

Body Fat Distribution in Women with Polycystic Ovary Syndrome

*Siddika MA¹, Morshed MS², Illiyas SB³, Ferdous J⁴, Banu H⁵, Hasanat MA⁶

¹Munira Afroz Siddika, Phase B Resident, Endocrinology, Bangladesh Medical University (BMU), Dhaka-1000, Bangladesh; ²Md Shahed Morshed, PhD Researcher, Department of Endocrinology, BMU, Dhaka, Bangladesh; ³Samirah Binte Illiyas, Phase B Resident, Endocrinology, BMU, Dhaka-1000, Bangladesh; ⁴Jasmine Ferdous, Associate Professor, Thyroid division, National Institute of Nuclear Medicine, BMU campus, Dhaka, Bangladesh; ⁵Hurjahan Banu, Associate Professor, Department of Endocrinology, BMU, Dhaka, Bangladesh; ⁶Muhammad Abul Hasanat, Professor, Department of Endocrinology, BMU, Dhaka, Bangladesh

Abstract

Background: Evaluating the difference in body fat distribution between polycystic ovary syndrome (PCOS) and healthy controls may help to understand their roles in the pathogenesis of PCOS.

Objectives: To compare the body fat distribution of women with PCOS with that of healthy controls, and to investigate the association of these measurements with anthropometric, metabolic, and hormonal profiles among PCOS patients.

Methods: This case-control study was carried out in 50 reproductive-aged women with PCOS and 50 age-matched healthy controls in the Department of Endocrinology, Bangladesh Medical University (BMU). Anthropometry, blood pressure, biochemical tests, and USG of the ovaries were done. Body fat distribution was measured by DEXA scan in Nuclear Medicine, BMU campus. Insulin resistance was measured by the homeostasis model assessment of insulin resistance (HOMA-IR).

Results: The frequency of obese participants was higher in the PCOS group than in the control group based on the fat mass index. Though the total body fat percentage was higher in women with PCOS, both groups were obese based on the cutoff point (total body fat% ≥ 35). PCOS patients showed higher android fat percentage and android-gynoid ratio (AGR). Both visceral and subcutaneous adipose tissue were higher in PCOS patients than in the controls. Almost all body fat indices were positively correlated with anthropometric parameters. AGR had a significant correlation with total cholesterol and triglyceride levels. HOMA-IR was positively correlated with nearly all body fat metrics. Multivariate logistic regression analyses showed no significant association between PCOS and body fat distribution after adjustment for age, modified Ferriman-Gallwey score, free androgen index, and HOMA-IR.

Conclusion: Body fat distributions had no independent associations with PCOS. Body fat distributions correlated with anthropometric measurements and insulin resistance in women with PCOS. [*J Assoc Clin Endocrinol Diabetol Bangladesh, 2025;4(Suppl 1): S45*]

Keywords: Polycystic ovary syndrome, Body fat distributions, Body fat percentage, Android-gynoid fat ratio

***Presenting & Corresponding Author:** Dr. Munira Afroz Siddika, Phase B Resident, Endocrinology, Bangladesh Medical University (BMU), Dhaka-1000, Bangladesh. Cell# +880 1715662203, email: muniraafroz57@gmail.com.