



Sex-Specific Associations Between Metabolic Syndrome and Lower Urinary Tract Symptoms

A meta-analysis of male and female cohorts

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KEY FINDING

The association between MetS and LUTS may be stronger in women than in men, potentially due to postmenopausal hormonal and metabolic interactions. However, female data are critically insufficient.

SYSTEMATIC REVIEW • SEX-STRATIFIED META-ANALYSIS

Hypothesis / aims

Compare MetS–LUTS associations across men and women.

Study design & methods

- Cross-sectional studies; PRISMA
- PROSPERO: CRD420251181500
- 5 databases; inception–2024
- Outcomes: IPSS, LUTS prevalence
- JBI quality assessment
- Sex-stratified random-effects models

Evidence base

80

qualitative studies

68

male-only

6

female-only

5 studies included both sexes

Study distribution by sex

Male-only		68
Female-only		6
Both sexes		5

Main findings

IPSS • Men

30 cohorts
SMD 0.16
95% CI −0.06–0.39
p=0.16

IPSS • Women

1 study
SMD 0.35
95% CI 0.02–0.68
p=0.04

LUTS • Men

OR 0.96
95% CI 0.70–1.32

LUTS • Women

OR 1.70
95% CI 1.00–2.89
p=0.05

Interpretation

- Female estimates suggested a stronger association.
- Possible contributors: hormonal, adiposity and metabolic-inflammatory pathways.
- Findings remain hypothesis-generating.

Key limitation & conclusion

Only 6 of 80 studies were female-only; IPSS relied on a single female study.

Large prospective sex-stratified studies are needed before sex-specific recommendations.