

UNIVERSITI TEKNOLOGI MARA

**CORNEAL ASTIGMATISM AMONG FIRST YEAR
UNDERGRADUATE STUDENTS OF UITM
SELANGOR, PUNCAK ALAM CAMPUS**

NURULWAHIDA BINTI JASMAN

**BACHELOR OF OPTOMETRY (HONS)
FACULTY OF HEALTH SCIENCES**

JULY 2016

AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Undergraduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name of student : Nurulwahida Binti Jasman
Student I.D. : 2012818746
Program : Bachelor of Optometry (Hons)-HS226
Faculty : Health Science
Thesis Title : Corneal Astigmatism among First Year Undergraduate Students of UiTM Selangor, Puncak Alam Campus.

Student's signature : 

Date : 18 July 2016

ABSTRACT

Background: Previous studies stated that 13 % of the refractive error of human eye comes from astigmatism and the origin of the astigmatism was mostly from the cornea and is known as corneal astigmatism. Based on previous studies, there were low amount of astigmatism reported among adults, the most commonly was WTR astigmatism. However, prevalence of astigmatism was higher among Asian as compared to Caucasian subjects. Previous studies reported that there were association between corneal astigmatism and refractive astigmatism. However, limited study done in Malaysia on corneal astigmatism especially among young Malay adults. **Purpose:** This study aims to identify corneal astigmatism including its direction and its relationship with refractive astigmatism among first year undergraduate students of UiTM Selangor, Puncak Alam Campus. **Method:** First year university students of UiTM Selangor, Puncak Alam campus were invited to participate in the study. In this study, corneal astigmatism was measured by using Nidek Magellan Mapper SN MM 2062 2004/5 with the following standard optometric procedure; A drop of saline solution was instilled into the inferior fornix in order to maintain adequate tears. Then, proper fixation was ensured as the subjects were asked to see the central green light in the instrument. Three consecutive readings were taken and average readings were recorded for each eye. **Result:** The mean corneal astigmatism of the first year undergraduate students of UiTM Selangor, Puncak Alam campus for the right and left eyes were $1.01 \pm 0.58\text{DC}$, and $1.07 \pm 0.63\text{DC}$ respectively. Among them, 46% was found to have astigmatism greater than 1.00DC. The direction of corneal astigmatism was predominantly with-the-rule (WTR) astigmatism, (79%). Besides, there was good correlation between corneal astigmatism and refractive astigmatism as $r = 0.75$ with $p=0.0005$. **Conclusion:** Forty six percent of the first year students has astigmatism more than 1.00DC and 79% was WTR astigmatism. The high percentage of astigmatism had importance implications for future service planning as it may be associated with lazy eye and poor quality of life.

Keywords: Corneal astigmatism, university students, young adults

ACKNOWLEDGEMENT

All praises be to the Almighty, the one and only, Allah S.W.T for His blessings for me to conduct this research entitled Corneal Astigmatism Among First Year Undergraduates Students of UiTM Selangor, Puncak Alam Campus successfully.

The utmost gratitude to my beloved supervisor Professor Emeritus Dr Hj. Norhani Bt. Mohidin for her continuous guidance, tolerance, and patience in supervising us from the start until we finished the research. We were fortunate to be supervised by her since she has the expertise in this field and surely has a wide experience.

Besides that, the deepest gratitude to my parents, Jasman Bin Surif and Hayaton Binti Saimun for their understanding, prayers and endless support throughout this research. Without their positive vibes and continuous support, I do not think I can endure all the challenges. Hopefully, I can get good job and be able to take care of them.

Next, special appreciation to my cooperative teammates who are very understanding in conducting the research, despite the hardships that we need to go through. Special thanks to all my lecturers, Optometry department's staff, UiTM Vision Clinic and my classmates for their continuous encouragement. Not to forget, my deepest gratitude to the Dean of Health Sciences Faculty for approving our research proposal.

There is no enough word to express my gratitude towards all the people that help me in conducting the research. I am blessed with these good people around me.

TABLE OF CONTENTS

CONTENT	PAGES	
AUTHOR'S DECLARATION	ii	
SUPERVISOR SIGNATURE	iii	
ACKNOWLEDGEMENT	iv	
TABLE OF CONTENTS	v	
LIST OF TABLES	vii	
LIST OF FIGURES	viii	
LIST OF ABBREVIATIONS	ix	
ABSTRACT	x	
ABSTRAK	xi	
CHAPTER 1	INTRODUCTION	1
1.1	Background	1
	1.1.1 Definition of Astigmatism	1
	1.1.2 Aetiology of Astigmatism	2
	1.1.3 Classification of Astigmatism	3
	1.1.4 Treatment of Astigmatism	3
1.2	Problem Statement	4
1.3	Objectives	5
1.4	Research Question	6
1.5	Importance	6
1.6	Operational Definition	7
	1.6.1 Corneal Astigmatism	7
	1.6.2 First year student	7
	1/6/3 With-the-rule (WTR)	7
	1.6.4 Against-the-rule (ATR)	7
	1.6.5 Oblique Astigmatism	7
	1.6.6 Corneal Topography	8