

## EARLY DETECTION OF HEARING LOSS AMONG IIUM Kuantan DENTAL STUDENTS.

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### ABSTRACT

**Introduction:** Dental practitioners are among the professionals that are at high risk of developing Noise Induced Hearing Loss (NIHL) over a long period of time as they are exposed to high level sound intensity from the dental equipment possibly on a daily basis. The anatomical structure of the ear causes the high frequency region of the cochlea to be commonly affected earlier by the continuous noise exposure. It is important to detect any changes to the cochlea that may lead to hearing loss as early as possible. Distortion Product Otoacoustic Emissions (DPOAEs) and High frequency Pure Tone Audiometry (HFPTA) were reported to be useful tools in early detection of NIHL (Gorga et. al., 1997; Mehrparvar et. al, 2011 & Somma et. al., 2008). The purpose of this study is to compare the hearing thresholds and otoacoustic emissions between dental students and non-dental students in IIUM Kuantan.

**Methods:** Fifteen dental students and fifteen normal hearing non-dental students, forming study and control groups respectively, were assessed using HFPTA and DPOAEs. Test frequencies for HFPTA ranged from 250 Hz to 20000 Hz, while DPOAE included frequencies between 842 Hz to 10376 Hz.

**Results:** There is no significant difference of threshold between the groups across the frequencies ( $p>0.05$ ), however study group shows slightly higher threshold at 3000 Hz, 4000 Hz, and 14000 Hz. For the DPOAEs, the study group shows significant lower Signal to Noise Ratio (SNR) at test frequency 3088 Hz and 3369 Hz.

**Conclusion:** The pattern of NIHL notch can be seen in the DPOAEs of the study group even though the threshold is still within the normal hearing, suggesting that early signs of NIHL among dental students can be detected by DPOAE.

**Keywords:** Dental students, Noise Induced Hearing Loss, High frequency Pure Tone Audiometry, High Frequency Distortional Product Otoacoustic Emissions

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