



Towards Quantifying Dignity in Urban Ecosystems: A Framework for Aging in Indian Cities [†]

Mithila Mattoo *  and Virendra Kumar Paul

Department of Building Engineering and Management, School of Planning and Architecture Delhi,
New Delhi 110002, India

* Correspondence: mithila.phd430bem@spa.ac.in

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Abstract

India's rapidly growing aging population faces significant challenges in built environments that prioritize efficiency over dignity. This study applies a domain–dignity mapping methodology to operationalize dignity within the built environment of Jammu city, drawing on semi-structured interviews with 30 older residents across three neighborhoods, namely Talab Tillo, Shakti Nagar, and Gandhi Nagar. Six built environment domains were mapped against five dignity constructs using an interdependence matrix of aggregated coded scores. The results indicate strong associations between mobility and autonomy, as well as safety and security. Governance shows a significant association with recognition, while social environment shapes belonging and participation. This study provides a preliminary foundation for a Dignity Assessment Tool for age-friendly urban environments in India.

Keywords: dignity; urban aging; age-friendly cities; built environment; accessibility; mobility; governance; social inclusion; qualitative research; India

1. Introduction

According to Adam Schulman [1], dignity is the “essential and inviolable core of our humanity”. Despite its importance, Badcott [2] noted a lack of consensus on its definition or its practical application. Despite this conceptual ambiguity, the public retains an intuitive understanding of dignity and recognizes flagrant violations of respect for human dignity. Vulnerable populations, including older people and people with disabilities (PWDs), are at risk of dignity violations [2,3]. As Sarkar [3] noted, urban planning in India often overlooks the vulnerable populations, leading to inaccessible and inhospitable built environments. Ratzka [4] observed that cities create “accessible islands in an otherwise inaccessible ocean”, restricting the fundamental “capabilities” of these individuals [5] and failing to provide equity, freedom, social justice, and dignity [5–8].

It is important to note that India is undergoing a significant demographic transition, with the aging population projected to reach 337 million by the year 2050, constituting 20.8% of the overall population. As a result, India's society, economy, and health sector will be significantly affected as they seek to accommodate the rising aging population [9]. The need to design Indian cities to better serve the vulnerable and marginalized populations, and thus become truly “ageless”, is an issue that cannot be overlooked.

Aging with dignity remains conceptually implicit and under-examined in relation to everyday built environments, and hence, it becomes more important to understand aging with dignity in fields other than just philosophy and healthcare in order to support the



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development of “dignified ageless cities”. This study addresses this gap by proposing a domain–dignity mapping approach to operationalize dignity within the built environment of Jammu City, India. This study (i) conceptualizes dignity as a multidimensional construct, (ii) identifies key urban domains influencing dignity in the built environment, and (iii) develops and applies a domain–dignity mapping approach as an initial step towards operationalizing a Dignity Assessment Tool (DAT).

2. Conceptual Framework

In this paper, dignity is understood as a multidimensional concept that includes autonomy, security, belonging, participation, and recognition. In architecture and planning literature, dignity is treated as an implicit concept rather than one that can be measured and operationalized. The literature on age-friendly cities [10–13] and universal design [14] deals with accessibility, walkability, inclusion, and mobility. Meanwhile, equity-centric approaches like the Capability approach [5,15], the Right to the City [7,8], and the Just City theory [6] emphasize autonomy, agency, equity, and social justice. These frameworks each contribute domain-specific knowledge but largely operate in parallel without integration. This study builds on them to conceptualize dignity as an outcome shaped by the interaction between lived experiences and the built environment.

India’s urban environment presents significant challenges for dignified aging due to exclusionary planning [3]. The WHO’s AFC [10–13] has been piloted in select Indian urban areas without adequate contextual adaptation [16], and integrated frameworks for the Indian context remain absent from the literature [3,17].

Dignity is treated as a multidimensional construct comprising five interrelated constructs: autonomy, security, belonging, participation, and recognition [5–8]. Six built environment domains were identified: mobility and accessibility; public and green spaces; housing and neighborhood form; safety, comfort, and environmental quality; social participation and cultural life; and governance, smart systems, and inclusion [10–13]. Each domain represents environmental conditions that shape dignity through distinct but interconnected pathways. Dignity is not explicitly expressed by individuals, but emerges as an outcome of their interaction with urban conditions interpreted here through the domain–dignity mapping approach.

3. Methodology

3.1. Research Design

This study adopts a qualitative research design supported by structural coding to examine how urban environments influence perceived dignity among aging populations. The study is informed by the existing literature on age-friendly cities, urban planning, urban gerontology, and architecture.

3.2. Data Collection

Primary data were obtained via semi-structured interviews with 30 participants across three neighborhoods in Jammu, India. The average age of the participants was 67 years. The interviews were conducted in three languages (Hindi, Dogri, and Kashmiri) based on participant preference and were translated to English for analysis. The interview questions focused on how the older population experiences the built environment, instead of directly asking questions about dignity. Dignity-related themes emerged from the participant narratives.

3.3. Sampling Approach

The participants were selected using a convenience sampling method, with purposive selection to ensure diversity among neighborhoods, socio-economic backgrounds, and

educational levels. A total of 30 participants were recruited across the three study areas, comprising 16 males (53.3%) and 14 females (46.7%), ranging in age from 61 to 78 years (see Table 1).

Table 1. Participant demographic profile ($n = 30$).

Variable	Category	Frequency	Percentage
Gender	Male	16	53.3%
	Female	14	46.7%
Age (Years)	60–65	11	36.7%
	66–70	8	26.7%
	71–75	7	23.3%
	76 and above	4	13.3%
Area Type	Talab Tillo	18	60%
	Shakti Nagar	6	20%
	Gandhi Nagar	6	20%
Education Level	Illiterate	6	20%
	High School	3	10%
	Graduate	13	43.3%
	Postgraduate and above	8	26.7%
Occupation	Retired	12	40%
	Business	8	26.7%
	Housewife	10	33.3%

Three study areas were selected to capture variation in urban form and infrastructure quality across Jammu City, drawing on the Jammu Master Plan 2032 (JMP 2032) [18] where applicable and supplemented with field observation. Talab Tillo ($n = 18$) is an organically grown, densely settled locality on the right bank of the Tawi River within the Outer Plains Zone, notified within the Jammu Local Planning Area (LPA) under S.R.O.-14, dated 8 September 1969. Shakti Nagar ($n = 6$) is similarly organic and notified under the same instrument, but without a specific zone designation in JMP 2032. Gandhi Nagar ($n = 6$), also notified under S.R.O.-14, is identified in JMP 2032 as a significant commercial and institutional node. Participants across all three areas reported a consistent absence or encroachment of pedestrian pathways. This finding was corroborated by the field observation and represents a key shared constraint on older residents' mobility (see Appendix A).

3.4. Data Coding and Analysis

The analysis followed an abductive thematic analysis approach, combining the inductive identification of themes from the participant responses with a deductive thematic analysis guided by the dignity-centered framework and informed by the existing literature. Coding was performed at both the semantic and latent levels [19], meaning that domain-level issues were identified based on participant responses and dignity constructs were interpreted from the deeper meaning of their accounts. Transcripts were coded using a predefined domain–dignity matrix comprising six urban domains and five dignity constructs. Each statement was assigned a score of 0 (not mentioned), 1 (mentioned), or 2 (strongly emphasized) based on the frequency and emphasis. The scores in Table 2 represent the sum across all 30 participants per domain–dignity pairing, with a maximum of 60 per cell. Higher scores indicate stronger associations.

Coding was conducted by a primary researcher using a predefined codebook established prior to the analysis. As coding was conducted by a single coder, inter-rater reliability was not applicable. Consistency was ensured through iterative review against

the codebook. The limitations of single-coder analysis are acknowledged, and future work will incorporate intra-rater reliability checks.

Table 2. Interdependence matrix between urban domains and dignity constructs ¹.

Urban Domain	Autonomy	Security	Recognition	Participation	Belonging
Mobility and Accessibility	28	13	0	0	0
Public and Green Spaces	14	10	0	6	4
Housing and Neighborhood	14	1	0	0	0
Safety and Environmental Quality	3	27	0	1	0
Social Environment	0	0	2	1	8
Governance and Services	5	0	14	5	1

¹ This matrix presents the relationship between dignity constructs (columns) and urban domains (rows). Values represent aggregated coded scores (0 = not mentioned, 1 = mentioned, 2 = strongly emphasized) across all 30 participants per domain–dignity pairing. Higher values indicate stronger associations.

3.5. Limitations

The findings are drawn from a preliminary qualitative sample and are not meant to be statistically generalizable. The coding and mapping process involved interpretive judgment. A structured codebook with predefined scoring criteria was applied throughout to ensure consistency. Thematic saturation was reached within the interview set, with subsequent interviews reinforcing existing patterns and without introducing new themes. Future research will build on this by expanding the dataset and including quantitative methods for validation.

Although the sample included both male (53.3%) and female (46.7%) participants, the study was not designed for comparative gender analysis, and within-area sample sizes are insufficient to support gendered conclusions. Participant accounts suggest that older women expressed concerns regarding safety and evening mobility, warranting dedicated future investigation. The uneven distribution of participants across study areas, with a larger proportion from Talab Tillo ($n = 18$) compared to Shakti Nagar and Gandhi Nagar ($n = 6$ each), may weight findings towards organically consolidated settlements. Future research will aim for more balanced sampling.

4. Results and Discussions

The findings show that dignity is shaped through both functional and relational dimensions of the built environment, as shown in the interdependence matrix (Table 2).

4.1. Functional Domains of Dignity: Mobility, Safety, and Housing

The functional domains form the foundational layer of dignity, and they mainly influence autonomy and security. “Mobility and accessibility” emerges as the most important domain, with the strongest association with autonomy (aggregated score: 28). This highlights the importance of spatial autonomy, which relates to the ability of individuals to move independently and navigate their neighborhood and city as a whole. Participants cited barriers, including the absence of footpaths, traffic congestion, unsafe walking conditions, and footpath encroachment, all of which directly restrict independent movement and undermine dignity.

“There are no pathways anywhere, congested roads, no public parking, barely any street lighting, it is not safe to walk on the road, especially at night, there are no places to rest, people park their cars on the road, there are frequent power cuts. What is so Smart about this?” (participant from Talab Tillo)

Safety shows a similar strong association with security (aggregated score: 27), particularly psychological safety, showing how individuals perceive and use urban spaces. Participants reported concerns regarding traffic, inadequate lighting, lack of crossings, fear of falling, lack of public amenities, and lack of perceived safety from crime. These concerns contributed to the feelings of vulnerability and spatial withdrawal, disproportionately among older women. These findings show that even when infrastructure is physically accessible, perceived lack of safety can lead to a withdrawal from public spaces.

“Yes, the hospitals and Bahu Plaza are somewhat accessible, but we have to walk on roads mostly around Gole Market, since the majority of the pathways are encroached upon by the commercial activities”. (participant from Gandhi Nagar)

Housing and neighborhood also contribute significantly to autonomy (aggregated score: 14), particularly through supporting aging in place, which preserves the identity and memories associated with place. The participants also mentioned the proximity to daily services and essential health and food resources as being the factors that enable them to have self-directed routines and reduce dependence and spatial vulnerability.

4.2. Social and Spatial Domains of Dignity: Public Spaces and Social Environment

Public spaces along with the broader social environment show moderate associations with participation (aggregated score: 6) and belonging (aggregated score: 4). This means that these spaces provide opportunities for people for interaction and engagement. However, their usability is contingent on factors such as accessibility, maintenance, and safety, illustrating the interdependent nature of dignity constructs. The social environment shows a stronger association with belonging (aggregated score: 8), which demonstrates the importance of social inclusion, identity, and memory of a place in shaping dignity. Everyday interactions within the neighborhood, cultural familiarity, and informal support networks collectively contribute to a sense of belonging, helping older residents feel valued within their communities.

“There are no public green spaces around my house, and I travel at least 5 km to reach the park next to the canal (neher), where I get to see my friends in the evening. We take a walk along the long park, sit and chat every day, and sometimes even have an ice cream from the famous Pawan Ice Cream Parlor. . . . It is not easy to reach here, but I get to see my friends. That is what matters at my age. It would have been nice to have parks and safe pedestrian areas near my house. But what can I do?” (participant from Talab Tillo)

In Talab Tillo, stronger community participation appeared to compensate for infrastructural limitations, suggesting that dignity is shaped not only by physical infrastructure but also by social connections.

4.3. Relational Domains of Dignity: Governance, Recognition, and Participation

Governance plays a central role in shaping the relational dimensions of dignity, particularly recognition (aggregated score: 14), with links to participation (aggregated score: 5) and autonomy (aggregated score: 5). This points to the importance of a responsive dialogue between governance institutions and residents in shaping dignified lived experiences. Participants described difficulties in accessing services, a lack of responsiveness, a lack of basic amenities in older and organic neighborhoods, and a lack of a transparent mechanism for redressal. Governance mechanisms, institutional responsiveness, and participation in decision making all help in upholding self-determination in urban systems, prevent stigma and exclusion, uphold the voice of the people, and affirm dignity through acknowledgment and action.

Two governance failures recurred across all three study areas. First, non-functional street lighting and the consistent absence or encroachment of pedestrian pathways re-

mained unaddressed for extended periods. Older women in particular described how inadequate lighting restricted their evening mobility. Jammu's governance framework includes multiple grievance and participation mechanisms. These include digital portals such as the JK-IGRAMS portal, JK Samadhan platform, and JMC online grievance system, as well as formal participatory processes that include public hearings and Public Samvaad neighborhood dialogue camps, both mandated under the J&K Development Act, 1970 [20], and the J&K State Town Planning Act, 1963 [21] (see Appendix A.2). None of the participants were aware of any of them. The failure was therefore not the absence of mechanisms but their inaccessibility to older residents due to digital literacy barriers and the absence of targeted outreach.

The structural inaccessibility of these mechanisms is corroborated by official data. The JK Samadhan portal has received 120,554 grievances throughout the entire Union Territory of Jammu and Kashmir since its launch, with an 88 percent disposal rate [22]. However, the same review noted that Jammu specifically requires improved outreach to enhance citizen registration [22], formally acknowledging the access gap identified through participant accounts in this study.

Together, these failures operated at two levels, namely the failure to maintain and improve basic infrastructure and the structural inaccessibility of available mechanisms, whether digital, institutional, or legally mandated, through which older residents could exercise their voice and seek redress.

4.4. Contextual Influences: Displacement and Dignity

A significant proportion of participants experienced long-term displacement. Many of them expressed that they did not feel connected to their current neighborhoods. Differences in cultural identity, language barriers, and an absence of community gathering spaces were identified as key factors contributing to this sense of displacement and disconnection. The participants' accounts of displacement further show the significance of a "sense of belonging". This insight links dignity to memory, identity, and the continuity of place.

4.5. Synthesis and Implications

The findings show a clear difference between the functional and relational dimensions of dignity. The qualitative analysis shows that autonomy and security are influenced by functional dimensions, including mobility, accessibility, safety, and housing. On the other hand, relational domains such as governance and social environment affect individuals' sense of belonging and recognition. This shows that dignity is not determined by isolated factors but is affected by interrelated urban conditions.

5. Conclusions

This study demonstrates that dignity is shaped by the built environment through interconnected relationships between lived experiences and urban conditions. Through the domain–dignity mapping approach, this study provides a structured framework for understanding how urban environments shape dignity. The results show that dignity is achieved by combining the effects of physical infrastructure determinants as well as social determinants. These include an analysis of complex experiential concepts such as a sense of place and displacement, as well as their relationship to dignity.

This study provides a foundation for future research for operationalizing dignity by developing a Dignity Assessment Tool (DAT). This framework provides a preliminary basis for integrating dignity as a measurable and actionable component related to the built environment. The findings are both exploratory in, and context-specific to, Jammu city. Cross-validation across many urban contexts is required before DAT can be proposed as a

generalizable tool. Future research will aim to test the framework in contrasting settings such as formally planned Smart City development and a historic inner-city district and across cities of varied scales. Such validation will allow for domain weightings to be refined and culturally specific dignity constructs to be identified, leading to a transferable and robust Dignity Assessment Tool.

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Data Availability Statement: Data supporting the findings of this study are available on request from the corresponding author. The data are not publicly available due to ethical restrictions relating to participant confidentiality, as the interview transcripts contain personal accounts shared under conditions of privacy.

Conflicts of Interest: The authors declare no conflicts of interest.

Abbreviations

The following abbreviations are used in this manuscript:

PWD	People with disabilities
WHO	World Health Organization
AFC	Age-friendly Cities
JMP	Jammu Master Plan
LPA	Local Planning Area
JDA	Jammu Development Authority
JMC	Jammu Municipal Corporation
J&K	Jammu and Kashmir
DAT	Dignity Assessment Tool

Appendix A

Appendix A.1. Study Area Characterizations and Governance Mechanisms

Talab Tillo ($n = 18$) lies on the right bank of River Tawi within the Outer Plains physiographic zone of Jammu, as identified in JMP 2032. It is listed as a locality (Mohalla/village) under S.R.O.-14, dated 8 September 1969 [18]. It is an organically grown, densely settled locality with mixed residential and commercial development. While it falls within the Jammu LPA boundary, its development has been largely unplanned, and formal infrastructure provision remains limited. Field observations recorded narrow lanes, inadequate street lighting, no resting places or seating for pedestrians, a lack of pedestrian infrastructure, and heavy encroachment where pathways exist intermittently.

Shakti Nagar ($n = 6$) is notified within the Jammu LPA under S.R.O.-14, dated 8 September 1969 [18], and falls under the jurisdiction of the Jammu Municipal Corporation (JMC). The area has a predominantly residential character with some mixed commercial,

institutional, and religious use. Despite formal municipal jurisdiction, it lacks a robust pedestrian infrastructure. Field observations recorded a lack of pathways in the majority of the areas, and the available pathways were either encroached upon or fragmented, often ending abruptly without connection to the broader pedestrian network.

Gandhi Nagar ($n = 6$) is the most formally developed of the three study areas. It is identified in JMP 2032 as a commercial and institutional node with proposals for high-density redevelopment [18]. Even though the pedestrian infrastructure and other infrastructure are better in Gandhi Nagar in comparison to the other two areas, the field observations noted discontinuous pathways, a lack of road crossings in parts of the areas, and the encroachment of pathways, particularly around busy commercial stretches.

Appendix A.2. Formal Governance and Grievance Mechanisms in Jammu

Table A1 lists the formal governance and grievance mechanisms available within Jammu's Urban Governance Framework. None of the participants were aware of these mechanisms, indicating a failure of outreach rather than the absence of formal provision.

Table A1. Formal governance and grievance mechanisms available in Jammu (none known to study participants).

Mechanism	Type	Administrator	Access Mode
JK-IGRAMS	Digital grievance portal	J&K Govt.	Online/Helpline
JK Samadhan	Digital grievance portal	J&K Govt.	Online/Mobile
JMC Grievance System	Digital grievance portal	JMC	Online
CPGRAMS	Digital grievance portal	Govt. of India	Online/Mobile app
Public Samvaad	Neighborhood dialogue camp	JMC	In person
Block Diwas/Youm-e-Block	Outreach camp	District administration	In person
Raabita	Single-window citizen interface	J&K Govt.	Online/In person/Helpline

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