

## INTISARI

**Latar Belakang:** Kebiasaan buruk mulut dapat memengaruhi jaringan keras, jaringan pendukung gigi, dan mukosa mulut lainnya serta berhubungan dengan gangguan pola pernapasan. Bernapas lewat mulut (BLM) merupakan pola pernapasan tidak normal yang memiliki dampak negatif pada saluran napas atas dan perkembangan dentokraniofasial. **Tujuan:** Mengetahui pengaruh BLM terhadap lebar lengkung gigi rahang atas, volume, dan luas area saluran napas faring atas pada anak usia 10-12 tahun. **Metode:** Penelitian observasional dengan pendekatan *cross sectional* dilakukan di Sekolah Dasar Kecamatan Kotagede dan Instalasi Radiologi RSGM UGM Prof. Soedomo yang melibatkan 30 subjek (15 BLM dan 15 BLH) menggunakan CBCT melihat *Maxillary Width at the Molars* (MWM), *Intermolar Width* (IMW), *Maxillary Width at the Canines* (MWC), *Intercanine Width* (ICW), *Nasopharyngeal Airway Volume* (NPV), *Oropharyngeal Airway Volume* (OPV), *Nasopharyngeal Airway Area* (NPA) dan *Oropharyngeal Airway Area* (OPA). Analisis statistik menggunakan uji normalitas dan homogenitas dilanjutkan dengan uji T Independen serta uji *cohens' d effect size*. **Hasil:** Kelompok anak BLM menunjukkan penurunan signifikan pada lebar lengkung gigi rahang atas, volume, dan luas area saluran napas faring atas dibandingkan kelompok BLH ( $p < 0,001$ ). Interval kepercayaan 95% untuk MWM (59,69–62,18 mm kelompok BLM dan 66,95–68,37 mm kelompok BLH) dan OPV (19.864,01–28.820,33 mm<sup>3</sup> kelompok BLM dan 64.211,39–71.798,99 mm<sup>3</sup> kelompok BLH) menunjukkan perbedaan yang konsisten tanpa tumpang tindih. Nilai *effect size Cohen* ( $d > 0,8$ ) pada seluruh parameter mengindikasikan efek besar dan bermakna secara klinis. **Kesimpulan:** Terdapat pengaruh bernapas lewat mulut terhadap lebar lengkung gigi rahang atas, volume dan luas area saluran napas faring atas.

**Kata kunci:** bernapas lewat mulut, lengkung gigi, volume saluran napas atas, luas area saluran napas atas, CBCT

## **ABSTRACT**

**Background:** Mouth breathing (MB) is an abnormal respiratory pattern associated with detrimental effects on the upper airway and dentofacial development. Oral bad habit, including MB, can impact hard tissues, periodontal structures, and oral mucosa, and are often associated with altered craniofacial growth. **Objective:** To assess the impact of mouth breathing on maxillary arch width, pharyngeal airway volume, and cross-sectional area in children aged 10–12 years. **Methods:** A cross-sectional observational study was conducted at the Elementary School of Kotagede District and the Radiology Installation of RSGM UGM Prof. Soedomo involving 30 children (15 with MB and 15 nasal breathers as controls). Cone Beam Computed Tomography (CBCT) was used to measure Maxillary Width at the Molars (MWM), Intermolar Width (IMW), Maxillary Width at the Canines (MWC), Intercanine Width (ICW), Nasopharyngeal Airway Volume (NPV), Oropharyngeal Airway Volume (OPV), Nasopharyngeal Airway Area (NPA), and Oropharyngeal Airway Area (OPA). Statistical analyses included tests of normality and homogeneity, independent t-tests, and Cohen's *d* effect size calculations. **Results:** Children in the MB group exhibited significant narrower maxillary arches and reduced pharyngeal airway volume and area compared to controls ( $p < 0.001$ ). The 95% confidence intervals for MWM (59.69–62.18 mm in MB vs. 66.95–68.37 mm in controls) and OPV (19,864.01–28,820.33 mm<sup>3</sup> in MB vs. 64,211.39–71,798.99 mm<sup>3</sup>, respectively) showed no overlap, indicating robust differences. All variables demonstrated large effect sizes (Cohen's *d* > 0.8), suggesting strong clinical relevance. **Conclusion:** Mouth breathing is associated with significant reductions in maxillary arch width and upper pharyngeal airway dimensions, highlighting the importance of early identification and intervention.

**Keywords:** mouth breathing, dental arch, upper airway volume, upper airway area, CBCT