

ABSTRAK

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Latar Belakang: Lemak viseral berkontribusi terhadap inflamasi sistemik dan gangguan metabolik. Mikrobiota saluran cerna, khususnya *Lactobacillus* dan *Bifidobacterium*, berperan penting dalam menjaga keseimbangan metabolik tubuh. Namun, hubungan antara *visceral fat rating*, asupan zat gizi, dan profil mikrobiota spesifik di Indonesia belum banyak dikaji.

Tujuan: Menganalisis hubungan antara *visceral fat rating*, karbohidrat, protein, lemak, dan serat dengan profil *Lactobacillus* dan *Bifidobacterium* pada individu obesitas.

Metode: Penelitian cross-sectional dilakukan pada 60 subyek obesitas (usia 19–44 tahun) di Kota Semarang. *visceral fat rating* diukur menggunakan bioelectrical impedance analysis (BIA). Asupan gizi diukur melalui SQ-FFQ dan dianalisis dengan NutriSurvey. Profil *Lactobacillus* dan *Bifidobacterium* dianalisis dari sampel feses menggunakan RT-PCR. Data dianalisis dengan korelasi dan regresi linier berganda.

Hasil: Nilai rata-rata *visceral fat rating* $9,73 \pm 3,74$; jumlah *Lactobacillus* $8,87 \pm 1,01$ log CFU/g; *Bifidobacterium* $9,08 \pm 0,99$ log CFU/g. Asupan lemak jenuh rata-rata $39,5 \pm 13,62$ g, PUFA $17,11 \pm 5,87$ g, dan serat larut $4,42 \pm 1,7$ g. *visceral fat rating* menunjukkan korelasi negatif yang sangat signifikan terhadap jumlah *Lactobacillus* ($r = -0,904$) dan *Bifidobacterium* ($r = -0,935$). Asupan lemak total dan lemak jenuh juga berkorelasi signifikan namun negatif, sedangkan PUFA dan serat (total, larut, dan tidak larut) menunjukkan korelasi positif signifikan terhadap kedua genus. Analisis regresi menunjukkan bahwa hanya *visceral fat rating* yang berpengaruh signifikan terhadap jumlah kedua bakteri.

Kesimpulan: kumulasi lemak viseral secara signifikan menurunkan jumlah *Lactobacillus* dan *Bifidobacterium*. Asupan tinggi lemak jenuh cenderung menurunkan jumlah keduanya, sedangkan asupan tinggi PUFA (dan serat larut cenderung meningkatkan jumlah bakteri probiotik ini. Pola makan tinggi lemak jenuh dan rendah serat terbukti mendukung disbiosis usus. Temuan ini menunjukkan pentingnya intervensi gizi berbasis kualitas lemak dan serat untuk pengelolaan obesitas viseral.

Kata Kunci: Lemak Viseral, Mikrobiota saluran cerna, *Lactobacillus*, *Bifidobacterium*, Asupan, Obesitas.

ABSTRACT

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Background: Visceral fat contributes to systemic inflammation and metabolic disorders. Gut microbiota, especially *Lactobacillus* and *Bifidobacterium*, plays a pivotal role in maintaining metabolic balance. However, the relationship between visceral fat rating, nutrient intake, and microbiota profile has not been widely explored in Indonesia.

Objective: To analyze the relationship between visceral fat rating, carbohydrate, protein, fat, and fiber intake with *Lactobacillus* and *Bifidobacterium* profiles in obese individuals.

Methods: This cross-sectional study involved 60 obese subjects (aged 19–44) in Semarang. Visceral fat rating was measured using bioelectrical impedance analysis (BIA). Dietary intake was assessed via SQ-FFQ and analyzed using NutriSurvey. Fecal *Lactobacillus* and *Bifidobacterium* counts were analyzed using RT-PCR. Data were analyzed using correlation and multiple linear regression.

Results: The mean visceral fat rating was 9.73 ± 3.74 ; *Lactobacillus* count was 8.87 ± 1.01 log CFU/g; and *Bifidobacterium* count was 9.08 ± 0.99 log CFU/g. The average intake of saturated fat was 39.5 ± 13.62 g, PUFA 17.11 ± 5.87 g, and soluble fiber 4.42 ± 1.7 g. Visceral fat rating showed a highly significant negative correlation with *Lactobacillus* ($r = -0.904$) and *Bifidobacterium* ($r = -0.935$) counts. Total fat and saturated fat intakes were also significantly but negatively correlated, while PUFA and fiber (total, soluble, and insoluble) demonstrated significant positive correlations with both genera. Regression analysis indicated that only visceral fat rating had a significant effect on the abundance of both bacterial genera.

Conclusion: Visceral fat accumulation is strongly associated with decreased abundance of *Lactobacillus* and *Bifidobacterium*. High saturated fat intake tends to reduce their numbers, while higher intake of PUFA and soluble fiber (tends to increase probiotic abundance). A diet high in saturated fat and low in fiber promotes gut dysbiosis, emphasizing the importance of targeted dietary interventions to manage visceral obesity.

Keywords: Visceral fat, Gut Microbiota, *Lactobacillus*, *Bifidobacterium*, Nutrient Intake, Obesity.