

# **THE CORRELATION BETWEEN BODY MASS INDEX AND CHOLESTEROL LEVELS OF PATIENTS WITH DIABETES MILLETUS TYPE2**

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## **Abstract**

**Research Background:** Diabetes Milletus type 2 is a metabolic disorder due to insulin resistance. Obesity is a risky factor for insulin resistance. Obesity has effect on lipid levels including total cholesterol. Body Mass Index (BMI) is a parameter for measuring the existence of excess weight. For patients with diabetes mellitus type 2, ineffective insulin will result in several metabolic disorders including lipids. Lipid metabolic disorder is related to total cholesterol levels.

**Research Objective:** This research is aimed at finding out the correlation between body mass index (BMI) and cholesterol levels of patients with diabetes mellitus type 2.

**Research Method:** Observational method with cross sectional approach was used as the research method. 30 patients of internal disease poly at PKU Muhammadiyah Yogyakarta were the sample of the research. The research was done from May 2017-August 2018 in accordance with inclusion and exclusion criteria, the required data on height, weight, and blood check for total cholesterol. The data were analyzed using analytical correlation Pearson (normal distribution).

**Research Findings:** The characteristics based on age: 30-39 are 2 (2.7%), 40-49 are 3 (10%), 50-59 are 11 (36, 7%), 60-69 are 11 (36, 7%), 70-79 are 2 (6.7%), 80-89 are 1 (3.3%). The characteristics based on sex: men are 12 (40%) and women are 18 (60%). The characteristics based on BMI: normal are 5 (16, 7%), pre-obesity are 3 (10%), obesity is 14 (46.7 %) and obesity is 3 (10%), obesity is 14 (46.7) and obesity II is 8 (26.7%). The characteristics based on total cholesterol: normal are 13 (43, 3%), medium is 9 (30%), danger is 8 (26, 7%) and the correlation analysis of BMI with total cholesterol is found  $r = 0.14$  and  $p = 0.461$ .

**Conclusion:** There is no significant correlation between BMI and total cholesterol levels of the patients with diabetes mellitus type 2.

**Key words:** Diabetes Mellitus type 2, BMI, Total cholesterol

## **KORELASI ANTARA BMI DENGAN KADAR KOLESTEROL TOTAL PADA PENDERITA DM TIPE 2**

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### **Abstrak**

Latar belakang : DM tipe 2 merupakan suatu kelainan metabolisme sebagai akibat resistensi insulin. Obesitas merupakan faktor risiko terjadinya resistensi insulin. Obesitas memberi pengaruh metabolisme pada perubahan kadar lipid, termasuk kolesterol total. BMI merupakan parameter untuk mengukur adanya kelebihan berat badan. Pada penderita DM tipe 2, berkaitan dengan tidak efektifnya insulin akan mengakibatkan beberapa gangguan metabolik termasuk metabolisme lipid. Gangguan metabolisme lipid tersebut berhubungan dengan kadar kolesterol total.

Tujuan : Mengetahui korelasi antara BMI dengan kadar kolesterol total pada penderita DM tipe 2.

Metode : metode yang digunakan yaitu metode *observational* dengan pendekatan *cross sectional*, sampel yang digunakan berjumlah 30 sampel bagian poli penyakit dalam di RS PKU Muhammadiyah Yogyakarta dilaksanakan pada bulan Mei 2017 – Agustus 2018, sesuai kriteria inklusi dan eksklusi, data yang dibutuhkan mengenai tinggi badan, berat badan, dan cek darah kolesterol total. Analisis data menggunakan uji analitik *corelasion pearson* (distribusi normal).

Hasil : Karakteristik berdasarkan usia : 30-39 berjumlah 2 (2,7%), 40-49 berjumlah 3 (10%), 50-59 berjumlah 11 (36,7%), 60-69 berjumlah 11 (36,7%), 70-79 berjumlah 2 (6,7%), 80-89 berjumlah 1 (3,3%). Karakteristik berdasarkan jenis kelamin : laki-laki berjumlah 12 (40%) dan perempuan berjumlah 18 (60%). Karakteristik berdasarkan BMI: normal berjumlah 5 (16,7%), pra obesitas berjumlah 3 (10%), obesitas I berjumlah 14 (46,7%), dan obesitas II berjumlah 8 (26,7%), karakteristik berdasarkan kolesterol total: Normal berjumlah 13 (43,3%), perbatasan berjumlah 9 (30%), bahaya berjumlah 8 (26,7%), dan analisis korelasi BMI dengan kolesterol total didapatkan  $r = 0.14$  dan  $p = 0.461$ .

Kesimpulan : Tidak terdapat hubungan yang bermakna antara BMI dengan kadar kolesterol total pada penderita DM tipe 2.

Kata kunci : DM tipe 2, BMI, Kolesterol total.