ORAL HEALTH SERVICE UTILIZATION AMONG GOVERNMENT EMPLOYEES UNDER SOCIAL SECURITY SCHEME IN MAEHONGSON PROVINCE, THAILAND

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ABSTRACT

A cross-sectional study was conducted on oral health service utilization among government employees in Muang District, Maehongson, Thailand. The study aimed to identify patterns of oral health service utilization in 2004 and its related factors under their limited oral health benefit provided by the Social Security Scheme (SSS).

Government employees, 431 out of 773 from 35 governmental offices in Maehongson, participated in this study. Self-administered questionnaires were used for collecting data. Statistical analysis was performed using percentage, mean, median, standard deviation, Chi-square, correlation test and multiple regressions.

Oral health service utilization among government employees under Social Security Scheme in Maehongson was high (42.7%) compared to overall. Most of them (61.7%) went for service only once. Major findings of this study were: 1) Most of clients sought curative treatments rather than preventive services. Treatments that they utilized more often were scaling, tooth-extraction and tooth filling. 2) In general, female, higher education and administrative role of work had significant association with the service utilization, χ^2 = 15.52, 9.92 and 11.17, p =.000, .019 and .025 respectively. 3) Knowledge on oral health benefits and attitudes towards dental service were found to be significantly different between the group of 'utilized' and 'not utilized' (t = -2.796 and 2.102, p =.005 and .036). 4) Received oral heath information and SSS-information were found to be significantly associated with the service utilization (χ^2 = 7.18 and 27.23, p =.007 and .001 respectively) 5) Oral health problems informed by dentist had influence on the utilization, as well as oral health information from dentist and received SSS-information, adjusted odds ratio = 4.189 (95%:2.14-8.19), 2.026 (95%:1.05-3.91) and 2.647 (95%:1.29-5.42) respectively.

This study shows the patterns of oral health service utilization which conformed to those among clients under other health welfare schemes. Preventive care should be promoted more for clients to utilize their limited oral health benefits most beneficially, via dentist-patient communication.

KEY WORDS : ORAL HEALTH SERVICE UTILIZATION / SOCIAL SECURITY SCHEME / GOVERNMENT EMPLOYEES

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LIST OF ABBREVIATIONS

MOPH	:	the Ministry of Public Health
CSMBS	:	Civil Servant Medical Benefit Scheme
SSS	:	Social Security Scheme
UC	:	Universal Coverage
PCU	:	Primary Care Unit
SD	:	Standard Deviation

CHAPTER 1
INTRODUCTION

1.1 Rationale and justification

Oral health status in Thailand

The oral health problem is generally found among most of the Thai people. Two of the main problems are dental caries in every age groups and periodontal disease (mild to severe) in adolescent up to elderly group. Data from the 2nd – 5th Thailand National Oral Health Survey indicated that more than 80 % of Thai people are affected by oral health problems. There are increasing trends of dental caries in children and missing tooth among adult and elderly group, and increase more rapidly for those beyond the age of 35 years old, that is the most of working group. Whereas the need for dental treatments increases, only lower than 20 % of people are accessible to dental services [1,2].

Oral health service systems in Thailand

In Thailand, there are two major service sectors of oral health care. One is the private sector which comprises of private hospital and private clinic. The other is public sector, which consists of all government's dental clinic. Ministry of Public Health (MOPH) is the main service provider among the public sector. This public sector provides oral health service in terms of treatment, rehabilitation, prevention of oral diseases and promotion of oral health [3].

Health insurance schemes in Thailand

Currently, there are 3 major health insurance schemes in Thailand: Civil Servant Medical Benefit Scheme (CSMBS) which includes about 10 million clients, Social Security Scheme (SSS) which includes about 8 million clients and the other 45 million are included in 30 baht scheme (gold card with or without co-payment per visit) [3].

Social Security Scheme (SSS)

Social Security Scheme is compulsory health insurance based on the concept of average risk of sickness and responsibility among clients. The purpose of this scheme is to provide all kinds of health insurance and accessibility to necessary health care regardless of socio-economic differences [4].

Social Security Scheme implemented in 1990 has been improved several times afterward in offering appropriate ways of health benefit and payments [5]. From the study on "the Characteristics of Problems on Health Service Utilization under Different Health Insurance Schemes" by Rawiwong W. et al [4] found that the limitation of this scheme was the pre-payment system that, as in clients' opinion, might have lead to sub-standard service, whereas the strongest aspect was to offer free choices for seeking of health service resources which in turn, had more advantage compared to those under other health insurance schemes.

The oral health benefit has been added up to the Social Security Scheme since 1997, separated from general health benefit. For oral health benefit, the clients can utilize 3 basic dental treatments; tooth extraction, filling and scaling within limited reimbursement rate of no more than 200 baht per visit or 400 baht per year [2, 6]. The rate of oral health benefit utilization had been increasing since the first year of implementation of this benefit [7].

Table 1 The reimbursement and utilization of oral health benefit of clients under the Social Security Scheme

Details	1997	1998	1999	2000
Number of clients under SSS (persons)	6,084,822	5,418,182	5,679,567	5,810,140
Rate of utilization and reimbursement (/100 clients)				
- 1 time / year	3.89	10.00	11.82	12.25
- 2 times / year	1.94	5.00	5.91	6.12
- 3 times / year	1.30	3.33	3.94	4.08

Source: Phenkhae Lapying. 2001. [7]

Comparing to other health insurance schemes, the Social Security Scheme provides the least in oral health benefit, whereas the most is UC and the second is CSMBS. The differences in oral health benefit among 3 health insurance schemes are as shown in table 2:

Table 2 Oral health benefit of Health Insurance Schemes and percent of coverage among client for each scheme in fiscal year 2003

Schemes and coverage (%)	Oral health benefits	Condition for service
CSMBS (6.3%)	- All of dental treatments except cosmetic care and dental prosthesis	- only in public sector - unlimited times - full reimbursement
SSS (12.7%)	- scaling / twice a year - filling and extraction	- both in private and public sectors - reimbursement rate: 200 Baht/visit no more than 400 Baht/year
30 baht Scheme (73%)	- All of dental treatments included dental prosthesis and obturator - not include cosmetic care and orthodontic treatments	- no service charge - 30 Baht/visit of treatment or free of charge

Remark: Other services beyond the benefits are out-of-pocket of client.

Source: Phenkhae Lapying . 2001. Cited in [2]

The main purpose of this oral health benefit package is to enhance routine dental check-up (twice a year). This would help detect early signs of oral health problem and leading to appropriate treatments, which therefore, could prevent further damage. Frequent dental visit also helps delay tooth loss and maintain normal dental function [7, 8]. As for the dental health service providers, early detection of oral health problems and primary treatment can help reducing time, manpower, and budget as well.

Generally, although the oral health problem is less important compared to other problems in human life but once they affect daily living, such as pain,

malocclusion or any disability, these problems will become more important and may lead to more complicated and higher cost of treatments. For the clients under the Social Security Scheme, in the status of working group, having oral health problems may impact their works and income.

From the study of Lapying P. 2000 [9], it was indicated that most of the dentists considered that oral health benefit in Social Security Scheme is a profit for the client but there still were some problems of misunderstanding in the benefit detail for both clients and providers. The other thing which should be considered is that how is this oral health benefit appropriate for the clients. Because, presently, there has been an increase in fee for oral health services both in private and public sectors, including basic dental treatments such as tooth extraction, filling and scaling together with an increase in rate of oral health service utilization that may reflect the needs for oral health care of clients [7, 10]. The average payment for oral health services of the SSS clients is also the highest among 3 health insurance schemes that is 763.42 baht per visit [6]. Considering from the clients' payment for oral health services and the increasing rate of fee for services, as well as rate of service utilization, it can be concluded that the oral health benefit in the Social Security Schemes is not corresponding to the needs of clients. However, the oral health benefit in the Social Security Schemes has not been improved since 1997 until now.

Oral health service utilization in Maehongson Province, Thailand

In Maehongson Province, there are 7 government hospitals, 12 primary care units and 2 private clinics that could provide oral health services for clients under Social Security Scheme. The distribution ratio of dental health personnel (dentists and dental nurses) is estimated to be 1:7,000, this is quite good compared with the standard criterion ratio for dental health personnel per population (1:≤ 20,000) [11]. The distribution of clients under SSS and rate of their oral health service utilization are as shown in table 3: [12, 13]

Table 3 Distribution and rate of oral health service utilization of clients under SSS in Maehongson Province. Fiscal year 2003-2004

Hospital	Number of workplace (2004)*	Number of clients (2004)*	Service utilization**			
			2003		2004	
			cases	%	cases	%
1. Muang	271	2,158	253	NA	286	13.25
2. Pai	66	336	12	NA	32	9.5
3. Khunyuam	23	123	30	NA	58	47.15
4. Maelanoi	15	147	34	NA	33	22.45
5. Maesariang	96	773	129	NA	130	16.81
6. Pangmapha	15	57	20	NA	27	47.36
7. Sobmaey	12	95	16	NA	12	12.63
total	**498**	**3,689**	**494**	NA	**578**	**15.67**

Remark: 'NA' means the data is not available.

Source: *Maehongson Social Security Office. 2004 [12]

**Srisangwan Hospital. Maehongson. 2004 [13]

The data from the Maehongson Social Security Office, 2004 [12] showed that there were 3,689 clients in Maehongson Province totally. Almost two-third of the clients, 2,158 persons, were in Muang District and 773 of these worked in government sectors. The reports from government hospitals [13] indicated that total rate of oral health care utilization among the SSS clients in fiscal year 2004 was 15.67%, which was higher than the result from the study of Buddhasri et al. 2003 [6], 11.93%.

Considering about the limited benefit for clients under the Social Security Scheme, to enhance oral health prevention and promotion for this group should be the most appropriate strategy. For Maehongson, even there is good distribution ratio of dental health personnel, the most service provided is curative service. Trend of increasing in needs and utilization of oral health service is the same as overall country compared with limited source of service that may lead to the problem in efficiency and equity. However, except the distribution of clients and rate of service utilization, there is no specific information about this group of clients in Maehongson.

To study on patterns of oral health service utilization among government employees under Social Security Scheme in Maehongson Province could help making recommendation for the dental health personnel, as service providers, to be able to understand more in needs of oral health service utilization and improve appropriate oral health service provided to this group, that would, more or less, help improve oral health status among the population of Maehongson both directly and indirectly.

1.2 Research Questions

1. What is the pattern of oral health service utilization among government employees under Social Security Scheme in Maehongson Province, Thailand ?

2. What are the factors related to the patterns of oral health service utilization among these employees ?

1.3 Research Objectives

General objective

To determine characteristics of oral health service utilization and its related factors among government employees under Social Security Scheme in Muang District Maehongson Province, Thailand.

Specific objectives

1. To describe pattern of oral health service utilization and characteristics of government employees under Social Security Scheme in Maehongson Province, Thailand in terms of their demographic and socio-economic characteristics, predisposing and enabling factors, as well as employment setting and service setting.

2. To assess relationship between oral health service utilization and these variables; demographic and socio-economic variables, predisposing and enabling variables, needs for oral health care, employment setting and service setting for those employees.

1.4 Conceptual Framework

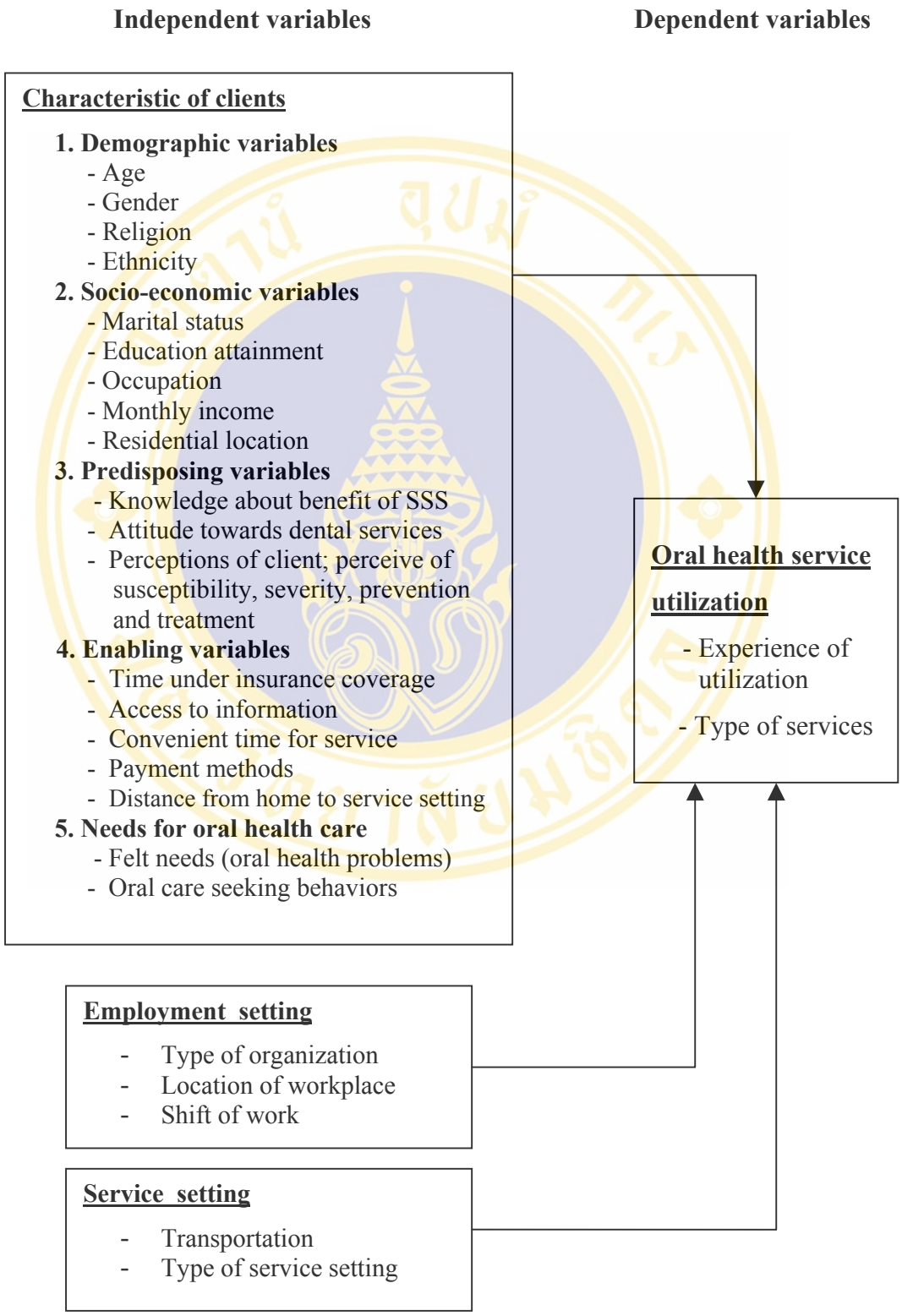

Figure 1 Conceptual framework

1.5 Operational Definition of Studied Variables

Oral health service utilization

This was a composite variable defined as experience in oral health service utilization of employee provided by dental health personnel within the last 12 months, categorized into 'utilized' and 'not utilized'. In case of 'utilized', there would be more detail about number of times to service during last year and type of service utilized such as dental check-up, tooth extraction, scaling, filling, etc.

Knowledge about benefit of SSS

Knowledge in this study was focused on correct understanding in oral health benefit provided to the clients under the Social Security Scheme.

Attitude towards dental service

This variable was defined as attitude of client towards dentists, oral health service in both public and private sectors in term of experiences or opinion in diagnosis and treatment of the dentist, personality of dentists, cleanliness of dental instruments and clinic and the respondent's feeling about dental services.

Perception of client

In this study, perception was defined according to perceive in susceptibility and severity of oral diseases, benefit of prevention and treatment of oral health care.

Time under insurance coverage

It referred to period of time categorized in months since employee has registered in Social Security Scheme until the time of data collection.

Access to information

It referred to sources of any information about oral health and oral health benefit in Social Security Scheme that employee has ever received.

Access to service

In this study, access to service referred to the physical accessibility in term of the distance in kilometers from the employees' residential area to the service setting and availability of transportation facilities from the residential area to the service place when they wanted to visit dentist.

Convenient time for service

This referred to period of time that was, in employee's opinion, the most comfortable for him or her to visit dentist.

Payment methods

These referred to the health welfares or choices that the employee used for oral health service utilization within the last 12 months.

Felt needs

Felt needs referred to employee's self-assessment of oral health status or problems within the last 12 months. This variable did not have to be the diagnosis of dentist. From these self-assessments, the employee may make a decision to seek or not to seek for oral health care, such as bad breath, difficulty in biting or chewing, etc.

Oral care seeking behavior

This variable was defined as the priority to do of employee to cope with those oral health problems after self-assessment within the last 12 months.

1.6 Limitation of the Study

First, since this study was carried out among government employees under Social Security Scheme in Maehongson Province that might not be generalized representative to overall Thailand. Second, because the questionnaire would ask for the previous experience about oral health service utilization of these employees within the last 12 months, there might be recall bias.

1.7 Expected Outcome

From the result of this study, we should know about the pattern of oral health service utilization among government employees under Social Security Scheme in Maehongson and the relationship to its related factors. These will lead to better information and understanding for the dental health personnel in Maehongson Province to manage dental service efficiently for this group of clients.

CHAPTER 2
LITURATURE REVIEW

This chapter will describe theoretical models and literature review related to oral health service utilization as shown in the conceptual framework:

2.1 The model of health-seeking for medical care
2.2 The Health Belief Model
2.3 Illness behaviors
2.4 Oral health service utilization
2.5 Social Security Scheme in Thailand
2.6 Review literature of related factors

2.1 The model of health-seeking for medical care [14]

This model was developed by Anderson and his associates (Aday and Anderson, 1975; Anderson, Kravits, and Anderson, 1975). This model consists of predisposing, enabling, and need components, which describe a person's decision to use of health services. The predisposing component consists of socio-demographic variables, attitudes and beliefs about health care. Enabling component refers to factors such as family income, health insurance coverage, availability of services, and access to regular source of care. The predisposing and enabling components establish the condition within which a person is or is not likely to seek for health services when stimulated by need (health status, disability, or diagnosis). This model has been used in several studies and shown some success in describing variance in health service utilization on the basis of such variables as age, sex, education of head of household, and having a regular source of care. Anderson's model is a prediction model, which provides useful insight by predicting levels of utilization assisting researchers in describing the patterns they observed.

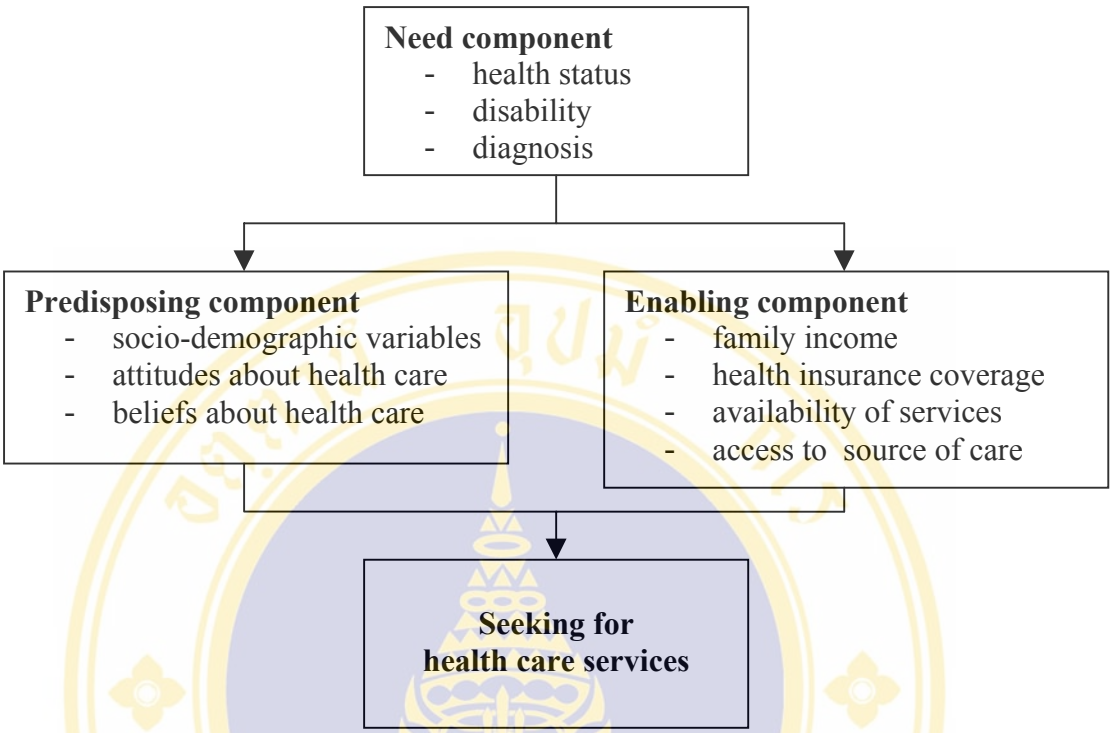

Figure 2 The model of health-seeking for medical care

2.2 The Health Belief Model [14]

To increase understanding of why certain behaviors occur, there should be the models of social-psychological approaches that can measure the perceptual process guiding the seeking of health care. The Health Belief Model of Irwing Rosenstock (1966) and his colleagues (Becker 1974) is one of the most influential social-psychological approaches designed to account for the way in which healthy people seek to avoid illness. Accordingly, the Health Belief Model, shown in figure 2, suggests that preventive action taken by an individual to avoid disease 'X' is due to that particular individual's perception that he or she is personally susceptible and that the occurrence of the disease would have at least some severe personal implications. The assumption in this model is that by taking a particular action, susceptibility would be reduced, or if the disease occurred, severity would be reduced. The perception of the threat posed by disease 'X', however is affected by modifying factors. These factors are demographic, socio-psychological and structural variables, which can

influence both perception and the corresponding cues necessary to instigate action. Action cues are required because while an individual may perceive that a given action will be effective in reducing the threat of disease, that action may not be taken if it is further defined as too expensive, too unpleasant or painful, too inconvenient, or perhaps too traumatic.

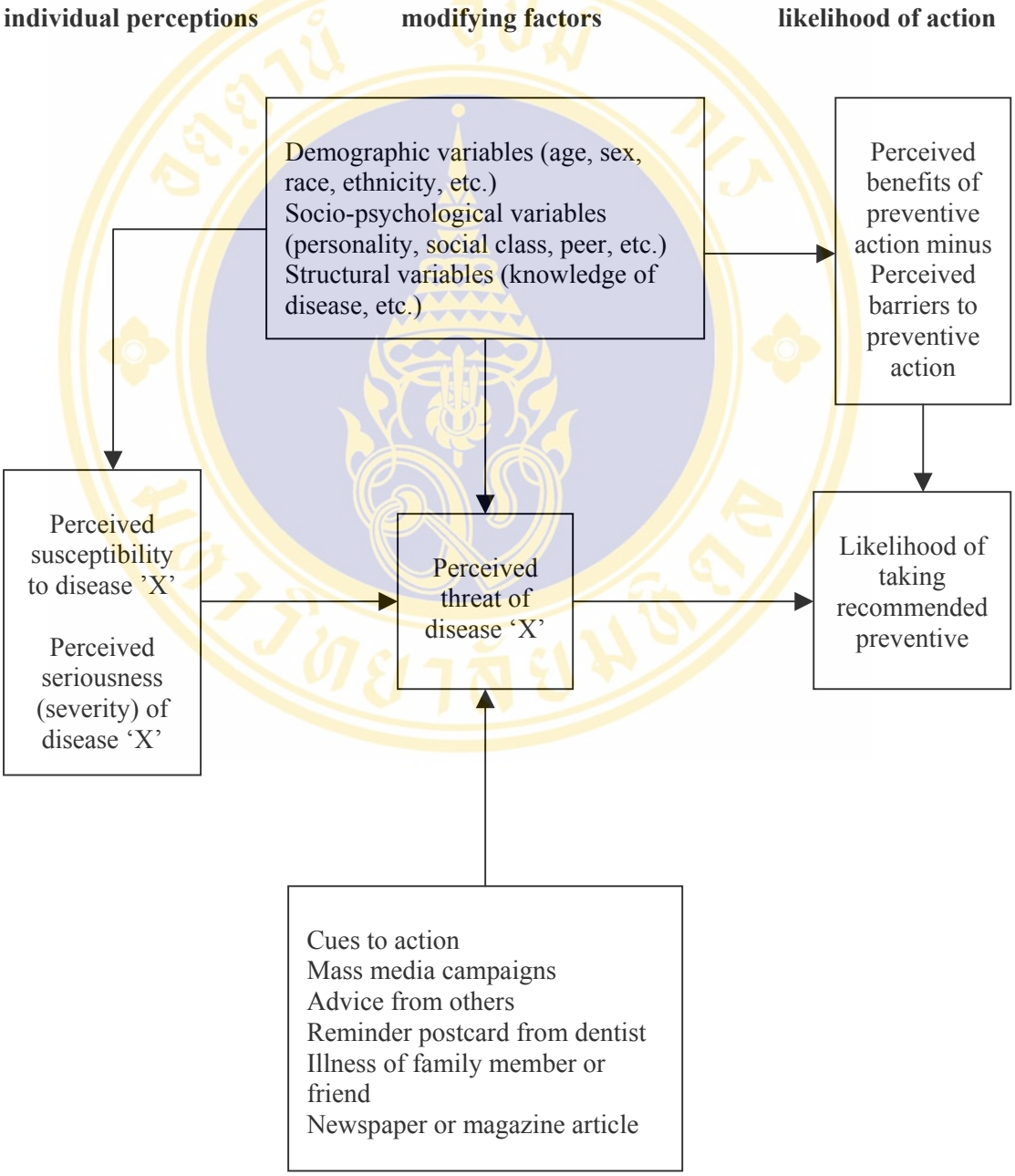

Figure 3 The Health Belief Model

2.3 Illness behavior [14]

Mechanic and Volkart described illness behaviors as “the way in which symptoms are perceived, evaluated and acted upon by a person who recognized some pain, discomfort or other signs of organic malfunction”. Mechanic has formulated a general theory of help-seeking. He suggests that whether or not a person will seek medical care is based on ten determinants;

1. Visibility and recognition of symptoms
2. The extent of which the symptoms are perceived as dangerous
3. The extent of which the symptoms disrupt family, work, and other social activities
4. The frequency and persistence of symptoms
5. Amount of tolerance to the symptoms
6. Available information, knowledge and cultural assumptions
7. Basic needs that lead to denial
8. Other needs competing with illness responses
9. Competing interpretations that can be given to the symptoms once they are recognized
10. Availability of treatment resources, physical proximity, and psychological and financial costs of taking action

In addition to describing these ten determinants of help-seeking behavior, Mechanic explains that they operate at two distinct levels as other-defined and self-defined. The other-defined level is the process by which other attempt to define an individual symptom as illness and call those symptoms to attention of that person. Self-defined is where the individual defines his or her own symptoms. The ten determinants and two levels of definition supposedly interact to influence a person to seek or not seek help for a health problem.

2.4 Oral health service utilization in Thailand

Oral health service utilization is considered as an important variable in a considerable number of studies which focus on other topics, such as access to health care, health care for the elderly and prepayment plans. Even though there is an increasing rate of oral health service utilization in many countries, still the available literature indicates that, with respect to standards of unmet need, oral health service utilization is low relative to the utilization of other types of medical services [15].

In Thailand, before implementation of the Universal Coverage policy, the percentage of the people who utilized the oral health services was relatively low. The elderly group had the lowest percentage of utilization while the age group 35-44 years had the highest [16]. Up to the 5th Thailand National Oral Health Survey (2000-2001), there was still the same trend of service utilization. In 2003 after the implementation of the universal coverage policy, the study of Lapying P. and Thienkingkeaw W. 2003, cited in [17] indicated that there was an increase in rate of oral health service utilization from 6.45% in 2001 to 12.27% in 2002 for over all of Thai people.

Table 4 Rate of dental service utilization compared with needs of treatment in government sectors . (2001-2002)

Health insurance scheme	2001			2002		
	needs (person)	utilization (person)	rate (%)	needs (person)	utilization (person)	rate (%)
1. Gold card	6,699,279	407,925	6.09	14,712,373	1,185,072	8.05
- student	724,718	132,665	18.31	2,813,911	396,663	14.0
- elderly	468,416	31,964	6.82	1,872,019	101,331	5.41
- others	5,506,145	243,296	4.42	10,026,443	687,078	6.85
2. Other scheme	3,121,528	225,600	7.23	3,452,454	659,597	19.1
Total	9,820,807	633,525	6.45	18,164,287	1,844,669	12.3

Source: Phenkhae Lapying. 2003. [17]

From the study on 1st year implementation of the Universal Coverage policy, cases study among 6 government hospitals in 3 province and 7 private hospitals in 1 province [1], found that there was 26.6 % increase in oral health service utilization among adult and old age group but decrease in percentage of children. Most of the patients came for only once of treatment and more than 80 % of treatment are tooth filling, tooth extraction, and scaling which were corresponded to the basic core package that could be provided at a level of primary care unit (PCU). Increase in oral health service utilization induced improvement of dental service management in all levels.

2.5 Social Security Scheme in Thailand [6]

The compulsory social health insurance is one part of the Thailand Social Security Act implemented in September 1990. As stated in the act, the Social Security Office adopted the Medical Committee recommendation regarding the benefits package and payment mechanisms. This benefit package includes:

1. Diagnostics and treatment
2. Hospitalization including room, nutrition, and treatment
3. Pharmacy and medical supplies quality not under the National Drug List
4. Referral system and ambulance cost
5. Health education and immunization according to the National Health Program

The benefit package defined above is applied to all diseases except any illness or injuries inflicted by the person or any injuries which the person requests other to inflict. The health service must be provided until the patient has completely recovered. Either that or when nothing in the medical professional can improve the patient's condition. Those conditions are not a medical necessity and those that are too expensive to provide are exempt from the package. The oral health service was not included in the benefit package firstly.

During the early stages, accessibility was a problem as shown by the rather low utilization rate. The major cause of this was that the employers choose the hospitals instead of the employees and at the time, there were limitations of main contractors and their networks.

In 1992, the Social Security Office started the free choice (made by employees) in some provinces and in 1994 expanded the concept throughout the country. No official data for accessibility has come up, but indirect information shows that utilization rate has increased over time, nearly the same as the general population utilization rate in medical treatment.

The package of oral health benefit has been implemented to this scheme in 1997 as a profit for the clients with the same rate of co-payment. The clients can utilize oral health service both in private and public provider sectors, separately from general health benefits. The oral health benefit of the scheme has been under the condition that there are only 3 kinds of service provided to the clients; scaling (no more than twice a year), tooth filling and tooth extraction. The clients have to pay as fee-for-service first then, can reimburse using the receipt within the rate of 200 baht per/time and no more than 400 baht per year totally. The reimbursement must have been done within 1 year after the date of service utilization [17].

The data from the Social Security Office was shown that there was an increasing rate of reimbursement and utilization of oral health service among clients under Social Security Scheme, year by year, as well as other schemes [7]. From the Thailand National Survey of Health and Welfare: Dental service Utilization by Buddhasri W. et al, 2003 [6] found that rate of dental service utilization among Thai people within 1 year (2001-2002) was 10.19%. The rate of oral health service utilization in each scheme or type of insurance was 17.77% of private insurance, 16.36% of CSMBS, 11.93% of SSS, 9.18%of UC (gold card) and 8.41% of those without insurance. Among those 11.93% of SSS, 24.75% of the clients did not want to use the Social Security Scheme's benefits. Except this, the clients under SSS had the

most average payment per visit, 763.42 baht, compared to clients under the other two main schemes, 309.52 baht for UC and 539.15 baht for CSMBS.

The private clinic was the first choice of dental service for the clients under SSS, the private hospitals and the public hospital were the second and the third respectively. The study of Hosanguan C. et al. 2001 [18] found that the most provided treatment to the clients under SSS was scaling, following by tooth filling, dental check-up and tooth extraction.

Table 5 Oral health service utilization among Thai people (2001-2002)

Scheme / Insurance	rate of utilization (%)	average of payment per visit (baht)	rate of un-utilized benefit (%)
No insurance	8.41	1,535.60	-
CSBMS	16.36	539.15	20.61
SSS	11.93	763.42	24.75
UC (gold card)	9.18	309.52	22.01
Private insurance	17.77	1,397.55	40.35
All	**10.19**	**476.46**	**22.67**

Source: Buddhasri W. et al. 2003. [6]

2.6 Review literature of related factors

Age

Pojjanut Benjakul and Chuanya Chuenarrom [19] studied the utilization of dental care at the university dental hospital, southern Thailand, reported that most patients seeking dental treatment were in 11-40 years age group which may reflect a major concern with appearance, facial attractiveness and their peer group while the people over 41 years age group seldom sought dental treatment may be partly believe that dental problems are a part of the ageing process rather than a sign of ill health and

appearance of the teeth becomes less important with increasing rate. Slack-Smith L. et al. [20] found the strong influence of age that indicated a need to target dental services among older Australians.

Gender

Stella M. et al [21] studied the factors associated with use of preventive dental and health services among U.S. adolescents and found that male gender was significantly associated with lack of preventive medical care and annual dental visit. Pojjanut Benjakul and Chuanya Chuenarrom [19] reported more twice as female visit the dentists than males that was similar to the study of Grytten J., et al. 2002 [22]. Judith Auerbach and Anne Figert, 1995 [14] explained that women were the primary caretakers for sick people, both in society and community at large, as well as the major consumers of health cares for themselves and others.

Marital Status

Tor Osterberg et al [23] study the utilization of dental care after introduction of Swedish dental health insurance and found the low utilization rate of dental service among unmarried man than the other group. Richard J. Manski [24] reported that married respondents were more likely to visit a dentist than were single respondents, and widowed / divorced / separated respondents were the least likely of overall to visit a dentist.

Education attainment

Richard J. Manski [24] reported the lower level of education respondents was less likely to visit dentist. Mak KKY et al [25] were quote that health service are used more regularly by the well educated rather than the less educated members of the community and reported the well educated members used more regularly dental service than the less educated members of the community in their study.

Income

Stella M. et al [21] reported the significant association between lack of family income and lack of preventive dental care. Grytten J. et al [22] found the positive

relationship between increase in demand for dental services and increase in income. Tor Osterberg et al [23] found the highest increase in the utilization rate among those people in higher income groups.

Knowledge about benefit of insurance

So FH and Schwarz E. [27] studied the demand for and utilization of dental services among Hong Kong employees with and without dental benefit coverage and divided the sample into 3 groups; covered and aware, covered and unaware, and uncovered. The majority of 'aware' group had visited a dentist in the previous 12 months and mostly for asymptomatic reasons. The 'aware' group also had significantly higher demand than those who were not aware of their coverage.

Attitude towards oral heath service

Pojjanut Benjakul and Chuanya Chuenarrom [19] reported 80% of patients seeked dental treatment because of symptoms which reflect the general attitudes of Thai people toward seeking dental care to eliminate the pain, infection, for esthetics, function and prevention. This was similar to the result from the study of Bedos C. et al [28] that mentioned about the decision making to visit dentist of the patient due to too great pain and self medication was no longer effective.

Wesley L.Hanson and G. Rutger Persson [29] studied on periodontal conditions and service utilization behaviors in a low income adult population in the Kitsap County, Washington, USA found that this population had attitude of waiting for a problem to occur before seeking dental care, so tooth extraction is the only available treatment option.

Perception on oral health problem

Marc W. et al, 2003 [30] studied about relationship between dental status, socio-demographic status, and oral symptoms to perceived need for dental care and found that some self-reported oral health problems strongly associated with self-reported perceived need for dental care, such as cavities, loose tooth, toothache, etc.

Luengpattarawong P. [26] reported perception on oral health problems according to the Health Belief Model that, for overall, perception had no significant association with dental service utilization. When considered by each domain of perception, the perceived susceptibility of oral diseases seemed to be significantly associated with the utilization.

Insurance coverage

From the result in the study of underinsurance among Iowa farm families which is a collaborative project between Agricultural Health Partners of Spencer, Iowa and The AgriSafe Network in 2004 [31], majority of the farmers who had insurance but were considered underinsured are less likely to seek important preventive services and faced limits on coverage or significant costs if they incurred an illness. The quality of health coverage could have a direct impact on access to care.

From the study on dental care pathway for welfare recipients in Quebec of Bedos C. et al [28] , one of the two causes that could interrupt the dental care pathway was the failure to complete treatments that are not covered by the welfare program.

Employment and service setting

In the study of the decision-making process of health care utilization in Mexico of Cynthia J. Brown et al [32], there was the association of region and employment with the substantial health care utilization.

Oral health needs assessment [33]

A common assumption in organization and provision of health services, including dental health services, which is being challenged, is that the need for health care can be objectively determined by professionals. Now because the definition of any given state of ill health has become open to much wider interpretation than in the past, health care needs extend to issues like: the impact of ill health on individuals and on society; the degree of disability and dysfunction that ill health bring; the perceptions and attitudes of patients themselves towards ill health; and the social origins of many common illnesses. All these factors are believed to influence the

utilization of health services, the development of health care techniques and, ultimately, the effectiveness of treatment.

To Donabedian (1973) need describes state of the client that creates a requirement for care and therefore represents a potential for service. Need does not always lead to use of services and use of services does not always result from need, but the existence of disease and normatively defined need does not create a potential for the use of services (Spencer, 1984). 'Felt' need is equated with 'want' expressed as the individual's own assessment of his or her requirement for health care (Carr and Wolfe, 1979).

Cushing et al. (1986) explained that dental ill health is largely social and behavioral in origin and almost entirely preventable by social and behavioral means. They developed socio-dental indicators by assessing the impact of dental status on perceptions of people. The impacts were categorized as function (difficulty in eating), social interaction (difficulty in communication), comfort and well-being (pain and discomfort) and self-image (dissatisfaction with aesthetics).

Since most of the oral health problems are chronic and, normally, not cause to death, therefore the people usually seek for oral health care only when the problems become more severe that they cannot cope by themselves. Even such problems occur, the decision making for oral health service utilization are different among people. According to the previous study, it can be concluded that the pattern of oral health service utilization could have been influenced by many factors that are not only clinical symptom or physical factors but also the factors related to social or environmental aspects.

There are a lot of strong evidences to say that having the oral health benefits or insurance influences on increasing rate of oral health service utilization. This situation happened to Thailand when the oral health benefit package was provided to the clients under the Social Security Scheme, as well as in provincial level of Maehongson. Most of the studies mentioned before were the examples for developed

countries, even the studies in Thailand that usually reflected the patterns of oral health service utilization in the city areas. However, there have not been enough studies about this in Maehongson reported if there is any difference in the service utilization among the clients under the Social Security Scheme in Maehongson, and how it is different. Therefore, this study will attempt to find out as many factors as possible, especially, social and behavioral factors. Some factors that might have been found strongly influenced on patterns of oral health service utilization in some studies, such as smoking behavior and exercise (Slack-Smith L. and Hyndman J. 2004. [20]) will not be considered in this study because, for Thai people, these characteristics are generalized and more contribute to other related factors.

For knowledge about oral diseases, Luengpattarawong P. [26] studied the dental service utilization among people with oral health problems and found that the respondents with high knowledge level about oral diseases made less use of the dental service compared to those in moderate and low knowledge group. However, these differences are not significantly associated with dental service utilization. In general, it was found that weather the knowledge towards oral diseases was high or low could not influence the utilization of dental service. Most people knew about the oral disease and it's severity but they did not realize that oral health is the part of their health and necessary to take care. As for the clients under SSS, the separate oral health benefits which were provided to them as a profit from the scheme, might induce their ideas about these. Therefore, the factor of knowledge about oral diseases was considered to have less influence and not included in this study.

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Study design

This study was a cross-sectional study.

3.2 Study population

The sample description of government employees which were included in this study were those who had following characteristics:

1. Those who worked in government offices in Muang District, Maehongson, Thailand.
2. Those who were employed during the time of data collection.
3. Those who registered under the Social Security Scheme

According to the data from the Maehongson Social Security Office, this study was conducted in 35 government sectors in Muang District that have employees as clients under the Social Security Scheme. The total numbers of clients in those 35 government sectors was 773 persons, and the researcher collected data from all of the clients who were available at the period of collecting data. Therefore, the total number of respondents who received questionnaires was 467 and the returned questionnaires were 431, which yielded 92.3% of response rate.

3.3 Research instrument for data collection

The data was collected by using a self-administered questionnaire which was composed of close ended questions and divided into 5 parts:

Part A: Information about client

Characteristic of the clients which were age, gender, marital status, education attainment, income, residential location, time under insurance coverage, type of organization, location of workplace, shift of work, time available to service, transportation to service setting and access to oral health information . The questions were multiple choices and fill in the blank.

Part B: Measurement of predisposing factors

1. Knowledge about oral health benefit of Social Security Scheme
2. Attitude of clients toward dental services
3. Perception of client in each issue; susceptibility and severity of oral diseases, benefit of prevention and treatment

Part C: Needs for oral health care

This part comprised of the questions asking each issue about oral health problems that were experiences of client within the last 12 months and the priority to do of client to cope with the problems.

Part D: Oral health service utilization during last year (2004)

This part asked about;

1. Experience of oral health service utilization
2. Type of oral health service utilization
3. Type of service setting
4. Payment methods

Part E: Opinion of government employees

This part was open for employees' opinion about oral health service utilization, the Social Security Scheme, recommendation and suggestion, etc.

3.4 Data collection procedures

The questionnaire was pre-tested for the reliability among 30 cases which had similar characteristics in Maehongson Province. The test was done in each question to find out the coefficient of internal consistency by the Cronbach's Alpha Coefficient method.

Prior to data collection process, researcher contacted and discussed the purpose of the study and requested for permission from the Provincial Government Officer, the Provincial Chief Medical Officer of Maehongson Province, the Chief Officer of Maehongson Social Security Office and the chief officers of the government offices which were included in this study.

To perform data collection process, the questionnaire was prepared together with a letter of intent to inform the objectives of the study, asked the clients for participation and ensured them that confidentially and anonymity would be seriously respected and convinced that all their responses would not impact their working status as well as their benefits. Then the researcher made the appointment with each selected government offices to conduct a meeting for distribution and orientation of the questionnaire to the clients and confirmed the date to return the questionnaire (within 5 days from the meeting for each office). The researcher asked the representative of the government employees to collect the questionnaires in each office first and the researcher collected all by herself later.

3.5 Data analysis procedures

Data analysis was divided into 3 parts:

Univariate analysis

Demographic factors, socio-economic factors, knowledge towards oral health benefit under SSS, attitude towards dental service, perception on oral health problem, availability and access to service, accesses to information, existence of oral health

problem, seeking behavior for oral care and oral health service utilization were described by using frequency, percentage, mean, standard deviation, median, maximum and minimum, etc.

Bivariate analysis

The relationship between demographic factors, socio-economic factors, knowledge towards oral health benefit under SSS, attitude towards dental service, perception on oral health problem, availability and access to service, accesses to information, existence of oral health problem, seeking behavior for oral care and oral health service utilization were analyzed using Chi-square and Fisher's Exact test for discrete variables. Correlation analysis was used to test association between continuous variables. The confident level for this study was set at 95%.

Multivariate analysis

For the variables found to have statistically significant associations with oral health service utilization or found to have significant differences between the group of 'utilized' and 'not utilized' oral health service, multiple logistic regression analysis was performed to identify the associated factors after controlling for other potential related factors, and to quantify the strength of association as odds ratio.

CHAPTER 4
RESULTS

A field research entitled 'Oral Health Service Utilization among Government Employees under Social Security Scheme (SSS) in Maehongson Province, Thailand,' was carried out during 20th January to 15th February 2005. List of target population was provided by the Provincial Social Security Office. Totally there were 773 employees. Self-administered questionnaire was distributed to 467 employees whose work places could be accessible. The rest (304 employees) were working in remote areas. The employees who received the questionnaires have registered under 35 governmental offices; 26.5% were in health related organizations whereas 73.5% were defined as non-health related organizations. Their locations were mainly situated in municipality (88.4%), the rest were in non-municipality. A return rate of the questionnaire was 92.3% (431 out of 467 forms). The questionnaires were processed using SPSS for Window, V10.07. The guidance from George A. Morgan, et al., 2001 [34] was used for interpretation. The results were presented into 8 parts as following;

Part 1 General characteristics of respondents
- 1.1 Demographic profile
- 1.2 Socio-economic status

Part 2 Availability and accesses to oral health facilities
- 2.1 Availability and access to oral health service
- 2.2 Accessibility to service information

Part 3 Knowledge, attitude and perception on oral health issues
- 3.1 Knowledge of oral health benefit utilization under SSS
- 3.2 Attitudes toward oral health services
- 3.3 Perception on oral health problems

Part 4 Existence of oral health problems
- 4.1 Oral health problem existing in 2004
- 4.2 Seeking behaviors for oral health care

Part 5 Oral health service utilization

5.1 Utilization of oral health services in 2004

5.2 Expenditure for service, welfare and reimbursement

Part 6 Relationship between the utilization of oral health service and its associated factors

Part 7 Factors influencing pattern of oral health service utilization

There were the response reflected respondents' opinions about the oral health benefits under the Social Security Scheme, 174 out of 431, which were grouped and revealed at the end of this chapter.

4.1 General characteristics of respondents

The profile of demographic and socio-economic status is presented in Table 6. The demographic characteristics included age, gender, ethnicity, religion and marital status, whereas the socio-economic status was depicted by educational attainment, occupational role, working hour and income.

Demographic profile

Table 6 describes bivariate analysis. It was found that male and female respondents participated in this survey with similar proportion (male = 50.3%, female = 49.7%). Women utilized the oral health service 1.5 times more than men. The respondents with ages of 30 years or younger were the majority (about 59%) among both groups. In terms of ethnicity the study was undertaken among native Thai as a major population group the same as Buddhism, which was the major religion hold by these respondents.

Table 6 Number and percentage of respondents classified by demographic characteristics and oral health service utilization.

Demographic factors	utilize n (%)	not utilize n (%)	total n (%)
Gender	**(n=183)**	**(n=244)**	**(n=429)**
Male	72 (39.3)	143 (58.6)	216 (50.3)
Female	111 (60.7)	101 (41.4)	213 (49.7)
Age groups	**(n=180)**	**(n=244)**	**(n=426)**
≤ 30 years	106 (58.9)	43 (58.6)	249 (58.5)
31-40 years	53 (29.4)	74 (30.3)	128 (30.0)
≥ 41 years	21 (11.7)	27 (11.1)	49 (11.5)
Min-max	19-50	20-56	19-56
Mean ± SD	30.8 ± 7.2	30.7 ± 6.9	30.8 ± 7.0
Ethnicity	**(n=175)**	**(n=233)**	**(n=410)**
Native Thai	166 (94.8)	217 (93.1)	384 (93.7)
Hill tribes	9 (5.2)	16 (6.9)	26 (6.3)
Religion	**(n=183)**	**(n=245)**	**(n=430)**
Buddhism	179 (97.8)	235 (95.9)	416 (96.7)
Others (Catholic, Islam)	4 (2.2)	10 (4.1)	14 (3.3)

Socio-economic status

Table 7 presents the findings of the socio-economic status. The majority attained their education at high school level or lower. One-third of the clients (32.1%) achieved vocational certificate. For the university level, the result showed that 28.1% of the respondents achieved their education at this level. Considering marital status, a bit more than half of them (51.8%) were married, the others were in single status.

With regards to occupational role, the respondents mainly played roles in administrative and labor work with nearly the same ratio (administration = 34.6% and labor basis = 33.4%). Likewise, the same rate was found in a technical and field

works (both rate = 15.2%). the service users mainly played roles in administrative (42.0%), while the respondents who had responsibilities in field work had the lowest ratio (10.7%). Basically official hour started at 8.30 a.m. and ends at 4.30 p.m. The result showed that all of the respondents who went for the service were on duty during this period. Only 4 out of 420 reported that they engaged in night shift work and did not use the service. Concerning monthly income, for overall, it ranged from 3500 to about 11,490 Baht. When median income was compared, the utilized group had a bit higher income than the other (median income of utilization group = 6,240 Baht, for not utilized group = 5,640 Baht).

Table 7 Number and percentage of respondents classified by socio-economic characteristics and oral health service utilization

Socio-economic factors	**utilize n (%)**	**not utilize n (%)**	**total n (%)**
Educational attainment	**(n=183)**	**(n=245)**	**(n=430)**
Primary school	20 (10.9)	36 (14.7)	57 (13.3)
High school	42 (23.0)	71 (29.0)	114 (26.5)
Vocational certificate	55 (30.1)	83 (33.9)	138 (32.1)
University	66 (36.1)	55 (22.4)	121 (28.1)
Marital status	**(n=181)**	**(n=242)**	**(n=425)**
Married	96 (53.0)	122 (50.4)	220 (51.8)
Unmarried	79 (43.6)	109 (45.0)	188 (44.2)
Other status (divorce, separated, widow/widower)	6 (3.3)	11 (4.5)	17 (4.0)
Occupational role	**(n=169)**	**(n=236)**	**(n=407)**
Administrative	71 (42.0)	70 (29.7)	141 (34.6)
Technical	29 (17.2)	33 (14.0)	62 (15.2)
Laboratory	3 (1.8)	3 (1.3)	6 (1.5)
Field work	18 (10.7)	44 (18.6)	62 (15.2)
Labor basis	48 (28.4)	86 (36.4)	136 (33.4)

Table 7 Number and percentage of respondents classified by socio-economic characteristics and oral health service utilization (cont.)

Socio-economic factors	utilize n (%)	not utilize n (%)	total n (%)
Working hour	**(n=179)**	**(n=241)**	**(n=422)**
Official time	179 (100)	237 (98.3)	418 (99.1)
Night shift	0 (0)	4 (1.7)	4 (0.4)
Monthly income	**(n=179)**	**(n=232)**	**(n=413)**
≤ 4,000 baht	7 (3.9)	13 (5.6)	20 (4.8)
4,001-5,000 baht	39 (21.8)	66 (28.4)	107 (25.9)
5,001-6,000 baht	43 (24.0)	48 (20.7)	91 (22.0)
6,001-7,000 baht	42 (23.5)	47 (20.3)	89 (21.5)
7,001-8,000 baht	37 (20.7)	46 (19.8)	83 (20.1)
≥ 8,001 baht	11 (6.1)	12 (5.2)	23 (5.6)
Min-max	3,500-11,260	3,500-11,490	3,500-11,490
Median	6,240	5,640	5,700

4.2 Availability and access to oral health facilities

Availability and accesses to oral health service for the respondents focused on two main parts. The first was about oral health service and facilities in terms of availability and accesses to the service, the other was about accesses to information. The results presented sources of information in details as well.

Availability and access to oral health service

As shown in Table 8, the nearest distance from house of respondents to service setting was 0.1 km. and the furthest was 35.0 km. Those who utilized the service seemed to live closer to the service setting.

Concerning mode of traveling to the service setting, more than 90% of the clients responded that they could go for oral health service utilization by their own vehicles, and the most convenient time for them to go for the service was on holidays.

Regarding the period of time under Social Security Scheme, their registered periods ranged from 1 to156 months, the mean time of the 'utilized' was marginally longer than that of the 'not utilized', 54.5 months and 49.0 months respectively.

Table 8 Number and percentage of the respondents classified by accessibility and availability to oral health services

Accessibility and availability to service	**utilize n (%)**	**not utilize n (%)**	**total n (%)**
Distance from house to service	**(n=172)**	**(n=235)**	**(n=409)**
≤ 5.0 km.	122 (70.9)	154 (65.5)	277 (67.7)
5.1-9.9 km.	19 (11.0)	23 (9.8)	42 (10.3)
≥ 10.0 km.	31 (18.0)	58 (24.7)	90 (22.0)
Min-max	0.1-35	0.1-30	0.1-35
Mean ± SD	5.23 ± 6.36	6.13 ± 6.26	5.77 ± 6.32
Transportation to service	**(n=181)**	**(n=239)**	**(n=421)**
Walking	7 (3.9)	9 (3.8)	16 (3.8)
Own vehicle	170 (93.9)	227 (95.0)	398 (94.5)
Public transportation	4 (2.2)	3 (1.3)	7 (1.7)
Convenient time to service	**(n=182)**	**(n=237)**	**(n=420)**
Official time	30 (16.5)	26 (11.0)	56 (13.3)
Off-official time and holidays	120 (65.9)	171 (72.2)	292 (69.5)
All times	32 (17.6)	40 (16.9)	72 (17.1)
Period of time under SSS	**(n=144)**	**(n=181)**	**(n=327)**
Less than 12 months	26 (18.1)	46 (25.4)	72 (22.0)
12 months	6 (4.2)	5 (2.8)	11 (3.4)
More than 12 months	112 (77.8)	130 (71.8)	244 (74.6)
Min-max	1-156	1-156	1-156
Mean ± SD	54.5 ±44.6	49.0 ± 42.9	53.6 ±45.9

Accessibility to service information

Table 9 shows number and percentage of accesses to information composed of oral health information and information about oral health benefit under Social Security Scheme. For oral health information, the clients mainly used to receive the information (78.0 and 66.1%) where the most popular sources of information were printed materials and television. In accordance with information about oral health benefit under Social Security Scheme, around 70% of the clients who utilized the service accustomed to the information, whereas only 43.4% of the other group did. Each of the Social Security Office and printed materials was accepted as main source of information.

Table 9 Number and percentage of respondents classified by accessibility to oral health and information from the Social Security Scheme

Accessibility to information	utilize n (%)	not utilize n (%)	total n (%)
Received oral health information	**(n=182)**	**(n=242)**	**(n=425)**
Yes	142 (78.0)	160 (66.1)	303 (71.3)
No	40 (22.0)	82 (33.9)	122 (28.7)
***Source of oral health information**	**(n=140)**	**(n=158)**	**(n=299)**
Dental health personnel	82 (58.6)	60 (38.0)	143 (47.8)
Printed materials	107 (76.4)	131 (82.9)	239 (79.9)
Radio	90 (64.3)	97 (61.4)	188 (62.9)
Television	105 (75.0)	129 (81.6)	235 (78.6)
Other person	8 (5.7)	7 (4.4)	15 (5.0)
Received SSS information	**(n=183)**	**(n=242)**	**(n=427)**
Yes	126 (68.9)	105 (43.4)	233 (54.6)
No	57 (31.1)	137 (56.6)	194 (45.4)
***Source of SSS information**	**(n=127)**	**(n=103)**	**(n=231)**
Dental health personnel	59 (46.5)	37 (35.9)	97 (42.0)
SSS office	80 (63.0)	72 (69.9)	153 (66.2)
Printed materials	79 (62.2)	73 (70.9)	153 (66.2)
Radio	62 (48.8)	58 (56.3)	121 (52.4)
Television	67 (52.8)	63 (61.2)	130 (56.3)
Other person	8 (6.3)	5 (4.9)	13 (5.6)

* The respondent could respond more than one answer.

4.3 Knowledge, attitude and perception on oral health issues

Considering predisposing factors which influenced clients' oral health service utilization; knowledge, attitude and perception were determined in this study. The domain of knowledge was all about utilization of oral health benefits for clients under the SSS. Attitude towards dental service was determined. In view of perception on oral health problems, the perceived susceptibility and severity were inquired along with perceived benefit of prevention and treatment.

Knowledge about oral health benefit under Social Security Scheme

For knowledge of clients under Social Security Scheme towards oral health benefit utilization, the data was collected using 9 questions, with the answer 'yes' and 'no' for the clients to respond. The correct answers were scored as 1, while the wrong answers were scored as 0. Overall knowledge score was 9. It was found that the score ranged from 1 to 9 with average knowledge score of 6.6 (SD=1.6) among the service users and 6.15 (SD=1.7) for the other. When categorized into 3 levels, as in Table 10, most of respondents (46.9%) got moderate score. Compared between the two groups, amount of the service users were more at the level of moderate and high score, whereas percent of those who got low score was higher in the group of 'non utilized'.

Table 10 Number and percentage of respondents for overall score of predisposing factors and oral health service utilization

Predisposing factors	**utilize n (%)**	**not utilize n (%)**	**total n (%)**
Knowledge towards oral health benefit	**(n=182)**	**(n=240)**	**(n=424)**
Median (25^{th}, 75^{th} percentile) = 7 (5, 8)			
Low level (score < 6)	38 (20.9)	74 (30.8)	112(26.0)
Moderate level (score 6-7)	90 (49.5)	107 (44.6)	199(46.9)
High level (score > 7)	54 (29.7)	59 (24.6)	113 (26.7)
Min-max	1-9	1-9	1-9
Mean ± SD	6.6 ± 1.6	6.15 ± 1.7	6.35 ± 1.7

Table 10 Number and percentage of respondents for overall score of predisposing factors and oral health service utilization (cont.)

Predisposing factors	**utilize n (%)**	**not utilize n (%)**	**total n (%)**
Attitude towards oral health service	**(n=183)**	**(n=246)**	**(n=431)**
Median (25^{th}, 75^{th} percentile) = 45 (41, 48)			
Unfavorable (score < 42)	55 (30.1)	58 (23.6)	113 (26.2)
Moderate (score 42-47)	87 (47.5)	117 (47.6)	205 (47.6)
Favorable (score > 47)	41 (22.4)	71 (28.9)	113 (26.2)
Min-max	23-57	31-60	23-60
Mean ± SD	43.7 ± 5.4	44.7 ± 4.8	44.3 ± 5.1
Perception on oral health problems	**(n=183)**	**(n=246)**	**(n=431)**
Median (25^{th}, 75^{th} percentile) = 50 (47, 53)			
Low level (score < 48)	52 (28.4)	73 (29.7)	126 (29.2)
Moderate level (score 48-52)	78 (42.6)	99 (40.2)	177 (41.1)
High level (score > 52)	53 (29.0)	74 (30.1)	128 (29.7)
Min-max	33-64	39-63	33-64
Mean ± SD	50.1 ± 4.9	50.2 ± 4.9	50.2 ± 4.9

In accordance with each item about knowledge presented in Table 11, there were 7 out of 9 items that majority of the clients in each group replied correctly. It was found that percentage of those who gave correct answers in these 7 items was higher in the 'utilized' group. The two items that clients responded lower in correct answer were about the right to use oral health benefit after registration and the free choice for them to utilize oral health benefit both in government and private hospital.

Table 11 Number and percentage of the respondents' correct answer on each item of knowledge about SSS-oral health benefit by oral health service utilization

Knowledge towards oral health benefit under Social Security Scheme	**n(%) of correct answer**	
	Utilized (n=178)	**Not utilized (n=240)**
Right to use oral health benefit is immediately eligible after registration. (no = correct)	47 (26.4)	67 (27.9)
3 types of treatment are available for oral health benefit: extraction, filling and scaling. (yes = correct)	153 (86.0)	189 (79.1)
The client can utilize oral health services both in government and private hospital. (yes = correct)	86 (49.4)	103 (44.0)
Maximum rate of reimbursement is 200 Bht./visit, no more than 2 visits and 400 Bht./year. (yes = correct)	155 (86.1)	182 (77.1)
The client's child and spouse may utilize this benefit in case of the client's doesn't need to use. (no = correct)	152 (85.9)	193 (82.1)
The client has to pay advance for dental service cost before reimbursement. (yes = correct)	165 (91.2)	186 (78.8)
The right to use oral health benefit is unique (or specific) for each of clients. (yes = correct)	160 (88.4)	200 (84.4)
If the client has more payment than 400 baht, he or she may reimburse for the excess in following year. (no = correct)	141 (80.6)	177 (76.0)
The client has to reimburse for payment within one year after utilize dental service, or the right to reimburse for that case will be expired. (yes = correct)	143 (81.3)	179 (77.2)

Attitudes toward oral health services

In this part, there were 13 statements to investigate attitude of clients towards oral health services, in both positive and negative facets. The respondents had five answers for their choices; strongly agree, agree, uncertain, disagree and strongly disagree. For the positive statements, the answer was scored as 5 for strongly agree, 4 for agree, 3 for not decided, 2 for disagree and 1 for strongly disagree, the answer of negative statements were scored conversely. Total attitude score was 65. Regarding score of attitude towards oral health service shown in Table 10, the majority of clients had fair level of attitude. The respondents who utilized oral health service during last year had mean attitude score of 43.7 (SD=5.4), while those who did not utilize the service got 44.7 (SD=4.8).

The results of attitude score analyzed by item are demonstrated in Table 12. The statements with score 4 and 5 were interpreted into the respondents' agreement for positive facets, whereas the same scores meant that they disagree with the negatives. The results were found to be, mostly, the clients accepted that dentist was knowledgeable and could help them for oral health problems (90.6%), clients felt comfortable to talk to dentist about their problems (51.4%), dental health personnel were willing to provide good service equally (61.0%), and they could be sure of cleanliness of dental clinics (59.2%). Additionally, majority of the clients approved that dental treatments were not so fearful (49.1%), it was the best way to visit dentist when they had oral health problem (86.6%), dentists were eager to answer question even when they were not patients (67.9%), they did not feel nervous with dental treatment considering about safety and up-to-date equipments (64.9%), and they were willing to follow dentists' guidance for oral health care (92.6%). However, one-third of clients were still not sure about equality of services and hygiene of dental clinics.

On the other hand, more than half of the clients thought that dentists were more likely to do treatment than communicate with patients (62.1%) and dental services were costly (55.2%). Still there was one-third who could not identify their opinions for cost of service, and nearly half of them hesitated when being asked about equality of service between government and private hospital (47.6%).

Table 12 Percentage distribution of the respondents' answer of attitude towards oral health service by item analysis

Items of attitude (n=426)	Percentage of respondents in each level of attitude					mean	
	5	4	3	2	1	utilize	not utilize
Dentist is knowledgeable and able to solve oral health problems.	41.0	49.6	7.7	1.2	0.5	4.16	4.39
Dentist prefers to do treatments than communicate with patients.	12.3	49.8	27.6	9.9	0.5	2.36	2.36
Dentist and assistant are willing to provide service to patients equally.	19.1	41.9	33.2	4.5	1.4	3.76	3.70
Dentists are eager to answer your question even you are not patient.	19.8	48.1	27.8	3.1	1.2	3.76	3.86
You are sure of cleanliness in dental clinics	14.4	44.8	36.6	2.6	1.7	3.55	3.77
The dental services are always costly in your opinion.	16.1	39.1	34.1	9.7	0.7	2.43	2.38
Quality of service in government and private hospital are equal.	7.1	20.5	47.6	18.2	6.6	3.02	3.04
You do not feel nervous if you need to go for dental service due to safety and up-to-date equipments.	16.9	48.0	29.9	3.1	2.1	3.72	3.76
Visiting dentist is the best way when you have oral health problems.	37.1	49.5	9.8	3.1	0.5	4.10	4.27
You are willing to follow dentists' guidance for oral health care.	31.8	60.8	6.4	0.7	0.2	4.16	4.29
You do not dare enough to tell dentist about your OH-problem	4.0	21.9	22.8	39.0	12.4	3.39	3.29
You feel that to visit dentist is for severe OH-problems only.	15.1	41.7	12.7	25.5	5.0	2.65	2.62
Dental treatment is frightful thing for you.	6.7	24.4	20.1	38.5	0.3	3.19	3.22

Perception on oral health problems

The perception on susceptibility and severity of oral health problems were explored, as well as benefits of prevention and treatment. Total perception score was 65. For overall respondents' perception, the minimum and maximum score were 33 and 64 respectively, the average score was 50.2 (SD=4.9). The result reports the majority of respondents (41.1%) was fallen into moderate level score of perception on health problem.

Considering by item of perception, percentage distribution of respondents are as shown in Table 13. Percent of respondents was higher than 75% in perception by each item. However, there were 3 statements resulted differently. Only 18.1% had proper perception for they disagreed with 'oral diseases occurred naturally with regard to aging' , whereas most of them was uncertain about the statement 'molar loss is worse than loss of front tooth' (58.3%) and 'chronic oral health problems can induce other health problems' (57.7%).

Table 13 Percentage distribution of the respondents' answer of perception on oral health problems by item analysis

Perception on oral health problems (n=426)	**Percentage of respondents in each level of perception**					**mean**	
	5	**4**	**3**	**2**	**1**	**utilize**	**not utilize**
Oral diseases occur naturally with regard to aging.	11.6	37.5	32.8	16.7	1.4	2.63	2.55
Using hard toothbrush may make the gum hurt and recessed.	20.4	64.3	13.8	1.4	0.0	3.97	4.08
Using teeth in malfunction can damage your teeth.	35.8	55.2	7.3	1.4	0.2	4.20	4.28
Drinking soft drink frequently may cause tooth decay and corrosion.	23.3	52.5	23.1	1.2	0.0	3.99	3.97
Having sweet foods increases risk of dental caries.	24.6	56.1	17.4	1.9	0.0	4.07	4.01

Table 13 Percentage distribution of the respondents' answer of perception on oral health problems by item analysis (cont.)

Perception on oral health problems (n=426)	Percentage of respondents in each level of perception					mean	
	5	4	3	2	1	utilize	not utilize
Gingivitis may get worse with calculus	25.4	53.1	20.2	1.4	0.0	4.06	4.00
Molar loss is worse than loss of front tooth	10.1	27.8	58.3	3.5	0.2	3.44	3.45
A small cavity of dental caries may lead to tooth loss by ignorance.	27.8	59.5	12.2	0.2	0.2	4.11	4.16
Chronic oral health problems can induce other health problems.	8.5	28.4	57.7	4.5	0.9	3.41	3.38
*Tooth filling can help prolong tooth loss from dental caries.	22.2	60.0	16.5	1.2	0.0	4.07	4.01
*Using toothpaste with fluoride can help prevent dental caries.	20.9	59.1	19.5	0.5	0.0	3.96	4.04
*Brushing teeth 3 times after meal is the best to keep your teeth clean.	33.3	55.6	10.8	0.2	0.0	4.17	4.26
*Regular oral health check up twice a year is necessary.	27.7	59.6	12.3	0.5	0.0	4.15	4.14

* 4 items for perception on treatment and prevention;
total score = 20, mean = 16.34, SD = 2.03, min = 7, max = 20

4.4 Oral health problems and seeking behaviors for oral health care

Existence of oral health problem in 2004

Table 14 presents data reported by respondents on their own detection for oral health problems existing in 2004. Majority of clients (80.1%) responded as they had at least one problem related to oral health. Among these, 'having calculus' was the most common problem (86.3%), while the second and the third were 'halitosis'

(58.6%) and 'tooth sensitivity' (56.9%) respectively. almost all of the respondents (98.5%) recognized their oral health problems by self evaluation. About 42.4% was informed by dentist and 32.0% by other persons.

Table 14 Number and percentage of respondents classified by existing oral health problems and oral health service utilization

Oral health status in 2004	**utilize n (%)**	**not utilize n (%)**	**total n (%)**
Oral health problem	**(n=181)**	**(n=245)**	**(n=428)**
Yes	169 (93.4)	172 (70.2)	343 (80.1)
No	12 (6.6)	73 (29.8)	86 (19.9)
***Existing oral health problems**	**(n=169)**	**(n=172)**	**(n=343)**
Toothache	82 (48.5)	72 (41.9)	155 (45.2)
Tooth sensitivity	98 (58.0)	97 (56.4)	195 (56.9)
Tooth mobility	43 (25.4)	29 (16.9)	72 (21.0)
Tooth fracture	45 (26.6)	50 (29.1)	95 (27.7)
Gum bleeding	69 (40.8)	99 (57.6)	170 (49.6)
Gum swelling	77 (45.6)	84 (48.8)	162 (46.2)
Halitosis	96 (56.8)	104 (60.5)	201 (58.6)
Calculus	145 (85.8)	149 (86.6)	296 (86.3)
Problems of occlusion	50 (29.6)	49 (28.5)	100 (29.2)
Problems of esthetics	55 (32.5)	76 (44.2)	131 (38.2)
Accident or injury	18 (10.7)	25 (14.5)	43 (12.5)
Others (gum recession, oral ulceration, food debris)	2 (1.2)	2 (1.2)	4 (1.2)
***Evaluation of oral health problems**	**(n=166)**	**(n=169)**	**(n=337)**
Self evaluation	163 (98.2)	167 (98.8)	332 (98.5)
Informed by other persons	53 (31.9)	55 (32.5)	108 (32.0)
Informed by dentist	98 (59.0)	44 (26.0)	143 (42.4)

* The respondent could respond more than one answer.

Seeking behaviors for oral health care

Once the respondents accepted that they have oral health problems, only 29.8% of them decided to visit dentist firstly, whereas 70.2% decided not to visit. Table 15 presents number and percentage of these seeking behaviors. For not visiting dentist, mainly, the clients bought drugs from drug store in order to solve their problems (40.8%). There was about one-third who tried to do self treatment, the same portion as those who did nothing.

Most of the respondents who preferred not visiting the dentists considered that they could tolerate with the problems or illness, and believed in self-healing (62.9%). Another reason for not to see dentist was due to time constraint (47.3%). About 40% did not visit dentist when having problem because of costly services. However, about three-forth would rather go to see dentists if they could not solve the problem.

Table 15 Number and percentage of respondents classified by seeking for oral health care and oral health service utilization

Seeking behaviors for oral health care	**utilize n (%)**	**not utilize n (%)**	**total n (%)**
First seeking behavior	**(n=168)**	**(n=173)**	**(n=341)**
Visit dentist	68 (40.5)	34 (19.7)	102 (29.8)
Not to visit dentist	100 (59.5)	139 (80.3)	240 (70.2)
***Choices for not go to visit dentist**	**(n=100)**	**(n=139)**	**(n=240)**
Do nothing	36 (39.0)	50 (36.0)	82 (35.8)
Self treatments	34 (34.0)	52 (37.4)	87 (36.3)
Buy own drugs	40 (40.0)	58 (41.7)	98 (40.8)
Folk treatment	1 (1.0)	1 (0.7)	2 (0.8)
***Reasons for not visiting dentist**	**(n=100)**	**(n=136)**	**(n=237)**
Self recover	61 (61.0)	87 (64.0)	149 (62.9)
Busy life	38 (38.0)	74 (54.4)	112 (47.3)
Costly service	41 (41.0)	53 (39.0)	94 (39.7)
Fear of dentist	21 (21.0)	20 (14.7)	41 (17.3)
Better alternatives	14 (14.0)	25 (18.4)	39 (16.5)
Second seeking behavior	**(n=100)**	**(n=137)**	**(n=237)**
Visit dentist	90 (90.0)	90 (65.7)	181 (76.1)
Not to visit dentist	10 (10.0)	47 (34.3)	57 (23.9)

* The respondent could respond more than one answer.

4.5 Oral health service utilization

The patterns of oral health service utilization in this study derived by reviewed experiences of respondents about visiting dentists in the 2004, 1st January to 31st December. The results are presented in terms of experience to visit dentist and numbers of visit, 'utilized' or 'not utilized', and type of service they utilized for the main variables. Service setting they went for utilization, service cost, welfare used as well as reimbursement in case of SSS and reasons for not incomplete reimbursement were explored for further understanding.

Utilization of oral health service in 2004

The patterns of oral health service utilization were reported by respondents' recall experience of the service from 1st Jan to 31st, 2004. This included experience on dental visit, frequency and type of service used.

As shown in table 16, less than half of clients (42.7%) were accustomed to dental service over the last year. Among those who visited dental health personnel, about 62% had visited dental health personnel at least once.

Type of oral health service utilized by clients

About 56% of respondents visited dental clinic for calculus removal, almost 38% came for tooth extraction and 29% had tooth filling. These are services available in SSS oral health benefit package. In addition, 45% come to clinic for oral health check up. For data of service setting utilized in 2004, more than three-fourth of respondents (76.9%) went to Srisangwan Hospital for oral health service.

Table 16 Number and percentage of the respondents classified by oral health service utilization in 2004

Oral health service utilization in 2004	Number	Percentage
Experience of service utilization	**(n=429)**	
Yes	183	42.7
No	246	57.3
Number of dental service visit	**(n=183)**	
One time	113	61.7
Two times	52	28.4
Three times	14	7.7
Five times	4	2.2
***Type of service utilization**	**(n=178)**	
Oral check up	80	45.2
Drug prescription	25	14.1
Tooth extraction	67	37.9
Tooth filling	52	29.4
Scaling	99	55.9
Root canal treatment	10	5.6
Orthodontic treatment	2	1.1
Prosthetic treatment	4	2.3
***Service setting utilization**	**(n=183)**	
Srisangwan Hospital	140	76.9
Provincial Public Health Office	11	6.0
Private clinic	23	12.6
Health center	8	4.4
Mobile clinic	4	2.2
Other hospitals	12	6.6

* The respondent could respond more than one answer.

Expenditure for service, welfare and reimbursement

Table 17 describes patterns of payment methods among clients. Half of them expended for dental service at the cost of no more than 400 baht during last year (2004). Expenditure for service ranged from 0 to 4,500 Baht, with the average of 464.21 Baht (SD=661.42 Baht).

For welfare utilization, the Social Security Scheme was the priority for clients who had experience of oral health services (63.8%). The second payment method was self expenditure (17.5%), and the third was the Universal Coverage (10.7%).

Focused on the group of clients who utilized oral health benefit package of the Social Security Scheme, most of them had one time of reimbursement rate (66.7%), the rest had two times (20.7%) and none of reimbursement (12.6%). When classified by full amount of reimbursements, slightly more than two-third reimbursed completely (rate of reimbursement : dental service utilization = 1:1), while one-third did not or refund only one per two or more times of service utilization. Complexity of reimbursement and utilization of uncovered dental services were both usually found as reasons for not to reimburse (32.0%). The others were loss of document and being busy which were at the same rate (20.0%). A few of them (16.0%) replied as they did not recognize to use the benefit.

Table 17 Number and percentage of the respondents classified by welfare utilization, expenditure for service and reimbursement for Social Security Scheme

Variables	Number	Percentage
Expenditure for service in 2004	**(n=159)**	
No payment	35	22.0
≤ 400 baht	80	50.3
≥ 401 baht	44	27.7
(median=250, min=0, max=4,500)		
***Welfare utilization**	**(n=177)**	
SSS	116	65.5
Universal Coverage	19	10.7
CSMBS	11	6.2
Private insurance	5	2.8
Self expenditure	31	17.5
Free service campaign	12	6.8
Reimbursement rate for SSS in 2004	**(n=111)**	
No reimbursement	14	12.6
One time	74	66.7
Two times	23	20.7
Characteristics of reimbursement	**(n=111)**	
Complete reimbursement	78	70.3
Incomplete reimbursement	33	29.7
***Reasons for incomplete reimbursement**	**(n=25)**	
Document lost	5	20.0
Busy	5	20.0
Complexity	8	32.0
Uncovered list	8	32.0
Not recognize	4	16.0

* The respondent could respond more than one answer.

4.6 Association between oral health service utilization and its related factors

According to objectives of the study, the relationship between oral health service utilization and its associating factors were determined using statistical analysis as mentioned in the introductory. The findings were presented by groups of variables which related to demographic and socio-economic characteristics, availability and accesses to oral health service, accesses to information, knowledge towards oral health benefit package, attitude towards dental service, perception on oral health problems, existence of oral health problems, and seeking behaviors for oral care, correspondingly.

Demographic characteristics and oral health service utilization

Regarding the results in Table 18 and 19 (for age), there were no statistically significant relationship found between oral health service utilization and demographic characteristics of respondents except, gender. It was the women who were likely to visit dentist during last year more than men (female = 60.7%, male = 39.3%). Oppositely, men replied as they did not utilize with higher rate of 58.6%. The relationship between gender and oral health service utilization was found statistically significant; Pearson Chi-square = 15.52, $p < .001$. There was no statistical significance for others demographic variables.

Socio-economic characteristics and oral health service utilization

The result in table 18 shows the higher level of education, the more rate of oral health service utilization. Out of 183 clients who visited dentist, those of university level were the greater part of all (36.1%), however, this was nearly the same rate as compared to the clients with vocational certification (30.1%). For the other 245 who did not use any dental services, the clients of high school and lower were the biggest portion with the rate of 43.7%. These findings was found statistically significant with Pearson Chi-square = 9.92, $p = .019$.

Concerning about their occupational role, the employees who worked in administrative responsibilities which, mostly, related to documentary works had more

visit to service than any other occupations (42.0%). Considering on group of non-utilization, 55% out of 236 clients have their duty on field work and labor basis. Statistical significance was found using Pearson Chi-square = 11.17, with p = .025.

According to work place, the majority of dental service utilization belonged to employees in non-health related office (77.6%). In accordance with their monthly income, the average income between those who went for the service and who did not was assumed not to be different. There were no findings of significance in relationship between characteristics of clients' work place and oral health service utilization, as well as their monthly income.

Table 18 Association between general characteristics of respondents and oral health service utilization in 2004

General characteristics	**utilize n (%)**	**not utilize n (%)**	χ^2	***p*-value**
Gender	**(n=183)**	**(n=244)**	15.52	<.001
Male	72 (39.3)	143 (58.6)		
Female	111 (60.7)	101 (41.4)		
Marital status	**(n=181)**	**(n=242)**	.57	.751
Married	96 (53.0)	122 (50.4)		
Unmarried	85 (47.0)	120 (49.6)		
Educational attainment	**(n=183)**	**(n=245)**	9.92	.019
Primary school	20 (10.9)	36 (14.7)		
High school	42 (23.0)	71 (29.0)		
Vocational certificate	55 (30.1)	83 (33.9)		
University	66 (36.1)	55 (22.4)		
Type of office	**(n=183)**	**(n=246)**	2.55	.110
Health related	41 (22.4)	72 (29.3)		
Non-health related	142 (77.6)	174 (70.7)		
Occupational role	**(n=169)**	**(n=236)**	11.17	.025
Administrative	71 (42.0)	70 (29.7)		
Technical	29 (17.2)	33 (14.0)		
Laboratory	3 (1.8)	3 (1.3)		
Field work	18 (10.7)	44 (18.6)		
Labor basis	48 (28.4)	86 (36.4)		

Predisposing factors and oral health service utilization

As presented in Table 19, there are the results analyzed by using independent sample *t*-test to evaluate mean difference of these predisposing factors; knowledge, attitude and perception on oral health issues among the employees who visited dentist during last year and who did not.

For knowledge towards SSS-oral health benefits, the clients who went for dental service seemed to have higher mean score of knowledge (6.60) than those who did not visit dentist (6.15). It was found that the mean score of knowledge between the two groups was different with statistical significance, *p*-value = .005. Regarding each of knowledge item, the knowledge about maximum rate of reimbursement and advance payment were found significantly associated with oral health service utilization; Pearson Chi-square / *p*-value were equal to 5.37 / 0.21 and 11.72 / .001 respectively.

On dimension of attitude towards dental service, the respondents who did not see dentist last year were likely to have higher mean score of attitude (44.72) than the service users did (43.67). This finding was significant with *t*-value = -2.796 and *p*-value = .036. By item analysis, there were found significant in difference of mean score the same way as total score for 4 statements about ‘dentist was knowledgeable’, cleanliness of clinic’, ‘visit dentist is the best way to solve problem’ and ‘willing to follow dentists’ guidance’. (See Table 18)

Perception on oral health problem was the only one of predisposing factors that did not show statistically significant association with oral health service utilization, even though analysis on domain of perceived treatment and benefit (See Table 18)

Table 19 Comparison of mean differences between groups of variables classified by oral health service utilization in 2004 **(**independent sample t-test)

Factors	**mean**		***t*-value**	***p*-value**
	utilize	**non-utilize**		
Age (years)	30.8	30.7	-.189	.850
Period of time under SSS (months)	54.5	47.0	-1.116	.265
Distance from house to service	5.23	6.13	1.424	.155
Knowledge towards SSS-oral health benefit	**6.60**	**6.15**	**-2.796**	**.005**
Maximum rate of reimbursement is 200 Bht./visit, 400 Bht./year.	86.1%	77.1%	$\chi^2 = 5.37$	.021*
The client has to pay advance for dental service cost before reimburse.	91.1%	78.8%	$\chi^2 = 11.72$	.001*
Attitude towards oral health service	**43.67**	**44.72**	**2.102**	**.036**
Dentist is knowledgeable and able to solve oral health problem.	4.16	4.39	3.211	.001
You are sure of cleanliness in dental clinic.	3.55	3.77	2.806	.005
Visiting dentist is the best way when you have oral health problems.	4.01	4.27	2.225	.027
You are willing to follow dentists' guidance for oral health care.	4.16	4.29	2.248	.025
Perception on oral health problems	**50.08**	**50.22**	**.288**	**.773**
perceived benefit of treatment and prevention	16.27	16.39	.623	.533

*Chi-square test

Availability and access to service related to oral health service utilization

The percentage distribution as given in table 20 is about access to service in related to oral health service utilization. Nearly the same proportion of clients in municipal and non-municipal area was found among those who visited dentist and who did not. The results show that the respondents living out of municipality have slightly higher rate of dental service utilization. However, when compared between distances from their houses to service setting, it was found that there was no statistically significant difference in distance from house to service between the groups of utilized and not utilized oral health service (see Table 19).

In concern about the easiest way to go for dental services, almost all of clients had their own vehicles in both utilized- and non-utilized groups. Among those who visited dentist, 65.9% of them made 'holidays' and 'off-official time' as a choice for the most convenient time to dental service.

There seemed to be no difference among various periods of times under the Social Security Scheme in related to rate of oral health service utilization (see Table 19). It could be concluded that none of the factors mentioned above had significant relationship with oral health service utilization.

Access to information and oral health service utilization

The relationship between access to information and oral health service utilization is presented in table 20. Among 182 who utilized dental service, more than three-forth of them were accustomed to oral health information. This proportion was lower among the clients who did not go for dental service. In addition, it was found that 58.6% of clients who went for the services, used to be informed about oral health by dental health personnel.

There were statistical significances in relationship between accesses to oral health information and oral health service utilization. For received oral health information; Pearson Chi-square = 7.18, $p = .007$ and for received information from dental health personnel; Pearson Chi-square = 12.62, $p < .001$.

In related to information about oral health benefit package under the Social Security Scheme, nearly seventy percent of clients who used to visit dentist got familiar with this kind of information (68.9%). This relationship was significant as Pearson Chi-square = 27.23, $p < .001$.

Table 20 Association between enabling factors and oral health service utilization

Enabling factors	**utilize n (%)**	**not utilize n (%)**	χ^2	***p*-value**
Convenient time to service	**(n=182)**	**(n=241)**	2.94	.229
Official time	30 (16.5)	26 (11.0)		
Off-official time and holidays	120 (65.9)	171 (72.2)		
All times	32 (17.6)	40 (16.9)		
Residential location	**(n=174)**	**(n=238)**	.69	.406
Municipality	81 (46.6)	101 (42.4)		
Non-municipality	93 (53.4)	137 (57.6)		
Received oral health information	**(n=182)**	**(n=242)**	7.18	.007
Yes	142 (78.0)	160 (66.1)		
No	40 (22.0)	82 (33.9)		
Source of oral health information:				
Dental health personnel	**(n=140)**	**(n=158)**	12.62	<.001
Yes	82 (58.6)	60 (38.0)		
No	58 (41.4)	98 (62.0)		
Received SSS information	**(n=183)**	**(n=242)**	27.23	<.001
Yes	126 (68.9)	105 (43.4)		
No	57 (31.1)	137 (56.6)		

Existence of oral health problems and oral health service utilization

As presented in table 21 is percentage distribution of oral health status approved by the respondents in relationship with oral health service utilization. Among 181 cases with the service utilization, almost all of them reported at least one of oral health problems. The relatively high percentage of these 'felt problems' was also found in the group without utilization (70.2%). This was statistically significant with Pearson Chi-square = 34.98, $p < .001$.

With regards to detection of their oral health problem, it is found that the clients who used to be informed by dentist had a greater part (59.0%) among the respondents who visited dentist. There is also a statistically significant association between being informed about oral health problem by dentist and oral health service visit; with Pearson Chi-square = 37.35, $p < .001$.

Seeking behavior for oral health care and oral health service utilization

The result in Table 21 also presents number and percentage of relationship between respondents' seeking behavior for oral health care and dental service utilization. Out of 168 cases of service utilization, less than half chose to visit dentist first when they revealed oral health problems. For the other group, pretty high rate (80.3%) was found that they did not want to see dentist for the first time of oral health problems. This association had statistical significance as Pearson Chi-square= 17.63, $p <.001$.

For those who preferred not to visit dentist at the first occurrence of the problems, their reason which was found significantly associated with dental visit was that they were too busy, reflecting on a greater portion (54.4%) of them, who did not go for dental services, gave this reason. The relationship was found statistically significant with Pearson Chi-square = 6.23, $p =.009$.

Asking about second priority to cope with oral health problems for those who rejected visiting dentist first, almost all accepted to visit dentist, with 90% rate of utilization among them. However, there was one-third who kept saying 'no' and still

did not utilize the services. This relationship is also found to be statistically significant with Pearson Chi-square = 18.70, p <.001.

Table 21 Association between factors related to clients' felt need and oral health service utilization in 2004

Factors related to Clients' felt need	**utilize n (%)**	**not utilize n (%)**	χ^2	***p*-value**
OH-problem	**(n=181)**	**(n=245)**	34.98	<.001
Yes	169 (93.4)	172 (70.2)		
No	12 (6.6)	73 (29.8)		
Evaluation of OH-problem: informed by dentist	**(n=166)**	**(n=169)**	37.35	<.001
Yes	98 (59.0)	44 (26.0)		
No	68 (41.0)	125 (74.0)		
Visit dentist at first choice	**(n=168)**	**(n=173)**	17.63	<.001
Yes	68 (40.5)	34 (19.7)		
No	100 (59.5)	139 (80.3)		
Reason for not visiting dentist:				
Time constraint	**(n=100)**	**(n=136)**	6.23	.009
Yes	38 (38.0)	74 (54.4)		
No	62 (62.0)	62 (45.6)		
Second seeking behavior	**(n=100)**	**(n=137)**	18.70	<.001
Visit dentist	90 (90.0)	90 (65.7)		
Not to visit dentist	10 (10.0)	47 (34.3)		

4.7 Factors influencing pattern of oral health service utilization

The factors influencing pattern of oral health service utilization among the government employees under the Social Security Scheme could be analyzed by using logistic regression model. Dependent variable was oral health service utilization (utilized/not utilized) and the other variables were explanatory variables, which could be categorized. The independent variables for this analysis were selected from those which found to be statistically significant in association with the service utilization.

Presented in Table 22 is the results derived from multiple logistic regression analysis, it was found that after controlling for other variables, the variables that remained statistically significant associations with the oral health service utilization were; informed oral health problem by dentist, received oral health information from dentist and received SSS-information.

The data in Table 22 shown that there were statistically significant associations between oral health service utilization and these three factors; informed oral health problem by dentist (p-value < .001), received oral health information from dentist (p-value = .035) and received SSS-information (p-value = .008).

The adjusted odds ratio of oral health problem informed by dentist was 4.189 (95% CI : 2.14-8.19). These indicated that if the clients were informed about their oral health problems by dentist, rate of service utilization would be about 4 times increased. Likewise, rate of the service utilization could be 2 times higher by the oral health information provided by dentist and about 2.5 times increased by received SSS-information, with adjusted odds ratio 2.026 (95% : 1.05-3.91) and 2.647 (95% : 1.29-5.42) respectively.

As for gender among clients, although there was no significant association with oral health service utilization as resulted from logistic regression analysis, it was found that women were more likely to utilize the service about 2 times more than men (95% CI : 0.936-4.122).

Table 22 Multiple Logistic Regression Analysis for associated factors with oral health service utilization

Factors	β	adjusted OR	95%CI	*p*-value
Gender (female)	.690	1.993	.963-4.122	.063
Educational attainment				.773
Primary school	-.636	.530	.102-2.745	.449
High school	-.009	.991	.270-3.633	.989
Vocational certificate	.066	1.068	.481-2.373	.871
University		1.000		
Occupational role				.491
Administrative	.128	1.136	.317-4.072	.845
Technical	.875	2.398	.570-10.093	.233
Laboratory	-.227	.797	.084-7.521	.843
Field work	-.236	.714	.223-2.792	.714
Labor basis		1.000		
OH-problem informed by dentist (yes)	1.432	4.189	2.143-8.186	**<.001**
OH-information provided by dentist (yes)	.706	2.026	1.050-3.910	**.035**
Received SSS-information (yes)	.973	2.647	1.292-5.422	**.008**
Knowledge towards benefit				.942
Low	.166	1.180	.443-3.146	.740
Moderate	.049	1.050	.482-2.286	.902
High		1.000		
Attitude towards dental service				.406
Unfavorable	.553	1.738	.688-4.390	.242
Fair	.040	1.041	.484-2.239	.919
Favorable		1.000		
Perception on OH-problem	.031	1.032	.657-1.620	.892
Constant	-2.829			**.012**

-2 Log Likelihood = 250.293
Chi-square for Goodness-of-fit test = 54.769, df = 16, *p*-value < .001

4.8 Opinions from respondents

In this study, there was the fifth part of questionnaire that was open-end question asking about the clients' opinion and recommendation in aspect of the Social Security Scheme. 174 out of 431 respondents gave their points of view to this part which could be concluded as following and presented in number and percent distribution as in Table 23.

Most of the clients focused on the limitation of oral health benefit under the Social Security Scheme. According to the fact that this benefit offers them twice a year for visiting dentist and there are three dental treatments for them to utilize. The clients have to pay fee for service first, and then they can reimburse with the rate of no more than 200 baht per visit or 400 baht per year. The Social Security Office offered the oral health benefit as a profit for the clients, but for the clients, they had different ideas.

Generally, the clients who replied in this part expressed that the benefit was not appropriate to current situation. Since the fee for dental service, nowadays, was pretty high, even in the governmental hospitals, sometimes they had to pay for the excessive service cost that they were not satisfied with. Some of the respondents suggested that excessive payment should be able to refund totally for anyone who really suffered from oral health problems. For this point, some of them frustrated about high annual deduction from their salary compared with the limited oral health benefit they derived. There were requirements for more rate of dental service cost raised from some clients which were different in number, ranged from 600-1,000 baht per year to un-limit. Still, one of the clients gave an idea of reducing dental service cost.

Moderately, these employees asked for more types of service, whereas some needed more visits. The most wanted dental service was prosthetic treatment (denture) and the second was orthodontics. Both of these were well known as costly services that could be an explanation for their request. However, in some opinions, they

compared their oral health benefit to those under the Universal Coverage Scheme who had more benefits especially, free for denture.

Requirements for more benefit were something that could be expected to obtain from this opened question. But, there were some more interesting ideas and recommendations about the procedure of reimbursement given in this part.

More than fifty of the employees disagreed with advance payment that they had to spend first and reimbursed later, only for the oral health service utilization. Almost all of these employees wanted the oral health benefit to be processed in the same way as other illnesses. There were two main reasons for this opinion. The first was that they were unsatisfied with complexity in the process of reimbursement (have to prepare documents, delay, etc.). The other was wasted working time, since they had to go for refund in official time and, in their opinion, only 200 baht per time was not worth for that. In conclusion, they recommended that to reduce this advance payment system could motivate clients to utilize dental service.

Another interesting point was their views about the received information, especially from the office of SSS. More than 35 of these employees gave attention to the information in detail of the benefit utilization. Regarding to their needs for massages, to provide the information clearly and consistently from the SSS office was necessary for them to reduce the complexity of the process and to make fully use from their benefit.

Mainly, it seemed to be the SSS office that the clients gave their recommendation for. However, there were some opinions focused on the part of dental health service providers. In case of available time for service, some of them needed off-official time or holidays to be available for them to utilize the service. Some asked for going to private clinic. In fact, the clients should know that there was special dental clinic available at the Srisangwan Hospital and they could choose to utilize dental service in private clinic. This might be an example for lack of information as well. A few of the respondents requested for better service from dental

health personnel. Other findings found in this part were somewhat about asking for family members to replace the benefit and ideas about paying back 400 baht in case of the client did not utilize oral health benefit in that year, as well as deposit of benefit to use in the following years.

Finally, it was found that though there were different in the clients' opinion and recommendation, one thing they expressed similarly was that the oral health benefit should be improved more or less to correspond with needs of clients and changes in current situation.

Table 23 Number and percentage of respondents by items of opinion towards oral health benefit provided by the Social Security Scheme

Items of opinion (n = 174)	**number**	**percentage**
Opinion towards SSS		
a. About oral health benefit package		
- The benefit was not appropriate to current situation	29	16.7
- Needed more oral health benefits	51	29.3
- Excessive payment should be able to reimburse totally according to the exact service cost	23	13.2
b. About process of reimbursement		
- Disagreed with advance payment system	56	32.2
- Oral health benefit should be processed in the same way as other illnesses	33	18.9
- Unsatisfied with the difficulties in process of reimbursement	9	5.2
- Didn't want to loss their working time due to reimbursement of dental service cost	11	6.3
- To reduce difficulties in process of reimbursement or abandon advance payment might motivate the clients to utilize oral health service	7	4.0

Table 23 Number and percentage of respondents by items of opinion in oral health benefit provided by the Social Security Scheme. (cont.)

Items of opinion (n = 174)	number	percentage
c. About information from SSS		
- The SSO should provide information clearly in details and consistently	34	19.5
d. Other recommendations		
- Replacement by family member to use benefit	4	2.3
- Non-utilized benefit should be able to deposit for next year	2	1.1
Opinion towards dental service providers		
e. Availability to service		
- Wanted to utilize dental service on holidays or in off-official time.	6	3.4
f. Accesses to service		
- Wanted to utilize dental service in private clinic.	4	2.3
g. Quality of service		
- Needed better service from dental health personnel	2	1.1
- Unsatisfied with received dental service	6	3.4
h. Others		
- Dental service cost should be reduced	1	0.6

CHAPTER 5
DISCUSSION

The characteristics of oral health service utilization among government employees under the Social Security Scheme in Maehongson Province, Thailand and its related factors were examined. There will be a discussion about expected relationship between oral health service utilization and those factors. Finally, the limitation of the study will also be discussed.

5.1 Oral health service utilization among government employees under SSS

In terms of experience in oral health service utilization, it was found that less than half of the employees who participated in this study (42.7%) made use of dental services during last year. However, this was a much higher rate compared to the data derived from annual report of Srisangwan Hospital, Maehongson [12] where the rate of patients who utilized dental service, with welfare of the Social Security Scheme, in overall province was 15.7% in fiscal year 2004. This was the report from the service provider only. Since the data about experience in oral health service utilization was collected directly from the employees who could utilized the service in any service setting, both government and private sectors. Moreover, they could utilize other health welfare systems in reality, so there was the higher rate of the service utilization in this study.

Considering on numbers of dental visit, generally, the service users came only one time (61.7%) and showed less proportion in case of more visits. This finding is corresponding to the results in previous studies [1, 26]. Focusing on types of services, the first three dental services which the respondent utilized frequently were scaling, tooth extraction and tooth filling. It was observed that these were defined as basic treatments in oral health benefit package for the clients under SSS, at the same time they were classified as curative treatment. It could be assumed that most of the clients,

who utilized the service just one time, might visit dentist for solving their oral health problems due to the signs and symptoms more than for routine check-up or fully utilization of oral health benefit package which was allowed to be twice a year.

Srisangwan Hospital was the main service setting that the employees made their choices to go for dental service (76.9%). This might be because of being the only one service setting with complete facilities to provide dental service and easy to access whereas some of the employees did not recognize that they could utilize oral health benefit in private clinics.

Asking about their expenditure for dental service in 2004, half of employees spent no more than 400 Baht, which was also compatible with the limited rate of reimbursement under SSS oral health benefit. For the group of no payment, most of them utilized cost-free service or service on campaign, such as oral check up, scaling for pregnant women, service in mobile clinic, etc. It was observed that the characteristic of oral health service utilization among these clients was just corresponded to the limited rate of service cost provided though they might need more dental services.

There were 63.8% of service users that accepted to choose SSS welfare for dental service. Self expenditure and welfare of universal coverage were the second and third choice respectively. From this finding, it could be presumed that most of the employees recognized the benefit. However, it was observed that there was overuse in other health welfares among these clients that might be resulted from the process of registration or even motivated by inequality of oral health benefit among schemes, this should be considered in order to improve more appropriate and health welfare system as well as reduce overused welfares.

Focusing on characteristics of reimbursement among the service users, one-third of them did not use their right to reimburse completely. The reasons of complexity and uncovered treatment they used were most common (both 32%), which correspond to the answers derived from open-end question that mostly reflected their

needs in more benefit coverage and their frustration about advance payment and reimbursement. In the clients' opinion, oral health problems should be practically considered in the same way as general health problems or illness.

5.2 Oral health service utilization with demographic and socio-economic factors

There were 4 variables in terms of demographic factors; age, gender, ethnicity, and religion. Only 'gender' was found to have statistically significant association with oral health service utilization ($\chi^2 = 15.52$, $p < .001$) and it was women who utilized dental service twice more than men, as those found in the previous studies of Benjakul P. and Chanya C. 2000 [19] and Luengpattarawong P. 2002 [26]. Females utilized the health service more than males in general, on the contrary male was found to be lack of preventive medical care and routine dental visit [21]. This characteristic of women was generally found in almost all studies about health service utilization and explained that women had more physical ailments than men, and spent considerably more time taking care of themselves and others [14].

Different from other studies [19, 20], ages among clients in this study seemed not to be associated with oral health service utilization. For this study, more than half of the clients were 30 years old or younger, whereas another majority (30%) was in between 31-40 years. These age groups were accounted to be more than 80% of respondents that was quite homogeneous and made no significant difference in pattern of oral service utilization by age. The same explanation is given in case of religion and ethnicity which almost all of employees were native Thai and Buddhism.

With regards to socio-economic factors, it was found that educational level and occupational role both related to oral health service utilization with statistical significance at $\chi^2 = 9.92$ and 11.17, $p = .019$ and .025, respectively. For the level of education, the findings were in the same direction as other studies; the higher education, the more service utilization [24, 25]. The biggest group who utilized the service belonged to those of university level (36.1%) and the smallest were those who

attained at primary school level (10.9%). This might be because, in general, well-educated people were the best informed about the merits of a healthy lifestyle and the advantages of seeking preventive care or medical treatment for health problems when they need it. In conclusion, education promoted healthy living and the ability to solve health problems.

For occupational role, which were classified in to 5 clusters according to activity and characteristics of work, the employees whose works were in area of administrative (documentary related works) took major part of service utilization (42%). Compared to those in the group of field work who had to go outside for their responsibilities (10%), this finding was significant and could be clearly explained by characteristics of works. The employees with their routine works in office, such as the administrative or even labor basis employees, were close to service settings and could manage their times to go for dental service. For the group of field work, such as drivers, field coordinators, etc., they rarely worked in offices, at the same time, most of their working areas were in remote areas. These might be the difficulties for them to visit dentist unless it was necessary (painful, swelling, in accident, etc.).

5.3 Needs for oral health care and oral health service utilization

According to the results related to employees coming for oral health service utilization, more than ninety percent of them claimed for at least one oral health problem. This finding was found to be statistically significant and corresponded to explanation by Mechanic's illness behavior [14] that the symptoms were perceived, evaluated and acted upon by a person and this illness behavior would lead to the seeking of the way to cure the symptoms, which we could see from the type of treatment sought. Furthermore, other significance found in this study was the association between oral health service utilization and oral health problems informed by dentist, which was about 60% of the service users. Even though this percentage of clients who were informed by dentist was fewer than those who evaluated the problem by themselves (98.2%), it was found that to be informed about the problems by dentist exactly influenced on oral health service utilization , as a result in logistic

regression analysis (adjusted odds ratio 4.189 (95%CI: 2.14-8.19). This might refer to the influence of dental health personnel on making decision to utilize the service.

There was also some significance in association between oral care seeking behavior and oral service utilization since there were majority of respondents who did not visit dentist for first priority in both group of utilized (59.5%) and not utilized (80.3%) the service. The most common reason for them was because of time constraint and this point had statistically significant association with the service utilization (χ^2=6.23, *p*-value=.009). The rate of dental service utilization in both groups was converted (about 90% of utilized- and 66% of not utilized group) in case of asking about second priority to solve oral health problems, however. The result might be able to explain in the same way as the previous study [19, 28, 29] that normally a person had attitude of waiting for severe symptom to occur or the choices they preferred were no more effective.

5.4 Predisposing factors and oral health service utilization

Knowledge about oral health benefit under the Social Security Scheme (SSS), attitude towards oral health service and perception on oral health problem was the predisposing factors expected to relate to oral health service utilization in this study. The results showed that only perception had no statistical significance in the association.

Knowledge towards oral health benefit under SSS

Knowledge towards oral health benefit under SSS was found to be statistically significant in related to oral health service utilization. The clients who were assumed to know well in SSS-oral health benefit, with high and moderate score were found to be the majority in oral health service utilization. For the group of low knowledge score, there was higher percentage of low score among those who did not visit dentist (30.8% for ‘not utilized’ and 20.9% for ‘utilized’). The mean knowledge score for the group of ‘utilized’ was found to have statistical significance in difference from the other group as well (*t*-value=-2.796, *p*-value=.005). This finding was similar to the

study of So FH and Schwarz E.[27] about higher dental visits among the group who was aware in their dental benefit in Hong Kong, 1996.

Considering 9 items of the knowledge, the results indicated that the respondents who visited dentist had higher rate of correct responses than those who did not in almost all items. There were 7 from 9 items that each group got 76% at least and they were two items which showed statistically significant association with the service utilization; maximum rate of reimbursement and advance payment for service. The respondents who visited dental clinic occupied higher percentage of correct response (86% in both items) than the group of non-utilization (79 and 77%).

There were other two items that both groups expressed less than 50% in correct understanding; the right to use oral health benefit after registration and the free choice for them to utilize the service both in government and private sectors. These might reflect lack in some details of information from the Social Security Office that should be provided to the clients.

Attitude towards dental service and oral health service utilization

Regarding attitude towards dental service, it is interesting that among the group of no service utilization, the clients had more favorable attitude (28.9%) than the other (22.4%). This finding was statistically significant. Normally, the favorable attitude towards the services should lead to higher rate of utilization. For this finding the association might reflect the clients' impression in previous experience of oral health service utilization.

Focusing on each item of attitude, there were 4 items presented that the two groups had significant difference in degree, corresponded to the difference in overall attitude (t-value=2.102, p-value=.036). These were the terms about knowledge and ability of dentist, visiting dentist when problem occurred, willing to follow dentists' guidance and cleanliness of dental clinic. However, all items presented positive attitude among clients in both group, except the opinion about cleanliness of dental clinic that seemed to be undecided. There were some items that indicated quite

negative attitude of clients towards dental service; ‘dentist prefer treatment than communication with patients’, ‘costly dental service’ and ‘to visit dentist in case of severe problems only’. These terms of attitude had no statistical significance but some could be considered to improve patients’ attitude on oral health service.

Perception on oral health problem and oral health service utilization

With regards to perception on oral health problem, there was no statistically significant association found between clients’ perception and oral health service utilization, considering both in overall or by items. The degree of perception between the group of service users and the other seemed to be the same (mean score was about 50.0 in both groups). When focused on each domain of perception, especially perceive benefit of treatment and prevention, still there was no significance. It could be concluded that perception did not have influence on oral health service utilization for this study.

5.5 Enabling factors and oral health service utilization

Among those enabling factors, it was found that only the variables about access to information were significantly related to oral health service utilization in this study. Most of respondents got used to oral health information, and among various sources of information, it seemed to be the dental health personnel that influenced oral health service utilization, though they were not the main source of information which people got familiar with. Again, the finding demonstrated that information from dentist influenced oral health service utilization significantly in statistics considering the results from bivariate (χ^2=12.62, *p*-value <.001) and logistic regression analysis with adjusted odds ratio 2.026 (95%CI:1.05-3.91).

In term of received SSS-information, it was also found to be significantly influential to clients’ service utilization (adjusted odds ratio 2.647, 95%CI:1.29-5.42) despite the fact that only a bit more than half of respondents (54.6%) were familiar with this kind of information. However, the clients’ opinion derived from the open-end question reported that some of them paid attention on information related to their

benefit not only through widespread of media but there should be more useful details provided constantly through communication channel. Some of the respondents recommended that if the Social Security Office provided information about utilization of oral health benefit to the clients efficiently, this would help reduce difficulties in process of reimbursement and might motivate them to oral health service utilization.

5.6 Opinion from clients

From the responses derived from part of open-end question, it could be concluded that, presently, the clients under the Social Security Scheme need their oral health benefits to be improved. Even in Maehongson Province where the main dental service provider was the governmental hospital that, service cost should be lower compared to that in private clinic, the limited rate of service cost from SSS was not enough. This limited benefit might lead to the decision making for only simple treatment that caused tooth loss such as tooth extraction, as in the study of Wesley L.Hanson and G. Rutger Persson, 2003 [29].

Moreover, the majority of opinions focused on complexity in the process of advance payment and reimbursement since, mainly, this made them frustrated. For this group of clients who gave opinion about this, most of them did not mention for more benefit. These clients just wanted the process of oral health benefit utilization to be the same as other illness, with no advance payment and then no need for reimbursement. This reflected that, in their opinion, oral health was one part of general health. They prefer using oral service or treatment only when they got problems and for that reason, they would like to utilize the service comfortably since their salary was deducted monthly for this.

The need for more information from the Social Security Scheme was one of the major requirements. In the clients' opinion, presently, the information from SSS were not enough in detail. They recommended that the well provide information from SSS could help reduce complexity in reimbursement and motivate them to utilize the

service. This seemed to coincidence with the statistical significance in association between received information from SSS and oral health service utilization.

5.6 Limitations of the study

This study was conducted under cross-sectional study design using self-administered questionnaire. Pre-test of the questionnaire was performed among 30 cases in Muang District, Maehongson, then the data was analyzed for validity and reliability (Cronbach's alpha was about 0.47, 0.59 and 0.7 for the part of knowledge, attitude and perception respectively). The questions were revised to be most appropriate to the respondents however there still were limitations in this study;

1. The study was carried out in Muang District, Maehongson, Thailand, and the target population was purposively selected among the clients under the Social Security Scheme who worked in governmental offices. Therefore it might not be representatives for all clients or oral health service users.

2. The data collected in this study was based on the experience of oral health service utilization of respondent during last year, so there might be recall bias. Furthermore, some information derived from respondents' estimation, such as, distance from house to service, periods of time under SSS, payment for service, etc, these led to information bias.

3. According to the study conductor who was one of the dental health personnel working in Muang District, Maehongson Province, this might affect the respondents on giving inaccurate or untrue answers for some question and resulted in some variables.

CHAPTER 6
CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

This study aimed to determined characteristics of oral health service utilization and its related factors among government employees under Social Security Scheme in Muang District, Maehongson Province, Thailand. A cross-sectional study was conducted to achieve the objectives using self-administered questionnaire. The data was collected from 431 out of 773 government employees in Muang District. The conclusions were as following;

Characteristics of oral health service utilization among respondents

In general, characteristics of oral health service utilization among the government employees under Social Security Scheme in this study were similar to the previous. As compared to provincial and national level, rate of oral health service utilization among this group of clients were much higher (42.7%). About 62% of the respondents utilized oral health service only one time, which most of the service were curative and under coverage of SSS-oral health benefits; scaling, tooth extraction and tooth filling. Rate of visiting dentist was less as frequency of visit increased.

The most common service setting they went for service was Srisangwan Hospital (76.9%), whereas private clinic and other hospitals were the second and the third with the rate of 12.6 and 6.6% respectively. When they utilized the service, most of the clients used SSS welfare (65.5%) within limit of no more than 400 Baht. Overuse of other health welfares was found which, mainly, was of the UC (10.7%). Still, 17.5% spent their out-of-pocket money for dental service. Among those who utilized SSS welfare, 66.7% of them reimbursed only 1 times. Frequently, the problems they had from reimbursement were complexity in the process and utilization of uncovered oral health services.

Oral health service utilization and its related factors

In relationship to various factors which were examined by using statistical analysis, there were some factors which had statistically significant association with oral health service utilization. Female, university attainment and administrative works were found to be those factors.

It was found as expected that oral health problems should relate to the service utilization. The statistically significant finding was that almost all of the service users (93.4%) accepted to have at least 1 oral health problems. As for seeking behavior for oral health care, 70% of clients refused to visit dentist at first occurrence of their oral health problem since they believed in self-recovering from the symptoms and, in general, they responded that they were too busy. In case of the first priority did not work, more than 75% made decision to visit dentist. The association between seeking behavior for oral care and the service utilization were found to be statistically significant but only statistics seemed not enough to understand these behaviors.

Majority of the clients were in the moderate (or fair) level of knowledge, attitude and perception. Knowledge towards SSS-oral health benefit and attitude towards dental service were found to have statistically significant difference between the two groups of ‘utilized’ and ‘not utilized’, whereas there was no significance found on dimension of perception. The association in term of knowledge was as expected that, normally, the service user was found to have higher knowledge on relative issues. The same thing should be found as regards to attitude, but it was converse. It was the group of non-utilization who had higher degree of attitude on dental service. This might be concluded that the impression in oral health service utilization among these clients was under their expectation before visiting dentist.

Finally, the role of communication seemed to have strong influence on the service utilization since it was found that receiving information in related issues had statistical significance in association with oral health service utilization. Furthermore, the information provided by the most believable personnel or organizations on that issues presented statistically significant association as well as influence on making

decision to utilize the service. Direct communication to dentist could probably help the clients understand the process and benefit or even limitation of dental service, including their positive attitude for that 'dentist is knowledgeable and able to solve oral health problems', therefore they made decision to utilized the oral health service.

Opinions from respondents

Since the oral health benefit for clients under SSS was limited and has never been changed for more than 7 years, mainly, opinions derived from clients were focused on needs to improve oral health benefits provided under SSS, as well as the process of advance payment and reimbursement. Some of them revealed that more information was necessary. As for service provider, there were recommendations about special dental clinic (off-official time or holidays) and improvement in quality of services. These opinions should be considered in order to improve appropriate oral health benefit for both clients and the provider.

6.2 Recommendations

6.2.1 Recommendations for implementation

1. According to the results that the dentist or dental health personnel were influential on oral health service utilization among the clients under Social Security Scheme, the oral health prevention and promotion program could be implemented to these clients effectively by the personnel. Since the advantage for this group is that they have chance to visit dentist for routine (twice a year) despite limited oral health benefit, to promote their routine visit and provide appropriate preventive care, together with oral health education, should help reduce the curative treatments and improve their oral health status. That would help improve oral health status among the population of Maehongson Province directly.

Indirectly, the clients who have chance to improve their oral health via the provided preventive care are expected to have better knowledge, attitude and practice towards oral health care which, more or less, can be transferred to their family,

especially their children. Women can be the target group for this due to their higher rate in oral health service utilization and, normally, they have responsibilities to take care of their children.

2. The effective informative media and methods needs to be considered, especially information about utilization of benefit under SSS. The information should not be only widespread but clear in necessary details also. Printed materials might be the first choice since, from this study, it is found to be the most common media that the clients got used to and the budget to implement is quite low compare to radio and television.

3. The oral health benefits for clients under SSS should be reconsidered to correspond with present situation both in aspect of service available and cost for service. The process of reimbursement has to be improved to reduce complexity since almost all of employees work during the same period of the Social Security Office that is not good for them to spend their working time for reimbursement. To have oral health benefit as the same practical way as other illnesses that the clients do not have to pay advance was recommended most from the clients.

4. The dental health personnel could make fully use from this study. Since some information, such as negative attitude, may be considered to improve, that will lead to quality of services. Even the recommendation from clients for special dental clinic reflected that the information system of the service provider should be improved according to the fact that the special dental clinic has been available at Srisangwan Hospital for more than 5 years, but some of the clients did not know about this.

6.2.2 Recommendation for further study

1. To select other study group, not only focus in one group of clients or one area of study, this could help provide more in-depth of this context.

2. The process of decision making and what factors that might influence their pattern of decision making to seek for oral health care should be highlighted in the future study.

3. The study which can compare between other welfare schemes will provide useful data in practical implementation for overall.

4. Qualitative study is recommended for further study because the in-depth data should be more useful and reliable in part of socio-behavioral studies or even the method of interview using structured questionnaire may be more appropriate.

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APPENDIX

APPENDIX A
QUESTIONNAIRE

Instruction for Questionnaire of
'Oral Health Service Utilization among Government Employees
Under Social Security Scheme in Maehongson Province, Thailand'

ID No.□□□

This questionnaire is prepared for thesis writing for Master of Primary Health Care Management course (M.P.H.M.) at the ASEAN Institute for Health Development, Mahidol University. This study intends to achieve better understanding about pattern of oral health service utilization among government employees under Social Security Scheme in Maehongson Province, Thailand

Please answer every question by yourself and after you finished answering all the questions, please hand on your questionnaire to the representative in your office. Your answer will be kept completely confidential and not exposed to any other purpose.

Thank you for your participation.

Ms. Kanoknat Pancharoen
M.P.H.M. student
ASEAN Institute for Health Development,
Mahidol University

Please fill in the blank :

Date of responding _____ / _____ / 2005

Name of your office _____

Address of office _____

_____, Maehongson.

Part 1 General information about client

Please fill in the blanks or mark [√] in front of the choice where is your most appropriate answer.

1. Address : Village _____ Thambon _____
   Muang District, Maehongson Province, Thailand

2. Date of birth (day/month/year) _____/_____/_____
   Now, you are _____ years old.

3. Gender 1[ ] Male 2[ ] Female

4. Race or ethnicity (Please specify) _____
   (for example, Thai, Thai Yai, Karen, Mong, Leezu, etc.)

5. Religion 1[ ] Buddhism 2[ ] Christian 3[ ] Islam
   4[ ] Others (specify) _____

6. Marital status
   1[ ] Single 2[ ] Married 3[ ] Divorced
   4[ ] Widowed or widower 5[ ] Separated

7. What is your highest educational attainment?
   1[ ] No education 2[ ] Primary school
   3[ ] Secondary school 4[ ] Vocational school
   5[ ] University or above

8. What is your occupational role?
   1[ ] Administrative (accountant, documentary related work, etc.)
   2[ ] Skill works (teachers, health officers, consultants, nurses, etc.)
   3[ ] Laboratory works (laboratory workers, X-ray, etc.)
   4[ ] Field works (driver, field coordinator, etc.)
   5[ ] Labor basis (general workers, nurse assistants, etc.)
   6[ ] Others (specify) _____

9. What is your shift of work? (Please specify period of time) _____ to _____

10. Your monthly income is ; (please specify by sources of income, may be more than 1 answer)

[ ] Fortnightly income (every 15 days) _____Baht

[ ] Monthly income (salary) _____Baht

[ ] Other extras (such as payment for overtime work) _____Baht

[ ] Other earnings (own business, etc.) _____Baht

Part 2 Perceived Needs for oral health care

Questions in this part will ask about your needs for oral health care within the period of time between January 1st, 2004 to December 31st, 2004. Please fill in the blanks or mark [√] in front of the choice where is your most appropriate answer. There may be more than one answer in each question.

11. Did you have any of oral health problems during last year?

0[ ] No 1[ ] Yes

(If answer 'No', skip to question no.18)

12. During last year, did you have these oral health problems?

12.1 Toothache	0[ ] No	1[ ] Yes
12.2 Tooth hypersensitivity	0[ ] No	1[ ] Yes
12.3 Tooth mobility	0[ ] No	1[ ] Yes
12.4 Fracture of tooth or filling material	0[ ] No	1[ ] Yes
12.5 Gum bleeding	0[ ] No	1[ ] Yes
12.6 Gum swelling	0[ ] No	1[ ] Yes
12.7 Present of bad breath	0[ ] No	1[ ] Yes
12.8 Calculus (dental stone)	0[ ] No	1[ ] Yes
12.9 Problem in occlusion (TMJ pain, biting, etc.)	0[ ] No	1[ ] Yes
12.10 Problems of esthetics	0[ ] No	1[ ] Yes
12.11 Injuries or accidents	0[ ] No	1[ ] Yes
12.13 Others (specify)	0[ ] No	1[ ] Yes

13. From question no.12, how did you know that you got those oral health problems?

13.1 I felt the problems by my self. 0[ ] No 1[ ] Yes

13.2 From other persons (friends, colleagues, etc.) 0[ ] No 1[ ] Yes

13.3 Informed by dentist / dental health personnel 0[ ] No 1[ ] Yes

13.4 Others (Please specify) _____

14. Did you visit dentist first, when you got that oral health problem?

0[ ] No 1[ ] Yes

(If answer 'Yes', skip to question no.18)

15. If you did not visit dentist first , what did you do to solve the problem ?

1[ ] Do nothing 2[ ] Self-treatment

3[ ] Taking drug from drug store 4[ ] Go to traditional healer

5[ ] Others (specify) _____

16. Why didn't you visit dentist first?

1[ ] Can be tolerate and believe in self-recovering 2[ ] Time constraint

3[ ] Expensive service cost 4[ ] Fear of treatment

5[ ] Have other alternatives 6[ ] Others _____

17. In case that your choice in question no.16 did not work, did you visit dentist?

1[ ] No 0[ ] Yes

<u>Part 3</u> Oral health service utilization

Questions in this part will ask you about your oral health service utilization within the period of time between January 1st, 2004 to December 31st, 2004. Please fill in the blanks or mark [√] in front of the choice where is your most appropriate answer. There may be more than one answer in each question.

18. How often did you visit dentist at the hospital or any other service settings during last year?

0[ ] No 1[ ] 1 time

2[ ] 2 times 3[ ] 3 times or more (specify _____ times)

(If answer ' No', skip to question no. 26)

19. During 2004, what types of dental service you were provided?

19.1 Oral check up	0[ ] No	1[ ] Yes
19.2 Drug prescribes	0[ ] No	1[ ] Yes
19.3 Tooth extraction	0[ ] No	1[ ] Yes
19.4 Tooth Filling	0[ ] No	1[ ] Yes
19.5 Scaling	0[ ] No	1[ ] Yes

19.6 Others (specify; such denture, root canal treatment) _____

20. Where were the service settings you went for oral health services last year?

20.1 Srisangwan Hospital	0[ ] No	1[ ] Yes
20.2 Provincial Health Office	0[ ] No	1[ ] Yes
20.3 Private clinic	0[ ] No	1[ ] Yes
20.4 Health center	0[ ] No	1[ ] Yes
20.5 Mobile clinic	0[ ] No	1[ ] Yes

20.6 Others (specify) _____

21. How much did you spend for dental service cost last year?

0[ ] No payment 1[ ] Paid _____Baht

22. Which kind of payment methods or health welfare you used for those oral health services?

22.1 Social Security Scheme	0[ ] No	1[ ] Yes
22.2 30 Baht Scheme (Universal Coverage)	0[ ] No	1[ ] Yes
22.3 CSMBS	0[ ] No	1[ ] Yes
22.4 Private health insurance	0[ ] No	1[ ] Yes
22.5 Used your own out-of-pocket money	0[ ] No	1[ ] Yes

22.6 Others (specify) _____

(In case of answering 'No' in question no. 22.1, skip to question no. 25)

23. From question 22, if you used the oral health benefit for Social Security Scheme, how many times did you reimburse for the payments?

0[ ] Never 1[ ] 1 time 2[ ] 2 times

(If answer '2 times', skip to question no. 26)

24. From question 23, if the answer is Never, what was your reason?

24.1 Forget / document loss	0[ ] No	1[ ] Yes
24.2 Time constraint	0[ ] No	1[ ] Yes
24.3 Complexity in reimbursement	0[ ] No	1[ ] Yes
24.4 Used uncovered list of treatments	0[ ] No	1[ ] Yes
24.5 Not recognize	0[ ] No	1[ ] Yes

24.6 Others (specify) _____

25. In case of using other health welfares or your own money, what was your reason?

25.1 Not eligible at that time	0[ ] No	1[ ] Yes
25.2 Forget to use SSS	0[ ] No	1[ ] Yes
25.3 No need to use SSS	0[ ] No	1[ ] Yes
25.4 Having more benefits in other welfare	0[ ] No	1[ ] Yes

25.5 Others (specify) _____

26. How far from your accommodation place to the place you always visit dental health personnel? _____km. (in estimation)

27. How do you always go to visit dental health personnel?

1[ ] by walking 2[ ] by your own vehicle

3[ ] by public transportation 4[ ] other (specify) _____

28. What is the most convenient day/period of time for you to visit the dental health personnel?

1[ ] Official times 2[ ] Week ends or holidays

3[ ] Anytime 4[ ] Specific time (specify) _____

29. Date of registration to be clients under the Social Security Scheme (SSS);

Date _____ Month _____Year _____

Total period of times you have been under the SSS; _____years _____months

30. Have you ever received any of oral health information?

0[ ] No 1[ ] Yes

(If answer 'No', skip to question no. 32)

31. What are the regular sources of information about oral health information you usually receive from? (There may be more than 1 answer)

31.1 Dental health personnel	0[ ] No	1[ ] Yes
31.2 Printed materials	0[ ] No	1[ ] Yes
31.3 Radio	0[ ] No	1[ ] Yes
31.4 Television	0[ ] No	1[ ] Yes

31.5 Others (specify) _____

32. Have you ever received any of information about oral health benefit under SSS?

0[ ] No 1[ ] Yes

(If answer 'No', skip to question no. 34)

33. What are the regular sources of information about oral health benefits under SSS you usually receive from? (There may be more than 1 answer)

31.1 Dental health personnel	0[ ] No	1[ ] Yes
33.2 The Social Security Office	0[ ] No	1[ ] Yes
33.3 Printed materials	0[ ] No	1[ ] Yes
33.4 Radio	0[ ] No	1[ ] Yes
33.5 Television	0[ ] No	1[ ] Yes

33.6 Others (specify) _____

Part 4 Knowledge, attitude, perception and oral health behaviors

4.1 Knowledge about SSS-oral health benefit

Please choose the answer that you think it is correct.

Question	Yes	No
34. You can use oral health benefit since the time you have been registered under the SSS immediately.		
35. The oral health benefits for SSS includes only three kinds of treatment which are tooth extraction, scaling and filling.		
36. You can utilize oral health service both in the government service setting and private dental clinic.		
37. Maximum rate of reimbursement is 200 Bht./visit, no more than 2 visits and 400 Bht./year.		
38. The client's child and spouse may utilize this benefit in case of the client's doesn't need to use.		
39. The client has to pay advance for dental service cost before reimbursement.		
40. The right to use oral health benefit is unique (or specific) for each of clients, not included your family.		
41. If you paid for services more than 400 baht in this year, you could reimburse for the rest payments within next year .		
42. The client has to reimburse for payment within one year after utilize dental service, or the right to reimburse for that case will be expired.		

4.2 Attitude towards dental personnel and oral health service

Please mark [√] for the most appropriate answers in your opinion.

1=strongly agree 2=agree 3=not decided 4=disagree 5=strongly disagree

Questions	1	2	3	4	5
43. Dentists were knowledgeable and able to solve your oral oral health problems.					
44. Dentists prefer fixing teeth rather than communication with patients.					
45. You do not dare enough to tell dentist about your oral health problem.					
46. Dentist and assistant are willing to provide service to patients equally.					
47. You are sure of cleanliness in dental clinics.					
48. The dental services are always costly in your opinion.					
49. You feel that to visit dentist is for severe OH-problems only.					
50. Quality of service in government and private hospital are equal.					
51. Dental treatment is frightful thing for you.					
52. Visiting dentist is the best way when you have oral health problems.					
53. Dentists are eager to answer your question even you are not their patient.					
54. You do not feel nervous if you need to go for dental service due to safety and up-to-date equipments.					
55. You are willing to follow dentists' guidance for oral health care.					

4.3 Perceptions of client

Please mark [√] for the most appropriate answers in your opinion.

1=strongly agree 2=agree 3=not decided 4=disagree 5=strongly disagree

Question	1	2	3	4	5
Perception in susceptibility					
56. Oral diseases occur naturally with regard to aging.					
57. Using hard toothbrush may make the gum hurt and recessed.					
58. Using teeth in malfunction can damage your teeth.					
59. Drinking soft drink frequently may cause tooth decay and corrosion.					
60. Having sweet foods increases risk of dental caries.					
Perception in severity					
61. Gingivitis may get worse with calculus.					
62. Molar loss is worse than loss of front tooth.					
63 A small cavity of dental caries may lead to tooth loss by being ignored.					
64.Chronic oral health problems can induce other health problems.					
Perception in benefits of prevention and treatment					
65. Tooth filling can help prolong the life of teeth.					
66. Using toothpaste with fluoride can help prevent dental caries.					
67. Brushing teeth 3 times after meal is the best to keep your teeth clean.					
68. Regular oral health check up twice a year is necessary.					

<u>Part 5</u> Opinion, recommendation and suggestion from client under SSS

Please present any of your opinions, recommendations or suggestion that related to oral health services or oral health benefits in the Social Security Scheme.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

(Thank you for your answers that will be very useful for this study)

APPENDIX B
SUPPORTING DATA

Table 24 Relationship between socio-economic characteristics and utilization of SSS welfare in 2004

Socio-economic factors	utilize n (%)	not utilize n (%)	χ^2	*p*-value
Educational attainment	**(n=177)**		9.78	.021
Primary school	17 (15.0)	3 (4.7)		
High school	31 (27.4)	10 (15.6)		
Vocational certificate	27 (23.9)	24 (37.5)		
University	38 (33.6)	27 (42.2)		
Type of office	**(n=177)**		4.28	.039
Health related office	29 (25.7)	8 (12.5)		
Non-health related office	84 (74.3)	56 (87.5)		
Occupational role	**(n=163)**		10.35	.035
Administrative	35 (35.0)	34 (54.0)		
Technical	16 (16.0)	12 (19.0)		
Laboratory	1 (1.0)	2 (3.2)		
Field work	12 (12.0)	4 (6.3)		
Labor basis	36 (36.0)	11 (17.5)		

Table 25 Relationship between demographic characteristics (marital status) and utilization of SSS welfare in 2004

Demographic factors	utilize n (%)	not utilize n (%)	χ^2	*p*-value
Marital status (n=176)			7.66	.006
Married	68 (60.7)	25 (39.1)		

Unmarried	44 (39.3)	39 (60.9)

Table 26 Mean difference between the group of oral health service utilization and group of 'not utilized' by period of time under SSS and utilization of SSS welfare

Factor	***t*-value**	***p*-value**
Period of time under SSS (months) (mean=51.8, SD=43.95, min=1, max=156)	-2.946	.004*

*Independent sample t-test

Table 27 Relationship between characteristics of oral health service utilization and utilization of welfare under Social Security Scheme

Characteristics of oral health service utilization	**utilize n (%)**	**not utilize n (%)**	χ^2	***p*-value**
Type of oral health service: (n=172)				
Tooth extraction			9.59	.001
Yes	52 (47.7)	15 (23.8)		
No	57 (52.3)	48 (76.2)		
Scaling			5.58	.014
Yes	67 (61.5)	27 (42.9)		
No	42 (38.5)	36 (57.1)		
Dental service cost in 2004 (n=155)			65.32	<.001
No payment	0 (0)	31 (50.0)		
≤ 400 baht	67 (72.0)	13 (21.0)		
≥ 401 baht	26 (28.0)	18 (29.0)		

Table 28 Relationship between accesses to information and characteristics of SSS welfare reimbursement in 2004

Accesses to information	**complete n (%)**	**incomplete n (%)**	χ^2	***p*-value**
Received OH-information From dental health personnel	**(n=82)**		6.40	.011
Yes	40 (71.4)	11 (42.3)		
No	16 (28.6)	15 (57.7)		
Received SSS-information from SSS-office	**(n=88)**		8.83	.006
Yes	49 (75.4)	10 (43.5)		
No	16 (24.6)	13 (56.5)		

BIOGRAPHY

NAME	Kanoknat Pancharoen
DATE OF BIRTH	June, 26, 1967
PLACE OF BIRTH	Phrae, Thailand
INSTITUTION ATTENDED	Chiangmai University, Thailand 1986-1992 D.D.S.
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