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GENDERED MOBILITY AND SUSTAINABLE URBAN TRANSPORT: WOMEN'S EXPERIENCES ON MUMBAI'S SUBURBAN RAILWAY

Dhriti DHAUNDIYAL¹ and Nishant SHARMA²

¹ School of Design, Doon University, India; dhritidhaundiyal@doonuniversity.ac.in

² IDC School of Design, Indian Institute of Technology Bombay, India

Handling Editor:

Professor Dr. Ismail Suardi WEKKE

Universitas Muhammadiyah Barru, Indonesia

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Abstract

In the urban landscape of Mumbai, women commuters navigate a complex interplay of gender and mobility within their daily commutes on the suburban railway system. Balancing diverse domestic and professional roles, their experiences and perceptions of mobility are shaped by societal structures and safety concerns, often resulting in transit captivity. This study adopts a qualitative approach grounded in feminist epistemology, conducting in-depth semi-structured ethnographic interviews with both daily and occasional women travellers on Mumbai's local trains. Through a gendered lens and thematic analysis, this research uncovers the varied mental models and socio-cultural influences that shape women's mobility decisions, revealing their travel experiences, preferences, and constraints. The findings highlight the layered complexities of women's mobility needs and the shortcomings of current urban transport systems in addressing these needs, particularly regarding safety, accessibility, and inclusivity. This study contributes to the literature on urban mobility, gender equity, and sustainable transportation by integrating a theoretical framework that centres women's experiences. It advocates for a more holistic approach to urban planning in densely populated and developing contexts, emphasizing the need for inclusive transport policies that consider the diverse needs of all urban residents.

Keywords: Public Transport, Transit Captivity, Megacity, Suburban Trains, India

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Introduction

Commuter decisions are shaped by numerous factors, encompassing economic, social, cultural, and emotional dimensions. Within this intricate net of decision-making, gender emerges not merely as a variable but as a significant determinant, influencing mobility choices in complex and often invisible ways (UN Women, 2019). Mobility infrastructure is frequently designed for generic users and fails to consider both the explicit and the tacit user needs of marginalized groups, particularly women (Bardzell, 2018). To fully understand the mobility needs within urban transport systems, it becomes imperative to critically examine the underlying patriarchal constructs and gendered biases that shape the design and functionality of transportation infrastructure. These constructs often presume all users are fit, able-bodied, and conform to the archetype of the average adult male, overlooking the diverse needs of women and other marginalized groups. Such assumptions ignore the unconscious patterns and information systems—such as those involving safety evaluations, travel distance, time, convenience, budget constraints, and luggage considerations—that profoundly shape daily travel experiences (Cresswell, 2014).

In the bustling metropolis of Mumbai, the local trains serve as an emblematic representation of urban mobility, moving millions of commuters daily within the city and the extended suburbs of the Mumbai Metropolitan Region (MMR). Often referred to as the city's lifeline, these trains capture the vibrancy and diversity of Mumbai's populace. However, they also reflect the broader challenges and complexities inherent in urban transport, particularly concerning gendered dynamics and safety concerns. The crowded compartments, rush-hour chaos, and inherent gendered design elements, rooted in patriarchal ideologies, present unique challenges for women commuters. These realities emphasize the need for a deeper understanding of their travel experiences and the socio-cultural barriers that shape them.

Existing scholarship has explored into the notion of 'gendered time', elucidating the distinct ways in which men and women perceive and engage with time, especially in contexts where women navigate the compounded responsibilities of household and professional spheres (UN Women, 2019; Cresswell, 2014). This temporal disparity becomes particularly salient in the realm of travel, where gendered mobility patterns are reinforced by societal norms, structural inequities, and intersectional vulnerabilities—including race, class, and caste. Women, as a result often experience heightened concerns related to safety, harassment, and accessibility within public transport systems, which can significantly constrain their mobility choices and freedom.

This study attempts to uncover these ingrained patterns and systems to provide insights that could inform gender-sensitive design interventions within public transportation frameworks. The significance of this research is particularly pronounced in densely populated, developing nations like India, where public transport systems such as Mumbai's local trains serve as a vital lifeline for those without access to private modes of mobility. This makes public transport a key enabler of not just environmental sustainability, but also social sustainability, by granting equitable access to mobility for all citizens. Drawing upon empirical findings, this study aims to deconstruct the cognitive frameworks underpinning women commuters' decision-making processes within the context of Mumbai's local trains, highlighting the latent needs, challenges, and opportunities for inclusive design that prioritize gender equity.

The following section provides a background on the intersection of gender, mobility, and public transport, through a review of existing academic literature, integrating a theoretical framework that aligns with gender studies. The subsequent sections detail the research design, followed by an analysis of the findings and a discussion of the emergent themes. The conclusion synthesizes the key insights from the research and suggests future directions for infrastructural interventions in public transport to promote gender equity and sustainability.

Literature Review

Gender and Mobility

In sprawling urban agglomerations, mobility plays a crucial role in women's empowerment, affecting their ability to access economic and social opportunities. Urry (2004) delineates five distinct forms of mobility: corporeal travel, physical movement of goods, imaginative travel, virtual travel, and communicative travel. These interwoven and interdependent forms constitute the fabric of social life but are marked by stark inequalities in accessibility, particularly for women. This research focuses specifically on corporeal travel, which directly impacts women's everyday experiences in urban spaces. While mobility is often associated with progress and emancipation, it also highlights inequalities in access, imposing constraints and control mechanisms that reinforce existing social hierarchies (Cresswell & Uteng, 2008). As more women participate in the workforce while balancing domestic responsibilities, their mobility needs have become more pronounced. However, limited transportation options often curtail their professional and personal aspirations, affecting job choices, work hours, and caregiving roles (Butcher & Maclean, 2018).

Mobility, therefore, emerges as a complex construct encompassing theoretical, social, technical, and political dimensions. The relationship between mobility and gender is particularly intricate, shaped by power dynamics, social norms, and cultural interpretations. The seminal World Bank Report on Gender and Transport (Bamberger et al., 1999) emphasized that an efficient and gender-sensitive transport system could enhance women's productivity and promote social equity. The report, however, criticized policy responses that predominantly framed transport challenges as issues of efficiency rather than equity, thereby neglecting gender-specific concerns such as accessibility and safety.

Empirical evidence indicates significant disparities in transport modalities available to women in developing nations. A disproportionate number rely on pedestrian modes, have limited access to motorized transport, and seldom utilize intermediate options like bicycles (Peters, 2001; Loukaitou-Sideris, 2020; Pfeiffer, 2021). Alarmingly, only about 4% of World Bank transport projects in developing countries incorporate gender-sensitive components, a stark contrast to other sectors like health and education (Peters, 2001). These disparities lead to a form of gendered immobility, often referred to as 'transit captivity,' where socioeconomic mobility is constrained by restricted and unsafe travel options. Women become captives of inadequate mobility choices, making life decisions—including where to work, when to work, and caregiving roles—based on these limited options.

Transit Captivity in Public Transport

Addressing 'transit captivity' requires a multidisciplinary approach involving mobility researchers, transport planners, designers, economists, and policymakers. Public transport emerges as a critical component in envisioning sustainable urban futures, particularly for densely populated, developing contexts. As Massey (1994) argued, the ubiquity of private vehicles threatens the viability of public transport systems, which in turn exacerbates the mobility challenges faced by vulnerable populations. Yet, research shows that women are generally more inclined towards public transport options, despite the inherent challenges they face (Hjorthol, 2001).

Mobility patterns are deeply intertwined with societal gender dynamics, both influencing and reflecting power hierarchies (Cresswell & Uteng, 2008; Uteng et al., 2019). Studies reveal significant gender-based differences in travel behaviour, where women tend to undertake more complex, multi-purpose trips compared to men's predominantly single-purpose journeys. These patterns arise from gender-specific familial roles, influencing travel purposes, modal choices, and time-of-day preferences (Erickson, 1977; Pas, 1984; Levy, 1992; Turner & Fouracre, 1995; Fernando, 1999). To address women's safety concerns, urban transport systems have experimented with gender-segregated options, such as women-only compartments and

subsidized fares. Tara's (2011) study on Delhi Metro's women-only coaches illustrates how such measures can transform power dynamics, offering symbolic agency to women commuters in traditionally male-dominated public spaces.

Theoretical Framework: Gender, Mobility, and Intersectionality

The study of gender and mobility intersects with various theoretical perspectives that explore how social structures, norms, and power dynamics influence individual and group behaviours in public spaces. Understanding the travel experiences of women on Mumbai's Suburban Railway requires a multi-dimensional approach that includes gender theories, feminist geography, and intersectionality.

1) Gender as a Social Construct in Mobility Studies: Gender is not merely a biological distinction but a socially constructed category that shapes and is shaped by societal norms, roles, and expectations (Butler, 1990). Feminist theorists argue that public spaces, including transportation systems, are often designed based on male-centric norms that do not account for the specific needs of women and other marginalized groups (Massey, 1994). This is evident in the design and operation of Mumbai's suburban railway system, where the safety, convenience, and accessibility need of women are often secondary considerations.

The concept of "gendered spaces," introduced by Spain (1992), is crucial for understanding how transport systems can perpetuate gender inequalities. Gendered spaces refer to areas that are constructed, maintained, and experienced differently by men and women due to societal norms and power dynamics. In transportation studies, this concept helps to analyze how public transport becomes a site of gender-based exclusion, reinforcing women's vulnerability and limiting their access to opportunities.

2) Mobility Justice and the Right to the City: The notion of mobility justice expands upon these feminist perspectives by incorporating broader social, economic, and political dimensions. Sheller (2018) articulates mobility justice as the equitable distribution of mobility opportunities, where individuals have the right to move freely and safely within urban spaces. For women in Mumbai, mobility justice involves ensuring safe, reliable, and accessible transportation options that respect their diverse needs, acknowledging that these needs are often overlooked in urban planning processes dominated by male perspectives.

Drawing from Henri Lefebvre's (1968) "right to the city", which argues that all urban residents should have the right to shape their urban environment and access its resources, mobility justice highlights the need for inclusive policies that prioritize marginalized voices. Women commuters in Mumbai, as in many global cities, face barriers not only due to gender but also due to intersecting factors such as class, caste, and age. Addressing these barriers requires a fundamental shift toward policies that recognize and actively dismantle the embedded inequities in public transportation systems.

3) Intersectionality and Mobility: Crenshaw's (1989) theory of intersectionality is crucial for analyzing the experiences of women commuters on Mumbai's Suburban Railway. Intersectionality posits that individuals experience oppression in varying configurations and degrees of intensity based on their intersecting social identities—such as gender, race, class, and age. This framework is particularly relevant for understanding the mobility challenges faced by women who navigate public transportation systems differently, depending on their socio-economic status, employment conditions, caregiving responsibilities, and other intersecting factors.

For example, while all women may face safety concerns on public transport, a middle-class professional woman might have different concerns compared to a working-class woman who travels late at night or early in the morning. These intersecting identities affect their perceptions of safety, access to resources, and choices related to mobility. By adopting an intersectional lens, this study aims to unpack these layered experiences, thereby providing a deeper understanding of "transit captivity" as it relates to multiple forms of vulnerability.

4) Symbolic Interactionism and the Social Construction of Reality: Symbolic interactionism, as outlined by Blumer (1969) and further expanded by Lune & Berg (2018), offers another important theoretical lens for examining women's mobility on Mumbai's suburban trains. This perspective argues that social reality is constructed through interactions and the meanings that people ascribe to their experiences. For women commuters, the act of traveling on public transport is not merely a functional necessity but is imbued with complex meanings shaped by societal norms, personal safety assessments, and lived experiences.

This theoretical lens helps understand how women navigate public transport systems by creating cognitive maps based on perceived risks, convenience, and social acceptability. It emphasizes the importance of understanding the meanings attached to different travel choices and behaviours, which are shaped by the interactions women have with their environment, fellow commuters, and societal expectations.

5) Practical Implications for Urban Planning and Policy: Integrating these theoretical perspectives—feminist geography, mobility justice, intersectionality, and symbolic interactionism—provides a comprehensive framework for analyzing women's mobility experiences in Mumbai's suburban railway system. This framework suggests that addressing women's mobility needs requires more than just technical solutions like adding women-only coaches or increasing surveillance. Instead, it calls for a broader reconsideration of urban planning processes that systematically include gender-sensitive perspectives and prioritize the voices of marginalized communities.

Mapping Tacit Travel Needs of Women

Mobility experiences are influenced by intersecting factors such as age, gender, and dependency status, which shape how individuals perceive, navigate, and interact with public transport systems (Parikh, 2018; Dhaundiyal & Sharma, 2020; Arundhathi, 2024). For instance, while an elderly person might prioritize accessibility features, a young, able-bodied commuter might value speed or connectivity. Similarly, women's mobility concerns—often governed by safety considerations and societal norms—differ significantly from those of men. Dependence on public transport, especially for those with disabilities or caregiving responsibilities, further complicates these needs (Verma et al., 2020; Mahambare & Dhanaraj, 2022).

In India, public transport infrastructure tends to adopt a one-size-fits-all approach, often catering predominantly to the needs of the able-bodied while marginalizing vulnerable cohorts like the elderly, people with disabilities, and women with unique safety concerns (Shaban & Sattar, 2023). The bulk of existing research on this subject relies heavily on quantitative methodologies, providing essential statistical insights—such as user numbers and peak travel times—but often failing to capture the deeper human experiences. While quantitative data may show that a certain percentage of women feel unsafe during their journeys, it often falls short in explaining the reasons behind these feelings or the coping mechanisms employed.

Blumer (1969) posited that human beings understand meaning in two ways: first, as an intrinsic property of objects or events, and second, as a social construct created through interactions. Reality, therefore, becomes an interpretation of individual definitions of various experiences (Thomas & Thomas, 1928). Social structures are emergent phenomena shaped by these shared interpretations rather than by fixed societal forces or needs. To truly understand and interpret human behaviour, symbolic interactionism suggests focusing on the meaning's individuals attribute to their actions. Thus, human behaviour is not simply a series of stimulus-response reactions but rather an ongoing, negotiated interpretation of events and situations (Lune & Berg, 2018).

The gap in understanding the tacit mobility needs of women is further widened by the scarcity of qualitative research that deeply explores their unarticulated challenges in navigating public transport in India. Qualitative methods like in-depth interviews, focus groups, or participatory observations allow women to articulate their experiences, concerns, and suggestions in their

own words. The lack of such studies often results in generic, context-insensitive solutions that borrow heavily from Western paradigms. For instance, gender-neutral policies or safety measures inspired by Western contexts may not align with the socio-cultural dynamics of Indian cities. The following section details the methodology and research design of the study.

Methodology

Research Design

The study adopted a qualitative, exploratory approach to comprehend the intricacies of local train travel experiences in Mumbai. Central to this methodology were in-depth, semi-structured ethnographic interviews conducted with both regular and occasional users of the city's local trains. The overarching research questions guiding this investigative endeavour were multi-dimensional.

1) What are the lived experiences of women commuters on Mumbai's suburban railway system, and how are these shaped by their intersecting identities (e.g., age, class, caste, employment status)?

2) What are the implicit cognitive frameworks and information systems that women employ in navigating public transportation, and how do these influence their travel choices and patterns?

3) How does the concept of 'transit captivity' manifest in the experiences of women commuters, and what socio-economic, cultural, or policy factors contribute to this phenomenon?

Development of the interview questions was informed by a small but intensive focus group discussion among four researchers, who are also active local train users in Mumbai. This session aimed to identify overarching themes and concerns pertinent to women commuters, thereby informing the subsequent interview protocols. Prior to commencing the main study, five pilot interviews were conducted. These preliminary sessions were instrumental in refining the interview structure, ensuring that the questions were both comprehensive and sensitive to the respondents' experiences. Based on the themes identified in the focus group, an open-ended interview script was drafted. Each interview lasted between 25 to 30 minutes, following a planned script, with deeper probing questions asked where necessary. Common themes that emerged included aggression, companions, crowds, difficulty boarding the train, overwhelming experiences, lack of privacy, lack of confidence, noise, safety concerns, accidents, helpful locals, issues with luggage and storage, poor signage, and lack of cleanliness and hygiene. Following the pilot round, it became evident that the interviews needed to explore deeper to uncover new and crucial insights. Consequently, the interview strategy was modified to include scenarios that encouraged participants to step out of their comfort zones and consciously reflect on their actions or opinions. For instance, when asked about missing a train, participants shared conscious, reasoned action plans they had considered or implemented in the past. These reflections revealed unconscious patterns of consideration related to safety, economy, and temporality.

The interview protocol was structured to include three key phases: warm-up, exploratory, and probing. During the warm-up phase, participants were asked to recall their first train ride and reflect on how their experience has evolved over time. They were also prompted to describe their preparation routines for commuting. In the exploratory phase, participants were encouraged to discuss what they look forward to during their train journey, their apprehensions about the ride, their strategy for boarding the train, and how they spend their time while traveling. The probing phase aimed to explore deeper into participants' experiences, asking them how they ensure their safety during the ride, how their experiences might differ if they used personal transport or cabs instead, and what actions they would take if they missed their train.

Full-length semi-structured ethnographic interviews were conducted with eleven female participants aged between 20 and 50 years—the demographic most likely to use local trains for

commutes. Each interview, with a semi-structured script, lasted between 90 to 120 minutes, with supplementary probing questions employed to elicit deeper insights. The emergent themes resonated with findings from prior research, encompassing facets such as aggression, crowd dynamics, boarding challenges, privacy concerns, and safety issues.

Sampling Methodology

For the preliminary focus group, participants were recruited via convenience sampling, a pragmatic choice designed to expedite the initial stages of data collection. Subsequent interviews, however, employed a snowball sampling technique. This methodological shift was informed by the inherent challenges associated with engaging regular commuters, who often exhibit a degree of reticence when discussing routine experiences. Leveraging the referrals of initial participants, therefore, proved invaluable in expanding the study's participant pool.

Data Analysis

Grounded in symbolic interactionism, the study posited human behaviour as a dynamic interplay of meanings, interpretations, and social interactions. Rooted in the seminal works of Blumer (1969) and further expounded by Herman-Kinney & Verschaeve (2003), this theoretical orientation emphasizes the interpretative nature of human interactions, eschewing deterministic frameworks in favour of a context-specific understanding.

To distil meaningful insights from the amassed data, the study employed thematic analysis, facilitated by the qualitative data analysis software Atlas.ti. Adopting a conventional content analysis approach, the data segments were systematically coded, thereby facilitating the emergence of overarching themes and patterns. These emergent themes were subsequently juxtaposed with extant literature, culminating in the formulation of a coherent theoretical framework that encapsulated the myriad facets of local train travel experiences in Mumbai. The salient findings from the study are described in the following section.

Findings

The preliminary phase of the study started with a focus group discussion with four researchers, followed by five pilot interviews with women participants, and finally, eleven full-length semi-structured ethnographic interviews. The audio recordings of the interviews were organized and coded using Atlas.ti qualitative data analysis software. Codes were inductively identified from the raw audio data and assigned to relevant data nodes. The codes were then transformed into categorical labels or themes. Next, the audio data was sorted according to these themes, identifying common patterns, phrases, relationships, commonalities, and disparities. The sorted data was then sieved for meaningful patterns and processes. The patterns thus identified were considered in reference to existing research and theories in the domain, and a resultant theory of generalizations was established (Lune & Berg, 2018). Thematic analysis uncovered recurring themes that exhibited the highest degrees of code co-occurrence, as outlined in Table 1 below. Code co-occurrence refers to the simultaneous appearance or occurrence of two or more specific codes or categories within a dataset during the process of qualitative data analysis. It indicates instances where certain themes, concepts, or patterns tend to be associated or present together in the data, providing insights into potential relationships or connections between different elements.

Table 1 Highest Coefficient of Cooccurrence

Theme	Co-occurring Theme	Co-occurrence Coefficient
Negative Experience	Overwhelming	0.38
Bullying	Conflict	0.33
Non-Mumbai Native	Overwhelming	0.33
Preparation	Time Saving	0.30
Activity	Watching People	0.29

Taxi/Auto	Attire	0.27
Standing at Doors	Accident	0.27
Ladies Compartment	Noise	0.27
Policing	Signage	0.27
Seat Strategy	Time Saving	0.27
Ladies Compartment	Conflict	0.25
Less Experienced	Attire	0.20
Non-Mumbai Native	Confusion	0.20
Mumbai Native	Helpfulness	0.20
Experienced User	Learned Behaviour	0.20
Policing	Learned Behaviour	0.20
Anticipation	Companion	0.18
Apprehension	Conflict	0.18
Less Experienced	Luggage	0.18
Apprehension	Time Inoculation	0.18
Time Inoculation	Conflict	0.18
Apprehension	Bullying	0.17
Apprehension	Crowd	0.17
Apprehension	Boarding Strategy	0.17
Confusion	Negative Experience	0.17
Companion	General Compartment	0.17
Mumbai Native	Public Confidence	0.17
Elderly	Infrastructure	0.17
Crowd	Safety	0.17
Peak Travel	Mumbai Native	0.17
Apprehension	Infrastructure	0.15
Companion	Children	0.15
Safety	Negative Experience	0.15

Analysis of Co-Occurring Themes

The highest co-occurring themes were then looked at in further detail, for a richer and deeper understanding of tacit issues faced by women using the suburban trains in Mumbai. The findings reveal a multi-dimensional picture of urban mobility, reflecting broader societal dynamics and infrastructural challenges, especially from a gendered perspective. This section reports the thematic findings, illustrating them with specific examples from the interviews.

1) Temporal Discontinuities: Interruptions in Commuter Patterns: A notable finding from the interviews was the frequent interruption in local train usage experienced by many participants. Several women mentioned taking breaks from using local trains due to significant life changes. For instance, one participant described how her daily commute was disrupted after her marriage, as she relocated to a new neighbourhood and switched to a different mode of transport due to increased travel time and safety concerns. Similarly, another participant, a 45-year-old mother, reported discontinuing train travel after childbirth, citing the challenges of managing a newborn in crowded trains. These disruptions highlight how personal and social factors, including gendered expectations and family responsibilities, influence women's mobility patterns. Such interruptions highlight the need for public transportation systems to be more adaptable to life changes and gender-specific needs.

Figure 1 illustrates the main decision-making factors related to public transport identified through thematic analysis of the semi-structured interviews.

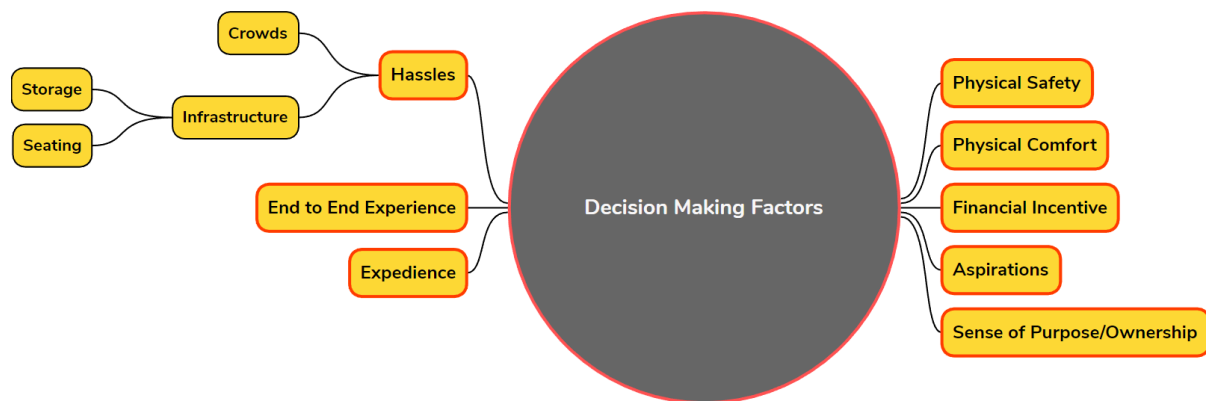


Figure 1 Decision-Making Factors in Selecting Mode of Transport

2) Gendered Travel and 'Pink Tax': The study identified distinct travel patterns between men and women, with significant implications for cost and convenience. Women's tendency towards 'trip chaining'—combining multiple errands in a single journey—often resulted in higher travel costs. For example, a 28-year-old participant, who works as a school teacher, explained how she often combined her commute with multiple stops for shopping and picking up her children, which increased her travel time and expenses compared to a direct route. This phenomenon, sometimes referred to as the 'pink tax,' reflects how women's travel needs are often not accommodated by existing public transport systems, which are typically designed with male commuters in mind. Figure 2 summarizes the reasons participants provided for discontinuing the use of public transport, acknowledging that these reasons may extend further.

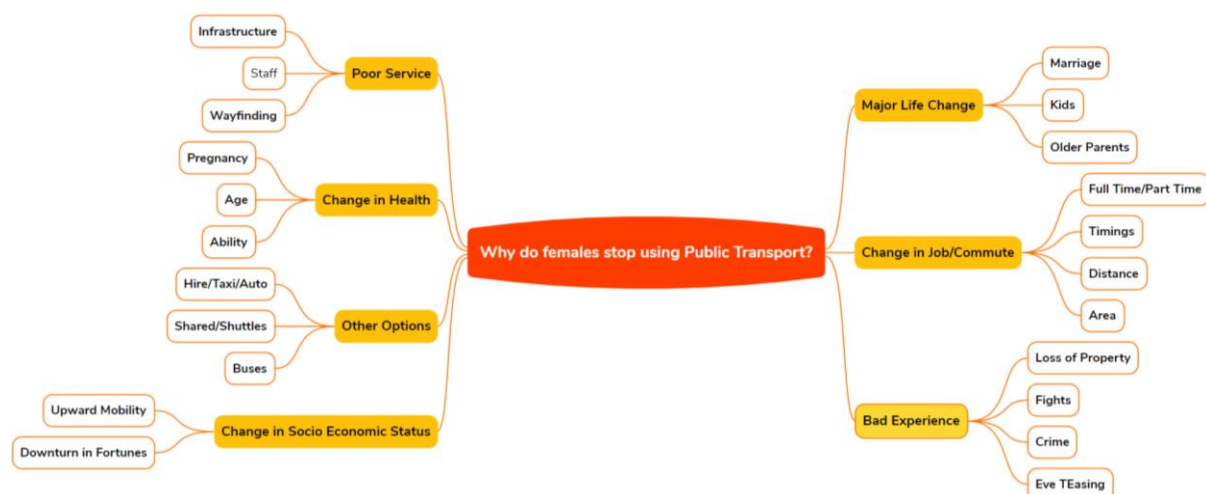


Figure 2 Reasons for Participants Discontinuing Public Transport Use

Public transport was generally favoured for its cost-effectiveness, as noted by several participants like who preferred the train over taxis due to financial constraints. However, taxis and autorickshaws were preferred for their comfort and reduced hassle, as illustrated by those who chose these options during off-peak hours despite the higher cost, citing the added convenience and safety. This contrast emphasizes the need for public transport systems to address women's specific needs, such as more frequent services during off-peak hours to reduce reliance on costly alternatives.

3) Infrastructural Inequity: Infrastructural inequities were evident in participants' experiences of different train compartments. The First-Class compartments, while more comfortable, were described as less sociable. For example, one participant, a 40-year-old executive, noted that while First-Class offered a quieter environment, it lacked the sense of community found in

other compartments. Conversely, women traveling in general compartments, especially with male companions, reported increased scrutiny and discomfort. Another participant, a 25-year-old office assistant, experienced persistent staring and discomfort when traveling with her husband, highlighting the additional challenges faced by women in mixed compartments.

Safety concerns were a recurring theme, with participants recounting accidents, particularly among those holding onto beams near train entrances. A 50-year-old participant who has used Mumbai suburban trains for many decades, vividly described witnessing a fellow passenger fall while holding onto an overcrowded beam. This perilous behaviour emphasizes the trade-off between time efficiency and personal safety. Additionally, the waiting experience on platforms was criticized due to overcrowding and the unpredictability of train schedules. Many participants expressed frustration with long waits and overcrowded platforms, highlighting the need for improved infrastructure to enhance commuter experience and safety.

4) Crowding and Issues of Migrants & Newcomers: Participants frequently attributed increased crowding on local trains to the influx of migrants and newcomers. This perception created a divide between Mumbai natives and non-natives. For instance, a 38-year-old local resident, noted that the increasing number of newcomers contributed to a sense of crowding and occasional rudeness during rush hours. In contrast, non-natives like a 27-year-old participant who recently moved to Mumbai, described feeling overwhelmed and confused by the crowded trains and complex schedules. The study's iterative approach, incorporating scenario-based inquiries, revealed deeper insights. For example, when discussing missed trains, participants shared detailed plans they had considered or implemented, such as waiting for the next train or opting for alternative transport. These reflections highlighted unconscious patterns related to safety and convenience. The contrast between Mumbai natives' high self-confidence and non-natives' confusion underlines the need for transport systems to address these disparities and improve overall user experience.

Conclusion and Discussion

This study explores the lived experiences of women commuters on Mumbai's suburban railway system, highlighting the intricate interplay of intersecting identities—such as age, class, caste, and employment status—that shape their daily mobility. The research demonstrates that women's experiences on Mumbai's local trains are not monolithic; they are shaped by the dynamic intersectionality of social factors that influence how safety, accessibility, and convenience are perceived and navigated.

1) Intersecting Identities and Mobility Experiences: The findings indicate that women's experiences on the Mumbai suburban railway system vary significantly depending on their intersecting social identities. For instance, younger women and those from higher socio-economic backgrounds were more likely to express concerns about safety and crowding but could afford alternative modes of transportation during non-peak hours. In contrast, older women and those from lower socio-economic strata displayed greater resilience and reliance on the local trains, often out of necessity. Commuters from marginalized castes or lower economic classes faced not only gendered discrimination but also class-based marginalization, impacting their sense of security and belonging within public spaces. Thus, the study confirms that the everyday experiences of women on Mumbai's trains are deeply entrenched in broader social hierarchies, which perpetuate differential access to safe and convenient transportation.

2) Gendered Power Dynamics and Perceptions of Safety: Gendered power dynamics and patriarchal norms heavily influence women's perceptions of safety and convenience in the local train network. Women's accounts frequently highlighted their strategies for self-preservation, such as choosing specific compartments, avoiding certain stations, or traveling at particular times to minimize the risk of harassment or violence. Many respondents recounted incidents of verbal abuse, unwanted physical contact, or even stalking, which significantly shaped their

daily routines and travel decisions. This reinforces the symbolic interactionist perspective that the commuter experience is a social construct, where gender norms dictate who feels entitled to occupy public space and how women navigate perceived threats. The concept of "safe spaces" within public transport, such as women-only compartments, was often discussed with ambivalence—viewed as a temporary safeguard but also as a reinforcement of gender segregation and patriarchal control.

3) Cognitive Frameworks and Information Systems in Navigation: Women employ a variety of implicit cognitive frameworks and mental models to navigate the complexities of public transportation. The study found that women commuters often utilize a form of tacit knowledge, accumulated over time, to optimize their commuting experience. This includes strategies like "trip chaining," planning for multi-leg journeys that align with social or familial obligations, and assessing real-time information cues such as crowd density, time of day, and anticipated disruptions. Such navigational strategies are often influenced by symbolic meanings attached to specific times, routes, or compartments, underscoring the need for a deeper understanding of the mental models that guide travel choices. These implicit cognitive frameworks reveal a sense of agency and resilience among women commuters, even within the constraints of a challenging transit environment.

4) Transit Captivity and Structural Constraints: The concept of "transit captivity" is highly relevant in the context of Mumbai's female commuters, particularly for those who lack the financial means to access more secure or comfortable modes of transportation. The study found that economic limitations, coupled with cultural and social expectations, often "trap" women into using the suburban railway system despite its known risks. Many women, especially those from lower-income backgrounds, reported feeling "captive" to this mode of transit due to the absence of affordable and safe alternatives. This finding highlights how socio-economic status, intersecting with gender, significantly restricts mobility options. Further, factors such as inadequate policing, lack of proper lighting at stations, and insufficient frequency of women-only compartments contribute to this phenomenon, suggesting that transit captivity is not merely a matter of individual choice but rather a structural outcome shaped by policy and societal norms.

5) Implications for Inclusive and Gender-Sensitive Urban Mobility Policies: The findings from this study provide critical insights for developing more inclusive and gender-sensitive urban mobility policies. Urban planners, policymakers, and transport authorities must recognize the diverse needs of women commuters and the socio-cultural dynamics that shape their mobility. Current infrastructure and policies often fail to address these complexities, resulting in systemic exclusion and increased vulnerability for women. To address these gaps, there is a need for a holistic, multi-layered approach that combines infrastructural improvements, community engagement, and policy reforms to create a more inclusive transportation ecosystem.

6) Based on the study's findings, several recommendations can be proposed to inform the development of gender-sensitive urban mobility policies.

Participatory Urban Planning: To better understand the unique needs and challenges faced by women commuters, it is imperative to involve them directly in the planning and decision-making processes. This participatory approach would help to uncover tacit needs and preferences that often remain overlooked in traditional surveys and policy models, leading to more responsive and effective interventions.

Subsidies and Incentives for Safer Alternatives: Consider offering financial incentives or subsidies for safer, alternative modes of transport for women, such as shuttle services or ridesharing programs specifically designed for female commuters. This would reduce the reliance on potentially unsafe public transport options and provide more secure travel alternatives.

Holistic Policy Reforms Addressing Gender-Based Mobility Barriers: Urban mobility policies must transcend infrastructure and incorporate socio-cultural considerations, focusing on addressing systemic gender disparities and power imbalances. This involves recognizing the intersectionality of women's experiences and implementing policies that cater to a broader range of mobility needs, encompassing safety, accessibility, affordability, and convenience.

Creating an inclusive and equitable public transport system requires an integrated approach that addresses the various challenges women face, shaped by intersecting identities and societal norms. Such an approach will not only improve women's access to safe and reliable transportation but also contribute to a more just and equitable urban society.

In conclusion, the findings highlight that safety concerns, infrastructural inadequacies, and gendered travel patterns significantly impact women's experiences with Mumbai's local train system. Issues such as harassment, inadequate infrastructure, and the 'pink tax' highlight the urgent need for a comprehensive reimagining of public transport to address gender-based disparities and systemic barriers. As Mumbai continues to evolve, its urban mobility planning must become more inclusive and responsive to the diverse needs of all city residents. Adopting a gender-responsive, participatory approach is crucial for developing equitable and effective urban mobility solutions.

Given these complexities, there is an unequivocal need for a more participatory approach to research. Such an approach would entail actively involving diverse stakeholders—women commuters, public transport authorities, urban planners, and civil society organizations—in the research process. By doing so, it becomes possible to unearth tacit needs, understand contextual nuances, and cocreate solutions that are not only inclusive but also sustainable. Ultimately, fostering a more inclusive public transport ecosystem requires moving beyond superficial insights and embracing a holistic understanding of the diverse mobility needs and challenges faced by different segments of the population. The qualitative exploration of commuter experiences on Mumbai's local trains reveals critical insights into the complex interplay of gender dynamics and systemic inefficiencies within urban mobility systems. The findings, grounded in symbolic interactionism, highlight how individual experiences of overcrowding, boarding challenges, safety concerns, and interpersonal interactions are not isolated incidents but manifestations of broader societal and structural issues. This theoretical framework provides a lens through which to view the pervasive nature of these challenges, extending beyond mere descriptions of discomfort to highlight underlying patterns of exclusion and inequality.

The study's thematic analysis reveals that the difficulties faced by women commuters are deeply embedded in the urban mobility infrastructure and cultural practices. The stark contrast between the high female-to-male population ratio and the limited provision of dedicated women-only compartments illustrates a systemic shortfall in addressing women's specific needs. This disparity reflects not only infrastructural inadequacies but also a broader disregard for gendered mobility needs, reinforcing the concept of 'pink tax' and gendered travel patterns identified in the theoretical framework.

Moreover, the research exposes how conflicts, feelings of being overwhelmed, and instances of aggression are symptomatic of deeper systemic issues within the transportation system. These experiences, transcending the boundaries of native and non-native commuters, reveal a shared sense of vulnerability and a lack of adequate support structures. This alignment with symbolic interactionism emphasizes that these challenges are not merely individual grievances but collective reflections of ingrained societal norms and systemic failures.

In light of these findings, there is a critical need for a paradigm shift in urban mobility planning. Rather than relying solely on quantitative surveys or superficial adjustments, a more participatory approach is required. Engaging a diverse array of stakeholders—including women commuters, public transport authorities, urban planners, and civil society

organizations—can facilitate a deeper understanding of the tacit needs and contexts of different user groups. This collaborative effort should aim to co-create solutions that are not only inclusive but also sustainable, addressing both the tangible and latent challenges identified. Ultimately, fostering a more equitable and responsive public transport system demands a move beyond conventional insights towards a comprehensive, gender-sensitive understanding of urban mobility. This approach aligns with the theoretical framework by advocating for systemic change that addresses the root causes of exclusion and supports the development of a transportation ecosystem that meets the diverse needs and aspirations of all its users.

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