study group was independent. The distribution of patients in age groups was not similar to dependency status groups. This method was easy to use and focused on ADL, exercise, and active disease. It was useful for treatment planning and long term care planning. It may be used in the patient chart for evaluating before the treatment plan.

Among all patients in this clinic, there were around 5 % special care patients. Although special care patients group are not geriatrics group; however, the dental need for special care patients may be similar to geriatrics patients who are disabled. For the inclusion criteria of the special care patients, patients were referred to the clinic due to the diagnosis of the sign and symptoms of the patients and also the dependency status of individual patients, no matter the age is. According to Dao, Zwetchkenbaum, and Inglehart (2005), better dentists who prepared to treat special care patients were more likely to set up their practice so that patients with special needs can receive treatment. The more confident they were when treating these patients, the more positive that they evaluated their staff's abilities and level of comfort when providing care for patients with special needs and a positive attitude towards the treatment of these patients. The authors suggested that these abilities of better dentists that felt prepared to treat special care patients were likely to better dentists that treat geriatrics patients. For the clinic, the authors should develop a well-prepared setting and more skill and positive attitude of the staff.

The previous study showed that patients with disabilities have inequalities in oral health, both in terms of the prevalence of disease and unmet health care needs. These patients will require Special Care Dentistry at some point in their lifetime. It was important for the dental team to develop the necessary skills and gain experience in treating people with special needs, so they are able to access oral health care (Faulks et al., 2012). Alternative or specific treatment plans may be often used in special care patients such as dental treatment under general anesthesia and behavior management. There was a variety in the type of diseases in this patient group, so it had different dental management or tailor-made treatment plan. It was the challenge to try to set standard oral health care for these patients.

Non-communicable diseases (NCDs), a major public health problem, are related to oral conditions (Petersen & Yamamoto, 2005). NCDs patients are often associated with lifestyles, habits, attitudes toward health concern, exercises and eating. Harada et al. (2005) found that the presence of systemic diseases was associated with the use of extra cleaning devices, but dental health behavior was also associated with lifestyle and demographic factors. Moreover, Angkurawaranon et al. (2015) showed that urbanization was associated with an increase in behavioral and physiological risk factors. These relationships may not translate directly to increased biological risk factors. These biological risk factors may lead to the result of complex interactions between long-term exposure and early life exposures. Therefore, it might be advisable to change the attitude and lifestyle for good oral health.

The changing of the dependent of patients may be caused by a sudden change due to stroke or chronic changing by neurodegenerative diseases. Although all elderly patients are not special care patients, there was a tendency that the number of elderly patients who had neurodegenerative diseases such as Psychiatric disorders (Skoog, 2011) and Parkinson's disease (Dorsey et al., 2007) was increasing. In this study, 12 % of Psychiatric disorders patients and 5 % of Parkinson's disease patients were more dependent and needed special care due to a decline in self-care. The number of this patient group in the clinic was also rising, so it should be linked with geriatric medicine and should have a rational treatment plan for patients in this group.

Stroke patients that had complications as paralysis may have depression, lack of oral cleaning skills, and self-awareness of oral health. Rose et al. (2002) suggested that oral care for these patients may need to modify oral hygiene instruments for ease of use and consult with an occupational therapist. Besides, it should pay attention to dysphagia and deglutition systems as well.

Ghezzi and Ship (2000) concluded that future oral health decline should be considered in dementia patients. It needs aggressive preventive measures such as using topical fluoride, chlorhexidine or both and practicing frequent recall visits and daily oral hygiene. Caregivers and family members must receive advice to help patients with daily oral and denture hygiene. Komin and Weerapol (2020) found that the OHAT assessment had some parts that caregivers can evaluate the same as dental professionals, such as parts of lips, dentures, and dental pain. Also, caregivers can early detect dysphagia; thus, more training programs of caregivers should be developed for better assessments of dementia patients.

In this study, only a few patients had more than 20 teeth and 4 posterior occluding pairs, which is similar to the previous study by Youdying (2011). It can be implied that major oral problems are still tooth loss, and there will be many rapidly increasing need of removable dental prostheses in the elderly in the future if oral health concerns in Thais remain like the past. Therefore, dental treatment should be focused on oral prevention and promotion in the pre-elderly population to reduce the problems and raise their concerns on oral health.

About dental treatment, the major type of dental treatment was prostheses and the main oral health problem after received comprehensive dental treatment for more than 6 months was also the denture problems. Limpuangthip (2019) suggested that some patients that had anxiety or unstable emotions had more denture problems than others. Patients that had flat or knife-edge ridge should have more frequency of denture recall than patients that had round residual ridge because this group of patients is more likely to change to poor retention and stability of the denture. In flat ridge patients, dentists may be considered optional treatment as implant-retained overdenture or denture adhesive. Moreover, dentists should do patient evaluations before, during, after treatment, and long-term follow-up for good oral health and quality of life in patients.

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Period of waiting before treatment, the average period of waiting before treatment was under three months, and one-quarter of that patients did not wait for treatment. However, the period of waiting before treatment may be increased due to the increasing number of patients registered every semester. Moreover, waiting period and treatment period had a more high value of SD due to many factors such as a few limitations in the timing of treatment that had summer and winter break and the number of dental master students in each academic program. For a long waiting period before the treatment, the health conditions of these patients may alter easily and cause the barrier to receive dental treatment in the clinic. Oral hygiene instructions and dental health education to both patients and caregivers when they registered must be necessary.

Regarding the resident area, most patients lived in Bangkok or nearby, which was easy to come to the clinic. There was no report of methods of transportation and persons that came together. However, Residential areas near the clinic might not cause the patient to visit a dentist regularly due to their physical limitations and family support, which had a greater impact than the resident area.

People who live in Bangkok have more chance to get dental treatment in either a dental clinic or a hospital. The authors concluded that the patients decided to receive the treatment at this clinic as it was newly opened and was in a leading dental school. These reasons caused the waiting time not to be too long as the other clinics, such as Prosthodontic clinic (Youdying, W., 2011). Besides, it was rather close to one-stop service clinic system.

Lastly, the current study showed that there were 25% of age >85 years and 16% dependent, the results indicated that the dental patients tend to be more dependent shortly, a protocol should be established regarding caution based on the vital sign and dependency rate. For example, methods for transfer patients to dental chairs, types of dental chairs for each dependency status, and monitoring that related to the dental procedure such as oxygen saturation, blood pressure and pulse. Some elderly dental patients need to receive the treatment at home or in a place like in the nursing home or long term care facilities, whereas some need quite simpler treatments such as cleaning or adjust the previous denture. However, there were no mobile clinics in the field of education or treatment of elderly patients in Thailand because of legal reasons. These problems can be solved with distance consult by the dentist and home visits. Finally, the key objectives of good oral health of the elderly should be surveillance and improvement of oral health with the cooperation of dentists, dental hygienists, geriatricians, and caregivers (Gil-Montoya et al., 2015).

5. Conclusion

In this study, the authors divided the patients in the clinic into two groups; the elderly dental patients and the special care patients. Both groups needed to be cared for maintaining their natural teeth, and they also continue to need for oral health care. However, according to the survey, the results indicated that they still have oral health problems. For the healthy or dependent aging and special care group who can still come to the dental office, it is good to have the treatment and maintenance at the dental office with the awareness following the guidelines or protocols. The dental treatment consideration for those who rather dependent or have physical or psycho-neurodegenerative problems should be the rationale ones. Besides, the treatment should focus on the frequency of dental recall visits, procedures to successful oral hygiene instruction, and skills to handle denture problems. Oral health prevention and promotion in the Thai elderly and also for special needs are one of the keys to good oral health and better quality of life. The more the dependence on daily living activities, the poorer oral conditions. It is suggested that the clinical frailty scale, together with some cognitive verification, would be useful to help in classifying the patients' dependency status (independent, semi-dependent, and dependent). Then, suitable guidance for oral health prevention and promotion can be performed accordingly. Lastly, home dental care might help solve the problems in long terms, especially for the frail elderly or those who have a barrier to come to any dental office.

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