

Monitoring Gender in WASH

30th April 2024 | 15:30 – 17:45 IST



MUSE

Measuring Urban Sanitation and Women's Empowerment

Dr. Y. Malini Reddy, Athena Infonomics, India

Athena Infonomics – At a Glance

Geographic Coverage

**FINANCIAL
TIMES**

**HIGH-GROWTH
COMPANIES
ASIA-PACIFIC 2022**



178+

Global Clients

85+

Staff in 10 countries (as
per HR records)

315+

Projects including

87+

MEL studies and systems

Projects in

52+

Countries

**INDIA'S
GROWTH
CHAMPIONS**

2023



-  Athena Registered Offices
India, Kenya, USA, UK and Bangladesh
-  Long-Term Program Implementation Hubs
Senegal, Zambia, Uganda, Liberia, Nigeria, Ethiopia, Nepal
-  Project Experience

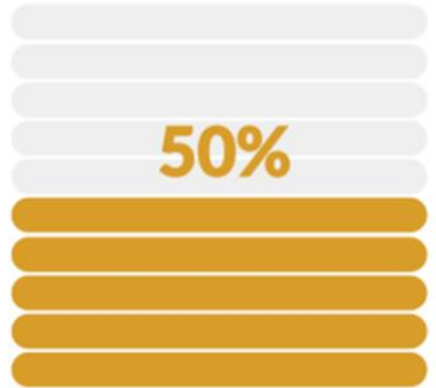


ATHENA IN GENDER & SANITATION

- Advancement of Metrics for MHM in the Workplace (Tetra Tech ARD / USAID)
- Assessing Barriers To Women Decision-Makers In Sanitation-Related Public Sector Institutions In Kenya (WSUP)
- Understanding Cost-Effectiveness of Gender-Aware Climate Change Adaptation Intervention in Bangladesh (UN Women)
- Women's Equal Access to Salary and Wage Employment – Nepal (UNWomen)
- Accelerating Women Entrepreneurship – India (GoI, GiZ, others)
- Facilitating Finance for Women Entrepreneurs in Bangladesh (IFC) and Financial Inclusion for women MSME in India (IFC and others)
- Proposed Campaign on Changing Social Norms Underpinning Domestic Violence (Oxfam India)
- Data Collection and Analysis Partner (DCAP) for the Global Fund to End Modern Slavery (The Global Fund to End Modern)
- Prevention and Elimination of Child Trafficking and Child Sexual Abuse, Ensuring Access to Justice and Rehabilitation for Victims" Programme (The Kailash Satyarthi Children's Foundation (KSCF))
- Literature Review on Gender Analysis of Climate-Induced Productive Water Insecurity in Eastern, Southern, and Western Africa (IWMI)
- Measuring Urban Sanitation Empowerment (MUSE), Data Partner in India (Emory, BMGF)



The Financial Times ranked Athena Infonomics as top 1000 fast growing companies in Asia-Pacific in **2018, 2020 and 2022**



More than 50% of leadership at Athena is Women-driven

GENDER AND TECHNOLOGY | GENDER, ENVIRONMENT AND CLIMATE CHANGE | GENDER, INFRASTRUCTURE AND PUBLIC SERVICES | GENDER, HEALTH AND NUTRITION | WOMEN'S ECONOMIC EMPOWERMENT | GENDER-BASED VIOLENCE PREVENTION AND PROGRAMMING

MUSE

Measuring Urban Sanitation and Women's Empowerment: Narsapur, Tiruchirappalli, Warangal

ATHENA
INFONOMICS


CIVIC FULCRUM



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ROLLINS
SCHOOL OF
PUBLIC
HEALTH

Background - Problem Statement

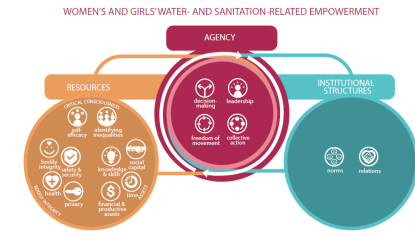
Within the Water, Sanitation, and Hygiene (WASH) sector, the role of women and girls household WASH provision is well-documented.

However, there are:

- Limited data on how and to what extent **WASH conditions, interventions, and policies** impact women's empowerment.
- Limited data on the extent to which **women's empowerment** impacts WASH conditions.
- No existing, fully validated WASH-specific measures to assess empowerment.



Background - Project Goal



The goal of the Measuring Urban Sanitation and Women's Empowerment (MUSE) project is to ***create and validate measures of women's sanitation-related empowerment***, focusing on urban contexts.

Objective measures can be observed directly (like presence or absence of a latrine).

In contrast, measures of **abstract concepts** (like attitudes and stigma) require multiple survey questions that feed into an aggregate score to represent the concepts.

Validation involves multiple steps of statistical analyses to see if what you *want* to measure is what you *are* measuring.²

² Price, L. R. (2016). *Psychometric methods: Theory into practice*. Guilford Publications.

Background - Conceptual Framework of Empowerment

Empowerment Definition

“The expansion of choice and strengthening of voice through the transformation of power relations, so women and girls have more control over their lives and futures.”¹

The conceptual framework includes three domains: **agency**, **resources**, and **institutional structures**, with a total of 16 sub-domains (Fig. 1)

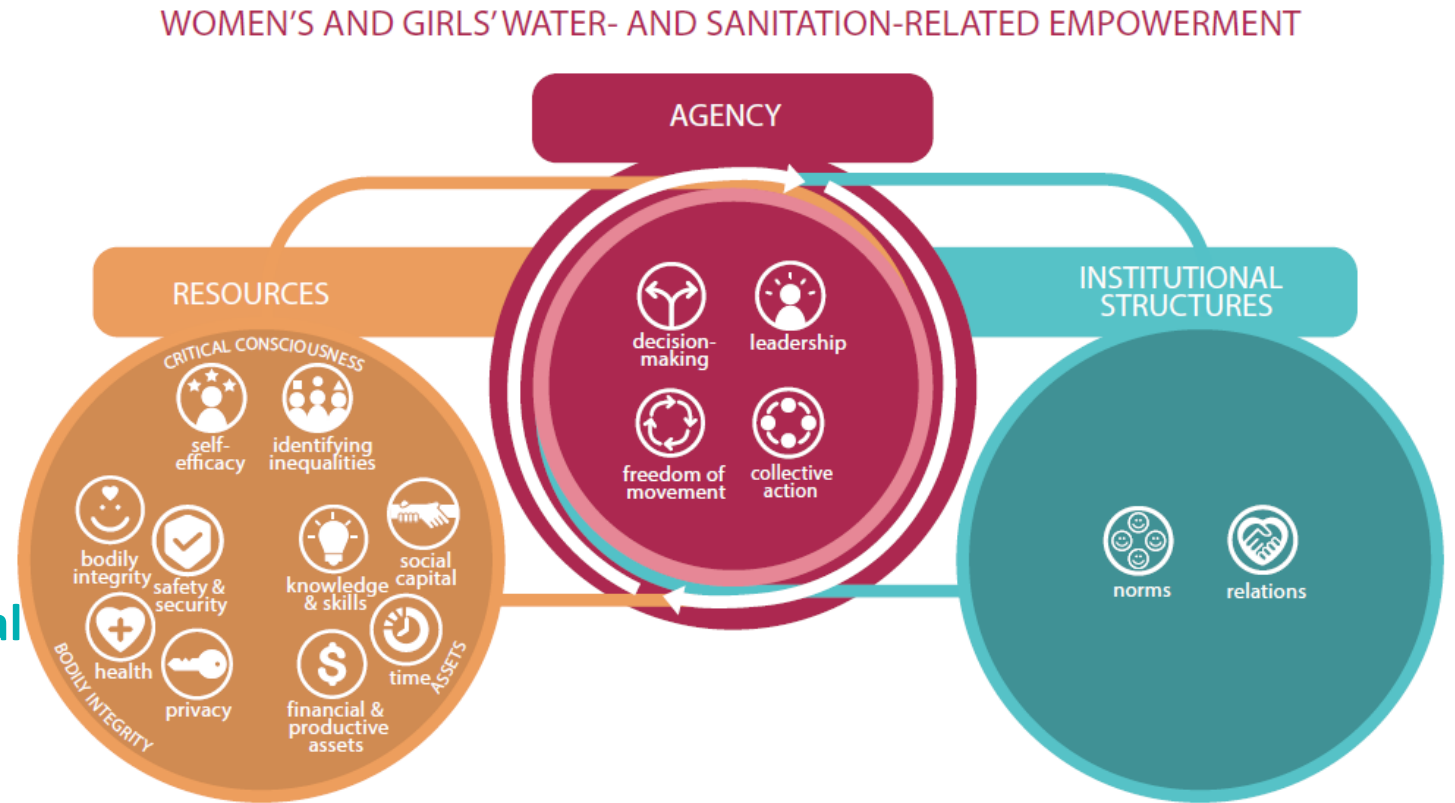


Figure 1: Women and Girls' Water and Sanitation Related Empowerment Model

Scale Development



Background - Agency, Resources, and Institutional Structures for Sanitation-related Empowerment (ARISE) scales

The full suite of 16 scales have undergone three phases of development, refinement, and testing.

- The most recent phase collected data from **5,573 women in Asia and Africa** for assessment of scale reliability and validity.
- The scales demonstrated strong psychometric properties and **multiple forms of validity**, including measurement equivalence across all country contexts.
- Each of the 16 scales can be used **independently** of the others, based on local priorities.



Background- Project Goal

The goal of the MUSE project was to create and validate survey instruments that can measure women's sanitation-related empowerment in urban settings.

Following rigorous statistical validation, MUSE identified a set of comprehensive measures, called:

The **Agency, Resources, and Institutional Structures for Sanitation-Related Empowerment (ARISE) Scales**.

The ARISE scales are the only set of validated metrics for the measurement of women's empowerment in sanitation.

They can be used to inform the **design, targeting, monitoring, and evaluation** of programs that want to improve women's empowerment in sanitation.⁵

⁵ Sinharoy, S. S., McManus, S., Conrad, A., Patrick, M., & Caruso, B. A. (2023). The Agency, Resources, and Institutional Structures for Sanitation-related Empowerment (ARISE) Scales: Development and validation of measures of women's empowerment in urban sanitation for low- and middle-income countries. *World Development*, 164, 106183. <https://doi.org/10.1016/j.worlddev.2023.106183>

Table of Definitions

Domain	Sub-Domain	Working Operationalized Definition
AGENCY	Decision-Making	Women influencing and making decisions about sanitation inside and outside the home
	Leadership	Women assume leadership positions, effectively participate, and support women's leadership in informal and formal sanitation initiatives and organizations
	Collective Action	Women gain solidarity, increase collective efficacy, and take action collectively on sanitation-related issues
	Freedom of movement	Women's autonomy to move freely to access sanitation facilities, collect water for sanitation-related needs, and/or attend forums on sanitation issues, and women's freedom of movement despite sanitation circumstances

INSTITUTIONAL STRUCTURES	Norms	Collectively held expectations and beliefs of how women and men should behave and interact inside and outside the household, specifically with regard to (a) the division of labor, (b) decision-making, (c) leadership, (d) collective action, and (e) mobility
	Relations	The interactions and relations – including conflicts, support, hostility, and communication – with key actors that shape women's sanitation-related experiences

RESOURCES	Bodily Integrity	Women's control over their bodies and ability to access and use their preferred sanitation location
	Safety and Security	Women's freedom from acts or threats of violence (physical or sexual), coercion, harassment, or force when accessing and using sanitation locations or engaging in sanitation-related decision-making processes in the public sphere
	Health	Women's complete physical, mental, and social well-being as affected by sanitation options and conditions; not merely the absence of disease or infirmity
	Privacy	Women's ability to maintain desired levels of privacy when accessing and utilizing sanitation locations
	Critical Consciousness	Women identifying and questioning how inequalities in power operate in their lives in relation to sanitation access and decision-making processes, and asserting and affirming their self-efficacy inside and outside of the household as it relates to sanitation
	Financial/Productive Assets	Women's control over economic resources and long-term stocks of value such as land, for the purposes of meeting individual and household sanitation needs
	Knowledge and Skills	Women's control over their time and labor spent on sanitation-related tasks and activities
	Time	Women's knowledge and skills related to sanitation (e.g. operation and maintenance of sanitation facilities) and their abilities to apply those knowledge and skills
	Social Capital	Women's relations and social networks that provide tangible and intangible value and support, including those that enable them to complete sanitation-related tasks and activities

+

Self Efficacy

Women's control over sanitation conditions in their community if they wanted to.

Methods: Assessment in eight cities (N=5,573)

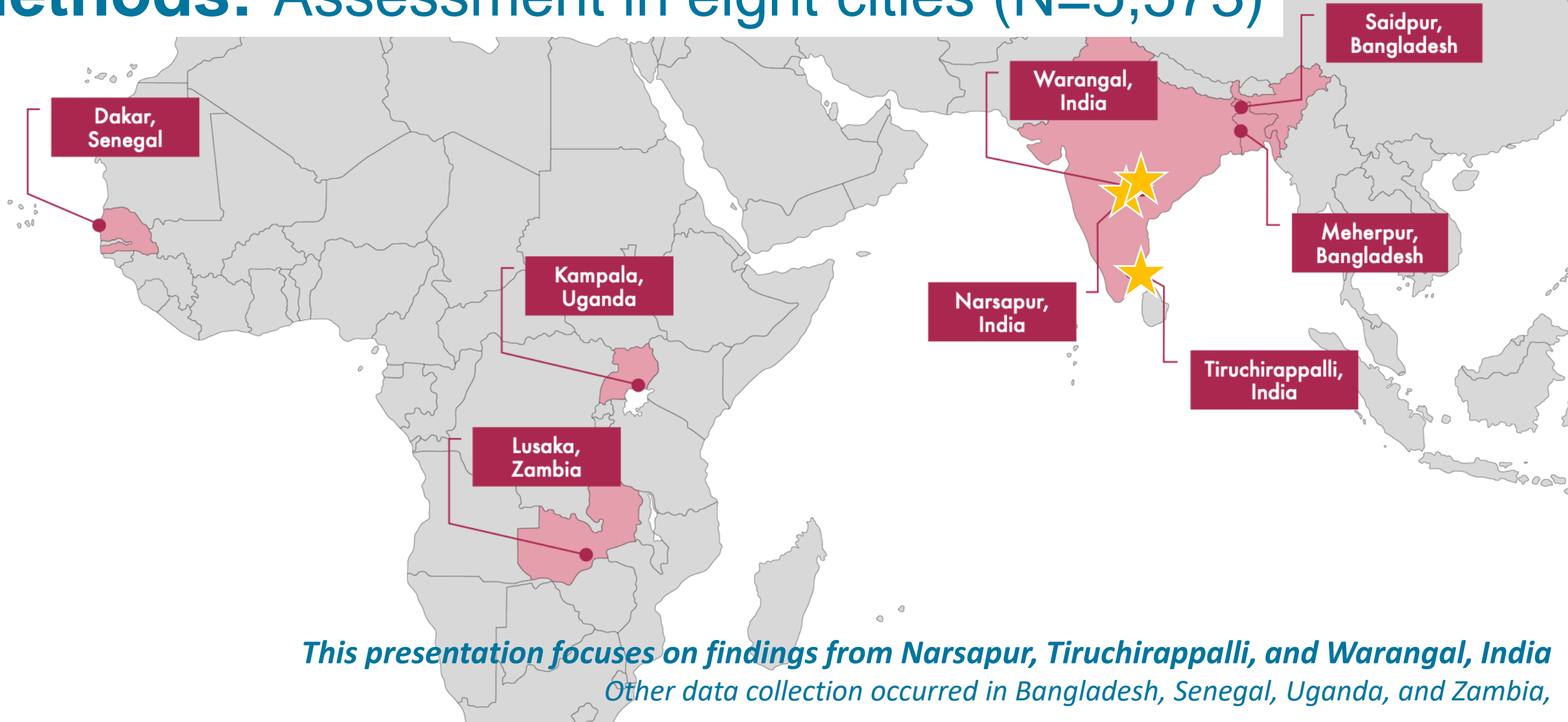


Figure 2: Cities where data collection was conducted (August 2021-June 2022)

Background Survey Instrument

The MUSE survey included questions relating to:

1. Empowerment sub-domains

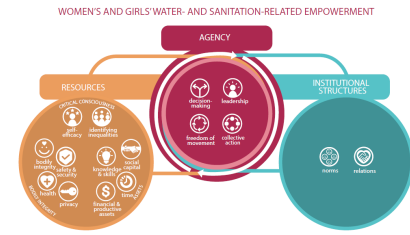
- Decision-making
- Leadership
- Freedom of Movement
- Collective Action
- Self-efficacy
- Identifying Inequalities
- Knowledge & Skills
- Social Capital
- Time
- Financial & Productive Assets
- Bodily Integrity
- Safety & Security
- Health
- Privacy
- Norms
- Relations

2. Participant demographics

3. Water and sanitation access and use

4. Menstruation

5. Women's prioritization of empowerment sub-domains






Methods: Sampling strategy

- **Purposively selected neighborhoods**, in collaboration with local partners and based on local priorities in each city:
 - Narsapur: 26 neighborhoods; all informal settlements
 - Warangal: 16 neighborhoods; all informal settlements
 - Tiruchirappalli: 11 neighborhoods; 4 formal and 7 informal settlements
- Neighborhood selection considered income and sanitation access
- **Randomly selected adult women** in each neighborhood
- NB: Samples are **not** intended to be representative at the city level; sample sizes were calculated to be sufficient for scale validation

Results

Participant Demographics

		Narsapur	Warangal	Tiruchirappalli
	Participants	720 women	703 women	562 women
	Age range	18-55 years	19-60 years	19-52 years
	Completed at least secondary education	53%	71%	80%
	Reported being involved in income-generating activities	100%	100%	41%

KEY TAKEAWAYS FROM SURVEYS IN INDIA

- 1. Across the three cities, the empowerment domains prioritized by women as a matter of concern or problem were (a) Leadership and (b) Critical Consciousness.**
 - Leadership – Women assume leadership positions, effectively participate, and support women’s leadership in informal and formal sanitation initiatives and organisations.
 - Critical Consciousness – Women identifying and questioning how inequalities in power operate in their lives in relation to sanitation access and decision-making processes, and asserting and affirming their self-efficacy inside and outside of the household as it related to sanitation
- 2. Freedom of Movement-** Around 70% in Trichy, 92% in Warangal, 97% in Narsapur of respondents reported that they could go to a sanitation location alone, without asking permission or requiring accompaniment. This was around 34% in Trichy, 70% in Narsapur and 72% in Warangal for going to attend a community meeting or training outside of their neighborhood alone.
- 3. Norms** - Close to 90% in Trichy, 83% in Narsapur, 80% in Warangal, agreed that, in their communities, it is women more often than men who are expected to assume most responsibilities related to maintaining the cleanliness of the sanitation location that their family uses.
- 4. Relations** - About 60% of respondents reported that their family would encourage or help them to participate in a community initiative to improve sanitation.

KEY TAKEAWAYS FROM SURVEYS IN INDIA

5. **Relations:** Only about 40% in Trichy, 42% in Narsapur, 75% in Warangal, reported that they feel comfortable reporting sanitation-related problems to service providers when they arise
6. **Bodily Integrity:** Close to 90% of the respondents reported often or always felt satisfied with the sanitation location they used most often.
7. **Financial and Productive Assets:** More than 80% in Trichy, 50% in Narsapur and 54% in Warangal reported that they would need to ask permission before spending household money on small sanitation-related expenses, such as toilet paper, soap, or pay-per-use latrines.
8. **Time:** About 15% in Trichy, 26% in Narsapur, and 33% in Warangal agreed or strongly agreed that the sanitation-related needs and responsibilities of their household often make them miss out on other activities they would like to do.
9. **Knowledge and Skills:** Less than 30% in all cities reported that they have skills, like budgeting, organization, or mobilizing, to contribute to sanitation related projects in their community.
10. **Self – Efficacy:** About 60% in Trichy, 38% in Narsapur, 37% in Warangal felt that they could change sanitation conditions in their community if they wanted to.
11. **Critical Consciousness:** About 40% in Trichy, 75% in Narsapur, 60% in Warangal agreed or strongly agreed that women typically have to delay going to a sanitation location more often than men because of their responsibilities

Implications & Opportunities

Decision-Making

Women in all three Indian samples reported higher decision-making influence at the household level compared to community level.

Freedom of Movement

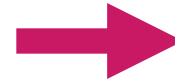
Women in Tiruchirappalli had the lowest scores for freedom of movement across all eight cities.

Safety & Security

Women in the three Indian cities perceived a higher risk of sanitation-related harm than women in most other cities in Asia and Africa.

Privacy

Women in Tiruchirappalli had the lowest scores for privacy across all eight cities.



- There are opportunities to increase women's involvement in community-level decision-making processes, but this may require promoting women's freedom of movement for increased participation.

- Building community toilets is not sufficient if the toilets are not safe and private. Counting toilets alone does not sufficiently capture women's sanitation experiences or quality of life. Additional measures, such as the ARISE scales, are needed to capture gender-specific dimensions of sanitation experiences.



CONCLUSION



WHY ARISE ?

While global and national tools provide broad insights and policy guidance, ARISE under MUSE offers a specialized, context-specific framework that is more likely to yield actionable data for improving women's empowerment directly through sanitation and hygiene interventions.



Comparison of ARISE Under MUSE with Global Gender Monitoring Tools in WASH

ARISE (MUSE)	Other Tools
Specificity to Sanitation: Tailored specifically to sanitation and hygiene, addressing unique challenges and impacts on women's empowerment within this sector.	Range from broad international monitoring (JMP, GLAAS) to specific gender responsiveness assessments (GWMT) and urban planning gender intentionality (Gender Intentionality Index).
Comprehensive Framework: Evaluates five key dimensions - Accountability, Reliability, Inclusiveness, Sustainability, and Empowerment—offering a holistic approach to project effectiveness in sanitation.	Focus varies from economic impacts (SROI) to policy integration (GLAAS) and organizational gender practices (PGA).
Inclusiveness and Empowerment: Emphasizes both inclusiveness and empowerment, ensuring equitable access and impact on women's roles and rights.	GWMT focuses on gender responsiveness of programs; Gender Intentionality Index assesses policy design's gender considerations.
Customization and Adaptability: Highly adaptable to diverse cultural and regional contexts, directly relevant to sanitation.	Similar adaptability in tools like WEAI, yet not always specific to sanitation challenges.
Impact on Women: Directly measures and enhances women's empowerment through sanitation-specific impacts.	Broader or less direct focus on women's empowerment across different sectors or levels (policy vs. project).

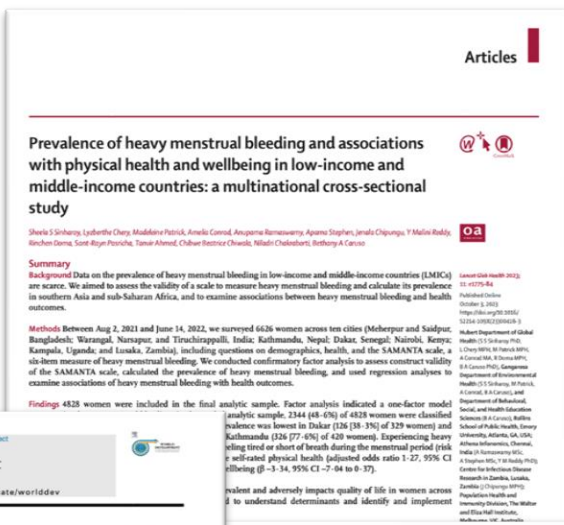
Resources

- Briefing reports and other knowledge products have been produced for all 8 cities
- Validation paper and other results have been published
- User Guide for the ARISE scales is in final stages of preparation
- Training program is planned for future development



City-level reports available at:
<https://www.museproject.org/publications-reports>

Peer-reviewed publications available at:
<https://www.museproject.org/peer-reviewed-publications>





DISCUSSION & QUESTIONS

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Thank you



ANNEXURES- Results



Agency

Agency Definition: Women and girls pursuing goals, expressing voice and influencing and making decisions free from violence and retribution.³



Decision-Making



Leadership



Collective Action



Freedom of Movement

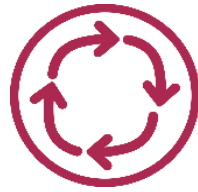
³ van Eerdewijk, A., Wong, F., Vaast, C., Newton, J., Tyszler, M., & Pennington, A. (2017). *White Paper: A Conceptual Model of Women and Girls' Empowerment*.

Empowerment Results



Decision-Making

Definition: Women influence and make decisions about sanitation inside and outside the home.⁴



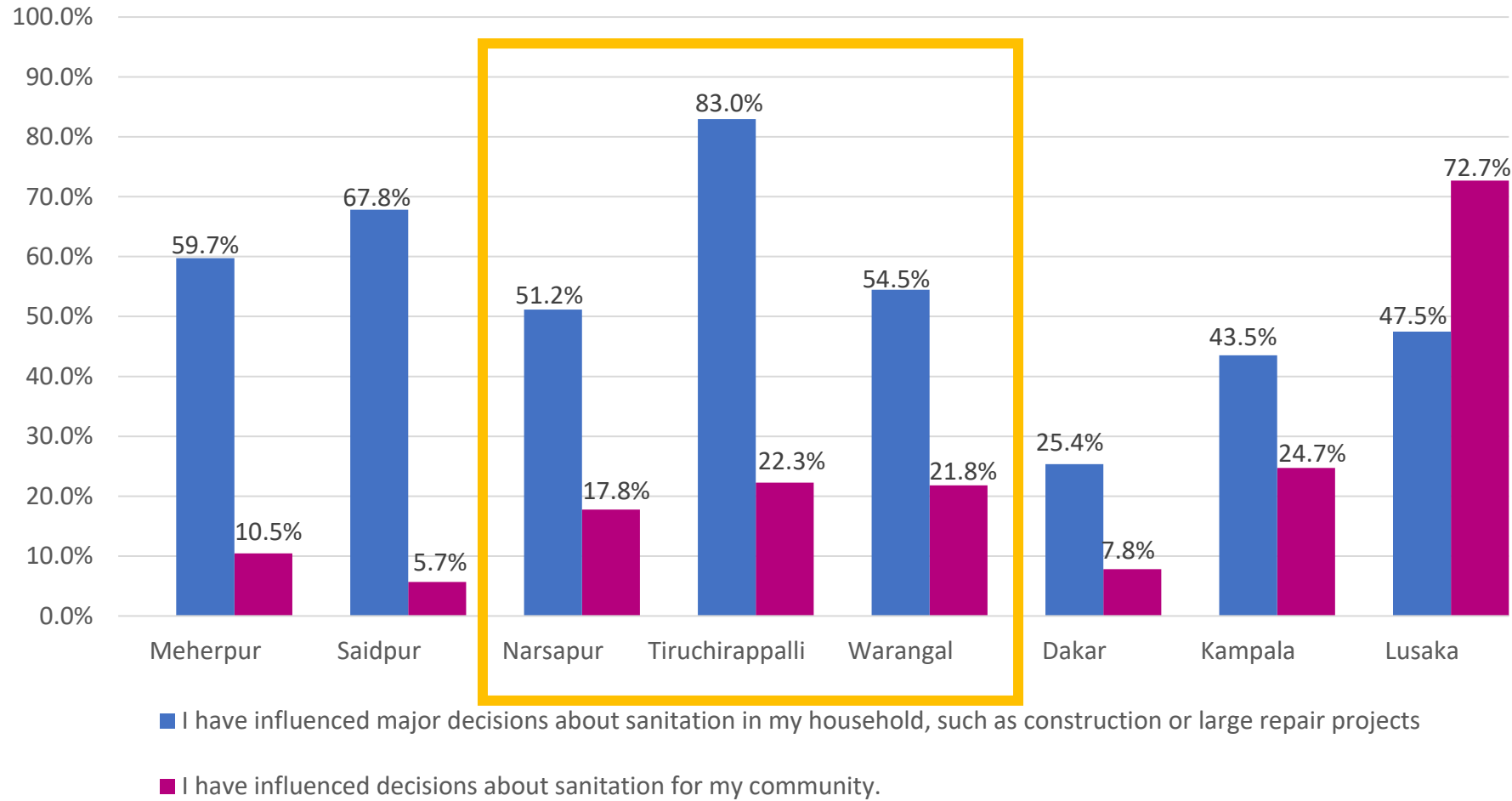
Freedom of Movement

Definition: Women have the autonomy to move freely to access sanitation facilities, collect water for sanitation-related needs and/or attend forums on sanitation issues, and women have freedom of movement despite sanitation circumstances.⁴

⁴ Sinharoy, S. S., Conrad, A., Patrick, M., McManus, S., & Caruso, B. A. (2022). Protocol for development and validation of instruments to measure women's empowerment in urban sanitation across countries in South Asia and Sub-Saharan Africa: the Agency, Resources and Institutional Structures for Sanitation-related Empowerment (ARISE) scales. *BMJ open*, 12(2), e053104.

Empowerment Results

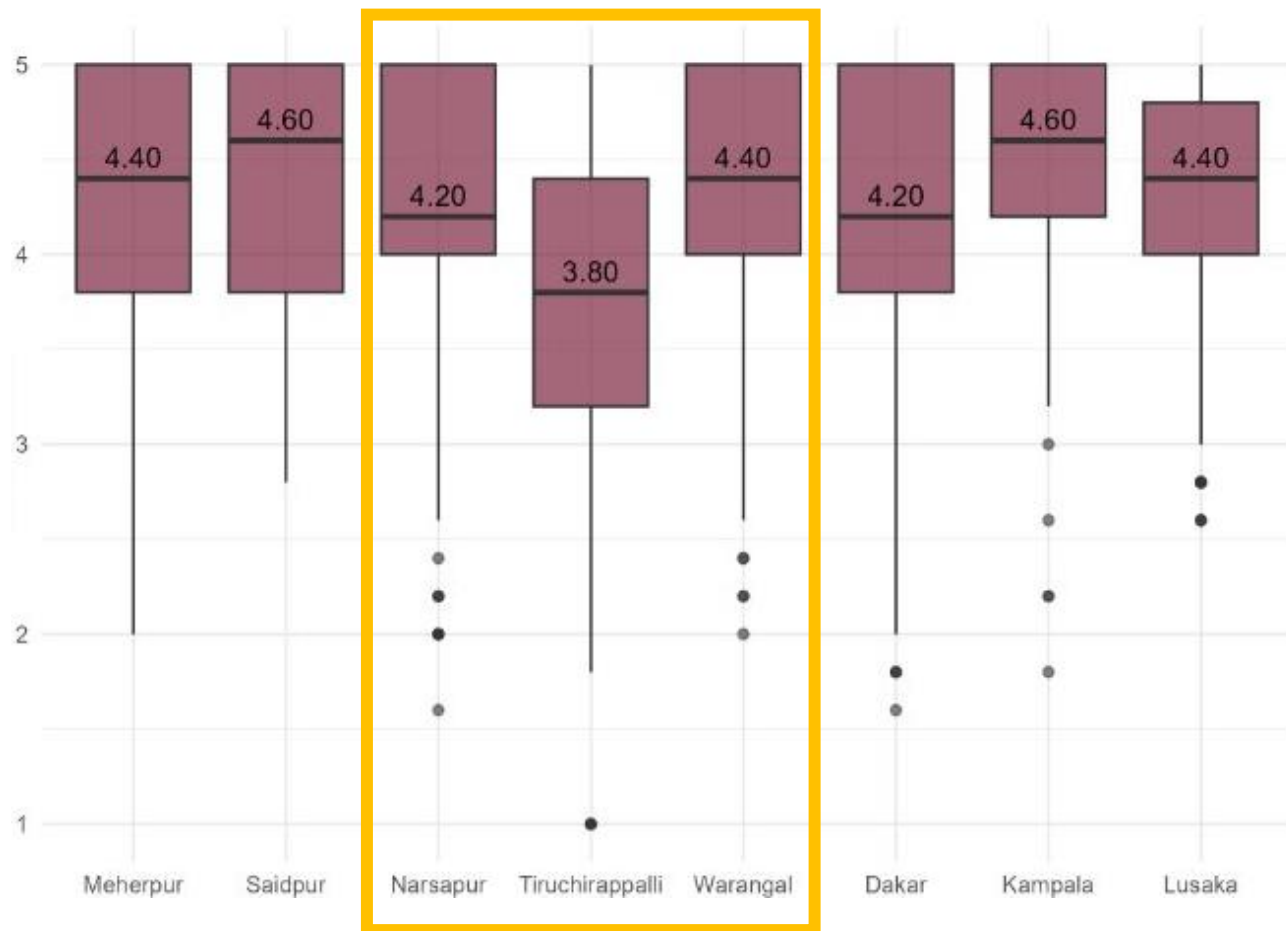
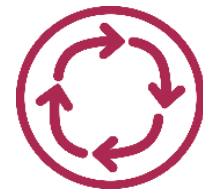
Agency: Decision-Making



A greater percentage of Tiruchirappalli participants reported influencing **major decisions** about household sanitation compared to Narsapur and Warangal participants.

Empowerment Results

Agency: Freedom of Movement



Median scale scores for freedom of movement were **high** across all cities, including in Narsapur and Warangal. Tiruchirappalli had the lowest relative score, indicating a **lower perception of freedom of movement** to meet personal sanitation needs or to attend sanitation-related events.

Example Freedom of Movement question:

If I wanted to go to a sanitation-focused public gathering, community meeting, or training near my home, I could go:

Response options:

- 1 - Not at all
- 2 - Only with accompaniment
- 3 - Alone with permission
- 4 - Alone if I tell someone
- 5 - Alone without telling anyone

Figure 4: Freedom of Movement scale scores across eight cities

Freedom of Movement scale score ranges from 1 to 5 (not at all to alone without telling anyone).

A low Freedom of Movement scale score indicates a *lower* freedom of movement related to sanitation.

A high Freedom of Movement scale score indicates a *higher* freedom of movement related to sanitation

Resources

Definition: The tangible and intangible capital and sources of power that women and girls have, own or use, individually or collectively, in the exercise of agency.³



Bodily Integrity



Safety & Security



Health



Critical Consciousness I: Self-Efficacy



Critical Consciousness II: Identifying Inequalities



Privacy



Financial & Productive Assets



Time



Knowledge & Skills



Social Capital

Empowerment Results



Safety & Security

Definition: Women's freedom from acts or threats of violence (physical or sexual), coercion, harassment, or force when accessing and using sanitation locations or engaging in sanitation-related decision-making processes in the public sphere.⁴

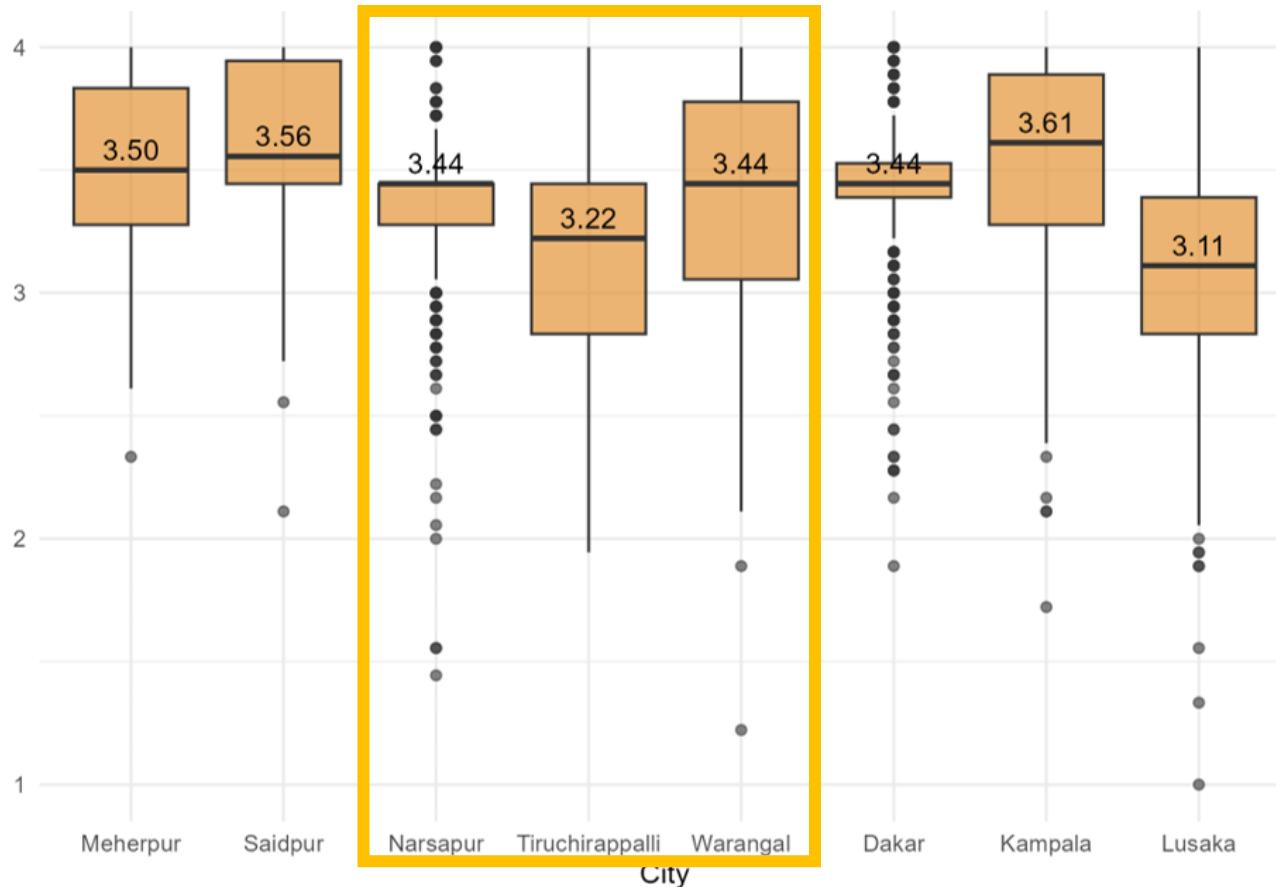


Privacy

Definition: Women's ability to maintain desired levels of privacy when accessing and utilizing sanitation locations.⁴

Empowerment Results

Resources: Safety & Security



Tiruchirappalli had the second-lowest median score of all cities, indicating a **higher perception of sanitation-related harm** compared to other cities.

Example Safety & Security question:

Women in my community face the risk of being physically harmed by men or boys when going to sanitation locations.

Response options:

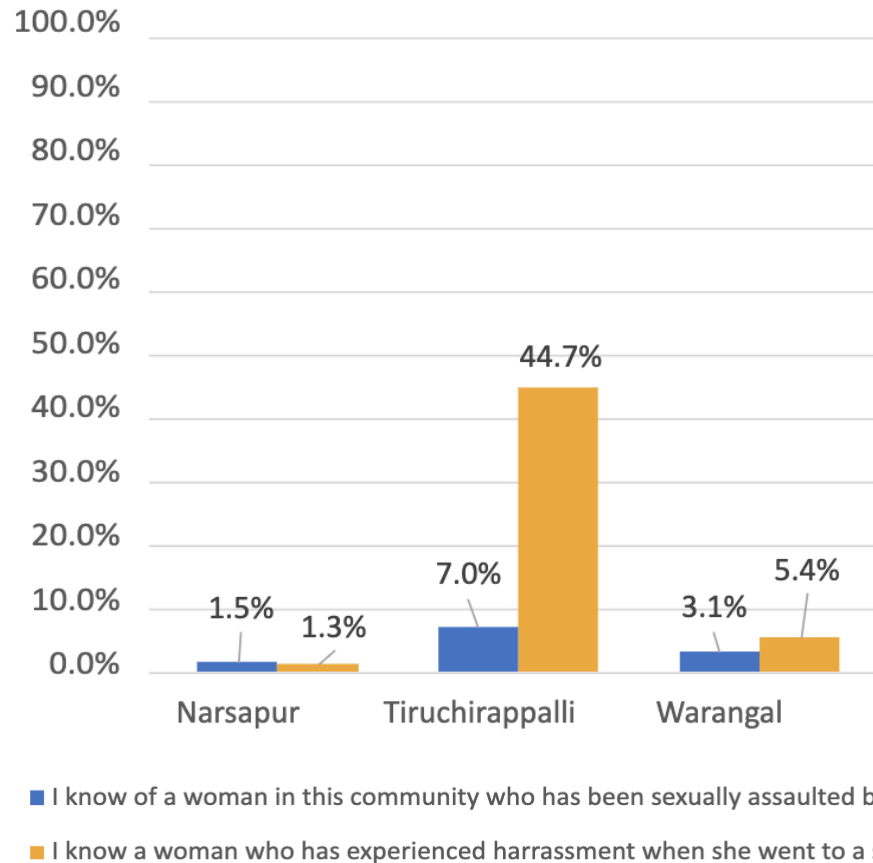
- 1 - Strongly agree
- 2 - Agree
- 3 - Disagree
- 4 - Strongly disagree

Figure 5: Safety and security scale score boxplots across eight cities

Safety & Security scale score ranges from 1 to 4 (strongly agree to strongly disagree).
A low Safety & Security scale score indicates a *higher* perception of sanitation-related harm.
A high Safety & Security scale score indicates a *lower* perception of sanitation-related harm.

Resources: Safety & Security

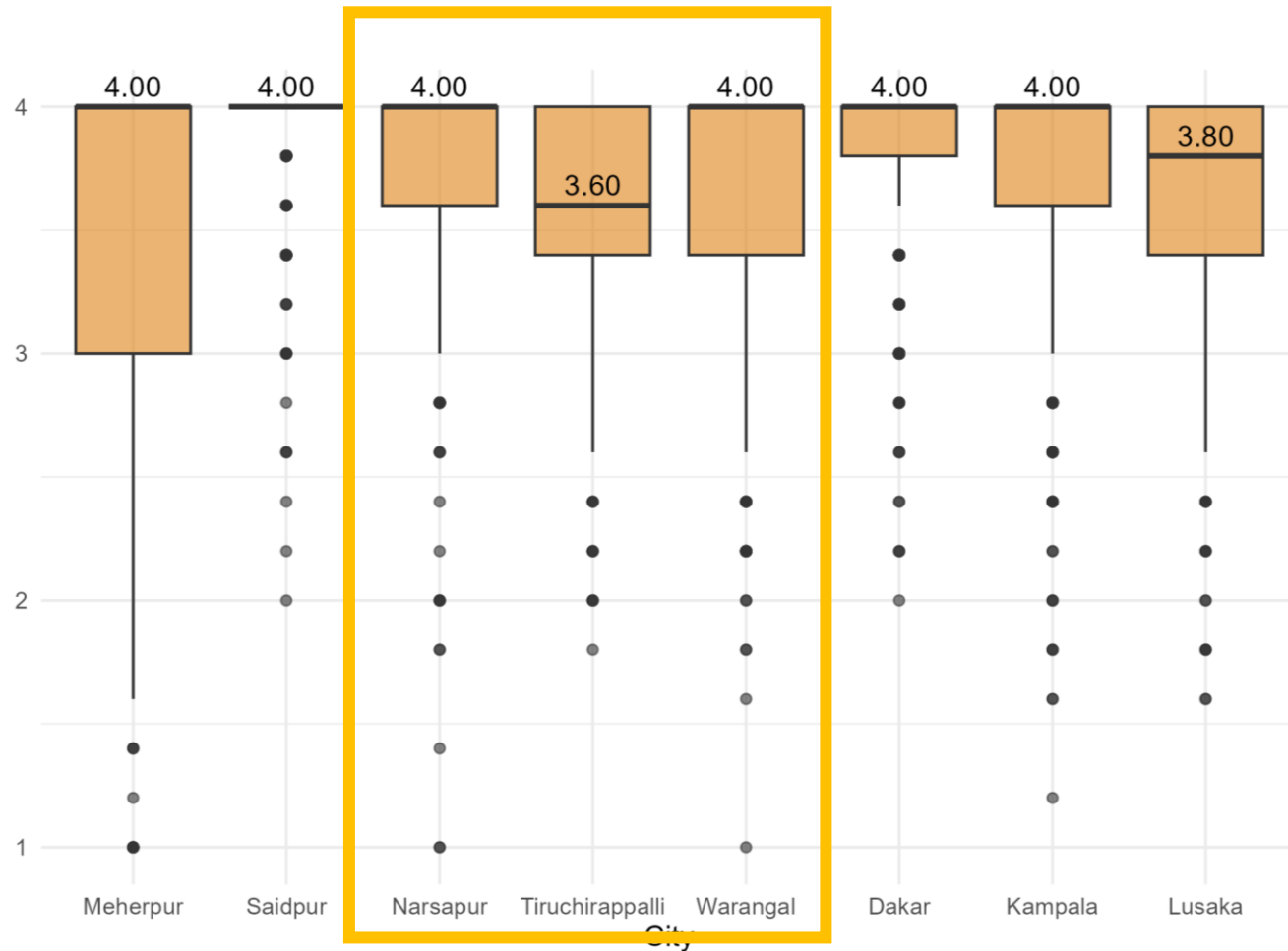
Sexual assault and harassment



A greater percentage of respondents in Tiruchirappalli (45%) reported knowing of a woman who had been **sexually assaulted or harassed** when visiting a sanitation location compared to Narsapur (1%) and Warangal (5%).

Figure 5: Safety and security index items relating to sexual assault and harassment

Resources: Privacy Scale Scores



While median privacy scale scores were high across all cities, including in Narsapur and Warangal, Tiruchirappalli had the lowest relative score, indicating a **lower perception of sanitation location privacy**.

Example Privacy question:

In the past 30 days, I have worried that someone would see me urinating or defecating.

Response options:

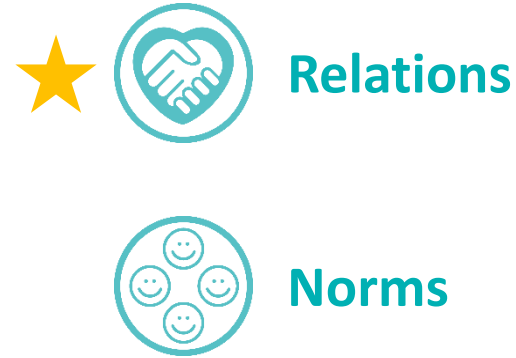
- 1 - Always
- 2 - Often
- 3 - Sometimes
- 4 - Never

Figure 6: Privacy scale score box plot across eight cities.

Privacy scale score ranges from 1 to 4 (always to never).
A low Privacy scale score indicates a *lower* perception of sanitation location privacy at and away from home.
A high Privacy scale score indicates a *higher* perception of sanitation location privacy at and away from home.

Institutional Structures

Definition: The social arrangements of formal and informal rules and practices that enable and constrain the agency of women and girls, and govern the distribution of resources.³



Empowerment Results

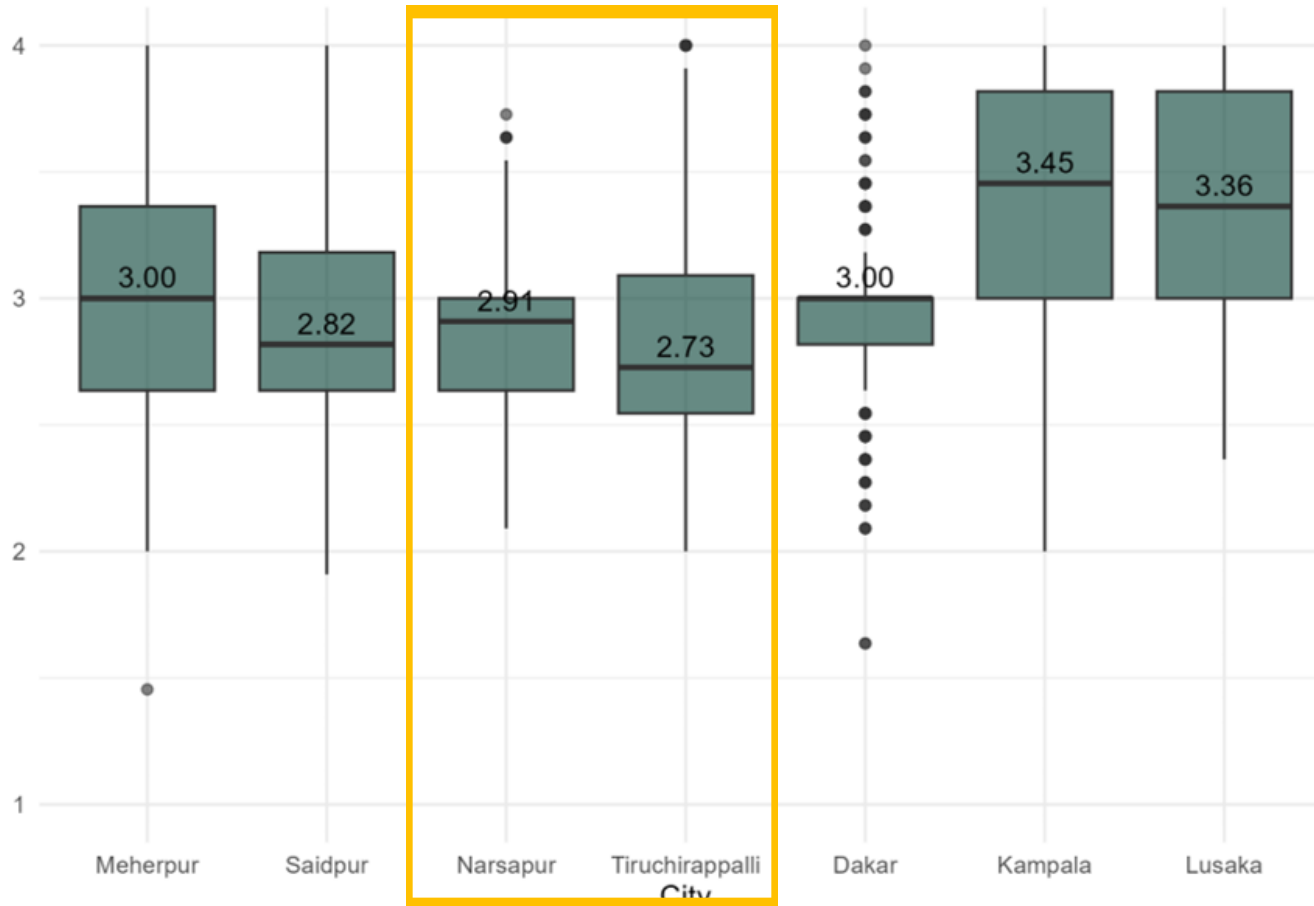


Relations

Definition: The interactions and relations with key actors that women and girls experience in their daily lives.³

Empowerment Results

Institutional Structures: Relations



Lusaka had high median scale scores for relations, meaning that women had **more supportive relationships** regarding sanitation.

Example Relations question:

When a sanitation-related problem arises, I feel comfortable reporting the problem to a service provider.

Response options:

- 1 - Strongly disagree
- 2 - Disagree
- 3 - Agree
- 4 - Strongly agree

Figure 6: Relations scale score boxplots across eight cities

Relations scale score ranges from 1 to 4 (strongly disagree to strongly agree).
A low Relations scale score indicates *less* supportive relationships relating to sanitation.
A high Relations scale score indicates *more* supportive relationships relating to sanitation.