

**DENTAL CARIES STATUS OF CHILDREN AGED 0-3 YEARS
IN RATCHABURI PROVINCE, THAILAND**

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**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
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ABSTRACT

This study was a cross-sectional analytical study with objectives of assessing the dental caries status, socio-demographic factors, oral health literacy of caregivers and oral health care behavior. Factors associated with early childhood caries (ECC) among children aged 0-3 years were also examined using structured questionnaires constructed based on WHO questionnaire to collect data from caregivers who were parents or relatives. A multistage cluster sampling was used to draw a sample of 262 caregivers having children aged 0-3 years. A face to face interview with the structured questionnaire was used. The results showed that most of the caregivers were female parents aged 20-29 years, bachelor degree, income more than 11,000 baht per month and having one child in their families, most of caregivers had low level of oral health literacy had the lowest level of media literacy. The significant factors associated to dental caries status were socio-demographic factors (except caregiver's sex), oral health literacy and oral health behavior. Adjusting for other factors, overall oral health literacy remained significantly associated with dental caries status (Adj.OR=38.66, 95% CI= 11.11-134.44). Children taken care of by caregivers who had poor oral health literacy were about 39 times more likely to have than those who were with caregivers having good literacy.

KEY WORDS: ORAL HEALTH LITERACY/ CAREGIVERS/ PRESCHOOL
CHILDREN/ THAILAND

86 pages

สภาวะฟันผุของเด็กอายุ 0-3 ปีในจังหวัดราชบุรี ประเทศไทย
DENTAL CARIES STATUS OF CHILDREN AGED 0-3 YEARS
IN RATCHABURI PROVINCE, THAILAND

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บทคัดย่อ

การศึกษาครั้งนี้เป็นการศึกษาเชิงวิเคราะห์แบบภาคตัดขวาง โดยมีวัตถุประสงค์เพื่อประเมินสถานะฟันผุของเด็กอายุ 0-3 ปีในจังหวัดราชบุรี ประเทศไทย รวมทั้งปัจจัยทางสังคม ความแตกต่างด้านสุขภาพช่องปากและพฤติกรรมดูแลสุขภาพช่องปากของผู้ดูแลเด็ก วิธี การศึกษาครั้งนี้ใช้แบบสอบถามที่มีรูปแบบโดยสร้างขึ้นจากแบบสอบถามมาตรฐานขององค์การอนามัยโลก (WHO) รวมทั้งการทบทวนวรรณกรรมจากการศึกษาก่อนหน้าโดยได้ดำเนินการเพื่อรวบรวมข้อมูลจากผู้ดูแลที่เป็นบิดามารดาหรือญาติใกล้ชิด จากนั้นทำการสุ่มคัดเลือกกลุ่มตัวอย่างที่ใช้ศึกษา โดยเป็นกลุ่มผู้ป่วยเด็กที่มีอายุระหว่าง 0-3 ปีจำนวน 262 คน ใช้แบบสัมภาษณ์แบบตัวต่อตัวกับแบบตรวจสภาวะฟันผุด้วยดัชนีค่าเฉลี่ยประสพการณ์ ผุ ถอน อุด หรือ dmft ผลการวิจัยพบว่า ผู้ดูแลส่วนใหญ่เป็นเพศหญิงที่มีอายุระหว่าง 20-29 ปี วุฒิการศึกษาในระดับปริญญาตรี มีรายได้เฉลี่ยมากกว่า 11,000 บาทต่อเดือน และมีบุตรคนเดียวในครอบครัว โดยปัจจัยทางด้านเพศของผู้ดูแลเด็กไม่มีผลสำคัญต่อสภาวะฟันผุอย่างมีนัยสำคัญทางสถิติเพียงด้านเดียว สำหรับผลที่เกี่ยวกับความแตกต่างด้านสุขภาพช่องปาก ผู้ดูแลส่วนใหญ่มีความแตกต่างด้านสุขภาพช่องปากในระดับต่ำ โดยมีระดับความแตกต่างในด้านการรู้เท่าทันสื่อต่ำที่สุด รวมทั้งด้านพฤติกรรมสุขภาพช่องปากของผู้ดูแลเด็กที่มีผลต่อสภาวะฟันผุอย่างมีนัยสำคัญทางสถิติเช่นกัน และเมื่อมีการวิเคราะห์เพิ่มเติมหลัง การปรับปัจจัยอื่น ๆ พบว่า ความแตกต่างด้านสุขภาพช่องปากโดยรวม ยังคงมีนัยสำคัญทางสถิติกับสภาวะฟันผุ (Adj.OR = 38.66, 95% CI = 11.11-134.44) ทั้งนี้เด็กอายุ 0-3 ปีที่ได้รับการดูแลจากผู้ดูแลที่มีความแตกต่างด้านสุขภาพช่องปากไม่ดีมีความเป็นไปได้สูงที่จะมีฟันผุได้ถึง 39 เท่าของผู้ดูแลเด็กที่มีความแตกต่างด้านสุขภาพช่องปากในระดับดี

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CHAPTER I

INTRODUCTION

1.1 Rationale and justification of the study

The oral health is an integral part of the general health. It is a major concern as it is related to the World Health Organization (WHO) in terms of several Millennium Development Goals and their specific targets (1). Periodontal diseases and dental caries have been considered the most common and important global oral health burden of disease (2). Dental caries is the most common chronic disease of children who are aged 0 to 2 years old and is 5 times more common than asthma (3). Although oral health in the United States has improved significantly since the 1960s,(4) preventable and untreated oral diseases remain widespread, particularly among children of low-income and minority status. The General Accounting Office has reported that poor children have 5 times more untreated caries than children from higher income families (5). Untreated dental caries in children can lead to problems with eating, speaking, attending school, learning, and general health (6). In addition, dental caries is the most prevalent oral disease in many Asian countries, particularly as an inadequate exposure to fluoride (7). A high percentage of untreated dental caries in children makes it considered as a global pandemic disease. These untreated cavities would have a significant impact on the general health of children and on the social and economic wellbeing of communities(8).

Furthermore, dental caries is a chronic, progressive, multi-factorial, infectious disease that can begin in early infancy and that, by the time children reach adulthood, will affect over 92 percent of the U.S. adult population (9). A smaller proportion of the U.S. population will develop more moderate or severe dental caries. Dental caries prevalence and severity varies by age, dentition and type of tooth surface (10). Historically, dental caries control has been addressed by daily brushing, modifying dietary practices, and improving the resistance of tooth enamel and acid attack.

Early Childhood Caries (ECC) is a specific form of dental caries in young children. The American Dental Association (ADA) defined ECC as the presence of one or more decayed (non-cavitated or cavitated lesion), missing (caused by dental caries), or filled tooth surfaces in any primary tooth in preschool child between birth and 71 months of age (11). The 7th National oral health survey in Thailand was reported in 2013, revealed that the average if DMFT score is 2.7 in 3 year-old children which was decreased from the previous survey but still high and more severe than the other aged group(12).

Several researchers have discussed and revealed about the ECC are dependent on their mothers, primary prevention program which aim to reduce ECC by improving the oral health of mothers are likely to improve the oral health of their offspring (13). However, a study in Japan (2008) revealed that ECC was associated more strongly with children-related health behavior than mother-related health behavior especially in children aged lower than 2 years old(14). So, even though mothers do not have good health behaviors, if they pay more attention to their children than then, the children will have fewer ECC problems(15). As mothers are most important of the primary caregiver and are therefore generally responsible for care decisions about their children's oral health care and access to health services, they are the major influences on their children's health. By contrast, a more recently of Thailand context, most of children stay with caregiver who are not mothers such as grandfather, grandmother, or relatives. Furthermore, from the pilot study of the researcher in 2011 about the campaign which encourage the caregiver to brush the teeth of children at home before bedtime was shown that more than 50 percentage of children stay with caregiver who are not the mothers (16).

Dental caries is a disease present with dental cavities or tooth decay, which damages the structure of teeth (17). It is one of the major oral diseases in children, young age as well as in any age and caused by multifactorial and complex interactions between cariogenic bacteria (eg. *Streptococcus mutans* and some strains of *Lactobacillus*) together with dietary carbohydrates that change pH level and attack mineral cycle in the oral cavity and finally can cause pain and diseases that can command tooth loss in all ages (18). Globally, dental caries level among 35-44 years old by using DMFT index (Decayed, Missing and Filled Teeth index), most developed

countries show high DMFT values, but lower values level especially in countries moving forward to become developed like Asia and Africa (19). Various aspects like socio-economic, accessibility and utilization of dental health services, oral health knowledge and practices and health insurance coverage are manipulated to dental caries distribution in urban as well as rural settings around the world (20).

Growth and development in children are influenced into some instances by dental caries in early life as well as presented with pain and swelling in affected area, and also can progress to get risk of cardiovascular disease, infective endocarditis, pneumonia coordinate with other gum diseases and dental infections (21). Not only biological factors also behavioral and socio-economic factors among children and parents/caretakers can affect early childhood caries (ECC) (22). The most serious predictors of ECC are undoubtedly high intake of sugar and sweet snacks, particularly feeding at night time (23), prolonged breast feeding (longer than 12 months) (24), eating behavior including beverage consumption (25), parental oral health behaviours including knowledge and attitude towards oral health, tobacco use, socioeconomic status of parents, parental stress, environmental influences, nutritional status of children like under nutrition or over nutrition in their age and microbiological risks (26).

The global trends data of dental caries prevalence among children are usually supplied by the WHO (27). In the global oral health figures, the number of children with untreated dental caries in most of the countries is still pile up prominently increasing the number of dmft/DMFT indices and prevalence percentage (28). The average DMFT around the world was 2.11 (\pm 1.32) (30). Average dmft of half of the country was 1.8 teeth per person (29). This high number of caries among children is potential thread to elevate the quantity of adolescent caries and adult caries in the future (30). Caries prevalence rate of children during 3 to 6 years old in Asia are 90-70% in Thailand, Malaysia, Myanmar, Vietnam, Cambodia, Lao, Philippines, Taiwan, 70-50% in China, Hong Kong, Korea, India, Japan and less than 50% prevalence in Brunei, Singapore, Indonesia (12 years old) respectively (31).

Oral health goals year 2020 is agreed by the Federation Dental International (FDI), the International Association for Dental Research (IADR) and WHO (32). According to oral health goals year 2020, design special care programs for

the group with high risks by using more specific and qualified measurement of caries, available of health information system, resources, socioeconomic status of people, public health preventive approach (30, 32). Because of high prevalence of dental caries, the treatment need is increased (32). But treatment to all community is not practical at the moment due to limited resources like time, person, money, demographic barriers (33). On the other hand, prevention is more affordable if the people know the factors affect to dental caries (34). Through many years, prevention of dental caries program has become an important policy of Ministry of Health in many countries (33, 34). From the perspective of prevention, most predictors are considerable for prevention by changing life style including feeding practices and other oral hygiene behaviors and staying away from the risky practices (34). So, oral health promotion practices that sustain good oral health is important for every person (34).

Since 1977, Thailand has prioritized children as the main target group in prevention of dental caries by establishing the nationwide dental preventive program in school (35). Oral health programs of Thai government in a few decades ago were disease-based and typical of those set by many countries (36). The oral health goals in year 2000 for adolescents stated that not less than 75% of 18-year-olds should retain all 28 permanent teeth, and all 18-year-olds should have at least two sextants, on average, with healthy periodontal tissues (Community Periodontal Index; CPI = 0) (36). In 2007, the Thai government published its oral health goals for 2020 in accordance with the FDI/WHO/IADR guidelines and a theoretical framework for linking clinical status and quality of life was developed (37). The ultimate goal of the Thai Oral Health Service is: "people of all ages should have oral health that enables good quality of life and social well-being" (37) and clinical goals were set based on the assumption that a reduction in oral diseases would lead to better quality of life (38).

The recent situation in Thailand, the caries prevalence is very high among ASEAN countries and there is data from previous studies on the dental caries from selected provinces around the country especially in Southern, Northern and Central part of Thailand. However, two studies in Northern Thailand are very close to this study but they used data that collected since 2000 and it is need to improve and the

geographical, cultural, beliefs and lifestyles are different (39, 40). In Ratchaburi province, according to the 5th regional data on dental caries among 3 years old children was 60-70% in 2015 and it is the highest rank of dental caries prevalence rate in the whole region (41). Furthermore to the researcher's knowledge, there is no updated epidemiological study of oral health status regarding risk factors in Ratchaburi province. The study of proportion and factors influenced to early childhood caries among pre-school children is therefore proposed.

Health literacy is an important issue in public health today, especially as patients are taking a greater role in obtaining information about their health. WHO has defined health literacy is an individual's ability to read, realize, manage and understand basic health care information and health service including the ability to make health decisions and follow instructions for treatment appropriately(42). As WHO mentioned that the Health Literacy has been defined as the cognitive and social skills which examine the motivation and capable of individuals to gain access to, understand and use information in ways which promote and maintain good health. In addition, Health Literacy means more than being able to read pamphlets and successfully make appointments. By improving people's access to health information and their capacity to use it effectively, health literacy is critical to empowerment. The Health literacy idea has just been known extensively. It is not only the ability to read or write but also the ability to process a message that read or hear and analyze to apply to situations appropriately including the ability to understand instructions on medical label, appointment slips, medical education brochures, consent forms, and health care systems(43). Health literacy is particularly important in healthcare systems because health providers usually make use of written language more than spoken language in healthcare communication to save time for each patient so they cannot reach the understanding totally. In speech, health providers often speak quite fast for cover all content in case of a large number of consumers(44). Health care systems are becoming more complex nowadays and with the provider's gesture may cause the consumers dare not ask if they do not understand or they cannot question because of the cultural factors or value. In addition to these, the ability to recognize of the elderly consumers has regressed limiting the understanding information, so it can be risky in those consumers(45). The

consequences are misused treatment, higher costs, worse results of treatment, long-hospitalized, stress or depression of patients, denial of treatment, and failure to make the appointments. So we can conclude that health literacy affects appropriate the health care system and have to be concern about the relationship(46).

Adequate health literacy is critical for interpreting treatment information and following recommended treatment plans. It is also influences communication with health care providers and navigation of health care system (47). But nowadays, it is accepted having low health literacy is the social problem issues as it has an effect on health problems and social being.(48) The low levels of health literacy often mean that a person is unable to manage their own health effectively, access health services effectively, and understand the information available to them (49). Low Health Literacy is a major barrier to appropriate health care(50). Poor Health literacy skills among adults are surprisingly common in developed countries. Estimation of the proportion of the population in individual Organization for Economic Co-operation and Development (OECD) countries lacking functional literacy skills range from 7% to 74%(51). In developing countries, these figures are far higher. In a survey of Medicare enrolled, more than one-third of respondents had inadequate or marginal health literacy(52). Health literacy has also been found to significantly impact timely use of preventive health services, understanding disease and treatment(53), adherence to medical instructions, self-management skills and health outcomes(54). These factors may explain why patients with adequate health literacy are less likely to be hospitalized than those with inadequate health literacy(55). In addition, patients over age of 60 are more likely to have both poor health literacy skills and suffer from chronic conditions such as cardiovascular disease(56).

Patients with lower health literacy face many hurdles. They have higher rates of hospitalization(57), poorer health outcomes and increased mortality(57,58). Many studies also have demonstrated that they have a poorer understanding about their disease process(59). Then it is important that to design educational interventions to improve care and also be effective in patients with lower literacy.

Because of the oral health literacy skill affects the oral healthcare personnel's status and quality of life not only in adult but also in the every aged group. Providing oral healthcare knowledge, which consumers can understand and apply, lets

consumers realize the importance oral of health status, which has related to a healthy body. That is, if there is a collective understanding of the importance of the oral health status as well, it can improve oral health and prevent disease to occur. Providing oral healthcare knowledge, which is useful, counts as the ethical professional (59) responsibility of every oral healthcare provider. And the children need to be supervise by caregiver which can lead to be better in oral health but there are a few study about the oral health literacy of caregivers in children with ECC problems.

Many reasons explain why preventable oral diseases remain widespread in children and why caregivers may not adopt preventive practices that are effective in maintaining oral health(60). Finances and access are major reasons, but other reasons are plausible. Literacy of caregiver may be an important explanatory variable in oral health behavior and the development of dental caries among children. Caregiver literacy is related to other health outcomes among young children(61) and may represent a mutable factor for overcoming dental health disparities. In this study, the researchers investigated the association between caregiver's literacy and their child's oral health status when other factors were also considered.

1.2 Research questions

1. What is the the prevalence of dental caries status in children aged 0-3 years?
2. What are factors related to dental caries status in children aged 0-3 years?

1.3 Research Objectives

1.3.1 General objectives

To study dental caries status and related factors in children aged 0-3 years.

1.3.2 Specific objectives

- 1) To describe the prevalence of dental caries status in children aged 0-3 years.

2) To describe the socio-demographic factors, oral health literacy and oral health care behavior of caregivers with children aged 0-3 years.

3) To determine dental caries status and variables in children aged 0-3 years.

1.4 Conceptual Framework

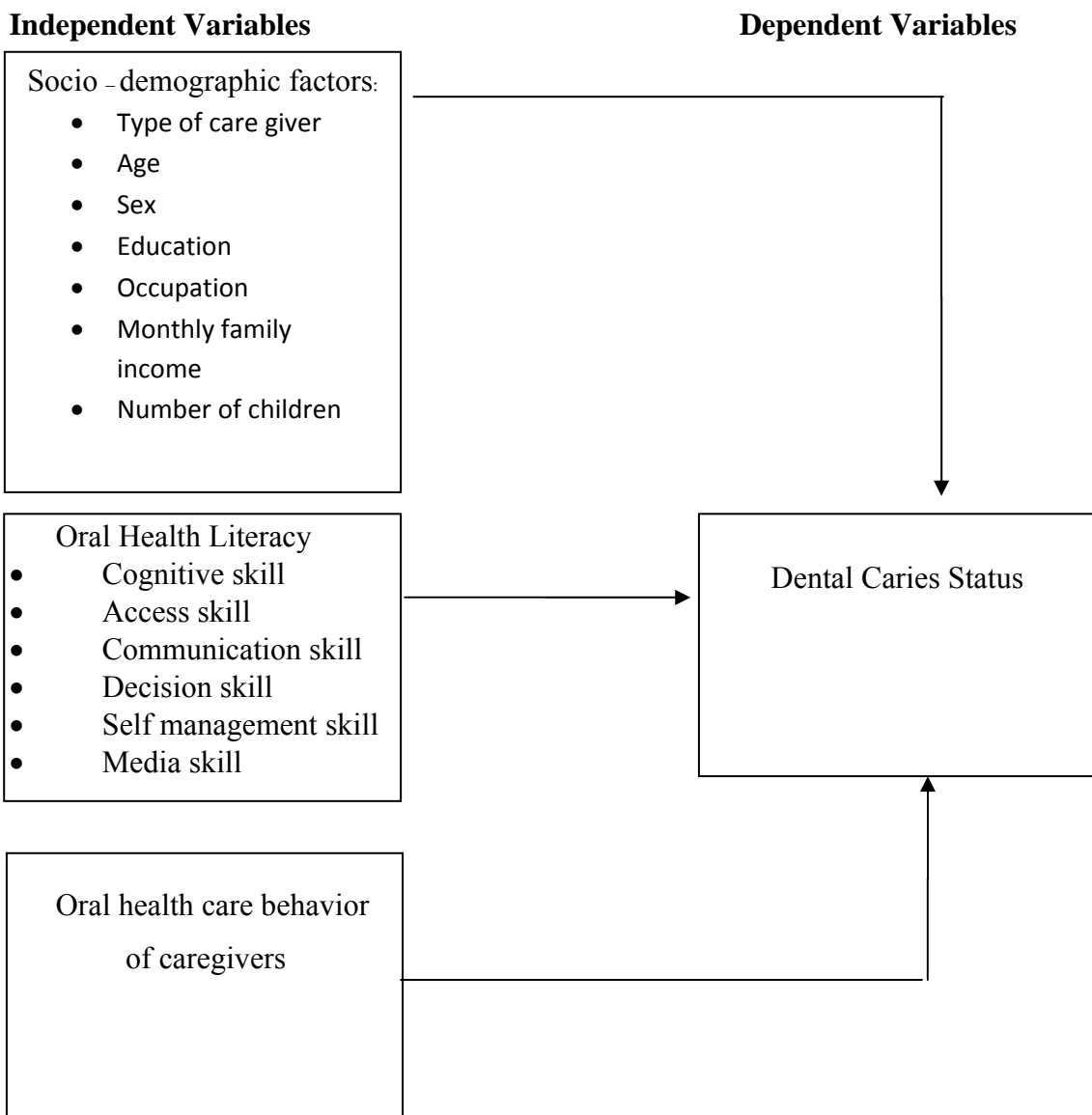


Figure 1.1 Conceptual Framework

1.5 Operational definitions

1.5.1 Independent variable:

Health Literacy refers the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health. Its component are cognitive skill, access skill, communication skill, decision skill, self management and media literacy skill(38).

- **Cognitive skill** refers to the abilities to gain meaning and knowledge from experience and information. Cognition is more than just learning information, it's the ability to think about new information, process and speak about it and apply it to other, previously acquired information.

- **Access skill** refers to the ability or right to approach, enter, exit, communicate with, or make use of the healthcare.

- **Communication skill** refers to the activity of conveying information through the exchange of thoughts, messages, or information, as by speech, visuals, signals, writing, or behavior.

- **Decision skill** refers to the act of reaching a conclusion or making up one's mind.

- **Self management skill** refers to the tasks that an individual must undertake to live well with one or more chronic conditions. These tasks include gaining confidence to deal with medical management, role management, and emotional management.

- **Media literacy skill** refers to the critically thinking about media content and is defined as a process to develop metacognitive reflective strategies about media content and context.

Socio-demographic factors

- **Age** refers to the complete years of respondent at the time of interview.
- **Education** refers to the highest level of education attained by the respondent.

- **Occupation** refers to the job of the respondent, classified into government employees, private employees, merchants and housewives
- **Monthly family income** refers to the amount of money the respondent earns or receives monthly from all sources, in Baht (B), the currency of Thailand.
- **Number of children** refers to the number of children who live in the same family with the respondent that they have the responsibility to take care of.

Oral health care behavior refers to facts or state of knowing and understanding of the respondents, related to etiology and prevention of dental caries. Not only how the caregivers analyze the outweighing of doing dental caries preventive behavior for their children but also refers to how the caregivers reason the obstacles in doing dental caries preventive behavior for their children.

1.5.2 Dependent variable

Dental caries status in children (DMFT score)

Based on health outcomes are a change in the health status of an individual, group or population which is attributable to a planned intervention or series of interventions, regardless of whether such an intervention was intended to change health status. Such a definition emphasizes the outcome of planned interventions (as opposed, for example, to incidental exposure to risk), and that outcomes may be for individuals, groups or whole populations. Interventions may include government policies and consequent programs, laws and regulations, or health services and programs, including health promotion programs(39).

In dentistry, we can use DMFT score which refers to the index is usually used to describe the dental caries experience of each person in the population and refer to dental caries status in any aged group. D represents the average number of cavity per person; M is the average number of tooth extraction/indication of missing tooth; F is the average number of tooth filling; while T is for teeth. Therefore, DMF-T represents the average number of dental defect per person (could be tooth decay, extraction or filling). If “YES” means $DMFT \geq 1$ which can describe that having caries experience while “NO” means $DMFT = 0$ which can describe as caries free(40).

1.6 Limitation of the study

Based on this study was cross-sectional study that should be localized only province and there were any possibly recall bias.

CHAPTER II

LITERATURE REVIEW

This chapter review presented literatures of this study, which outline main topics as follows:

2.1 Trend of Early Childhood Caries (ECC) and its prevention

2.1.1 Early Childhood Caries (ECC)

Dental caries is probably the most common chronic disease of childhood (30). It is an infection disease of the teeth that is moderated by life style and dietary habits in particular, and can affect humans of all ages, not to mention children in very young ages. This disease, if left untreated, may lead to pain, and impair the quality of life, nutritional status development of children (30).

ECC is a particular virulent form of dental caries in mostly young children. It is a relatively new term recognized and used by the ADA to mean “the presence of one or more decayed (non-cavitated or cavitated lesions), missing (due to caries) or filled tooth surfaces in any primary tooth in a preschool-age child between birth and 71 months of age” (30). Non-cavitated often appear as smooth, dull, white or brown spots on the primary maxillary (upper) teeth. Cavitated lesion often appear as brownish, rough breaks on normally smooth, enamel surfaces (30,32).

Good oral health composed of healthy gum, hard and soft palate, linings of the mouth and throat, tongue, lips, salivary glands, chewing muscles and upper and lower jaws, which is broader than dental health. Good oral health enables us to speak, smile, kiss, breathe, whistle, smell, taste, drink, eat, bite, chew, swallow and express feelings. Oral cavity is a window of the body which regulate the intake into the body as well as defence against infections (3). Oral health considered as human right, which is allied with essential general health (44).

Disease free mouth can decide the general health of our body. Oral diseases are often hidden and invisible, but can be diminished or precluded by simple and operative measures at individual and population levels. 3.9 billion people around the world are suffered oral diseases in their health record. Untreated dental caries is now become the commonest prevalent oral disease studied from 1990 to 2015 within the casing of the International Global Burden of Disease study, ie, affect nearly 100% of population around the world (31). 90% of population are affected by severe periodontitis worldwide, and it was recorded as sixth most common oral disease (45). Oral cancer which is more prevalent in South Asia where use betel nuts, tobacco and alcohol consumption, involve in the top 10 list of common cancers in the world.

Early childhood caries can happen in any tooth with dental plaque (a biofilm) which can harbor the bacteria that ferment a dietary carbohydrate to acid cause fall in pH to below 5.5. pH changed within 30 minutes after meal and become acidic environment in oral cavity stimulate demineralize again and again. These situations are buffered by saliva and create alkaline condition which regains mineral called remineralization. The cycle of mineralization (de- and re-) end up with trounce of mineral and cavity become on the surface of tooth (51, 52).

2.1.2 Etiology of ECC

The basic mechanism for all types of dental caries, including ECC, is called demineralization. It is a process of tooth mineral loss due to acidic substrate produced by pathogenic bacteria in dental plaque. Dental plaque is clear bio films that stick to the teeth, made up mainly of microscopic germs which are in the mouth at all time (33). One of the most important bacteria which can cause caries is *Streptococcus mutant*. The presence of fermentable carbohydrate (in sugar-containing snacks and drinks) supports the metabolism of these acidogenic microorganisms, resulting in an acidic substrate that dissolver the minerals in teeth. If this demineralization process continues, it will result in cavitation of the tooth (32,33).

2.1.3 Characteristics of ECC

An epidemiologic characteristic of ECC is that it can begin soon after the teeth erupt and progresses rapidly to the cavitations stage in stage in only 6 to 12 months. It has a distinct pattern attacking first the maxillary anterior teeth, then the fissures of molars and finally the proximal surfaces of molars (34, 35). Untreated ECC

may lead to early loss of the primary dentition and affect the growth and maturation of the secondary dentition. Children with ECC are shown to have an elevated for new lesions as they grow older, both in the primary and adult dentition, since decay in the primary teeth is the best predictor for decay in the permanent teeth. The poor dental health and disease often persist until adulthood, which affecting speech articulation, growth and dietary practice. At the most extreme cases, ECC can also lead to rampant decay, chewing problems, malnutrition, gastrointestinal disorders, and low self – esteem (35). Moreover, it can cause infection, pain abscesses, and even life threatening from focal infection and sepsis, since the microorganisms can spread through the blood to other part of body organs, such as the heart and brain (41).

Streptococcus mutans, the primary microbiological agent in causing ECC, usually transmitted to the children from their mothers or primary care givers. It should be noted that a mother and her young child often share food and eating utensils, and the mother usually blows, per chews the child's food. Suppressing bacteria level in mothers can prevent, or at least delay, infection of ECC from mothers to their children (42).

2.1.4 Treatment of ECC

ECC is difficult manage in the dental clinics. Surgery, antibiotics, general anesthesia and hospital admission may be required (35,37), making ECC a disease which is very costly to treat. These restorative treatments are performed especially in children who have extensive ECC. However, these approaches are proved to be inefficient because this infections disease will likely to be recurrent within mouths if the only treatment is restorative. Even, researches have shown that tooth with filling tends to have greater risk of having caries than sound tooth surface . Although tooth filling may eliminate the bacteria at the site of the restoration, the remainder of mouth is left untouched, caries continues unchecked and the bacteria commences to re-colonize rapidly at the margin of the filling . Those facts mentioned above give more reasons to put more efforts on the prevention of ECC rather than in doing treatment for this disease

2.1.5 The prevention of ECC

Extensive research has revealed that individual, professional and community prevention methods are preventing most oral diseases effectively (43),

including ECC which is largely preventable in most developed countries. Since the risk of having ECC occurs from the very first tooth erupted in a baby's mouth, and it can be as early as 6 months of age, oral health promotion and prevention need to be started in the early stages of children's lives (43).

Stages of ECC Prevention

Preventive measures can divide into various stages;

Stage 1 – Pregnancy

Infant oral health begins with prenatal oral health counseling for prospective parents in order to generate awareness about dental diseases, its prevention and the means in providing a suitable environment for the child to develop. At the end, the improvement of the mother's oral hygiene, dietary habit and the use of mouth rinse can have a significant impact on the child's caries rate in the future.

Stage 2 – Infancy (0-1 year)

The major reservoir from which infants acquired *Streptococcus mutans* is their mothers (Vertical transmission) Horizontal transmission between members of a family or group can also occur. Eliminating saliva sharing activities can thus reduce the development of caries in infants.

Stage 3 – First Dental Visit

The first oral examination should occur within 6 months of the eruption of the first primary tooth, and no later than 12 months of age.

Stage 4 – Care of the Primary Dentition

Oral hygiene measures include the following:

- The infants' teeth should be cleaned before placing the child in bed.
- Tooth brushing should be performed twice daily with a fluoridated toothpaste with a soft, age-appropriate sized toothbrush.
- Parents should use a "smear" of toothpaste to brush the teeth of a child less than 2 years of age.
- A "pea-size" amount of toothpaste can be used for children age 2-5 years old, but they should be taught to never swallow the toothpaste.
- Dental flossing can be initiated when adjacent tooth surfaces cannot be cleansed by a toothbrush.

- Brushing should be supervised and assisted until age 8. A small, circular scrubbing motion is recommended for children.
- Infants should not be put to sleep with a bottle containing fermentable carbohydrate.
- At –will breast –feeding should be avoided after the first primary tooth begins to erupt and other dietary carbohydrates are introduced.
- When infants approach their first birthday (around 12 to 14 months of age), they should be weaned from the bottle and drink from a cup instead.
- Repetitive consumption of any liquid containing fermentable carbohydrates from a bottle or training cup should be avoided.
- Between- meal snacks and prolonged exposures to foods and juices or other beverages containing fermentable carbohydrates should also be avoided (42).

Dental caries prevention measures, including standard and enhanced prevention, can also be divided according to age of the children (43). So, there were some approaches specifically for each group of preschool age, and that includes for the children age 3 to 5 years old, which were the main focus of this current study.

Standard prevention recommended for 3 to 5 years old children, considering the 3 major aspects that has been emphasized in this study can be summarized as follows:

1. Oral hygiene habits, especially for tooth brushing, include:
 - Tooth brushing should be done by the caregiver (mother).
 - Adequate time is around 2 minutes.
 - Twice daily, morning after breakfast and evening before going to bed
 - Use a pea-sized amount of 100 ppm fluoride paste, and teach the child to spit, don't rinse, and never swallow the tooth pastes.
 - Tooth brushing should be started when the child got his/her first tooth
2. Dietary habits:
 - Restrict sugar to no more than 4 times per day
 - Drink only water or milk between meals.
 - Sugar-free snacks only, fresh fruit is recommended.
 - No more food and drink, except plain water, after brushing at night

- Be aware of hidden sugar in food and acid content of drink, such as in soft/soda drink and packed fruit juices.

3. Regular dental check up:

- Dental check up at least 2 times per year (every 6 months).

Primary Health Care Approach for ECC

Some approaches have been recognized widely in preventing dental caries. These include establishing and maintaining good oral hygiene, optimizing systemic and topical fluoride exposure, and eliminating prolonged exposure to simple to simple sugars in diets (43). Usually, these approaches work effectively at individual, family and community levels, when they are endorsed by government's dental health policy.

Apart from those approaches, there are some interventions that can only be provided by dental professional, such as chlorhexidine and sealant application (44). Even though these forms of protection against caries have proved efficacious in clinical trials, their usefulness in everyday practice has been questioned. In addition to being costly, they also require sufficient numbers of dental professionals, making it difficult for them to be available to the whole population (44).

Affordability, availability and accessibility of ECC preventive methods have to be part of a consideration in selecting programs to be applied to a population widely. Primary health care approaches which emphasize community empowerment are probably a means of ensuring equalities of oral health care among the poor and disadvantaged population (45, 46).

The framework of ECC prevention with a primary health care approach encloses the involvement of family, caregiver, parental environment and community surrounding the child. In addition, motivation of children's parents to take responsibilities for their children's dental health has an important part in following preventive advice and supervising many of these interventions. This includes a child to have a regular dental check up. It is almost impossible to carry a preventive procedure in dental visit if parents only take their children to a dental clinic after they have already developed dental pain. Because both and parents are anxious in such

situations, it is difficult to build a good rapport with them. This means parents; mothers in particular, play crucial roles in preventing ECC in their children (47).

2.1.6 Mother's role

As mothers are most often the primary care givers and are therefore generally responsible for care decisions about their children's healthcare and access to health services, are the major influences on their children's health. Furthermore, *Streptococcus mutans*, the primary microbiological agent in causing ECC, usually transmitted to the children from their or primary care givers. Some practices such as sharing food and eating utensils, blowing or pre-chewing the children's food, that usually done by mothers, put children in greater risks in having ECC. So, primary prevention programs which aim to reduce ECC by improving the oral health of mothers are likely to improve the oral health of their offspring (47,48).

However a study in Japan (2008) revealed that dental caries was associated more strongly with child – related health behavior than mother – related health behavior (49). So, even though mothers do not have good health behaviors, if they pay more attention to their children, then the children will have fewer dental caries problems. The study suggested that encouraging mothers to have good knowledge about preventing dental caries in child – rearing could result in children enjoying better oral health (50).

2.1.7 Dental Caries Experience

DMFT score which refers to the index is usually used to describe the dental caries experience of each person in the population and refer to dental caries status in any aged group. D represents the average number of cavity per person; M is the average number of tooth extraction/indication of missing tooth; F is the average number of tooth filling; while T is for teeth. Therefore, DMF-T represents the average number of dental defect per person (could be tooth decay, extraction or filling)(40).

2.2 Health Literacy

2.2.1 The contents of health literacy

Health literacy has been called the first public health movement of the 21st century. Practical health literacy for chronic disease prevention and management currently involves a variety of domains centered on communication and empowerment(53).

According to the World Health Organization, health literacy is “the cognitive and social skills which determine the motivation and ability of individuals to gain access to understand and use information in ways which promote and maintain good health”. On the basis of this definition, Nutbeam proposed a model of health literacy that includes three levels(54);

Level 1, Functional/Basic literacy refers to the basic ability to read and write. It reflects the communication of factual information on health risks, and on how to use the health system. It leads to improve knowledge of health risks and health services, and compliance with prescribed actions. Generally such activities will result in individual benefit, but may be directed towards population benefit (e.g. by promoting participation in immunization and screening programs).

Level 2, Communicative/interactive literacy concerns one’s ability to coordinate functional literacy and social skills to fully participate in daily activities and communication. It focuses on the development of personal skills in a supportive environment. This approaches to improve personal capacity to act independently on knowledge, specifically to improving motivation and self-confidence to act on advice received. Much of this activity will result in individual benefit, rather than population benefit.

Level 3, Critical literacy addresses a person’s potential to evaluate information. It reflects the cognitive and skills development outcomes which are oriented towards supporting effective social and political action, as individual action. Within this paradigm, health education may involve the communication of information, and development of skills which investigate the political feasibility and organizational possibilities of various forms of action to address social, economic and in the recent past, considerable attention has been given to analyzing the determinants of health, and to the definition of outcomes associated with health promotion activity.

This has led to the development hierarchies of ‘outcomes’ from health interventions, which illustrate and explain the linkages between health promotion action, the determinants of health and health outcomes.

These models generally distinguish between different levels of outcome. At the end-stage of interventions are ‘health and social outcomes’, usually expressed in terms of mortality, morbidity, disability, dysfunction, quality of life and functional independence.

Intermediate outcomes represent the determinants of these health and social outcomes. Personal behaviors, e.g. smoking or physical activity may increase or decrease the risk of ill health, and are summarized as ‘healthy lifestyle’. ‘Healthy environments’ consist of the environmental, economic and social conditions that can both impact directly on health, as well as support healthy lifestyle.

Health promotion outcomes represent those personal, social and structural factors that can be modified in order to change the determinants of health (intermediate health outcomes). These outcomes also represent the most immediate target to the personal, cognitive and social skills which determine the ability of individuals to gain access to, understand, and use information to promote and maintain good health (55).

Not surprisingly, low literacy in a population is directly and indirectly associated with a range of poor health outcomes (56). As well as, there is clear correlation between inadequate health literacy and poor health outcomes.

However, low health literacy is particularly common among elderly persons, individuals with a chronic illness or disability, persons who live in poverty, individuals who do not speak English, and persons with a mental illness.

Whereas, the researchers in Canada noted health literacy as “people’s ability to find, understand, appraise and communicate information to engage with the demands of different health contexts to promote health across the life-course” (57).

Much of the original research that has exposed the relationship between low literacy, patient decision making, compliance with prescribed medication use, and capacity to self manage disease has emanated from the United States. In this literature, the term “health literacy” is commonly used to describe the set of individual literacy capacities that act as a mediating factor in health and clinical decision-making (58)

Health literacy is currently that an individual needs to access, understand and act on health information. It allows the individual to navigate the complex healthcare system and realize the full benefit of the delivery system (59). In addition, maintain and improving health.

However, a major hurdle is the high prevalence of patients with poor health literacy skills. An ethical approach to remediating low health literacy would be to train, educate, and empower people, giving them the skills and abilities they need for functional health literacy. Furthermore, patient's health literacy, especially communicative health literacy, was related to the process of communicating with physicians during medical visits (60).

2.2.2 Related studies for health literacy

Poor health literacy skills among adults are surprisingly common in developed countries. Estimation of the proportion of the population in individual Organization for Economic Co-operation and Development (OECD) countries lacking functional literacy skills range from 7% to 74% (62). In developing countries, these figures are far higher.

In a survey of Medicare enrollees, more than one-third of respondents had inadequate or marginal health literacy (64). About forty million people have inadequate health literacy and are unable to understand the basic principles behind taking their medications or following directions from their physicians.

The study that was done at public hospital found that 81% of English speaking patients aged 60 years or older had inadequate health literacy (65). Moreover, the highest rate of inadequate health literacy was in Cleveland (34.1%), followed by Houston (28.0%), South Florida (17.3%), and Tampa (16.6%) for English speakers (66). In America, the National Adult Literacy Survey (NALS) also documented that minority populations and older adults, who share the greatest burden of health disparities, have the lowest literacy skills (67).

It is considered that individuals with adequate HL are likely to adopt healthy behaviors and have improved health. Indeed, limited HL is acknowledged to have negative impacts on various health-related behaviors and health outcomes, including less knowledge of disease management and health-promoting behaviors, poorer health status, less use of preventive services and a higher rate of hospitalization

and emergency services use (68). Thus, it is plausible that lower communicative and critical HL is related to less optimal health-related behaviors and health as well.

2.3 Oral health care behavior of caregivers.

The study which was done by Williams proved that patient with poor behavior in oral health care especially for chronic disease, such as disease, asthma, or hypertension, have less knowledge of their disease and its treatment and fewer correct self-management skills, compared to literacy patients (61,62).

Children with good oral health status are originated from their parents attention to their children hygienic practices like start tooth brushing with fluoride tooth paste and helping them tooth brushing. Fail to perform protective oral health behaviors and practices will lead to dental caries(63).

2.4 Previous related Studies

From the findings of some studies, functional health literacy significantly affects a patient's medication compliance (69,70). In one of the studies, individuals with inadequate health literacy and marginal health literacy were more likely to die during follow-up than those with adequate literacy (70).

Health literacy has also been found to significantly impact timely use of preventive health services, understanding disease and treatment (71), adherence to medical instructions, self-management skills, and health outcomes (72).

These factors may explain why patients with adequate functional health literacy are less likely to be hospitalized than those with inadequate health literacy (73). In addition, patients over age 60 are more likely to have both poor health literacy skills and suffer from chronic condition, such as cardiovascular disease.

Patients with lower health literacy face many hurdles. They have higher rate of hospitalized, poorer health outcomes and increased mortality. Many studies also have demonstrated that they have a poorer understanding about their disease processes (74,75). Thus, it is important that educational interventions designed to improve care, also be effective in patients with lower health literacy.

Inversely, the increased HL may help patients understand their health problems, seek information from health care providers and other sources, and make informed and shared decisions, leading to better treatment adherence and subsequent self-management (76). Some studies have shown an association between limited literacy and poorer knowledge about health conditions, less use of preventive services (77).

Low health literacy is associated with multiple negative outcomes, such as poor use preventative care and increased hospitalizations. But, some studies have shown that there is not a direct relationship between health literacy and medication adherence.

In 1990, Baker et al. developed the TOFHLA as two abbreviated version: the brief-TOFHLA and the short TOFHLA. Both use the abbreviated, S-TOFHLA, in research studies and one must look at the description of the instrument to determine which test is being administered. The advantage of both tests is the reduced time of administration (78).

2.4.1 Related studies for independent variables

Socio-demographic factors

With regard to socio-demographic factors, advanced age, lower educational attainment and lower economic status tended to be associated with lower health literacy is more common among patients who have low educational attainment and among immigrants, older patients, and racial and ethnic minorities.

Although there is no clear-cut association between health literacy and gender; some studies indicate that women have higher health literacy. In our society, low health literacy pervades especially in the elderly groups. Studies in both indigent (79) and Medicare (80) populations indicated that health literacy is lower among older individuals. In one of the studies, female gender, younger age, higher education, and higher income were related to get the higher scores. (81)

Indirectly, low literacy is often linked to poor socioeconomic circumstances, and this in turn is associated with adverse effects on health that are independent of other risk factors. Patient education also plays a critical role in facilitating patients' acceptance of their diagnosis and understanding behavioral changes required for active participation in treatment (82).

2.4.2 Measurement of Health literacy

There are several alternative measures for assessing health literacy. Among them, the two main instruments were the Rapid Estimates of Adult Literacy in Medicine (REALM) and the Test of Function Health literacy in Adults (TOFHLA). These are frequently used by the researchers.

2.4.2.1 Rapid Estimate of Adult Literacy in Medicine

In 1991, Davis et al. conceived the first screening instrument to estimate patient literacy in the primary care, patient education, and medical research settings (83). Two years later, they developed a shortened version of the REALM (84). And then, Bass et al. (2003) designed the Rapid Estimate of Adult Literacy in Medicine Revised (REALM-R) to condense the REALM. The reliability and validity are acceptable.

However, all three forms of the REALM do not measure the patient's understanding of the words, only measure sight-reading ability. Actually, the REALM and shortened REALM assign only grade range equivalents and were specifically designed to identify patients who read at levels below ninth grade. The REALM-R only identifies those at risk for poor health literacy.

2.4.2.2 Test of functional Health literacy in Adults

The TOFHLA was the next instrument to appear in the literature and was specifically identified as a measure of "functional health literacy". Developed by Parker et al, the TOFHLA tests a patient's ability to read passages and phrases containing numbers using real materials from the health-care setting (85). The test consists of two parts: (a) numeracy and (b) reading comprehension section, health perspective, health literacy is seen as an asset to be built as an outcome to health education and communication that supports greater empowerment in health decision-making. It commences with recognition of prior knowledge and capability (a), leading to tailored health education and communication (b). At this point the model varies significantly indicating the purpose of the health education as being directed towards the development of relevant personal knowledge and capability (c), and interpersonal and social skills (d, e). This conceptualization of health literacy has its roots in educational research into literacy, and concepts of adult learning and health

promotion. One of the researches to support these ideas is at a more developmental stage and has emanated mainly from the UK, Australia, and Canada (85).

CHAPTER III

RESEARCH METHODOLOGY

3.1 Study design

This study was a cross-sectional design. The data were collected by interviewing caregivers with children aged 0-3 years old about their socio-demographic, oral health literacy, oral health care behaviors and dental caries status were examined by only one dentist who has been working for 10 years.

3.2 Study area

The study site will be in Ratchaburi Province, Thailand where is the rural area. It consists of 10 districts. In each village, there are 2 village health volunteers of oral health branch.

3.3 Study population

The population of this study is caregivers with children aged 0-3 years living in Ratchaburi province, Thailand. The number of children aged 0-3 years old is around 17,866 by mid-year population reported in 2015 from Ratchaburi Provincial Health Office, Ministry of Public Health, Thailand.

Criteria for selection

Inclusion criteria:

- Caregivers of 18 years old above
- One caregiver paired with one child selected by preliminary data (village oral health volunteers reported)
- If there were more than one child aged 0-3 years, Caregiver paired with the older age of child was selected.

-Fully eruption with 20 primary teeth children were selected to examined and then made the face to face interview with their caregivers.

Exclusion criteria

- Caregivers who cannot communicate
- Caregivers unwilling to participate in this research

3.4 Sample size

The population of this study is caregivers with children aged 0-3 year-old living in Ratchaburi province, Thailand.

Sample size calculation

The sample size will be estimated at the 95% confidence interval.

$$n = \frac{z^2 N p (1-p)}{z^2 p (1-p) + (N-1) d^2}$$

n = sample size

Z = standard normal score at 95% of confidence interval = 1.96

d = allowance for error = 0.05

N= population size = 17866

p = proportion of poor oral health status = 0.781 (31)

$$n = \frac{1.96^2 (17866)(0.781)(0.219)}{1.96^2 (0.781)(0.219) + 17865(0.05)^2}$$

n = 262

Applying the calculation from the formula above, the sample size should be at least 262. In this study, the sample size will be increased by 10% to prevent information loss due to incomplete data or withdrawal of participants from the study. Thus, at least 289 caregivers will be needed to include in the study.

3.5 Sampling Technique

1. Multistage cluster sampling was used to select a sample size for children aged 0-3 years from Ratchaburi Provincial Health Office. According to the random sampling was used to select both of children and caregivers in paired from each clusters mode.

2. There are 10 districts in Ratchaburi province. Five districts were randomly selected from the whole.

3. One sub-district was randomly selected from each selected districts.

4. One village was randomly selected from each selected sub-district. The data collection was conducted on the day that Health Promoting Hospital or Primary Care Unit(PCU) in the selected villages provide well baby clinic.

3.6 Research instruments

The questionnaire included about the socio-demographic factors, Psycho-social factors and health literacy. To assess the factors related to preventive behaviors all of the selected caregivers will interview by face to face to answer the structured questionnaire which comprised parts.

Part I: This part consist of 7 questions about socio-demographic characteristics, including type of caregiver, age, sex, education, occupation, monthly family income and number of children.

Part 2: There were questions for oral health literacy. This health literacy screening questions based on the Short Test of Functional Health Literacy, used to identify the caregiver's health literacy level. Five point Likert scale was used in this part.

5 = Always, 4= Often, 3= Sometimes, 2= Occasionally, 1= Never

And 0 to 4 points to the scaled response for each question. The caregiver was classified as having either inadequate, marginal or adequate health literacy by using the percentile. Total score of respondents are less than median was considered as low and more than or equal median percentile was high oral health literacy levels.

Part 3: Oral health care behavior had 20 items

This part consisted of 10 positive and 10 negative oral health care behavior that causes of dental caries, treatment and prevention. It consisted of 20 statements.

Scoring was assign as follow:

For positive statement		For negative statement	
Regular	= 0	Regular	= 2
Irregular	= 1	Irregular	= 1
Never	= 2	Never	= 0

Scoring for oral health care behavior was categorized into three levels. The score were grouped into two levels by using median cut-off point 25 as follows:

High level of oral health care behavior : if the total score > 25 score

Low level of oral health care behavior : if the total score ≤ 25 score

Part 4: Oral examination by minimum concept followed by WHO guideline of screening the oral health status of children. Use eyes of examiner, natural light for recording the average number of dental defect per child (DMF-T score)

Oral health examination form used was modified from WHO record form for dmft/ DMFT Index and treatment needs.

dmft Index

Carious tooth were recorded using dmft/DMFT index. It is one of the most commonly use indices in epidemiology survey.

d/D = Decayed teeth (or) untreated teeth

m/M = Missing teeth (due to caries)

f/F= Filled teeth

Dental caries status was measured as decayed, missing and filling (dmft) in primary dentition and (DMFT) in permanent dentition. It was detected by the naked eyes under the natural light. dmft/ DMFT index represented some of the following:

Table 3.1 Primary and permanent teeth coding for diagnosis

Code			
Primary teeth	Permanent teeth		Condition
Crown	Crown	Root	
A	0	0	Sound
B	1	1	Caries
C	2	2	Filled, with caries
D	3	3	Filled, no caries
E	4	-	Missing due to caries
-	5	-	Missing for any other reason
F	6	-	Fissure sealant
G	7	7	Fixed dental prosthesis abutment, special crown or veneer/implant
-	8	8	Unerrupted tooth (crown)/unexposed root
-	9	9	Not recorded

3.7 Validity and reliability

The questionnaire was validated by evaluation of 3 experts, and then pretest to measure its reliability on a group of 30 caregivers which have similar characteristics with the study population. Cronbach's Alpha will be use for the calculation. Reliability was calculated by Cronbach's alpha (be accepted at least Cronbach's alpha value 0.7). showed 0.96 pre-testing. The questionnaire was adjusted by using the experiences and data from the pilot test.

3.8 Data collection

The data has been collected from November to December 2015, by interviewing caregivers and oral examination of children with the procedures as followed

1. Obtain the ethic approval from the Mahidol University Institutional Review Board (MU-IRB), especially regarding the involvement of human subjects as the respondents for this study.

2. The researcher will give the information sheet about the purpose of the study, each respondent will ask for sign it. The researcher also explain about the respondent's right to have further information concerning benefits and risks from the participation in the research, and rights to withdraw or refrain from the participation at anytime without consequences on the service or health care they will receive in the future. The respondents will be assure that their data will be kept confidential and cannot be traced to each individual.

3. The interview will be used for 20 minutes for each respondent. After the completion of the interview, the respondent will be thank for the cooperation and get the small gift of oral care as an appreciation.

3.9 Data processing and analysis

Questionnaire was label and coded by the researcher. And all data will enter by Epidata and analyze by Minitab Software.

Frequency and percentage was calculated for socio-demographic characteristics (type of caregiver, sex, age, education, occupation, monthly family income, number of children). Maximum, minimum, mean and standard deviation were also calculate for quantitative data.

Apart from the descriptive part, Chi-square analysis were performed to describe the association between each independent variable and dental caries status (DMFT score) among the children.

Multiple logistic regression were used to determine the relationship between the independent variables and dental caries status according to the conceptual framework.

3.10 Ethical consideration

Proposal was reviewed by “Ethical Review Committee, Mahidol University” and approved with certificate approval number 2015/244.1707 and MU-SSIRB number was 2015/277. The research questionnaire and informed consent were written in Thai language. The researcher explained and showed the approval letter to the authorized person of Ratchaburi province. Researcher clarified about flexibility of discontinuation in the interview and examination process without undesirable result to the participants. Collected data were kept confidentially and destroyed after the completion of the study. The figures used in this study were already received the permission from the respective researchers and organizations/ publishers.

CHAPTER IV

RESULTS

In this chapter, the results showed and followed by the association between independent and dependent variables. This cross-sectional survey was conducted at five districts in Ratchaburi Province, Thailand. The data from oral examination form and face to face interview using structured questionnaires was analyzed and the following results were presented as follows:

- Socio-economic characteristics of caregivers.
- Oral health literacy
- Oral health care behavior
- Prevalence of dental caries status of children aged 0-3 years.
- Association between independent variables and dental caries status.
- Predictors of dental caries status.

4.1 Socio-economic characteristics of caregivers.

Most of caregivers were females. 45.8% of them aged 20-29 years old and the median age was 30.5 years. Only 14.5% finished bachelor degree while 14.9% has no formal education. 38.5% were workers. Nearly half of caregivers had income more than 11,000 baht per month. The majority had one child in their families and were parents. (Table4.1)

Table 4.1 Distributions of caregivers by socio-demographic factors

Socio-demographic factors	Number	Percent
Sex		
Males	88	33.6
Females	174	66.4
Age groups		
20-29	120	45.8
30-39	35	13.4
40-49	30	11.5
50-59	37	14.1
≥60	40	15.3
Median=30.5,QD=7.6, Min=20, Max=70		
Education levels		
No formal school	39	14.9
Primary	45	17.2
Secondary to high school	53	20.2
Vocational	87	33.2
Bachelor	38	14.5
Occupation		
Government officer	23	8.8
Farmers	36	13.7
Merchants	82	31.3
Workers	101	38.5
Housewives	20	7.6

Table 4.1 Distributions of caregivers by socio-demographic factors (cont.)

Socio-demographic factors	Number	Percent
Income (Baht per month)		
≤11000	133	50.8
>11000	129	49.2
Number of children		
1	186	71.0
>1	76	29.0
Relationship with children		
Parents	143	54.6
Relatives	119	45.4

4.2 Oral health literacy

From Table 4.2, it was found that respondents had the most knowledge about caries that caused tooth decay. 86.6% had the least amount of knowledge about how to prevent tooth decay. Accounted for 41.6 percent

Table 4.2 Distribution of respondents by Cognitive skill

Cognitive skill		incorrect	correct
What is the infection that causes dental caries?	(n)	76	186
	(%)	29.0	71.0
An Important ingredient in toothpaste can help prevent tooth decay.	(n)	65	197
	(%)	24.8	75.2
What kind of food is a contributing factor to tooth decay?	(n)	35	227
	(%)	13.4	86.6
Can observe early stage caries	(n)	75	187
	(%)	28.6	71.4
How to prevent tooth decay best and easiest.	(n)	153	109
	(%)	58.4	41.6
Oral cleaning of children 0-3 years old.	(n)	96	166
	(%)	36.6	63.4

From Table 4.3, it is found that Accessibility respondents in your field have an audit of the data source. Believe that health information is reliable. How often 21.4% and Accessibility. You have to check the health information about caries by searching from many. How often is the source the least? Accounted for 20.2%

Table 4.3 Distribution of respondents by accessibility skill

Accessibility skill		never	rarely	sometimes	often	always
1. To Health Information About Tooth Decay How often can you choose a health information source?	(n)	63	24	57	96	22
	(%)	24.0	9.2	21.8	36.6	8.4
2. When you need health information about dental caries. You can search for accurate and up-to-date information. How often?	(n)	52	39	53	94	24
	(%)	19.8	14.9	20.2	35.9	9.2
3. You have problems with finding health information about dental caries from the internet. How often?	(n)	63	22	57	71	49
	(%)	24.0	8.4	21.8	27.1	18.7
4. You have to check health information about dental caries by searching from many different sources. How often?	(n)	59	22	56	72	53
	(%)	22.5	8.4	21.4	27.5	20.2
5. You have checked the data source. Believe that health information is reliable. How often?	(n)	55	27	50	74	56
	(%)	21.0	10.3	19.1	28.2	21.4

Table 4.4 shows that respondents Communication. It can convince others to accept the most accurate oral health information. Accounted for 31.3 percent and Communication The story about caries to other people, such as family, friends, etc., until the friends understand the least. 22.5 percent

Table 4.4 Distribution of respondents by communication skill

Communication skill		never	rarely	sometimes	often	always
1. Have you ever read an oral health guide? I find that I do not understand. How often?	(n)	33	47	44	61	77
	(%)	12.6	17.9	16.8	23.3	29.4
2. Have you ever heard oral health advice from people? How often do you find it hard to understand the content?	(n)	52	29	33	77	71
	(%)	19.8	11.1	12.6	29.4	27.1
3. You need help from someone else. How often can I read health messages?	(n)	59	23	32	80	68
	(%)	22.5	8.8	12.2	30.5	26.0
4. You tell a story about tooth decay to other people, such as family, friends, etc., until you hear it. How often?	(n)	49	40	50	64	59
	(%)	18.7	15.3	19.1	24.4	22.5
5. You express yourself in oral, written, oral health information to help others understand. How often?	(n)	54	27	49	61	71
	(%)	20.6	10.3	18.7	23.3	27.1
6. You can convince others to accept valid oral health information. How often?	(n)	58	24	47	51	82
	(%)	22.1	9.2	17.9	19.5	31.3

From Table 4.5, it was found that respondents in the decision to toothache. Drink cold water and then have the most urgent. 31.3% and Decision on participation in oral health promotion activities in the community is minimal. Accounted for 7.3 percent.

Table 4.5 Distribution of respondents by decision skill

Decision skill		less	compare	reject	negotiation skill
Get guidance from dental personnel. Or health officials or home security for the annual oral health examination.	(n)	67	56	89	50
	(%)	25.6	21.4	34.0	19.1
Have toothache Drink cold water and then have a sensation	(n)	71	33	91	67
	(%)	27.1	12.6	34.7	25.6
Your child will not allow you to brush your teeth before bedtime.	(n)	60	58	83	61
	(%)	22.9	22.1	31.7	23.3
Access to dental services at the hospital or district health promotion hospital (or the former health center).	(n)	79	45	93	45
	(%)	30.2	17.2	35.5	17.2
Attend community oral health promotion activities.	(n)	63	88	92	19
	(%)	24.0	33.6	35.1	7.3

Table 4.6 shows that the respondents Self-management In that aspect, you have improved yourself to have a proper health care channel. How often 30.5% and Self-management You determine the amount of flour and sugar, such as rice, noodles, soft drinks, etc. to eat each meal. Frequently, the least is 13.0 percent.

Table 4.6 Distribution of respondents by self-management skill

Self-management skill		never	rarely	sometimes	often	always
1. You determine the amount of flour and sugar such as rice, noodles, soft drinks, etc. to eat each meal. How often?	(n)	48	37	43	100	34
	(%)	18.3	14.1	16.4	38.2	13.0
2. You observe the quantity and nutritional value of each meal. How often?	(n)	48	35	38	102	38
	(%)	18.3	13.4	14.5	38.9	14.5
3. Before deciding to buy food. You will consider your intended goals and follow them. Guidelines for good oral health. How often?	(n)	54	30	31	101	46
	(%)	20.6	11.5	11.8	38.5	17.6
4. You have reviewed the way you act in order to have good oral health. How often?	(n)	63	19	49	59	72
	(%)	24.0	7.3	18.7	22.5	27.5
5. You have improved yourself to have proper health care habits. How often?	(n)	59	23	44	56	80
	(%)	22.5	8.8	16.8	21.4	30.5

From Table 4.7 shows that the caregivers have self-reported media exposure. When they see a new product advertising that helps prevent tooth decay on television and is of interest, you have searched for information from many sources to determine the correctness. How often do I need to make a purchase? And when you see advertise on the site and are interested in that product, you intend to visit more information from many sources to check the credibility before making a purchase. Frequently 34.4% and have their own assessment when you participate in oral health

activities. How often do you analyze the evaluation of the content without being promptly believed? At least 27.9%

Table 4.7 Distribution of respondents by media skill

Media skill		never	rarely	sometimes	often	always
1. To health information About tooth decay How often can you choose a health information source?	(n)	63	24	57	96	22
	(%)	24.0	9.2	21.8	36.6	8.4
2. When you need health information about dental caries. You can search for accurate and up-to-date information. How often?	(n)	52	39	53	94	24
	(%)	19.8	14.9	20.2	35.9	9.2
3. You have problems with finding health information about dental caries from the internet. How often?	(n)	63	22	57	71	49
	(%)	24.0	8.4	21.8	27.1	18.7
4. You have to check health information about dental caries by searching from many different sources. How often?	(n)	59	22	56	72	53
	(%)	22.5	8.4	21.4	27.5	20.2
5. You have checked the data source. Believe that health information is reliable. How often?	(n)	55	27	50	74	56
	(%)	21.0	10.3	19.1	28.2	21.4

Table 4.8 shows the mean and sd scores of six oral health literacy (OHL) skills among caregivers: Cognitive ($\bar{x}=4.1$, $s=1.5$), Accessibility ($\bar{x}=10.4$, $s=6.6$), Communication ($\bar{x}=13.7$, $s=8.5$), Decision ($\bar{x}=12.3$, $s=4.5$), Self-management ($\bar{x}=11.0$, $s=6.9$), Media literacy ($\bar{x}=11.6$, $s=7.5$).

Table 4.8 Distribution of respondents by the score of oral health literacy skills

OHL skills	Min	Max	Mean	SD	Median	QD
Cognitive	0	6	4.1	1.5	4	1
Accessibility	0	20	10.4	6.6	12	7.5
Communication	0	24	13.7	8.5	16	8.1
Decision	5	20	12.3	4.5	13	4
Self-management	0	20	11.0	6.9	13	6.6
Media	0	20	11.6	7.5	15	7
Overall	5	108	63.1	34.1	73	38

Moreover, there is the interesting finding shows that low levels of oral health literacy in each skills and can describe as shown as Table 4.8. The number of respondents and percentage are similar to each other.

Levels of awareness of oral health care. Most respondents had low level of knowledge about oral health care. Which has the lowest level of media literacy. Accounted for 58.8%, followed by Accessibility 56.5%, Cognitive 54.2%, and the respondents had the highest level of knowledge. Self-management Accounted for 48.9 percent

Table 4.9 Distribution of respondents by levels of oral health literacy skills

Oral health literacy skills	Number	Percentage
Cognitive		
Low	142	54.2
High	120	45.8
Accessibility		
Low	148	56.5
High	114	43.5
Communication		
Low	139	53.1
High	123	46.9
Decision		
Low	141	53.8
High	121	46.2
Self-management		
Low	134	51.1
High	128	48.9
Media		
Low	154	58.8
High	108	41.2
Overall		
Low	136	51.9
High	126	48.1

4.3 Oral health care behavior

Respondents were at risk for oral hygiene, with 52.7% of buying snacks followed by Buying soda drink, 52.3%, followed by Drinking curd at a percentage of 52.7%. 40.5, and the behavior that the respondents routinely practice least is the having a sweet drink without brushing at bedtime at 8.4 percent.

Table 4.10 Distribution of respondents by negative statements of oral health care behavior

Oral health care behavior	Regular %	Irregular %	Never %
1.Buying snacks	52.7	42.0	5.3
2.Buying soda drink	52.3	43.9	3.8
3.Eating Thai sweets	28.0	53.6	18.4
4.Having Chocolate	19.5	72.9	7.6
5.Sugary food habit	21.4	73.7	5.0
6.Drinking curd	40.5	50.0	9.5
7.Herbal toothpaste using	34.4	54.2	11.5
8.Having Candy	14.5	77.1	8.4
9.Frequently snack taken	11.5	80.5	8.0
10.Having sweet drink without brushing at bedtime	8.4	74.4	17.2

The respondents had oral health behaviors in which the never-abnormal aspect was fluoridated toothpaste brushing before bedtime, 53.4%, followed by Mouthwash Using 40.8%. Supervising your children for brushing was 40.5% and the behavior that respondents practice most frequently. Fluoride toothpaste brushing after breakfast accounted for 50.8 percent.

Table 4.11 Distribution of respondents by positive statements of oral health care behavior

Oral health care behavior	Regular %	Irregular %	Never %
1. Fluoridated toothpaste brushing after breakfast	50.8	45.0	4.2
2. Fluoridated toothpaste brushing before bedtime	2.7	43.9	53.4
3. Having fruits after meal	8.8	82.4	8.8
4. Eating calcium food	8.0	84.7	7.3
5. Dental floss using	17.2	65.3	17.6
6. Oral health examination	11.8	48.9	39.3
7. Chewing gum after meal	13.4	72.5	14.1
8. Non-sugary milk drinking	8.4	63.7	27.9
9. Mouthwash using	13.7	45.4	40.8
10. Supervise your children for brushing	11.5	48.1	40.5

Respondents had low overall oral health care behavior. 54.6% and those with high level of oral health. Accounted for 45.4 percent.

Table 4.12 Distribution of respondents by levels of overall oral health care behavior

Oral health care behavior	Number	Percentage
Low	143	54.6
High	119	45.4

4.4 Prevalence of dental caries status of children aged 0-3 years.

Respondents had caries status is yes 71.0% and those had caries status is No for 29.0 percent

Table 4.13 Distribution of respondents by caries status

Caries status	Number	Percentage
Yes	186	71.0
No	76	29.0

4.5 Association between independent variables and dental caries status.

Children who were taken care by their parents were less likely to have dental caries than those who were with relatives (OR=0.26, 95% CI=0.14-0.48). Furthermore, children with caregivers aged 40 years above were about 6 times more likely to have caries than those being with caregivers aged below 40 years (OR=5.57, 95% CI=2.82 -10.99). Children in the family with monthly income of \leq 11000 Baht more likely to have dental caries than those who were in the family with monthly income of >11000 Baht (OR=2.83, 95% CI=1.61-4.95) Being only one child in the family was less likely to have dental caries than being with family having more than one child (OR=2.48, 95% CI =1.27-4.85).

Table 4.14 Association between socio-demographic factors and caries status

Socio-demographic factors	n	Caries status		Crude odds ratio (95% CI)	p-value
		Yes %	No %		
Types of care givers					< 0.001
Parents	143	59.4	40.6	0.26 (0.14 - 0.48)	< 0.001
Relatives	119	84.9	15.1	1	
Age of care givers					< 0.001
< 40	155	58.7	41.3	1	
≥ 40	107	88.8	11.2	5.57 (2.82 -10.99)	< 0.001
Sex					0.671
Male	88	69.3	30.7	0.89 (0.51-1.55)	0.671
Female	174	71.8	28.2	1	
Education					< 0.001
Lower than vocational	137	84.7	15.3	4.34 (2.42- 7.78)	< 0.001
Vocational and higher	125	56.0	44.0	1	
Occupation					0.717
Workers	101	72.3	27.7	1	
Non-workers	161	70.2	29.8	0.90 (0.52-1.57)	0.717
Monthly family income					< 0.001
≤11000 Baht	133	81.2	18.8	2.83 (1.61-4.95)	< 0.001
>11000 Baht	129	60.5	39.5	1	
Number of Children					0.007
1	186	66.1	33.9	0.91 (0.21-0.79)	0.007
>1	76	82.9	17.1	1	

Regarding overall oral health literacy, children with caregivers who had poor oral health literacy were 61 times more likely to have caries than those with caregivers who had good oral health literacy (OR= 61.06, 95% CI =18.43-202.27).

Table 4.15 Association between oral health literacy and caries status

Oral Health Literacy	n	Caries status		Crude odds ratio (95% CI)	p-value
		Yes	No		
		%	%		
Cognitive skill					
Low	142	83.8	16.2	4.09 (2.31-7.26)	< 0.001
High	120	55.8	44.2	1	< 0.001
Access skill					
Low	148	91.2	8.8	12.83 (6.51-25.28)	< 0.001
High	114	44.7	55.3	1	< 0.001
Communication skill					
Low	139	96.4	3.6	36.59 (13.99-95.73)	< 0.001
High	123	42.3	57.7	1	< 0.001
Decision skill					
Low	141	93.6	6.4	18.20 (8.47 - 39.09)	< 0.001
High	121	44.6	55.4	1	< 0.001
Self management skill					
Low	134	97.8	2.2	57.96 (17.51 -	< 0.001
High	128	43.0	57.0	1	< 0.001
Media literacy skill					
Low	154	96.8	3.2	57.18 (21.56 -151.71)	< 0.001
High	108	34.3	65.7	1	< 0.001
Overall oral health literacy					
Low	136	97.8	2.2	61.06 (18.43-202.27)	< 0.001
High	126	42.1	57.9	1	< 0.001

Regarding Oral health care behavior, children with caregivers who had low level of oral health care behavior were about 7 times more likely to have dental caries than those with caregivers who had high level (OR=6.60, 95% CI=3.58 -12.17).

Table 4.16 Association between oral health care behavior and caries status

Oral health care behavior	n	Caries status		Crude odds ratio (95% CI)	p- value
		Yes %	No %		
Low	143	87.4	12.6	6.60 (3.58 -12.17)	< .001
High	119	51.3	48.7	1	

4.6 Predictors for oral health care behavior of caries status

In this part, multiple logistic regression used to determine significant predictors related to oral health care behavior of caries status

The significant independent variables from Chi-square test and suspected variables were included in multiple logistic regression to determine significant predictors for dental caries status. The outcome variable used in logistic regression was classified into “NO” (caries free) which was the reference and “YES”(having caries).

As shown in Table 4.17, out of all variables, Overall oral health literacy (p-value=<0.001) were found to be significant predictor of caries status. After adjusting for other factors, children with caregiver who had poor overall oral health literacy were more likely to have dental caries than those with caregivers who had good oral health literacy (Adj.OR=38.66, 95% CI= 11.11-134.44).

Table 4.17 Multiple logistic regression for predictors of caries status (Full Model)

Variables	Adj. OR	95% CI for OR		p-value
		Lower	Upper	
Types of care givers				
Parents	1.14	0.28	4.65	0.851
Relatives	1			
Age of care givers				
< 40	1			
≥ 40	2.45	0.42	14.40	0.323
Education				
Lower than vocational	0.70	0.25	1.98	0.498
Vocational and higher	1			
Monthly family income				
≤11000 Baht	1.18	0.56	2.49	0.657
>11000 Baht	1			
Number of Children				
1	0.73	0.28	1.89	0.520
>1	1			
Overall oral health literacy				
Low	38.66	11.11	134.44	< .001
High	1			
Oral health care behavior				
Low	2.33	1.09	5.01	0.030
High	1			

Type of caregiver, education and number of children were excluded to achieve the final model of multiple logistic regression. After adjusting for other factors, children with caregiver who had poor overall oral health literacy were more likely to have dental caries than those with caregivers who had good oral health literacy (Adj.OR=36.67, 95% CI= 10.71-125.49).

Table 4.18 Multiple logistic regression for predictors of caries status (Final Model)

Variables	Adj. OR	95% CI for OR		p-value
		Lower	Upper	
Age of caregivers				
< 40	1			
≥ 40	1.87	0.79	4.44	0.155
Monthly family income				
≤11000 Baht	1.14	0.55	2.39	0.721
>11000 Baht	1			
Overall oral health literacy				
Low	36.67	10.71	125.49	< .001
High	1			
Oral health care behavior				
Low	2.20	1.01	4.66	0.039
High	1			

CHAPTER V

DISCUSSION

With regard to socio-demographic factors, advanced age, lower educational attainment and lower economic status tended to be associated with lower health literacy is more common among patients who have low educational attainment and among immigrants, older patients, and racial and ethnic minorities. Although there is no clear-cut association between health literacy and gender; some studies indicate that women have higher health literacy. In our society, low health literacy pervades especially in the elderly groups. Studies in both indigent and Medicare populations indicated that health literacy is lower among older individuals. In one of the studies, female gender, younger age, higher education, and higher income were related to get the higher scores (86) which was similar to the present study.

Moreover, the present study showed that there were significant difference of mean scores of caregivers who were different in education levels, occupations, income levels, number of children, relationship to children. The OHL mean score was larger when their education levels were higher as well as income levels. Parents has OHL mean scores higher than relatives the OHL mean score of families having one child was higher than those having more than one. The findings were similar to a study in USA which revealed that low literacy is often linked to poor socioeconomic circumstances. Patient education also plays a critical role in facilitating patients' acceptance of their diagnosis and understanding behavioral changes required for active participation in treatment. The relationship between education and health literacy is positive; those with higher education have higher health literacy (87,88). Based on there was no reports of oral health literacy status of caregivers in 0-3 aged group children, further study should be require to gain more data supported and in various region to compare the result of study.

A major hurdle is the high prevalence of patients with poor health literacy skills. An ethical approach to remediating low health literacy would be to train,

educate, and empower people, giving them the skills and abilities they need for functional health literacy. Furthermore, patient's health literacy, especially communicative health literacy, was related to the process of communicating with physicians during medical visits. Thus, it is plausible that lower communicative and critical HL is related to less optimal health-related behaviors and health as well (89). This finding was consistent with the result of the present study.

In this study, majority of caregivers had good knowledge on disease etiology, symptoms, complication, treatment and prevention of dental caries than the rest poor knowledge group especially on the affected age group of caries. It was similar with previous study in Irish adults (90). But on the other hand, the finding was not agrees with other studies that better knowledge parents had low caries DMFT scores(91). In terms of oral health behavior, one-fourth of parents/caretakers still left poor in some important knowledge regarding to oral health and mostly got the oral health information from the education programs without good in attitude and practice in daily life. To make an effective oral health prevention programs, it is necessary to use simple and non-technical words to avoid complicated knowledge and attract more public interest to the prevention programs.

In the present study, nocturnal snacking habits, consumption of cariogenic food containing sweets and sugar, intake of soft drinks and other sweet containing fluids were prominently linked with ECC. This correleates with some other studies before. The child who ate snacks before going to sleep without toothbrush had 2.9 times more higher to get caries than who never eat the snacks at night time before bed. This finding was coincide with previous study that found night time feeding group had higher chance of SECC and remind the health care personnels to educate this group about importance of eating habits during prevention program to the children and mother(92). Even though the children frequently eat snacks before going to sleep were less group in this study, it was strongly associated with caries and most of the parents/caretakers who allow the children to eat before bed were low education but had good knowledge level on oral health, and poor parental oral hygiene group with high adult caries prevalent rate among themselves.

The eating habits of children have changed hysterically during last few decades, fiercely increased in consumption of soft drinks, juices, soft beverages and

sweet carbohydrates as well. From the present study, most of the child took at least one soft drink or milk and biscuits or candies everyday along with their meals. Frequently sugar intake is a potential risk factors for caries that change pH in the oral cavity which caused remineralization and demineralization process very quickly in the tooth ended into ECC with hosting of *S. mutans* and lactobacilli. The preferred with milk and carbonated drink and those carbonated drink brought ECC 4.2 times higher to the children than other kinds of soft and sweet drinks. For solid sweet snacks, the children in Ratchaburi liked biscuits, cakes, potato chips and candies, chocolate that also major risk factor for caries, and candies and chocolates contributed 1.6 times more higher in the caries building process among the children. The present study agrees on previous findings, which mentioned that early and frequently consumption of cariogenic foods and drink between meals accelerate the risk of ECC(93). The majority of parents/caretakers who let the children to drink soft and sweet fluids were young employee with high income Thai citizens and their attitude towards caries were negative as well as poor oral hygiene practices to their children and themselves.

Moreover, the frequency of sugar utilization in this study was very high and nearly almost all of the children intake sweet snacks and drinks more than or equal one time per day and 1.0 time higher than never consumed snacks group to receive ECC. Even though the frequency of snacks using up was not significant in this study, it was a strong causal factor to develop caries among the children like other studies found associatedly in their study population. This analysis generally measured the frequency of intake both solid and liquid snacks but did not capture in each food category implicated in the caries process. So, it is need to be speculated that children exposed to a universal variety of food staffs in daily practice, and this area requires further study in this population.

From this study, the results demonstrated low mean scores of six oral health literacy (OHL) skills among caregivers: Cognitive (\bar{x} =4.1, s=1.5), Accessibility (\bar{x} =10.4, s=6.6), Communication (\bar{x} =13.7, s=8.5), Decision (\bar{x} =12.3, s=4.5), Self-management (\bar{x} =11.0, s=6.9), Media literacy (\bar{x} =11.6, s=7.5). Therefore, the OHL score was not high (\bar{x} =63.1, s=34.1). The OHL mean score was detected significant difference among age groups similar to the study in Canada which showed

that patients over age 60 are more likely to have both poor health literacy skills and suffer from chronic condition, such as cardiovascular disease (94,95).

This study was cross-sectional analytical study with the fulfilment of two objectives of assess socio-demographic, oral health literacy of caregivers, oral health care behavior and their association with early childhood caries among 0-3 children. This study used structured questionnaires constructed based on WHO questionnaire and literature review from previous studies. It was reviewed by experts.

The strength of this study was the oral health examination done by only expert senior dentists from Watphleng hospital. The respondents were more than parents (caretakers, relatives, grandparents), and the limited number of target 0-3 years children were selected by inclusion and exclusion criteria, so the caretakers more than parents created big room for sample population. Respondents apart from Thai nationalities, they had selected on documented status and could avoid controversial sensitive issue to get the approval from various authorities. The study areas were conducted the urban, suburban and rural areas of the whole province including hilly region to compare the outcome results on lifestyles and income. For the selection bias, the researcher attempted to reduce with 95% confidence interval and appropriated sampling method and inclusion/ exclusion criteria and chose only one child from the same household.

Firstly, the limitation of the study was related to the fact that the respondents are not only parents but also caretakers and sometimes some questions in the questionnaire were confused to the caretakers during face to face interviewing. Parents were worked at outside in the same area or in the other province, at that time, caretakers stay with children at the home, so if the researcher can inform the community a few weeks before data collection, it is better to arrange and collect only the parents/caretakers who know about the child very well and it will work more conveniently and precisely.

Secondly, due to time and budget limitation, the research was conducted within one month but the number of participants in this study was 262 which were reached the target. Even though the researcher fixed the problem but there was also another barrier as inclusion criteria about the children should have co-operation for the selection of sample to participate in this study. Thirdly, some caregivers were

cancelled the appointment with various reasons and it happened very rush to the research team to arrange new schedule and made appointment and lastly, some districts left to collect data. Because data collection period was at the beginning of the long summer holidays Fourthly, data collection time, interviewers were conducted at the time of parents/caregivers stayed with their children especially in the afternoon or evening and interviewed as well as examined the respondents within 20 to 30 minutes to save their time to go back to their work or business. Finally, the assessment of risk factors of early childhood caries was limited and other factors could have been included in this study.

The current study scrutinized the pattern of dental caries in 0-3 years old children in Ratchaburi province with their caregiver's oral health literacy. It found that Ratchaburi province had high prevalence and severity of caries which was directly associated with caries experience of children. So, it means oral health literacy of caregivers was a good potential predictor of the early childhood caries in this study population. It was statistically associated in full model. The full model finding was similar to most of the previous studies from the rest part of the world that they agreed to say oral health literacy increment was strongly associated with their children caries experiences.

CHAPTER VI

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This cross-sectional study was based on setting survey in community with interviewed 262 of 0-3 year-old children and their caregivers in the areas of Ratchaburi province, Thailand. The aims of study to study oral health literacy of caregiver and factors related to oral health outcome of their children and to describe the general characteristics including gender, age, financial support, health literacy and psycho-social factors regarding dental caries preventive behavior of caregiver with 0-3 years old.

Based on the findings, it can be concluded that low level of oral health literacy in 6 skills of caregivers can lead to be poor oral health in children aged 0-3 years old. Also oral health behavior of caregivers according to the outcome, this study confirmed that the following predictive factors were analyzed for association with the outcome such as some socio-demographic factors, oral health literacy of caregivers were associated with dental caries among children. Socio-demographic factors which were found to be associated were age, education level, family monthly income, occupation, number of children in the family, type of relative except sex. Under the oral health care behavior category, awareness of where to take care of their children was associated with the outcome in Ratchaburi province.

Prevalence of dental caries among children in Ratchaburi is high in compare with national figure by using National Oral Health Survey 2013 as well as caries distribution in adult is nearly 100% and it is alarming situation for regional level to take an action to control and prevent dental caries among the community by using various methods of disease controlling activities and interventions. To improve the oral health behavior of the community by providing more knowledge on disease etiology and consequences, attitude regarding to disease treatment and importance of primary teeth, practice towards oral hygiene and feeding of quality and healthy foods

to the children. Although dental care attendance is not much lower in condition within 6 months and mostly used oral care services at hospital and private sectors, the prevalence was higher than national prevalence and need to find out more predictors and confounders to mask the association with caries in this study population.

In summary, this study revealed that there was high risk of ongoing lower oral health literacy this study population in the near future if the children and caregivers practiced the same factors that favor dental caries among them for long term. It is already acknowledged that childhood caries in early life can affect their permanent teeth as well as impact on their medical, social and psychological outcomes. Apart from the factors mentioned above, there are a wide range of factors that contribute to dental caries in the children and their family members, so they are expected to be explored as an extension. Oral health literacy and prevention programs needed to reach among this group of population to improve their daily practices and aware the hazards of incorrect feeding practice and attitude on nutrition, oral health behaviors and utilization of oral health facilities before they established unhealthy dietary habits in their lives including media and communication skills

6.2 Recommendations

Many recommendations were coming out to reduce high prevalence of dental caries and their consequences in this study population as follows:

6.2.1 Recommendation for Implementation for the policy makers in the regional level

1) From the study, even though the majority of caregivers had good knowledge, their attitudes towards oral health and practices on oral hygiene were poor especially on disease causation, important of primary teeth and prevention. For solving of those problems, systematic community-oriented oral health promotion and education programs are needed and they should be focused especially on knowledge regarding etiology of caries, prevention and treatment of ECC, healthy eating, using dental care services and effectiveness of regular oral check-up by using IEC materials (information, education and communication) like mass media programs to distribute

the information and education of dental caries. Oral health promotion is based principally on 6 different areas: nutrition (reduce sugar intake), oral hygiene (oral plaque removal), smoking cessation, prevent dental trauma, change environment into oral health favor atmosphere and empower people to guard their oral health behaviors.

2) Encourage good interpersonal relationship in order to improve the communication and collaboration between the research team/oral health care professional team, caregivers by providing the opportunity for sharing, developing ideas and learning from each other which will reduce the high prevalence of early childhood caries in the community, like an adding of oral health information chapter in the school curriculum.

3) Boost up capacity building programs with definite objectives to dental auxiliaries such as dental therapists, dental hygienists and dental educators should be planned to raise up the prevention and control dental caries. And also, should encourage more dentists to participate in the programs from the aspect of dental caries assessment, fissure sealant treatment and educate to the school children and their up-generation population.

4) Yearly or biannually health education program, fluoride varnish program and oral health screening survey should be implemented to reduce the prevalence, identify more predictors, monitor and evaluate the caries status and required referral system for treatment if necessary.

5) The policy makers and planners should heed the voice from the professionals and technicians, researchers, school teachers and community to make correct, effective and sustainable decisions and acknowledge to the service providers for their dignity and high-quality oral health care services.

6) Special education program and interventions designed for the rural community to encourage utilizing oral health care services with positive attitude to the dental treatment and explained the consequences of the treatment with the possibility to get traumatic dental experience.

7) The administrators should negotiate with the private dental sectors to generate cost effective dental package or reasonably priced primary dental health care services in both urban and rural areas to utilize the dental services among low income population and Non-Thai migrant populations in some areas. It would bring an

effective preventive measure as well as positive motivation to the population especially the grass root levels to visit the dentist habitually.

6.2.2 Recommendation for Implementation for the community level

1) Oral health literacy education program should be incorporated with other non-communicable diseases education program and social and personal health education program to reduce the work burden of village health volunteers.

2) Oral health literacy education is very important to deliver to the caregivers to encourage healthy eating lifestyle by using education tools and national guidelines to improve the decision or self management skills.

3) Caregivers and children should be advised that foods and drinks containing sugar substitutes are available by consumption with moderation or other related issues can be delivered directly by local political government.

4) Control the selling of cariogenic foods around the community and the shops should be monitored regularly by school health committee to improve the general and oral health condition of the 0-3 years old children.

5) Caregivers are advocated to record the time for checking the child tooth brushing for 2 minutes by using mobile phone or alarm clock or digital toothbrush with set alarm for 2 minutes.

6.2.3 Recommendation for further study

1) Comparative study of oral health literacy between Thai and Non-Thai children as well as adults not only in Ratchaburi province also other areas of Thailand to find the difference in disease predictors and biological background by using large sample size to get more strongly predictors that influence dental caries.

2) Further follow up study is needed in this study population to find the factors and monitor the oral health status after implementing oral health prevention and promotion interventions.

3) For getting the awareness to brush the child teeth at night time by using telecommunication media like “Line” group alert/message by sending alarm or short video/cartoon clip after 8:00 pm to the mobile phone.

4) In addition, future mixed method research using in-depth interview questions/ focus group discussion should be implemented to discover and more understanding of the factors related to the early childhood caries in this region and the reasons of consistently high index of caries among the study population as well as individual reasons which restrict their behaviors.

5) Future work need to concentrate on qualitative in-depth study with oral health literacy in Greater Mekong Subregion (GMS) countries (Cambodia, the People's Republic of China, Lao People's Democratic Republic (Lao PDR), Myanmar, Thailand, and Viet Nam) and also in some ASEAN countries, so regional collaborative and cooperative research studies among this countries to find out common risk factors and oral health care update by comparing the data on dental caries with the aims of sharing resources and support technically with each other by following WHO and regional guidelines.

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APPENDIX

Information Sheet for Participants in Thai Language

เอกสารชี้แจงผู้เข้าร่วมโครงการวิจัยโดยการตอบแบบสอบถามและการพิทักษ์สิทธิของผู้เข้าร่วมการวิจัย

ในเอกสารนี้อาจมีข้อความที่ท่านอ่านแล้วยังไม่เข้าใจ โปรดสอบถามหัวหน้าโครงการวิจัย หรือทีมงานวิจัยให้ช่วยอธิบายจนกว่าท่านจะเข้าใจดี

ชื่อโครงการ: ความแตกฉานทางสุขภาพช่องปากของผู้ดูแลเด็กกลุ่มอายุ 0-3 ปีที่มีผลต่อดัชนีค่า ประสิทธิภาพฟันผุของเด็ก จังหวัดราชบุรี

ชื่อผู้วิจัย : ทันตแพทย์อัครานูวัฒน์ ยงพิศาลภพ 087-7574515

ชื่อผู้ประสานงาน: นางสาวสุณิสา เทวา 082-3657045

สถานที่วิจัย: จังหวัดราชบุรี ประเทศไทย

ผู้ให้ทุน : -

โครงการวิจัยนี้ทำขึ้นเพื่อศึกษาความสัมพันธ์ในด้านความแตกฉานด้านสุขภาพช่องปากของผู้ดูแลเด็กกลุ่มอายุ 0-3 ปีที่มีผลต่อโรคฟันผุในเด็กเล็กของจังหวัดราชบุรี

ท่านได้รับเชิญให้เข้าร่วมการวิจัยนี้เพราะท่านเป็นผู้ดูแลเด็ก อายุ 0-3 ปี ที่อยู่อาศัยในพื้นที่ของจังหวัดราชบุรี ข้อมูลของท่านเกี่ยวกับข้อมูลส่วนบุคคล ความรู้ ทักษะ ทักษะการดูแลสุขภาพช่องปาก ตลอดจนผลการตรวจสุขภาพช่องปากเด็กที่ท่านเป็นผู้ดูแล จะถูกใช้เพื่อความสมบูรณ์ของการศึกษาเรื่องนี้

งานวิจัยนี้ จะมีผู้เข้าร่วมการวิจัยนี้ทั้งสิ้นประมาณ 289 คน และระยะเวลาในการเก็บข้อมูล 7 สัปดาห์ในระหว่างสัปดาห์แรกของเดือนกรกฎาคมถึงสัปดาห์สุดท้ายของเดือนสิงหาคม 2558

หากท่านตัดสินใจเข้าร่วมการวิจัยแล้ว ผู้วิจัยจะขอเชิญให้ท่านตอบแบบสอบถามจำนวน 59 ข้อ โดยจะใช้เวลาประมาณ 20-30 นาที เมื่อเสร็จแล้วขอให้ท่านคืนแบบสอบถามกับผู้ประสานงานในพื้นที่หรือผู้วิจัย และนำเด็กมารับการตรวจสุขภาพช่องปากซึ่งจะใช้เวลาไม่เกิน 5 นาที

งานวิจัยนี้ใช้แบบสอบถามในการเก็บข้อมูล จึงอาจเป็นการรบกวนท่านโดยทำให้ท่านรู้สึกเสียเวลา หรืออึดอัด ไม่สบายใจในการตอบแบบสอบถาม ท่านมีสิทธิ์ที่จะไม่ตอบคำถามเหล่านั้นได้ หรือหยุดตอบแบบสอบถามได้ตลอดเวลาโดยไม่มีผลเสียใดๆ และไม่ต้องแจ้งให้ทราบล่วงหน้า

การเข้าร่วมงานวิจัยครั้งนี้ ท่านไม่ต้องเสียค่าใช้จ่ายใดๆทั้งสิ้น และได้รับชุดของขวัญ เพื่อขอบคุณที่ท่านเข้าร่วมการวิจัยนี้

หากมีข้อมูลเพิ่มเติมทั้งด้านประโยชน์และโทษที่เกี่ยวข้องกับการวิจัยนี้ ผู้วิจัยจะแจ้งให้ทราบโดยรวดเร็วไม่ปิดบัง หากมีข้อข้องใจที่จะสอบถามเกี่ยวข้องกับการวิจัยเรื่องนี้ ท่านสามารถติดต่อสอบถามได้กับ ทันตแพทย์อิสราณวัฒน์ ยงพิศาลภพ โทร. 087-7574515

ข้อมูลส่วนตัวของท่านจะถูกเก็บรักษาไว้ ไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นข้อมูลส่วนรวม ข้อมูลของผู้เข้าร่วมการวิจัยเป็นรายบุคคลอาจมีคณะบุคคลบางกลุ่มเข้ามาตรวจสอบได้ เช่น คณะกรรมการจริยธรรมฯ เป็นต้น

โครงการวิจัยนี้ได้รับการพิจารณารับรองจาก คณะกรรมการจริยธรรมการวิจัยในคน สาขาสังคมศาสตร์ มหาวิทยาลัยมหิดล ซึ่งมีสำนักงานอยู่ที่ คณะสังคมศาสตร์และมนุษยศาสตร์ มหาวิทยาลัยมหิดล ถนนพหลุทธรมณฑล สาย 4 ตำบลศาลายา อำเภอพุทธมณฑล จังหวัดนครปฐม 73170 หมายเลขโทรศัพท์ 02-4419180 โทรสาร 02-4419181 หากท่านได้รับการปฏิบัติไม่ตรงตามที่ระบุไว้ ท่านสามารถติดต่อกับประธานคณะกรรมการฯ หรือผู้แทน ได้ตามสถานที่และหมายเลขโทรศัพท์ข้างต้น

ข้าพเจ้าได้อ่านรายละเอียดในเอกสารนี้ครบถ้วนแล้ว

ลงชื่อ.....ผู้เข้าร่วมงานวิจัย

(.....)

วันที่.....

1. Inform Consent Form in Thai Language

หนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัยที่ได้รับการบอกกล่าวและเต็มใจ

วันที่.....เดือน.....พ.ศ.....

ข้าพเจ้า.....อายุ.....ปี

อาศัยอยู่บ้านเลขที่.....ถนน.....ตำบล.....อำเภอ.....

จังหวัด.....รหัสไปรษณีย์.....โทรศัพท์.....

ข้าพเจ้าขอแสดงเจตนายินยอมเข้าร่วมโครงการวิจัยเรื่อง ความแตกฉานทางสุขภาพช่องปากของผู้ดูแลเด็กกลุ่มอายุ 0-3 ปีที่มีผลต่อดัชนีค่าประสพการณ์ฟันผุของเด็กจังหวัดราชบุรี

โดยข้าพเจ้าได้รับทราบรายละเอียดเกี่ยวกับที่มาและจุดมุ่งหมายในการทำวิจัย รายละเอียดของขั้นตอนต่างๆ ที่ข้าพเจ้าจะต้องปฏิบัติหรือได้รับการปฏิบัติ ประโยชน์ที่คาดว่าจะได้รับการวิจัยและความเสี่ยงที่อาจจะเกิดขึ้นจากการที่ข้าพเจ้าเข้าร่วมการวิจัย โดยได้อ่านข้อความที่มีรายละเอียดอยู่ในเอกสารชี้แจงผู้เข้าร่วมการวิจัยโดยตลอด อีกทั้งยังได้รับคำอธิบายและตอบข้อสงสัยจากหัวหน้าโครงการวิจัยหรือผู้แทนเป็นที่เรียบร้อยแล้ว

ข้าพเจ้าจึงสมัครใจเข้าร่วมโครงการวิจัยนี้ หากข้าพเจ้ามีข้อข้องใจเกี่ยวกับขั้นตอนของการวิจัย ข้าพเจ้าจะสามารถติดต่อกับ ทันตแพทย์อัครานุวัฒน์ ยงพิศาลภพ หมายเลขโทรศัพท์ติดต่อ 087-7574515

ข้าพเจ้าได้ทราบถึงสิทธิ์ที่ข้าพเจ้าจะได้รับข้อมูลเพิ่มเติมทั้งทางด้านประโยชน์และโทษจากการเข้าร่วมการวิจัย และข้าพเจ้าสามารถถอนตัวหรืองดเข้าร่วมการวิจัยได้ทุกเมื่อ โดยจะไม่มีผลกระทบใดๆ และยินยอมให้ผู้วิจัยใช้ข้อมูลส่วนตัวของข้าพเจ้าที่ได้รับจากการวิจัย แต่จะไม่เผยแพร่ต่อสาธารณะเป็นรายบุคคล โดยจะนำเสนอเป็นข้อมูลโดยรวมจากการวิจัยเท่านั้น

หากข้าพเจ้า ได้รับการปฏิบัติไม่ตรงตามที่ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย ข้าพเจ้าสามารถติดต่อกับประธานคณะกรรมการจริยธรรมการวิจัยในคน สาขาสังคมศาสตร์ หรือผู้แทนได้ที่สำนักงานคณะกรรมการจริยธรรมการวิจัยในคน สาขาสังคมศาสตร์ คณะสังคมศาสตร์และมนุษยศาสตร์ มหาวิทยาลัยมหิดล ถนนพุทธมณฑล สาย ๔ ตำบลศาลายา อำเภอพุทธมณฑล จังหวัดนครปฐม 73170 โทรศัพท์ 02-441 9180 โทรสาร 02-441 9181

ข้าพเจ้าเข้าใจข้อความในเอกสารชี้แจงผู้เข้าร่วมการวิจัยและหนังสือแสดงเจตนายินยอมนี้ โดยตลอดแล้ว จึงลงลายมือชื่อไว้

ลงชื่อ.....ผู้เข้าร่วมการวิจัย/วันที่.....

(.....)

2. Self-Administered Questionnaire of Oral Health Literacy in Thai Language

แบบสอบถามประเมินความแตกฉานด้านสุขภาพช่องปากของผู้ดูแลเด็ก อายุ 0-3 ปี

และแบบตรวจบันทึกสุขภาพช่องปากเด็กเล็ก

ส่วนที่ 1 ข้อมูลทั่วไป

คำชี้แจง ให้ผู้ดูแลเด็กตอบแบบสอบถามให้ครบถ้วนและตรงกับความเป็นจริงมากที่สุด

โดยทำเครื่องหมาย ลงในช่อง () หรือเติมคำตอบลงในช่องว่าง

1.เพศ 1 () ชาย 2 () หญิง

2.อายุ.....ปี(เต็ม)

3.ระดับการศึกษา

1 () ไม่ได้ศึกษา

5 () อนุปริญญา, ปวส.

2 () ประถมศึกษา

6 () ปริญญาตรี

3 () มัธยมศึกษาตอนต้น

7 () อื่นๆระบุ.....

4 () มัธยมศึกษาตอนปลาย,ปวช.

4.อาชีพหลักของท่าน (ผู้ดูแลเด็ก)

1 () รับราชการ

2 () เกษตรกรรม

3 () ค้าขาย

4 () รับจ้างทั่วไป

5 () รับจ้างประจำ

6 () แม่บ้าน

7 () อื่นๆระบุ.....

5.รายได้ของท่านบาท/เดือน

6.จำนวนเด็กอายุ 0-3 ปีที่ท่านดูแล.....คน

7.ความสัมพันธ์กับเด็ก () บิดา มารดา () ญาติ ระบุ.....

ส่วนที่ 2 พฤติกรรมการดูแลสุขภาพช่องปาก จำนวน 20 ข้อ ลักษณะคำถามเป็นการถามถึงการปฏิบัติตัวในรอบ 2 สัปดาห์ที่ผ่านมา มี 3 ตัวเลือกในลักษณะของมาตราประมาณค่า 3 ระดับ คะแนน ตั้งแต่ 0-2 คะแนน ดังนี้

0 คะแนน หมายถึง ไม่ได้ปฏิบัติ

1 คะแนน หมายถึง ปฏิบัติไม่สม่ำเสมอ

2 คะแนน หมายถึง ปฏิบัติเป็นประจำ

คำชี้แจง โปรดทำเครื่องหมาย ลงในช่องคำตอบที่ตรงกับพฤติกรรมของท่านมากที่สุด

ข้อคำถาม	ระดับการปฏิบัติ		
	ประจำ	ไม่สม่ำเสมอ	ไม่ได้ปฏิบัติ
1. ท่านซื้อขนมกรุบกรอบมารับประทานมาให้เด็กรับประทาน
2. ท่านซื้อเครื่องดื่มอัดลม น้ำหวาน ชาเขียวพร้อมดื่มให้เด็กรับประทาน
3. ท่านซื้อขนมไทย เช่น ทองหยิบ ทองหยอด ฝอยทองให้เด็กรับประทาน
4. ท่านซื้อขนมที่มีส่วนผสมของ ช็อคโกแลต ให้เด็กรับประทาน
5. ท่านซื้ออาหารที่มีแป้งและน้ำตาลให้เด็กรับประทาน
6. ท่านให้บุตรหลานดื่มนมเปรี้ยว
7. ท่านให้เด็กใช้ยาสีฟันสมุนไพร
8. ท่านให้เด็กประทานขนมหวานเหนียวติดฟัน เช่น ลูกอม ท็อฟฟี่
9. ท่านให้เด็กรับประทานขนมกรุบกรอบระหว่างมื้ออาหาร
10. ท่านให้เด็กดื่มน้ำหวาน เครื่องดื่มรสหวานก่อนนอนโดยไม่แปรงฟัน
11. ท่านแปรงฟันให้เด็กด้วยยาสีฟันผสมฟลูออไรด์หลังอาหารเช้า
12. ท่านแปรงฟันให้เด็กด้วยยาสีฟันผสมฟลูออไรด์ก่อนนอน
13. ท่านให้เด็กรับประทานอาหารคาวเสร็จแล้วรับประทานผลไม้ที่มีเส้นใยตาม เช่น ฝรั่ง พุทรา
14. ท่านให้เด็กรับประทานอาหารที่มีแคลเซียม เช่น ปลาเล็กปลาน้อย
15. ท่านใช้ไหมขัดฟันให้เด็ก
16. ท่านพาเด็กไปพบทันตแพทย์เพื่อตรวจสุขภาพช่องปาก
17. ท่านให้เด็กเคี้ยวหมากฝรั่งหลังรับประทานอาหาร
18. ท่านให้เด็กดื่มนมจืดมากกว่านมรสอื่น
19. ท่านให้เด็กใช้น้ำยาบ้วนปากในการช่วยทำความสะอาดช่องปาก
20. ท่านช่วยแปรงฟันให้บุตรหลานของท่าน

ส่วนที่ 3 ความฉลาดทางสุขภาพช่องปาก ประกอบด้วย 6 ด้าน จำนวน ข้อ ดังนี้

1. ความรู้และความเข้าใจเกี่ยวกับสุขภาพช่องปากและการป้องกันโรคฟันผุ จำนวน 6 ข้อ
ลักษณะคำถามเป็นการถามความรู้ความเข้าใจตามกรอบขององค์ความรู้ที่จำเป็น (Essential knowledge) เกี่ยวกับโรคฟันผุ ประกอบด้วย

- สาเหตุของโรคฟันผุ
- การรับรู้ความเสี่ยงต่อโรคฟันผุ
- วิธีการป้องกันโรคฟันผุ

และแต่ละคำถามมีตัวเลือก 4 ตัวเลือก มีคำตอบที่ถูกต้องเพียงคำตอบเดียว ตอบถูก

ได้ 1 คะแนน

- 1.1 เชื้อที่ทำให้เกิดโรคฟันผุในช่องปากเป็นเชื้ออะไร

- ก. แบคทีเรีย
- ข. ไวรัส
- ค. เชื้อรา
- ง. พยาธิ

- 1.2 สารสำคัญในยาสีฟันที่สามารถช่วยป้องกันฟันผุได้อย่างมีประสิทธิภาพ คือ

- ก. ฟลูออไรด์
- ข. เกลือ
- ค. โพลีแทสเซียม
- ง. ไนเตรท

- 1.3 อาหารประเภทใดที่เป็นปัจจัยส่งเสริมให้เกิดฟันผุ

- ก. อาหารรสจัด
- ข. อาหารรสเค็ม
- ค. อาหารรสหวาน
- ง. อาหารมัน

- 1.4 เราสามารถสังเกตฟันผุระยะเริ่มต้นได้อย่างไร

- ก. ฟิวฟันเปลี่ยนเป็นสีขาวขุ่น
- ข. ฟันเป็นรูดำขนาดใหญ่
- ค. เนื้อฟันมีคราบหินปูนเกาะ
- ง. แปรงฟันแล้วมีเลือดออก

1.5 วิธีการป้องกันฟันผุได้ดีที่สุดและง่ายที่สุดคือ

ก. ไปพบทันตแพทย์เพื่อตรวจฟันปีละ 1 ครั้ง

ข. แปรงฟันด้วยยาสีฟันผสมฟลูออไรด์อย่างน้อยวันละ 2 ครั้ง คือ หลังอาหารเช้าและก่อนนอน

ค. ใช้ไหมขัดฟันหลังรับประทานอาหาร

ง. ดื่มนมรสจืดแทนนมรสหวาน

1.6 ในเด็กอายุ 0-3 ปี การทำความสะอาดช่องปากควรทำดังนี้

ก. ผู้ดูแลเด็กแปรงฟันด้วยยาสีฟันผสมฟลูออไรด์ให้เด็กทุกครั้ง

ข. ผู้ดูแลเด็กปล่อยให้เด็กแปรงฟันด้วยตนเอง

ค. ผู้ดูแลเด็กสอนให้เด็กแปรงฟันในครั้งแรก และปล่อยให้เด็กแปรงฟันเองในครั้งถัดไป

ง. ไปพบทันตแพทย์เพื่อทำการแปรงฟันให้

2. การเข้าถึงข้อมูลและบริการสุขภาพ จำนวน 5 ข้อ ลักษณะคำถามเป็นการประเมินตนเองถึงความสามารถในการเข้าถึงข้อมูลและบริการสุขภาพ มี 5 ตัวเลือกในลักษณะของมาตรการประมาณค่า 5 ระดับ คะแนนตั้งแต่ 0-4 คะแนน ดังนี้
- 0 คะแนน หมายถึง ไม่ได้ปฏิบัติ
 - 1 คะแนน หมายถึง ปฏิบัตินานๆ ครั้ง
 - 2 คะแนน หมายถึง ปฏิบัติเป็นบางครั้ง

ข้อคำถามด้านการเข้าถึงข้อมูลและบริการสุขภาพ	สิ่งที่ท่านปฏิบัติ				
	ไม่ได้เลย/ ไม่เคย ค้นหา	นานๆ ครั้ง	บางครั้ง	บ่อยครั้ง	ทุก ครั้ง
1. เมื่อต้องการข้อมูลสุขภาพเกี่ยวกับโรคฟันผุ ท่านสามารถเลือกแหล่งข้อมูลสุขภาพได้ทันทีบ่อยครั้งแค่ไหน?					
2. เมื่อท่านต้องการข้อมูลสุขภาพเกี่ยวกับโรคฟันผุ ท่านสามารถค้นหาจนได้ข้อมูลที่ต้องการและทันสมัยบ่อยครั้งแค่ไหน?					
3. ท่านมีปัญหาจากการค้นหาข้อมูลสุขภาพเกี่ยวกับโรคฟันผุจากอินเทอร์เน็ต บ่อยครั้งแค่ไหน?					
4. ท่านมีการตรวจสอบข้อมูลสุขภาพเกี่ยวกับโรคฟันผุโดยสืบค้นมาจากหลายๆ แหล่งบ่อยครั้งแค่ไหน?					
5. ท่านมีการตรวจสอบแหล่งข้อมูล จนเชื่อว่าข้อมูลสุขภาพมีความน่าเชื่อถือ บ่อยครั้งแค่ไหน?					

- 3 คะแนน หมายถึง ปฏิบัติบ่อยครั้ง
- 4 คะแนน หมายถึง ปฏิบัติทุกครั้ง

3. ทักษะการสื่อสารเพื่อเสริมสร้างสุขภาพและลดความเสี่ยงต่อสุขภาพ จำนวน 6 ข้อ
ลักษณะคำถามเป็นการประเมินตนเองถึงความสามารถในการสื่อสารข้อมูลสุขภาพ
รวมถึงการโน้มน้าวให้ผู้อื่นยอมรับ มี 5 ตัวเลือกลักษณะของมาตรประมาณค่า 5
ระดับ คะแนนตั้งแต่ 0-4 คะแนน ดังนี้

- 0 คะแนน หมายถึง ไม่ได้ปฏิบัติ
- 1 คะแนน หมายถึง ปฏิบัตินานๆ ครั้ง
- 2 คะแนน หมายถึง ปฏิบัติเป็นบางครั้ง
- 3 คะแนน หมายถึง ปฏิบัติบ่อยครั้ง
- 4 คะแนน หมายถึง ปฏิบัติทุกครั้ง

ข้อความคำถามด้านทักษะการสื่อสาร	สิ่งที่ท่านปฏิบัติ				
	ไม่ได้เลย	นานๆ ครั้ง	บางครั้ง	บ่อยครั้ง	ทุก ครั้ง
1. ท่านเคยได้อ่านเอกสารแนะนำเรื่องสุขภาพช่องปาก แล้วพบว่าไม่ค่อยเข้าใจ บ่อยครั้งแค่ไหน?					
2. ท่านเคยได้ฟังคำแนะนำเรื่องสุขภาพช่องปากจาก บุคคลต่างๆ แล้วพบว่าไม่ค่อยเข้าใจเนื้อหาบ่อยครั้งแค่ไหน?					
3. ท่านต้องขอความช่วยเหลือจากบุคคลอื่น เพื่อช่วยให้สามารถอ่านข้อความจากสื่อสุขภาพบ่อยครั้งแค่ไหน?					
4. ท่านเล่าเรื่องเกี่ยวกับโรคฟันผุให้กับคนอื่นๆ เช่น เพื่อน คนในครอบครัว ฯลฯ ได้รับฟังจนเพื่อนเข้าใจ บ่อยครั้งแค่ไหน?					
5. ท่านแสดงออกในการพูด อ่าน เขียนข้อมูลเกี่ยวกับสุขภาพช่องปากเพื่อให้คนอื่นเข้าใจ บ่อยครั้งแค่ไหน?					
6. ท่านสามารถโน้มน้าวให้บุคคลอื่นยอมรับข้อมูลสุขภาพช่องปากที่ถูกต้อง บ่อยครั้งแค่ไหน?					

4. ทักษะการตัดสินใจเพื่อสุขภาพ จำนวน 5 ข้อ ลักษณะคำถามเป็นแบบสถานการณ์มีตัวเลือก 4 ตัวเลือก โดยมีคะแนนตั้งแต่ 1-4 คะแนน ดังนี้

- 1 คะแนนสำหรับการตอบตัวเลือกที่มีระดับเหตุผลจากการใช้ความรู้ ความเข้าใจที่มี
- 2 คะแนนสำหรับการตอบตัวเลือกที่มีระดับเหตุผลจากการใช้ความรู้ ความเข้าใจที่มีรวมกับการวิเคราะห์เปรียบเทียบข้อดี-ข้อเสีย
- 3 คะแนนสำหรับการตอบตัวเลือกที่มีระดับเหตุผลจากการใช้ความรู้ ความเข้าใจที่มีรวมกับทักษะการปฏิเสธเพื่อประโยชน์ของตนเอง
- 4 คะแนนสำหรับการตอบตัวเลือกที่มีระดับเหตุผลจากการใช้ความรู้ ความเข้าใจที่มีรวมกับทักษะการปฏิเสธเพื่อประโยชน์ของตนเอง ทักษะการเจรจาต่อรองเพื่อรักษาสัมพันธภาพกับผู้อื่น

4.1 เมื่อท่านได้รับคำชี้แนะจากทันตบุคลากร หรือเจ้าหน้าที่สาธารณสุข หรือ อสม.ให้ไปตรวจสุขภาพช่องปากประจำปี ท่านจะ

- ก. ไปตรวจตามวันเวลาที่ท่านสะดวก
- ข. ไปตรวจตามวันเวลาที่ท่านสะดวก และสอบถามสิทธิ์การรักษา
- ค. สอบถามข้อมูลเพิ่มเติมในการเข้ารับบริการ และนัดหมายเพื่อเข้ารับ การตรวจ
- ง. สอบถามข้อมูลเพิ่มเติมในการเข้ารับบริการ และอาสากระจายข่าว ชักชวนเพื่อน บ้านไปตรวจสุขภาพช่องปากตามวันเวลาที่กำหนด

4.2 เมื่อท่านมีอาการปวดฟัน ดื่มน้ำเย็นแล้วมีอาการเสียว ท่านจะ

- ก. หายาแก้ปวดในบ้านรับประทานเอง
- ข. หายาแก้ปวดในบ้านรับประทานเอง และสอบถามอาการจากคนใน ครอบครัวหรือเพื่อนบ้าน
- ค. หายาแก้ปวดรับประทาน พร้อมกับไปซื้อยาสีฟันลดอาการเสียวฟันที่เคย เห็นในโฆษณาทางโทรทัศน์มาใช้
- ง. รีบไปพบทันตแพทย์ เพื่อหาสาเหตุ ตลอดจนการแก้ไขอาการดังกล่าว

4.3 เมื่อบุตรหลานของท่านไม่ยอมให้ท่านแปรงฟันให้ก่อนก่อนนอนท่านจะ

- ก. ไม่บังคับบุตรหลาน ยอมให้เด็กเข้านอน โดยไม่แปรงฟัน
- ข. บังคับบุตรหลานแปรงฟันทันที
- ค. สอบถามเพื่อนบ้าน หรือ อสม.เกี่ยวกับวิธีจูงใจให้เด็กแปรงฟันก่อนนอน
- ง. ติดต่อทันตแพทย์ในโรงพยาบาลใกล้บ้าน หรือค้นหาข้อมูลจากสื่อต่างๆ เพื่อช่วยปรับพฤติกรรมเด็กในการแปรงฟันก่อนนอน

4.4 หากท่านต้องเข้ารับบริการทางทันตกรรมที่โรงพยาบาลหรือโรงพยาบาลส่งเสริมสุขภาพตำบล (รพ.สต. หรือ สถานีอนามัยเดิม)

- ก. เดินทางไปรับบริการในวัน เวลา ราชการ ตามที่เคยไป
- ข. โทรศัพท์ไปสอบถามรายละเอียดการเข้ารับบริการจากสถานบริการใกล้บ้าน
- ค. ให้ อสม. เป็นผู้ติดต่อประสานงานการเข้ารับบริการ รวมทั้งอธิบายรายละเอียดให้เข้าใจ
- ง. สอบถามข้อมูลการเข้ารับบริการเบื้องต้น จาก อสม. และ โทรศัพท์ไปนัดหมายวันเวลา เพื่อความสะดวกในการเข้ารับบริการ รวมถึงสิทธิ์ในการรักษา

4.5 ท่านจะเข้าร่วมกิจกรรมส่งเสริมสุขภาพช่องปากในชุมชนเมื่อ

- ก. ท่านมีเวลาว่างพอที่จะเข้าร่วมกิจกรรม
- ข. มี อสม. หรือเพื่อนบ้านมาชักชวนให้ร่วมกิจกรรมในชุมชน
- ค. เข้าร่วมกิจกรรมตามวัน เวลาที่กำหนดทุกครั้ง
- ง. อยากร่วมกิจกรรมแก้ไขปัญหাসุภาพช่องปากในชุมชน ร่วมกับแกนนำในการวางแผน และดำเนินกิจกรรมจนลุล่วง

5. ทักษะการจัดการตนเอง จำนวน 5 ข้อ ลักษณะคำถามเป็นการประเมินตนเองถึงความสามารถในการจัดการสุขภาพตนเอง มี 5 ตัวเลือกลักษณะของมาตรฐานค่า 5 ระดับ คะแนนตั้งแต่ 0-4 คะแนน ดังนี้
- 0 คะแนน หมายถึง ไม่ได้ปฏิบัติ
 - 1 คะแนน หมายถึง ปฏิบัตินานๆ ครั้ง
 - 2 คะแนน หมายถึง ปฏิบัติเป็นบางครั้ง
 - 3 คะแนน หมายถึง ปฏิบัติบ่อยครั้ง
 - 4 คะแนน หมายถึง ปฏิบัติทุกครั้ง

ข้อความด้านทักษะการจัดการตนเอง	สิ่งที่ท่านปฏิบัติ				
	ไม่ได้เลย	นานๆ ครั้ง	บางครั้ง	บ่อยครั้ง	ทุกครั้ง
1. ท่านกำหนดปริมาณอาหารจำพวกแป้งและน้ำตาล เช่น ข้าว ก๋วยเตี๋ยว น้ำอัดลม ฯลฯ ในการกินแต่ละมื้อ บ่อยครั้งแค่ไหน?					
2. ท่านสังเกตปริมาณและคุณค่าทางโภชนาการของอาหารที่รับประทานในแต่ละครั้ง บ่อยครั้งแค่ไหน?					
3. ก่อนจะตัดสินใจซื้ออาหารมากิน ท่านจะพิจารณาถึงเป้าหมายที่ตั้งใจไว้และกระทำตาม แนวทางเพื่อให้มีสุขภาพช่องปากดี บ่อยครั้งแค่ไหน?					
4. ท่านได้ทบทวนวิธีการปฏิบัติตนตามที่ตั้งใจเพื่อให้มีสุขภาพช่องปากดี บ่อยครั้งแค่ไหน?					
5. ท่านได้ปรับปรุงตนเองให้มีพฤติกรรมดูแลสุขภาพช่องที่ถูกต้อง บ่อยครั้งแค่ไหน?					

6. การรู้เท่าทันสื่อ จำนวน 5 ข้อ ลักษณะคำถามเป็นการประเมินตนเองถึงความสามารถในการรับรู้สื่อประชาสัมพันธ์ มี 5 ตัวเลือกในลักษณะของมาตราประมาณค่า 5 ระดับ คะแนนตั้งแต่ 0-4 คะแนน ดังนี้

- 0 คะแนน หมายถึง ไม่ได้ปฏิบัติ
- 1 คะแนน หมายถึง ปฏิบัตินานๆ ครั้ง
- 2 คะแนน หมายถึง ปฏิบัติเป็นบางครั้ง
- 3 คะแนน หมายถึง ปฏิบัติบ่อยครั้ง
- 4 คะแนน หมายถึง ปฏิบัติทุกครั้ง

ข้อคำถามด้านการรู้เท่าทันสื่อ	สิ่งที่ท่านปฏิบัติ				
	ไม่ได้เลย	นานๆ ครั้ง	บางครั้ง	บ่อยครั้ง	ทุกครั้ง
1. เมื่อท่านเห็นโฆษณาผลิตภัณฑ์ชนิดใหม่ที่จะช่วยป้องกันฟันผุทางโทรทัศน์และเกิดความสนใจท่านมีการหาข้อมูลจากหลายๆ แหล่ง เพื่อตรวจสอบความถูกต้องก่อนตัดสินใจซื้อบ่อยแค่ไหน?					
2. เมื่อท่านเห็นโฆษณาสินค้าในเว็บไซต์และมีความสนใจในสินค้าตัวนั้นท่านตั้งใจจะไปหาข้อมูลเพิ่มเติมจากหลายๆ แหล่ง เพื่อตรวจสอบความน่าเชื่อถือก่อนตัดสินใจซื้อ บ่อยครั้งแค่ไหน?					
3. ท่านใช้เหตุผลหรือวิเคราะห์ผลดี-ผลเสีย เพื่อเลือกรับข้อมูลจากสื่อสำหรับการป้องกันและควบคุมความเสี่ยงต่อโรคฟันผุ บ่อยแค่ไหน?					
4. เมื่อท่านเข้าร่วมกิจกรรมเกี่ยวกับสุขภาพช่องปากท่านมีการวิเคราะห์ประเมินเนื้อหาโดยไม่เชื่อในทันที บ่อยแค่ไหน?					
5. ท่านจะพูดคุยวิพากษ์วิจารณ์เกี่ยวกับแนวทางปฏิบัติตัวเพื่อป้องกันและควบคุมความเสี่ยงต่อโรคฟันผุ โดยวิเคราะห์เปรียบเทียบข้อมูลจากสื่อๆ บ่อยแค่ไหน?					

แบบบันทึกสุขภาพช่องปากเด็ก 0-3 ปี HN.....

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ชื่อ.....สกุล.....เพศ..... วดปีเกิดอายุปี
 เดือน..... วัน.....
 ที่อยู่เลขที่.....หมู่ที่.....ตำบล.....อำเภอ..... จังหวัดราชบุรี
 เบอร์โทร.....ชื่อผู้ดูแลเด็ก.....
 ความสัมพันธ์กับเด็ก.....

สภาวะช่องปาก

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BIOGRAPHY

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