

# **GENDER-INCLUSIVE PUBLIC TRANSPORTATION: ADDRESSING THE MOBILITY NEEDS OF LOW-INCOME WOMEN WORKERS IN KOCHI CITY, INDIA**

FATHIMA ZEHBA MAANJERI PUZHUSERY \*

*Bartlett School of Architecture, University College London, 22 Gordon Street, London WC1H 0QB,  
United Kingdom, Department of Architecture and Planning, National Institute of Technology Calicut,  
NIT Campus P.O., Kozhikode – 67360, Kerala, India*

*\* corresponding author:*

*fathima.puthusery.23@ucl.ac.uk, Fathima\_p190147ar@nitc.ac.in, fathimazehba81@gmail.com*

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Public transportation systems in urban India, like those in Kochi, Kerala, are often designed with limited consideration of the needs of women, particularly low-income female workers. This paper examines the gender-specific challenges faced by domestic workers in Kochi, who rely heavily on public buses for their daily commutes. Through in-depth interviews with 25 female domestic workers, the study identifies critical issues such as poor bus design, overcrowding, inadequate bus shelters, and safety concerns during peak hours and first/last-mile connectivity. The findings reveal that high bus steps, inaccessible handrails, and congested conditions make commuting uncomfortable and unsafe for women, particularly those in traditional attire or older age groups. Women also face safety risks, especially in the early morning or late evening, when harassment and crime are more prevalent. This paper calls for the implementation of gender-responsive transportation planning to address these challenges, including redesigning public buses and shelters and enhancing safety measures. Improving public transportation infrastructure and operations for women can lead to more equitable, inclusive urban mobility and better access to socioeconomic opportunities for low-income women workers.

## **1. Introduction**

Public transportation systems play a crucial role in shaping the mobility and access of urban populations [1], [2]. However, the design and operation of such systems often fail to account for the specific needs of women, particularly low-income women workers [3], [4]. Globally, transport planning has been largely male-centred, with infrastructure and services designed to meet the needs of able-bodied, working-age men. As a result, women, especially those from lower-income groups, are disproportionately disadvantaged when using public transportation systems [5], [6].

This paper examines the challenges faced by domestic workers in Kochi, Kerala, in accessing public transport and how these challenges highlight broader gender inequities in urban mobility. Domestic workers, a predominantly female workforce, rely heavily on public buses for their daily commutes. The study investigates specific design and operational flaws in Kochi's public transportation system that limit the safety, comfort, and convenience of these workers. Additionally, it explores opportunities for integrating gender-responsive design solutions that can enhance the accessibility and efficiency of public transport for women.

## 2. Background and Context

Kochi, the commercial capital of Kerala, is a rapidly growing city with significant urban expansion. Despite this development, its public transportation infrastructure has lagged in addressing the diverse needs of its users, particularly women [7]. Kochi's public bus system, which serves as the backbone of transportation for low-income workers, is inadequately designed to cater to the unique travel patterns and requirements of women.

Studies show that women travel differently than men, making multiple short trips throughout the day to fulfill both work and domestic responsibilities [8], [9], [10]. Unlike men, who typically travel for paid work, women's travel patterns are often fragmented, involving multiple stops for errands, childcare, and other household-related tasks. Despite this, public transport systems in Kochi are designed primarily for single-destination trips, ignoring the complexity of women's commuting needs [11].

In Kochi, domestic workers—who form a significant part of the low-income working population — face compounded difficulties due to the poor design of public transport vehicles, overcrowded conditions, and the lack of safety measures in transit. These challenges are often exacerbated by the lack of gender-sensitive planning in public transportation.

## 3. Methodology

This study is based on qualitative data collected through in-depth interviews with 25 female domestic workers in Kochi, conducted over a period of two months. The women were selected using a purposive sampling strategy, ensuring representation from various geographic locations around Kochi, including the islands surrounding the city center. The interviews aimed to capture the participants' daily commuting experiences, their perceptions of safety, and their views on the adequacy of transport infrastructure.

A thematic content analysis was employed to identify key challenges faced by these women. The interviews focused on specific areas such as the design of public buses, the adequacy of bus shelters, safety concerns, and the accessibility of services during peak hours. The findings from these interviews were then mapped against existing literature on gender-responsive transportation planning.

## 4. Key Findings

### 4.1. Poor Bus Design and Accessibility Issues

One of the major challenges highlighted by participants was the poor design of public buses, which fails to accommodate women's needs. For instance, the steps of the buses are too high, making it difficult for women, especially those dressed in sarees (traditional Indian attire), to board. This design flaw is particularly problematic for older women and those carrying shopping bags or children.

Additionally, the internal layout of the buses does not account for women's shorter stature. Many participants reported difficulty in reaching the overhead handrails, which are designed with average male height in mind. This forces shorter women to stand unsteadily, holding onto the partition between the driver and passengers, leading to discomfort and increased fatigue during the journey.

#### 4.2. Overcrowding and Health Implications

Overcrowding is a significant issue during peak hours, with women often forced to stand for the entire duration of their commute. Despite the availability of a greater number of buses during rush hours, all buses are heavily congested, leaving women with no choice but to travel in uncomfortable conditions. Many participants reported experiencing body pain and fatigue due to prolonged standing in cramped spaces.

Women also expressed concerns over the speed at which buses operate during peak hours. Drivers, in an effort to meet schedules, often drive recklessly, leading to frequent accidents or near-accidents. Participants recounted incidents of women falling inside buses due to sudden braking or falling while alighting from fast-moving buses.

#### 4.3. Uncomfortable and Unsafe Bus Shelters

Bus shelters are another area where gender-insensitive design affects women's mobility. Many participants noted that they avoid sitting on bus shelter benches even when they are available, citing reasons such as discomfort, dirt, or the presence of men at the bus stop. The lack of cleanliness at bus shelters was a recurring issue, with several women mentioning the smell of urine and unclean surroundings.

The absence of well-designed and well-maintained bus shelters also affects women's safety. Many women reported feeling unsafe while waiting for buses in isolated areas, particularly during early morning or late evening hours. In some cases, women take longer, more expensive routes to avoid unsafe areas or opt to travel with male relatives or friends.

#### 4.4. Safety Concerns: Fear of Crime and Harassment

Safety remains a paramount concern for women using public transport in Kochi. Although the frequency of sexual harassment on buses has decreased in recent years, primarily due to age and vigilance, younger women and daughters of participants have experienced harassment. First and last-mile connectivity, i.e., the walk between home and the bus stop, remains a particularly dangerous part of the commute, with women reporting incidents of catcalling, exhibitionism, and other forms of harassment.

In response to these concerns, some women pay extra for autorickshaw rides to avoid walking long distances in the dark, highlighting the financial cost of poor urban planning and public safety. Fear of crime significantly restricts women's mobility and forces them to make choices that compromise their safety, time, and financial well-being.

#### 4.5. Discussion

The challenges faced by women domestic workers in Kochi underscore the need for a gender-responsive approach to public transportation planning. The current design of public transport systems prioritizes efficiency over inclusivity, with little attention paid to the specific needs of women.

Gender-sensitive transportation planning could address many of the issues raised by the participants. For instance, bus designs with lower steps and accessible handrails would make it easier for women to board and travel safely. Additionally, increasing the frequency of buses during peak hours and improving the design of bus shelters would reduce overcrowding and improve safety for women.

## 5. Conclusion

This paper highlights the critical gaps in the design and operation of public transportation systems in Kochi, particularly from the perspective of low-income women workers. By examining the experiences of domestic workers, the study demonstrates how public transportation, as it currently exists, fails to meet the needs of a significant portion of the urban population.

To create a more inclusive and equitable transportation system, city planners and policymakers must adopt gender-responsive design principles that consider the unique mobility patterns and safety concerns of women. This will not only improve the quality of life for women but also contribute to more sustainable and efficient urban transport systems.

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