

The Effects of the Transition from Public to Private Spaces in the Urban Low-Income Houses on Family Life: Swarna Place, Colombo as a case study

Y.R. Dissanayake, M. D. Thalawatta and S. M. Hirudini

Department of Architecture, University of Moratuwa, Sri Lanka

Abstract

In Sri Lanka, Colombo accommodates most urban low-income settlements, which are predominantly self-built and characterized by dense spatial arrangements. In these congested houses, the transition from public to private spaces is often unclear and abrupt, affecting residents' spatial usage and family life, posing the question of how transitional spaces in the house influence family life. This study examines how such transitions affect family life in low-income households, with a special focus on Swarna Place, an urban settlement in Colombo. A literature review on urban low-income housing and its impact on family life, along with a pilot study, was conducted. The road-to-house distance, threshold spaces, and spatial connections were selected as parameters for studying spatial transitions. The functional use of spaces and weekend activity types were analyzed to understand families' spatial use and interactions. Ten cases covering the settlement were selected, and spatial plan data were gathered through on-site measurements, observations, and photographs. Family life and spatial use data were collected through observations, semi-structured interviews, and photographic and video recordings. Spatial connectivity and spatial use analyses were conducted to examine the impact of spatial transition on family life. Findings reveal that road-to-house distances and garden spaces are minimal or absent. A small threshold often serves as the only transition between the street and the house. The living room functions as the main family space, with most bedrooms opening to it, enhancing connections and interaction but compromising privacy. The study concludes that improved spatial planning between public and private zones in the house is essential to balance interaction and privacy, thereby enhancing family life. Broadly, it emphasizes integrating transitional spaces into future housing schemes to promote family well-being while maintaining privacy. The outcomes can support in-situ upgrading projects that respect residents' spatial behaviors.

Keywords: Urban Mobility, Public Space, Cultural Continuity, Context-Sensitive Design, Main Street Revitalization, Sri Lanka

Introduction

Colombo, the most densely populated urban center in Sri Lanka, accommodates a significant proportion of the nation's low-income settlements. According to the Colombo Settlements Survey (2023), a total of 1,360 low-income settlements were recorded, comprising 55,866 housing units and sheltering approximately 87,119 families. In 70% of the settlements, and more than 80% of families have resided in the same location for over three decades. This continuity has clearly confirmed that most houses are permanent structures owned by residents, and many have been expanded vertically over time to accommodate multi-generational households.

However, despite their permanence and the long-term presence of residents, the architectural development of these self-built dwellings remains unorganized. Evolving organically over time without the involvement of professional designers or planners, these houses prioritize function and necessity over spatial hierarchy or flow. As a result, the internal arrangement often lacks clarity or a smooth transition as spaces shift from public to private. Transitions, such as from the road to communal zones and from communal zones to personal spaces, are often abrupt or undefined. In high-density settings with limited floor area, this absence of thoughtful spatial progression can significantly influence the quality of family life and the overall sense of comfort and privacy within the household.

Research Gap

While many scholars have explored spatial hierarchy and the transition from public to private spaces in houses, much less attention has been given to low-income houses. In these contexts, limited resources and affordability often lead to compressed or abrupt transitions, unlike the layered hierarchies found in more formal houses. These transitions are not only physical but also shape the residents' daily routines, lifestyles, and social interactions. In Sri Lanka, cultural practices, family structures, and social norms further shape how such spaces are used, yet less research has examined how these transitions affect family life. This gap becomes especially important when governments relocate communities, as understanding the existing housing layouts, spatial transitions, and their effects on households is essential. This study addresses this gap by examining how spatial transitions from public to private spaces affect households in low-income urban housing in Sri Lanka.

Aim and Objectives

This study examines the effects of the transition from public to private spaces in low-income houses on family life with special reference to Swarna Place, Colombo, an urban low-income, low-rise, high-density settlement.

The objectives of the research are as follows.

- I. To understand how spatial hierarchy is structured within the house unit, extending from the road to the interior of the house.
- II. To identify and examine transitional typologies between public and private spaces, with attention to spatial elements such as doors and thresholds that influence family movement and interaction.
- III. To understand the functional usage of spaces and their connection to family routines, explore how spatial transitions affect daily life, privacy levels, and patterns of social interaction within the household.

- IV. To understand how families adapt the use of spaces in response to household characteristics, including the presence of multiple generations.

Literature Review

Global Low-Income Housing

Low-income housing is a critical global challenge, with an estimated 1.6 billion people living in inadequate housing conditions that lack security of tenure, access to basic services, or structural quality (UN-Habitat, 2020). This problem is driven by rapid urbanization, rising construction costs, population growth, and the inability of formal housing markets to meet the needs of low-income households (World Bank, 2017; UN-Habitat, 2020).

Scholars and practitioners often recognize three models for global low-income housing:

1. Self-build and informal settlements - slums or squatter settlements
2. Government or public housing schemes
3. NGO and internationally supported initiatives - such as programs by the World Bank, UN-Habitat, and other development agencies

(Momtaz, 1993, gives the Dhaka classification; Tipple et al., 2004, discuss user-led transformations; and ARBAN/UPPR demonstrate NGO-led models.)

Sri Lankan Low-Income Housing

Across much of the Global South, including Latin America, Africa, and Asia, low-income housing often emerges through self-build and incremental processes rather than through top-down provision. Similarly, in Sri Lanka, over 50% of Colombo's population resides in informal settlements (UN-Habitat, 2020).

To transform Colombo into a world-class city, the government of Sri Lanka has initiated the Urban Regeneration Program (URP), which aims to reclaim urban land for development and improve living conditions by relocating underserved communities into newly constructed vertical housing complexes. However, these regeneration initiatives have faced significant challenges. Concerns have been raised regarding the *user-friendliness, social sustainability, and adaptability* of the new settlements (Silva & Gunasekara, 2019).

These challenges highlight the importance of understanding the spatial hierarchy and transitional structures of original dwellings when planning relocations. Thresholds, for example, cannot be overlooked the privacy of adjacent users often determines internal arrangements, while public life shapes the outdoor arrangements, such as streets or courtyards. These two realms do not exist in isolation but are mediated by spontaneous architectural elements, which connect and negotiate the two (Mhatre, 2019).

Spatial Hierarchy in Houses

The spatial organization of a house often follows a hierarchical order from public to private zones that manages movement, social interaction, and privacy in domestic spaces. In accordance with Christopher Alexander's (1977) concept of the intimacy gradient and supported by the spatial depth analysis of Van Nes and Yamu (2021), a well-designed house should gradually lead a person from the public world of the street into increasingly intimate and personal zones within the house.

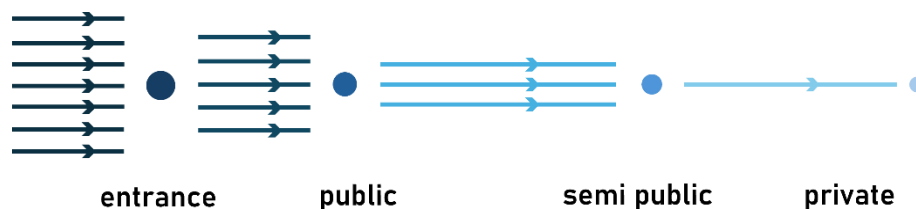


Fig. 1: Intimacy Gradient Concept
Source: Pattern Language by Christopher Alexander
(Redrawn by authors)

However, Rapoport A. (1969) argues that desired social behaviors cannot simply be derived from the house plan; instead emphasizes that the social and cultural variables are more important, as the design of a house is fundamentally a reflection of the way of life, ideals, and worldview of the culture that builds it.

The boundary between the house and the street marks the initial entry point into the home's spatial hierarchy, where the transition from public to private begins. This boundary, whether expressed through a wall, fence, gate, or even an open frontage, serves as a territorial marker and social interface (Newman, 1972). According to Gehl (2011), the degree of openness or permeability of this threshold significantly influences the nature of social interaction between the household and the surrounding community. In certain cases, such as low fences or open verandahs permit passive surveillance and informal social contact are facilitated. In contrast, visually solid or high-security boundaries often indicate a withdrawal from public life, reflecting a prioritization of privacy or security over social engagement (Lefebvre, 1991; Dovey & Wood, 2015).

As Boettger (2014) states, these threshold spaces can be perceived beyond physical demarcation. They represent a spatial and temporal transitory state, acting as both an access point to adjacent rooms and an entryway that mediates the movement between spaces. In many cultural contexts, threshold spaces invite pause and interaction, while simultaneously serving as dynamic connectors between public engagement and sheltered interiors (Gattupalli, 2022). Entryways, front yards, and verandahs near the street typically function as public or semi-public zones. These spaces mediate interaction between the household and the community. (Gehl, 2011; Giunta, 2016).

Moving inward, living and dining areas are commonly categorized as semi-public or semi-private, contingent upon cultural norms and spatial organization (Giunta, 2016). These zones are often shared among family members and selected guests. Beyond these communal areas, semi-private spaces such as kitchens, dining rooms, and family lounges serve primarily as household members' spaces, though they are occasionally accessible to close visitors. More intimate spaces, such as bedrooms and bathrooms, remain strictly private and highly controlled spaces (Newman, 1972; Lang, 1987).

This spatial configuration is not universal. It is shaped by cultural practices, behavioral norms, and spatial morphological variations in housing design. (Rapoport, 1969) Thresholds, in this regard, may be situated between inside and outside, between multiple interior spaces, or even entirely outside, negotiating transitions and layering experiences of privacy and sociability in a flexible manner. (Sadanand & Nagarajan, 2020).

Goffman (1959) employs a theory of theatrical metaphor to conceptualize this relationship, distinguishing between the “front stage,” where individuals engage in socially oriented performances for visitors and outsiders, represented in the home by spaces such as verandahs, living rooms and dining rooms where visitors are allowed with certain conditions and the “back stage,” where household members withdraw for rest, personal activities, and intimate exchanges, as in bedrooms, kitchen and service areas.

Spatial Hierarchy in Low-Income Houses

In low-income housing, this hierarchy is often compressed, absent, or informally restructured due to economic, spatial, and material limitations (Tippie, 2000; Gilbert, 2004). These constraints result in functional overlap, where spaces serve multiple roles throughout the day, and direct adjacency.

Unlike formally designed housing that adheres to zoning principles, low-income homes frequently lack dedicated circulation or buffer zones, such as corridors or lobbies, that facilitate smooth transitions. As a result, the movement from public to private within these homes is direct or abrupt. This spatial immediacy may compromise privacy and increase noise, visual intrusion, and social tension, especially in multi-generational households where boundaries are negotiated rather than architecturally defined (Lawrence, 1995).

Public to Private Spatial Transition in Low-Income Houses

According to Altman’s (1975) theory of privacy regulation, individuals manage their privacy by controlling access to their personal space through both behavioral and spatial strategies. In many low-income housing contexts, where architectural features that typically provide privacy are limited or absent, residents adapt by employing various alternative methods.

- Scheduling activities at different times - shared spaces to serve multiple purposes for different users throughout the day.
- Makeshift barriers - such as curtains, furniture, or other improvised materials, to visually define personal zones.
- Social agreements and household rules - negotiating space and maintaining boundaries.

As Rapoport (2005) emphasizes, such behavioral adaptations highlight the importance of cultural norms and everyday practices in shaping how space is experienced and utilized, especially when the physical environment does not formally support clear distinctions.

While this research emphasizes the need for clearer spatial transitions to enhance family life and privacy, John Turner’s (1972) theory of informal adaptability presents an opposing view. He argues that the lack of rigid spatial boundaries allows residents to adapt spaces creatively, thereby enhancing family life through greater flexibility. From this perspective, the blurred boundaries between public and private spaces in informal settlements are not deficiencies but adaptive responses.

Furthermore, this study emphasizes the value of clear and layered spatial transitions in strengthening family life and ensuring privacy. (Nisonen et al, 2025) suggest that blurred boundaries can also serve positive purposes in small or adaptive households. They explore the changing nature of domestic boundaries in contemporary housing, arguing that the growing preference for open-plan layouts has blurred the spatial and conceptual divisions between household functions. Accordingly, the absence of defined spatial transitions can also strain social interactions and personal well-being. Their findings suggest that spatial fluidity may support functional flexibility, particularly in low-income contexts, where limited plot areas often necessitate spaces that serve multiple purposes.

Kamalipour's work complicates the assumption, present in much of the literature and in this research, that clearly defined spatial transitions are universally beneficial. While transitions (such as setbacks and semi-public thresholds) are valued, the study shows that porous and flexible boundaries, such as "unfinished" spatial structures, irregular block grids, varied access networks, and variable setbacks between private and public spaces, provide social, symbolic, and functional advantages in informal settlements. They allow residents to adapt spaces to changing needs, participate in economic activity, and create a sense of belonging through the appropriation of thresholds. Still, certain constraints emerge where steep topography or impermeable interfaces limit connectivity and social interaction. The incompleteness is argued not as a deficit but as an asset. Enabling gradual upgrading and a hybrid morphology that visually and functionally approaches formal urban norms. (Kamalipour, 2023)

Accordingly, these arguments highlight the importance of moving policies away from top-down imposition and toward a more supportive, flexible, and contextually sensitive approach that respects how residents currently live while mandating basic quality-of-life improvements.

Existing Housing Policies, Thresholds, and Family Life.

Colombo's congested, low-rise settlements have been home to the city's low-income families, forming a dense yet socially cohesive habitat. Despite improved physical infrastructure, these neighborhoods exhibit poor spatial and social conditions. Since the 1980s, Sri Lankan housing policy has shifted from state-built mass housing toward aided self-help and incremental models, such as the *Million Houses Programme*, which encourages gradual home improvement. However, their success depends on factors like plot size, design, tenure, and community participation (Abeysekara & Gunasekara, 2022).

In such horizontal settlements, *threshold spaces* like verandas, step-outs, lanes, and shared courtyards mediate between public and private life, allowing social interaction, child supervision, and a sense of belonging (Gunathillaka & Coorey, 2014). Yet recent state-led projects such as the *Urban Regeneration Programme (URP)* have replaced these environments with high-rise apartments. Research shows that relocation disrupts family routines, privacy, and informal economies while weakening social support networks within these communities (CEPA, 2020). Families often modify interiors and reclaim informal spaces to recreate lost threshold functions (Warakapitiya et al., 2024).

Critiques of the URP highlight a mismatch between policy intent and lived experience. The “one apartment per house” rule ignores the multi-generational nature of many low-income households, resulting in overcrowding and social stress. High-rise corridors and balconies cannot replicate the adaptive social role of verandas and lanes, leading to reduced privacy, poor ventilation, and limited neighborly contact (Colombo Urban Lab, 2024; CSS Survey, 2023).

Conversely, incremental housing and site-and-service programs (e.g., CMC, Sevanatha, UN-Habitat) demonstrate that policies supporting adequate plots, flexible layouts, and community-led upgrading can preserve and evolve threshold spaces, sustaining social and family life in low-income settlements.

Methodology

The research was developed through an extensive literature review of urban low-income settlements and houses, and their impact on family life. This study employs a mixed-method case study approach focused on three main tiers: (1) Threshold and House Planning, (2) Residents’ behavior, activity patterns and family life, and (3) Interrelationships between thresholds and house plans with family life, to investigate the impact of the transition from public to private spaces on family life. The distance from the road to the house, threshold spaces between the living room and the garden, and connections between the living room or family spaces and bedrooms were selected as spatial transition factors that affect family life. Engaging activity types and usage levels in each space were selected as parameters to identify families’ spatial use and behavior. A mixed-methods qualitative framework is appropriate, as the research explores not only the physical and spatial arrangements of housing units but also the social and behavioral practices of households inhabiting them. While quantitative elements such as threshold counts, spatial measurements, and interaction frequencies are incorporated, the emphasis remains on understanding living experiences, spatial adaptations, and patterns of use within the domestic environment.

Data Collection Methods

To address the research aim and objectives, the study employs multiple complementary methods:

- Spatial Documentation: Measured drawings, photographs, and mapping of thresholds, circulation paths, and interior-exterior relationships.
- Behavioral Observations: Systematic recordings of the usage of space, family movement patterns, and social interactions in and around transitional spaces.
- Semi-Structured Interviews: Conversations with residents, focusing on perceptions of privacy, household routines, and adaptations to family composition.
- Secondary Sources: Reference to government housing reports, previous studies, and settlement histories to situate Swarna Place within broader housing designs and policies.

Analytical Framework: Research Parameters

To analyze the transition from public to private spaces in low-income households at Swarna Place, a set of parameters was defined and derived from the literature review. These parameters form the conceptual framework of the study and ensure that both the physical and social dimensions of family life are considered.

Parameters for Spatial Transitions

- Parameter 1: Road to house distance – which considers spatial gradations in these houses.
- Parameter 2: Characters of the threshold spaces – which focuses on the characteristics of physical boundaries.
- Parameter 3: Spatial connection patterns – which examines the elements of separation between spaces and movement patterns.

Parameters for Spatial Usage and Family Life:

- Parameter 4: Activity Types – which addresses the activity program within the spaces of the house.
- Level of Spatial Usage – examines the space usage level in relation to the time of day and the age categories of household members.

Under these parameters, each case study was observed, and resident responses were examined to understand how transitional spaces affect family dynamics, privacy and comfort in the settlement.

Table 1: Parameters under the specific study area and methods of observation.

This matrix serves as an analytical tool to evaluate case studies, ensuring a structured and systematic approach.

	Parameter	Data Collection Methods	Data	Intended Outcome
Parameters for Spatial Transition	P1- Road to house distance	Site walk-through; plans; photographic documentation	Layout/ sectional diagram of spatial gradient.	Identified street-to-house distance and transitional gaps.
	P2- Characters of the threshold spaces	Typology survey, Photographic documentation	Typology sheet with icons; photographs	Identified the threshold character of the public road to semi-public zones of the house. Identified the types of elements that mediate the transitions (door, grille, curtain, veranda, platform, gate).
	P3- Spatial connection patterns – which examines the elements of separation between spaces	Observation, Photographic documentation, Unstructured Interviews	Boundary typology sketches, Annotated photos	Identified physical interactions between public to private spaces.
Parameters for Spatial Usage & Family Life	P4- Activity Type	Household survey, interviews, Observations	Activity list sheet	The activities are categorized into four types: well-suited to the space, interrupt to its primary use, require more private settings, better accommodated in semi-public spaces.
	P5- Level of Spatial Usage – in different age categories and different time of the day	Observations, interviews with residents	Usage list based on age group and time of day	Identify the spaces used the most and least, in relation to time and age.

Case Study

Case Study Selection

Swarna Place was chosen based on three criteria:

- I. *Relevance*: It represents a typical urban low-income housing scheme, where transitions between public and private zones are particularly critical due to density and limited space.
- II. *Accessibility*: Its manageable scale allows for detailed mapping and repeated observations within the study period.
- III. *Variation*: The site exhibits both original layouts and user-driven modifications with the growth of the generation, making it ideal for studying adaptability and household negotiation of transitional spaces.

Research Sample Design

The Research is structured as an in-depth single settlement case study, with 10 case study houses selected randomly, focusing on Swarna Place, Colombo. According to Case study research and applications: Design and methods (Yin, R.K., 2018), 10 cases were selected to enhance analytical depth and strengthen the reliability of findings. Yin notes that three cases are considered adequate to identify patterns and establish consistent findings, particularly for straightforward or focused research questions. This single case study enables a closer examination of spatial transitions at the household scale while situating the findings within broader theoretical discussions of housing, privacy, and family life.

The study employs a combination of spatial documentation, behavioral observation, and household-level interviews, thereby integrating architectural and sociological perspectives.

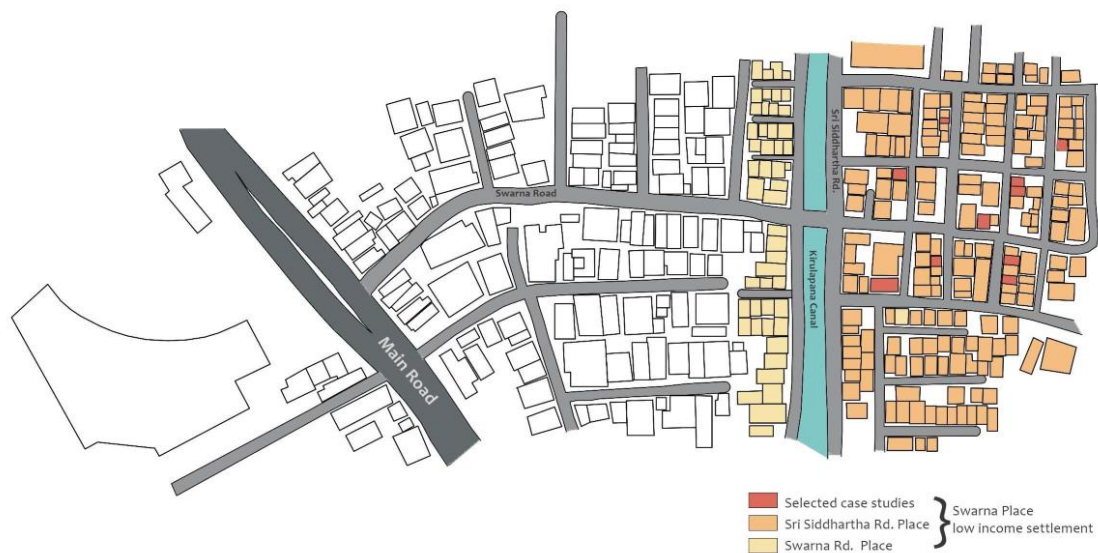


Fig. 2: Selected case study area - Swarna Place, Sri Sidhartha Road area
Source: By Authors

Limitations

This study has several limitations that need to be acknowledged.

The analysis was based on an in-depth study of 10 selected cases within the Swarna place, Colombo, rather than a survey of all houses in the settlement. This selection was made to identify patterns solely across low-income households among other social groups, while maintaining feasibility within the scope of the research.

Data collection was primarily conducted from April to June 2025 during weekends, when most household members were at home. While this provided valuable insights into the full functioning of the house during peak occupancy, it may not fully capture variations in spatial use and household behavior, as the limited two-month time frame does not cover weekday occupancy data or residents' behavior in special functions.

This study involved an in-depth investigation of 10 randomly selected houses using the three-tier data collection and analysis framework. While the sample exceeds the minimum number of cases usually required for such research, limitations persist due to the small sample size.

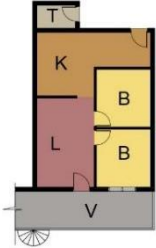
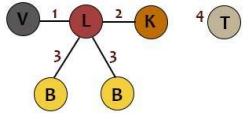
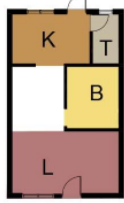
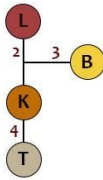
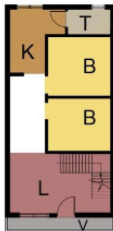
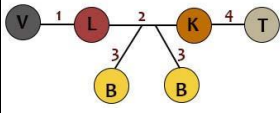
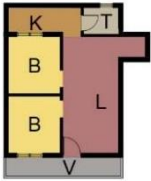
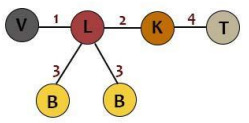
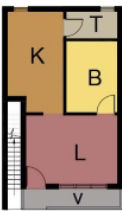
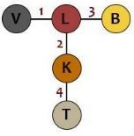
The study examined the transitional and functional aspects of spaces through observation and interpretation, which may involve a degree of subjectivity. Further research with larger sample sizes, extended observation periods, and resident variability covering other social groups would help address these limitations.

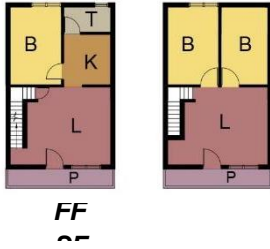
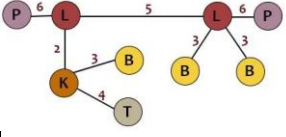
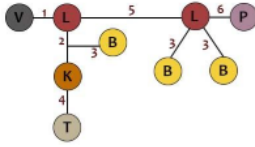
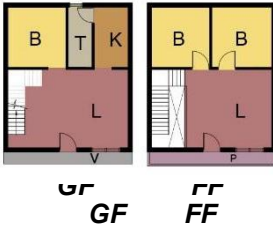
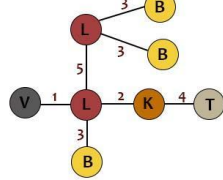
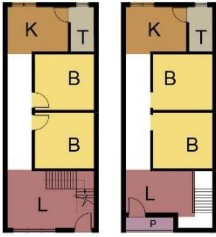
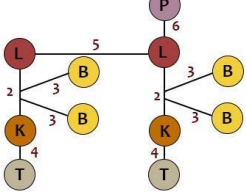
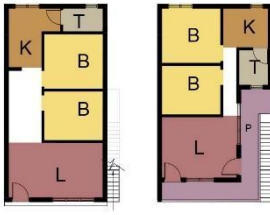
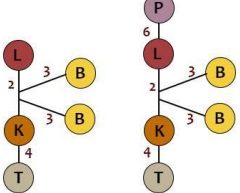
Research Results and Discussion

Transition Sequences and Strategies in House Layouts

The study of transition strategies and sequences is essential to understanding how households negotiate movement between public, semi-public, and private domains. These spaces are not only connectors but also moderators of privacy, interaction, and psychological comfort. By analyzing the strategies and sequences utilized, such as thresholds, buffer zones, and layered access, it can help evaluate how effectively spatial transition can structure daily life and family dynamics. Such an inquiry is important for identifying both the strengths and shortcomings of existing housing layouts and generating insights that can guide the design of more adaptable, socially responsive, and contextually sensitive living environments.

Table 2: Identified threshold Space Characteristics and Spatial Connection Patterns of Public to Private Transition in House Layouts Across 10 Case Studies

Case Study No.	No. Of Family Members	Plot Area (Perches)	House Plan	P1 Road to House Distance (mm) from the Outermost Wall	P2 Threshold Space Character	P3 Identified Spatial Connection Patterns
1	Total -4 M – 2 F – 2	2.4		1800	Concrete BW (H -1.8 m) + steel gate → linear garden strip → RF /verandah (W -1.8 m)	
2	Total - 3 M– 1 F – 2	1.5		300	RF/ Direct step entry → living room (no verandah)	
3	Total - 6 M– 3 F – 3	1.5		800	RF → Concrete BW (H -0.6 m) + 600 × 900 mm steel gate → verandah (W - 0.6 m)	
4	Total - 5 M– 2 F – 3	1.25		800	RF → Concrete BW (H - 0.6 m) + FSG + SGD → verandah (W - 0.8 m)	
5	Total - 6 M– 3 F – 3	1.25		800	RF → Concrete BW (H -0.6 m) + 600 × 900 mm steel gate → verandah (W - 0.6 m)	

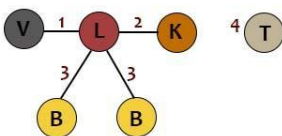
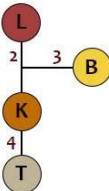
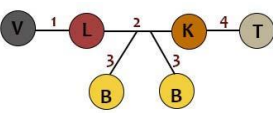
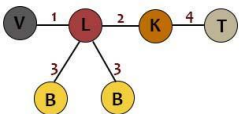
Case Study No.	No. Of Family Members	Plot Area (Perches)	House Plan	P1 Road to House Distance (mm) from the Outermost Wall	P2 Threshold Space Character	P3 Identified Spatial Connection Patterns
6	Total - 9 M- 4 F- 5	1.25	 FF	800	RF → L-shaped narrow stairway between high walls. (W - 0.6 m)	
7	Total - 9 M- 4 F- 5 Total - 3 M- 1 F- 2	2	 GF FF	600	RF → Concrete BW (H -0.6 m) + opening → verandah (W - 0.6 m)	
8	Total - 6 M- 4 F- 2	3	 GF FF	600	RF → verandah (W - 0.6 m)	
9	Total - 3 M- 1 F- 2	1.25		600	RF/ Direct step entry → living room (no verandah)	
10	Total - 6 M- 3 F- 3	1.5	 GF FF	300	RF → verandah (W - 0.6 m)	

Legend

	Verandah		Verandah
	Living Room		Living Room
	Kitchen		Kitchen
	Bedroom		Bedroom
	Bathroom / Toilet		Bathroom / Toilet
	Balcony		Balcony

P-Parameter, **M**-Male, **F**-Female, **H**-Height, **W**-Width, **RF**-Raised Floor, **DP**-Depressed Floor, **TMD**- Timber Main Door, **TD**- Timber Door, **D**- Door, **SGD** –Steel Grill Door, **FSG**- Fixed Steel Grill, **PC**– Polythene Curtain, **AO**-Arch Opening, **LC**-Linen Curtain, **STC**- See-through Curtain, **FA**- Furniture Arrangement, **SPS**-Semi Private Space, **BW**- Boundary Wall

Table 3: Identified Separation Details of Public to Private Transition in House Layouts Across 10 Case Studies

P3 Identified Spatial Connection Patterns	Identified Separation Details of Transitions Between Spaces					
	1	2	3	4	5	6
	RF, TMD	AO	LC, TD	Separate bathroom in the backyard, RF, Tarakan D		
	RF, TMD	SPS Became corridor due to the Furniture arrangement	SPS Became corridor due to the furniture arrangement--nt, LC	PVC door, DP -2-inch (bathroom in lower level)		
	RF, SGD, TMD	SPS Became corridor due to the Furniture arrangement	SPS Became corridor due to the furniture arrangement--ent, LC	PVC door, DP -2-inch (bathroom in lower level)		
	TMD	LC	LC, DP -2-inch (bedroom in lower level)	RF, PVC - glass door		

P3 Identified Spatial Connection Patterns	Identified Separation Details of Transitions Between Spaces					
	1	2	3	4	5	6
	RF, TMD	AO	TD, LC	PVC - glass door, DP -2-inch (bathroom in lower level)		
	TMD	AO	TD, STC	RF, PVC - glass door	L-shaped narrow stairway between high walls. (W-0.6 m)	TD, DP -2-inch, , STC
	RF, TMD	AO, STC Corridor	LC	PVC door, DP -2-inch (bathroom in lower level)	Staircase with cement hand railing (W - 1 m)	TD, STC, DP -2-inch (balcony in lower level)
	RF, PC, TMD	LC	GF –LC FF-TD, LC	PVC door, DP -2-inch (bathroom in lower level)	Staircase with steel hand railing (W – 1 m)	
	RF, TMD	Corridor	GF - TD, LC FF - LC	Takaran D, PVC door, DP -2-inch (bathroom in lower level)	Staircase with steel hand railing (W – 1 m)	

P3 Identified Spatial Connection Patterns	Identified Separation Details of Transitions Between Spaces					
	1	2	3	4	5	6
	RF, SGD, TMD	Corridor	LC	RF, PVC - glass door		Outdoor Staircase between high walls. (W-0.6 m)

Legend



P-Parameter, **M**-Male, **F**-Female, **H**-Height, **W**-Width, **RF**-Raised Floor, **DP**-Depressed Floor, **TMD**- Timber Main Door, **TD**- Timber Door, **D**-Door, **SGD** –Steel Grill Door, **FSG**- Fixed Steel Grill, **PC**–Polythene Curtain, **AO**-Arch Opening, **LC**-Linen Curtain, **STC**- See-through Curtain, **FA**- Furniture Arrangement, **SPS**-Semi Private Space, **BW**- Boundary Wall

Spatial Transitions

P1 - Road to House Distance (from the Outermost Wall / Column of the Houses)

Several houses (20%) have a road-to-outermost wall distance of only 300 mm, resulting in an almost direct step into the entrance without any notable threshold space. In the majority of cases (70%), this distance is around 800 mm, creating a narrow buffer zone that acts as a separation between the public and the interior of the house, though it remains very compacted. Few houses (10%) provide a distance of 1,800 mm, which meets the threshold space requirement for unrestricted movement.

P2 - Threshold Space Character

In all cases, the threshold space introduces a level change to the house through a raised floor. Few houses (12.5%) feature a solid boundary wall of sufficient height to block visual connection with the interior, combined with a gate, a private garden, and a verandah of adequate width to allow free movement.

In several cases (37.5%), the boundary is defined by a shorter wall that maintains ventilation without blocking front windows, with an opening for providing access to the interior of the house. In some cases, include a small gate. 2 cases (25%) provide only a narrow verandah, about 600 mm wide, on the raised floor. So, most houses have a narrow verandah as the threshold space. Another 2 cases (25%) omit the verandah entirely, leading to a direct entry from the road into the living room.

In the majority of cases where the house is positioned at an upper level, access is provided by a narrow stairway approximately 600 mm wide.

P3 - Identified Spatial Patterns and Separation Details

In all cases, the bedrooms and kitchen are directly connected to the living area.

The transition from living room to kitchen - In the majority of cases (60%), the transition is achieved through elements, of which 40% use arches and 20% use curtains, providing separation between spaces. In several cases (20%), the transition occurs through semi-private spaces. However, due to compact furniture arrangements, these semi-private spaces function as narrow corridors. In the remaining cases (20%), dedicated corridors facilitate the transition to the kitchen.

The transition from living room to bedrooms - In the majority of cases (60%), the transition is achieved through elements such as doors, curtains, and level changes, providing visual separation. Within this 60%, 30% of the cases utilize only a linen curtain and no door as the transitional element, 22.5% include a door and a curtain, and 7.5% incorporate both a curtain and a level change to define the separation.

In several cases (20%), this transition occurs in semi-private spaces, but due to compact furniture arrangements, these semi-private spaces currently function as narrow corridors. Moreover, in several cases (20%), dedicated corridors facilitate the transition to the bedroom.

The transition between different levels - in the majority of cases, facilitated by narrow staircases constructed within limited spaces and often not following standard measurements.

Typologies of Transition from Public to Private

Spatial limitations, daily practices, and adaptive strategies often shape the transition from public to private spaces within low-income houses. Rather than following formal architectural zoning, these transitions manifest through various spatial typologies that mediate privacy, movement, and social interaction.

Private-to-Public Direct Transitions

Rather than having buffer zones or layered privacy, private spaces such as bedrooms often open directly into shared living areas. This lack of spatial mediation, such as corridors, courtyards, and semi-private zones, forces households to use symbolic or temporary means to assert security, privacy, and control social boundaries.

Key strategies:

- Doors: Residents sometimes add steel grill doors before the main timber doors for security purposes.
- Curtains:
 - Opaque curtains (e.g., linen or thick fabric) hang at bedroom entrances to block visual connection.
 - Semi-transparent curtains are used in semi-private spaces to filter visibility while maintaining the visual connection.
- Level differences: Raised thresholds or small step-downs at room entrances help prevent drain water entry and subtly mark spatial boundaries.

Public-to-Private Transitions through Intermediate Zones

Some layouts include intermediate or semi-private zones, such as a dining area, verandah, or multipurpose space, that serve as buffers between public (living) areas and private spaces. However, due to limited spatial availability, these intermediate zones are frequently repurposed beyond their intended use. For instance, dining areas or verandahs are often transformed into storage spaces, with household furniture and objects creating physical blockages that reconfigure circulation. Over time, these zones can function less as gathering areas and more as corridor-like passageways, emphasizing movement rather than social occupation.

Vertical Transitions

In multi-level low-income housing, staircases operate as more than mere circulation devices. They function as spatial thresholds within the dwelling. Two key aspects can be identified:

- Public–private zoning – The ground floor often accommodates small-scale economic activities, acting as an extension of public life into the household. In contrast, upper floors are reserved for family privacy and domestic life, restricted mainly to residents.
- Intergenerational hierarchy – Elder generations may occupy the ground floor for accessibility, while younger generations (e.g., son, son's wife, and grandchildren) inhabit upper floors. This arrangement supports mobility needs and symbolically reinforces family hierarchy, with vertical expansion reflecting incremental construction and generational continuity.

Spatial Usage and Family Life

Documenting activity types across different household spaces provides critical insight into how residents adapt and negotiate the use of their spaces. By mapping the activities in each space, this analysis could reveal the degree of multifunctionality and the restrictions rooted in the spatial layout. Understanding these patterns is especially important for examining transitional dynamics, when activities intended for private spaces spread into communal zones, or when social activities overlap with task-specific activities, as it highlights how spatial limitations shape family dynamics and interactions. Studying activity distribution in this way can therefore help uncover the importance placed on transitional and shared areas, offering valuable insights on how design can improve privacy, adaptability, and social cohesion in family life.

Table 4: identified Functional Activities in Household Spaces and Their Impact on Quality of Use

Space	Activity / Use	Case study no.									
		1	2	3	4	5	6	7	8	9	10
Verandah	Receiving Guests					N/A		N/A	N/A		
	Seating										
	Gardening			N/A	N/A	N/A		N/A			
	Drying Cloths							N/A	N/A		
	Bike Parking	N/A			N/A	N/A					
	Storage	N/A							N/A		
	Children Playing	N/A			N/A			N/A	N/A		
	Religious Activities	N/A			N/A	N/A		N/A	N/A		
	Children Studying	N/A			N/A			N/A	N/A		
Living Room	Receiving Guests										
	Family Gatherings										
	Watching Television										
	Seating										
	Leisure Activities – Crafting, Sewing										
	Having Meals										
	Drying Cloths	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Religious Activities			N/A						N/A	N/A
	Children Playing				N/A						N/A
	Storage				N/A	N/A					
	Children Studying				N/A						
	Temporary Sleeping Area	N/A		N/A				N/A	N/A		
Kitchen	Cooking										
	Having Meals						N/A	N/A			
	Storage										
	Children Studying	N/A	N/A		N/A			N/A	N/A	N/A	
	Family Gatherings	N/A				N/A		N/A	N/A	N/A	

Space	Activity / Use	Case study no.									
		1	2	3	4	5	6	7	8	9	10
	Receiving Guests	N/A		N/A		N/A		N/A	N/A	N/A	
Bedrooms	Sleeping										
	Children Studying		N/A		N/A			N/A	N/A		
	Leisure Activities (Reading, Crafts, Sewing)		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
	Children Playing		N/A		N/A	N/A		N/A	N/A		
	Storage					N/A		N/A			
	Having Meals	N/A			N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Religious Activities	N/A	N/A	N/A	N/A	N/A	N/A		N/A		
Balconies	Gardening										N/A
	Seating										
	Drying Clothes										
	Storage							N/A	N/A	N/A	N/A
	Having Meals							N/A	N/A	N/A	N/A
	Leisure Activities – Crafting							N/A		N/A	
	Children Playing						N/A	N/A		N/A	
	Children Studying						N/A	N/A			N/A

Legend

	Activities which are aligned with their intended function
	Activities which interrupt the primary uses of the space
	Activities which are traditionally / formally accommodated in more private spaces
	Activities which are traditionally / formally accommodated in more semi-public spaces (living room)
	Not exist
N/A	Not Applicable

P4- Activity Types

In half of the cases (50%), **verandahs** are used for activities aligned with their intended function, such as seating, receiving guests, and gardening. However, the remaining 50% of cases demonstrate usage that verandahs are not designed to accommodate. Of these, 40% involve activities that interrupt the intended use, including drying clothes in front of the house, parking vehicles, children playing, or storing household items. A further 10% of activities are more effective when carried out in private spaces, such as religious practices or children's study, where the lack of privacy negatively affects the activity itself.

In around half of the cases (50%), the **living room** is used for activities aligned with its intended function, such as family gatherings, receiving guests, watching television, and leisure activities. However, in the remaining 50% of cases, the living room is used for purposes beyond its design intent. Of these, 31.3% involve activities that interrupt the living room's primary use, including drying clothes, having meals, performing religious rituals, children's play, and household storage. A further 18.7% are activities better suited to private spaces, such as sleeping or children's study.

In approximately 44% cases, **kitchen** usage corresponds to its intended functions, such as cooking and dining. In the remaining 54%, the space is used for activities for which it is not designed. Of these, 24.3% involve functions that interfere with intended use, primarily household storage. Around 9.7% of activities are better suited to private spaces, such as children's study, where privacy is required. A further 21.9% represent activities more appropriate for public spaces but are instead carried out in the kitchen.

Half of the cases (50%) show **bedrooms** are used as intended, for private functions such as sleeping, studying, or leisure activities like crafting and sewing. The other half, however, demonstrates use of the bedroom that it is not designed for.

In 58.3% of cases, **balconies** are used for their intended functions, such as gardening, seating, or drying clothes. The remaining 41.7% involve activities unsuited to balconies, including storage, having meals, and children's play.

Table 5: Identified level of Household Space Usage Across Age Groups and Times of Day

Age group category.	Case study no.	Verandah				Living room				Bedrooms				Kitchen				Balcony			
		M	A	E	N	M	A	E	N	M	A	E	N	M	A	E	N	M	A	E	N
Children (Below 18 yr.)	1																				
	2																				
	3																				
	4																				
	5																				
	6																				
	7																				
	8																				
	9																				
	10																				
Adults (18 -55 yr.)	1																				
	2																				
	3																				
	4																				
	5																				
	6																				
	7																				
	8																				
	9																				
	10																				
Senior citizens (above 55 yr.)	1																				
	2																				
	3																				
	4																				
	5																				
	6																				
	7																				
	8																				

Age group category.	Case study no.	Verandah				Living room				Bedrooms				Kitchen				Balcony			
		M	A	E	N	M	A	E	N	M	A	E	N	M	A	E	N	M	A	E	N
	9																				
	10																				

Legend

M – Morning (6 am - 12 noon)

A – Afternoon (12 noon – 3 pm)

E – Evening (3 pm – 7 pm)

N – Night (after 7 pm)

	High level usage
	Moderate level usage
	Transitory-use spaces: Areas that are passed through, without prolonged occupation.
	rarely accessed
	Not exist

P5- Level of Spatial Usage

Living spaces have the highest level of usage in the house across all cases, without any age-related limitations.

The **verandah**, however, shows a distinct generational preference. Children and adolescents tend to avoid verandahs, mainly because their visibility to neighbors and passersby reduces their sense of privacy. In contrast, adults and senior citizens frequently use verandahs, appreciating them as semi-public spaces that enable casual interaction with the community. For older residents, the verandah carries added significance as a point of social contact, compensating for their reduced participation in work or mobility.

Bedrooms are rarely used during the daytime, except by adolescents for studying or seeking privacy. In some cases, adults also adapt bedrooms for tasks such as sewing or small-scale handicraft work, though this is comparatively occasional. Overall, bedrooms are less utilized by adults and senior citizens during the day, primarily due to poor natural light and ventilation. Senior citizens do not frequently use their bedrooms during the daytime.

The **kitchen** is a temporally constrained space. Although functionally essential, inadequate light and ventilation limit its use to cooking-related activities. Once these tasks are completed, residents leave the kitchen, indicating that the space is not suitable for prolonged occupation.

Challenges Identified

Several issues arise from these spatial and functional arrangements:

- Hygienic concerns: Direct connections between bathrooms and kitchens create sanitation challenges.
- Privacy deficits: Bedrooms often lack adequate ventilation and natural light during the day, prompting adolescents to spend time outside the home, where they may engage with peers in risky activities such as drug use.

- Furniture overload: Leads to crowded spaces, reducing the effectiveness of semi-private or transitional areas.
- Underutilized upper floors: In two-story houses, upper level living areas are frequently used for storage rather than family activities, demonstrating a mismatch between available space and its functional use.
- Limited acknowledgement: The importance of transitional spaces leads to underutilization of existing areas, even when space is available.

Recommendations

Instead of applying existing housing policies to such settlements, policy frameworks should be restructured to support the enhancement of existing housing layouts and to improve overall living conditions. This can be achieved through strategies such as in-situ upgrading, formalizing user-driven modifications, and integrating mandatory standards for lighting, ventilation, and other spatial requirements.

Planners and policymakers can adopt actionable design guidelines to balance communal interaction, privacy, and family well-being in future housing schemes or regeneration projects by introducing low-cost partitions or screens to define semi-private zones within shared interiors, acknowledging the Multi-functionality of available spaces, providing guidance and structural support for safe vertical expansion, providing subsidies for small exhaust fans in kitchens to make them suitable for prolonged occupation, and other recommendations. Future housing policies and design strategies should prioritize not only structural adequacy but also the quality of spatial transitions, as these are crucial in shaping residents' daily routines, social practices, and overall family well-being in high-density low-income settlements of Sri Lanka.

Conclusion

This study examined the effects of transitions from public to private spaces on family life in urban low-income housing, using Swarna Place in Colombo as a case study. Findings reveal that while these self-built houses exhibit some form of hierarchical zoning, transitions between public and private spaces are often immediate and direct. The living room and verandah function as core spaces, accommodating multiple activities and serving as primary nodes of family interaction and interaction with the surrounding community. Bedrooms and kitchens, although intended as private areas, are constrained by poor ventilation, limited natural light, and small dimensions, leading residents to conduct private activities in more public spaces. This situation compromises the privacy of household members and exposes family life to the broader community.

These spatial arrangements create both opportunities and challenges. On one hand, direct connections between communal and private spaces can enhance family interactions and support intergenerational engagement. On the other hand, they compromise privacy, limit individual autonomy, and may contribute to hygiene issues due to functional overlaps, such as bathrooms connected directly to kitchens. Transitional spaces, where present, are often narrow or repurposed as storage, reducing their effectiveness in mediating privacy and social interaction.

The observed activity-based hierarchy of spatial use, in which living rooms and verandahs support social interaction and communal life. At the same time, bedrooms and kitchens remain confined to task-specific or private functions, emphasizing a clear distinction between multifunctional and single-purpose spaces. The poor configuration of semi-private and private areas, such as kitchens and bedrooms, often compels residents to shift activities that are more suited to private spaces, such as sleeping, into communal areas like the living room. This overlap not only blurs the separation between private and shared domains but also creates spatial conflicts that disrupt family routines and dynamics.

The study highlights the importance of thoughtful spatial planning in low-income housing. Even within limited plots, small design interventions such as clearly defined thresholds, semi-private zones, and improved ventilation and natural light in bedrooms can create a more balanced relationship between communal interaction and private life. Housing policies should shift from imposing standard models to improving existing low-income settlements through context-sensitive upgrades, to balance community life, privacy, and family well-being. Ultimately, housing strategies must value not only structural stability but also the quality of spatial transitions that shape everyday life in dense settlements in the Sri Lankan context.

While this study has focused on public-to-private transitions in high-density, low-income housing in a specific location, its scope could be meaningfully extended to other regions of the country to capture broader contextual influences. Cultural and religious backgrounds, in particular, can provide an opportunity to closely examine, as they often play a decisive role in shaping patterns of spatial transition. Additionally, developing such investigations to include different income groups would touch on the resident variability and provide a more comprehensive understanding of the diverse socio-economic and cultural factors that inform spatial arrangements within domestic environments.

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