

**CLIENT SATISFACTION TOWARDS ORAL HEALTH
SERVICES UNDER UNIVERSAL HEALTH COVERAGE
PROJECT IN SINGBURI PROVINCE, THAILAND**



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Wungchun Kittipadakul

Ms. Wungchun Kittipadakul
Candidate

Nonglak Pancharuniti

Asst. Prof. Nonglak Pancharuniti
D.D.S., M.P.H., Dr.P.H.
Major-advisor

B. Keiwbarnka

Assoc. Prof. Boonyong Keiwbarnka
Dr.P.H.
Co-advisor

Phenkhae Lapying

Ms. Phenkhae Lapying
Ph.D.
Co-advisor

Rassmidara Hoonsawat

Assoc. Prof. Rassmidara Hoonsawat
Ph.D.
Dean
Faculty of Graduate Studies

B. Keiwbarnka

Assoc. Prof. Boonyong Keiwbarnka
Dr.P.H.
Chair
Master of Primary Health Care Management
ASEAN Institute for Health Development

Thesis
entitled

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was submitted to the Faculty of Graduate Studies, Mahidol University
for the degree of Master of Primary Health Care Management

on
March 15, 2004

Wungchun Kittipadakul

Ms. Wungchun Kittipadakul
Candidate

Nonglak Pancharuniti

Asst. Prof. Nonglak Pancharuniti
D.D.S., M.P.H., Dr.P.H.
Chair

Boonyong Keiwkarnka

Assoc. Prof. Boonyong Keiwkarnka
Dr.P.H.
Member

Junya Pattara-archachai

Asst. Prof. Junya Pattara-archachai
Sc.D.
Member

Phenkhae Lapying

Ms. Phenkhae Lapying
Ph.D.
Member

Rassamidara Hoonsawat

Assoc. Prof. Rassamidara Hoonsawat
Ph.D.
Dean
Faculty of Graduate Studies
Mahidol University

Boonyong Keiwkarnka

Assoc. Prof. Boonyong Keiwkarnka
Dr.P.H.
Director
ASEAN Institute for Health Development
Mahidol University

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Wungchun Kittipadakul

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THAILAND.

WUNGCHUN KITTIPADAKUL 4637905 ADPM / M

M.P.H.M. (PRIMARY HEALTH CARE MANAGEMENT)

THESIS ADVISOR : NONGLAK PANCHARUNITI D.D.S., M.P.H., Dr.P.H.,
BOONYONG KEIWKARNKA M.Ed., M.P.H., Dr. P.H., PHENKHAE LAPYING
D.D.S., M.P.H., B.Econ, Ph.D.

ABSTRACT

A cross-sectional study was carried out from 3rd to 13th February 2004 in Singburi Province, Thailand. The objectives of the study were to assess the level of client satisfaction and its relationship with factors related towards oral health services under the Universal Health Coverage Project.

The sample consisted of 266 respondents who were systematically, randomly sampled from the record of oral health services in the last six months, in proportion to the total number of dental clients in Singburi province. Trained interviewers used pre-tested questionnaires to collect data. Descriptive statistics as well as Non-parametric test, Chi-square test and Spearman Rank Correlation were used for data analysis.

Client satisfaction in regard to oral health services was found at high level in every aspect especially quality of care (89.1%) and courtesy (87.2%). There was significant association between client satisfaction and type of gold card (health insurance card) with p -value = 0.041, perception on Universal Health Coverage Project (p -value = 0.020), site of utilization of oral health services (p -value = 0.018), number of visits (p -value = 0.006), waiting time for registration (p -value < 0.001) and waiting time for obtaining services (p -value < 0.001).

Oral health services in Singburi province were regarded as highly satisfactory by the gold card patients. However, respondents were not happy with the waiting time. Regarding the level of clients' perception on the Universal Health Coverage Project, Singburi Province should promote and inform clients more on the benefits of core package to enhance their understanding and perception.

KEY WORDS : CLIENT SATISFACTION / UNIVERSAL HEALTH
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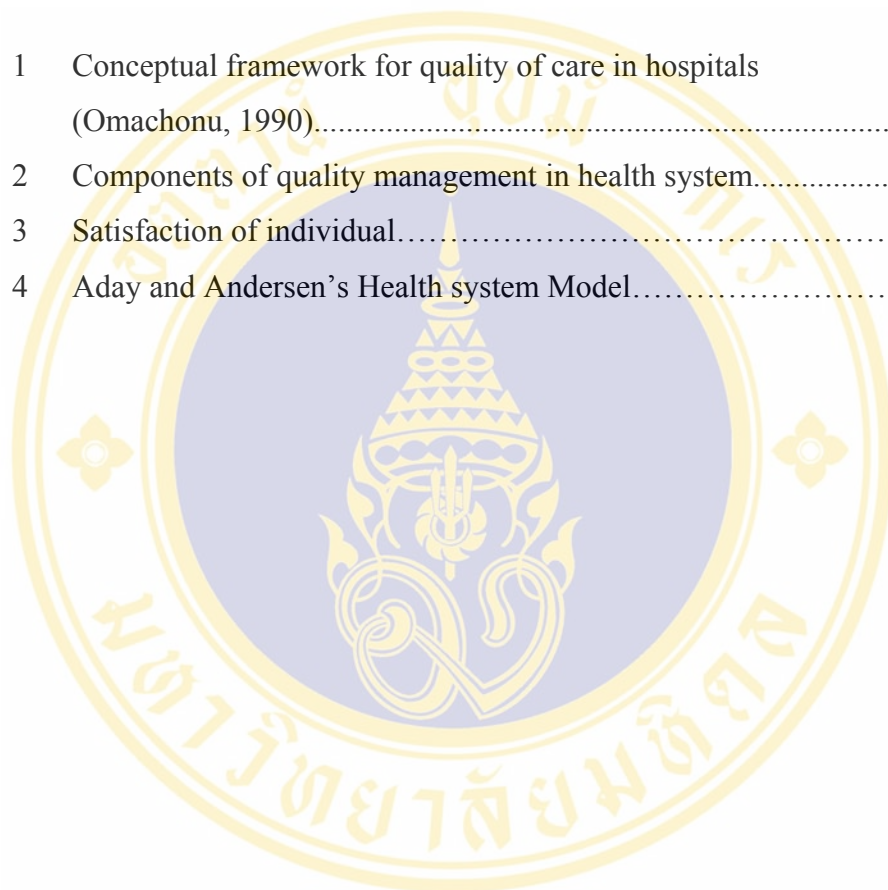
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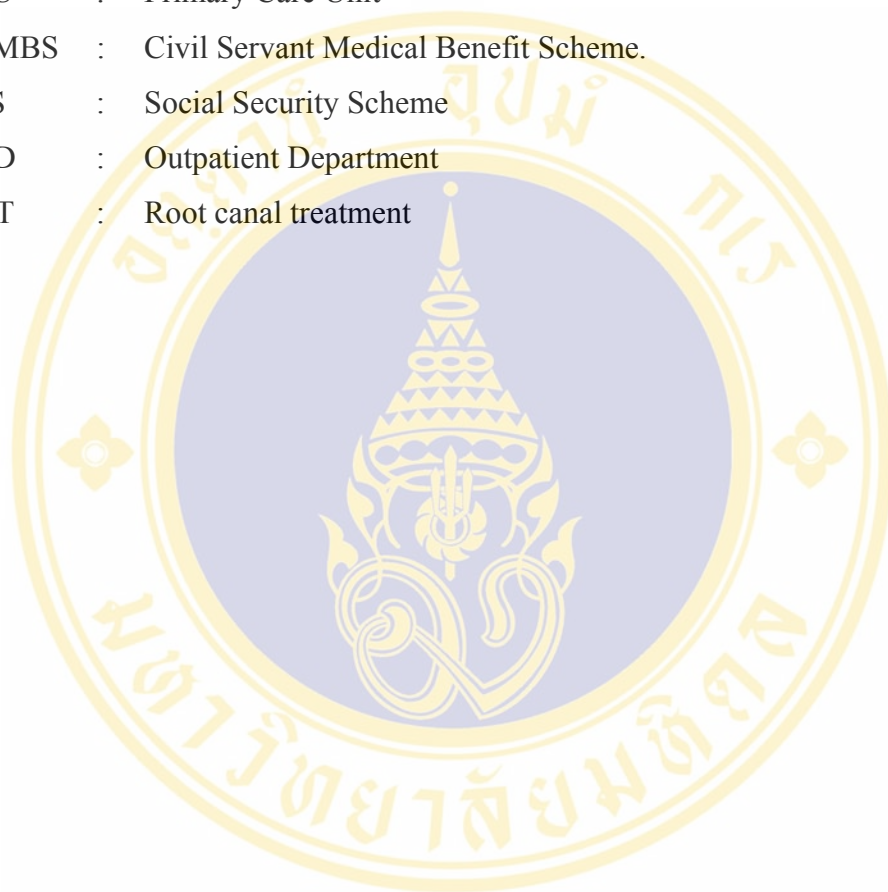
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LIST OF ABBREVIATIONS

UC	:	Universal Coverage
PCU	:	Primary Care Unit
CSMBS	:	Civil Servant Medical Benefit Scheme.
SSS	:	Social Security Scheme
OPD	:	Outpatient Department
RCT	:	Root canal treatment



CHAPTER I

INTRODUCTION

1.1 Rationale and justification of the study

1.1.1 Oral Health Trend

As the problem of oral health is affected to almost all of people such as dental caries in every age groups, gingivitis and periodontal disease in teenager and old age group. Data from the 2nd to 4th National Oral Health Survey indicated that prevalence and severity in dental caries incased by age group. (1,2,3,4). In 1994 prevalence of dental caries in 12 years, 17-18 years, 33-34 years and more than 60 years is 53.9 %, 63.7%, 85.7% and 95.0% respectively.(Table1)

Table 1 Percentage distribution of dental caries by age groups, obtained from the 2nd, 3rd and 4th National Oral Health Survey in Thailand

Age. Group	Dental Caries		
	2 nd survey(1984)	3 rd survey(1989)	4 th Survey(1994)
3 (deciduous teeth)	-	66.5	61.7
6 (deciduous teeth)	71.6	83.1	85.1
9 (mix dentition)	74.4	82.8	85.3
12	45.8	49.2	53.9
18	63.1	63.3	63.7
35-44	80.2	76.8	85.7
60	95.2	93.9	95.0

Source : www.anamai.moph.go.th

Severity of disease is measured by the summation of number of decay tooth, missing tooth and filled tooth yields as DMFT that indicate in 12 years, 17-18 years, 35-44 years and more than 60 years is 1.6, 2.4, 6.5 and 15.8 respectively. (Table2)

Table 2 The mean of decay tooth, missing tooth and filled tooth (DMFT) of Thai people by age group and surveyed year.

Unit: tooth/person

Age group	Year	DMFT	DT	MT	FT
12	1984	1.5	1.4	0	0.1
	1989	1.5	1.3	0.1	0.1
	1994	1.6	1.2	0.1	0.3
17-18	1984	3.0	2.3	0.3	0.4
	1989	2.7	1.9	0.3	0.5
	1994	2.4	1.4	0.4	0.6
35-44	1984	5.4	2.2	2.9	0.3
	1989	5.4	2.2	2.8	0.4
	1994	6.5	2.1	3.6	0.6
60+	1984	16.3	1.6	14.7	0
	1989	16.2	1.5	14.6	0.1
	1994	15.8	1.8	13.9	0.1

Source: Compiling from the 2nd, 3rd and 4th Thai national oral health survey. Dental Health Division, Department of Health, Ministry of Public Health, 1984, 1989 and 1994.

The prevalence of gingival and periodontal disease is measured by percentage of affected person and severity is measured by amount of affected sextant. In age 12 years old had bleeding 9.8%, 1.1 sextant and calculus 87.5%, 3.5 sextant. In age 17-18 years old had calculus 88.2%, 4.3 sextant and pocket 6.2%, 0.1 sextant. In age 35-44 years old had calculus 40.8%, 3.4 sextant and pocket 57.6%, 1.7 sextant. In age more than 60 years old had calculus 24.3%, 2.0 sextant and pocket 74.4%, 1.6 sextant. (Table 3)

Table 3 The mean sextant of various periodontal status of Thai people by age group an surveyed year.

Age group	Year	Normal		Bleeding		Calculus		Pocket		Missing sextant
		%	Sex tant	%	Sex tant	%	Sex tant	%	Sex tant	
12	1984	5.9	1.5	2.2	0.4	84.4	3.6	0	0	0.4
	1989	6.2	1.4	4.6	0.8	89.1	3.6	0	0	0.2
	1994	2.3	1.4	9.8	1.1	87.5	3.5	0	0	0
17-18	1984	16.2	0.9	3.2	0.2	75.8	4.6	0.3	0	0
	1989	3.4	1.3	2.6	0.5	87.3	4.0	0	0	0.2
	1994	2.4	1.1	3.2	0.5	88.2	4.3	6.2	0.1	0
35-44	1984	0.3	0.2	0	0	41.5	3.8	58.2	1.8	0.2
	1989	0.8	0.4	0.2	0.1	53.4	4.0	45.3	1.3	0.2
	1994	0.7	0.5	0.9	0.2	40.8	3.4	57.6	1.7	0.2
60+	1984	0	0	0	0	15.8	1.3	84.1	2.1	2.6
	1989	0.6	0.1	0.7	0	27.5	1.8	71.2	1.5	2.8
	1994	0.8	0.1	0.5	0.1	24.3	2.0	74.4	1.6	2.2

* Canine is used to divide periodontal area of the mouth into 6 sextants.

Source: Compiling from the 2nd, 3rd and 4th Thai national oral health survey. Dental Health Division, Department of Health, Ministry of Public Health, 1984, 1989 and 1994.

1.1.2 Oral Health Care in Thailand

In Thailand there are two major parts of oral health care service. One is the private sector which comprise of private hospital and private clinic. The other is the public sector, which consist of all government’s dental clinic. Ministry of Public Health (MOPH) is the main service provider among the public sector. Regional hospital, general hospital, community hospital and some health centers provide oral health service in terms of treatment, rehabilitation, prevention and promotion in oral disease.

Oral health services are operational treatment that provided by dental health personnel in teamwork included dentist, dental nurse, dental assistant and other auxiliaries. In Thailand we still confront with the scarcity of dental health personnel especially in public sector as the information from department of health, MOPH in Table4,5.(5)

Table 4 Dental Health Personnel in Thailand, year 2002

Dental Health Personnel	Overall (No.)	MOPH (No.)
Dentist	7,551	2,443
Dental Hygienist	61	6
Dental Nurse	2,930	2,861
Dental Assistant	2,120	1,623
Dental Technician	83	40

Table 5 Ratio of dental health personnel per population by the Region

Region	Dentist : population	Dental Nurse : population
1	1 : 8,732	1 : 22,125
2	1 : 14,314	1 : 16,924
3	1 : 11,504	1 : 16,564
4	1 : 13,172	1 : 20,679
5	1 : 25,549	1 : 24,317
6	1 : 16,789	1 : 18,840
7	1 : 27,773	1 : 21,259
8	1 : 17,641	1 : 19,154
9	1 : 15,757	1 : 16,830
10	1 : 10,495	1 : 19,582
11	1 : 15,681	1 : 18,222
12	1 : 12,537	1 : 18,540

Source: Ministry of Public Health, Dental Health Personnel in Thailand, year 2002

1.1.3 The 30 baht Universal Health Care Policy

The “30 baht Universal Health Care Policy” is one of the major policies of this present government. This policy is focused on creating universal health insurance coverage of the whole population. Before the implementation of this policy, there were 20% of the population uninsured by any scheme. During the first phase in April 2001, the scheme started with 6 provinces, then the second phase in June 2001 extended to 15 provinces, then the third phase in October 2001 all the provinces have joined the scheme except Bangkok which has started the scheme in January 2002 and the whole country has been fully covered in April 2002.

The main objectives for universal coverage are as follows: (6)

1. Equity: An equal sharing of health care expenditure and equity of access to the same quality of health services.
2. Efficiency : Efficient use of resources by good administrative and management practices

3. Choice: People have the right to choose their health services in order to reduce the problem of an imperfectly competitive market.
4. Good Health for All: Universal health care coverage aims not only to provide curative care but also to provide disease prevention and health promotion where appropriate.

The service package provides most health services that include oral health service except cosmetic care, obstetric delivery beyond two pregnancies, drug addiction treatment, hemodialysis, organ transplantation, infertility treatment, and some high cost interventions.

Nowadays Health Insurance in Thailand is included only 3 schemes such as civil servant Medical benefit scheme (CSMBS) which include about 10 million, Social Security Scheme (SSS) which include about 8 million and 30 baht scheme (gold card with or without co-payment per episode) which include about 45 million. The success of this health policy depends on many factor and many players; consumers, providers and third parties/payers/purchasers. It also requires assessment, re-assessment, improvement and dynamism over time.

From evaluation of this programme by customers survey (poll) on July 2002 found that customer satisfied with the services 83.8% and dissatisfied 16.2% which the reasons of dissatisfaction are long wait 31.7 %, poor services 29.0%, and poor drugs quality 22.7%.(7)

According to the study of Naomi Shimizu in January 2002 (8) in “Satisfaction with Universal Coverage Program among villagers in Pathum Thani province” it found that the satisfied group (50.7%) are positively accepting the Universal Coverage Project and have highly expectation.

Ramadanura’s study in January 2002 found that patient’s satisfaction toward oral care services at Huayploo community hospital in Nakhon Chaisri was in moderate and high level 70.4%. (9)

The study of Wannasri Kaewpinta in March 2002 about dental patient satisfaction under the Universal Health Coverage Project in Hangdong hospital, Chiangmai, revealed that more than 80% of dental patients satisfied in high and highest level with convenience, dental equipments and quality of care. More than 90% of them satisfied in high and highest level with dentist-patient relationship. (10)

1.1.4 Situation in Singburi Province

Singburi Province launched the universal health care coverage system since 1st October 2001. According to the evaluation of health service system in fiscal year 2002 (1 October 2001 – 30 September 2002) it found that the coverage in health insurance in every scheme is 95.21 %, for universal coverage (30 baht scheme) is 71.30 % that consist of gold card without co-payment 40.91% and gold card with co-payment 30.39 % (11)

Assessment on knowledge of people under Universal Health Coverage Project was in high level 63.2%. Clients satisfaction towards health services under Universal Health Coverage Project in Singburi province was quite high in every aspects especially in beneficiary or core package of services.

In the aspect of health facilities and accessibility in dental utilization in public sector, Singburi Province (in Region 2) is quite good because there are 4 community hospitals and 2 general hospitals, 14 dentists and 21 dental nurses which is responsible for 204,183 persons. The ratio of dental health personnel (dentist and dental nurse) per population is 1:5,834. Comparing to the data from Dental Health Personnel Report 2002 of Department of Health, MOPH that indicated in Region 2 had the ratio of dentist per population is 1:14,314 and ratio of dental nurse per population is 1:16,924. The standard criterion for the ratio of dental health personnel per population is $1:\leq 20,000$. (12)

The physician- patient interaction remains the key relationship in our health care system. In order to strengthen capability and sustain quality of oral health service, more information is needed, particularly those of clients such as satisfaction among them. Measuring client satisfaction is a useful tool to assess clinical performance of providers from the patient or client perspective. (13)

This research will provide data on client satisfaction towards oral health service in thirty baht scheme in Singburi province, which can be used by the policy planner to improve the quality of oral health service.

1.2 Research Questions.

What is the level of clients satisfaction towards oral health services in thirty baht scheme in Singburi Province?

1.3 Research Objectives

1.3.1 General Objectives

1.3.1.1 To evaluate clients satisfaction towards oral health services provided in Thirty baht Scheme in Singburi Province.

1.3.2 Specific Objectives

1.3.2.1 To assess the level of clients satisfaction in terms of convenience, courtesy, information, out of pocket cost and quality of oral health care services.

1.3.2.2 To describe the association between clients satisfaction and their characteristics.

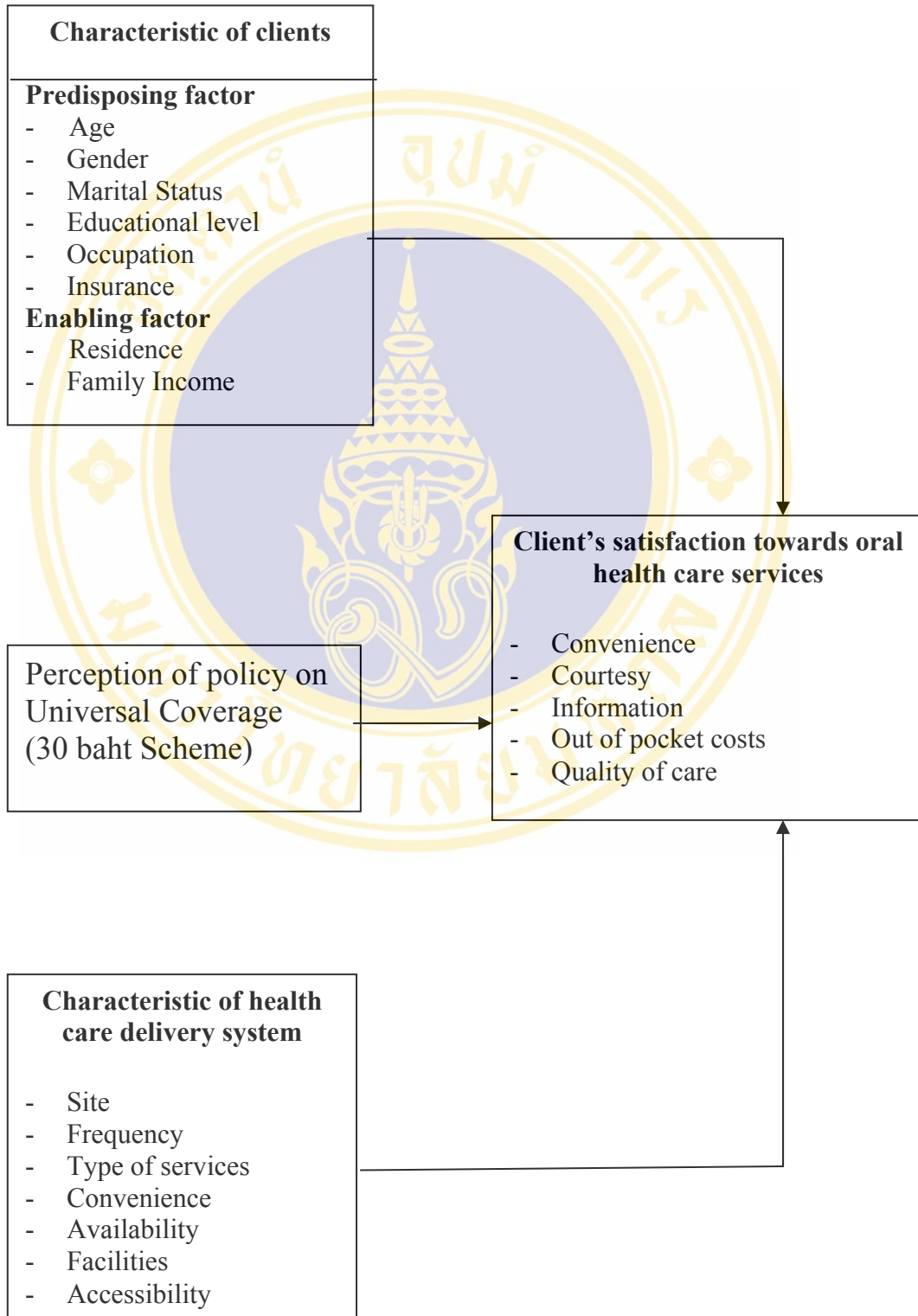
1.3.2.3 To describe the association between clients satisfaction and their perception of policy on 30 baht scheme.

1.3.2.4 To describe the association between clients satisfaction and characteristics of health care delivery system such as site, frequency and type of services.

1.4 Conceptual framework

Independent Variables

Dependent Variable



1.5 Operational definition

1.5.1 Satisfaction of client

Satisfaction of client is the state of being satisfaction or not in different level. In this case refer to oral health services that patient received and meet their need and demand. There are ranking in five scales of Likert as:

- Highest satisfied (5)
- High satisfied (4)
- Moderate satisfied (3)
- Low satisfied (2)
- Lowest satisfied (1)

In this study, clients satisfaction towards oral health services assesses in the aspect of convenience, courtesy, information, out of pocket cost and quality of care.

1.5.2 Convenience referred to availability of care when needed such as clinic hours, ability to get to the health facility easily and office waiting time.

1.5.3 Courtesy referred to physical manner that provider express to their patient with polite, friendliness and respectful.

1.5.4 Information referred to the information about etiology diagnosis and treatment plan that dental health personnel inform the patients.

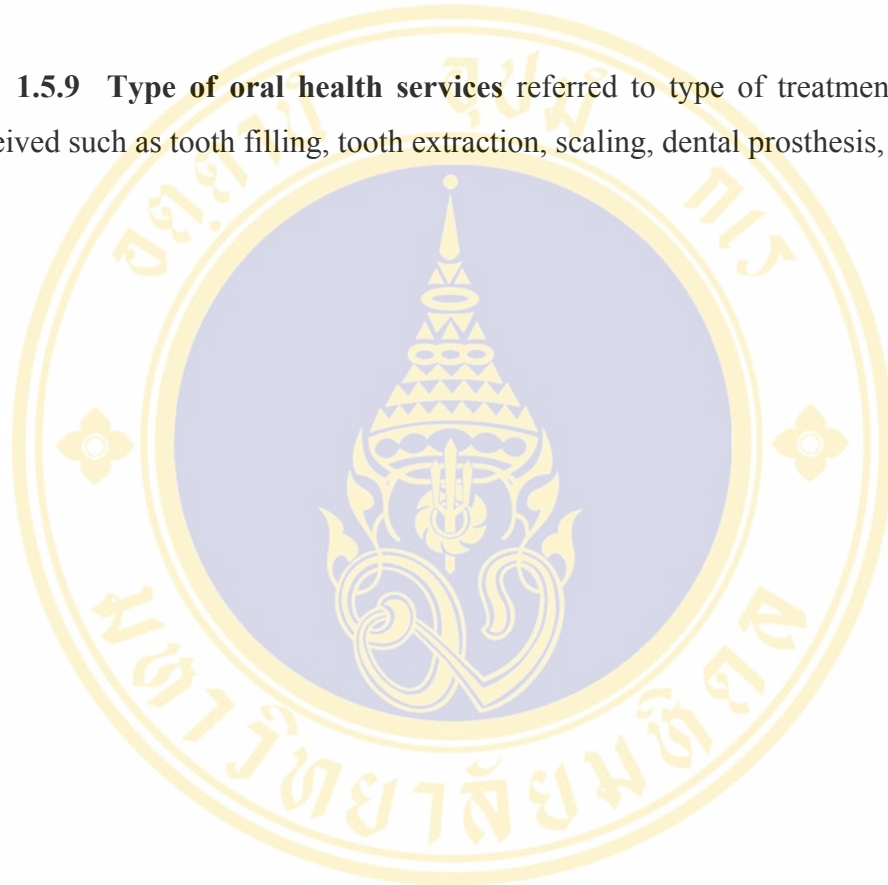
1.5.5 Out of pocket cost referred to affordability to pay for total cost of oral health services including billing for treatment and transportation cost.

1.5.6 Quality of care referred to provider's skills and ability in treatment, sufficiency of health facilities, dental equipments and supplies.

1.5.7 Site of Utilization of oral health services referred to different Primary Care Unit (PCU) such as general hospital or community hospital or health center.

1.5.8 Frequency referred to number of visits for receiving oral health services in last six months. (July 2003-December 2003)

1.5.9 Type of oral health services referred to type of treatment that patient received such as tooth filling, tooth extraction, scaling, dental prosthesis, and others.



CHAPTER II

LITERATURE REVIEW

Conducting the study of clients satisfaction towards oral health services under Universal Health Coverage Project in Singburi province, the researcher reviewed in several topics as follow :

1. The 9th National Health Development Plan (2002-2006)
2. Present Government Policies and the Present Health Care System
3. The 30 baht Universal Health Care Policy
4. Concept of service quality
5. Concept of service satisfaction
6. Related researches on satisfaction

2.1 The 9th National Health Development Plan (2002-2006)

This plan emphasized a clear vision on people-centered approach and the philosophy of sufficiency Economy. Due to the numerous changing trends, formulation is based on three groups of strategies that aim to provide guiding directive for health development in response to complex and dynamic current situations and trends. The objectives are: first to strengthen and stabilize domestic economy, develop an early warning system and carry out economic restructuring in order to upgrade production efficiency and international competitiveness of the country; second is to lay out a firm foundation for the nation development in the long run, with greater flexibility to external changes; third is to promote governance at all levels in the Thai society; and the last objective is to alleviate the poverty problem as well as increase potential and opportunities of the Thai people to become self-reliant. For the effectiveness of the 9th plan, three groups of strategies are purposely designated as follows:

Group one: Good government in all societal partnerships.

Strategy 1 Good governance

Group two: Strengthening of social foundations.

Strategy 2 Development of human quality and social security.

Strategy 3 Restructuring of rural and urban development.

Strategy 4 Management of natural resource and environment.

Group three: Economic restructuring towards balance and Sustainability.

Strategy 5 Macroeconomic management.

Strategy 6 Strengthening capability for international competitiveness.

Strategy 7 Strengthening science and technology capability.

The 9th National Health Development Plan aims at well being and entire health system development. The vision of this plan focuses on health security and universal health care coverage for every person in Thai society through people participation process. The objectives are as follows:

- 1) To foster proactive health promotion, consumer protection, food safety and food security, occupational health and environment protection, and disease prevention and control.
- 2) To establish health security and equal access to quality health services.
- 3) To build up people capability in health promotion and in health system management.
- 4) To establish mechanism and measures in generating knowledge through research and development utilizing both local and international health wisdom.

Under the 9th National Health Development Plan, there are 6 strategies as follows:

Strategy 1 Fostering of proactive health promotion

Strategy 2 Establishment of universal health care coverage

Strategy 3 Reform of administrative structure and mechanisms on health

Strategy 4 Strengthening civil society on health

Strategy 5 Health knowledge and wisdom management

Strategy 6 Health manpower development in health sector reform (14)

2.2 Present Government Policies and the Present Health Care System

The government has set the national agenda and had merged with the 9th National Economic and Social Development Plan and translated into policies aiming at the following strategic delivery targets and plans of the Ministry of Public Health:

1. The Universal Health Care Insurance
2. Health Promotion, Disease Prevention and Control, and Consumer Protection
3. Effective Mechanism to Alleviate Drugs Problems
4. Promotion of Traditional & Herbal Medicine and Alternative Medicine
5. Supporting the Increase in Country's Capability and Production of Health Related-Products for Incoming Generation and Exports
6. Supporting Health System and Health Science Research in order to Tackle the National Health Problems
7. Strengthening Good Governance and Human Resources for Health

Presently, health care is organized and provided in Thailand by the public and private sectors. The Ministry of Public Health is the major responsible organization. However, there are other health service providers such as medical school hospitals under the Ministry of University Affairs, other general hospitals under other ministries (Ministry of Interior, Ministry of Defense). There are also private clinics and hospitals, pharmacies or drugstores that are all in private for profit. The private sector has rapidly expanded particularly in Bangkok and other urban areas during the 1990s.

Thailand spent 6.2% of the GDP on health expenditure, and a real per capital total health expenditure of US\$ 116 in 1998. The Ministry of Public Health is the main finance in public sector. Before the 30 baht scheme implement, various forms of

health insurance existed. Approximately 80% of the population was covered by one of these forms: Civil servant Medical Benefit Scheme, Social Security Scheme and Workmen's Compensation Scheme, Voluntary Health Card Scheme, Low Income Card Scheme. The remaining 20% was either paying out-of-pocket fee-for-service, or receive free/ subsidized services from public health facilities.

2.3 The 30 baht Universal Health Care Policy

The "30 baht Universal Health Care Policy" is one of the major policies of this present government. This policy is focused on creating universal health insurance coverage of the whole population. The Universal Coverage Scheme is development of the assurance that every Thai people would be able to access health services as necessary, which is considered as a basic right of people, and not State's welfare or help. It is in compliance with the intention of Section 52 of the Thai Constitution B.E. 2540, which states that a person shall enjoy an equal right to receive standard public health service and the indigent shall have the right to be receive free medical treatment from public health centers of the State as provided by law.

During the first phase in April 2001, the scheme started with 6 provinces, then the second phase in June 2001 covered altogether 21 provinces, then the third phase in October 2001 all the provinces have joined the scheme except Bangkok which has started the scheme in January 2002 and the whole country has been fully covered in April 2002. The policy processes at the central and provincial level during the first year of implementation have been monitored and evaluated in order to make the policy sustainable. Household surveys revealed that the policy was highly supported by both the rich and the poor. Primary results of the revealed that when three main health benefit schemes (civil servant medical benefit, social security benefit, and the 30 baht) were compared, the 30 baht scheme still faced with low compliance rates for both outpatient services. However, the poor had a higher compliance rate than the rich which means that the policy has at least achieved its main target group. (14)

Health Facility under the UC project can be classified into 3 groups as follows

1) Contracting unit for primary care; CUP is the organization providing curative, promote, preventive, and rehabilitative services as ambulatory care, home

care, and community care excluding specialized services. CUP is needed to have distinct registered population and primary care unit which may provide health services as single health facility or primary care network.

In case of providing health services as primary care network, it is called "main contractor" if it can provide comprehensive services by completion of medical doctors and health staffs due to the standard; if not, it is called "sub-contractor" which cannot make the registration of beneficiary.

2) Contracting unit for secondary care, CUS is the organization providing general care in inpatient services, which are community hospitals, general hospitals, regional hospitals, and university hospitals including those public hospitals outside MOPH and private hospitals. CUS is responsible for those patients referred from primary care unit as in-patients.

3) Contracting unit for tertiary care, CUT is the organization providing specialized care with high technology and expensive care. It can be regional hospitals, university hospitals or specialized health institutes.

Each health facility can be main contractor more than one level if it could provide comprehensive care according to the standard of each level required.

Significant characteristics of health services in each level:

1) Characteristics of primary care service

- a. Front-line care
- b. Ongoing/longitudinal care from birth to death
- c. Comprehensive care
- d. Coordinated care

2) Characteristics of secondary and tertiary service

- a. Provide complicated medical care
- b. Provide emergency and accidental care
- c. Provide efficient referral system
- d. Monitor and develop quality of care continuously
- e. Provide qualified service by standardized health personal and

medical equipment. (15)

Primary Care Unit or PCU

Primary care unit is a unit for health service under contracting unit of primary care. It located both in hospitals and outsides hospitals which was management by contracting unit of primary care (CUP). The population who had registered at primary care unit (PCU) of their definite catchment's areas can received medical services from the PCU. The PCU is an instrument for conduct health activities and closet the communities. The standardization of PCU under the health insurance project is (16)

1. Facility of PCU

- holistic care consists of health promotion, prevention and disease control, curative and treatment the diseases, rehabilitation
- Time working 56 hours of services / week, dental service 40 hours / week
- pharmaceutical service – drugs provided, drug distribution and drug educational service

2. Location and responsibility

- Primary care unit is responsible for not more than 10,000 population
- people can access to PCU within 30 minutes by car

3. Health personnel

- Doctor 1:10,000 population
- Nurse 1:1250 population
- Dentist 1:20,000 population
- Pharmacist 1:15,000 population

4. Health infrastructure and equipment,

Essential equipment for health promotion, prevention and disease control, curative and treatment, rehabilitation, effectiveness communication system, arrangement transportation for referral system in emergency cases

5. .Management

Registration of responsibility population system, continuous of service, data and information system to support health promotion and prevention and control disease, monitoring and evaluation system, pharmaceutical management

6. Information systems

The database of population and health of personal record must be done at the PCU. The family folders are recorded all essential data in each households. The health personal can use these databases for planning and implementation of holistic care at PCU.

2.4 Concept of service quality

2.4.1 Quality of care in hospital

Anuwat Supachutikul and Jiruth Sriratanaban (17) explained in the book “Quality in health system” by using concept of Omachonu (1990) as follow:

Quality of care in hospital composed of 2 important components.

- 1) Quality of conformance: quality from practicing follows clinical practice guideline.
- 2) Perceived quality: quality which assess by client's expectation.

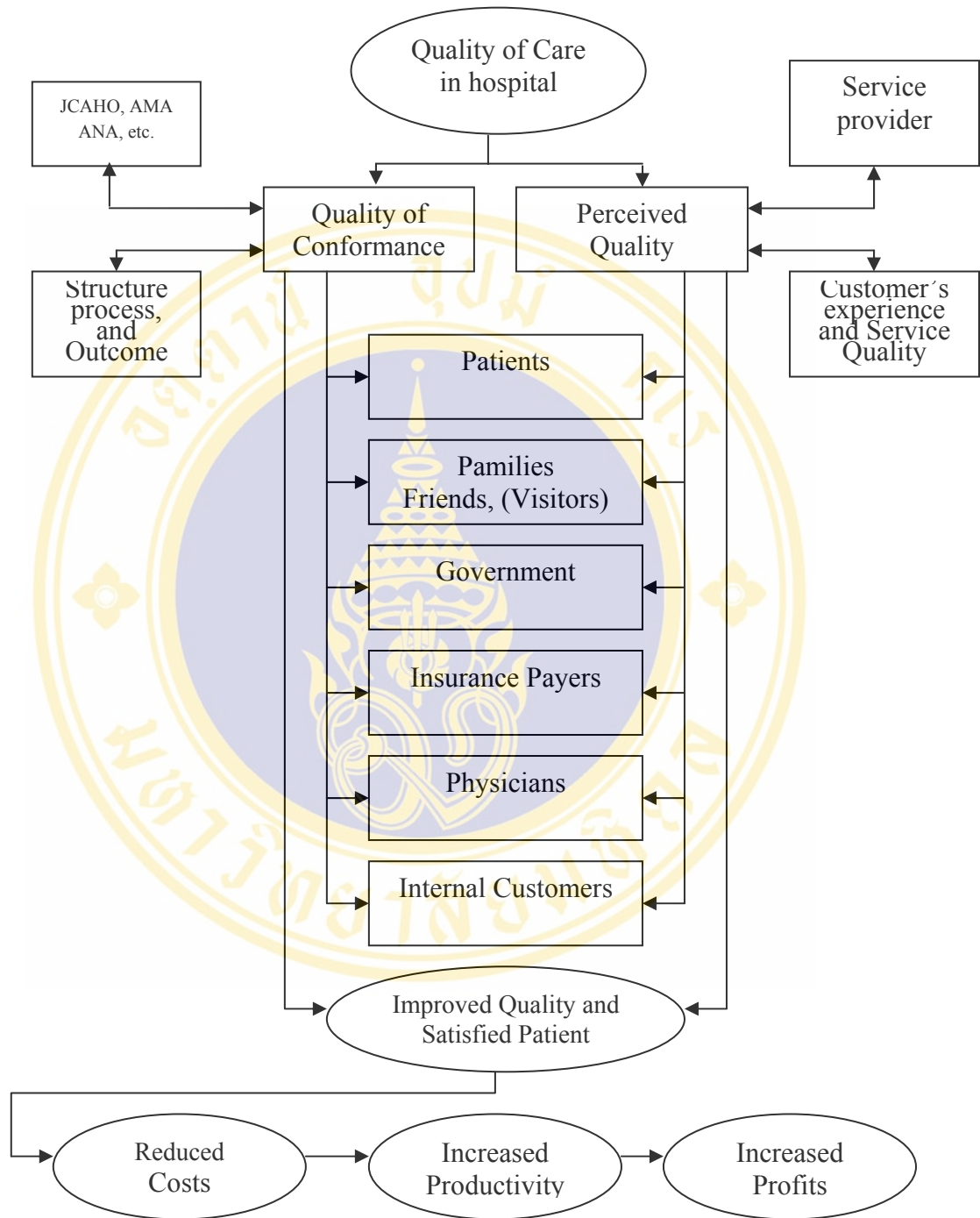


Figure 1 : Conceptual framework for quality of care in hospitals (Omachonu, 1990)

2.4.2 Components of quality management

Jiruth Sriratanaban (18) summarized that quality in health care consists of 4 components, which are:

1) Customer satisfaction – Ability to satisfy needs. Needs is something that is implicit and explicit and both should be satisfied. Discipliner has duties to consider what implicit need is.

2) Zero defect – Do the right thing since the beginning, no need for later correction.

3) Operation complying to standard – Possess standard of discipline, academic knowledge, moral and operating approaches that are widely accepted. Standard is inherited in every process step and also complies to law.

4) Quality of life – Good result occurs and satisfies health in overall view. Not only disease disappears, but also life quality becomes better. It is the target of health service management. Targeting the best is to make continuous improvement with no end (Figure 2)

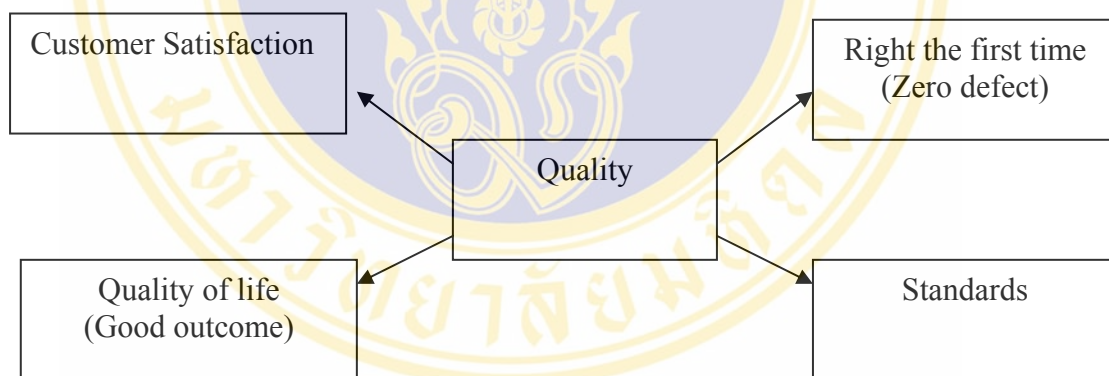


Figure 2 : Components of quality management in health system

2.5 Concept of service satisfaction

2.5.1 Definition of satisfaction

New Webster dictionary defines satisfaction as ‘fulfillment of a need or want’ and ‘the quality or state of being satisfied’ (19)

Aday & Andersen (1975) stated that the satisfaction was the feeling or opinion related to personal attitude, which client experienced from using that service

center and that experience fulfilled expectation. Level of satisfaction depended on different factors. (20)

Mullins (1985) stated that the satisfaction was personal attitude toward variety of things. It was the inside condition associating with personal feeling who accomplished the task, both quantity and quality. Satisfaction occurred when human had inside pushing force to achieve target and then when target was achieved, satisfaction occurred and was fed back to the beginning of cycle as shown in figure 3. (21)

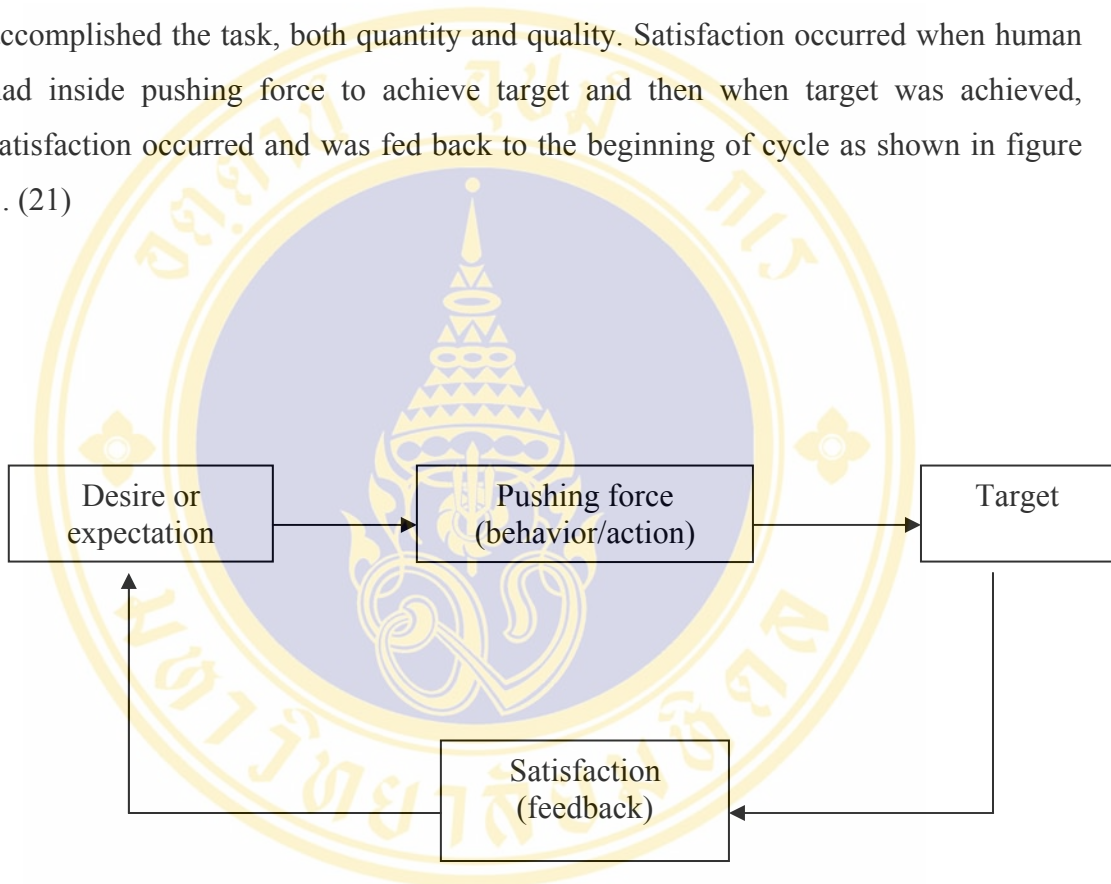


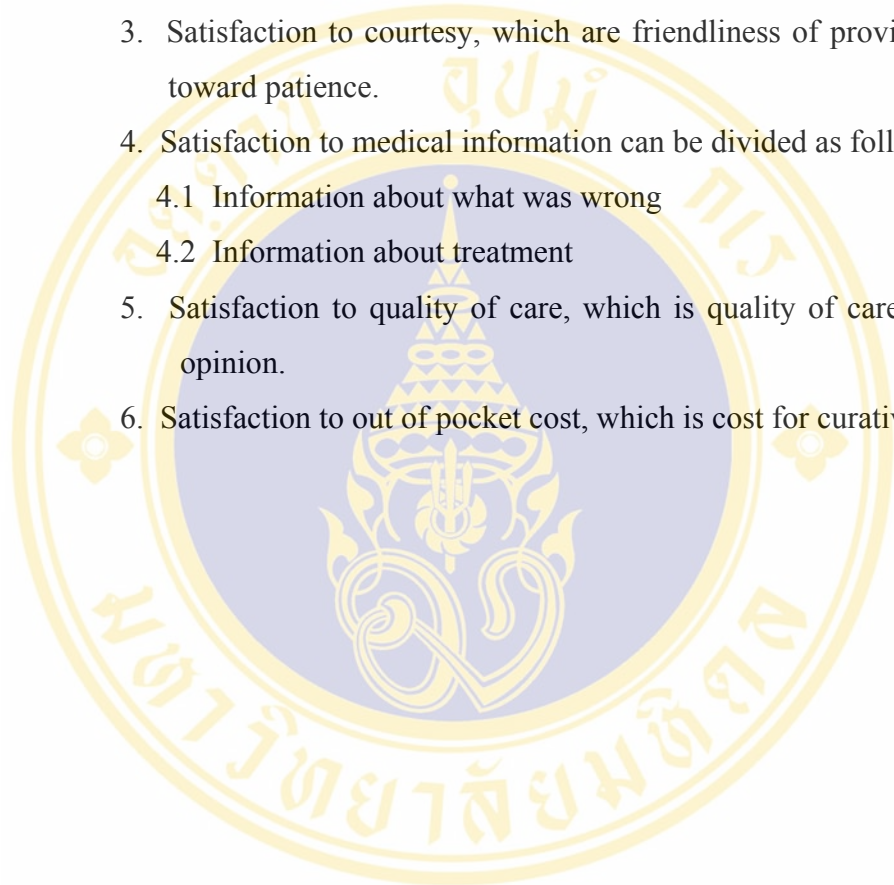
Figure 3: Satisfaction of individual

2.5.2 Satisfaction toward health care delivery

Aday & Andersen studied satisfaction of people toward health care delivery in the United States during 1970-1975 and pointed out 6 fundamentals related to client’s satisfaction and patient’s satisfaction as follow: (22)

1. Satisfaction to convenience can be divided as follow :
 - 1.1 office waiting time
 - 1.2 availability of care when needed

- 1.3 base of getting to care
2. Satisfaction to coordination can be divided as follow:
 - 2.1 Getting all need at one place or one-stop shop
 - 2.2 Concern of doctor for overall health
 - 2.3 Follow-up care
3. Satisfaction to courtesy, which are friendliness of provider and care toward patience.
4. Satisfaction to medical information can be divided as follow:
 - 4.1 Information about what was wrong
 - 4.2 Information about treatment
5. Satisfaction to quality of care, which is quality of care in patient's opinion.
6. Satisfaction to out of pocket cost, which is cost for curative.



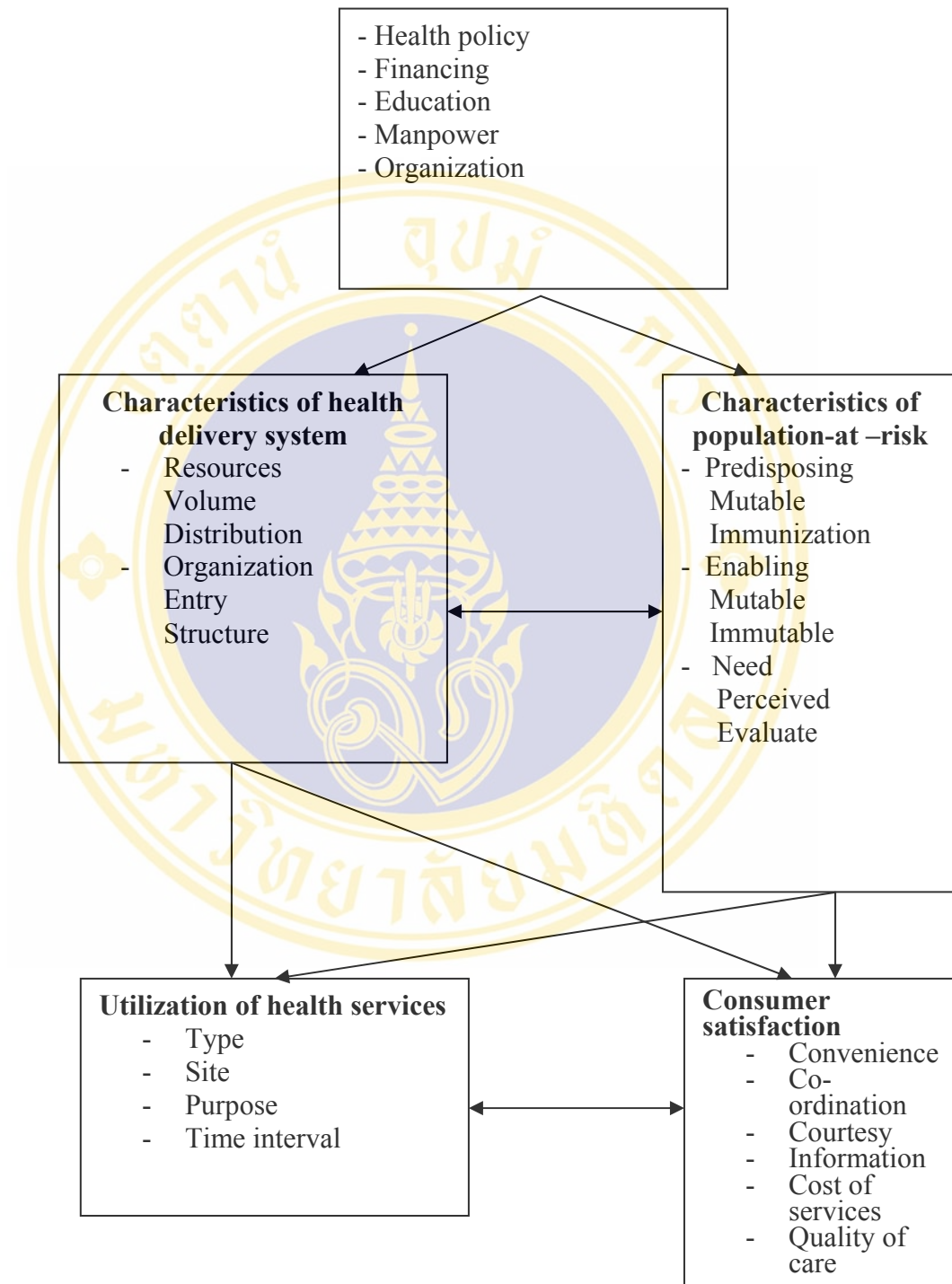


Figure 4 : Aday and Andersen's Health System Model

2.6 Related researches on satisfaction

Parasuraman and Berry described five issues that affect patient satisfaction with dental care:

1. Technical competence
2. Interpersonal factors
3. Convenience
4. Costs
5. Facilities.

These characteristics are equivalent to the service quality dimensions.(23)

A small number of recent studies have examined the fulfillment of expectations by comparing patients' views on ideal and actual behavior of dentists. 'Ideal behavior' is equivalent to the 'desired service' component. These studies clearly show the gap that exists between the sort of service patients hope to receive and the service they actually receive. Lahti *et al.* reported that (24)

“The discrepancies found (between ideal and actual dentist behavior) fell mostly into the area of the 'communicative and informative' factor, i.e. the dentists often did not give information about preventive procedures, did not ask if the patient wanted local anesthesia, did not ask about the special problems of the patient and did not ask how the patient felt. Other discrepancies included not admitting if the procedure was too difficult and not washing hands.”

1. Technical competence of the dentist.

This factor is often cited as being a key determinant of dental satisfaction. However, it has been observed that people, in general, find it difficult to evaluate the technical quality of a service accurately and so form impressions of the service from a number of other cues that may not be apparent to the provider. (25) In a study comparing dentist and patient

assessments of dental restoration quality Abrams et al (26) concluded that:

Simply practicing dentistry with a high degree of technical expertise will not necessarily convince the patient that he has received high quality dental care. Other less technical aspects of dental treatment are recognized as being barometers of quality of dental treatment. Practitioners should not lose sight of the human and psychological aspects of care, and keep in mind that they are integral components of quality in dental treatment'.

2. Interpersonal factors

Goedhart *et al.*, (27) found that communicative skills of dental personnel were relatively undervalued compared to various aspects of treatment quality.

3. Convenience

Holt and McHugh found that three of the four least important 'decision-forming' factors for patients were opening hours, waiting time and time spent with the dentist. (28)

Janda *et al.* concluded that dentists should not emphasize convenience-oriented attributes such as location and parking facilities but should focus on characteristics of the core service such as quality of service, professional competence, personality and the attitudes of the dentist.(29)

4. Costs

While costs of treatment are often seen to be high by patients,(30) fees in themselves do not appear to be as big a problem with patients as do communication about fees. Kress and Silversin, (31) for example, found the two lowest-rated items in their survey to be 'Knowing in advance what the fee will be' and 'Believing that the fees are appropriate'. Barnes also found cost to be the least important of the

considerations involved in selecting a dentist and observed that the real value of cost is that it is used by patients as an indicator of quality:(32)

'In this context prices are simply interpreted as being fair by a patient who has perceived the quality of care to be high. The implication is that those patients who think the fees are too high are also dissatisfied with the quality of care'.

5. Facilities

Although not considered to be as important as other factors in determining patient satisfaction the clinic facilities, for example the neatness, comfort of seating, magazine selection, background music etc have been shown to influence patients.(33)

2.6.1 Patient factors and satisfaction

Many of the studies look for relationships between perceptions of care and various independent variables, in particular, socio-demographic factors. Findings however, tend to be contradictory, no doubt because the factors do not operate in isolation but interplay with each other.

1) Age

In a study looking specifically at satisfaction of the older patient with dental care Stege found that patients over the age of 60 years tended to be more satisfied with their dental care than younger patients, but were less satisfied with the communication process than younger patients.(34) Lahti *et al.*, on the other hand, found older patients to be less satisfied and explained their findings by the fact that the oral health status of the younger patient is usually better than that of older people, which may lead to better experiences.(35)

2) Gender

Gopalkrishna and Mummalaneni found that women expressed greater levels of satisfaction with dental care than men,(36) attributing this finding to their greater exposure to dental services which would likely moderate their expectations, which in turn, are more likely to be met.

3) Economic status

Compared to 'non-poor', people from low income groups have been shown to hold very different attitudes about, and satisfaction with, healthcare, showing more negative perceptions of care and lower intentions to seek care.(37) Golletz *et al.* observed similar findings in reviewing satisfaction with dental care among a low income population.(38) The study also revealed that people with poor self-rated dental health consistently rate their satisfaction with dental care lower than those with higher ratings of their own dental health.

4) Previous dental experiences

A number of studies report that satisfaction with dental care is heavily influenced by previous experiences(39) and that dentists who had consistently performed well in the past could weather an occasional poor performance because patients attributed any shortcoming to 'uncontrollable or sporadic elements'.(40)

5) Regular versus irregular attendees

There is generally held to be a positive correlation between the degree of use of dental care and satisfaction with that care(30) and as noted earlier Goedhart *et al.* observed differences between the views of regular and non-attendees.(27) Other studies however, for example Lahti *et al.*, found no differences.(35)

6) Dental anxiety

It has been shown that dentally anxious individuals are more dissatisfied with dental care than their non-anxious counterparts. (41,42)



CHAPTER III

RESEARCH METHODOLOGY

3.1 Study design

This research was conducted by cross sectional study in Singburi Province, Thailand with main aim of collecting information on the clients satisfaction towards oral health services under the Universal Coverage or Thirty Baht Scheme.

3.2 Study Population

The target population of client was those with the following characteristics:

1. Registered and given right for health care under the Universal Coverage (2 types of gold card: gold card with co-payment and gold card without co-payment).
2. Aged at least 20 years old.
3. Received oral health services in Primary Care Unit of their catchment's area at least once in the last six months.

3.3 Sample size

Sample size of client has been determined by using the following statistical formula (Daniel, Wayne W; Biostatistics: A Foundation for Analysis in the Health Sciences, seventh edition 1999): (43)

$$n = \frac{z^2 PQ}{d^2}$$

Where,

n = sample size estimation

Z = level of statistical significance that set up level 0.05, i.e.1.96

P = proportion of satisfaction (80 %) (Cited in research conducted in Huayploo hospital in Nakorn Prathom and Hangdong Hospital in Chiang Mai) (9, 10)

$$Q = 1 - P = 1 - 0.80 = 0.20$$

d = degree of accuracy desired setting at 0.05

$$n = \frac{(1.96)^2 (0.80) (0.20)}{(0.05)^2}$$

$$n = 245$$

The total sample size of client in this study was at least 245

3.4 Sampling Technique

The total respondent should come from the clients who receiving oral health services in every PCU which have difference proportion. Thus the calculation for respondent in each PCU should be proportional to size. (n)

Then select the respondent from each PCU by systematic random sampling from the record of oral health services in last six months. The interval for random sampling can be calculated with the following equation.

$$I = \frac{N}{n}$$

When I = Random sampling interval

N = Number of adult patients who received oral health services in last six month from each PCU

n = number of respondent required in each PCU

Then the first number was randomly selected. After that, other numbers were selected by adding the interval number up until all samples were selected.

Table 6 Number of respondent required.

PCU	Number of adult patient in last six months	Proportional to size	Number of respondent required
1. Singburi hospital (general hos.)	840	0.12	30
2. Inburi hospital (general hos.)	1363	0.20	48
3. Bangrajan hospital (community hos.)	1353	0.20	48
4. Kai-bangrajan hospital (community hos.)	1312	0.18	44
5. Tachang hospital (community hos.)	599	0.08	20
6. Promburi hospital (community hos.)	523	0.07	17
7. Hua pai health center	140	0.02	5
8. Thong-end health center	381	0.05	12
9. Pra-souk health center	60	0.01	3
10. Pak-tan health center	45	0.01	3
11. Mai-dad health center	74	0.01	3
12. Po-sang-kho health center	162	0.02	5
13. Pikulthong health center	94	0.01	3
14. Rong-chang health center	132	0.02	5
Total	7078	1.00	246

3.5 Research instrument

The data were collected with a constructed questionnaire and most questions were close ended. All together there were 63 questions focusing on 5 parts.

Part A: Characteristic of clients including age, gender, marital status, educational level, occupation, type of gold card, residence and monthly family income. The questions were multiple choices and fill in the blanks.

Part B: The measuring form for perception of policy on Universal Coverage (30 baht Scheme) consisted of 13 questions. The questions had both positive and negative statements. The scoring is as follow:

	Positive statement	Negative statement
Yes	1 scores	0 scores
No	0 scores	1 scores

Assessment of the perception of policy on Universal Coverage used Bloom's criterion (44) which was divided into 3 levels as follow:

Level of perception	Scores
Low	< 60%
Moderate	60-79 %
High	≥ 80 %

Part C: The multiple choices and fill-in questionnaire to measure the characteristic of oral health care delivery system which include site of health facilities, frequency, type of services, convenience, availability, facilities and accessibility to oral health services.

Part D: The 18 questions measured the level of satisfaction towards oral health services, composed of 5 sections;

Section 1 Convenience

- Section 2 Courtesy
- Section 3 Information
- Section 4 Out of pocket costs
- Section 5 Quality of care

The questions were developed based on Likert Scale with 5 rating scales as follows

- Highest satisfied 5 scores
- High satisfied 4 scores
- Moderate satisfied 3 scores
- Low satisfied 2 scores
- Lowest satisfied 1 score

Assessment of the level of satisfaction towards oral health services used the width of the class interval (43) to calculate the range of each level, by subtracting the maximum score with minimum score then divide by number of group or measuring level. The result is the range of each category as depicted in the formula below.

$$\text{Width} = \frac{\text{Range (Max.-Min)}}{\text{Number of class interval}}$$

So the level of satisfaction was divided into 3 levels as follow:

$$\begin{aligned} \text{Range} &= \frac{90 - 18}{3} \\ &= 24 \end{aligned}$$

Levels of satisfaction	Scores
Low	18-41
Moderate	42-65
High	66-90

Part E: Additional Comments: It is the only open ended questions.

3.6 Pre-testing of the questionnaire

Test of content validity: The questionnaires were sent to 3 experts to examine the correctness, validity, language use and language clearness. Then the questionnaires were improved to the more valid.

Test of reliability: The questionnaires were tested by 30 respondents who have similar characteristics in Singburi province (excluded case). The result of part B: perception of policy on Universal Coverage (30 baht Scheme) and part D: satisfaction towards oral health services was used for reliability testing. The testing was done in each question to find out the coefficient of internal consistency by the Cronbach's Alpha Coefficient method.

3.7 Data Collection

Before data collection, researcher has contacted and discussed about the purpose of the study and asked permission from the Provincial Chief Medical Officer of Singburi province.

From systematic random sampling 14 PCU, the sample came from 30 tambon. The researcher asked staff in each health center to make the appointment for the respondent.

To conduct data collection in clients' satisfaction, researcher trained and calibrated the interviewers about the concept of the research and questionnaire. Then interviewer collected data during 3rd -13th February, 2004.

3.8 Data processing and analysis

The accomplished and collected questionnaires from the field were checked and edited to correct small mistake or misplacement. Then data were entered to the computer.

Statistics for analyzing data were:

3.8.1 Descriptive statistics:

Descriptive statistics such as frequency, percentage, mean, standard deviation, minimum and maximum values were used for describing characteristics of the clients, perception of policy on Universal Coverage, characteristic of oral health care delivery system and level of clients' satisfaction towards oral health services in Thirty Baht Scheme in Singburi province.

3.8.2 Analysis Statistics:

Inferential statistics such as Spearman rank Correlation Coefficient and Chi-square test were used to analyze the relations between characteristics of the clients, perception of policy on Universal Coverage, characteristics of oral health care delivery system and level of clients' satisfaction towards oral health services in Thirty Baht Scheme in Singburi province.

CHAPTER IV

RESULTS

This research is the study of satisfaction towards oral health services under universal coverage program in Singburi province. The data collection was performed for eight days during February 3rd to 13th, 2004. A total of 266 clients selected from 14 PCU which provide oral health services was interviewed by using a structured questionnaire. This chapter presents the results of this study. It consists of 7 parts as follows:

- Part 1 Socio-demographic characteristics of the clients.
- Part 2 Perception of policy on Universal Coverage (30 baht scheme)
- Part 3 Characteristics of health care delivery system.
- Part 4 Clients' Satisfaction towards oral health services.
- Part 5 Relationship between characteristics of Clients and level of satisfaction.
- Part 6 Relationship between perception of policy on Universal Coverage and level of satisfaction.
- Part 7 Relationship between characteristics of health care delivery system and level of satisfaction.

4.1 Socio-demographic characteristics of clients

Table 7 presented the distribution of clients according to their socio-demographic characteristics, such as age, gender, marital status, educational level, occupation, type of gold card, residence and monthly family income.

The age of the clients ranged from 20 to 87 years old with mean age of 47.8 years and S.D. was 13.1 years. The age distribution of the clients showed that the majority (28.2%) was concentrated in the age group 50-59 years. The second majority group (22.6%) was in the age group 30-39 and 40-49 years.

The majority of the clients were female (68.4%) while only 31.6% were male. Most of the clients were married (76.3%), followed by widow/separated/divorced and single accounting for 14.7% and 9.0% respectively.

The educational level of the clients indicated that nearly three fourth of them (73.3%) had finished primary school and some of them (18.0%) had finished secondary school.

Regarding occupation, 33.1% of clients were employee, 28.6% were agriculture and trading/marketing accounted for 19.5%

Concerning in type of gold card, majority of clients (54.5%) had gold card without co-payment and 45.5% of clients had gold card with co-payment.

Nearly three fourth of clients (73.3%) lived in rural area while 26.7% lived in urban area.

The monthly family income of clients displayed a wide gap, ranging from 300 to 25,000 baht per month. Nearly half of them (40.6%) reported their monthly family income was between 2,000 to 3,999 baht and the average monthly family income was 4,325 baht.

Table 7 Number and percentage of clients by socio demographic characteristics.

Characteristics	Number (N = 266)	Percentage
Age (year)		
20-29	21	7.9
30-39	60	22.6
40-49	60	22.6
50-59	75	28.2
60-69	35	13.1
70-79	13	4.9
80-89	2	0.7
$\bar{x} \pm SD.$	47.8 ± 13.1	Min=20 Max=87

Characteristics	Number (N = 266)	Percentage
Gender		
Male	84	31.6
Female	182	68.4
Marital status		
Single	24	9.0
Married	203	76.3
Widow/Separated/Divorced	39	14.7
Educational level		
No education	9	3.4
Primary school	195	73.3
Secondary school	48	18.0
Certification	9	3.4
Bachelor or above	5	1.9
Occupation		
Own business	2	0.7
Employee	88	33.1
Trading/Marketing	52	19.5
Agriculture	76	28.6
Student	1	0.4
Housewife	25	9.4
No occupation	22	8.3
Type of gold card		
Gold card with co-payment	121	45.5
Gold card without co-payment	145	54.5
Residence		
Urban	71	26.7
Rural	195	73.3
Family income		
< 2000	39	14.7
2000-3999	108	40.6
4000-5999	62	23.3
6000-7999	25	9.4
8000-9999	10	3.7
≥ 10000	22	8.3
$\bar{x} \pm SD.$	4325 \pm 3363	Min=300Max-25000

4.2 Perception of policy on Universal Coverage

Table 8 presented the levels of perception of policy on Universal Coverage. The levels of perception were divided into three levels; low (< 60%), moderate (60-79%) and high (\geq 80%). The highest score was 12 (92.3%), the lowest score was 4 (30.8%) in 13 questions. Majority of clients were in moderate and low level of perception of policy accounted for 51.9% and 42.9% respectively. Only 5.2% of them had high level of perception.

Table 8 Number and percentage of clients by level of perception of policy on Universal coverage (30 baht Scheme).

Level of perception	Number (N = 266)	Percentage
Low	114	42.9
Moderate	138	51.9
High	14	5.2

Min=4 Scores (30.8%), Max=12 Scores (92.3%)

The percentage of agreement to the answer in each content of perception was presented in table 9.

Almost all of clients (97.7%) perceived about the basic treatment (filling, extraction and scaling) which provided in core package of gold card but they had low perception on providing of rehabilitation (37.2%) and prevention or promotion (52.6%, 53.8%).

Majority of them (80.4%) perceived that thirty baht scheme can use for all health coverage without limitation (question 13 which is negative question). Thus they perceived that using gold card they could receive the root canal treatment 74.8% and metal-base denture 58.6% (incorrect answer in question 16 and question 17).

Half of them (50.0%) perceived that quality of care received by using gold card is lower than CSMBS or SSS.

Some statements would make them confuse such as negative question or complicated one became low score (negative questions are question No. 11, 13, 16, 17, 21)

Table 9 Percentage of clients by agreement to the answer in perception of policy on Universal coverage (30 baht Scheme)

Contents	Percentage of agreement to the answer
Total	100.0
15. Core package include tooth filling, extraction, and scaling.	97.7
10. Obtain services at nearest PCU	95.1
9. Assure equal accessibility to care	91.0
12. Assure for the service cost	84.6
14. Free of charge for the services of health promotion and prevention	60.1
11. Pay for service cost of referral system	58.6
20. Core package provide fluoride application	53.8
19. Core package provide pit fissure sealant	52.6
21. Quality of care is lower than CSMBS or SSS	50.0
17. Core package provide metal-base denture	41.4
18. Core package provide acrylic-base denture	37.2
16. Core package provide root canal treatment	25.2
13. UC provide all health coverage without limitation	19.6

4.3 Characteristics of health care delivery system.

Table 10 showed that 50.0% of clients received oral health services at community hospital, 33.8% at general hospital, and 16.2% from health center. Almost half of them (48.1%) received oral health services one time during last six months. Most of them (55.7%) received the treatment of tooth extraction, 21.8% got tooth filling and 15.4% got scaling. Only 4.1% got prosthesis and 3.0% got others such as root canal treatment

Table 10 Number and percentage of clients by characteristic of oral health care delivery system.

Characteristics	Number (N = 266)	Percentage
Site of obtaining oral health services		
General hospital	90	33.8
Community hospital	133	50.0
Health center	43	16.2
Number of visits during last 6 month		
1	128	48.1
2	81	30.5
>2	57	21.4
(Min=1, Max=7)		
Type of services		
Filling	58	21.8
Extraction	148	55.7
Scaling	41	15.4
Prosthesis	11	4.1
Others (Root canal treatment)	8	3.0

Table 11 presented the clients' response to oral health services in term of convenience, almost all of them responded that dental clinic's location was convenient for them (97.0%) and opening hours was convenient for them (96.2%). The appropriate time for them and their family to obtain services is morning time.

Table 11 Number and percentage of clients' response to characteristic of oral health care delivery system.

Variables	Number (N = 266)	Percentage
Convenience		
Dental clinic's location		
Yes	258	97.0
No	8	3.0
Opening hours		
Yes	256	96.2
No	10	3.8
Appropriate time to obtain services		
Morning	245	92.1
Afternoon	19	7.1
Evening	2	0.8

Table 12 presented the clients' response to oral health services in term of availability. About thirty to forty percent of clients who received oral health services from general hospital and community hospital didn't know that general hospital and community hospital provided prostheses and root canal treatment. Nearly twenty percent of clients who received oral health services from health center didn't know that the health center provided tooth filling.

Table 12 Number and percentage of clients' actual experience to characteristic of oral health care delivery system.

Variable	General hospital (n=90)		Community hospital (n=133)		Health center (n=43)	
	n	%	n	%	n	%
Availability						
Provide filling						
Yes	89	98.9	128	96.2	35	81.4
No	0	0.0	0	0.0	1	2.3
Don't know	1	1.1	5	3.7	7	16.3
Provide extraction						
Yes	90	100.0	131	98.5	42	97.7
No	0	0.0	0	0.0	1	2.3
Don't know	0	0.0	2	1.5	0	0.0
Provide scaling						
Yes	87	96.7	130	97.7	39	90.7
No	1	1.1	0	0.0	1	2.3
Don't know	2	2.2	3	2.3	3	7.0
Provide prosthesis						
Yes	62	68.9	82	61.6	4	9.3
No	13	14.4	15	11.3	21	48.8
Don't know	15	16.7	36	27.1	18	41.9
Provide root canal treatment						
Yes	65	72.2	100	75.2	4	9.3
No	9	10.0	5	3.8	13	30.2
Don't know	16	17.8	28	21.0	26	60.5

Table 13 presented the clients' response to oral health services in term of facility. Most of them responded that dental chairs were sufficient (89.5%) and dental health personnel were sufficient (86.5%)

Table 13 Number and percentage of clients' actual experience to characteristic of oral health care delivery system.

Variables	Number (N = 266)	Percentage
Facilities		
Sufficiency of dental chairs		
Yes	238	89.5
No	28	10.5
Sufficiency of dental health personnel		
Yes	230	86.5
No	36	13.5

As given in table 13, the clients responded to oral health services in term of accessibility. Only one fourth of them (25.6%) had the problem of getting oral health services and the main problem was long queue for some kinds of treatment (69.1%)

According to the distance from their home to dental clinic, half of them (50.0%) were in 1-5 km., the nearest distance was 100 meters and the furthest was 20 kms. with the average distance was 5.1 kms. Average time they spent for transportation was 16.0 minutes with the maximum was 60 minutes. Majority of them (83.8%) came to dental clinic by private vehicle.

With regard to waiting time for registration, about two third of clients (67.7%) said that they spent 1-10 minutes waiting for the OPD card to be issued, the mean waiting time was 11.5 minutes, minimum and maximum waiting time was 1 and 60 minute respectively. Most clients (60.2%) assessed that the waiting time was moderate. The waiting time for obtaining serviced, 60.2% of clients said that they spent less than 15 minute, the average of waiting time was 20.4 minute, the minimum

time was 1 minute and maximum time was 180 minute. Most clients (62.0%) also assessed that the waiting time was moderate.

Table 14 Number and percentage of clients' actual experience to characteristic of oral health care delivery system.

Variables	Number (N = 266)	Percentage
Accessibility		
Problem of getting oral health services		
Yes	68	25.6
No	198	74.4
Main problem		
Long waiting time	19	28.0
Long queue for some kinds of treatment*	47	69.1
Transportation problem	2	2.9
Distance from home to dental clinic (km)		
<1	20	7.5
1-5	133	50.0
6-10	100	37.6
>10	13	4.9
$\bar{x} \pm SD = 5.1 \pm 3.9$	Min=0.1	Max=20
Time spent for transportation (min.)		
<10	49	18.4
10-30	209	78.6
>30	8	3.0
$\bar{x} \pm SD = 16.0 \pm 10.3$	Min=3	Max=60
Type of transportation		
On foot	14	5.3
Private vehicle	223	83.8
Bus, hire motorcycle	29	10.9
Waiting time for registration (min.)		
1-10	180	67.7
11-20	57	21.4
21-30	25	9.4
>30	4	1.5
$\bar{x} \pm SD = 11.5 \pm 9.6$	Min=1	Max=60

Variables	Number (N = 266)	Percentage
Feeling that waiting time for registration is		
Quick	90	33.8
Moderate	160	60.2
Long	16	6.0
Waiting time for obtaining services		
<15 minute	160	60.2
16-30 minute	79	29.7
31-45 minute	3	1.1
46-60 minute	17	6.4
>60 minute	7	2.6
$\bar{x} \pm SD. = 20.4 \pm 23.0$	Min=1	Max=180
Feeling that waiting time for obtaining services is		
Quick	78	29.3
Moderate	165	62.0
Long	23	8.7

* Some kinds of treatment such as prosthesis, root canal treatment, etc.

4.4 Clients' satisfaction towards oral health services

Table 15 showed that 83.5% of clients had overall high satisfaction towards oral health services. In term of convenience, 77.0% of clients had high satisfaction. For courtesy, 87.2% of clients had high satisfaction. For information, 79.0% clients had high satisfaction. For out of pocket cost, 72.6% of clients had high satisfaction. For quality of care, 89.1% of clients had high satisfaction. Nobody had low satisfaction on quality of care and overall satisfaction.

Table 15 Number, percentage, mean, S.D., minimum and maximum of level of clients' satisfaction towards oral health services.

Satisfaction	Number	Percentage	$\bar{X} \pm SD.$	Min-Max	Level
Convenience (3 questions)			12.0±1.9	6-15	High
Low (3-6)	2	0.8			
Moderate (7-10)	59	22.2			
High (11-15)	205	77.0			

Satisfaction	Number	Percentage	$\bar{X} \pm SD.$	Min- Max	Level
Courtesy (3 questions)			12.9±2.0	6-15	High
Low (3-6)	1	0.4			
Moderate (7-10)	33	12.4			
High (11-15)	232	87.2			
Information (3 questions)			12.2±2.3	3-15	High
Low (3-6)	4	1.5			
Moderate (7-10)	52	19.5			
High (11-15)	210	79.0			
Out of pocket cost (2 questions)			8.1±1.7	2-10	High
Low (2-4)	11	4.1			
Moderate (5-7)	62	23.3			
High (8-10)	193	72.6			
Quality of care (7 questions)			30.1±3.7	18-35	High
Low (7-16)	-	-			
Moderate (17-25)	29	10.9			
High (26-35)	237	89.1			
Overall satisfaction (18 questions)			75.2±9.4	51-90	High
Low (18-41)	-	-			
Moderate (42-65)	44	16.5			
High (66-90)	222	83.5			

For the detail of clients satisfaction score in each aspect, as shown in table 16, the clients greatly satisfied with the respectful and courteous manner and the competence of staff (mean score 4.5) which had the highest satisfaction score 52.6% and 50.8% respectively whereas nobody had the lowest satisfaction score in these two aspects. The clients had minimally satisfied with waiting time spent and transportation cost which had the highest satisfaction score only 19.2% and 27.8% and mean score 3.8 and 3.9 respectively.

Table 16 Percentage and Mean of satisfaction score of clients in each aspect.(total n=266)

5 = Highest satisfied

4 = High satisfied

3 = Moderate satisfied

2 = Low satisfied

1 = Lowest satisfied

	Items	Percentage in each level of satisfaction					Mean
		5	4	3	2	1	
1	Convenience						
	43. The clinic hours	30.1	45.0	21.4	3.0	0.4	4.0
	44. The comfortable services	38.3	50.4	9.4	1.9	0.0	4.3
	45. Waiting time spent	19.2	42.9	30.4	6.0	1.5	3.8
2	Courtesy						
	46. The respectful and courteous manner	52.6	37.6	7.5	2.3	0.0	4.5
	47. The interpersonal care	44.4	41.3	13.2	1.1	0.0	4.3
	48. Spent time to listen your problem	38.4	44.7	12.4	4.1	0.4	4.2
3	Information						
	49. The completeness of the information	35.3	44.4	14.7	4.9	0.7	4.2
	50. Can discuss your problem	34.5	43.9	16.5	4.5	0.3	4.1
	51. Instruction received	32.7	42.1	19.5	4.5	1.1	4.1
4.	Out of pocket costs						
	52. Co-pay or without co-pay 30baht per visit	47.4	39.1	10.5	0.4	2.6	4.4
	53. Transportation cost	27.8	39.9	24.1	4.1	4.1	3.9
5.	Quality of care						
	54. Competence of staff	50.8	42.1	5.6	1.5	0.0	4.5
	55. Sufficiency of equipment	41.0	48.1	7.5	3.4	0.0	4.3
	56. Quality of equipment	41.3	47.4	10.5	0.8	0.0	4.3
	57. Cleanliness and comfort of waiting area	39.1	51.5	9.4	0.0	0.0	4.3
	58. Cleanliness and comfort of dental clinic	46.2	48.5	5.3	0.0	0.0	4.4
	59. Overall with the services	37.6	47.7	13.9	0.8	0.0	4.2
	60. Quality of treatment	36.8	45.5	15.0	1.9	0.8	4.2

4.5 Relationship between characteristics of clients and level of satisfaction.

Table 17 and Table 18 showed the details of relationship between characteristics of clients and level of satisfaction towards oral health services by using χ^2 test and Spearman rank correlation. From the result of this analysis it was found that type of gold card of clients was related to level of clients' satisfaction with significance (p-value= 0.041) i.e., clients who had gold card without co-payment had higher satisfaction than those who had gold card with co-payment. Whereas there is no significant association between level of clients satisfaction and socio-demographic characteristics of them such as age, gender, marital status, educational level, occupation, type of gold card, residence and family income.

Convenience on oral health services, it was found that convenience on dental clinic's locations and opening hours were related to level of clients' satisfaction with significance (p-value < 0.001)

Facilities of oral health services, it was found that sufficiency of dental health personnel was related to level of clients' satisfaction with significance (p-value = 0.004)

Accessibility to oral health services, it was found that problem on access to receive oral health services was related to level of clients' satisfaction with significance (p-value = 0.001) i.e., clients who didn't have problem on access to receive oral health services had higher satisfaction than those who had the problem.

According to the distance from home to dental clinic, it was found that distance was related to level of clients' satisfaction with significance (p-value = 0.034) i.e., clients who lived close to dental clinic had higher satisfaction than those who lived far from the dental clinic.

Table 17 Relations between characteristics of clients and level of satisfaction towards oral health services.

Variables	Level of Satisfaction				χ^2 Test	p-value
	Moderate		High			
	No	%	No	%		
Total	44	16.5	222	83.5		
Gender					0.559	0.455
Male	16	19.0	68	81.0		
Female	28	15.4	154	84.6		
Marital Status					3.528	0.171
Single	6	25.0	18	75.0		*
Married	33	17.2	168	82.8		
Widow Divorced	3	7.7	36	92.3		
Educational Level					3.422	0.331
No education	2	22.2	7	77.8		*
Primary School	28	14.4	167	85.6		
Secondary School	12	25.0	36	75.0		
Certification Bachelor or above	2	14.3	12	85.7		
Total	44	16.5	222	83.5		
Occupation					1.740	0.628
Employee	18	20.4	70	79.6		
Own business/ Trading/marketing	9	16.7	45	83.2		
Agriculture	10	13.2	66	86.8		
Student/housewife/ no occupation	7	14.6	41	85.4		
Type of gold card					4.16	0.041
With co-payment	26	21.7	94	78.3		
Without co-payment	18	12.3	128	87.7		
Residence					0.009	0.924
Urban	12	16.9	59	83.1		
Rural	32	16.4	163	83.6		
Convenience						
Locations					12.620	<0.001*
Yes	39	15.1	219	84.9		
No	5	62.5	3	37.5		
Opening hours					21.510	<0.001*
Yes	37	14.4	219	85.9		
No	7	70.0	3	30.0		
Facilities						
Equipment					3.281	0.070
Yes	36	15.1	202	84.9		
No	8	28.6	20	71.4		

Variables	Level of Satisfaction				χ^2 Test	p-value
	Moderate		High			
	No	%	No	%		
Personnel					8.504	0.004
Yes	32	13.9	198	86.1		
No	12	33.3	24	66.7		
Accessibility Problem					10.961	0.001
Yes	20	29.4	48	70.6		
No	24	12.1	174	87.9		
Distance (km.)					8.697	0.034*
<1	0	0	20	100.0		
1-5	21	15.8	112	84.2		
6-10	18	18.0	82	82.0		
>10	5	38.5	8	61.5		

* Fisher's exact test

Table 18 Correlation coefficient between characteristics of clients and satisfaction towards oral health services.

Variable	Satisfaction Correlation Coefficient (r)	p-value
Age (years)	0.018	0.774
Family income (baht/month)	0.024	0.691

4.6 Relationship between perception of policy on Universal Coverage and clients satisfaction.

Table 19 showed the correlation between perception of policy on Universal Coverage and clients satisfaction, it was found that perception was positively related to satisfaction towards oral health services with significance (p-value = 0.020) although the value of correlation coefficient was low ($r = 0.143$). Clients who had higher level of perception on policy had higher level of satisfaction.

Table 19 Correlation coefficient between perception of policy on Universal Coverage (30 baht scheme) and clients satisfaction towards oral health services.

	Satisfaction	
	Correlation Coefficient (r)	p-value
Perception	0.143	0.020

4.7 Relationship between characteristics of health care delivery system and level of satisfaction.

Table 20 and Table 21 showed the relationship between characteristics of health care delivery system and level of clients satisfaction, it was found that site or type of Primary Care Unit which the clients received oral health service was related to their satisfaction with significance (p-value = 0.018). Clients who received oral health service from health center and community hospital had higher satisfaction than those who received oral health service from general hospital.

Type of services, it was found that type of services was not related to level of clients satisfaction. However, the result showed that clients who received prosthesis or other services such as root canal treatment had higher satisfaction than those who received the services of tooth filling, extraction and scaling.

Frequency or number of visits receiving oral health services in last six month was positively related to satisfaction with significance (p-value = 0.006) although the value of correlation coefficient was low ($r = 0.170$). Clients who got often services had higher satisfaction than those who got fewer services.

The waiting time for registration OPD card was found to be negatively related to satisfaction towards oral health services with significance (p-value <0.001) i.e. the shorter time for waiting would increase satisfaction. The value of relationship was low ($r = -0.303$).

The waiting time for obtaining oral health services was also found to be negatively related to satisfaction towards oral health services with significance (p-value <0.001) i.e. the shorter time would increase satisfaction. The value of relationship was low ($r = -0.285$).

Table 20 Relations between characteristics of health care delivery system and level of satisfaction towards oral health services.

Variables	Level of Satisfaction				χ^2 Test	p-value
	Moderate		High			
	No	%	No	%		
Total	44	16.5	222	83.5		
Site					8.010	0.018
General Hospital	23	25.6	67	74.4		
Community Hospital	16	12.0	117	88.0		
Health Center	5	11.6	38	88.4		
Type of services					0.856	0.931
Filing	9	15.5	49	84.5		
Extraction	25	16.9	123	83.1		
Scaling	8	19.5	33	80.5		
Prosthesis	1	9.1	10	90.9		
Other (RCT)	1	12.5	7	87.5		

Table 21 Correlation coefficient between characteristics of health care delivery system and clients satisfaction toward oral health services.

Variables	Satisfaction	
	Correlation Coefficient (r)	p-value
Frequency (Number of visits)	0.170	0.006
Waiting time for registration	-0.303	0.000
Waiting time for obtaining services	-0.285	0.000

The result in table 22 showed the detail of satisfaction score of the clients who received oral health services from general hospital. It found that the clients favorably satisfied with the quality of equipment, competence of staff, cleanliness and comfort of dental clinic. which had the equal mean score (4.3), the highest satisfaction score 42.2%, 41.1% and 38.9% respectively Whereas they minimally satisfied with waiting time spent (mean score 3.2 and the highest satisfaction score only 10.0%).

Table 22 Percentage and Mean of satisfaction score of clients in each aspect.
(General hospital n=90)

	Items	Percentage in each level of satisfaction					Mean
		5	4	3	2	1	
1	Convenience	18.9	38.9	37.8	3.3	1.1	3.7
	43. The clinic hours	27.8	51.1	17.8	3.3	0.0	4.0
	44. The comfortable services	10.0	20.0	55.6	12.2	2.2	3.2
	45. Waiting time spent	36.7	43.3	16.7	3.3	0.0	4.1
2	Courtesy						
	46. The respectful and courteous manner	26.7	50.0	22.2	1.1	0.0	4.0
	47. The interpersonal care	26.7	50.0	22.2	1.1	0.0	4.0
	48. Spent time to listen your problem	24.4	52.2	21.1	2.2	0.0	4.0
3	Information						
	49. The completeness of the information	24.4	45.6	25.5	4.4	0.0	3.9
	50. Can discuss your problem	28.9	41.1	26.7	3.3	0.0	4.0
	51. Instruction received	27.8	40.0	26.7	4.4	1.1	3.9
4	Out of pocket costs						
	52. Co-pay or without co-pay 30 baht per visit	34.4	42.2	17.8	0.0	5.6	4.0
	53. Transportation cost	26.7	28.9	32.2	6.7	5.5	3.6
	Quality of care						
	54. Competence of staff	41.1	52.2	5.6	1.1	0.0	4.3
	55. Sufficiency of equipment	33.3	54.5	7.8	4.4	0.0	4.2
	56. Quality of equipment	42.2	45.6	12.2	0.0	0.0	4.3
	57. Cleanliness and comfort of waiting area	30.0	56.7	13.3	0.0	0.0	4.2
	58. Cleanliness and comfort of dental clinic	38.9	52.2	8.9	0.0	0.0	4.3
	59. Overall with the services	24.4	47.8	26.7	1.1	0.0	4.0
	60. Quality of treatment	30.0	48.9	16.7	2.2	2.2	4.0

Table 23 presented the detail of satisfaction score of the clients who received oral health services from community hospital. The clients greatly satisfied with the respectful and courteous manner and the competence of staff which had the same mean score (4.5), the highest satisfaction score 57.9% and 54.1% respectively which nobody had lowest satisfaction score. They slightly satisfied with transportation cost (mean score 3.9 and the highest satisfaction score 22.5%)

Table 23 Percentage and Mean of satisfaction score of clients in each aspect. (community hospital n=133)

	Items	Percentage in each level of satisfaction					Mean
		5	4	3	2	1	
1	Convenience						
	43. The clinic hours	33.1	53.4	12.0	1.5	0.0	4.2
	44. The comfortable services	37.6	57.1	5.3	0.0	0.0	4.3
	45. Waiting time spent	21.8	59.4	14.3	3.8	0.8	4.0
2	Courtesy						
	46. The respectful and courteous manner	57.9	38.3	2.3	1.5	0.0	4.5
	47. The interpersonal care	52.6	38.3	8.3	0.8	0.0	4.4
	48. Spent time to listen your problem	44.4	43.6	6.8	5.2	0.0	4.3
3	Information						
	49. The completeness of the information	39.8	45.9	8.3	5.2	0.8	4.2
	50. Can discuss your problem	35.4	49.6	10.5	4.5	0.0	4.2
	51. Instruction received	30.1	46.6	17.3	5.2	0.8	4.0
4	Out of pocket costs						
	52. Co-pay or without co-pay 30 baht per visit	48.1	42.8	6.8	0.8	1.5	4.4
	53. Transportation cost	22.5	54.1	18.1	2.3	3.0	3.9
5	Quality of care						
	54. Competence of staff	54.1	39.9	4.5	1.5	0.0	4.5
	55. Sufficiency of equipment	46.6	48.1	5.3	0.0	0.0	4.4
	56. Quality of equipment	46.6	48.1	5.3	0.0	0.0	4.4
	57. Cleanliness and comfort of waiting area	41.4	52.6	6.0	0.0	0.0	4.4
	58. Cleanliness and comfort of dental clinic	49.6	46.6	3.8	0.0	0.0	4.4
	59. Overall with the services	38.3	53.4	7.5	0.8	0.0	4.4
	60. Quality of treatment	34.6	48.1	15.8	1.5	0.0	4.3

Table 24 revealed the detail of satisfaction score of the clients who received oral health services from health center. The clients extremely satisfied in every aspect (mean score 3.9-4.6) especially in the payment for treatment, the respectful and courteous manner and overall with the services with had mean score 4.6 and the highest satisfaction score 72.0%, 69.8% and 62.8% respectively. They minimally satisfied with quality of equipment which had mean score 3.9 and the highest satisfaction score only 23.3%.

Table 24 Percentage and Mean of satisfaction score of clients in each aspect. (Health center n=43)

	Items	Percentage in each level of satisfaction					Mean
		5	4	3	2	1	
1	Convenience						
	43. The clinic hours	44.2	32.5	16.3	7.0	0.0	4.1
	44. The comfortable services	62.8	27.9	4.7	4.7	0.0	4.5
	45. Waiting time spent	30.2	39.6	27.9	0.0	2.3	4.0
2	Courtesy						
	46. The respectful and courteous manner	69.8	23.3	4.6	2.3	0.0	4.6
	47. The interpersonal care	55.8	32.6	9.3	2.3	0.0	4.4
	48. Spent time to listen your problem	48.8	32.6	11.6	4.6	2.3	4.2
3	Information						
	49 The completeness of the information	44.2	37.2	11.6	4.6	2.3	4.1
	50. Can discuss your problem	44.2	32.5	14.0	7.0	2.3	4.1
	51. Instruction received	51.2	32.6	11.6	2.3	2.3	4.3
4	Out of pocket costs						
	52. Co-pay or without co-pay 30 baht per visit	72.0	21.0	7.0	0.0	0.0	4.6
	53. Transportation cost	46.5	18.6	25.6	4.6	4.6	4.0
5	Quality of care						
	54. Competence of staff	60.5	27.9	9.3	2.3	0.0	4.5
	55. Sufficiency of equipment	39.5	34.9	14.0	11.6	0.0	4.0
	56. Quality of equipment	23.3	48.8	23.3	4.6	0.0	3.9
	57. Cleanliness and comfort of waiting area	51.2	37.2	11.6	0.0	0.0	4.4
	58. Cleanliness and comfort of dental clinic	51.2	46.5	2.3	0.0	0.0	4.5
	59. Overall with the services	62.8	30.2	7.0	0.0	0.0	4.6
	60. Quality of treatment	58.2	30.2	9.3	2.3	0.0	4.4

Table 25-29 showed the detail of satisfaction score of clients who received different kinds of treatment such as one visit treatment (tooth filling, extraction, scaling) and ongoing procedure (prosthesis, RCT). It found that the clients extremely satisfied with competence of staff and the respectful and courteous manner whereas minimally satisfied with waiting time spent and transportation cost.

As shown in Table 25, the clients highly satisfied with competence of staff and the respectful and courteous manner which had same mean score 4.5 and the highest satisfaction score 51.7% and 50.0% respectively. They scarcely satisfied with waiting time spent, the clinic hours and transportation cost which had and the highest satisfaction score 13.18%, 22.4% and 27.6% respectively.

Table 25 Percentage and Mean of satisfaction score of clients in each aspect.
(Filling n=58)

	Items	Percentage in each level of satisfaction					Mean
		5	4	3	2	1	
1	Convenience						
	43. The clinic hours	22.4	39.7	29.3	6.9	1.7	3.7
	44. The comfortable services	34.5	48.3	17.2	0.0	0.0	4.2
	45. Waiting time spent	13.8	36.2	36.2	10.3	3.5	3.5
2	Courtesy						
	46. The respectful and courteous manner	50.0	41.4	5.2	3.4	0.0	4.4
	47. The interpersonal care	44.8	44.8	5.2	3.4	0.0	4.4
	48. Spent time to listen your problem	34.5	51.7	13.8	0.0	0.0	4.2
3	Information						
	49. The completeness of the information	34.5	48.3	13.8	3.4	0.0	4.1
	50. Can discuss your problem	32.8	53.4	12.1	1.7	0.0	4.1
	51. Instruction received	34.5	41.4	17.3	3.4	3.4	4.0
4	Out of pocket costs						
	52. Co-pay or without co-pay 30 baht per visit	53.5	31.0	10.3	0.0	5.2	4.3
	53. Transportation cost	27.6	36.2	24.1	6.9	5.2	3.7
5	Quality of care						
	54. Competence of staff	51.7	44.8	3.5	0.0	0.0	4.5

Items	Percentage in each level of satisfaction					Mean
	5	4	3	2	1	
55. Sufficiency of equipment	36.2	53.4	3.5	6.9	0.0	4.5
56. Quality of equipment	46.6	43.1	8.6	1.7	0.0	4.3
57. Cleanliness and comfort of waiting area	27.6	67.2	5.2	0.0	0.0	4.2
58. Cleanliness and comfort of dental clinic	44.8	48.3	6.9	0.0	0.0	4.2
59. Overall with the services	29.3	56.9	13.8	0.0	0.0	4.4
60. Quality of treatment	25.9	51.7	20.7	0.0	1.7	4.0



Table 26 presented that the clients who got extraction highly satisfied with the respectful and courteous manner (mean score 4.5) and competence of staff (mean score 4.4) which had and the highest satisfaction score 55.4% and 49.3% respectively. They minimally satisfied with waiting time spent and transportation cost which had same mean score 3.9 and the highest satisfaction score 23.0% and 28.4% respectively.

Table 26 Percentage and Mean of satisfaction score of clients in each aspect.
(Extraction n = 148)

	Items	Percentage in each level of satisfaction					Mean
		5	4	3	2	1	
1	Convenience						
	43. The clinic hours	33.1	48.0	17.6	1.3	0.0	4.1
	44. The comfortable services	38.5	51.3	6.8	3.4	0.0	4.3
	45. Waiting time spent	23.0	46.6	27.0	3.4	0.0	3.9
2	Courtesy						
	46. The respectful and courteous manner	55.4	35.8	8.1	0.7	0.0	4.5
	47. The interpersonal care	42.6	43.9	12.8	0.7	0.0	4.5
	48. Spent time to listen your problem	37.2	48.0	10.8	4.0	0.0	4.2
3	Information						
	49. The completeness of the information	35.1	46.6	12.2	4.7	1.4	4.1
	50. Can discuss your problem	33.1	44.6	18.2	3.4	0.7	4.1
	51. Instruction received	30.4	44.6	20.9	3.4	0.7	4.0
4	Out of pocket costs						
	52. Co-pay or without co-pay 30 baht per visit	43.9	45.3	7.4	0.7	2.7	4.3
	53. Transportation cost	28.4	43.2	21.6	4.1	2.7	3.9
5	Quality of care						
	54. Competence of staff	49.3	41.2	8.1	1.4	0.0	4.4
	55. Sufficiency of equipment	41.2	46.6	11.5	0.7	0.0	4.3
	56. Quality of equipment	41.2	49.3	8.8	0.7	0.0	4.3
	57. Cleanliness and comfort of waiting area	43.3	46.6	10.1	0.0	0.0	4.3
	58. Cleanliness and comfort of dental clinic	46.6	49.3	4.1	0.0	0.0	4.4
	59. Overall with the services	39.9	46.6	12.8	0.7	0.0	4.4
	60. Quality of treatment	41.2	43.9	11.5	2.7	0.7	4.2

From Table 27, the clients who got the treatment of scaling calculus highly satisfied with payment of services, competence of staff, comfortable services, cleanliness and comfort of dental clinic as highest satisfaction score 51.2%, 46.3%, 39.0% and 34.2% respectively. They also minimally satisfied with waiting time spent (mean score 3.5) and transportation cost (mean score 3.7). The highest satisfaction score in waiting time spent was only 7.3%.

Table 27 Percentage and Mean of satisfaction score of clients in each aspect.
(Scaling n = 41)

Items	Percentage in each level of satisfaction					Mean
	5	4	3	2	1	
1 Convenience						
43. The clinic hours	24.4	43.9	26.8	4.9	0.0	3.9
44. The comfortable services	39.0	53.7	7.3	0.0	0.0	4.3
45. Waiting time spent	7.3	46.3	36.6	7.3	2.4	3.5
2 Courtesy						
46. The respectful and courteous manner	36.6	46.3	12.2	4.9	0.0	4.1
47. The interpersonal care	36.6	41.4	17.1	4.9	0.0	4.1
48. Spent time to listen your problem	34.2	39.0	14.6	9.8	2.4	3.9
3 Information						
49. The completeness of the information	26.8	43.9	22.0	7.3	0.0	3.9
50. Can discuss your problem	31.7	39.0	17.1	12.2	0.0	3.9
51. Instruction received	29.3	34.1	24.4	2.4	9.8	3.7
4 Out of pocket costs						
52. Co-pay or without co-pay 30 baht per visit	51.2	29.3	19.5	0.0	0.0	4.3
53. Transportation cost	29.3	34.1	24.4	2.4	9.8	3.7
5 Quality of care						
54. Competence of staff	46.3	46.3	2.5	4.9	0.0	4.3
55. Sufficiency of equipment	39.0	51.2	0.0	9.8	0.0	4.2
56. Quality of equipment	24.4	53.7	21.9	0.0	0.0	4.0
57. Cleanliness and comfort of waiting area	29.3	56.1	14.6	0.0	0.0	4.1
58. Cleanliness and comfort of dental clinic	34.2	58.5	7.3	0.0	0.0	4.3
59. Overall with the services	29.3	51.2	17.1	2.4	0.0	4.1
60. Quality of treatment	26.8	51.2	19.5	2.4	0.0	4.0

From Table 28, it found that the clients who got the treatment of prosthesis had highly satisfaction with almost aspects (the highest satisfaction score was more than 40% in every aspect). They rarely satisfied with transportation cost (mean score 3.9, highest satisfaction score 27.2%). Nevertheless it seems to be greatly satisfied in the aspect of waiting time spent because the mean score was not less than 4.0 and the highest satisfaction score up to 45.4%.

Table 28 Percentage and Mean of satisfaction score of clients in each aspect.
(Prosthesis n = 11)

Items	Percentage in each level of satisfaction					Mean
	5	4	3	2	1	
1 Convenience						
43. The clinic hours	45.5	45.4	9.1	0.0	0.0	4.4
44. The comfortable services	54.5	36.4	9.1	0.0	0.0	4.5
45. Waiting time spent	45.4	18.2	27.3	9.1	0.0	4.0
2 Courtesy						
46. The respectful and courteous manner	72.7	18.2	0.0	9.1	0.0	4.5
47. The interpersonal care	72.7	0.0	27.3	0.0	0.0	4.5
48. Spent time to listen your problem	63.6	9.1	27.3	0.0	0.0	4.4
3 Information						
49. The completeness of the information	63.6	9.1	27.3	0.0	0.0	4.4
50. Can discuss your problem	54.5	27.3	18.2	0.0	0.0	4.4
51. Instruction received	54.5	27.3	18.2	0.0	0.0	4.4
4 Out of pocket costs						
52. Co-pay or without co-pay 30 baht per visit	45.5	45.4	9.1	0.0	0.0	4.4
53. Transportation cost	27.2	36.4	36.4	0.0	0.0	3.9
5 Quality of care						
54. Competence of staff	63.6	36.4	0.0	0.0	0.0	4.6
55. Sufficiency of equipment	63.6	36.4	0.0	0.0	0.0	4.6
56. Quality of equipment	63.6	27.3	9.1	0.0	0.0	4.5
57. Cleanliness and comfort of waiting area	63.6	27.3	9.1	0.0	0.0	4.5
58. Cleanliness and comfort of dental clinic	63.6	27.3	9.1	0.0	0.0	4.5
59. Overall with the services	63.6	27.3	9.1	0.0	0.0	4.5
60. Quality of treatment	54.5	36.4	9.1	0.0	0.0	4.5

As shown in Table 29, the clients who got other treatment such as root canal treatment extremely satisfied with almost aspects (the highest satisfaction score up to 87.5%) except in the aspect of waiting time spent and transportation cost which had the highest satisfaction score only 12.5% and mean score 3.2 and 3.6 respectively.

Table 29 Percentage and Mean of satisfaction score of clients in each aspect.
(Others ; RCT n = 8)

Items	Percentage in each level of satisfaction					Mean
	5	4	3	2	1	
1 Convenience						
43. The clinic hours	37.5	37.5	25.0	0.0	0.0	4.1
44. The comfortable services	37.5	50.0	12.5	0.0	0.0	4.2
45. Waiting time spent	12.5	37.5	25.0	12.5	12.5	3.2
2 Courtesy						
46. The respectful and courteous manner	75.0	25.0	0.0	0.0	0.0	4.8
47. The interpersonal care	75.0	25.0	0.0	0.0	0.0	4.8
48. Spent time to listen your problem	75.0	12.5	0.0	12.5	0.0	4.5
3 Information						
49. The completeness of the information	50.0	25.0	12.5	12.5	0.0	4.1
50. Can discuss your problem	62.5	12.5	12.5	12.5	0.0	4.2
51. Instruction received	50.0	37.5	0.0	12.5	0.0	4.2
4 Out of pocket costs						
52. Co-pay or without co-pay 30 baht per visit	50.0	25.0	25.0	0.0	0.0	4.2
53. Transportation cost	12.5	37.5	50.0	0.0	0.0	3.6
5 Quality of care						
54. Competence of staff	75.0	25.0	0.0	0.0	0.0	4.8
55. Sufficiency of equipment	50.0	37.5	12.5	0.0	0.0	4.4
56. Quality of equipment	62.5	37.5	0.0	0.0	0.0	4.6
57. Cleanliness and comfort of waiting area	62.5	37.5	0.0	0.0	0.0	4.6
58. Cleanliness and comfort of dental clinic	87.5	12.5	0.0	0.0	0.0	4.9
59. Overall with the services	62.5	12.5	25.0	0.0	0.0	4.4
60. Quality of treatment	62.5	12.5	25.0	0.0	0.0	4.4

Table 30 showed the average of waiting time for registration in different site of receiving oral health services; it was found that general hospital had longer time for waiting than community hospital and health center.

Table 30 Mean, standard deviation, minimum and maximum of waiting time for registration in different site of receiving oral health service.

Site	Waiting time for registration		
	Mean \pm SD	Min	Max
General hospital	15.5 \pm 11.2	2	60
Community hospital	10.8 \pm 8.2	2	60
Health Center	5.6 \pm 4.9	1	30

Table 31 showed the average of waiting time for obtaining services in different site of receiving oral health services; it was found that general hospital also had longer time for waiting than community hospital and health center. Maximum time for waiting before getting services in health center, community hospital and general hospital was 1 hour, 2 hours and 3 hours respectively.

Table 31 Mean, standard deviation, minimum and maximum of waiting time for obtaining services in different site of receiving oral health service.

Site	Waiting time for obtaining services		
	Mean \pm SD	Min	Max
General hospital	30.5 \pm 30.7	5	180
Community hospital	15.7 \pm 16.0	2	120
Health Center	13.8 \pm 14.1	1	60

CHAPTER V

DISCUSSION

The astute practice manager monitors the effectiveness of patient care in term of both the actual dental services rendered and the process used to deliver the services. One mechanism that can be helpful is the use of a patient satisfaction survey to determine the status of the relationship between the dental practice and patient's record.

In this study, the results revealed that the level of satisfaction related to type of gold care of the clients, convenience, facilities and accessibility of health care delivery system, perception of policy on universal coverage, site of utilization of oral health services, number of visits for receiving oral health services, waiting time for registration and waiting time for obtaining services.

The clients were highly satisfied with overall of the oral health services (83.51%) and also with every aspect such as out of pocket cost (72.6%), convenience (77.0%), information (79.0%) especially in courtesy (87.2%) and quality of care (89.1%)

There was no significance association between level of satisfaction and socio-demographic characteristics of clients such as age, gender, marital status, educational level, occupation, residence and monthly family income. Regarding the characteristics of population in this study, the sample was chosen only one group of clients who were golden card clients so they may have similar characteristics.

Even though Singburi province launched the universal Coverage project for 2 years, the level of perception on UC policy of clients was in moderate level (51.9%) and low level (42.9%). Whereas half of them (50.0%) perceived that quality of care

received by using gold card is lower than CSMBS and SSS they still had high level of satisfaction with quality of care (89.1%) and overall of oral health services (83.5%).

Clients who received oral health services from health center and community hospital had higher satisfaction than those who received oral health services from general hospital. It is perhaps because waiting time for registration and for obtaining services is shorter. (Table 30 and table 31).

5.1 Socio-demographic characteristics of clients

In this study, there was no relationship between socio-demographic of clients and level of satisfaction, the same as the study of Sonam Rinchen on February 2003 in “Utilization of the gold card and patients satisfaction at Chulalongkorn memorial hospital, Bangkok” (45) and the study of Ratchada Tantisarasat on January to March 1999 in “client satisfaction towards dental care services at the Dental Hospital, Faculty of Dentistry, PSU” (46). Sonam Rinchen found that no variables seemed to deter the satisfaction level of all respondents. Ratchada Tantisarasat found that according to client satisfaction, there was no difference in age and sex but significant difference in client’s experience, education and income.

In the aspect of type of gold card of clients, in this study, clients who had gold card without co-payment had higher satisfaction than those who had gold card with co-payment. Because clients who had gold card with co-payment had higher expectation for services than those who did not pay for the services. This finding agreed with previous study by Suwaporn Naewchampa on January 2002 in “Satisfaction in Health Care delivery at Sappasithiprasong hospital under the Universal Coverage” (47). Suwaporn Naewchampa found that level of satisfaction related to age, educational level, main career, income, type of gold card and perception of Universal Coverage Policy.

5.2 Perception of policy on Universal Coverage

From this study, clients had low and moderate level of perception on Universal Coverage policy especially in terms of beneficiaries or core package of services.

In clients' perception, 50% of them perceived that the service quality provided by 30 baht scheme was lower than CSMBS and SSS which had a little bit difference from the study of Orathai Khaewcharoen on May and June 2002 in "Evaluation of the medical services under the universal health coverage scheme: a case study of Phitsanulok province" (48). Orathai Khaewcharoen found that from the clients' perspectives, the services quality provided was at a fair with a high level of satisfaction and in terms of equity, most people (69.7% of total) considered that there was no difference in services rendered by the 30 baht scheme or by others.

The result of this study showed that perception was positively related to satisfaction with low value of correlation coefficient ($p\text{-value} = 0.020$, $r = 0.143$) the same as the result of the study of Suwaporn Naewchampa. It means that clients who had higher perception got higher satisfaction toward oral health services.

5.3 Characteristics of health care delivery system.

In terms of accessibility, it was found that the clients didn't have geographic barrier such as the distance between their home and health facilities, mode of transportation and availability of transportation. Correspond to the study of Orathai Khaewcharoen which found that 93.6% of clients had convenient access to care and correspond to the study of Phenkhae Lapying and Samrit Srithamrongsawat (49) which carried out during November 2001-April 2002 about "The First-year Implementation of Primary Care Unit of the Universal Health Care Coverage Project : A case Study in Four Province". It found that under UC project the people reaped the benefits from primary care units of the hospitals, in terms of easily access and better quality of care received.

The main problem of getting oral health services was long queue for some kinds of treatment (69.1%) and the second problem was long waiting time (28.0%).

Regarding waiting time, it found that waiting for registration OPD card and for obtaining services was negatively related to satisfaction. Similar to the study of Watakulsin P. and Patanapiradej V. (50) during April to June 1999 in “New patients’ opinions about the dental services provided by the general out patient clinic, Faculty of Dentistry, Chulalongkorn University” which revealed that the clients were unhappy with the queuing system and they had fair satisfaction on the timing, the frequency and the services providers respectively

From this study, site of utilization of oral health services was related to clients’ satisfaction.

Clients who received oral health services from general hospital had highest satisfaction in quality of equipment, competence of staff, cleanliness and comfort of dental clinic whereas lowest satisfaction in waiting time spent. It corresponded to the real situation in services of big hospital like general hospital. Because of crowded patients and complicated system, the waiting time for getting services is longer. Nevertheless one of the advantages of general hospital is the capacity and facility of equipment and health personnel such as modern technology, amount of dentists and also many branches of specialist. (Table 22)

Clients who received oral health services from community hospital had highest satisfaction in the respectful and courteous manner, competence of staff and interpersonal care but lowest satisfaction in transportation cost. One of the big causes is the community hospital is nearby their house and located in the same community so the clients feel comfortable and familiar with dental health teamwork. Even though the gold card provide free of charge to get oral health services (those who are golden card without co-payment) or co-payment only 30 baht per visit, the clients still have to pay for the transportation cost so they feel somewhat dissatisfied if dental health personnel cannot provide them for all treatment in one visit. (Table 23)

Clients who received oral health services from health center had highest satisfaction in the payment of treatment (30 baht per visit or without co-payment) and in term of the respectful and courteous manner of staff whereas lowest satisfaction in quality of equipment. It corresponded to the real situation that health center is located in the community (nearest PCU) in order to be a front-line care or gate keeper for Contracting Unit of Primary Care (CUP). The people feel comfortable to go to receive services from health staff nearby their home that has courteous manner and good relationship. In terms of capacity and facility, health center has lower technology than in community hospital and general hospital but it should at least meet the standard of PCU both in quality of equipment and in competence of staff in order to achieve the aim of clients' satisfaction. (Table 24)

Frequency or number of visits receiving oral health services in last six months was positively related to satisfaction which similar to the result of study of Alvesalo I et al (35) and Goedhart et al.(32) but difference from the study of Lathi et. al (40). Alvesalo I et al study in the topic of "Use of services, care-seeking behavior and satisfaction among University dental clinic patients in Finland" and found that there was positive correlation between the degree of use dental care and satisfaction with that care. Goedhart et al. observed difference between the views of regular and no attenders from the study of "Quality of dental care: the view of regular attenders". Lathi et. al. found no difference between regular and irregular attenders from the study of "Patient's expectation of an ideal dentist and their views concerning the dentist they visited". It seems that clients who visited dental clinic more often had positive experiences, confidence and familiar with the providers so they became more satisfied. From this study it found that clients who got the services of prosthesis and root canal treatment (continuous procedure) had highly satisfaction in every aspect especially in quality of services, courtesy and information. (Table 28, Table 29)

CHAPTER VI

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This research was a cross-sectional survey study. The objective was to measure satisfaction towards oral health services in Singburi province under the Universal Coverage project. Respondents were 266 clients at least 20 years of age, who received oral health services from 14 PCU at least one time during last six month (July 2003-December 2003). Sampling Technique is systematic random sampling from the record of oral health services in each PCU. Data collection was performed in 8 days during February 3rd to 13th, 2004. The researcher developed and employed the questionnaire based on the concept of Aday and Andersen and adapted as the scope for the main indicators in 5 aspects including convenience, courtesy, information, out of pocket cost and quality of care. Even though using gold card the clients pay only 30 baht per visit for treatment but the out of pocket costs is also including the cost of transportation so, the researcher would like to know about this aspect too. The questionnaire was verified for its content validity by 3 experts and, later, adjusted before its try-out with 30 clients who were excluded case. The researcher obtained 0.442 and 0.8748 from the test for its reliability in Part B, perception of policy on Universal Coverage, and Part D, satisfaction towards oral health services, respectively. Then, the instrument was applied to 266 clients and analyzed with MINITAB version 13 Those statistic outcomes included frequency, percentage, average, standard deviation, minimum and maximum. Spearman rank correlation coefficient and Chi-square test were later utilized to evaluation the relationship between characteristics of clients, perception of policy on Universal Coverage, characteristics of health care delivery system and clients' satisfaction towards oral health services.

The result revealed that the majority of the clients were female (68.4%) with the age group 50-59 years (28.2%). Educational level was quite low; most of them graduate primary school (73.3%). Main career was employee (33.1%) and agriculture (28.6%). Most of clients had family income during 2000 to 3999 baht per month (40.6%). Level of perception on Universal Coverage policy was low and moderate level 42.9% and 51.9% respectively. The problem of getting oral health services was long queue for some kind of treatment (69.1%), the second was long waiting time (28.0%) and only 2.9% of clients had the problem of transportation. Clients' satisfaction towards oral health services was in high level in every aspect especially quality of care (89.1%) and courtesy (87.2%).

From the result of bivariate analysis, it was found that there was significant association between clients satisfaction and type of gold card (p-value = 0.041), perception on Universal Coverage policy (p-value= 0.020), site of utilization of oral health services (p-value= 0.018), Number of visits (p-value = 0.006), waiting time for registration (p-value <0.001) and waiting time for obtaining services (p-value <0.001).

6.2 Recommendation

6.2.1 Recommendations for action

From the results of this study, it was found that the clients had low and moderate level of perception on Universal Coverage policy especially in core package and limitation of beneficiary. Half of them perceived that quality of care received by using gold card is lower than CSMBS and SSS. Nearly twenty percent of clients who received oral health services from health center didn't know that the health center provided tooth filling. Level of client's satisfaction was quite high in every aspect especially in respectful and courteous manner and competence of staff. The clients of general hospital highly satisfaction with quality of equipment, competence of staff, cleanliness and comfort of dental clinic but slightly satisfaction with waiting time spent. Community hospital's clients highly satisfied with almost all aspects except the

aspect of transportation cost. Whereas the clients of health center highly satisfied in every aspects except the quality of equipment.

Based on the findings of the study, the suggested recommendations are as follows:

- 1) Because of waiting time is the key aspect of satisfaction towards oral health services, it needs the careful management of this problem. One solution of choice is the one stop service program in order to decrease the process and time spent in hospital.
- 2) It should support the health center in order to meet the sufficiency and quality of equipment such as regular maintenance of dental equipments.
- 3) Singburi province should promote and inform more about the beneficiary of core package to the people in order to get better perception on Universal Health Care Coverage Project. If the people don't know their right and have over expectation then they will dissatisfied when they get the services which under meet their need.
- 4) Singburi province should convince the people about the holistic care of oral health which include treatment, rehabilitation, promotion and prevention.
- 5) Implement the quality assurance in every PCU so that the population in community will be confidence in the quality of care
- 6) Besides the assessment of perceived quality of services by satisfaction survey like in this study, it should have the assessment for quality of conformance in each PCU also in order to assure the quality of services for all people.

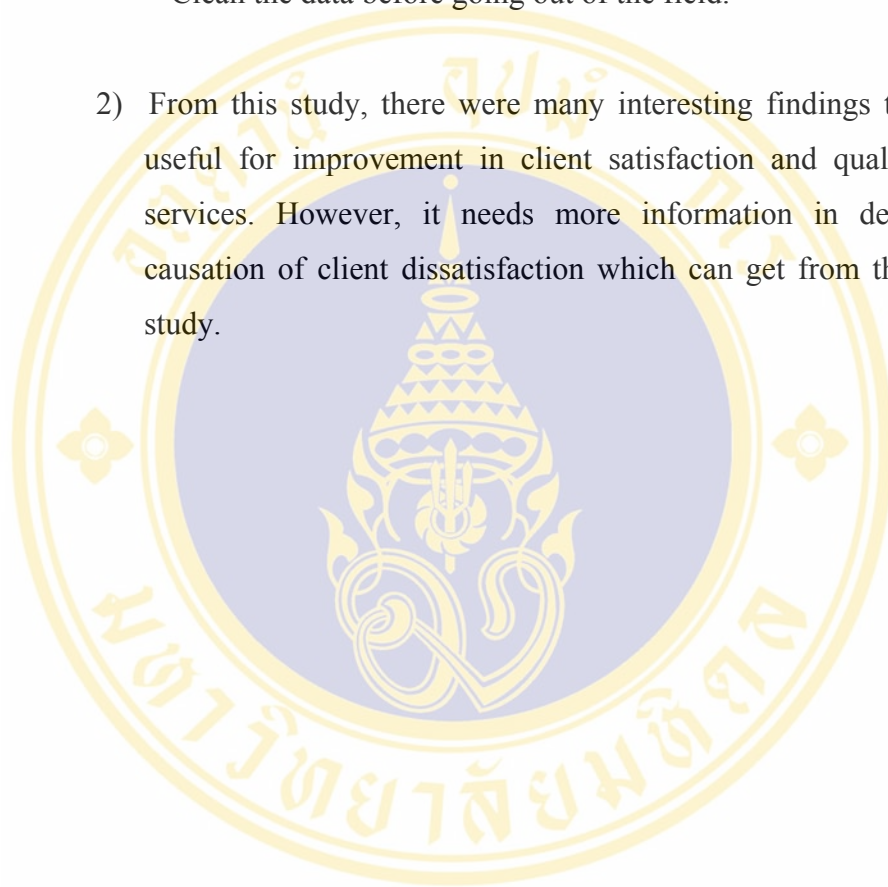
6.2.2 Recommendations for future research

From this study, the researcher would like to suggest for the future research as follow:

- 1) Quality control of data collection is very important such as

- Try out questionnaire and modified it in order to meet the understandable wording.
- Train interviewer to clarify the correct meanings in questionnaire especially in the negative questions.
- Clean the data before going out of the field.

2) From this study, there were many interesting findings that could be useful for improvement in client satisfaction and quality of health services. However, it needs more information in deep detail of causation of client dissatisfaction which can get from the qualitative study.



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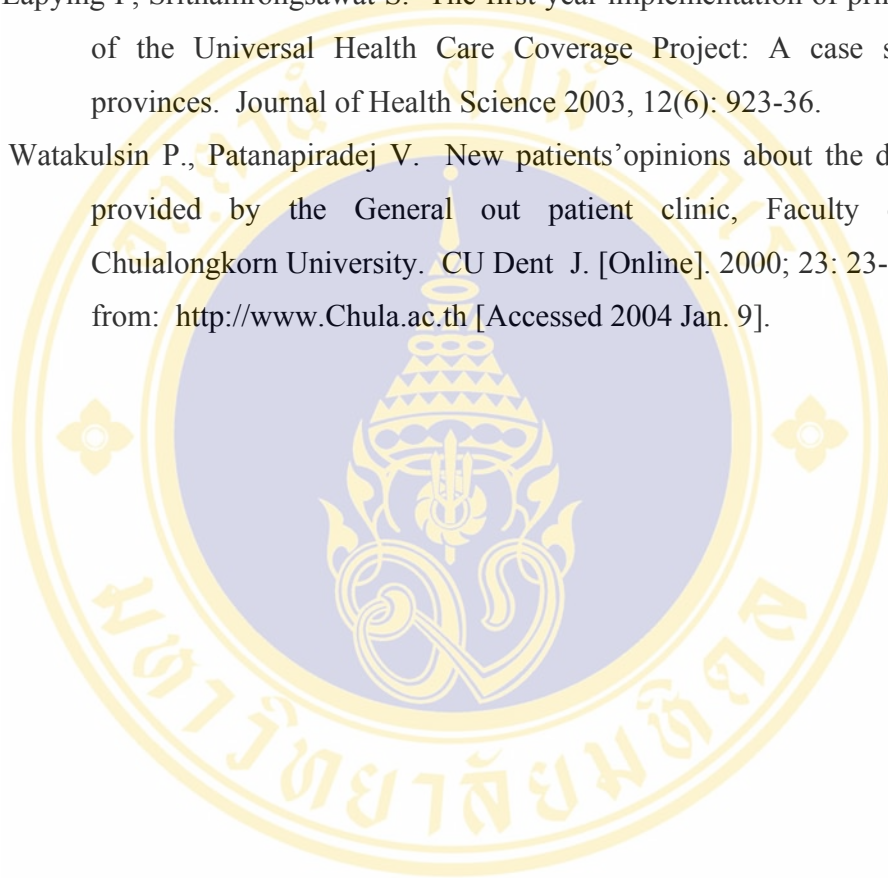
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APPENDIX A
QUESTIONNAIRES

Questionnaire: Client satisfaction towards oral health services in 30 baht scheme

Date of interview:/...../..... / (date/month/year)

Name of interviewer Signature

Part A: Characteristic of client

Please mark \checkmark in or fill in the blanks.

1. Residence of client
 Village.....
 Tambon.....
 District.....
 Urban Rural
2. Age in years (from last birthday) _____ Birth date...../...../.....(dd/mm/yy)
3. Gender
 male female
4. Marital status
 Single Married Widow / Separated / Divorced
5. Educational level
 No education Secondary school
 Primary school Bachelor or above
 Certification
6. Occupation
 Own business Employee
 Trading / marketing Agriculture
 Student Housewife
 No occupation Others.....
7. Monthly family income _____ baht
8. Type of gold card
 Gold card (with co-payment)
 Gold card (without co-payment)

Part B: Perception of policy on Universal Coverage (30 baht Scheme)

Explanation: Please mark \checkmark in the column cell with corresponding to your opinion

Items	Yes	No
Accessibility		
9. Thirty baht Scheme assures all people to access health care equally even though they are poor or rich.		
10. Using gold card for oral health service, you should have a service at nearest PCU you registered.		
11. If the nearest PCU that you registered cannot treat your oral health problem and deliver you to get secondary or tertiary care you have to responsible for the service cost that occurred by yourself.		
Affordability		
12. Thirty baht Scheme helps you to get oral health service without worrying about the service cost whenever you have oral health problem.		
Availability		
13. Thirty baht Scheme can use for all health coverage without limitation.		
14. Gold card with co-payment do not pay 30 baht per visit for the services of health promotion and prevention.		
15. Using gold card, you can receive the treatment of tooth filling, extraction, and scaling in PCU.		
16. Using gold card, you can receive the treatment of root canal treatment in hospital.		
17. Using gold card, you can receive the treatment of metal-base denture in hospital.		
18. Using gold card, you can receive the treatment of acrylic-base denture in hospital.		

Items	Yes	No
19. Using gold card, children less than 15 years old can get the service of pit fissure sealant in PCU.		
20. Using gold card, children less than 15 years old can get fluoride application in PCU.		
Quality of care		
21. Quality of care received by using gold card is lower than CSMBS or SSS.		



Part C: Characteristic of oral health care delivery system

Site

22. Site of health facilities that you received oral health service in last 6 months.
- general hospital
 - community hospital
 - health center

Frequency

23. In last 6 months, how often did you received oral health services?

Type of services

24. In last 6 months what kind of oral health services you received?
- filling
 - extraction
 - scaling
 - prosthesis
 - others.....

Convenience

25. Is the dental clinic's location convenient for you?
- yes
 - no
- If no, why

26. Are the hours convenient for you?
- yes
 - no
- If no, why

- 26.1 What is the appropriate time for you and your family to go to use oral health services?

- morning time, at..... AM.
- afternoon time, at..... PM
- evening time, atPM

Availability

27. In your experience, did this dental clinic provide tooth filling?
- yes
 - no
 - don't know
28. In your experience, did this dental clinic provide tooth extraction?
- yes
 - no
 - don't know
29. In your experience, did this dental clinic provide scaling calculus?
- yes
 - no
 - don't know
30. In your experience, did this dental clinic provide prosthesis treatment?
- yes
 - no
 - don't know
31. In your experience, did this dental clinic provide root canal treatment?
- yes
 - no
 - don't know

Facilities

32. In your experience, the amount of dental chair in this dental clinic is sufficient or not?
- yes
 - no

33. In your experience, the amount of the dental health personnel are sufficient to take care of people in this PCU or not?

- yes no

Accessibility

34. Is there any problem of getting oral health services?

- yes (go to 35) no (go to 36)

35. What is the main problem?

- long waiting time.
 long queue for some kinds of treatment.
 transportation problem.

Distance and transportation

36. How far is dental clinic from your house? km.

37. How long does it take for transportation? minute.

38. What kind of transportation did you use to go to dental clinic?

- on foot private vehicle
 bus, hire motorcycle others:

Waiting time

39. How much time did you spend in registration before getting OPD card?
..... minute

40. How do you feel about waiting time?

- quick
 moderate
 long

41. How much time did you spend for waiting before receiving treatment?
..... minute

42. How do you feel about waiting time?

- quick
 moderate
 long

Part D: Satisfaction towards oral health services

How satisfied were you with.....

No	Variables	Level of satisfaction				
		Highest satisfied (5)	High satisfied (4)	Moderate satisfied (3)	Low satisfied (2)	Lowest satisfied (1)
1	Convenience					
	43. The clinic hours (service schedule) at this dental clinic.					
	44. The comfortable services that available to treat your problem during your visit.					
	45. Waiting time spent to see the provider.					
2	Courtesy					
	46. The respectful and courteous manner with which you were received from the provider.					
	47. The interpersonal care of provider to help you in any kind of situation.					
	48. When the providers examine your teeth and spent the time to listen to your problem.					
3	Information					
	49. The completeness of the information given to you about your dental problem.					
	50. You can discuss your problem with the provider.					
	51. Instructions you received to care for your dental health at home.					
4	Out of pocket costs.					
	52. The fee for services of oral health services on 30 baht Scheme.					
	53. The transportation cost					

No	Variables	Level of satisfaction				
		Highest satisfied (5)	High satisfied (4)	Moderate satisfied (3)	Low satisfied (2)	Lowest satisfied (1)
	that you have to pay if dentist cannot treat your problems in one visit.					
5	Quality of care					
	54. Competence of dental staff.					
	55. Sufficiency of the equipment / facility in this dental clinic.					
	56. The quality of equipment (condition) in this dental clinic?					
	57. The cleanliness and comfort of the waiting area.					
	58. The cleanliness and comfort of the dental clinic.					
	59. Overall with the services you receive from this dental clinic.					
	60. The quality of treatment you receive from dental staff.					

Part E: Additional comments.

61. What you liked best about the dental clinic was:

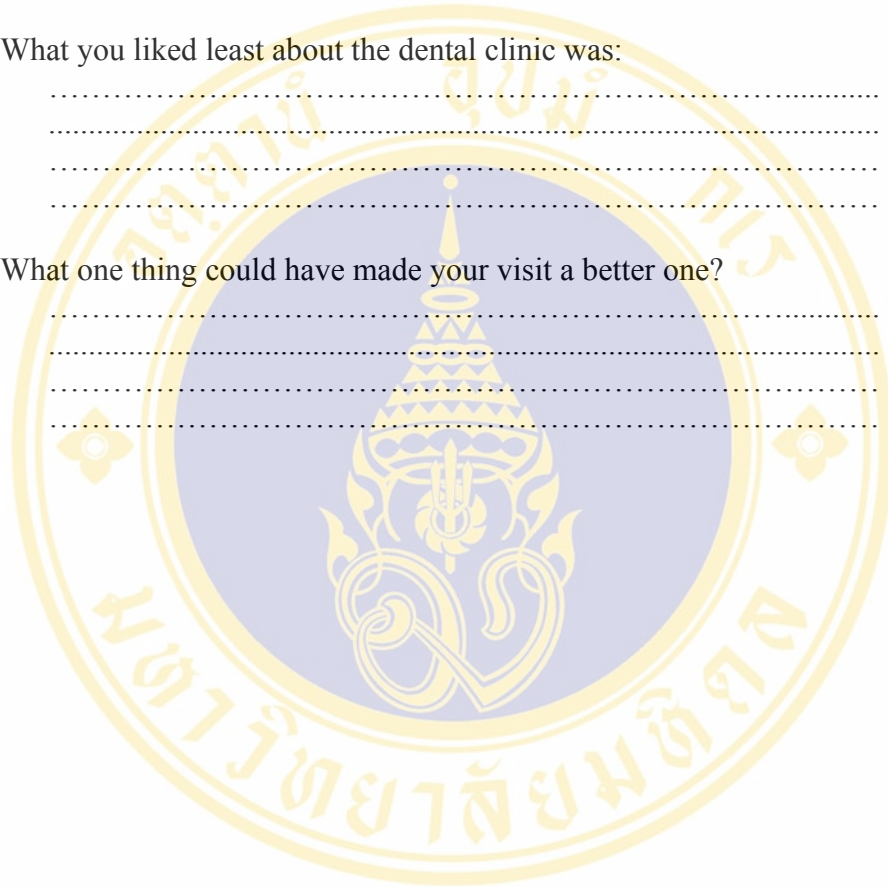
.....
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62. What you liked least about the dental clinic was:

.....
.....
.....
.....

63. What one thing could have made your visit a better one?

.....
.....
.....



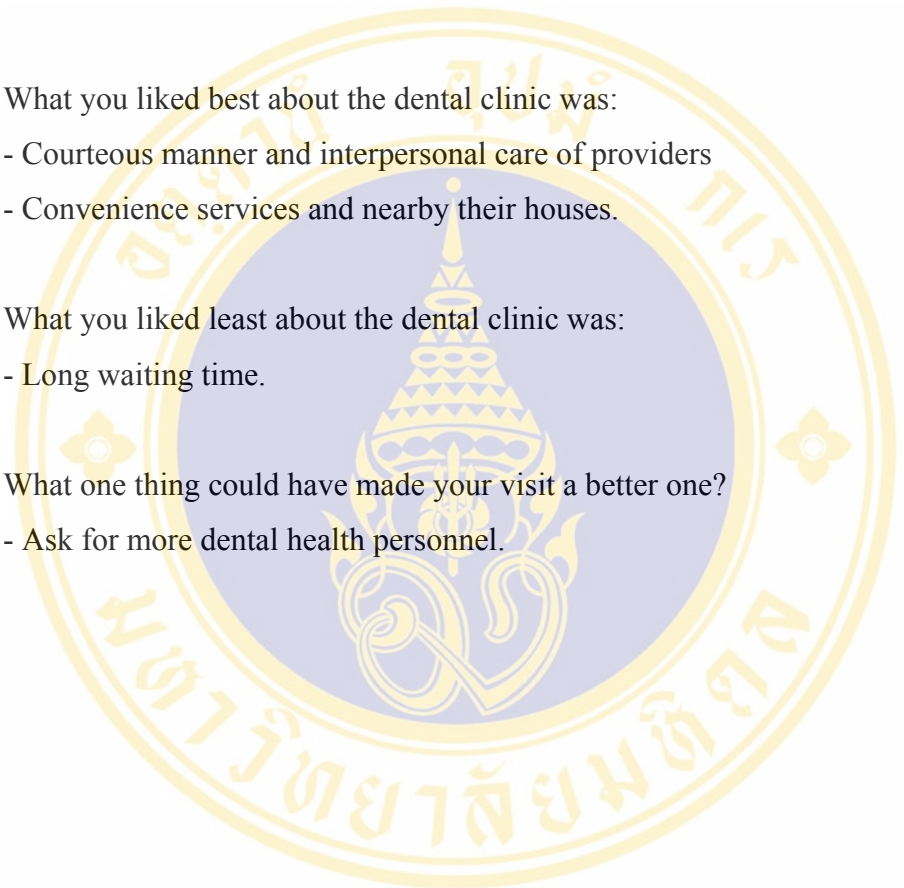
APPENDIX B
Code book and scoring

Section	Question	Contents	Score
Part A	Q1-Q8	Characteristics of clients	
Part B	Q9-Q21	Perception of policy on Universal Coverage Q9, Q10, Q12, Q14, Q15, Q18, Q19, Q20	Positive question Yes = 1 No = 0
		Q11, Q13, Q16, Q17, Q21	Negative question Yes = 0 No = 1
Part C	Q22-Q42	Characteristics of oral health care delivery system Q22 : Site of receiving services Q23 : Number of visits Q24 : Type of services Q25-Q26 : Convenience Q27-Q31 : Availability Q32-Q33 : Facilities Q33-Q42 : Accessibility	
Part D	Q43-Q60	Satisfaction towards oral health services Q43-Q45 : Convenience Q46-Q48 : Courtesy Q49-Q51 : Information Q52-Q53 : Out of pocket costs Q54-Q60 : Quality of care	Level of satisfaction 5=Highest satisfied 4= High satisfied 3=Moderate satisfied 2=Low satisfied 1=Lowest satisfied
Part E	Q61-Q63	Additional comments	


APPENDIX C

ADDITIONAL COMMENTS

Part E Additional comments

- 
61. What you liked best about the dental clinic was:
- Courteous manner and interpersonal care of providers
 - Convenience services and nearby their houses.
62. What you liked least about the dental clinic was:
- Long waiting time.
63. What one thing could have made your visit a better one?
- Ask for more dental health personnel.

BIOGRAPHY



NAME	Wungchun Kittipadakul
DATE OF BIRTH	April 22, 1968
PLACE OF BIRTH	Lampang, Thailand
INSTITUTION ATTENDED	Chiangmai University, Thailand 1986-1992 D.D.S ASEAN Institute for Health Development Mahidol University 2003-2004 Master of Primary Health Care Management
FELLOWSHIP/ RESEARCH GRANT	JICA / DTEC
PRESENT POSITION	Chief of Technical support cluster Singburi Public Health Office Thailand