A Study on Sociopetal Spaces and Social Wellbeing in Gerontological Co-Housing

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Abstract - India is undergoing a significant demographic transition marked by population ageing, rapid urbanisation, and changing family structures. As traditional joint-family systems decline, many older adults experience increased social isolation and reduced participation in community life. Gerontological co-housing has emerged as an alternative residential model that combines independent living with shared spaces designed to foster social engagement and community-based support. However, limited architectural research in the Indian context examines how the design of these shared spaces influences social interaction and wellbeing.This study investigates the role of sociopetal space environments that promote direct human contact, in shaping social participation and perceived wellbeing in gerontological co-housing. Focusing on Tier 1 and Tier 2 cities in South India, the research employs a mixed-method approach integrating literature review, spatial analysis, and behavioural mapping. Two case studies, Suvidha Retirement Homes and The Rainbow by Benny Kuriakose, were comparatively analysed based on spatial layout, connectivity, clustering of shared areas, proximity relationships, and transitional zones. Findings indicate that clustered housing units, semi-open communal spaces, shaded corridors, and strong visual connectivity encourage spontaneous interaction and sustained relationships. Conversely, segregated layouts and extended circulation paths limit casual engagement. The study establishes an analytical framework to guide evidence-based design decisions for socially supportive elderly housing in India.

Key Words: *Sociopetal Spaces, Gerontological Co-Housing, Social Wellbeing, Behavioral Architecture, Elderly Housing, Spatial Analysis, South India*

1.INTRODUCTION

India's demographic profile is undergoing a structural shift. The proportion of individuals aged 60 years and above is projected to increase substantially over the coming decades. Improvements in healthcare, life expectancy, and urban economic transformation have contributed to this rise. Simultaneously, migration, nuclear family systems, and changing socio-cultural dynamics have weakened traditional extended-family living structures that once provided embedded social support for ageing individuals.

Historically, elderly persons in India remained integrated within intergenerational households, naturally participating in daily family life and neighbourhood interaction. The architectural configuration of such environments, courtyards, verandahs, transitional thresholds, facilitated spontaneous engagement and collective presence. However, contemporary urban housing patterns increasingly isolate elderly individuals within apartments, institutional care homes, or retirement communities. While these environments provide safety and physical care, they often fail to replicate organic social ecosystems.

Gerontological co-housing has emerged as a hybrid residential typology that combines independent dwelling units with shared communal facilities. Unlike purely institutional care models, co-housing promotes autonomy, participation, and community-based ageing. Yet the provision of common areas alone does not guarantee meaningful interaction. Architectural configuration determines whether spaces invite engagement or remain underutilised.

The concept of sociopetal space, introduced by Humphrey Osmond and developed within environmental psychology, describes spatial arrangements that

encourage face-to-face communication and informal gathering. Conversely, sociofugal configurations discourage interaction through rigid linear movement, excessive enclosure, or absence of clustering. While sociopetal theory has been widely discussed in behavioural studies, its architectural application in Indian gerontological housing remains insufficiently examined.

This research addresses that gap by investigating how spatial configuration, including hierarchy, accessibility, clustering, proximity, visibility, and environmental comfort, influences behavioural activation and social wellbeing among elderly residents. The study aims to move beyond normative accessibility guidelines and establish measurable spatial-behavioural correlations within operational elderly housing environments.
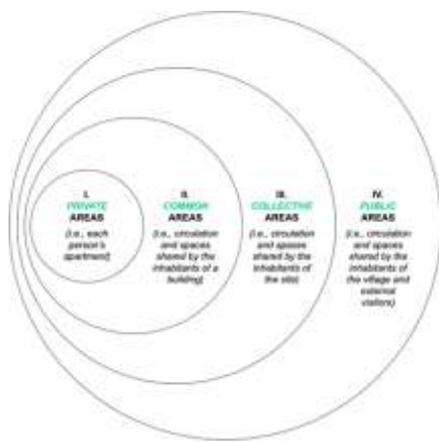

Figure 1 *Private–to–Public spatial hierarchy in cohousing*

1.1 Demographic Transition and Spatial Implications

India is witnessing a demographic shift of unprecedented scale. With improvements in healthcare, longevity, and urban economic growth, the proportion of individuals aged 60 and above is steadily increasing. Simultaneously, rapid urbanisation and labour migration have altered the social fabric of Indian cities. Nuclear families increasingly replace extended joint-family systems, reducing intergenerational cohabitation and informal caregiving networks.

Historically, elderly individuals remained embedded within familial and neighbourhood networks. Traditional architectural typologies, courtyard houses, verandah-fronted dwellings, shared threshold spaces, supported daily interaction across generations. These spatial forms functioned as organic sociopetal environments that facilitated constant visual contact and spontaneous social exchange.

In contrast, contemporary urban housing often isolates elderly residents within vertically stacked apartments or institutional facilities. While these spaces provide physical accommodation, they frequently lack the spatial articulation necessary to sustain relational networks. The result is a measurable increase in social isolation, loneliness, and reduced participation among older adults.

Social isolation among elderly populations has been associated with increased stress, reduced cognitive stimulation, diminished emotional resilience, and decreased life satisfaction. Therefore, the design of elderly housing environments must extend beyond functional accessibility and address social vitality as a spatially mediated phenomenon.

1.2 Gerontological Co-Housing as an Alternative Model

Gerontological co-housing represents a residential typology that integrates independent living units with shared communal infrastructure. Unlike purely institutional care facilities, co-housing seeks to balance autonomy with collective participation. Residents maintain private units while accessing shared dining areas, activity spaces, gardens, and semi-private transitional zones.

However, the presence of shared spaces alone does not guarantee social engagement. Architectural configuration determines whether residents encounter one another naturally or remain spatially segregated. A central hall may exist but remain underutilised if spatial access, scale, or psychological comfort thresholds are poorly articulated.

Therefore, the central question guiding this research is:

How does spatial configuration influence social interaction and perceived wellbeing in gerontological co-housing environments?

1.3 Conceptual Framework: Sociopetal vs Sociofugal Space

The concept of sociopetal space, introduced by Humphrey Osmond (1957), describes spatial arrangements that encourage face-to-face interaction and informal gathering. Circular seating, clustered arrangements, and moderate enclosure typically promote sociopetal behaviour. In contrast, sociofugal spaces

discourage interaction through linear alignment, excessive separation, or rigid circulation patterns.

Hall's proxemics theory (1966) further emphasised how spatial distance regulates interpersonal comfort. Lang (1987) expanded this discussion within architectural theory, arguing that environmental configuration structures behavioural possibilities. Baum and Paulus (1987) demonstrated experimentally that spatial arrangement directly influences group dynamics.

In gerontological contexts, sociopetal performance becomes even more critical due to mobility limitations, sensory decline, and increased psychological vulnerability. Elderly residents may hesitate to occupy large exposed spaces but feel comfortable within semi-private transitional environments.

Thus, sociopetal space in elderly housing must be understood not only as a geometric arrangement but as a calibrated balance between:

- Visibility and enclosure
- Accessibility and autonomy
- Exposure and refuge
- Movement and pause

1.4 Research Gap

Although global literature acknowledges the importance of communal spaces in ageing environments, empirical architecture-led investigations in the Indian context remain limited. Existing studies often focus on policy frameworks, healthcare access, or sociological narratives rather than spatial-behavioural correlations.

Furthermore, universal design standards emphasise ramps, handrails, and door widths but do not assess sociopetal performance or behavioural activation potential. A corridor may be accessible yet socially inert. A garden may exist yet remain unused if poorly positioned.

This research therefore bridges three domains:

- Spatial Configuration
- Behavioural Activation
- Perceived Social Wellbeing

It seeks to demonstrate that architecture functions as a regulatory medium shaping social ecosystems among ageing populations.

1.5 Research Objectives

The objectives of this study are:

- To analyse spatial configuration in gerontological co-housing environments.
- To examine how hierarchy, clustering, and accessibility influence behavioural interaction.
- To evaluate correlations between spatial arrangement and perceived wellbeing.
- To establish an evidence-based architectural framework linking sociopetal design to elderly social vitality.

1.BODY OF PAPER

2.1 Research Design and Philosophical Positioning

This study adopts a **pragmatic research philosophy**, recognising that spatial-behavioural phenomena cannot be examined exclusively through quantitative metrics or purely qualitative narratives. Gerontological housing environments operate as complex socio-spatial systems where architectural configuration, behavioural tendencies, and psychological perception interact dynamically. Therefore, a mixed-method approach was considered most appropriate to capture both measurable spatial characteristics and lived experiential realities.

The research design is structured as a **comparative multiple-case study**, following Yin's methodological framework (2018), which enables analytical generalisation rather than statistical generalisation. The selection of two operational elderly housing environments in Bengaluru allows examination of variation in spatial articulation while maintaining contextual consistency in climate, cultural patterns, and urban structure.

The comparative approach strengthens interpretive validity by enabling cross-case synthesis rather than isolated observation. It allows identification of spatial determinants that consistently correlate with behavioural activation across typological variation.

2.2 Selection of Case Studies

The two case studies were deliberately selected to represent contrasting gerontological housing typologies within the same metropolitan region:

1. **Primus Darpan Senior Living** – A design-oriented luxury retirement housing model integrating accessibility and lifestyle-based shared infrastructure.

2. **Sudhama Old Age Home** – A care-oriented institutional elderly residence reflecting more traditional operational constraints.

The selection criteria included:

● Operational occupancy (active residential population)
● Presence of shared and communal spaces
● Accessibility for field documentation
● Variation in spatial configuration
● Representation of differing socio-economic positioning

By comparing a purpose-designed senior living community with an institutional care facility, the study isolates configurational variables that influence behavioural outcomes independent of broader urban context.

Figure 5 Primus Darpan Senior living   Figure 6 Sudhama Old Age homes

2.3 Conceptualisation of Variables

To establish analytical clarity, the study categorises variables into spatial, behavioural, and wellbeing domains. This categorisation enables systematic correlation between built form and lived experience.

2.3.1 Spatial Variables

Spatial variables were derived from environmental psychology literature and sociopetal theory. Hierarchical gradation was examined to determine how clearly transitions occur between public, semi-private, and private zones. Gradation is critical because it allows residents to regulate exposure and engagement. Environments lacking transitional buffers may generate hesitation or withdrawal.

Clustering of shared spaces was analysed to assess whether communal areas are distributed across the layout or centralised in singular large halls. Distributed clustering typically increases incidental encounter probability and reduces behavioural intimidation associated with large-scale gathering spaces.

Connectivity strength and proximity relationships were studied to evaluate how spatial positioning affects access to communal areas. Long travel distances, especially in elderly housing, may discourage participation. Visibility and line-of-sight continuity were analysed to understand how visual contact promotes awareness and invitation.

Accessibility infrastructure, including lift systems, ramp integration, door widths, and bathroom dimensions, was examined not merely as regulatory compliance but as a determinant of autonomy perception. Vertical circulation systems were specifically analysed because multi-level housing without lifts can produce mobility-based exclusion.

Environmental comfort parameters such as daylight penetration, shading, enclosure scale, and acoustic moderation were also documented. These factors influence duration of stay and psychological ease within shared spaces.

2.3.2 Behavioural Variables

Behavioural mapping focused on observable interaction patterns within shared environments. Interaction frequency was documented to understand the intensity of social engagement. Duration of occupancy was recorded to evaluate comfort and sustained participation. Group size clustering revealed whether interactions occurred in small informal gatherings or formalised assemblies.

Particular attention was paid to edge-seating behaviour, which indicates a desire for spatial refuge. Time-based variation in space use was also observed to identify peak

and off-peak activation periods. These behavioural indicators provide measurable insight into the actual performance of sociopetal spaces beyond architectural intention.

2.3.3 Wellbeing Indicators

Wellbeing was assessed through semi-structured interviews and thematic coding. Residents were asked about their comfort levels in shared areas, sense of belonging, emotional security, and preference for solitude versus participation. Rather than applying clinical psychological instruments, the study adopts perception-based indicators aligned with environmental psychology research.

Autonomy emerged as a critical wellbeing dimension. Residents' confidence in navigating the environment without assistance directly influenced their willingness to engage socially. Emotional comfort, perceived dignity, and voluntary participation were also identified as core indicators of social wellbeing within the housing context.

PARAMETER	PRIMUS DARPAN	SUDHAMA OLD AGE HOME
Hierarchy Clarity	Strong	Limited
Accessibility	Integrated	Constrained
Sociopetal Nodes	Distributed	Minimal articulation
Behavioural Activation	Frequent & voluntary	Selective & conditional
Autonomy Perception	High	Variable

Table1: Synthesis of Spatial and Behavioural Parameters

2.4 Data Collection Procedures

Primary data collection involved extensive on-site documentation. Spatial layouts were sketched and annotated to map hierarchy gradients and clustering patterns. Measurements of door widths, corridor widths, and circulation transitions were recorded to evaluate accessibility compliance and autonomy support.

Behavioural mapping was conducted during structured time intervals in the morning and evening. Observations focused on identifying interaction hotspots, duration of stay, and movement patterns. Mapping allowed visual overlay of behavioural density onto spatial diagrams.

Semi-structured interviews were conducted with residents to capture experiential narratives. Questions explored preferred spaces, social tendencies, perceived comfort, and infrastructure challenges. Particular emphasis was placed on understanding whether residents felt compelled or voluntarily inclined to participate in communal life.

An expert interview with a behavioural architectural psychology specialist provided professional insight into spatial deterrents, privacy–interaction balance, and psychological implications of forced communal exposure. This expert layer strengthened interpretive validity and aligned empirical findings with established behavioural theory.

Secondary data included age-friendly housing frameworks, universal design standards, and environmental psychology literature, which contextualised empirical findings within broader academic discourse.

2.5 Analytical Strategy

The analytical process followed a layered approach. Spatial configuration was first evaluated independently to determine sociopetal potential based on hierarchy, clustering, and accessibility integration. Behavioural mapping data were then overlaid to identify correlations between spatial articulation and interaction intensity.

Thematic coding of resident responses allowed identification of recurring wellbeing patterns associated with specific spatial conditions. Finally, expert validation ensured theoretical coherence between empirical findings and behavioural design principles.

The triangulation of spatial analysis, behavioural mapping, resident perception, and expert insight ensured robustness. Rather than relying on singular evidence streams, conclusions were drawn only where converging indicators demonstrated consistent patterns.

2.6 Reliability, Validity, and Ethical Integrity

Reliability was maintained through standardised observation templates and consistent time-based documentation. Repeated cross-checking of spatial measurements ensured technical accuracy. Structured interview protocols reduced interpretive bias.

Validity was reinforced through cross-case comparison, literature alignment, and expert validation. Triangulation across four evidence layers strengthened credibility and reduced over-reliance on anecdotal narratives.

Ethical integrity was prioritised throughout the study. Informed consent was obtained from participants, anonymity was maintained in documentation, and observation was conducted non-invasively. Sensitivity to

emotional vulnerability was maintained, particularly when discussing autonomy or isolation experiences.

2.7 Comparative Spatial and Behavioural Analysis

2.7.1 Spatial Configuration: Hierarchy and Gradation

The spatial organisation of the two case studies reveals fundamentally different configurational logics, which directly influence behavioural opportunity structures. Primus Darpan demonstrates a clearly articulated hierarchy, where transitions from public to semi-private and private zones occur gradually. Entry lobbies lead to intermediate transitional spaces, which in turn connect to private residential units. This gradation enables residents to regulate exposure. They may pause within semi-private nodes, observe activity, and voluntarily engage without abrupt immersion into fully public environments.

In contrast, Sudhama Old Age Home exhibits a corridor-dominant layout with limited hierarchical buffering. The transition between dormitory sleeping areas and circulation corridors is abrupt, reducing the presence of psychological thresholds. Shared spaces are not embedded within graduated transitional layers but positioned as separate functional zones. Such spatial discontinuity may discourage incidental interaction and reduce voluntary participation.

The significance of hierarchical gradation lies in its ability to mediate between exposure and refuge. Elderly individuals often require spatial reassurance before entering social environments. Semi-private transitional spaces act as behavioural filters, allowing gradual adaptation. The absence of such thresholds in Sudhama suggests a structural limitation in fostering spontaneous engagement.

2.7.2 Clustering and Distribution of Shared Spaces

Primus Darpan incorporates distributed sociopetal nodes across the residential layout. Shared seating areas are located along movement routes, landscaped pockets, and semi-open corridors. This distributed clustering increases the probability of incidental encounter. Residents encounter others naturally during daily movement rather than having to intentionally seek interaction within a centralised hall.

Moreover, the scale of these clusters is moderated. Seating arrangements are oriented to encourage face-to-face communication while maintaining comfortable interpersonal distance. Moderate enclosure through shading and architectural framing enhances spatial intimacy without inducing claustrophobia.

Sudhama Old Age Home, by comparison, lacks distributed clustering. Shared spaces are either concentrated in limited common areas or under-articulated within circulation corridors. Long linear corridors function primarily as passageways rather than social nodes. The absence of articulated seating clusters within circulation routes reduces the likelihood of spontaneous gathering.

The clustering strategy in Primus Darpan reflects intentional sociopetal planning, while Sudhama's spatial structure suggests a more functionalist institutional layout prioritising efficiency over relational dynamics.

2.7.3 Vertical Circulation and Autonomy

One of the most critical distinctions between the two environments is vertical accessibility. Primus Darpan integrates lift systems that enable independent movement across floors. This infrastructure significantly enhances mobility confidence, particularly for residents with reduced balance or strength. The psychological impact of lift access extends beyond physical convenience; it reinforces autonomy and reduces dependency on staff or peers.

In Sudhama, vertical circulation is restricted to staircases. For elderly residents, particularly those with mobility limitations, stair dependency introduces behavioural hesitation. It restricts participation in activities located on different levels and may confine residents to specific zones. The lack of lift infrastructure therefore not only limits physical access but structurally reduces social opportunity.

This finding highlights that accessibility must be understood not only as regulatory compliance but as a sociopetal enabler. Vertical mobility infrastructure directly influences participation potential.

2.7.4 Environmental Comfort and Spatial Dignity

Environmental quality significantly affects behavioural activation. Primus Darpan demonstrates effective daylight penetration, shaded outdoor seating, and moderate enclosure scale. Semi-open spaces allow airflow and visual connection while providing thermal

comfort. Such environmental articulation encourages prolonged occupancy.

In contrast, Sudhama's basement accommodation presents reduced daylight access, confined spatial volume, and higher density. At least six beds occupy a dimly lit enclosed space. The lack of natural light and limited spatial articulation affects not only behavioural engagement but also perceived dignity.

Environmental comfort directly correlates with duration of stay within shared spaces. Behavioural mapping revealed higher occupancy duration in shaded transitional nodes at Primus compared to enclosed corridors in Sudhama. Poorly lit environments exhibited reduced spontaneous clustering.

Spatial dignity emerges as a critical variable. Environments that reinforce environmental clarity and comfort enhance emotional security. Confined or poorly illuminated spaces may subconsciously discourage social engagement.

2.7.5 Behavioural Mapping and Interaction Patterns

Behavioural observation reveals consistent correlation between spatial articulation and interaction intensity.

At Primus Darpan, interaction frequently occurred in small clusters of two to four individuals. These interactions were informal and voluntary. Transitional seating nodes along circulation routes functioned as behavioural magnets. Residents often paused during movement, engaged in brief conversation, and either continued or extended interaction depending on comfort.

Importantly, large formal halls did not demonstrate the highest interaction density. Instead, semi-private transitional spaces exhibited the strongest behavioural activation. This suggests that elderly residents may prefer moderate-scale engagement rather than fully exposed communal gatherings.

At Sudhama, interaction patterns were more variable. Some residents expressed enthusiasm in meeting new individuals and valued companionship. However, others preferred solitude and primarily occupied bedroom spaces. Edge-seating behaviour was prominently observed. Residents frequently positioned themselves adjacent to walls rather than centrally within shared spaces. This indicates a preference for spatial refuge and security.

Corridors exhibited minimal spontaneous clustering, reinforcing the sociofugal nature of linear circulation. Basement residents demonstrated lower mobility frequency and reduced social activation.

2.7.6 Autonomy, Choice, and Psychological Comfort

Resident interviews revealed that autonomy and choice are central to social wellbeing. At Primus Darpan, residents reported feeling confident navigating shared areas. Accessibility features such as wide doors, dual-height peepholes, and adaptive kitchen systems reinforced independence. Residents could choose when and where to participate.

In Sudhama, some residents expressed appreciation for companionship but simultaneously identified infrastructural limitations as constraints. The absence of lift access and narrow bathroom dimensions reduced perceived independence. Bedrooms functioned as emotional refuges for residents preferring solitude.

The expert interview reinforced the importance of choice-based participation. Environments that compel social exposure without transitional thresholds may produce psychological stress. Balanced privacy–interaction gradation is therefore essential.

2.7.7 Cross-Case Synthesis

When synthesised comparatively, the findings reveal several consistent correlations:

1. Gradual hierarchy enhances voluntary participation.
2. Distributed clustering increases incidental interaction.
3. Lift integration significantly improves autonomy and engagement.
4. Environmental comfort influences duration of stay.
5. Corridor-dominant layouts reduce spontaneous clustering.
6. Semi-private transitional spaces function as primary sociopetal catalysts.

Importantly, the study demonstrates that social wellbeing is not solely dependent on frequency of interaction. It depends on spatially supported autonomy and voluntary engagement. Residents must feel capable of choosing participation without structural barriers.

2.7.8 Theoretical Positioning

The empirical findings align strongly with sociopetal theory and environmental psychology frameworks. However, the study extends theory by demonstrating that sociopetal performance in gerontological housing depends not only on seating arrangement but on integrated infrastructural systems, particularly vertical mobility and environmental clarity.

The research therefore reframes sociopetal design in elderly housing as a multi-scalar phenomenon involving:

- Configurational hierarchy
- Clustering logic
- Accessibility integration
- Environmental articulation
- Psychological comfort thresholds

Architecture functions as a behavioural regulator that shapes social ecosystems. The built environment establishes structural opportunity conditions within which social life unfolds.

3. CONCLUSIONS

3.1 Synthesis of Findings

This study set out to investigate the relationship between sociopetal spatial configuration and social wellbeing in gerontological co-housing environments within the South Indian urban context. Through a comparative analysis of Primus Darpan Senior Living and Sudhama Old Age Home in Bengaluru, the research examined how spatial hierarchy, clustering, accessibility infrastructure, environmental articulation, and transitional thresholds influence behavioural activation and perceived autonomy among elderly residents.

The findings consistently demonstrate that spatial configuration functions as a structural regulator of social opportunity. In environments where hierarchical gradation is clear and semi-private transitional spaces are embedded within circulation routes, voluntary interaction increases. Distributed sociopetal nodes encourage incidental encounters without imposing collective exposure. Residents demonstrate longer occupancy durations and greater behavioural confidence in such environments.

Conversely, corridor-dominant layouts with abrupt transitions between private and shared zones reduce spontaneous engagement. The absence of vertical mobility infrastructure, particularly lift systems, structurally limits participation and constrains autonomy. Basement accommodation characterised by reduced daylight and spatial compression further diminishes environmental dignity and behavioural activation.

Importantly, the study establishes that social wellbeing in elderly housing is not merely a function of interaction frequency but of spatially supported autonomy and voluntary engagement. Environments must enable choice rather than enforce participation.

3.2 Key Theoretical Contributions

This research advances sociopetal theory by reframing it as a multi-scalar architectural framework rather than a micro-scale seating arrangement concept. Traditional sociopetal discourse emphasises face-to-face orientation and circular seating. However, the findings reveal that sociopetal performance in gerontological housing emerges from integrated configurational systems that include:

- Hierarchical spatial gradation
- Distributed clustering strategies
- Vertical accessibility infrastructure
- Environmental comfort articulation
- Transitional liminality

By positioning sociopetal design as a layered configurational intelligence rather than a singular spatial device, the study expands theoretical understanding within environmental psychology and behavioural architecture.

Furthermore, the research reconceptualises autonomy as spatially produced agency. Autonomy in elderly housing is not solely psychological independence but a condition enabled by infrastructural access, legibility, and mobility confidence. This reframing deepens architectural discourse on ageing-supportive environments.

3.3 Methodological Contributions

Methodologically, the study demonstrates the value of triangulated spatial-behavioural analysis. By integrating spatial documentation, behavioural mapping, resident interviews, and expert validation, the research establishes

a robust analytical framework capable of capturing both measurable configuration and experiential perception.

The layered analytical model strengthens validity by correlating spatial attributes with observable behavioural patterns and subjective wellbeing responses. This framework can be replicated in future gerontological housing research across different geographic contexts.

3.4 Practical Implications for Architectural Practice

The findings generate several practical implications for architects and designers working within elderly housing typologies.

First, gerontological co-housing environments should prioritise distributed semi-private transitional nodes rather than singular centralised communal halls. Smaller clustered seating environments embedded within circulation paths are more behaviourally productive.

Second, vertical accessibility must be considered essential rather than optional. Lift integration in multi-level elderly housing directly influences autonomy and participation. Staircase-only systems structurally restrict social opportunity.

Third, environmental dignity through daylight access, moderate enclosure scale, and spatial clarity must be embedded within shared environments. Basement accommodation without adequate environmental articulation risks reinforcing isolation.

Fourth, hierarchical gradation between public and private zones should be clearly structured to enable voluntary exposure. Transitional buffers allow elderly residents to regulate social participation according to comfort.

Finally, accessibility infrastructure must extend beyond regulatory compliance to support behavioural confidence. Adaptive kitchen systems, wide doorways, and barrier-free sanitary access strengthen perceived independence.

3.5 Policy and Planning Implications

At the policy level, the research highlights the need to expand age-friendly housing guidelines to incorporate sociopetal performance indicators. Current standards primarily focus on physical accessibility but do not evaluate configurational capacity to foster social engagement.

Urban planning frameworks should discourage high-density institutional dormitory arrangements for elderly populations without adequate daylight and transitional articulation. Incentives for cluster-based planning models that integrate semi-open sociopetal spaces may improve long-term wellbeing outcomes.

Given India's rapidly ageing demographic, gerontological housing policy must shift toward dignity-oriented spatial systems that recognise social vitality as a measurable design outcome.

3.6 Limitations of the Study

While the study provides significant insights, certain limitations must be acknowledged.

The research is geographically confined to two case studies within Bengaluru. Although comparative analysis strengthens interpretive depth, broader regional variation across India may yield additional insights. The socio-economic contrast between a luxury retirement community and an institutional care facility introduces contextual differences beyond spatial configuration alone.

Behavioural observation was conducted within limited time frames rather than longitudinal tracking. Extended observational periods may reveal seasonal or temporal variations in interaction patterns.

The wellbeing assessment relied on perception-based indicators rather than clinical psychological measurement tools. While appropriate for architectural research, future interdisciplinary studies may integrate physiological or cognitive assessments.

Despite these limitations, the triangulated methodology and cross-case comparison provide robust qualitative evidence of spatial-behavioural correlation.

3.7 Scope for Future Research

Future research may expand this framework in several directions.

Longitudinal behavioural studies could examine how social activation evolves over time within gerontological housing environments. Integration of space syntax analysis or computational modelling may provide quantitative confirmation of configurational relationships.

Interdisciplinary collaboration with neuroscience or geriatric psychology researchers could explore measurable cognitive or stress-related outcomes associated with spatial conditions. Additionally, comparative studies across Tier 2 and Tier 3 cities may reveal cultural variations in sociopetal performance.

Research exploring intergenerational co-housing models may further extend sociopetal discourse within the Indian context.

3.8 Concluding Reflection

This study affirms that architecture plays a decisive role in shaping social ecosystems within gerontological housing. Space influences behaviour, and behaviour shapes wellbeing. Sociopetal spatial configuration is not a decorative design strategy but a structural determinant of autonomy, belonging, and social vitality.

In the context of India's demographic transformation, gerontological housing must move beyond institutional containment toward relationally intelligent design systems. Semi-private transitional thresholds, distributed clustering, environmental dignity, and integrated accessibility infrastructure collectively form the foundation of socially supportive ageing environments.

By empirically correlating spatial configuration with behavioural activation and perceived wellbeing, this research positions architecture as an active mediator of social health. The findings encourage designers, planners, and policymakers to recognise sociopetal planning as essential to ageing-inclusive urban futures.

ACKNOWLEDGEMENT

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