

**UNIVERSITI TEKNOLOGI MARA**

**RELATIONSHIP BETWEEN CENTRAL  
CORNEA THICKNESS (CCT) AND  
INTRAOCULAR PRESSURE (IOP) AMONG  
YOUNG MALAY ADULT WITH HYPEROPIC  
CORRECTION**

**NUR FILZAH BINTI ABDUL RAZAK**

**BACHELOR (HONS.) OF OPTOMETRY**

**JULY 2015**

## AUTHOR'S DECLARATION

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

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

Name of student	Nur Filzah binti Abdul Razak
Student ID No	2011855548
Programme	Bachelor of Optometry (Hons.)
Faculty	Health Science Faculty
Thesis	Relationship between Central Cornea Thickness (CCT) and Intraocular Pressure (IOP) Among Young Malay Adult with Hyperopic Correction

Signature of Student .....

Date .....

## CONTENTS

CONTENT	PAGES	
AUTHOR'S DECLARATION	ii	
APPROVAL OF THESIS	iii	
ACKNOWLEDGEMENT	iv	
TABLE OF CONTENTS	v	
LIST OF TABLES	ix	
LIST OF FIGURES	x	
LIST OF ABBREVIATION	xi	
LIST OF SYMBOLS	xii	
ABSTRACT	xiii	
ABSTRAK	xiv	
CHAPTER 1	INTRODUCTION	1
1.1	Prevalence of Glaucoma	1
1.2	Intraocular Pressure (IOP) and Central Corneal Thickness (CCT)	2
1.3	Problem Statement	3
1.4	Study Objective	4
1.5	Study Hypothesis	4

CHAPTER 2	LITERATURE REVIEW	6
2.1	Central Corneal Thickness	6
2.2	Intraocular Pressure	8
2.3	Refractive Error	9
CHAPTER 3	METHODOLOGY	11
3.1	Study Design	11
3.2	Study Location	11
3.3	Subject of the Study	11
	3.3.1 Inclusion Criteria	12
	3.3.2 Exclusion Criteria	12
3.4	Instruments	13
	3.4.1 Tomey Specular Microscopy	13
	3.4.2 Keeler Air Puff Non Contact Tonometer	13
3.5	Procedure	14
3.6	Ethic Approval	15
3.7	Data Analysis	15
CHAPTER 4	RESULTS	16
4.1	Demographic data	16
4.2	Normality Test	16
4.3	Correlation of CCT and IOP	17

## ABSTRACT

The purpose of this study is to evaluate the normal value of CCT and IOP among the young Malay adult and also to determine the relationship between CCT and IOP. A cross-sectional study is done among the UiTM Puncak Alam students and staffs. 24 subjects were enrolled in this study which fulfilled all the criteria needed including 17 females and 7 males. They were grouped into two group which were emmetrope and hyperope group. Tomey Specular Microscopy is used to measure CCT while Keeler Air Puff Non Contact Tonometer to measure IOP. The results obtained showed a significance correlation between the CCT and IOP ( $r=0.316$ ,  $p=0.03$ ). The mean values of CCT and IOP among hyperopic group are  $528.81\mu\text{m}$  ( $\pm 22.078$ ) and  $13.63\text{mmHg}$  ( $\pm 2.976$  mmHg) respectively. The mean values of CCT and IOP in emmetropic group are  $538.29\mu\text{m}$  ( $\pm 24.879\mu\text{m}$ ) and  $13.194\text{mmHg}$  ( $\pm 2.2064\text{mmHg}$ ) respectively. The correlation of CCT and IOP with the refractive error is poor with  $r = 0.233$  ( $p = 0.114$ ) and  $r = 0.142$  ( $p = 0.342$ ) respectively. Thus, it was true that CCT can affect the IOP based on the findings in this study but no significant correlation between refractive error with CCT and IOP.

**Keywords** : CCT, IOP, Correlation, Hyperope