Constraints to Women’s Use of Public Transport in Developing Countries, Part II: Safety

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Women and men travel differently in low- and middle-income countries and women face different constraints on their mobility. This Brief is the second in a two-part series that provides an overview of the evidence on key features of women’s travel behavior and the safety barriers they face in accessing public transport in developing countries (see Borker 2022, which focuses on affordability, frequency, coverage, and comfort). This Brief focuses on the safety concerns that limit women’s use of public transport, centering on two aspects of safety: safety from accidents and safety from violence. It highlights how women’s different travel behavior, as well as unsafe infrastructure, driving, and vehicle design, make women vulnerable to road accidents. It also shows that an overwhelming majority of women around the world have experienced sexual violence as they travel, whether verbal, visual, or physical. Women’s perceptions about violence and their actual safety in public spaces affect both their physical mobility and economic choices. Understanding the evidence on the challenges faced by women is a first step in identifying policies and interventions that could improve women’s accessibility.

Introduction

Providing safe transport systems can be key in promoting women’s mobility and their access to services, education, and employment opportunities. Transport safety, however, remains an important concern for women across income levels, communities, and countries (Ng and Acker 2018). Alam et al. (2020), for instance, found that security and safety concerns are common for women across high-, middle-, and low-income countries. In several countries, such as the Philippines, safety is ranked as the most important factor affecting individuals’ choice of mode in cities, regardless of age, gender, income, and intent of travel (Mayo and Taboada 2020).

Travel safety has two core elements: safety from accidents and safety from violence (Joewono and Kuboto 2006). Vehicle safety systems, usually designed and evaluated for men, need to be sensitive to considerations about women’s biology and the biomechanical effects that forces have on the motion of their bodies (Bose et al. 2011). For instance, in private transport such as cars, the odds of female drivers who are wearing a seatbelt sustaining injuries is 73 percent higher than for men in a comparable car crash (Forman et al. 2019; UVA 2019), primarily because women’s physiological differences are not incorporated when testing vehicles’ safety (Nelson 2020).

As for safety from violence while traveling, a survey across developed and developing countries reveals that 80 percent to 90 percent of women reported having been harassed (Allen et al. 2016). However, the same survey also reveals that such incidents are rarely reported. Nearly all (96 percent) of sexual harassment incidents in New York went unreported and none of the 162 out of 200 women in Azerbaijan who reported having been sexually harassed on the metro reported it to the appropriate authority (Allen et al. 2016). Lack of safe transport hampers women’s confidence to move freely in public spaces (Allen et al. 2016). Limited access to safe transportation accounts for an estimated 16.5 percent reduction in women’s probability to join the labor force in developing countries (ILO 2017).

This two-part series of Global Indicator Briefs reviews the evidence on key constraints to women’s mobility. Part I discussed affordability, coverage, frequency, and comfort (Borker 2022). This Brief focuses on the safety constraints, the factors driving them, and their impact on women’s mobility and economic opportunities. It also discusses how women’s safety constraints interact with the other constraints discussed in the companion Brief, and how gendered constraints intersect with other characteristics of women such as education, professional background, ethnicity and disability status (Alam et al. forthcoming; Roemer Christensen et al. 2007; TInnGO 2020).

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Women’s choice of transport modes and the male-centric design of vehicles makes them vulnerable to road accidents

Safety from accidents plays a crucial role in ensuring women’s ease of traveling. Men and women exhibit different patterns when it comes to road safety. At the global level, men under the age of 25 are 2.7 times more likely than women to die in a road accident (WHO 2021). In a country like India, this gender gap is even more significant, with men overall facing 6.2 times more road fatalities than women (India, Ministry of Road Transport and Highways 2018). Evidence from Ghana also showed that, on average, men are more likely to die from a road injury than women (Damsere-Derry et al. 2017).

The risk of road accidents is affected by various factors, such as the frequency of transport use, riding behavior, driver skills, speed, stability, vehicle structure, safety features, traffic conditions, and infrastructure (Priye and Manoj 2020; Yan and Job 2021). The gender gap in road fatality may partly reflect gender differences in travel patterns and user behavior, whereby men in developing countries tend to travel more by private vehicles like cars and take more risks on the road than women (Yan and Job 2021).

When they do travel, women often face more risks in terms of injuries and fatalities from road safety because of the means of transport they commonly use. A high share of travel risk is borne by “vulnerable road users” (including pedestrians, cyclists, and motorcyclists), and women make up a majority of these travelers (Damsere-Derry et al. 2017; Uteng and Turner 2019). In addition, women rely heavily on paratransit vehicles (Borker 2022), which are more vulnerable to accidents due to their light and open structure, and to lack of the driver training (Cervero and Golub 2007; Jennings and Behrens 2017; Kumar et al. 2016; Priye and Manoj 2020). In the event of a road accident, women are often more at risk of being injured or killed than their male counterparts. This is due, in part, to the male-centric design of vehicles, which makes them unsafe for women, as well as for children, the elderly, and the disabled.

Women’s travel choices are affected by actual and perceived harassment in public spaces

Another major safety concern for women is that of violence, including harassment. The types of violence women face can be disaggregated into verbal, visual, or physical. Harassment ranges from verbal harassment (such as catcalls and whistling) and visual harassment (such as leering or staring) to physical harassment (such as men exposing themselves, groping, other forms of touching, assault, or being forced into a sexual act).

Parking decks, transit stops and stations, walking to and from transit, and waiting for transit vehicles are significantly more unsafe for women than men (Srinivasan 2005). This is particularly true for women travelling at night. Around the world, women tend to avoid using public transport services if they are located near male-dominated public spaces or locations such as bars, betting shops, or liquor stores (Allen et al. 2016).

Across developing countries, violence and the fear of it is a significant barrier to mobility. Nearly 90 percent of women across cities like Hanoi and Jakarta report public transport safety to be poor or very poor (Ng and Acker 2018). An average woman commuting in a developing country like Brazil is sexually harassed once or twice a week, and physically harassed once a month (Kondylis et al. 2020). The issue runs across countries, with 86 percent of women in Brazil, 79 percent in India, and 86 percent in Thailand having been subjected to harassment in public in their lifetime (ActionAid 2016). Safety concerns are significant enough that women perceive secure travel experience to be a more important criterion than barrier-free movement and ease of transit (Mateo-Babiano 2015).

The first and last mile are as important barriers to women’s safety as the rest of the transit (International Transport Forum 2019). Women are vulnerable to security risks while walking to or waiting for buses or trains because of the lack of proper facilities such as passenger waiting areas, loading areas, sidewalks, and crosswalks (Borker 2022). The lack of these facilities also increases the number of fatalities and road accidents (Cheranchery et al. 2016). While traveling, women’s primary concerns include the lack of safe and quick exits in case an incident occurs and the open-to-all environment in public transport (Ding et al. 2020; Gekoski et al. 2015; Ng and Acker 2018). The number of passengers in public transport also affects how safe women feel while traveling, with both overcrowding and low occupancy increasing the risk of harassment (Alberst et al. 2015; Allen et al. 2016; Kapoor 2020).

Women’s strategies to cope with safety concerns limit their economic outcomes

Women use multiple strategies to cope with the risk of assault. These include self-protection strategies as they wait or walk during the journey (Gekoski et al. 2015; Kelly and Sharp-Jeffs 2016). A predominant strategy is to avoid places perceived to be dangerous at odd hours (Borker 2021; Hsu 2011). Women create mental maps of places where they fear to be assaulted based on their own or their parents’ experiences (Allen et al. 2016). They avoid traveling at late hours and remain within stable and familiar neighborhoods to avoid threatening environments (ADB 2014). Seventy-two percent of female students traveling to college in India avoid an unsafe area, 67 percent avoid going out after dark, 31 percent move away from the harasser, and only 4 percent of women report taking no action to avoid harassment (Borker 2021). Altering attitudes and positioning themselves cautiously are other ways in which women cope with the dangers of public travel (Gekoski et al. 2015).

These coping strategies not only change how women travel, but they also impose significant costs on women. Kaufman, Polack, and Campbell (2018) show that using alternative transport modes at night for safety reasons tends to increase women’s monthly spending on transport. In addition to these direct costs, women’s coping strategies can have a negative impact in terms of human capital attainment and labor market outcomes. Borker (2021) shows that women in India tend to choose inferior colleges relative to men to feel safer while traveling and forego the equivalent of 17 percent of their post-college salaries to travel by safer routes to college. The lack of safe and reliable transport also curbs women’s ability to join the labor force. For instance, safe transportation is an important consideration for family members in Pakistan thinking about sending their daughters to vocational training (ADB 2015; Field and Vyborny 2021). Along with reducing their employment opportunities, lack of or poor conditions of road and transport infrastructure also hamper women’s access to markets (Gupta et al. 2018).
Several policy initiatives target women’s travel safety concerns, but little is known about their efficacy

Identifying and incorporating strategies that alleviate women’s security concerns is an important step to making travel more gender equal. One common policy measure is to create women-only transportation or reserved spaces for women. Around 15 countries offer women-only bus services (Kearl 2015). Usually, one out of six or eight carriages in subways or a few rows of seats in a bus are reserved exclusively for female passengers to provide them with a secure space and help avoid rush hour traffic (Tara 2011; Vinayak 2018). Women in many countries prefer segregation to avoid harassment and stigma, despite its leading to more congested and constrained transit options for them (Aloul et al. 2019). Research in Brazil found that 20 percent of female riders are willing to pay 20 percent more for a reserved space, and over a one-year period, an average female rider is willing to pay the equivalent of 0.35 percent of the minimum wage to travel in women-only cars (Kondylis et al. 2020).

While being one of the easier policies to implement, segregated spaces can have unintended consequences, where opting for strict gender-based segregated public transport is seen as the “proper” choice for women commuters, and women traveling outside the reserved spaces are seen as provoking harassment or “asking for it” (Allen et al. 2016; Kondylis et al. 2020). This unintended consequence is especially pernicious because women may not always have the option of using the segregated transport depending on the level of congestion, the time of the day, or other constraints. They could therefore either face increased harassment or further reductions of their transport usage. For instance, in Rio de Janeiro, where half of the passengers of the suburban train system are women, only one in eight carriages is reserved for women (Kondylis et al. 2020). Similarly, in Delhi, where women constitute 33 percent of the daily metro riders, only one out of eight carriages is reserved for women (DMRC 2020; Kapoor 2019). Segregation has also been found to reduce sexual violence faced by women but increase nonsexual aggression in the male compartments such as insults or shoving (Aguilar et al. 2021).

Another approach to tackle safety concerns is to implement policies addressing underlying issues, while keeping all stakeholders in mind. For instance, governments have taken initiatives to bring physical changes to the environment by using technological solutions and creating awareness about the issue (Allen et al. 2016). In many countries in Asia and Latin America, governments have created web tools to monitor, map, and disseminate cases of violence in public places (ADB 2015; UN Women 2018). In Delhi, the state government has taken multiple steps such as creating helpline numbers, appointing female officers for community policing, installing closed circuit television (CCTV) cameras across the city, and equipping public transport with panic buttons and Global Positioning System (GPS) devices to ensure women’s safety (Gonzalez et al. 2020; Press Trust of India 2019). Evidence from New York City has shown that introducing streetlights can also be effective in reducing crime (Chalfin et al. 2022).

Governments also rely on nongovernmental organizations (NGOs) to create awareness about sexual harassment laws and encourage women to report harassment. However, there still is a long way to go as currently even measuring harassment incidents and creating comparable statistics is difficult given that there are no common international standards for reporting harassment (Allen et al. Town 2016). One key data challenge is the high level of under-reporting of violence (Bott et al. 2005). The reasons for under-reporting vary from women feeling ashamed or embarrassed to the fear of backlash from the perpetrator to the violence being normalized by society. Factors such as insufficient knowledge about reporting, fear of the authorities’ response, or not knowing what to report also discourage women from reporting (Gekoski et al. 2015).

The broader literature on gender-based violence has investigated the effectiveness of different interventions to tackle harassment, for example by showing that interventions with multiple components tend to be more effective than stand-alone interventions such as communication campaigns (Kerr-Wilson et al. 2020). There is, however, still little research specific to transport about the impact of safety concerns on women’s economic and social opportunities and on the effectiveness of interventions to tackle safety issues.

Safety concerns closely interact with other constraints faced by women

The different constraints that women face in terms of safety, affordability, coverage, frequency, and comfort are closely intertwined, and their interaction usually has a multiplier effect, resulting in a sum effect that is greater than its parts (see Borker 2022). For example, transport frequency and coverage constraints can translate into safety concerns for women, which can further impede their access to transport. Long wait times for public transport can contribute to women being harassed: as many as 71 percent of women in Kerala and 42 percent of women in Delhi reported having been harassed while waiting for public transport (Cheranchery et al. 2016). The lack of proper facilities, such as passenger waiting areas, contributes to creating security risks for women while waiting for public transport (Cheranchery et al. 2016). In turn, the exposure to increased risks of verbal or physical harassment while they wait at boarding points reduces the number of trips women make (Allen et al. 2016).

The unscheduled and scarce nature of public transport also tends to create overcrowding, which can contribute to both safety and comfort constraints. In Nepal, 54 percent of women reported feeling insecure in crowded situations, while the overcrowding in public transport led to a 44 percent drop in user satisfaction in Chile (Allen et al. 2016; Soza-Parra et al. 2018).

Due to the lack of reliable transport services, women in developing countries tend to rely heavily on paratransit (Lecompte and Bocajero 2017; Peters 2013), where overcrowding (Budiono 2009) and safety concerns (Arroyo-Arroyo and Diallo 2020) are particularly frequent. In Sierra Leone, paratransit vehicles such as minibuses, shared taxis, and motorcycles have the highest share of reported sexual harassment incidents (Arroyo-Arroyo and Diallo 2020). Moreover, the light body, open structure, lack of driver training, inappropriate use of vehicles for high loadings, and poor vehicle maintenance make paratransit vehicles more vulnerable to accidents (Cervero and Golub 2007; Jennings and Behrens 2017; Kumar et al. 2016; Priye and Manoj 2020).

Women’s choice of transport mode, whether it is influenced by frequency, coverage, or safety constraints, can have a significant impact in terms of transport affordability. Informal modes of transport tend to increase the income spent on transit—with commuters spending 20 percent to 25 percent of the average daily minimum wages on informal paratransit in
rapidly growing cities such as Delhi, Buenos Aires, and Manila (Cervero 2013). More generally, to feel safer while travelling, women are often willing to spend a higher price on transportation (Kaufman et al. 2018; Kondylis et al. 2020) or to forego quality education, which can lead to lower educational attainment and worse human capital outcomes for women relative to men (Borker 2021).

Whether and how different transport constraints interact and affect women is likely to vary depending on women’s individual characteristics, including their education, economic situation, age, ethnicity, sexuality, and handicap status (Alam et al. forthcoming; Roemer Christensen et al. 2007). Women with overlapping vulnerabilities are likely to be disproportionately affected by transport constraints. For instance, affordability constraints are likely to make safer transport modes inaccessible for women with lower financial means, which can impair their safety and well-being (Kishiue et al. 2020). Prohibitive transport costs can also lead women from less advantaged backgrounds to give up on work opportunities further from home, which can contribute to perpetuating existing inequalities (Alberst et al. 2015; Lau 2008; Srinivasan 2005).

Conclusion

This Brief examined how women’s take-up and usage of public transport are affected by five broad constraints that interconnect: safety, affordability, coverage, frequency, and comfort. Safety concerns in terms of both accidents and violence create a significant risk for women. While unsafe infrastructure, driving, and vehicle design make women vulnerable to road accidents, the fear of violence further affects their ability to access markets and limits their economic opportunities. Women also face the majority of the costs associated with limited last mile connectivity making them more dependent on paratransit options that are usually unsafe and relatively costly. Women seek transport options that provide frequent and reliable travel because of their time constraints and safety considerations. And women’s travel decisions rely on the level of comfort and convenience that public transport provides.

Many governments recognize the constraints women face and have launched initiatives to tackle these issues. These include policies that aim to address some constraints actively and directly, such as the provision of feeder services to provide last mile connectivity. Others are more passive and aim to affect some aspects of a constraint. These more indirect initiatives include, the installation of closed circuit television (CCTV) cameras or panic alarms, or the organization of information campaigns encouraging women to speak up or bystanders to intervene to promote women’s safety in public spaces. Then there are others, such as the creation of women-reserved spaces which, while effective in the short term, have been found to lead to unintended perverse consequences such as stigmatizing the use of unreserved spaces (Borker 2022).

Little is known about the effectiveness of these measures in terms of their direct effects on women’s physical mobility and even lesser is known about their impact on women’s economic mobility. One of the first steps to build a transport system that is equitable and that serves the needs of women is to create a system built on evaluation and learning, and one that addresses the constraints as a system, taking into account the cultural norms and gender barriers more generally, rather than tackling each issue in isolation.

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