

PERBEDAAN FUNGSI PULMONAL *FORCED EXPIRATORY VOLUME IN 1 SECOND* (FEV₁) PADA REMAJA OBESITAS BERDASARKAN JENIS KELAMIN DAN STATUS OBESITAS SENTRAL DI SEKOLAH MENENGAH ATAS SWASTA PERGURUAN CIKINI JAKARTA

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Abstrak

Latar Belakang: Obesitas pada remaja dapat memengaruhi fungsi pulmonal akibat akumulasi jaringan lemak yang membatasi ekspansi dinding dada dan pergerakan diafragma. Obesitas sentral dan jenis kelamin diduga berperan terhadap fungsi pulmonal yang diukur dengan *Forced Expiratory Volume in 1 Second* (FEV₁). **Tujuan:** Mengetahui perbedaan fungsi pulmonal FEV₁ pada remaja obesitas berdasarkan jenis kelamin dan status obesitas sentral di SMA Swasta Perguruan Cikini Jakarta. **Metode:** Penelitian kualitatif komparatif dengan desain *cross-sectional* dilaksanakan pada bulan November 2025—Januari 2026 di SMA Swasta Perguruan Cikini Jakarta dengan populasi berjumlah 136 siswa dan sampel berjumlah 27 siswa berusia 15—18 tahun. Status obesitas sentral ditentukan berdasarkan *Waist-to-Height Ratio* (WHtR), sedangkan FEV₁ diukur menggunakan spirometri. Analisis bivariat dilakukan menggunakan uji *Chi-Square* dan *Fisher's Exact Test*. **Hasil:** Proporsi FEV₁ abnormal lebih tinggi pada perempuan (80,0%) dibandingkan laki-laki (41,2%). Namun, tidak terdapat hubungan yang bermakna antara jenis kelamin dan FEV₁ ($p=0,107$). Tidak ditemukan hubungan yang signifikan antara obesitas sentral dan FEV₁ berdasarkan uji Pearson *Chi-Square* ($p=0,299$) maupun *Fisher's Exact Test* ($p=0,441$). **Kesimpulan:** Tidak terdapat perbedaan yang bermakna pada fungsi pulmonal berdasarkan nilai FEV₁ ditinjau dari jenis kelamin maupun status obesitas sentral pada remaja obesitas.

Kata kunci: FEV₁, fungsi pulmonal, obesitas remaja, obesitas sentral, jenis kelamin.

**DIFFERENCES IN PULMONARY FUNCTION BASED ON
FORCED EXPIRATORY VOLUME IN 1 SECOND (FEV₁)
AMONG OBESE ADOLESCENTS ACCORDING TO SEX AND
CENTRAL OBESITY STATUS AT CIKINI PRIVATE SENIOR
HIGH SCHOOL, JAKARTA**

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Abstract

Background: Obesity in adolescents can affect pulmonary function due to the accumulation of adipose tissue, which restricts chest wall expansion and diaphragmatic movement. Central obesity and gender are thought to play a role in lung function, as measured by Forced Expiratory Volume in 1 Second (FEV₁). **Objective:** To determine differences in FEV₁ lung function among obese adolescents based on gender and central obesity status at Perguruan Cikini Private High School in Jakarta. **Methods:** A comparative qualitative study with a cross-sectional design was conducted from November 2025 to January 2026 at Perguruan Cikini Private High School in Jakarta, with a population of 136 students and a sample of 27 students aged 15–18 years. Central obesity status was determined based on the Waist-to-Height Ratio (WHtR), while FEV₁ was measured using spirometry. Bivariate analysis was performed using the chi-square test and Fisher's exact test. **Results:** The proportion of abnormal FEV₁ values was higher among females (80.0%) than among males (41.2%). However, there was no significant association between gender and FEV₁ ($p = 0.107$). No significant association was found between central obesity and FEV₁ based on the Pearson Chi-Square test ($p=0.299$) or Fisher's Exact Test ($p=0.441$). **Conclusion:** There were no significant differences in pulmonary function based on FEV₁ values when examined by gender or central obesity status in obese adolescents.

Keywords: FEV₁, pulmonary function, adolescent obesity, central obesity, sex.