

Original Research

View Article Online



Received 08 January 2025

Revised 21 February 2025

Accepted 21 March 2025

Available Online 05 June 2025

Edited by Kannan RR
Rengasamy

KEYWORDS:

Cytokines
Polycystic ovary syndrome
Interleukins
Interferons
Tumor necrosis factor

Natr Resour Human Health 2025; 5(3):321-329
<https://doi.org/10.53365/nrfhh/203184>

eISSN: 2583-1194
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Exploring the Relationship Between Inflammatory Cytokines and PCOS Development: A Cross-Sectional Analysis

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ABSTRACT: Polycystic Ovary Syndrome (PCOS) is a common reproductive disorder with global prevalence, affecting women from adolescence to post-menopause. This study investigates the association between PCOS and cytokine levels to understand the inflammatory aspects of the condition. The research involved 30 PCOS cases and 30 BMI-matched healthy controls. Clinical assessments, including hormonal, biochemical, and anthropometric parameters, were conducted alongside cytokine analysis using Quantitative Real-time PCR (qRT-PCR). The results revealed significant differences in age, waist circumference, and hormonal markers between the PCOS and control groups. The study identified correlations between cytokine levels and clinical parameters, providing insights into the immune and inflammatory aspects of PCOS. The ROC analysis demonstrated the discriminatory potential of IL-5 in distinguishing PCOS from healthy subjects. The heatmap and clustering analysis further elucidated the interplay of cytokines, hormonal markers, and clinical parameters associated with PCOS. This comprehensive investigation enhances our understanding of the pathophysiology of PCOS and highlights potential biomarkers for diagnostic and therapeutic purposes.

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