

UNIVERSITI TEKNOLOGI MARA

**RACIAL DIFFERENCES IN OPTIC
NERVE HEAD MEASURED BY OCT
AMONG CHILDREN**

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**Research submitted in fulfilment of the requirements for
the degree of**

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AUTHOR'S DECLARATION

I hereby declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is 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.

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ABSTRACT

In normal human, the mean value of cup-disc ratio is 0.25-0.30 and the differences between the other eyes are less than 0.2. There were highly variability of cup-disc ratio due to physiological relation between optic disc size and cup size, which means that if large optic disc should have large cup while small discs should have a small cup. There are several factor that can influence the cup-disc ratio which are race, refractive error, gender and age. This study aimed to determine the normal cup-disc ratios according to race in children using Spectral Domain Optical Coherence Tomography (SD-OCT). A total of 60 normal children aged 6 to 11 years from three main racial groups which were Malay, Chinese and Indian participated in this cross-sectional study. All children were recruited from schools in Puncak Alam, Meru and Kapar residency areas which include Tadika Seri Cemerlang, Sekolah Kebangsaan Puncak Alam 2, Sekolah Kebangsaan Kapar, and Sekolah Kebangsaan Jenis Cina Tiong Hua Kok Bin. Cup-disc ratio was evaluated using Topcon 3D-1000 Spectral Domain Optical Coherence Tomography (SD-OCT) and its variation with race was further investigated. One-way ANOVA analysis revealed that the Indian children tended to have larger mean cup-disc ratio (0.51 ± 0.03) compared to Malay (0.36 ± 0.06) and Chinese children (0.35 ± 0.04). However when adjusted for refractive error the differences in cup-disc ratio between all races were not statistically significant. The association between cup-disc ratio and race was also examined and result showed that there was significant association between the two variables between Indian and Malay, and between Indian and Chinese. However no significant association was found between Malay and Chinese. As conclusion, races-specific normative cup-disc ratio among children is important to be examined as to distinguish the true glaucomatous cup-disc ratio value from physiologic optic nerve head cupping hence aids clinician in term diagnosis and follow-up cases of Pediatric Glaucoma.