Gender Based Antibiotic Resistance

Why in news?

A recent study conducted by researchers at the University of Turku, Finland, analysed 14,600+ gut genomes and gave insights into how gender affects antibiotic resistance.

- **Antibiotic Resistance** – Antibiotic resistance occurs when bacteria evolve to survive antibiotics that would normally kill them.
- It is a major global health challenge, projected to cause over 39 million deaths in the next 25 years.

Key Findings

- **Gender differences** – The study found that antibiotic resistance trends differ by gender, particularly in adulthood.
- These differences may arise due to lifestyle, biological, or healthcare-related factors.
- **HIC vs. LMIC Trends** – In High-Income Countries (HICs): Women had more antibiotic resistance genes (ARGs).
- In Low- and Middle-Income Countries (LMICs): Men had more ARGs.
- **Higher ARG load in women (HICs)** – On average, women in HICs had a 9% higher ARG load than men.
- They also showed slightly more diversity in resistant genes in the gut microbiome.
- **Possible reasons for gender disparity** – Women may be more exposed to antibiotics, resistant bacteria, or are frequent carriers of such bacteria.
- Differences may also stem from healthcare-seeking behaviour, biological makeup, or microbiome composition.
- **Effect on age** – The number and diversity of ARGs were highest in infants and the elderly.
- **Role of Antibiotic usage** – High antibiotic usage was directly associated with higher resistance gene load and greater diversity.
- This was especially noticeable in regions with poor hygiene and sanitation.
- **Importance of the study** – Highlights the need for gender-sensitive public health interventions.
- Helps design equitable antibiotic policies and personalized treatments for

different populations.

- It aligns with global efforts to tackle antibiotic resistance through precision health strategies.

Reference

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