



**UNIVERSITI PUTRA MALAYSIA**

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

**NAEIMA AHMED TRABELSI**

**FPSK(m) 2016 61**



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

**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**

## COPYRIGHT

All material contained within the thesis, including without limitation text, logos, icons, photographs, and all other artwork, is copyright material of Universiti Putra Malaysia unless otherwise stated. Use may be made of any material contained within the thesis for non-commercial purposes from the copyright holder. Commercial use of material may only be made with the express, prior, written permission of Universiti Putra Malaysia.

Copyright© Universiti Putra Malaysia



## **DEDICATION**

To

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



© COPYRIGHT UPM

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**

By

**NAEIMA AHMED TRABELSI**

**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**

**Mac 2016**

**Pengerusi : Profesor Madya Muhamed Hanafiah Bin Juni, PhD**  
**Fakulti : Perubatan dan Sains kesihatan**

**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,





## ACKNOWLEDGEMENT

In the Name of Allah, Most Gracious, Most Merciful, all praise and thanks are due to Allah, and peace and blessings be upon his messenger. I would like to express the most sincere appreciation to those who made this work possible: Advisory members, friends and family. First and foremost, I would like to thank Professor. Madya Dr. Muhamad Hanafiah Bin Juni, providing me the opportunity to complete my master studies under his valuable guidance, for the many useful advice and discussions, for his constant encouragement and guidance. I consider myself very lucky to given this honor to work with him. I also would like to thanks Dr. Huda Binti Zainuddin for her outstanding help and support. Very special thanks to my mother and father and my dear husband Muftah Alwaer who always encourages me to finalizing this thesis, also to my children (Ameera , Esra, Ayaa and Aws), to my brothers and sisters for support and encouragement throughout the period of my study. I present my thanks to all who shared in supporting me either directly or indirectly. In Libya, the first acknowledgments go to the children, parents, schools staff and localin Al Zintan City for their spontaneous collaboration. I would also like to thank all colleaguesin Libyafor help and support during data collection. Finally, I present my thanks and gratitude from all of my heart to my colleagues and friends inside and outside the faculty of Medicine and Health Sciences.

I certify that a Thesis Examination Committee has met on 31 March 2016 to conduct the final examination of Naeima Ahmed Trabelsi on her thesis entitled "Oral Hygiene Practices and Associated Factors among Primary School Children in Alzintan City, Libya" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Master of Science.

Members of the Thesis Examination Committee were as follows:

**Kulanthayan a/l K.C. Mani @ Subramanian, PhD**

Associate Professor  
Faculty of Medicine and Health Science  
Universiti Putra Malaysia  
(Chairman)

**Ahmad Azuhairi Ariffin, PhD**

Senior Lecturer  
Faculty of Medicine and Health Science  
Universiti Putra Malaysia  
(Internal Examiner)

**Mohamed Rusli Abdullah, PhD**

Associate Professor  
Universiti Sains Malaysia  
Malaysia  
(External Examiner)



---

**ZULKARNAIN ZAINAL, PhD**  
Professor and Deputy Dean  
School of Graduate Studies  
Universiti Putra Malaysia

Date: 25 May 2016

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:

**Muhamed Hanafiah Bin Juni, MD, MPH**

Associate Professor  
Faculty of Medicine and Health Sciences  
Universiti Putra Malaysia  
(Chaiman)

**Huda Binti Zinuaddin, MD, MPH**

Senior Lecturer (Medical)  
Faculty of Medicine and Health Sciences  
Universiti Putra Malaysia  
(Member)

**BUJANG BIM KIM HUAT, PhD**

Professor and Dean  
School of Graduate Studies  
Universiti Putra Malaysia

Date:

## Declaration by graduate student

I hereby confirm that:

- This thesis is my original work;
- Quotations, illustrations and citations have been duly referenced;
- This thesis has not been submitted previously or concurrently for any other degree at any other institutions;
- Intellectual property from the thesis and copyright of thesis are fully-owned by Universiti Putra Malaysia, as according to the Universiti Putra Malaysia (Research) Rules 2012;
- written permission must be obtained from supervisor and the office of Deputy Vice-Chancellor (Research and Innovation) before thesis is published (in the form of written, printed or in electronic form) including books, journals, modules, proceedings, popular writings, seminar papers, manuscripts, posters, reports, lecture notes, learning modules or any other materials as stated in the Universiti Putra Malaysia (Research) Rules 2012;
- There is no plagiarism or data falsification/fabrication in the thesis, and scholarly integrity is upheld as according to the Universiti Putra Malaysia (Graduate Studies) Rules 2003 (Revision 2012-2013) and the Universiti Putra Malaysia (Research) Rules 2012. The thesis has undergone plagiarism detection software .

Signature: \_\_\_\_\_ Date : \_\_\_\_\_

Name and Matric Number: Naeima Ahmed Trabelsi, GS 39712

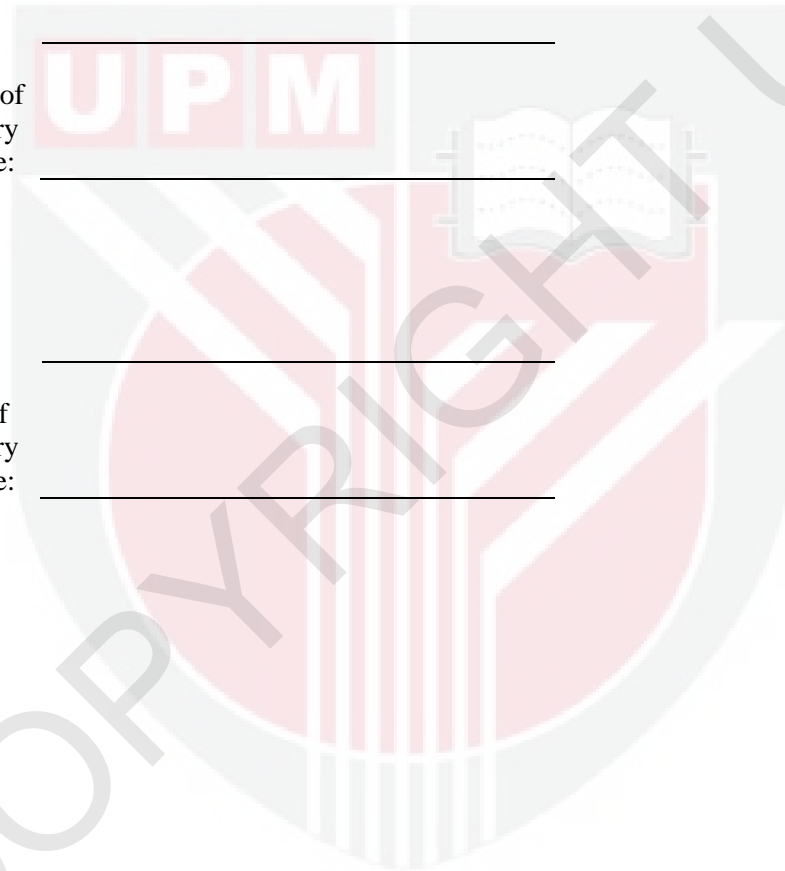
## Declaration by Members of Supervisory Committee

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

Signature: \_\_\_\_\_  
Name of  
Chairman of  
Supervisory  
Committee: \_\_\_\_\_

Signature: \_\_\_\_\_  
Name of  
Member of  
Supervisory  
Committee: \_\_\_\_\_



## TABLE OF CONTENTS

	<b>Page</b>
<b>ABSTRACT</b>	i
<b>ABSTRAK</b>	iii
<b>ACKNOWLEDGMENT</b>	v
<b>APPROVAL</b>	vi
<b>DECLARATION</b>	viii
<b>LIST OF TABLES</b>	xi
<b>LIST OF FIGURES</b>	xiii
<b>LIST OF ABBREVIATIONS</b>	xiv
<b>CHAPTER</b>	
<b>1 INTRODUCTION</b>	<b>1</b>
1.1 Country profile	1
1.2 Health care in Libya	1
1.3 Effect of war on health services and facilities in Libya	2
1.4 Dental health care in Libya	2
1.5 Oral hygiene in children	3
1.6 Diseases related with poor oral hygiene	3
1.7 Problem statement	4
1.8 Significance of the study	4
1.9 Benefit of the study	5
1.10 Research questions	5
1.11 Objectives	6
1.11.1 General objectives	6
1.11.2 Specific objectives	6
1.12 Hypothesis	6
<b>2 LITERATURE REVIEW</b>	<b>7</b>
2.1 Epidemiology of oral hygiene	7
2.2 Diseases associated with poor oral hygiene	8
2.3 Oral hygiene practices and its associated factors	10
2.3.1 Review of factors associated with oral hygiene practices	10
2.3.1.1 Methodology for review of factors associated with oral hygiene practices	10
2.3.1.2 Practices on oral hygiene and the age of child	11
2.3.1.3 Practices on oral hygiene and gender of the child	11
2.3.1.4 Practices on oral hygiene and level of parent's education	12
2.3.1.5 Practices on oral hygiene and effect of parents on the child	13
2.3.1.6 Practices on oral hygiene and knowledge toward oral hygiene	14

	2.3.1.7	Practice on oral hygiene and attitude toward oral hygiene	15
	2.3.1.8	Practice on oral hygiene and dietary habits of child	15
	2.3.1.9	Practice on oral hygiene and dental history of child	16
2.4		Discussion on factors influencing oral hygiene practices	17
2.5		Conceptual framework	19
<b>3</b>	<b>METHODOLOGY</b>		21
3.1		Study location	21
3.2		Study design	21
3.3		Study duration	21
3.4		Data collection duration	21
3.5		Study population	21
	3.5.1	Sampling population	21
	3.5.2	Selection criteria	22
		3.5.2.1 Inclusion criteria	22
		3.5.2.2 Exclusion criteria	22
	3.5.3	Sampling frame	22
	3.5.4	Sampling unit	22
	3.5.5	Sample size	22
	3.5.6	Sampling method	23
3.6		Instrumentations and Data collection	24
	3.6.1	Questionnaire	24
	3.6.2	Operative definitions	25
		3.6.2.1 Socio-demographic characteristics	25
		3.6.2.2 Oral hygiene practices	26
		3.6.2.3 Knowledge regarding oral hygiene	26
		3.6.2.4 Attitude toward oral hygiene	26
		3.6.2.5 Dietary habits	26
		3.6.2.6 Dental history of child	27
	3.6.3	Validity and reliability of the questionnaire	27
3.7		Data collection	27
	3.7.1	Training of research assistants	27
	3.7.2	Data collection procedure	28
3.8		Data analysis	28
3.9		Ethical consideration	28
<b>4</b>	<b>RESULTS</b>		29
4.1		The Response rate	29
4.2		Distribution curve of variables	29
	4.2.1	Distribution of oral hygiene practices score among study respondents	29
	4.2.2	Distribution curve of oral hygiene knowledge score among respondents	30
	4.2.3	Distribution curve of oral hygiene attitude score among respondents	31
	4.2.4	Distribution of dietary habits response score among respondents	32

4.2.5	Distribution of respondents according to dental history	33
4.3	Descriptive analysis	34
4.3.1	Socio demographic characteristics of study respondents	34
4.3.1.1	Age	35
4.3.1.2	Gender	35
4.3.1.3	Level of respondents' mothers education	35
4.3.1.4	Level of father education	35
4.3.1.5	Role of parents in oral health care of their children.	35
4.3.2	Prevalence of oral hygiene practices among respondents	36
4.3.2.1	Total oral hygiene practices score of the respondents	36
4.3.2.2	Prevalence of oral hygiene practices according sociodemographic characteristics among respondents	36
4.3.2.3	Oral hygiene practices among primary school children in Al Zintan city, Libya.	38
4.3.3	Factors influencing oral hygiene practices among respondents	40
4.3.3.1	Oral hygiene practices according to knowledge toward oral hygiene among respondents	41
4.3.3.2	Oral hygiene practices according to attitude toward oral hygiene among respondents	43
4.3.3.3	Oral hygiene practices according to dietary habits among respondents	45
4.3.3.4	Oral hygiene practices according to dental history among respondents	46
4.4	Bivariate analysis	48
4.4.1	Association between socio demographic characteristics and oral hygiene practices among respondents	48
4.4.2	Association between oral hygiene practices and its influencing factors (knowledge, attitude, dietary habits, dental history)	49
4.5	Multivariate analysis	51
4.5.1	Predictors of oral hygiene practices among respondents	51
<b>5</b>	<b>DISCUSSION</b>	<b>53</b>
5.1	The aims of the study	53
5.2	Prevalence of oral hygiene practices among respondents	53
5.3	Association between oral hygiene practices and Sociodemographic characteristics of respondents	55
5.4	Association between oral hygiene practices and its associated factors (Knowledge, attitude, dietary habits and dental	56



5.5	history) predictors of oral hygiene practices among primary school children of Al Zintan City, Libya	57
<b>6</b>	<b>CONCLUSION</b>	<b>58</b>
6.1	Conclusion	58
6.2	Study strength	58
6.3	Study limitation	58
6.4	Recommendations	59
	<b>REFERENCES</b>	<b>60</b>
	<b>APPENDICES</b>	<b>66</b>
	<b>BIODATA OF STUDENT</b>	<b>92</b>



## LIST OF TABLES

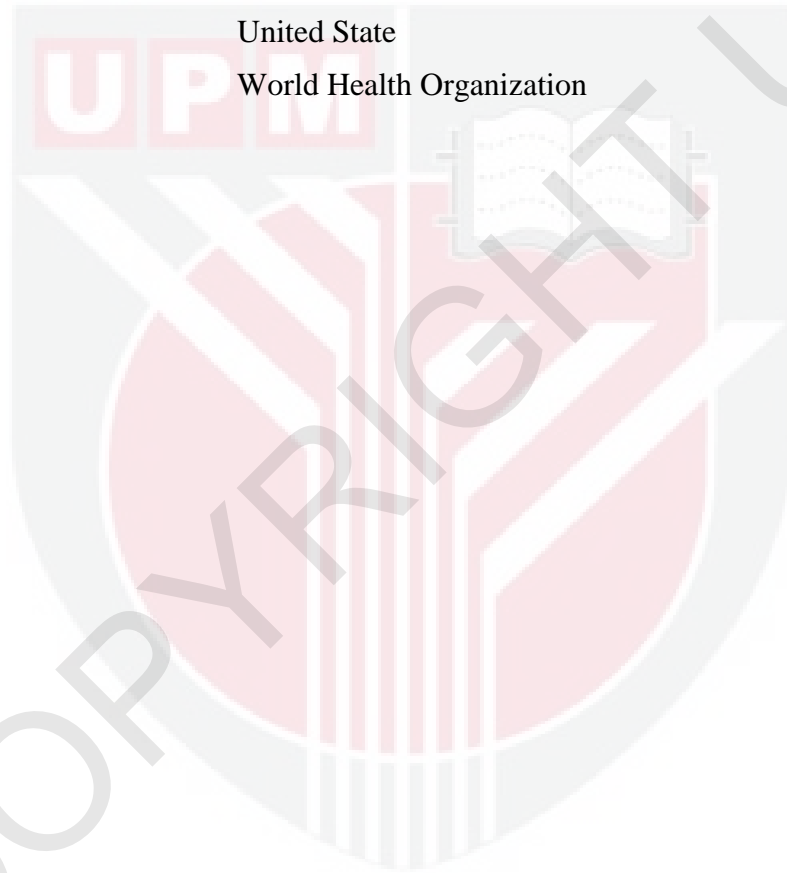
<b>Table</b>		<b>Page</b>
2.1	Factors associated with oral hygiene practices	11
3.1	Sampling method based on stratified sampling method	24
4.1	Socio demographic characteristics of study respondents	34
4.2	Prevalence of oral hygiene practices among respondents according to sociodemographic characteristics	36
4.3	Total distribution of oral hygiene practices among respondents	36
4.4	Oral hygiene practices among respondents	38
4.5	Factors associated with oral hygiene practices among respondents	40
4.5.1	Oral hygiene practices according to knowledge toward oral hygiene	41
4.5.2	Oral hygiene practices according to attitude toward oral hygiene	43
4.5.3	Oral hygiene practices among respondents according to dietary habits	45
4.5.4	Oral hygiene practices among respondents according to dental history	46
4.6	Association between oral hygiene practices on oral hygiene and socio demographic characteristics of respondents	48
4.7	Association between oral hygiene practices and its associated factors	49
4.8	Predictors of oral hygiene practices among respondents	51

## LIST OF FIGURES

<b>Figure</b>		<b>Page</b>
2.1	Conceptual framework of the study	20
4.1	Normal distribution curve of oral hygiene practices among respondents	30
4.2	Normal distribution curve of knowledge toward oral hygiene among respondents	31
4.3	Normal distribution curve of oral hygiene attitude among respondents	32
4.4	Normal distribution curve of dietary habits among respondents	33
4.5	Normal distribution curves of responses according to dental history	34

## LIST OF ABBREVIATIONS

Km	Kilometer
Km <sup>2</sup>	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 km<sup>2</sup> 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 km<sup>2</sup> (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 is the 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 minimize these 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 school 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.

## REFERENCES

- Ahmed, A. Nuibras. (2007). Dental caries prevalence and risk factors among 12years old school children from Baghdad: Post war survey.57, pp 36-44.
- Abiola, A., Eyitope, O., Sonny, O., & Oyinkan, S. (2009). Dental caries occurrence and associated oral hygiene practices among rural and urban Nigerian preschool children *Journal of Dentistry and Oral Hygiene Vol 1(5)*, pp. 64-70.
- Ab-Murat, N., and Watt, RG. (2006). Chief dentists' perceived strengths and weaknesses of oral health promotion activities in Malaysia. *Annal Dent Univ Malaya*,13: pp 1-5.
- Adeleke, O.A. & Danfillo, I.S. (2005). Utilization of oral health services by mothers of preschool children in Jos North Local Gouvernment Area, Plateu State, Nigeria. *Malawi Medical Journal*, vol. 16:2, pp. 33-36.
- Al-Ansari, JM., Al-Jairan, LY.,& Gillespie, GM., (2006). Dietary habits of the primary to secondary school population and implications for oral health. *J Allied Health*, 35(2): pp75-80.
- Al-Johara, A., Al-Hussyeen. A. (2006). Oral hygiene practices and dietary habits among children with Down's syndrome in Riyadh, Saudi Arabia.18 (3)
- Al-Omiri, M. K., Al-Wahadni, A. M., & Saeed, K. N. (2006). Oral health attitudes, knowledge, and behavior among school children in north Jordan. *J Dent Educ*,70(2),pp 179-187.
- Arlene, K. (2012).Oral Health – More Than Just Cavities. Office of Oral Health.Growing Healthy Smiles In The Child Care Setting-Implementing a Tooth Brushing Program to Promote Oral Health and Prevent Tooth Decay: Massachusetts Department of Public Health.
- Al Zarea, B. (2013). Oral health knowledge of periodontal disease among university students, pp 21- 29.
- Baranya, S., Suprabha, Arathi, R., Ramya, Sh., & Sanskriti, Kh.,(2014). Utility of knowledge, attitude, and practice survey, and prevalence of dental caries among11-13years old children in an urban community in India.*Glob Health Action*, pp 1-7
- Bedi, R., Sutcliffe, P., Donnan, P., Barrett, N., McConnachie, J. (2006). Dental caries experience and prevalence of children afraid of dental treatment. *Community Dent Oral Epidemiol*, vol 20(6): 368-371.
- Brukiene, V., Alekseju –niene, J. (2009). An overview of oral health promotion in adolescents. *Int J Pediatr Dent*; 19: 163 71.
- Dakhali, S.,Niras, N. (2014). Oral hygiene: Association between knowledge and practice among school going children in Ajman united Arab Emarates.10(3),pp 39-48.

- David, J., Wang, NJ., Astrom, AN., Kuriakose, S. (2005). Dental caries and associated factors in 12 year old school children in Thiruv- ananthapuram, Kerala, India. *Int J Pediatr Dent*;15: pp 420-428
- Dawani, N. (2012). Prevalence and factors related to dental caries among children of Saddar town, Karachi, Pakistan :Cross sectional study. pp 12-59.
- Granville-Garcia, AF., de Menezes, VA., de Lira, PI., Ferreira, JM.,& Leite-Cavalcanti, A. (2008). Obesity and dental caries among preschool children Brazil. *Rev Salud Publica*, 10(5): pp 788-795
- Hagan, JF., Shaw, JS., Duncan, PM. (2008). Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents, Third Edition. Pocket Guide. Elk Grove Village, IL: American Academy of Pediatrics.
- Hallett, KB, O'Rourke, PK. (2006). Pattern and severity of early childhood caries. *Community Dent Oral Epidemiol*, 34(1): pp 25- 35
- Heath, H. B., & Britain, G. (2011). Promoting older people's oral health. *RCN publishing company*, www. Nursingolderpeople .co.uk [Accessed 11-01-2].
- Huew, R. (2010). Dental erosion in Libyan schoolchildren and its association with potential risk factors.
- Hugoson, A., Koch, G., Helkimo, A.N. & Lundin, S.A. (2008). Caries prevalence and distribution in individuals aged 3-20 years in Jönköping, Sweden, over a 30- years period (1973-2003). *International Journal of Paediatric Dentistry*, vol 1(18), pp 18-26.
- Johnstone, L., Spence, D., & Koziol-McClain, J. (2010). Oral hygiene care in the pediatric intensive care unit: Practice recommendations. *Pediatr Nurs*,36(2),pp 85-96.
- Joseph, A., Gliem, Rsemary, R., Gliem.(2003).Calculating, Interpreting, and Reporting Cronbach's alpha Reliability Coefficient for Likert Type Scales. *Medwest Research to practice conference in adult, Continuing and community education, The ohio state university , Columbus, OH, October 8-10, 2003. pp82-88.*
- Joshi, N., Rajesh, R., & Sunitha, M. (2005). Prevalence of dental caries among school children in Kulasekharam village: A correlated prevalence survey. *J Indian Soc Pedod Prev Dent*, 23(3): pp 138- 140.
- Kakkad, d., Murali, Krishna, M., Yadav, SH., Yalamalli, M., Kumar .A. (2015). Assessment of Oral Hygiene Knowledge, Attitude, and Practices among Engineering Students in North Bangalore: A Cross-sectional Survey: *International Journal of Scientific Study*, Vol 3 (1). pp 84-89.
- Karaman, A., Bakhteyar, K., & Heydari3, H., (2014). Survey of Oral Hygiene Behaviors, Knowledge and Attitude among School Children: A Cross-Sectional Study from Iran. *International Journal of Health Sciences June 2014*, Vol. 2, No. 2, pp. 83-95.\

- Kassawara, AB., Tagliaferro, EP., Cortelazzi, KL., Ambrosano, GM., Assaf, AV., & Meneghim, Mde.(2010). Epidemiological assessment of predictors of caries increment in 7-10- year-olds: a 2-year cohort study. *J Appl Oral Sci*, 18(2): pp116-120.
- Kumar, S., Kulkrani, S., Jain, S., Meena Y. (2012). Oral health knowledge, attitudes and behavior of elementary school teachers in India. *Rev Gaúcha Odontol*;60: pp19-25.
- Lemeshow, S., Lwanga, SK. (1991). Sample Size Determination in Health b Studies: A Practical Manual. Geneva: World Health Organization.
- Lian, C. W., Phing, T. S., Chat, C. S., Shin, B. C., Baharuddin, L. H., & Che'Jalil, Z. J.(2010). Oral health knowledge, attitude and practice among secondary school students in Kuching, Sarawak. *Archives of Orofacial Sciences*, vol5(1), pp 9-16.
- Mafuvadze, B. T., Mahachi, L., & Mafuvadze, B. (2012). Dental caries and oral health practice among 12 year old school children from low socio-economic status background in Zimbabwe. *The Pan African Medical Journal*, 14.
- Malden, PE., Thomson, WM., Jokovic, A.,& Locker, D. (2008). Changes in parent assessed oral health-related quality of life among young children following dental treatment under general an- esthetic. *Community Dent Oral Epidemiol.*;36: pp108–17.
- Majorana, A., Bardellini, E., Flocchini, P., Amadori, F, Conti, G, & Campus, G. (2010). Oral mucosal lesions in children from 0 to 12 years old: ten years' experience.Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontics, vol 110(1): pp 13-1
- Mehta, A., Kaur, G. (2012). Oral health-related knowledge, attitude, and practices among 12-year-old schoolchildren studying in rural areas of Panchkula, India.*Indian J Dent Res*; 23:293.
- MoH, (2010). Oral health services in Zambia. Ministry of health Zambia. <http://www.moh.gov.zm/oral-health-services-zambia> [Accessed: 10-pp05-26].
- Moshiri, M., James, E.,Eckhart, Mcshane,P, Daniel,S., & German,. (2013).Consequences of Poor oral hygiene During Clear aligner Therapy: Vol 15(8).
- Muzhad, M.,Ebtissam. (March 2014). Diet, oral hygiene practices and dental in autistic children in Riyadh, Saudi Arabia.
- Naidoo, S., Myburgh, N. (2007). Nutrition, oral health and the young child. & Child Nutrition, vol. 10:3: pp 312-321.
- Narksawat, K., Tonmukayakul, U., Boonthum, A. (2009). Association between nutritional status and dental caries in permanent dentition among primary schoolchildren aged 12-14 years, Thailand. *Southeast Asian J Trop Med Public Health*, 40(2): pp 338-344.



- Nasr, M. A., M. Dalia. (2014). Prevalence of dental caries in child school from two Libya's western cities with different levels of fluoride in their drinking water.1, pp 28-34.
- Ndanu, T., Aryeetey, R., & Sackeyfio, J. (2014). Oral Hygiene Practices and Caries Prevalence among 9-15 Years Old Ghanaian School Children : *Journal of Nutrition and Health Science* ISSN: 2393-906, pp 1-5.
- Nicolas, E., Collado, V., Faulks, D., Bullier, B., & Hennequin, M. (2007). A national cross-sectional survey of dental anxiety in the French adult population. *BMC Oral Health*, 7:12.
- Oo, MMT., Naing, L., Mani, SA., & Ismail, AR. (2011). Dental caries experience and treatment needs in the mixed dentition in North East Malaysia. *Arch Orofac Sci*, 6(2): pp 41-48.
- Palmer, CA., Kent, R., Loo, CY., Stutius, E. (2010). Diet and caries associated bacteria in severe early childhood caries. *J dent Res* 89:1224-9.
- Parasad, arun-shankar, S-S Dowmaya, J. (2010). Oral health knowledge, practice and attitude of school students of KSPM articulation school thiruchengode.1 (1), pp5-11.
- Peeran, S. W., Altaher, O. B., Peeran, S. A., Alsaïd, F. M., Mugrabi, M. H., Ahmed, A.M., & Grain, A. (2014). Oral health in Libya: Addressing the future challenges. *Libyan Journal of Medicine*, vol 9(1).
- Peltzer, K., Pengpid, S. (2014). Oral health behaviour and social and health factors in university students from 26 low, middle and high income countries. *Int J Environ Res Public Health* ;11:12247-60.
- Praveena, S., Thippeswamy, HM. & Chakravarthy, K. P. (2013). Relationship of Oral Hygiene Practices and Dental Caries among School Children of Sullia Taluk, Karnataka, South India: *Global Journals Inc.* pp 9-12.
- Priya M, Devdas, K., Amaralal, D., & Venkatachal, A., (2013). Oral health attitudes, knowledge and practice among school children in Chennai, India. Department of Pediatric and Preventive Dentistry, *Journal of Education and Ethics in Dentistry*, Vol 3 (1). pp 26-33.
- Quandt, S.A., Chen, H., Bell, R.A., Savoca, M.R., Anderson, A.M, Leng, X., Kohrman, T., Gilbert, G.H. & Arcury, T.A. (2009). Food Avoidance Food Modification Practices of Older Rural Older Rural Adults: Association with Oral Health Status and Implications for Service Provision. *The Gerontologist*, vol. 7(2), pp 93-96.
- Ranganathan, K. & Hemalatha, R. (2006). Oral lesions in HIV infection in developing countries: an overview. *Advances in Dental Research*, vol. 4(1), pp 63-68.
- Reddy, J. (2007). Control of HIV/AIDS and AIDS-related conditions in Africa with special reference to periodontal diseases. *Journal of the International Academy of Periodontology*, vol. 9(1), pp 2-12

- Rehaman, Mohamed, d. M. (2008). The relationship of caries with oral hygiene status and extra oral risk factors.20(1), 103-108.
- Rehaman,M-Mohamed,N-Rehaman,B. (2009). The relationship of caries with oral hygiene status and extra risk factors.1 (20), pp 103-108.
- Relf, M.V., Laverriere, C., Devlin, C. & Salerno, T. (2009). Ethical beliefs related to HIV and AIDS among nursing students in South Africa and the United States: Across-sectional analysis. *International Journal of Nursing Studies*, vol 11(46), pp 1448-1456.
- Ruhaya, H., Jaafar, N., Jamaluddin, M., Ismail, AR., Ismail, NM., Badariah, F TC., Azizah, M., & Mohamed, Z. (2012). Nutritional status and early childhood caries among preschool children in Pasir Mas, Kelantan, Malaysia. *Arch Orofac Sci*, 7(2):pp56-6
- Saleh, S. S., Alameddine, M. S., Natafqi, N. M., Mataria, A., Sabri, B., Naser, S. J., Siddiqi, S. (2014). The path towards universal health coverage in the arab uprising countries Tunisia, Egypt, Libya, and Yemen. *The Lancet*, 383(9914), pp 368-381.
- Singh, K., Bhandari, SH., & Anandani, CH. (2014). Prevalence of Periodontal Diseases and Oral Hygiene Practices among Drug Addicted Inmates: Vol. 13 (4), pp 911.
- Smyth, E., Caamano, F., Riveiro, & Fernandes. (2009) Oral health knowledge, attitude and practices in 12 years old school children. *Medicine Oral S.L.C.I.F.B* 96689336-vol12(8): pp 14-20.
- Shamta, S., Ayya, Ali. (2012). Maternal factors and child's dental health. Vol 3(3), pp 45-48.
- Taiwo, O.O., Okeke, E.N., Jalo, P.H. & Danfillo, I.S. (2006). Oral manifestation of HIV/AIDS in Plateau state indigenes, Nigeria. *West African Journal of Medicine*, vol. 25:1, pp 32-37.
- Tirwomwe, J.F., Rwenyonyi, C.M., Muwazi, L.M., Besigye, B. & Mboli, F. (2007). Oral manifestations of HIV/AIDS in clients attending TASO clinics in Uganda. *Clinical Oral Investigations*, vol 11(3), pp 289-92.
- Varenne, B., Petersen, P.E. & Quattara, S. (2006). Oral health behaviour of children and adults in urban and rural areas of Burkina Faso, Africa. *International Dental Journal*, vol45(6), pp 61-70.
- Wan Salina, WS., Nizam, A., & Naing, L. (2007). The association of birth order and sociodemographic factors with caries experience among adolescents in Tumpat. *Arch Orofac Sci*, 2: pp 45-50.
- Wårdh, I., Andersson, L., & Sörensen, S. (2008). Staff attitudes to oral health care. A comparative study of registered nurses, nursing assistants and home care aides. *Gerodontology*, vol 14(1), pp 28 – 32.

- Weeks, J.C & Fiske, J. (2006). Oral care of people with disability: a qualitative exploration of the views of nursing staff. *Gerodontology*, vol 11(1), pp 13-17.
- Wigen, TI., Skaret, E., Wang, NJ. (2009). Dental avoidance behaviour in parent and child as risk indicators for caries in 5-year-old children. *Int J Paediatr Dent*, 19(6): pp 431-437.
- Winnie, H. (2005). Dental treatment needs for preschool children in Tin Shui Wa and their parents attitudes and knowledge.
- World Health Organization. (2010). *Country cooperation strategy for WHO and Libya 2010- 2015*.
- WHO (2009). World health organization. Media center. Oral health. <http://www.who.int/mediacentre/factsheets/fs318/en/index.html> [Accessed 09- 08-12].
- WHO (2008). Population nutrient intake goals for preventing diet-related chronic diseases.[Online]. Retrieved from the World Wide Web: [http://www.who.int/nutrition/topics/5population\\_nutrient/en/index18.htm](http://www.who.int/nutrition/topics/5population_nutrient/en/index18.htm) [Accessed 09-07-10].
- Yabao, RN., Duante, CA., Velandria, FV., Lucas, M., Kassu, A., & Nakamori, M.(2005). Prevalence of dental caries and sugar consumption among 6–12-year- old schoolchildren in La Trinidad, Benguet, Philippines. *Eur J Clin Nutr*, 59(12): pp 1429-1438.
- Youravong, N., Chongsuvivatwong, V., Geater, AF., Dahlén, G. & Teanpaisan, R.(2006). Lead associated caries development in children living in a lead contaminated area, Thailand. *Science of the Total Environment*, vol. 361:1-3, pp 88-96.
- Zahara, AM., Fashihah, MH.,& Nurul, AY. (2010). Relationship between frequency of sugary food and drink consumption with occurrence of dental caries among preschool children in Titiwangsa, Kuala Lumpur. *Malays J Nutr*, 16(1): pp 83-90.
- Zhu, L., Petersen, P.E., & Wang, (2005). Oral health knowledge, attitudes and behavior of adults in China. *Int Dent J*;55(4): pp 231-41



## BIODATA OF STUDENT

Mrs. Naeima Ahmed Trabelsi is a Libyan student. She was born on the 28 of August. 1984 in AL Zintan City, Libya. She had her primary school education at Ahmed Orabi Primary School, from 1991 to 1999 and then preceded her secondary education in Muhamed ALEmam Secondary School where she got her Secondary School Certificate. She preceded bachelors in Dentistry in Aljabal Algharbi University from 2003 to 2007. . After graduation from the university Mrs. Naeima worked in the field of dentistry for four years in Al Zintan City. Libya from 2008 to 2011. After that she joined Universiti Putra Malaysia in 2013 for master degree program in Sciences of Public Health .





**UNIVERSITI PUTRA MALAYSIA**

**STATUS CONFIRMATION FOR THESIS / PROJECT REPORT AND COPYRIGHT**

**ACADEMIC SESSION :** \_\_\_\_\_

**TITLE OF THESIS / PROJECT REPORT :**

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

**NAME OF STUDENT:** NAEIMA AHMED TRABELSI

I acknowledge that the copyright and other intellectual property in the thesis/project report belonged to Universiti Putra Malaysia and I agree to allow this thesis/project report to be placed at the library under the following terms:

1. This thesis/project report is the property of Universiti Putra Malaysia.
2. The library of Universiti Putra Malaysia has the right to make copies for educational purposes only.
3. The library of Universiti Putra Malaysia is allowed to make copies of this thesis for academic exchange.

I declare that this thesis is classified as :

\*Please tick (v )

**CONFIDENTIAL**

(Contain confidential information under Official Secret Act 1972).

**RESTRICTED**

(Contains restricted information as specified by the organization/institution where research was done).

**OPEN ACCESS**

I agree that my thesis/project report to be published as hard copy or online open access.

This thesis is submitted for :

**PATENT**

Embargo from \_\_\_\_\_ until \_\_\_\_\_  
(date) (date)

**Approved by:**

\_\_\_\_\_  
(Signature of Student)  
New IC No/ Passport No.:

Date :

\_\_\_\_\_  
(Signature of Chairman of Supervisory Committee)  
Name:

Date :

**[Note : If the thesis is CONFIDENTIAL or RESTRICTED, please attach with the letter from the organization/institution with period and reasons for confidentially or restricted. ]**