

## Quantifying Dignity in Urban Built Environments: A Framework for Inclusive and Sustainable Ageing in Indian Cities

Mithila Mattoo,<sup>1</sup> Virendra Kumar Paul<sup>2</sup>

Department of Building Engineering & Management, School of Planning & Architecture, New Delhi, India<sup>1 2</sup>

### INTRODUCTION

- India's ageing population to reach **347 million by 2050.**
- Urban design and planning** remain "car-centric" and efficiency driven.
- Accessibility, inclusion and dignity remain under measured.

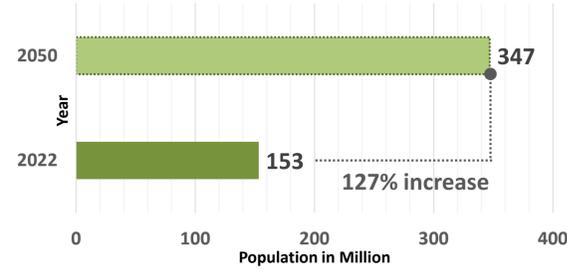
**Research Gap:** Existing frameworks do not operationalise Dignity as a measurable indicator of the urban ecosystem.

**Research Aim:** This study aims to operationalise dignity as a measurable indicator of urban ecosystem by developing an assessment framework and applying it to the city of Jammu, India.

**Research Objectives:**

- To conceptualise dignity in the context of Indian urban ageing through integration of relevant theoretical frameworks.
- To identify and synthesise built-environment determinants influencing dignity grounded in literature.
- To develop and operationalise a **Dignity Assessment Tool (DAT)** for neighbourhood-level evaluation and spatial comparison.

Figure 01: Aging Population of India (in Million)



Reference: United Nations Population Fund

### RESULTS & DISCUSSION

Early interviews reveal a domain level variation in perceived dignity determinants.



**LEGEND:**

- Participant mentioned concern
- Not mentioned

Figure 03: Preliminary Domain level patterns in early interviews; Source: Author



Figure 04: Street condition around Swarn Theatre in Gandhi Nagar, Jammu (Neighbourhood A) Image Source: Google Earth

"Yes, the hospitals and Bahu Plaza are somewhat accessible, but we have to walk on roads, since most of the pathways are encroached...."

**Data collection ongoing Quantitative Validation (Ongoing):**

- Composite dignity index** construction (domain score aggregate).
- Correlation and regression modelling (relationship).
- Neighbourhood level spatial mapping (pattern recognition).**



Figure 05: Street condition in Talab Tillo Camp, Jammu (Neighbourhood B) Image Source: Google Earth

"There are no pathways, congested roads, no proper public parking, barely any street lighting, no place to rest, no dedicated green spaces in our neighbourhoods, frequent power cuts... What is so Smart about this?"

### METHOD

A **sequential mixed-methods design** was employed to translate the conceptual definition of dignity (as derived from the literature review) into **forty-two measurable urban determinants** across **six identified domains** (Refer: Table 01). This was followed by indicator operationalisation, pilot interviews and an ongoing survey (target n~150) to help in index construction and visualising dignity patterns across the city.

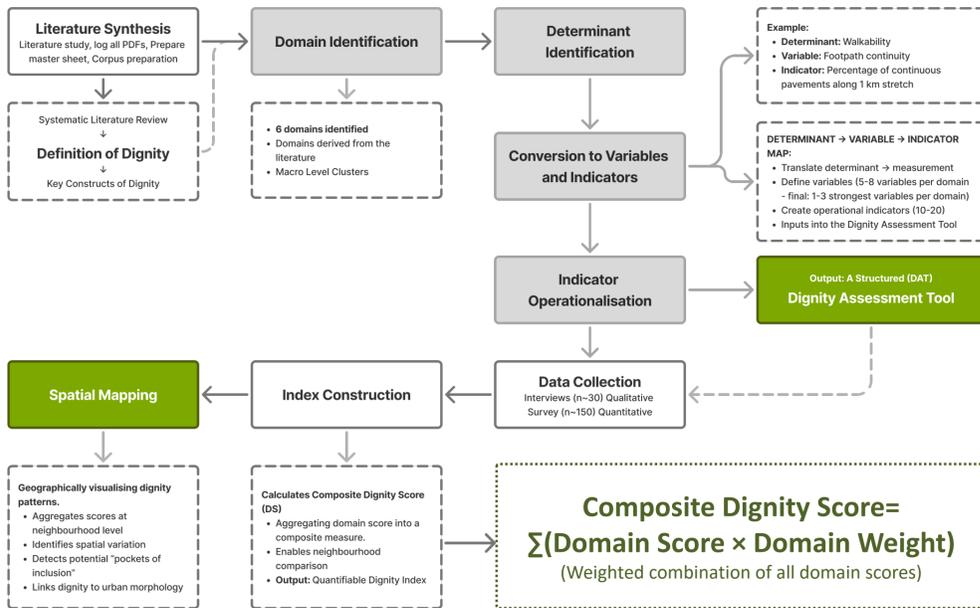


Figure 02: Concept to Operation Framework for the Dignity Assessment Tool (DAT); Source: Author

Domain	Determinant	Indicator
Mobility & Accessibility	Walkability	"I can walk safely in my neighbourhood."
	Mobility/Independence	"I feel independent when travelling outside my home."
Public & Green Spaces	Public Space Accessibility	"Parks/public spaces are within comfortable walking distance."
	Public Space Safety	"I feel safe in public spaces."
Housing & Neighbourhood Form	Home Adaptability	"My home supports my needs as I grow older."
	Service Proximity	"Essential services are easily accessible from my home."
Safety, Comfort & Environmental Quality	Community Participation	"I regularly participate in community or social activities."
	Respect & Recognition	"I feel respected in public spaces."
Governance, Smart Systems & Inclusion	Civic Voice	"My voice matters in local decision-making."
	Digital Independence	"I can independently use digital services."

Table 01: Domain, Determinant, and Indicator Matrix – abridged version; Source: Author

### CONCLUSION

- Dignity can be quantified and spatially represented.
- Built-environment determinants shape autonomy, comfort, respect, recognition, safety, belonging, and participation.
- Smart City evaluation should move beyond efficiency to dignity metrics.

### FUTURE WORK / REFERENCES

**FUTURE WORK:**

- Completion of full interview sample and survey administration
- Examine interaction effects between domains
- Generate spatial comparison maps to identify "pockets of inclusion"

**REFERENCES:**

Fainstein, S. (2010). *The Just City*. Cornell University Press. (Spatial justice and urban equity grounding)  
 World Health Organization (2007). *Global Age-friendly Cities: A Guide*. WHO Press. (Age-friendly framework baseline)  
 World Health Organization (2007). *Global Age-friendly Cities: A Guide*. WHO Press. (Age-friendly framework baseline)

**NOTE:** This study forms part of an ongoing doctoral research programme focused on developing a scalable dignity-based urban assessment framework for ageing populations in Indian cities.