UNIVERSITI PUTRA MALAYSIA

ORAL HYGIENE PRACTICES AND ASSOCIATED FACTORS AMONG PRIMARY SCHOOL CHILDREN IN ALZINTAN CITY, LIBYA

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By

NAEIMA AHMED TRABELSI

Thesis submitted to the School of Graduate Studies, Universiti Putra Malaysia, in fulfilment of the Requirements for the Degree of Master of Science

March 2016

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DEDICATION

To

My mother and father
My dear husband Mr. Muftah for his support and encouragement
My children
My sisters and brothers

Abstract of thesis presented to Senate of Universiti Putra Malaysia in fulfilment of requirement for degree of Master of Science

ORAL HYGIENE PRACTICES AND ASSOCIATED FACTORS AMONG PRIMARY SCHOOL CHILDREN IN ALZINTAN CITY, LIBYA

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March 2016

Chairman : Associate Professor Muhamed Hanafiah Bin Juni, PhD
Faculty : Medicine and Health Sciences

Introduction: Preservation of good oral hygiene in children is important for the development of strong, healthy teeth and to decrease the possibility of dental caries.

Objective: The objective of the study is to determine oral hygiene practices and its associated factors among primary school children aged 9-12 years old in Al Zintan City, Libya.

Methodology: A cross sectional observational study design was used in this study among primary school children in Al Zintan City, Libya. Stratified sampling within 29 schools provided a random sample of 691 schoolchildren. Information about oral hygiene practices among school children was collected through a self-constructed questionnaire survey. Data that were collected was analyzed by using Statistical Package of Social sciences (SPSS) for version 22 software. There were three steps of analyzing data, namely univariate, bivariate, and multivariate data analysis.

Results: From the results, there was 53.7% (n = 371) of respondents had proper practices on oral hygiene, and 46.3% (n = 320) of respondents have improper practices on oral hygiene. There was no statistically association between oral hygiene practices and different age groups of respondents (P = 0.57). However, there was significant association between oral hygiene practices and gender, level of mother education, level of father education and role of parents in oral health care of their children (P < 0.05). Bivariate analysis revealed no statistically significant association regarding oral hygiene practices between children with high and low knowledge (P = 0.361). In addition, oral hygiene practices are not significantly associated with dental history of respondents (P = 0.21). However, There was significant association between oral hygiene practices and dietary habits of respondents (P = 0.01) and also there was significance association between oral hygiene practices and attitude toward oral hygiene among primary school children of Al Zintan city, Libya (P = 0.009).

Conclusion: It is concluded that, the prevalence of oral hygiene practices among 9-12 years-old school children in Al Zintan City, Libya is not satisfactory. The participants had improper oral health practices, insufficient knowledge, incorrect attitude and practice regarding oral health. It is recommended that children and parents' awareness about oral hygiene practices should be increased.

Keywords: Oral hygiene, Practices, Attitudes, Knowledge, Schoolchildren, Libya.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

AMALAN KEBERSIHAN ORAL DAN FAKTOR BERKAITAN DI KALANGAN KANAK-KANAK SEKOLAH RENDAH DALAM ALZINTAN CITY, LIBYA

Oleh

NAEIMA AHMED TRABELSI

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Pengerusi : Profesor Madya Muhamed Hanafiah Bin Juni, PhD
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Pengenalan: Pemeliharaan kebersihan mulut yang baik bagi kanak-kanak adalah penting bagi pembentukan gigi yang kuat dan sihat serta bagi mengurangkan kemungkinan karies gigi.

Objektif: Objektif kajian ini adalah untuk menentukan amalan kebersihan mulut dan faktor-faktor yang berkaitan dengannya di kalangan kanak-kanak sekolah rendah berumur 9-12 tahun di dalam Al Zintan City, Libya.

Metodologi: Sampel berstrata di 29 sekolah-sekolah dengan sampel rawak menunjukkan seramai 691 kanak-kanak sekolah. Maklumat tentangnya telah dikumpul melalui satu soal selidik yang dilaksanakan sendiri.Data yang diperolehi dianalisis dengan menggunakan Pakej Statistik Sains Sosial (SPSS) versi 22 perisian. Terdapat tiga langkah menganalisis data, iaitu univariat, bivariat dan multivariat analisis data.

Keputusan: Daripada keputusan itu, didapati sebanyak 53.7 % (n = 371) responden telah melakukan praktik kebersihan mulut dengan betul, manakala sebanyak 4.3 % pula tidak mempraktikkan kebersihan mulut dengan betul. Tiada statistik yang menunjukkan di sana ada kaitan antara praktik kebersihan mulut dengan kumpulan umur yang berbeza di kalangan responden $P = 0.57$. Walaubagaimanapun, didapati di sana adanya kaitan yang signifikan antara praktik kebersihan mulut dengan jantina, tahap pendidikan ibu dan juga tahap pendidikan bapa serta peranan ibubapa dalam penjagaan kesihatan mulut anak-anak mereka, iaitu $P < 0.05$. Analisis bivariat telah menunjukkan bahawa tiada kaitan yang signifikan berdasarkan statistik berkenaan dengan praktik kebersihan mulut dengan tinggi dan rendahnya pengetahuan, iaitu $P = 0.361$. Walaubagaimanapun, di sana terdapat kaitan yang signifikan antara praktik kebersihan mulut dengan amalan diet oleh responden, iaitu $P = 0.01$ dan juga di sana terdapat kaitan yang signifikan antara praktik kebersihan

mulut dan sikap terhadap kebersihan mulut di kalangan kanak-kanak sekolah rendah di Bandar Alzintan, Libya, iaitu P = 0.009.

Kesimpulan: Disimpulkan dari sini, bahawa kelaziman praktik kebersihan mulut di kalangan kanak-kanak sekolah berumur 9 – 12 tahun adalah tidak memuaskan. Para peserta ini tidak menguasai praktik yang betul dalam mempraktikkan kesihatan mulut, tidak memiliki pengetahuan yang cukup, sikap dan juga praktik yang betul berkenaan dengan kesihatan mulut.Ia adalah disyorkan bahawa kanak-kanak dan ibu bapa kesedaran mengenai amalan kebersihan mulut perlu ditambah.

Kata kunci: kebersihan mulut, amalan, sikap, pengetahuan, Kanak-kanak sekolah,

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Master of Science. The members of the Supervisory Committee were as follows:

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This is to confirm that:

- the research conducted and the writing of this thesis was under our supervision;
- supervision responsibilities as stated in the Universiti Putra Malaysia (Graduate Studies) Rules 2003 (Revision 2012-2013) were adhered to

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LIST OF ABBREVIATIONS

Km	Kilometer
Km^2	Kilometer Square
OML	Oral Mucosal Lesion
PD	Periodontal Disease
SD	Standard Deviation
SE	Standard Error
SPSS	Statistical Package for Social Sciences
US	United State
WHO	World Health Organization

CHAPTER 1

INTRODUCTION

1.1 Country profile

Libya is located in North Africa and lies on the Mediterranean Sea with a Mediterranean coastline of nearly 1,800 km. The land area is 1760,000 km² making it the fourth largest country in Africa. It lies between Egypt and Sudan from the East, Tunisia and Algeria from the West, Chad and Niger from the South and the Mediterranean Sea from the North. Libya is the 7th largest country in the world (Huew, 2010). The total estimated population at midyear 2008 was 5,527,000 people, with a population density of 3.30 persons per km² (World Health Organization, 2010).

The northern part of the country is the most populous, with 85% of the population on 10% of the land area. Its major cities are Alzawia, Benghazi, Derna, Musrata, Sabha, Sirte, and Tripoli. The majority of the Libyan population lives in cities located on its Mediterranean coastline. Libya has an oil-rich economy and had been a significant oil exporter over decades. However, Libya had a human development index of 0.76 in 2010, it was classified as a high human development country in the Middle East and North Africa region and life expectancy at birth is 78 years. The male-to-female

ratio is 1.05, infant mortality at birth is 12/1,000 live birth (World Health Organization, 2010).

1.2 Health care in Libya

Libya is providing comprehensive health care including preventive, curative and rehabilitative services to all individuals free of charge through primary health care units, health centers and district hospitals. Health care in Libya is the responsibility of government. Hospitals in Libya are autonomous bodies by law. Libya has 25 specialized hospitals, 18 central hospitals, 21 general hospitals, 32 rural hospitals, with a total of 96 public hospitals and 1,424 primary health care centers (Peeran et al., 2014).

The establishment, operation, management of hospitals and the practice of medical professions in Libya are governed by a number of laws and specific regulations issued by the Libyan government and the ministry of Health. The ministry of health is the main regulator of the health sector in Libya. According to the health law, the minister of health is responsible for implementing the law and issuing executive regulations.

The ministry of health is also responsible for all matters relating to public health, precautionary health, therapeutic medicine, medical institutions, pharmaceuticals, control of the circulation of drugs and the practice of the medical and related professions (Heath et al., 2011). Many of the public, rural hospitals and primary health care centers have dental clinics attached to them. The oral health services in Libya has been developed and designed with little evidence of the dental needs of the population (Huew, 2010).

1.3 Effect of war on health services and facilities in Libya

The post revolution conflict in Libya has caused a lot of damages to the health services infrastructure and impaired the provision of essential services in the country. In an effort to revitalize the country's health system, the need to generate reliable information on the readiness of health facilities to provide basic health-care interventions was considered an essential component of the health systems strengthening process (Saleh et al., 2014).

1.4 Dental health care in Libya

The World Health Organization (WHO) defines oral health as a state of being free from mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking, and psychosocial wellbeing (World Health Organization, 2014). Oral hygiene isthe practice of maintaining the oral health of the hard and soft tissues of the mouth (Heath et al., 2012).

In Libya, the oral health care system consists of the public and private sectors, which involve the majority of dentists. Public dental clinics provide simple oral examinations, scaling, tooth extractions, and dental fillings. In addition, Public schools employ dentists for providing primary dental treatments and dental education. In Libya, most dental health services are provided by ministry of health through the public dental clinics.

Government focuses on diagnosis and treatment of dental diseases facilities rather than preventive programs of dental diseases. Furthermore, different types of dental treatment can be provided by private dental health sector for people who are able to pay the relatively high cost. A few dental epidemiological data for Libya are available, those data indicate that dental caries is still the most common oral health problem for all age groups in Libya (Huew, 2010).

1.5 Oral hygiene in children

Good oral health is essential for the well-being and development of young children (Malden et al., 2008). Preservation of good oral hygiene in children is important for the development of strong, healthy teeth and to decrease the possibility of dental caries. Oral health is maintained by regular eating and drinking, as well as daily mechanical and pharmacological cleaning of the mouth, for example, brushing teeth with fluoride toothpaste and flossing (Johnstone, 2010). Maintaining proper oral health care in childhood is important for maintaining good quality of life.

Having tooth decay in early childhood puts the child at-risk for tooth decay in adulthood. No child should experience these problems because tooth decay is preventable (Office of Oral health, 2012). In childhood, the child is prone to dental caries resulting from liquids, such as sweetened milk. Children's health and health care are usually affected by their parents' decision. Therefore, parents, together with physicians, play an essential role in order to achieve the best oral health outcomes for their young children (Whinnie, 2005).

Therefore, baby teeth should be cleaned using a washcloth, and young babies should also have their teeth and tongues brushed with soft brushes on a regular schedule, it is responsibility of parents to teach children the correct way of brushing their teeth with fluoride toothpaste, to take them for dental check-ups, and eating food that will maintain optimal health (Lian et al., 2010).

Most oral diseases are directly related to poor oral hygiene. Oral disease can be considered a public health problem due to its high prevalence and significant social impact. Chronic oral disease typically leads to tooth loss, and in some cases has physical, emotional and economic impacts: physical appearance and diet are often worsened, and the patterns of daily life and social relations are often negatively affected. These impacts lead in turn to reduce quality of life.

To minimizethese negative impacts of chronic oral disease, there is thus a clear need to reduce harmful oral health habits, such a reduction can be achieved through giving instructions regarding proper practice of oral hygiene (Smyth et al., 2007). However, In Libya there are several factors influencing dental health among school children, they are exposure to fluoride, diet and intervention by the dental services(Huew, 2010).

1.6 Diseases related with poor oral hygiene

Poor oral hygiene is a responsible factor in development of most oral health diseases. Oral diseases are significant health problems around the world. Most common diseases that are related to poor oral hygiene are periodontal disease (PD) (Singh et al., 2014) dental caries (Praveena et al., 2013) and oral mucosal lesions (OML)

(Petersen, 2006) which are most common in children (Majorana et al., 2010). These diseases particularly occur in poor populations both in developed and developing countries (Petersen, 2008; Ranganathan & Hemalatha, 2006).

1.7 Problem statement

Prevalence of poor oral hygiene is a major problem affecting children worldwide (Dawani, 2012). School children represent about 25% of world population; estimated 90% of them have dental caries which is associated with poor oral hygiene (Parasad et al., 2010).Incorrect practice on oral hygiene in Libya may have contributed to the high prevalence of poor oral hygiene. Prevalence of poor oral hygiene among selected primary school children in Libya has been found as high as 68.7%(Nasr et al., 2014).

Poor oral hygiene has been associated with increased plaque accumulation, bacterial colonization in oropharynx and higher infection rates (Johnstone et al., 2010). Children with poor oral hygiene are 12 times more likely to have restricted activity days when compared to children with good oral hygiene (Dawani, 2012).

Poor oral hygiene in children associated with broad range oral disorders rather than dental caries and gingival disease, children can also suffer from malocclusion, early tooth loss, impaired speech development, absence from and inability to concentrate in chool and reduced self-esteem (Nasr et al., 2014). For school children,dental caries and periodontal problems are due to poor oral hygiene practices (Moshisi et al., 2013). Incorrect practices on oral hygiene are due to low knowledge toward the most important measures of preservation of good oral hygiene (Priya et al., 2014).

1.8 Significance of the study

Correct oral hygiene practice is an important step towards good oral health (Arlene, 2012).Improvement in oral hygiene practices among children becomes important due to factors such as irregular dental visits, fright gained by dental treatment, high costs of dental care, sugary intake, plaque control, fluoride exposure and lack of parental support among the children (Yabao et al., 2005).Development of caries during the primary dentition often results into caries development in the permanent and mixed dentition as well.

Those aged 6 to 11 years old are at the mixed dentition stage; therefore, it is imperative to study this age group in order to develop necessary intervention and education in the area of oral health (Kassawara et al., 2010). Good oral hygiene can prevent a number of diseases in the mouth and is a key to the overall health (Relf et al., 2009; Naidoo & Myburgh, 2007). Good knowledge, correct practices and positive attitudes about oral hygiene and oral health care among students could make

it possible to improve oral health and bring quality of life for children (Quandt, 2009; Ranganathan & Hemalatha, 2006; Wårdh et al., 2008; Nicolas et al., 2007).

Learning brushing techniques and adapting to oral hygiene in early life course guarantees the effectiveness of these practices in preventing major dental and periodontal disease in one's lifetime (Jabarifar et al., 2011; Weeks & Fiske, 2006). In order to perform healthy practice regarding oral hygiene, the assessment of factors associating with practice on oral hygiene is essential. Considering that oral health is linked to overall health, oral hygiene is important to the overall wellbeing. Preservation of correct oral hygiene can prevent many problems which can interfere with eating, speaking, daily activities and self-esteem of individuals (Parasd et al., 2010).

This study will analyze the factors that contribute to the practice on oral hygiene among primary school children in Libya and enhance their knowledge about the most risk factors that impact oral hygiene status and the most important approaches for the prevention of oral diseases.

1.9 Benefit of the study

The data obtained from this study can be useful to increase our understanding to optimum oral hygiene status, help dental health workers and health work providers in determining the most important factors affecting practice on oral hygiene which need more children's awareness, consequently will guide the planning of school based oral health promotion, oral diseases prevention programs and oriented preventive public dental health care services. This is in turn will lead to healthier children. Furthermore, there are no known studies done at the study location, this study can be used as reference data for in case of further study related to practice on oral hygiene.

1.10 Research questions

1.10.1 What is the oral hygiene practices prevalence among primary school children aged 9-12 years old in Al Zintan City, Libya?

1.10.2 What are the factors influencing oral hygiene practices among primary school children aged 9-12 years old in Al Zintan City, Libya?

1.10.3 What is the association between oral hygiene practices and sociodemographic characteristics (age, gender, level of parent's education and role of parents toward oral health care) and the association between oral hygiene practices and its influencing factors (knowledge, attitude, dietary habits and dental history) among primary school children aged 9-12 years old in Al Zintan City, Libya.

1.10.4 What are predictors associated with oral hygiene practices among primary school children aged 9-12 years old in Al Zintan City, Libya?

1.11 Objectives

1.11.1 General objectives

The general objective of the study is to determine oral hygiene practices and its associated factors among primary school children aged 9-12 years old in Al Zintan City, Libya.

1.11.2 Specific objectives

i) To determine prevalence of oral hygiene practices among primary school children aged 9-12 years old in Al Zintan City, Libya.
ii) To determine the factors influencing oral hygiene practices among primary school children aged 9-12 years old in Al Zintan City, Libya.
iii) To determine the association between oral hygiene practices and socio demographic characteristics (age, gender, level of parents education and role of parents toward oral health care) and the association between oral hygiene practices and its influencing factors (knowledge, attitude, dietary habits and dental history) among primary school children aged 9-12 years old in Al Zintan City, Libya.
vi) To determine predictors of oral hygiene practices among primary school children aged 9-12 years old in Al Zintan City, Libya.

1.12 Hypothesis

H1: There is significant association between oral hygiene practices and sociodemographic characteristics (age, gender, level of parent's education and role of parents toward oral health care) among primary school children aged 9-12 years old in Al Zintan City, Libya.

H2: There is significant association between oral hygiene practices and its influencing factors (knowledge, attitude, dietary habits and dental history) among primary school children aged 9-12 years old in Al Zintan City, Libya.

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