Objectives: to investigate serum ghrelin and leptin levels in women with and without polycystic ovary syndrome (PCOS), and their relationship to the metabolic profile of PCOS.

Study design: Serum ghrelin and leptin levels were compared between 130 patients with PCOS and 122 normo-ovulatory matched controls. Other hormonal and biochemical investigations included total cholesterol, triglycerides, high-density lipoprotein (HDL) cholesterol, low-density lipoprotein (LDL) cholesterol, glucose and insulin levels.

Results: No significant differences in ghrelin ($P = 0.1830$) and leptin ($P = 0.8329$) levels were detected between the PCOS and control groups. However, ghrelin levels were significantly lower; and leptin levels were significantly higher in obese PCOS patients in comparison with lean patients ($P = 0.0001$ for both).

In the PCOS group, there were significant correlations of ghrelin and leptin levels with BMI, waist-hip ratio, total cholesterol, triglycerides, HDL, LDL and insulin levels. Multiple regression analysis demonstrated that insulin was the main determinant for ghrelin ($R^2 = 0.316$) and leptin ($R^2 = 0.352$) levels ($P = 0.0001$ for both).

Conclusion: Although serum ghrelin and leptin levels were found to be normal in women with PCOS; yet, there is a relationship, possibly linked to hyperinsulinemia, between these levels and metabolic profile of PCOS.