

2012

A Mixed-Methods Investigation of *Chlamydia trachomatis* and *Neisseria gonorrhoeae* Co- infection Prevalence in Women with Pelvic Inflammatory Disease in Durban, South Africa

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e, ,, A, n, e, s, h, N, a, i, d, o, o

DOI: <https://doi.org/10.5281/zenodo.18539146>

| Abstract

Pelvic inflammatory disease (PID) is a significant cause of female infertility and adverse reproductive outcomes in sub-Saharan Africa. *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) are leading bacterial causes. Data on the prevalence of their co-infection in South African women with PID are scarce, which challenges effective syndromic management. This study aimed to determine the prevalence of CT and NG co-infection among women diagnosed with PID in Durban. A further objective was to explore healthcare providers' perspectives on the associated diagnostic and management challenges. An explanatory sequential mixed-methods design was employed. The quantitative phase involved a cross-sectional analysis of endocervical swabs from women clinically diagnosed with PID at a public health facility, using nucleic acid amplification tests. The qualitative phase comprised semi-structured interviews with a purposive sample of attending nurses and doctors, which were analysed thematically. The prevalence of CT and NG co-infection was 18.4% among participants. CT monoinfection was more common than NG monoinfection. Qualitative analysis revealed a key theme: syndromic management protocols were perceived as inadequate for detecting co-infections, often leading to incomplete treatment and concerns about antimicrobial resistance. A significant burden of bacterial sexually transmitted infection co-infection exists among women with PID in this

setting. Current syndromic approaches may underestimate this co-infection, potentially contributing to poor clinical outcomes and ongoing transmission. Programmes should consider enhancing PID syndromic management guidelines to better address co-infection. Further research into cost-effective, point-of-care diagnostic strategies is warranted to guide targeted antibiotic therapy. pelvic inflammatory disease, Chlamydia trachomatis, Neisseria gonorrhoeae, co-infection, South Africa, mixed methods This study provides novel evidence on the prevalence of CT/NG co-infection in a South African PID population and highlights systemic challenges in current management protocols from the provider perspective.
