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WOMEN ON THE MOVE

THE IMPACT OF SAFETY CONCERNS ON WOMEN'S MOBILITY

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Attribution: Aditi Ratho and Shruti Jain, *Women on the Move: The Impact of Safety Concerns on Women's Mobility*, May 2021, Observer Research Foundation.

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ISBN:
978-93-90494-37-8

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EXECUTIVE SUMMARY

A woman's sense of safety while using her preferred and chosen means of transport is crucial for her to be able to work, access public spaces, and travel for education purposes, leisure, or most importantly, emergencies. In India, studies have determined the transport modes most frequently used by women, that most women who use public transport have been harassed,[1] and the kind of harassment they have faced.[a,2]

To better understand Indian women's experiences using public transport, and the impact of safety concerns on mobility choices, the Observer Research Foundation and Youth Ki Awaaz conducted a survey over ten months before and during the pandemic,[b] with participation from 4,262 women across 140 Indian cities. The survey also considered what could make women feel safer while using public transport and the state of current complaint and redressal mechanisms. Guided

[a] These include catcalling, teasing, leering, touching, and groping.

[b] The survey was conducted between December 2019 and September 2020.

by the survey findings, the authors make significant policy recommendations to improve women's safety while using public transport.

Eighty-eight percent of the women surveyed said they use public transport. The study found that women feel unsafe while travelling, especially while waiting at congested interchanges and using transport facilities that do not have any technological add-ons for safety (for instance, a non-app-based taxi instead of an app-based one) or that requires physical proximity to strangers (shared riding). More than half of the women surveyed (52 percent) reported that such feelings of insecurity have caused them to turn down education and work opportunities. It is a worrying statistic, given that urban female unemployment in India is already high—the 2018 periodic labour force survey pegged the proportion at 10.8 percent, up from 5.3 percent in 2012.[3] Women prefer travelling only in peak daylight hours, and use the night hours for work far less. Nightlife laws that enable women to work are redundant if they do not have multiple choices for safe and secure transport, since door-to-door night conveyance is provided only by companies that can afford it. Given that most of the respondents said they use public transport to reach public places and work,[4] policymakers must ensure that safe modes of travel are available for women to increase their workforce participation rate.

Most respondents said their parents or spouses do not restrict them from using public transport; those who face such restrictions said their family members cited reasons of safety. Thirty-three percent of those who do not use public transport said they would shift to using public transport if it was safer, and regarded connectivity or cleanliness less important in making such a decision.

The highest percentage of women who use public transport fall in the monthly income bracket of INR 30,000-60,000. Of those women who do not use public transport, the least proportions were in the lower-income groups: 6 percent in the below-INR 10,000 monthly income group, and 8 percent in the INR 10,000-15,000 monthly bracket. This means that most of the surveyed women will not be able to afford private modes of transport, even as they have to travel between 10-20 kilometres per day.

As the findings of this survey will show, public transport needs urgent attention in a post-pandemic urban setup. A strong public transport system can ensure the safe and efficient movement of people, goods and services. This report explores the avenues through which this goal can be achieved.

1

INTRODUCTION

The COVID-19 pandemic caused widespread disruptions to public transport systems around the world, as ridership fell to historic lows[5] due to the severe restrictions imposed on travel to curb the spread of the virus. To relieve the economic stress precipitated by the transportation curbs, a staggered movement of goods, services and people was allowed. A public transportation network is considered resilient if it is able to transfer people to work and for their livelihoods and deliver services despite challenges and disruptions, whether it is something as predictable as inclement weather, or an unprecedented, global health crisis such as COVID-19.

The *Global Public Transport Report 2020,* compiled by the transit app and data business Moovit and released in January 2021, found that 70 percent of their respondents were wary of going back to pre-pandemic degree of public transport use. To return to using public transport, participants expressed a desire not only for more buses on the road to lessen the chances of vehicles being uncomfortably crowded, but also for easier access to data on how packed these vehicles are at different times. For example, the Massachusetts Bay Transportation Authority developed a real-time crowding application during the initial year

A THOMSON REUTERS FOUNDATION SURVEY OF 1,000 WOMEN IN FIVE GLOBAL CITIESFOUND THAT 52 PERCENT OF WOMEN REPORTED THAT SAFETY IS THEIR MAIN CONCERN WHILE USING PUBLIC TRANSPORT.

of the pandemic to help riders plan their trips by guiding them on how crowded the vehicles might get.[6] This shows that the use of public transport does not have to be reduced during times of crises, nor are people averse to using it as long as they have the information required.

A modal shift to private transport over fears of contracting the virus will aggravate poor air quality.[7] Furthermore, those who cannot afford a shift to private transport and who rely on cheaper public transport options will be adversely affected—cutting off public transport will gravely impact the livelihoods of large sections of the population.[8]

Although the pandemic has revealed the stresses to livelihoods, the economy and the environment when transport access is withdrawn, there are long-standing and persistent issues that impact its use, especially by women. A Thomson Reuters Foundation survey of 1,000 women in five global cities[c] found that 52 percent of women reported that safety is their main concern while using public transport.[9] In India, Safetipin's report on women's mobility in the cities of Bhopal, Gwalior and Jodhpur, found that 82 percent of the women regard overcrowding as the main reason they felt unsafe in public vehicles. Transport planning must consider that women's concerns include both safety from the spread of diseases and safety from harassment.

Therefore, it is crucial to have safe and affordable public transport to achieve inclusive growth and bounce back to pre-pandemic normalcy. While restricting the number of people allowed to travel will limit the spread of the infection, these limitations will only exacerbate the existing shortage of multimodal public transport connections. According to a report for the National Centre for Biotechnology Information, cities like Mumbai already experienced a 20-percent shortage of public transport during evening peak hours prior to the pandemic, a figure that is expected to reach 25 percent when physical distancing measures are imposed.[10] A report also shows that although India will need about 666,667 buses for its 25 million daily commuters, it currently only has around 25,000 in operation.[11]

[c] London, New York, Mexico City, Tokyo and Cairo.

Assessing the Impact of Safety Concerns on Women's Mobility Choices

While the conversations on creating multimodal transport networks, modal splits and modal shifts will continue,[12] this report is particularly interested in assessing the impact of Indian women's safety concerns on their mobility choices. 'Safety' in this context means being protected from gender-based harassment, rather than safety from a virus. It refers to a woman's level of comfort, ease and perception of risk during all stages of the journey and security from "intentional criminal or anti-social acts, including harassment, burglary, vandalism, while engaged in the journey."[13]

Women are less likely to participate in the workforce when their threat perception is high.[14] As a substantial number of women use public transport to travel to work, insecurity and lack of safety in the mode of travel also curbs workforce participation.

India has several national and state schemes attempting to create better and safer transport facilities for women (see Table 1).

Table 1
National Policies

SCHEME	DESCRIPTION
Scheme for Security of Women in Public Road Transport	The central government mandated the provision of a vehicular location device and one or more panic buttons in public transport vehicles with effect from 1 April 2018.[15]
Safe City Project for eight cities and Safe City Implementation Monitoring portal (SCIM)	The central government has identified eight cities for SCIM implementation—Ahmedabad, Bengaluru, Chennai, Delhi, Hyderabad, Kolkata, Lucknow and Mumbai—at a cost of INR 2,919 crore. The project is funded under Nirbhaya Fund Scheme to ensure greater safety for women in metro cities. The SCIM has also been established to monitor, manage and avoid duplication of the projects.[16]
Toilets at toll plazas	As of 31 January 2018, 192 toll plazas have been created by the National Highways authority of India under the Swacch Bharat Mission, which includes separate ladies and gents toilets.[17]
Safety and Security of Women Passengers (Nirbhaya Fund Scheme)	Financial assistance from the Nirbhaya Fund Scheme is provided to states and union territories for projects specifically designed to improve women's safety in public transport. Funds were released to Andhra Pradesh, Uttar Pradesh and Bangalore Metropolitan Transport Corporation. Proposals from Nagaland, Jammu and Kashmir, Rajasthan, Karnataka were under examination (as of 2018).[18]
Vehicle Location Tracking Device and Emergency Button in All Public Service Vehicles	To enhance the safety of women passengers, detailed standards for the installation of vehicle location tracking devices and emergency buttons on public service vehicles were notified on 25 October 2018[19]

The various measures on public transport need to integrate more gender elements. For example, the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) strives to ensure that pollution is reduced by the increased use of public transport or by creating facilities for non-motorised transport (such as walking and cycling). It envisions urban transport to include ferry vessels for inland waterways (excluding ports/bay infrastructure) and buses, bus rapid transit system, footpaths/ walkways, sidewalks, foot overbridges and facilities for non-motorised transport and multi-level parking. It also has a component on developing green spaces and parks with child-friendly facilities.[20] However, apart from identifying women as beneficiaries, there is no particular focus on a gender-sensitive or participatory approach.[21]

The Smart Cities Mission views efficient mobility and public transport and safety of women, children and the elderly as important components of the core infrastructure element of development.[22] The policy aims to create walkable localities, reduce congestion, air pollution, and resource depletion, boost the local economy, and promote social interactions and security. It also aims to promote transit-oriented development, last-mile-para-transport connectivity, smart parking, intelligent traffic management, non-vehicle streets/zones, energy-efficient street lighting, and ensuring the safety of citizens (particularly women, children and the elderly). However, data on ways in which the security and safety for women can be enhanced is lacking.[23] The present study aims to fill such gap about what women want and need to feel safe, depending on their types and preferences of transport.

The National Urban Policy Framework (NUPF) outlines an integrated and coherent framework towards the future of urban planning in India,[24] with ten principles applied to ten functional areas of urban space and management:

1. Cities are structures of human capital
2. Cities require a sense of place
3. Cities are not static plans, but evolving ecosystems;
4. Cities are built for density
5. Public Spaces encourage social interactions;
6. Multimodal public transport system is the backbone
7. Environmental sustainability is key
8. Cities should grow to be financially self-reliant
9. Cities require clear unified leadership
10. Cities as engines of growth

The NUPF recognises that urban development is a state subject and that states need to develop their own urban policies and implementation plans based on this framework. States, therefore, need to integrate gender-sensitive planning into their frameworks.

Several cities have implemented schemes to increase safety in public transport (see Table 2).

Table 2
State and Urban Local Body Policies

CITIES	SCHEMES
Delhi	The Delhi Metro Rail Corporation has set up a dedicated helpline for safety and security of women, children and specially abled passengers. It also has dedicated coaches for female passengers on every train.[25] The Delhi Transport Corporation (DTC) has installed CCTV and GPS devices in buses. Women passengers are given the option to travel free in DTC buses (AC and non-AC) through the issuance of a 'Single Journey Travel Pass'.[26] The North Delhi Municipal Corporation has implemented sustainable Infrastructure for the safety and security of citizen, especially women, DIVYANG (persons with disabilities), children and cyclists.[27] The South Delhi Municipal Corporation has installed CCTVs in public places for women's safety[28], and women's toilets in public places.[29]
Mumbai	In 2019, the Brihanmumbai Electric Supply and Transport (BEST) initiated the Tejaswini scheme, through which public sector bus transport utilities are given grants to purchase buses for women commuters. The buses will be yellow in colour instead of the usual red BEST buses.[30]
Kolkata	The government launched the pink cab initiative in 2019, where metered taxis and luxury taxis are driven by women to ensure safety and security of female passengers. These taxis are pink on top or have a distinguishing logo.[31]
Indore	To ensure the safety of women in public transport, Atal Indore City Transport Services Limited (AICTSL) proposed launching autorickshaws with pink-coloured tops to be driven by women and fitted with GPS trackers.[32] The AICTSL also launched two pink buses for women passengers on 3 February 2020, equipped with CCTV cameras, passenger information systems, passenger announcement systems, SOS buttons and a woman bus warden. The buses will be driven by a male driver dressed in pink uniform.[33]
Hyderabad	About 3000 CCTV cameras have been installed in buses, isolated places under the SCIM. [34]
Chennai	3000 CCTV cameras across 1000 locations and 4500 standalone cameras across 1500 locations were installed, and the tracking and tracing of buses were initiated through the allocations from the Nirbhaya Fund Scheme.[35]

INDIA HAS INTRODUCED VARIOUS POLICIES TO INCREASE WOMEN'S SAFETY WHILE USING PUBLIC TRANSPORT, BUT THEY ARE YET TO BE IMPLEMENTED EFFICIENTLY.

The Rationale for a Survey and Report

India has introduced various policies to increase women's safety while using public transport, but they are yet to be implemented efficiently. Safety concerns have an impact on a woman's mobility preferences and choices. The purpose of the survey by the Observer Research Foundation (ORF) and Youth Ki Awaaz is to gauge the extent of this impact. Over ten months prior to and during the first year of the pandemic (December 2019 to September 2020), 4,262 women across 140 Indian cities were surveyed on their use of public transport, preferences of mode of transport, and safety concerns that impact these preferences. The findings were disaggregated by age, income, employment status, student status, residential status, and also the top 15 most populated metros versus other cities (based on Census 2011 data, as seen in Annex B).

An effort to decrease the number of people in vehicles to initiate social distancing leads to an increase in the number of people waiting at public transport platforms, resulting in congestion and risks to safety. Factors like congestion have been considered in the survey questions, and the results illustrate that policymakers must account for this in post-pandemic transport planning decision-making. Although several cities and states have incorporated measures to increase women's safety during commuting, the survey results show that most women continue to feel the need to feel safer. This report describes the ways whereby Indian cities can achieve this.

2

NOTES ON THE SURVEY

Questions based on the type, frequency, and preferences of public and private transport were posed to 4,262 women across India to gauge the impact of safety concerns on mobility choices. Seeking a minimum of 4,000 respondents, data was collected online for ten months before and during the first year of the pandemic, between December 2019 to September 2020, from women across 140 Indian cities. The impact of safety on transport choices (survey findings) has been disaggregated by age, income, employment status, student status, residential status, and also by the top 15 most populated metros versus other cities (see Annexure for the list of cities).

Designed by ORF, the online survey was generated by Youth Ki Awaaz, and disseminated across various online platforms—the ORF and Youth Ki Awaaz websites, Twitter, and Facebook. Before dissemination to the public, a closed pilot was conducted to ensure the options were objective and the survey ran seamlessly depending on the answers given. Public transport users were redirected to a larger set of questions than respondents

who do not use public transport. However, the responses from the non-public transport user demographic was important as analyses on what changes will prompt a modal shift to public transport could be made. The survey was made available across India, for all age groups, as choices for everyone who identified as a woman were deemed significant.

Logistic regression analysis was carried out using the overall data on respondents' age, current education status, income, and employment status. The relationship between age, income, employment status, education status and use of public transport has been determined by assuming the 'usage of public transport' as a dichotomous or binary dependent variable (using public transport = 1, not using public transport = 0); education status (student or non-student) and employment status (employed or unemployed) as categorical independent variables; and incomes and age as continuous independent variables.

Table 3
Survey Questions

	QUESTIONS
Demographic profile of women respondents	• How old are you? • Are you currently a student? • What is your highest level of education? • Are you currently employed? • What is your monthly household income (in INR)? • Where do you currently live? • In which city will are you currently living?
Type, Frequency, and Use of Transport	• Do you use public transport? • What kind of public transport do you use? • What kind of transport do you use? • For what purpose do you use public transport? • How often do you use public transport? • What is the average number of kilometres you travel per day? • How much do you spend on your daily commute (in INR)?
Preferences: Public vs. Private Transport	• Which mode of transport reduces your travel time? • Which mode of transport is more accessible in terms of distance to your home/work space/ education space? • Which mode of transport is safer? • Which mode of transport is more reliable? • Which mode of transport is more comfortable? • Is public transport hygienic and clean?

Safety: Public vs. Private Transport	• At what time of the day do you use public transport? • Does the time of the day affect your use of public transport? • When do you feel the safest travelling? • When do you feel most unsafe while traveling? • Does the distance you need to travel affect your preference to use public transport? • Would you use public transport for emergencies? • How important is it for your means of transport to be environment friendly? • How safe do you think the urban public transport system in India is? • Have you ever been sexually harassed while travelling using public transport? • How have you addressed the situation? • Do you know the emergency contact numbers for transport services? • Do you have restrictions from your parents from using public transport? • Do you have restrictions from your spouse/ partner from using public transport? • What are the reasons for you feeling unsafe while using public transport? • Do you feel unsafe due to concerns of accidents and breakdown in the transport infrastructure? • Which part of the transport mobility chain is most unsafe? • Which mode of public transport do you think is the safest? • Have you ever said no to an opportunity (educational/work related) due to the commute being unsafe?
Preferences for the future of public transport	• What change in the public transport infrastructure will make you feel safer? • I would change my mode of transport to public transport if_____ • What precautionary measures do you take/have been advised to take to keep yourself safe while commuting? • What is the supporting infrastructure required in public transport systems that is most essential for you?

Sample Population

Survey respondents have been represented based on age, income, students or not, residential status (whether they live with parents, alone, roommates, or with their partners/spouses), 15 most populated cities versus other cities and employment status (see Figures 1-7).

Figure 1

How old are you?

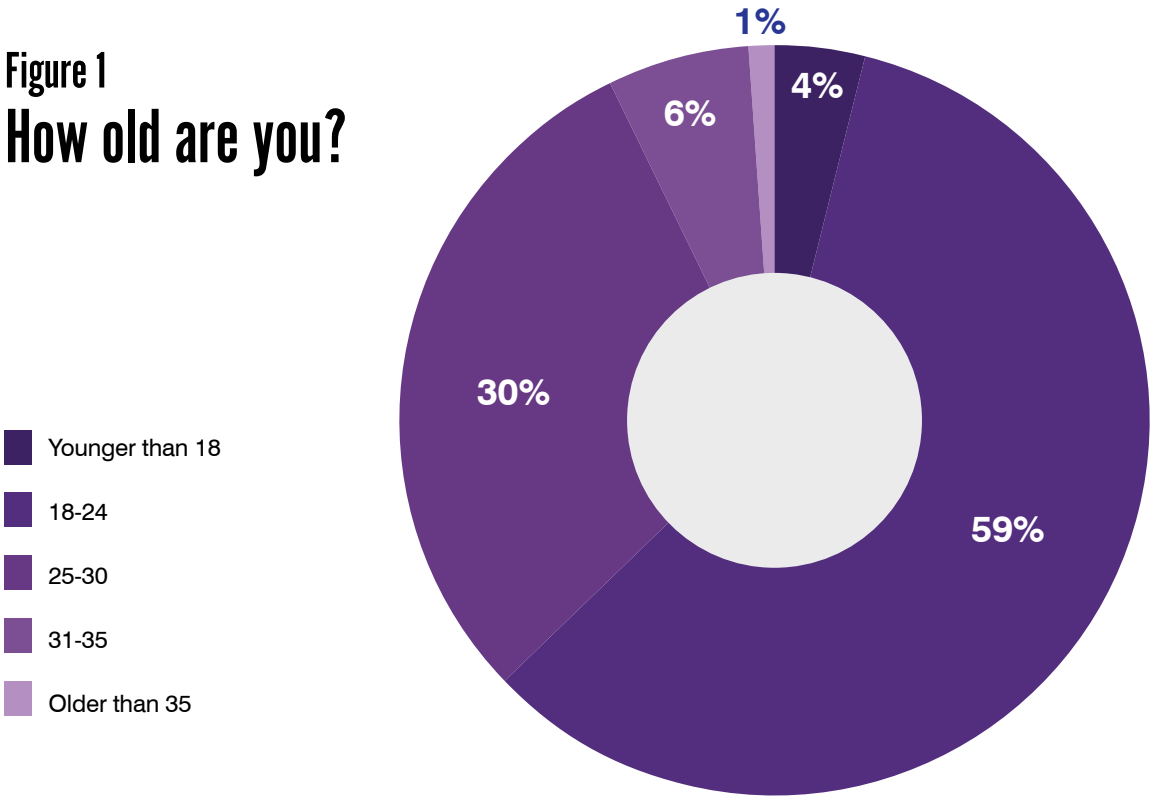


Figure 2

Are you a student?

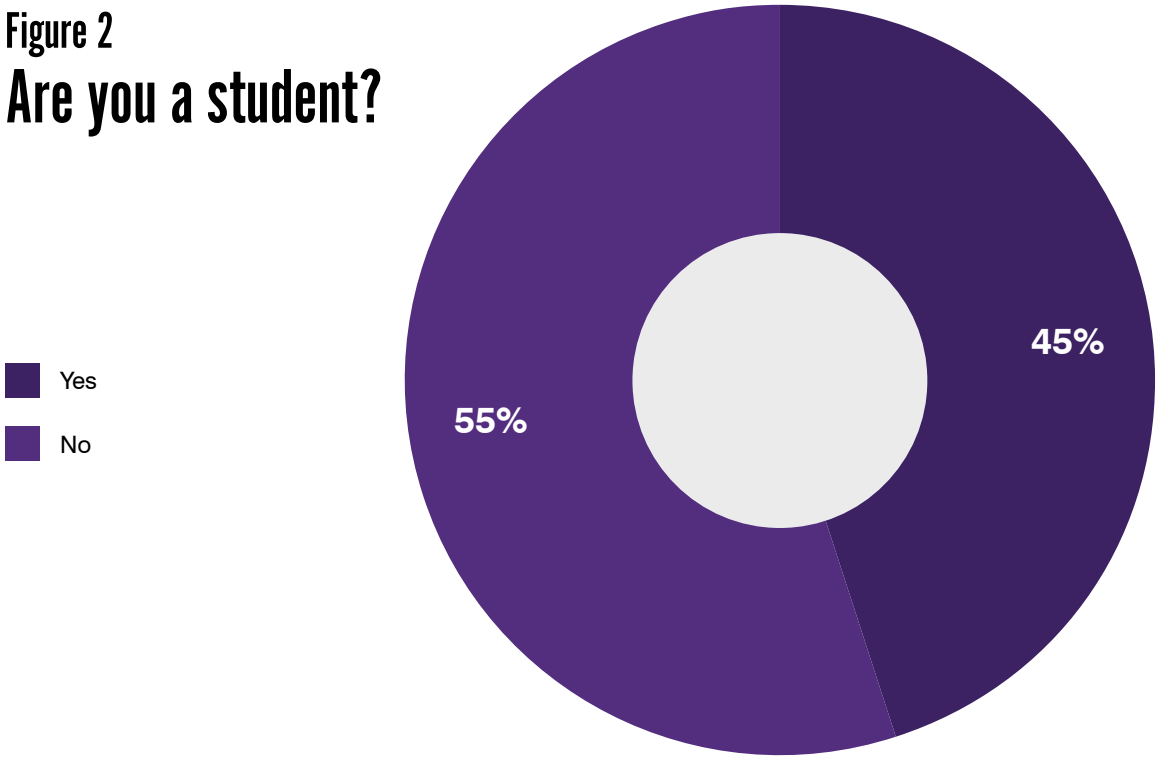


Figure 3

Are you currently employed?

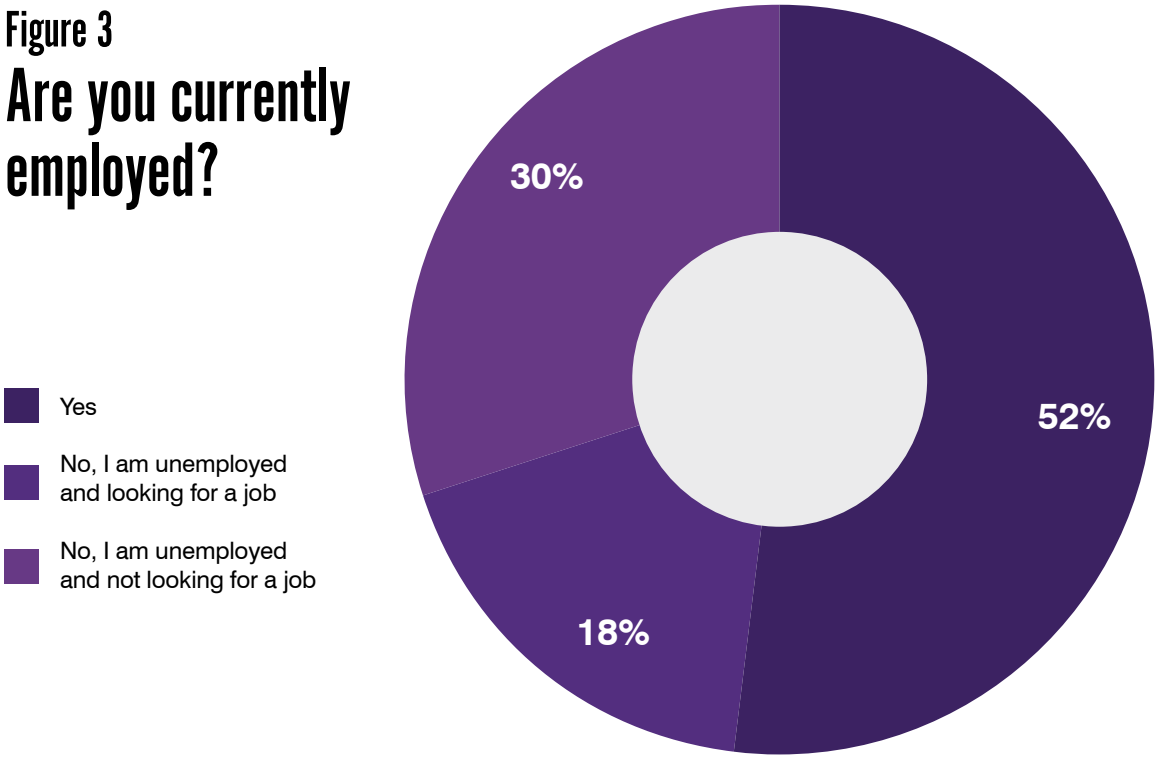


Figure 4

Which of the following best describes your employment status?

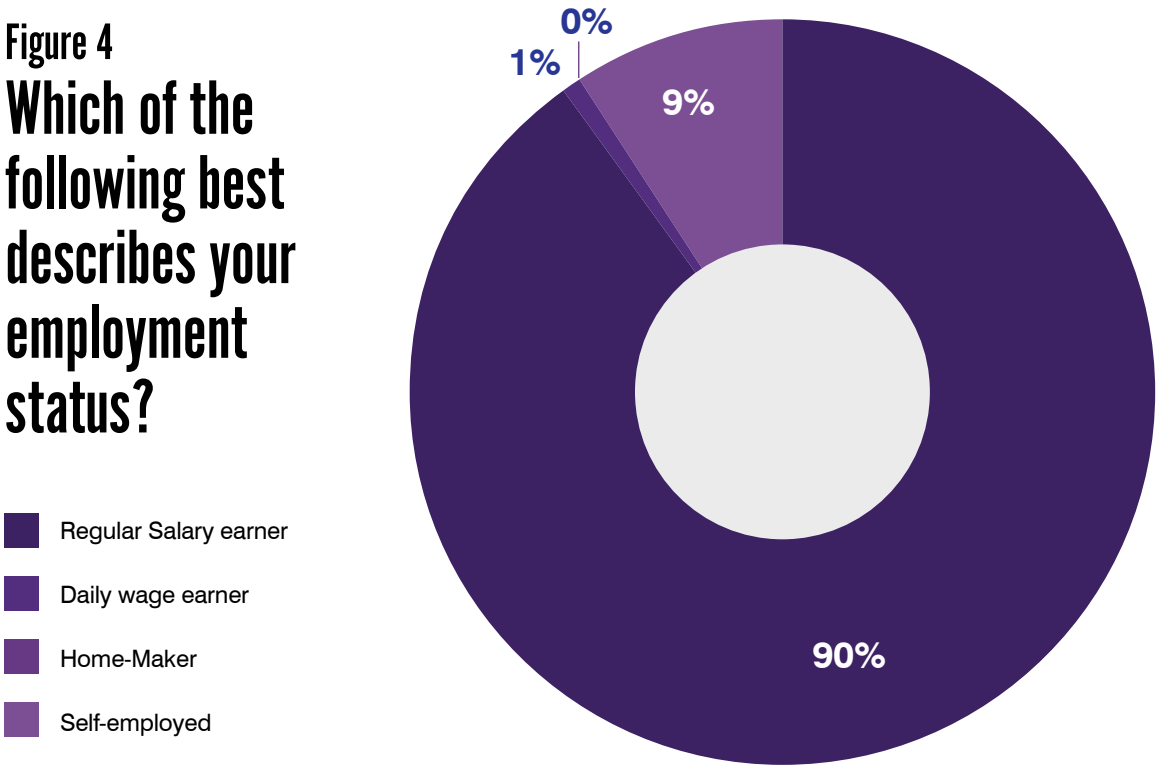


Figure 5

What is your monthly household income (in INR)?

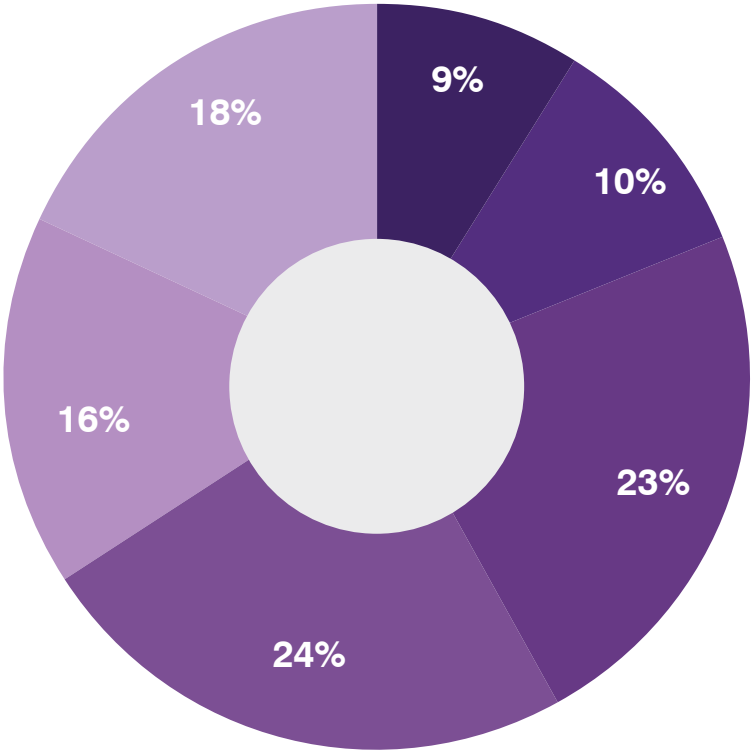


Figure 6

Where do you currently live?

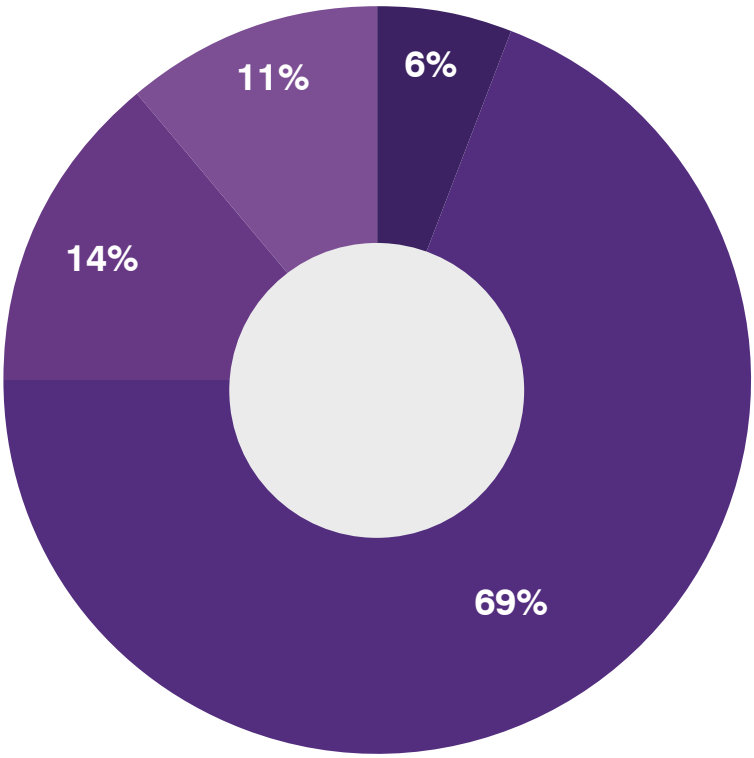
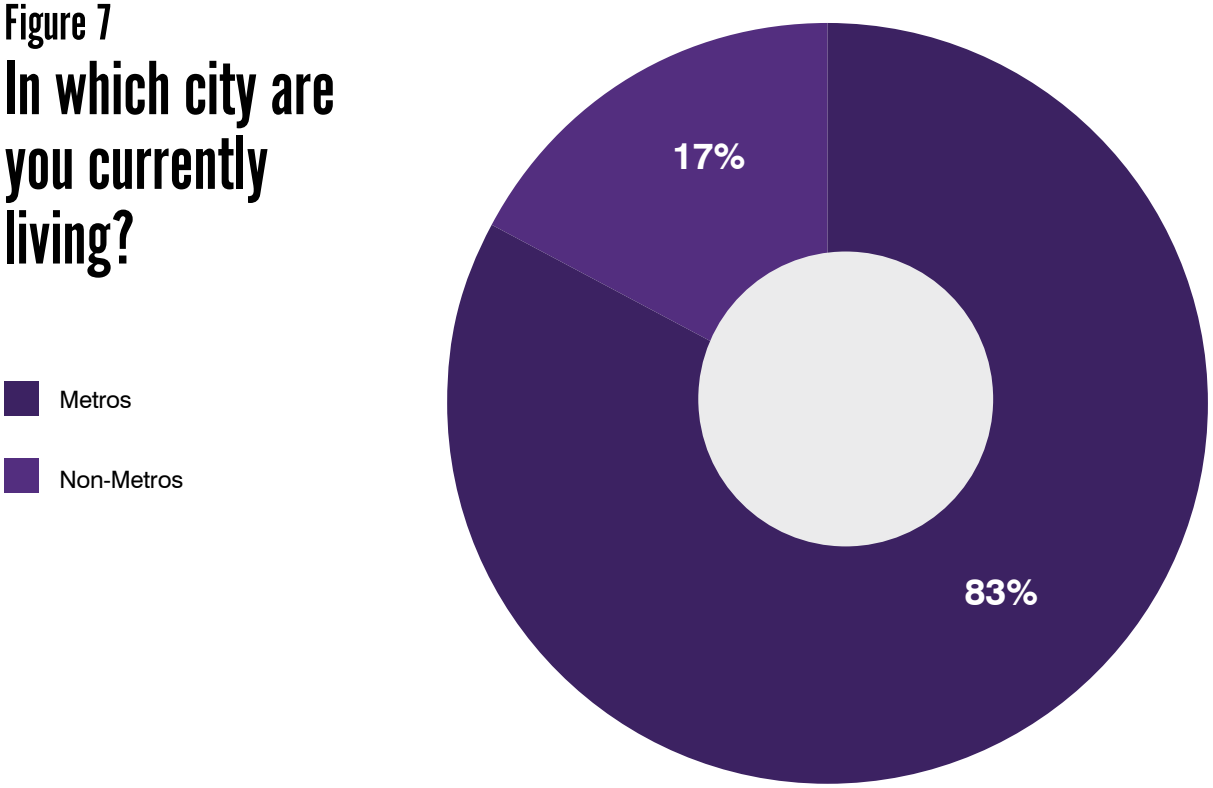


Figure 7

In which city are you currently living?



SUMMARY OF THE SAMPLE POPULATION

89 percent
of the respondents were aged **18-30 years** (59 percent were 18-24 years)

55 percent
were non-students

52 percent
were employed, **90 percent** of who were regular wage-earners

Most respondents
24 percent
earn in the **INR 30,000- INR 60,000 per month** income bracket

Most respondents
69 percent
live with their families/parents

Most respondents
83 percent
live in the top 15 most populated metro cities

Scope and Limitations

The survey was administered online and promoted and shared primarily through social media platforms. However, only 38 percent of urban women in India have access to the internet,[36] restricting the survey from having respondents from a wider variety of socio-economic backgrounds. The online survey may also not represent the various sections of society that use public transport. For example, of the 52 percent of respondents who said they were employed, 90 percent are regular wage-earners and most respondents earned in the INR 30,000-60,000 monthly income bracket. Thus, the online nature of the survey may not be representative enough of the informal wage-worker bracket.

The survey was designed in a way that there was no fixed number of respondents per city and, therefore, a city-wise comparison of data is beyond the scope of this report. The report does, however, analyse the larger trends for highly populated metros versus other cities. The respondents in the above-35-years age bracket made up for only 1 percent of the total respondents, meaning this report is primarily a study of the choices of a young and female India.

The COVID-19 pandemic delayed the number of respondents reaching the number required to make the results statistically significant (4000), and so the survey was available online for a longer time than the initially anticipated four-month period. This is also why there is a six-month gap between closing the survey and the publication of this report. Since the survey was also live after the nationwide lockdown, responses regarding the frequency of trips may have been impacted. However, the need for public transport is deemed as necessary, if not more, in the post pandemic period, and the report's scope and recommendations are, therefore, limited to the impact of safety concerns on mobility choices.

3

OVERALL FINDINGS

A] Type, Use, Frequency of Travel (see Figures 8-15)

- 88 percent of respondents use public transport
- Of the 88 percent who use public transport, 22 percent use autorickshaws, followed by train (19 percent), bus (17 percent) and on-demand taxi (17 percent), with non-app based taxi being used the least (2 percent)
- Of the 12 percent who do not use public transport, most travel by motorised two-wheelers (41 percent), followed by four wheelers (33 percent). Cycles were the least used (1 percent)
- Women use public transport most often to reach public spaces (23 percent) and workspaces (22 percent), with reaching places of worship being the least frequent reason for use (9 percent)
- 75 percent women use public transport every day, with most (33 percent) commuting between 30 minutes to one hour daily, followed by one-two hours (32 percent)
- Most women travel between 10-20 km every day (22 percent), followed by 5-10 km (18 percent), with the least number travelling less than 1 km (3 percent)
- Most women spend between INR 50-100 daily to commute (35 percent), with the least number spending INR 400 or more on daily travel (5 percent)

Figure 8

Do you use public transport?

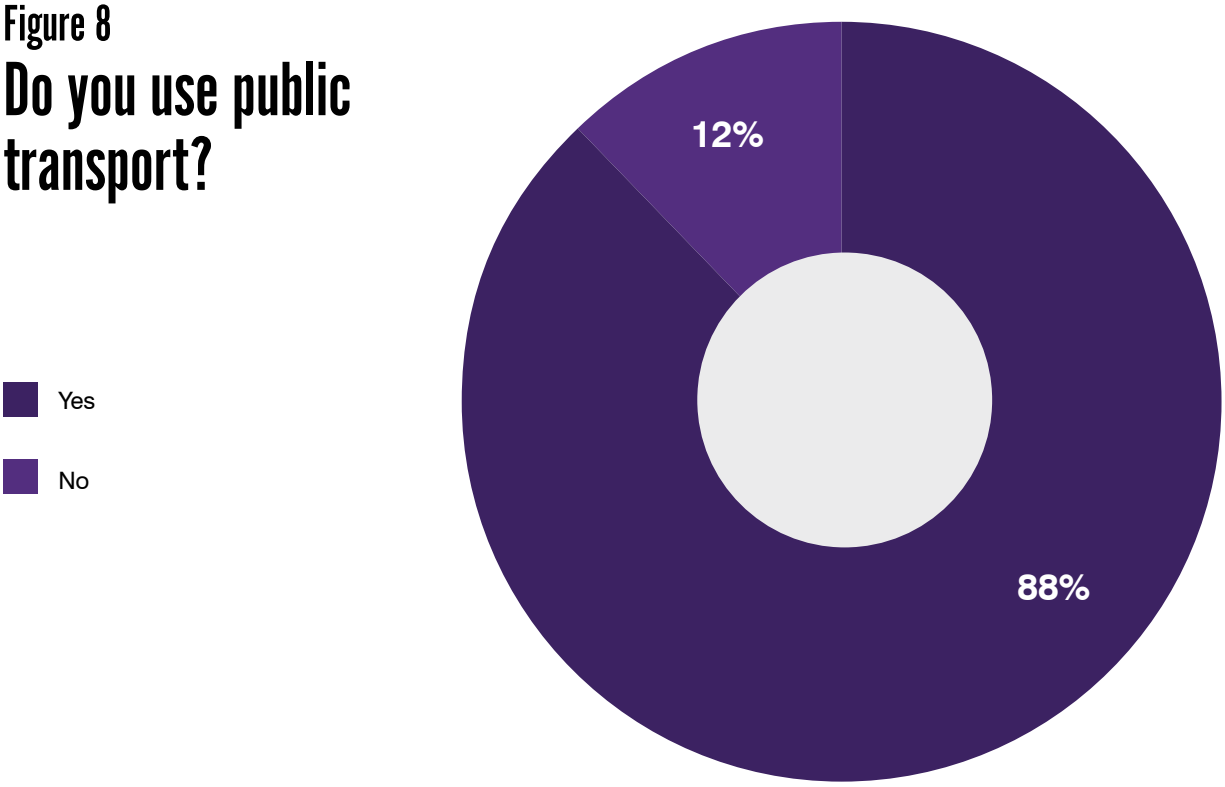


Figure 9

What kind of public transport do you use?

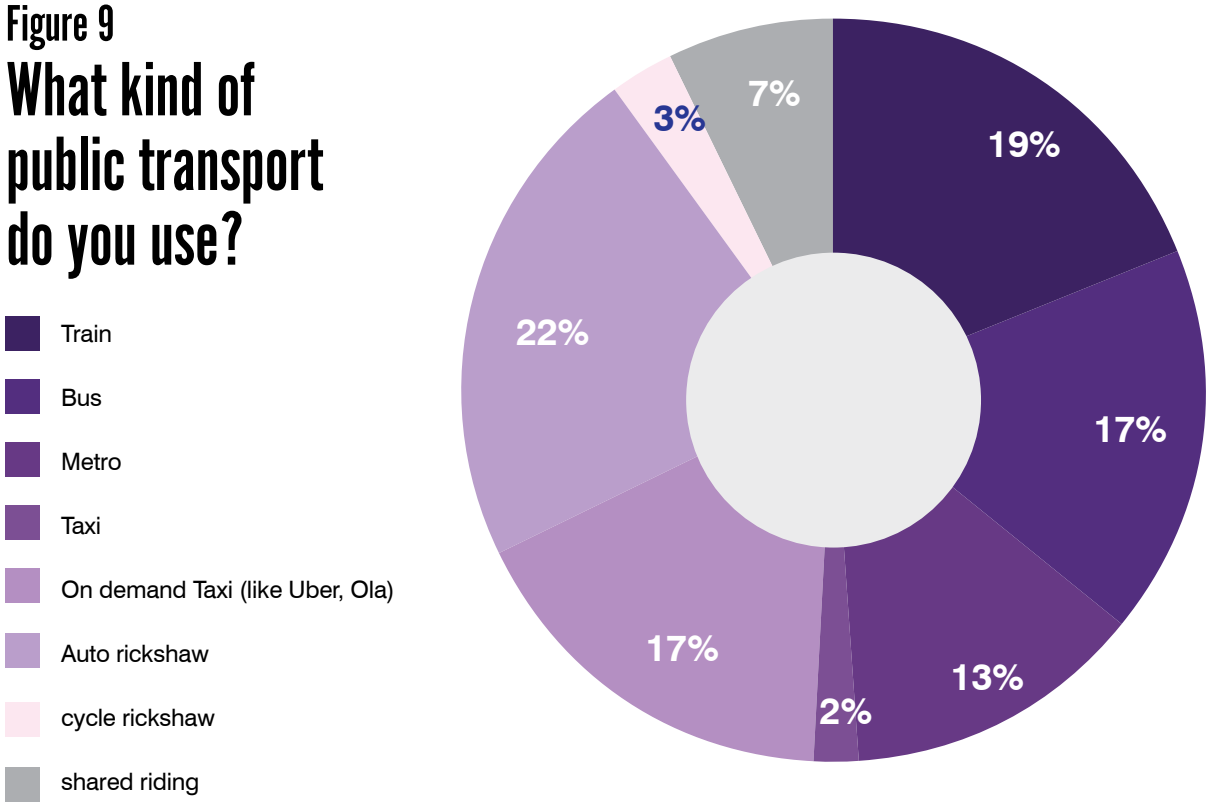


Figure 10

What kind of transport do you use?

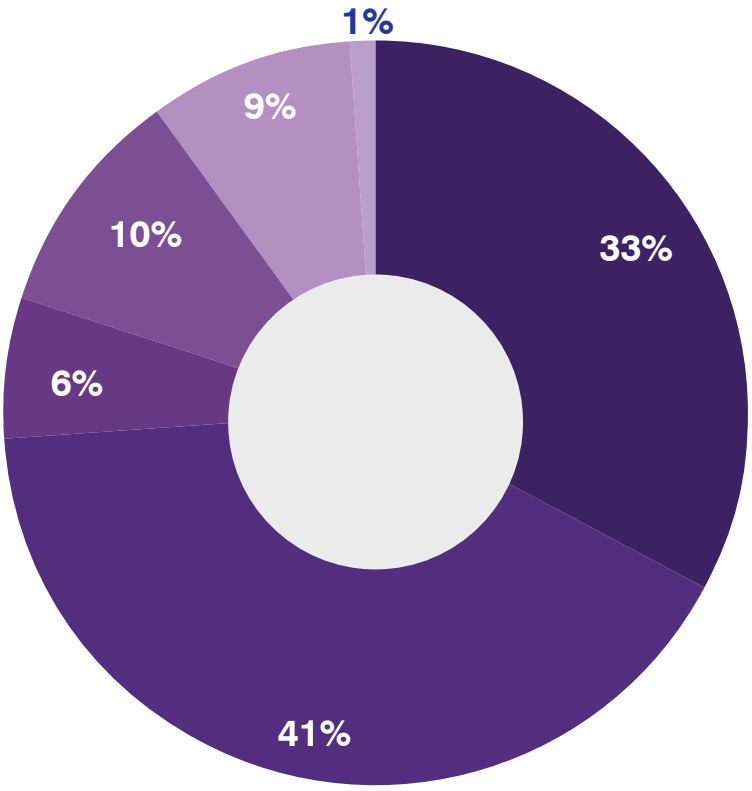


Figure 11

For what purpose do you use public transport?

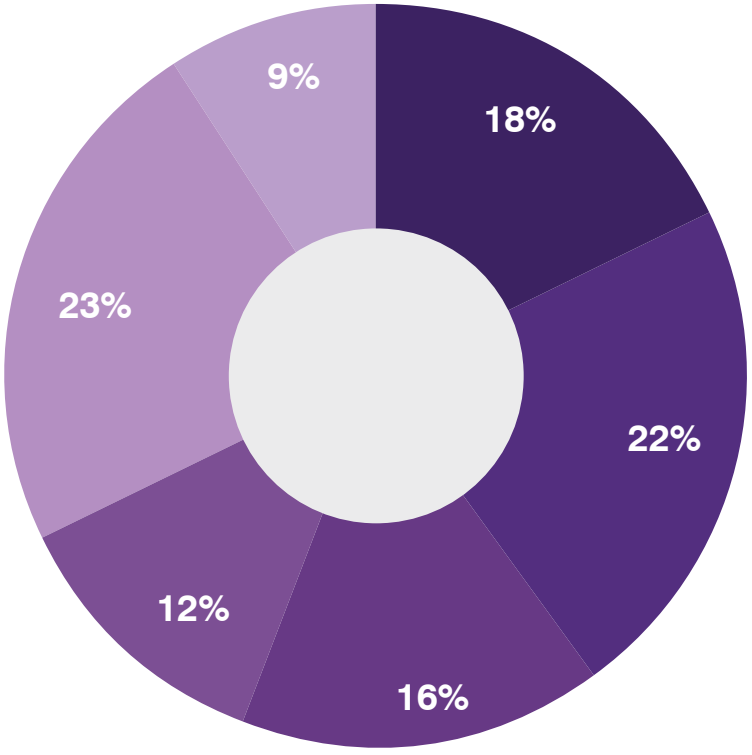


Figure 12

How often do you use public transport?

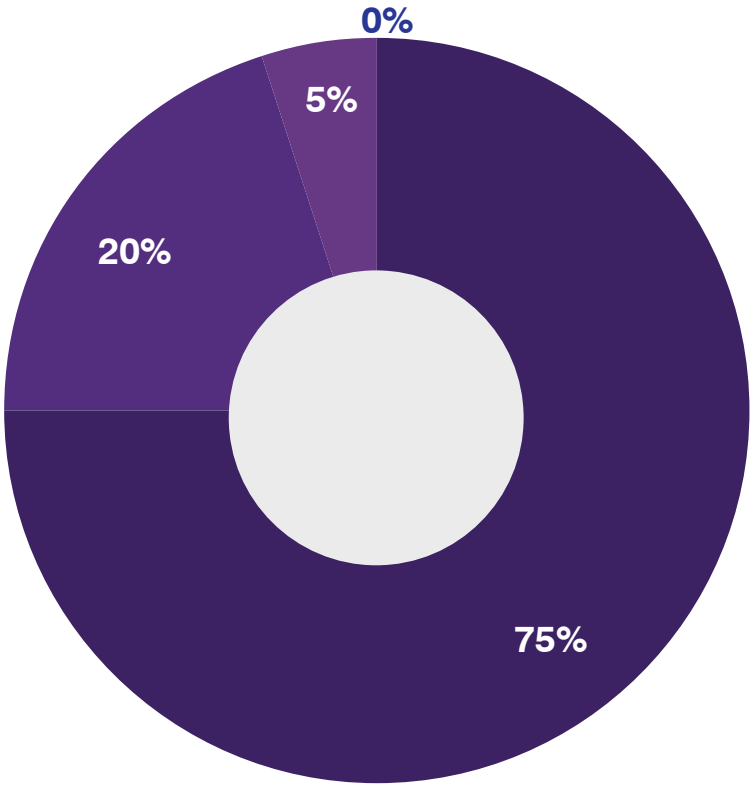


Figure 13

What is the average amount of time you spend commuting per day?

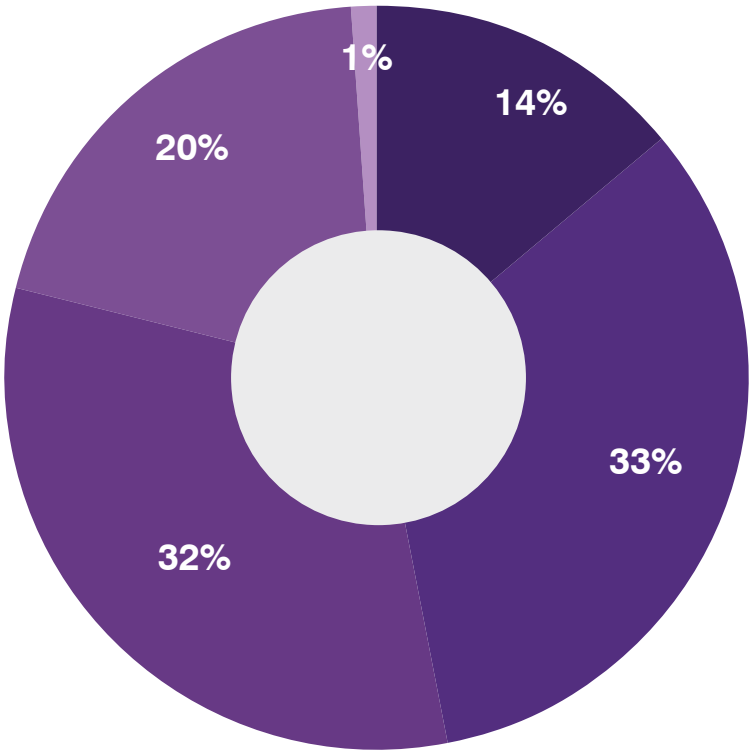


Figure 14

What is the average number of kilometers you travel per day?

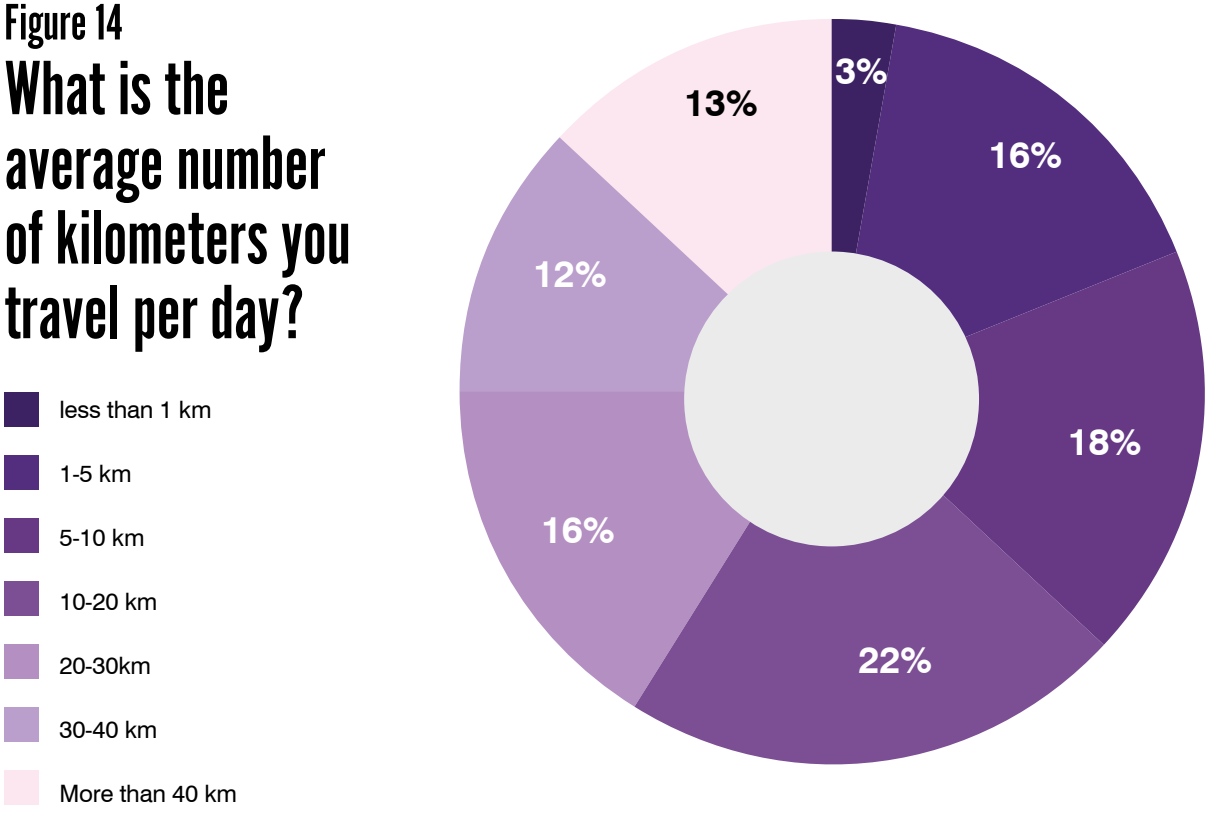
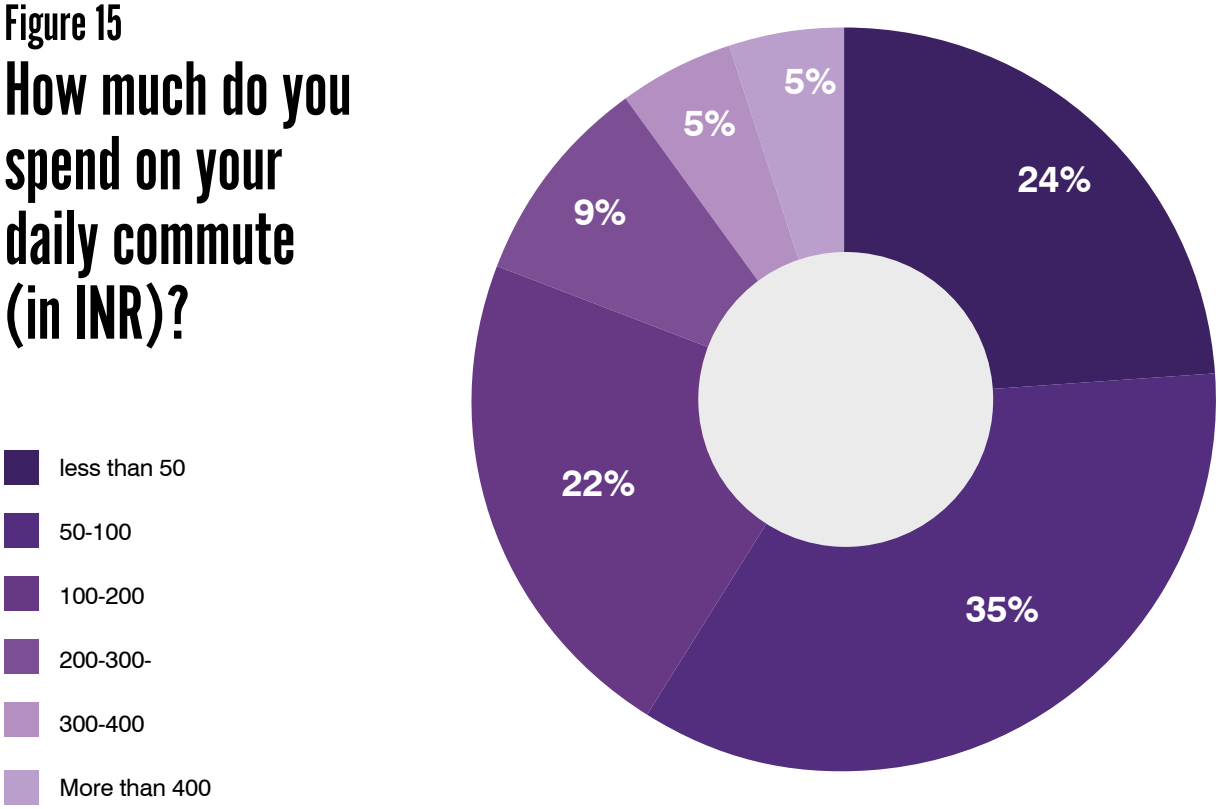


Figure 15

How much do you spend on your daily commute (in INR)?



B] Preferences—Public vs Private Transport (see Table 4 and Figures 16-17)

- Most respondents prefer public transport when it comes to accessibility to home/work/places of education (60 percent) and reduced travel time (56 percent).
- However, private transport is preferred for personal safety (55 percent), reliability (55 percent) and comfort (an overwhelming 86 percent), with 61 percent finding public transport unhygienic and unclean.
- More respondents (58 percent) prefer not using public transport in times of an emergency, even though they prefer public transport when it comes to accessibility and reduced travel time. This means reliability and safety is a more important concern in times of crisis.
- An overwhelming 91 percent of respondents think it is important for their mode of transport to be environment-friendly. This is a good indication of receptiveness to new policies aimed at making transportation more sustainable and greener.

Table 4
Overall Preference – Public vs Private Transport

	PUBLIC	PRIVATE
Accessibility in terms of distance to home/work/education	60%	40%
Reduction in travel time	56%	44%
Personal safety	45%	55%
Reliability	45%	55%
Comfort	14%	86%
Is public transport hygienic and clean?	39%	61%

Figure 16

Would you use public transport for emergencies?

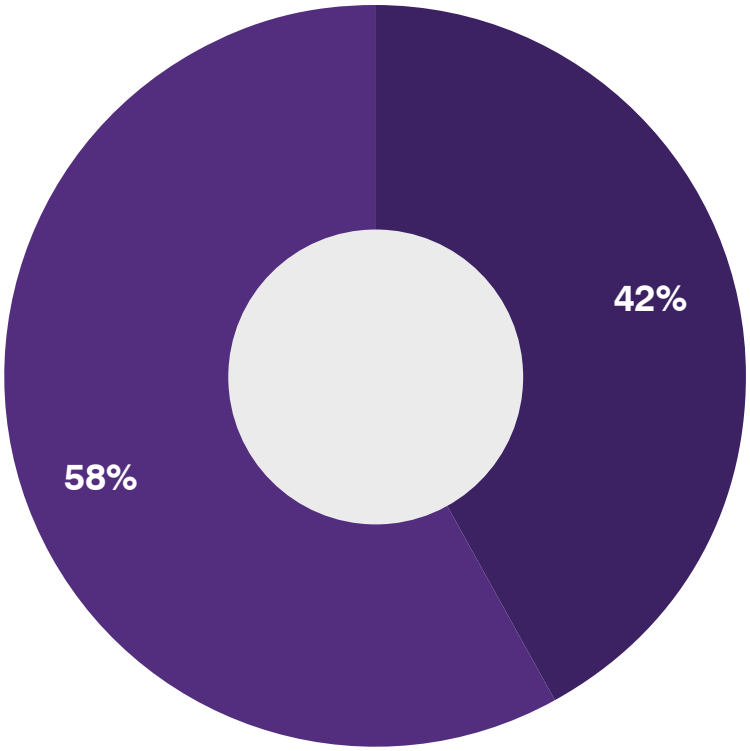
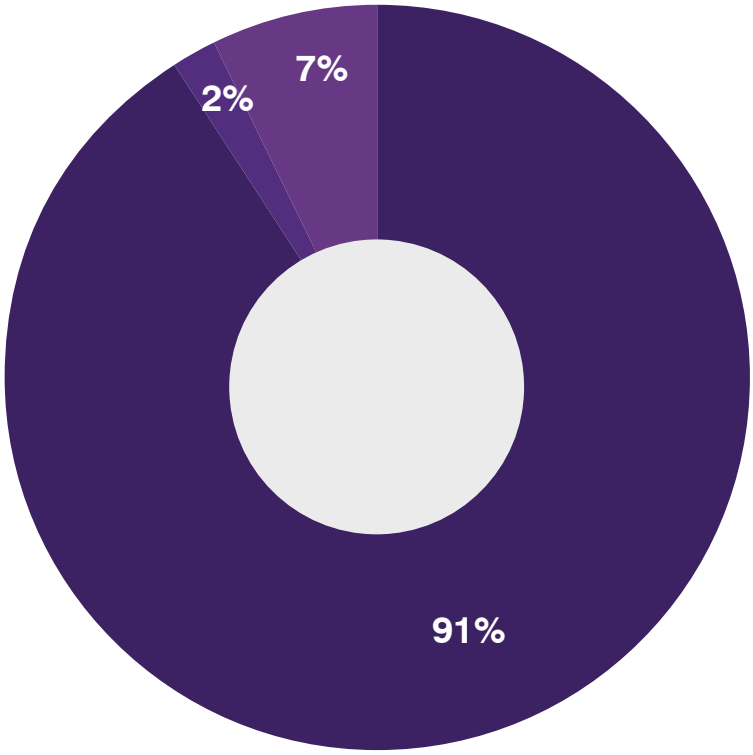


Figure 17

How important is it for your means of transport to be environment friendly?



C] Safety Concerns (see Figures 18-35)

- Women travel during peak and non-peak hours, but more women use peak hours than non-peak hours, with 79 percent reporting that the time of day affects their use of public transport
- 71 percent of respondents find it safest travelling in the 9 am-5 pm daytime work-hour bracket, with less than 1 percent finding the graveyard shift (12 am-7 am) safe (conversely, 45 percent of respondents find this time to be the most unsafe)
- 57 percent of women report that public transport in India is unsafe, with a similar number (56 percent) reporting that they have been sexually harassed while using public transport
- In instances of sexual harassment while using public transport, the least number of women (2 percent) said they reported the incident to authorities. This signifies a massive trust deficit in the authority's capacity to handle such matters with sensitivity and efficiency. Most women chose to take action themselves (33 percent), did not feel safe taking any action (33 percent) or chose to ignore the situation (26 percent)
- 72 percent of respondents reported that they do not know the emergency number for transport services, which combines the poor level of trust in authorities with poor awareness of redressal mechanisms
- Most respondents said they did not have any restrictions from their parents or spouse in using public transport. Those who do have restrictions said it was due to safety concerns (17 percent with restrictions from parents, and 20 percent from partner/spouse)
- 30 percent of women said congestion (crowd) was the cause for feeling unsafe while using public transport. Most respondents (18 percent) also feel interchanges (bus stops, train platforms, traffic lights) are the most unsafe element of the mobility chain. This is an important finding because any reduction in the number of people travelling due to social distancing measures should be complemented with a similar reduction in interchanges to prevent overcrowding and the feeling of lack of safety for women
- While women feel most unsafe at interchanges (18 percent), they also feel unsafe inside public transport vehicles (16 percent) and private vehicles (15 percent). This suggests that the transit mode is deemed risky when there is less control over familiarity in surroundings and destinations, as opposed to the end or beginning of a destination
- Most women find the metro to be the safest form of public transport (30 percent), followed by the train (25 percent)
- Of the respondents who use public transport, autorickshaws are the most preferred option, even though only 11 percent find it safe, highlighting that the need to use last-mile connectivity trumps safety. However, since most women use this form of transport, policy decisions must cater to women using them, such as using GPS trackers and alarm systems, or having dedicated women auto drivers
- Only 3 percent of women find the non-app-based taxis safe, followed by only 5 percent finding shared riding safe. This corroborates with the findings in Part A (Type, Use, Frequency of Travel) that women use a non-app-based taxi the least (2 percent), followed by shared riding (7 percent)
- 52 percent women said they have turned down an education and/or work opportunity due to the commute being unsafe. This is an important finding because it suggests that female

participation in education and the labour force is somehow related to unsafe commute

- Most women who do not use public transport said they would use it if it were safer (33 percent). Safety—over cleanliness and connectivity—is a key issue to be resolved if the transport network is to be strengthened to mitigate rising levels of pollution and become more inclusive

Figure 18

At what time of the day do you use public transport?

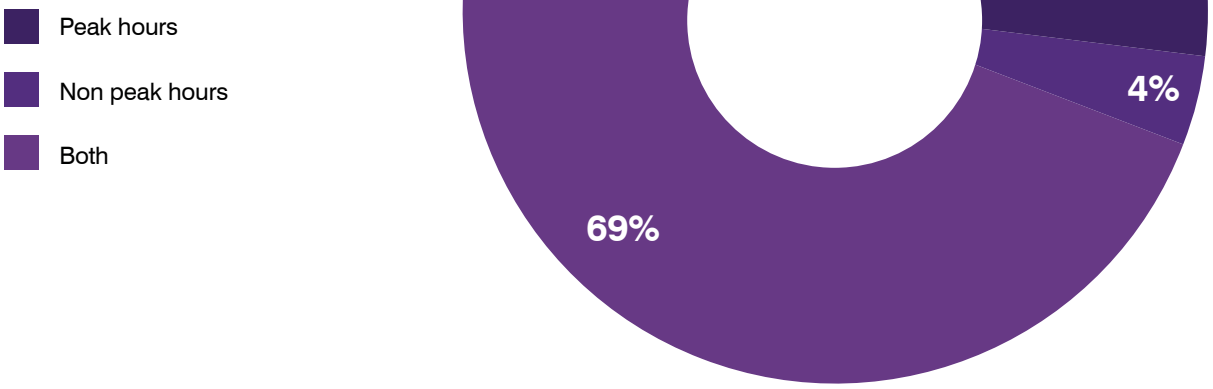


Figure 19

Does the time of the day affect your use of public transport?

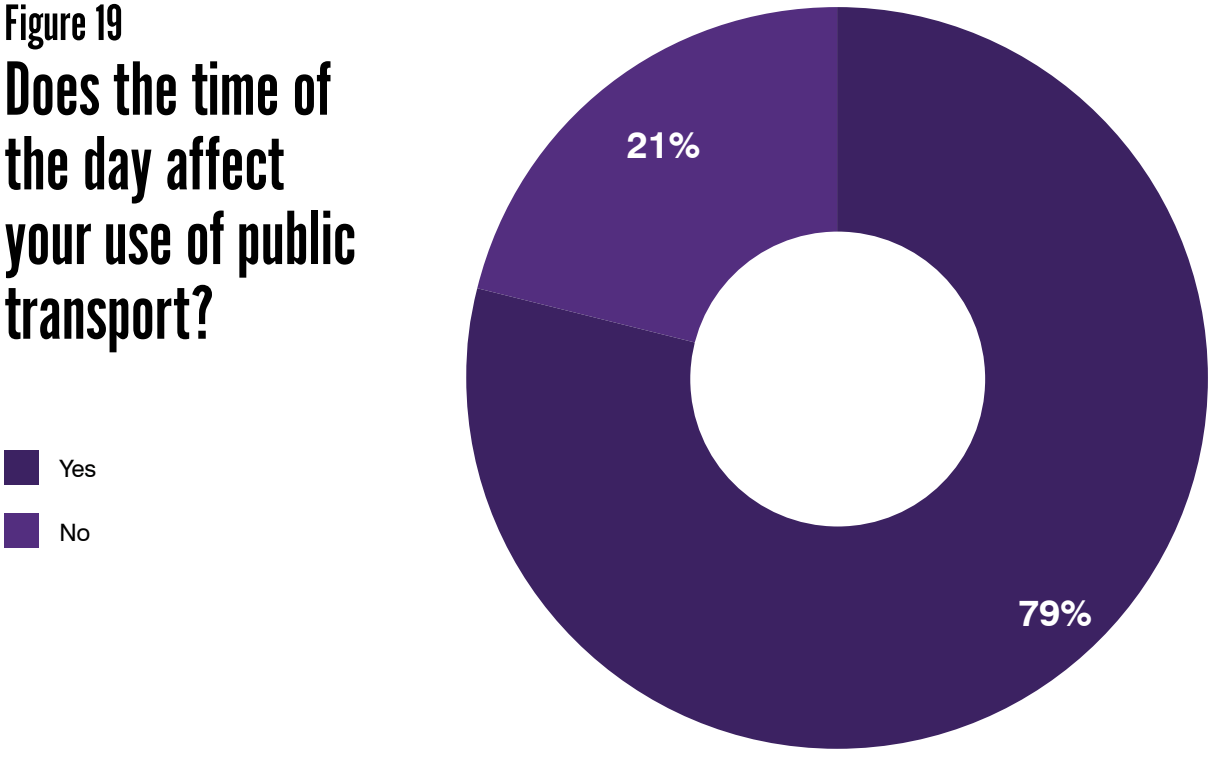


Figure 20

When do you feel the safest travelling?

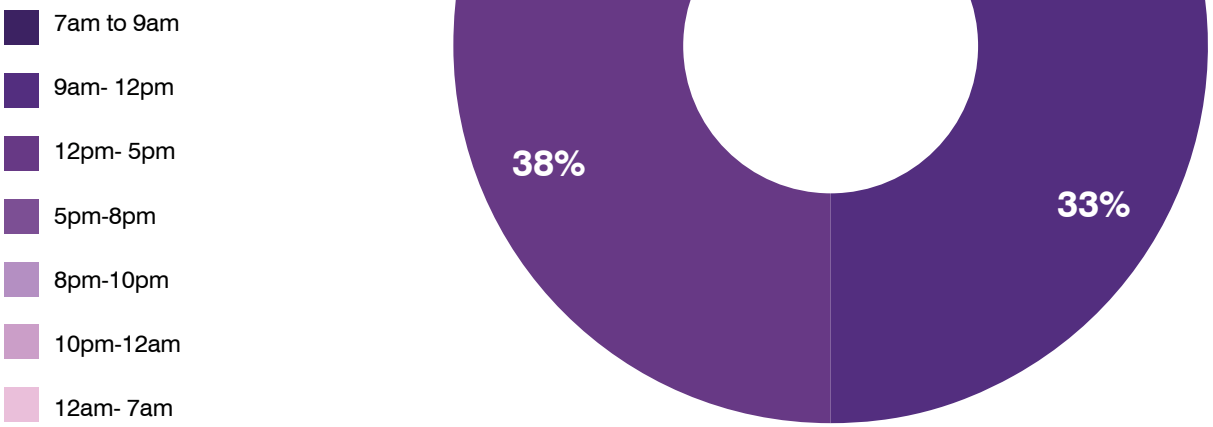


Figure 21

When do you feel most unsafe while traveling?

Figure 22

Does the distance you need to travel affect your preference to use public transport?

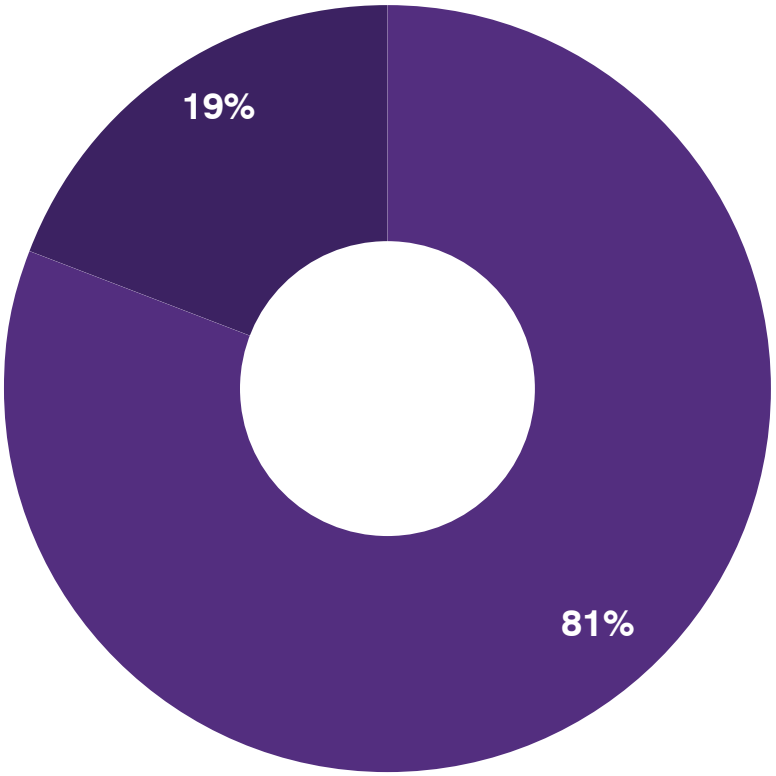


Figure 23

How safe do you think the urban public transport system in India is?

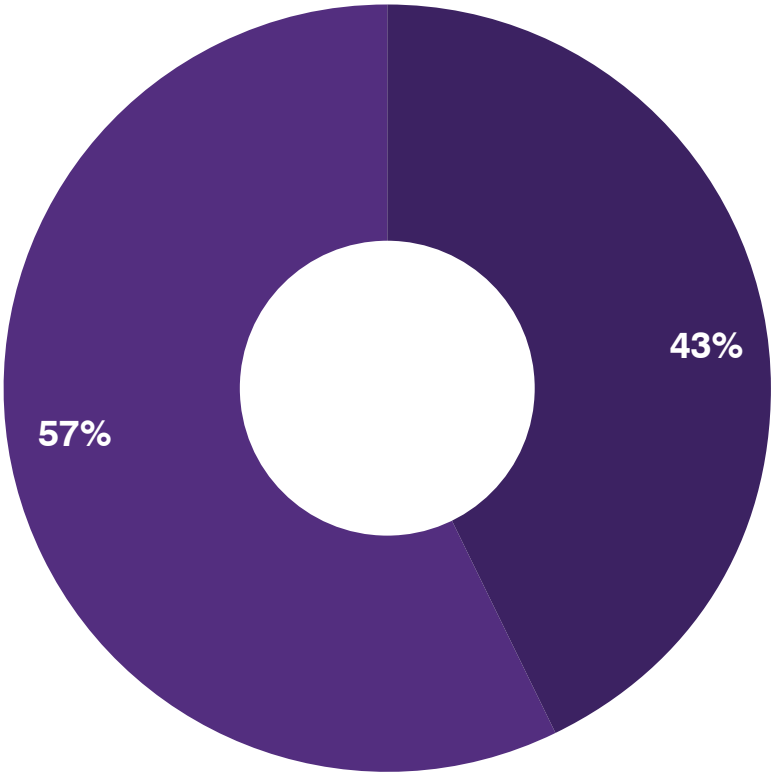


Figure 24

Have you ever been sexually harassed while travelling using public transport?

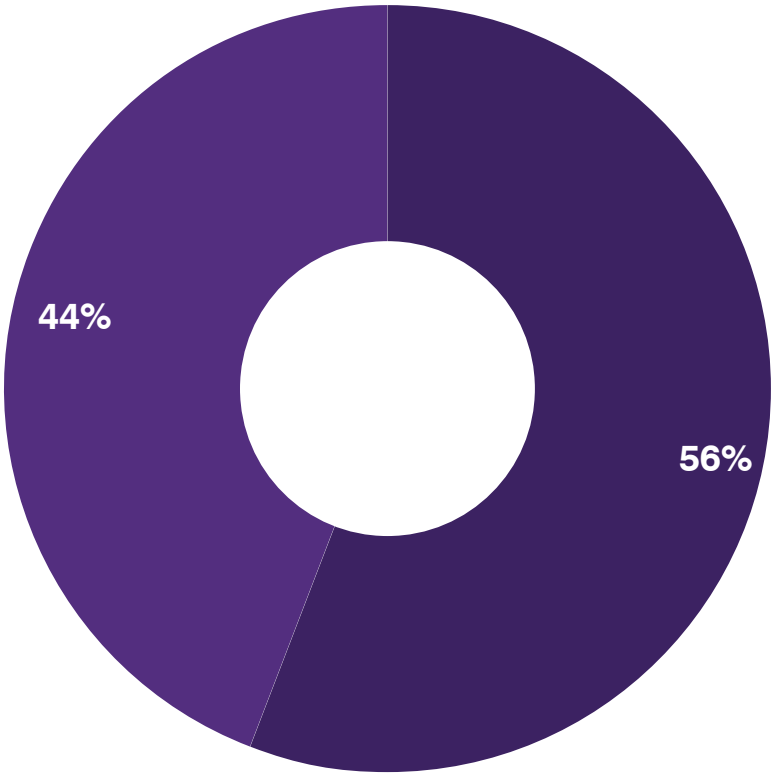


Figure 25

How have you addressed the situation?

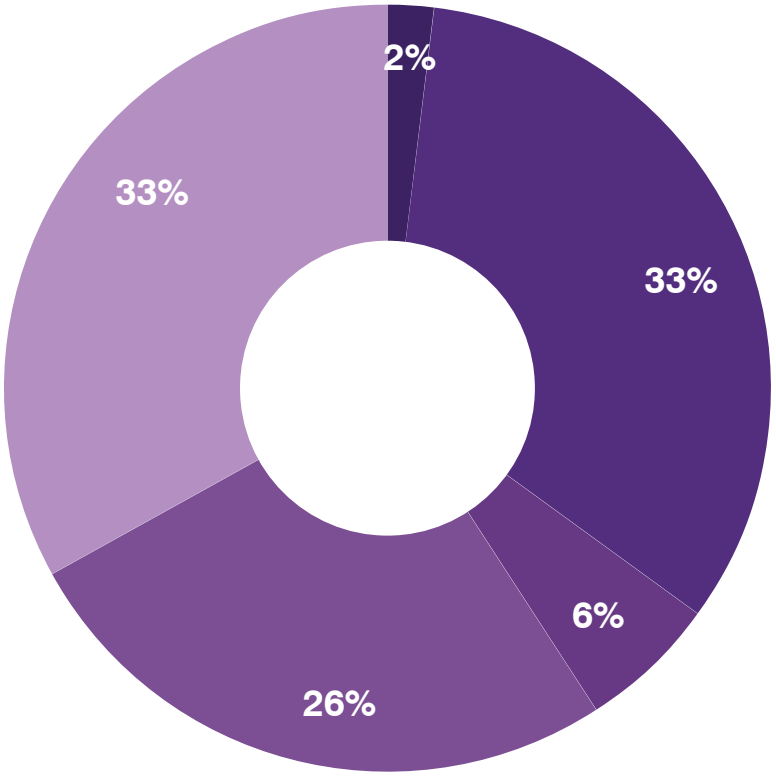


Figure 26

Do you know the emergency contact numbers for transport services?

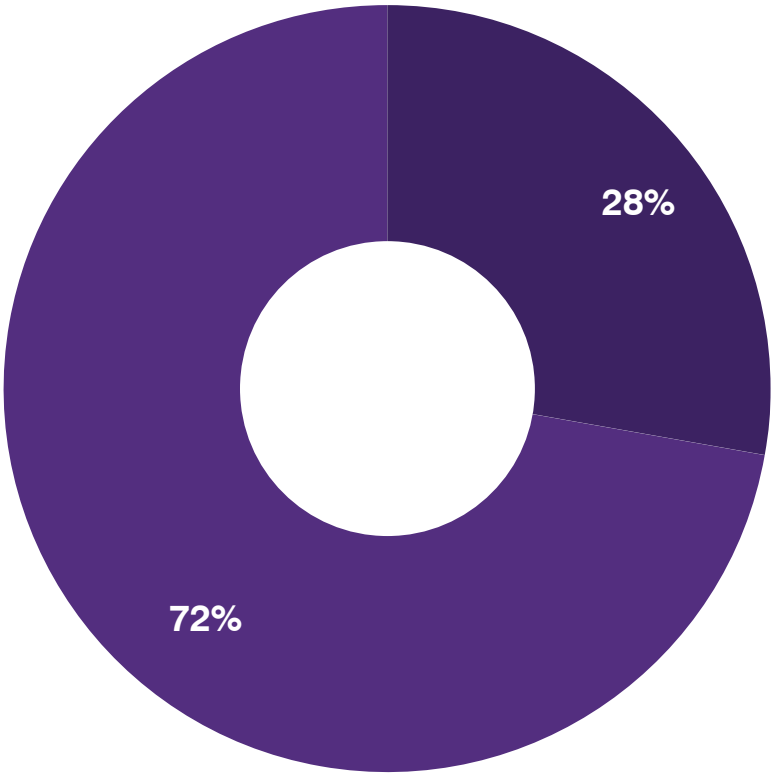


Figure 27

Do you have restrictions from your parents from using public transport?

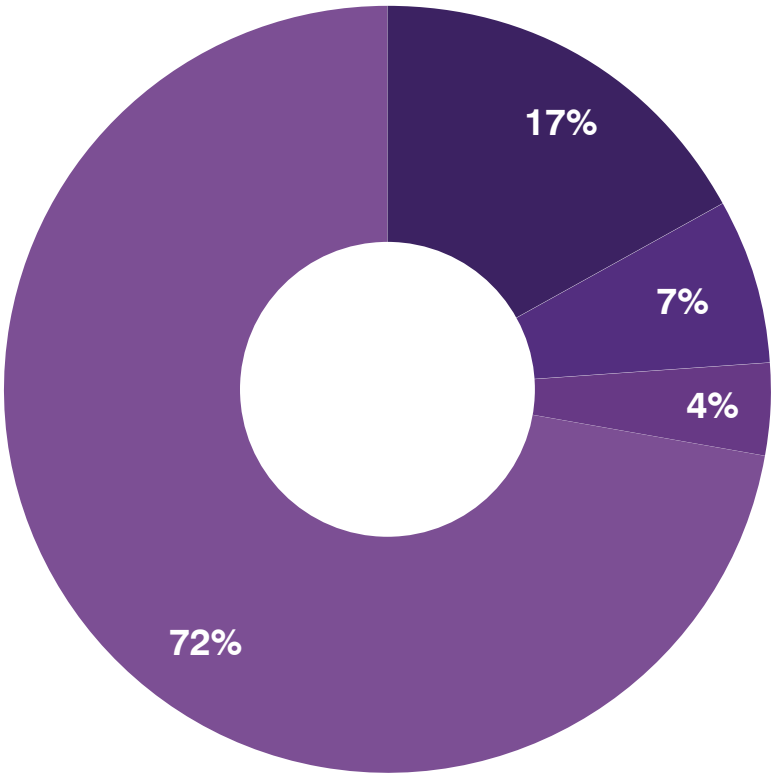
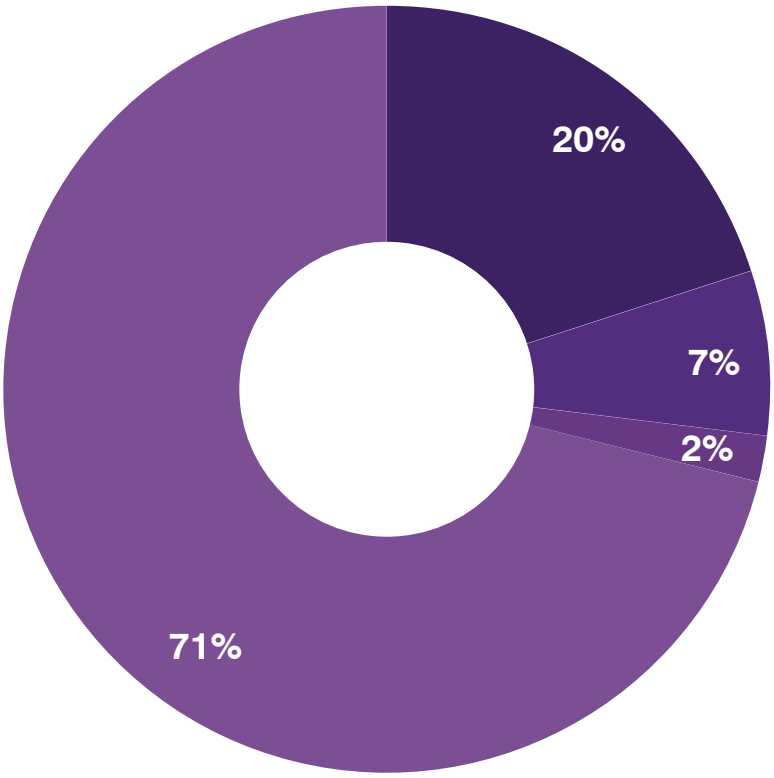


Figure 28

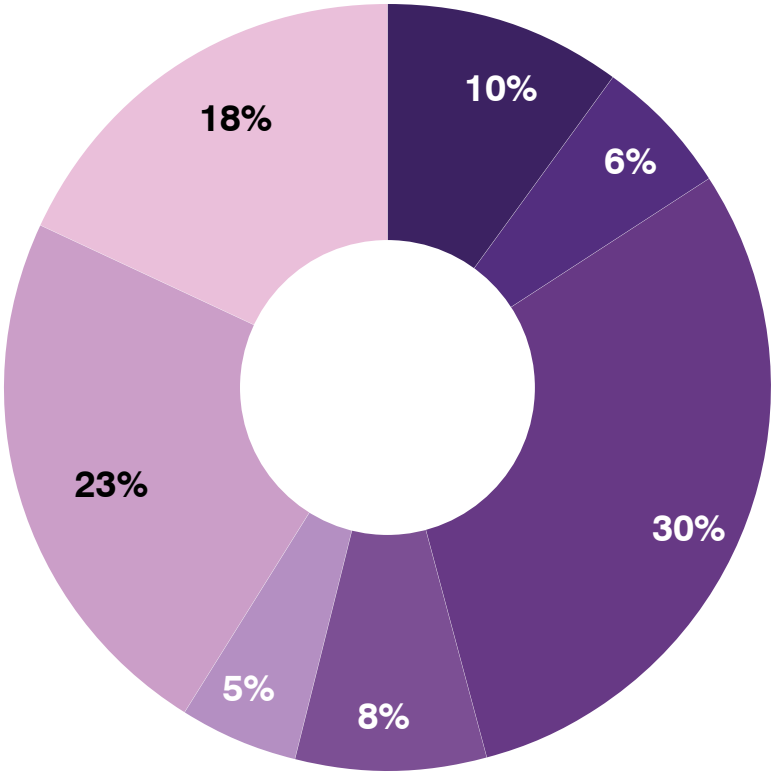
Do you have restrictions from your spouse/ partner from using public transport?



- Yes, because its unsafe
- Yes, because its too far a distance
- Yes, because I am not allowed to travel by myself
- No, I do not have any restrictions

Figure 29

What are the reasons for you feeling unsafe while using public transport?



- I do not feel unsafe using public transport
- There is not enough lighting
- Its too congested
- It is not well connected to my place of residence
- there is not enough CCTV surveilance
- There is no live GPS tracking

Figure 30

Do you feel unsafe due to concerns of accidents and breakdown in the transport infrastructure?

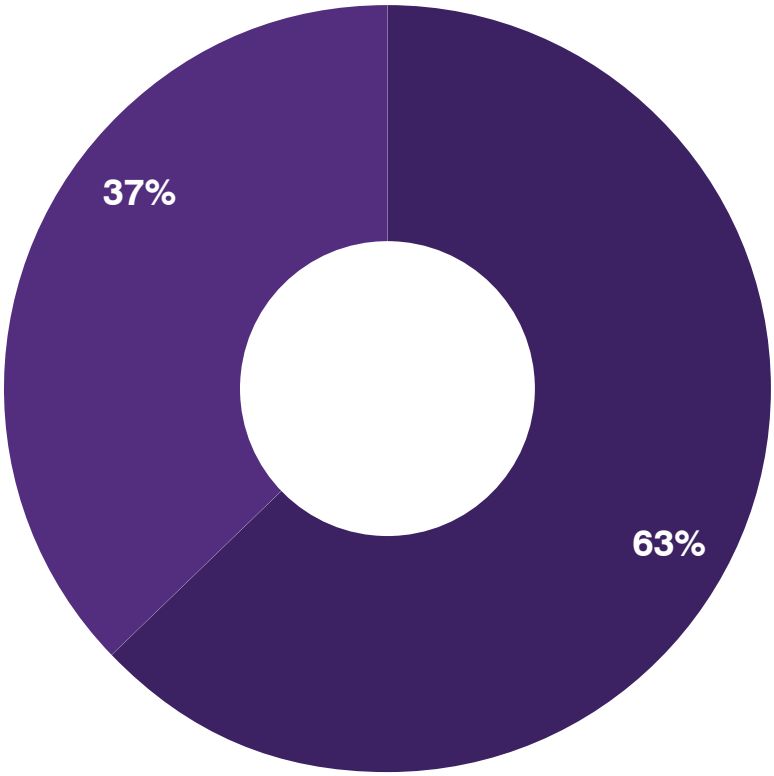


Figure 31

Which part of the transport mobility chain is most unsafe?

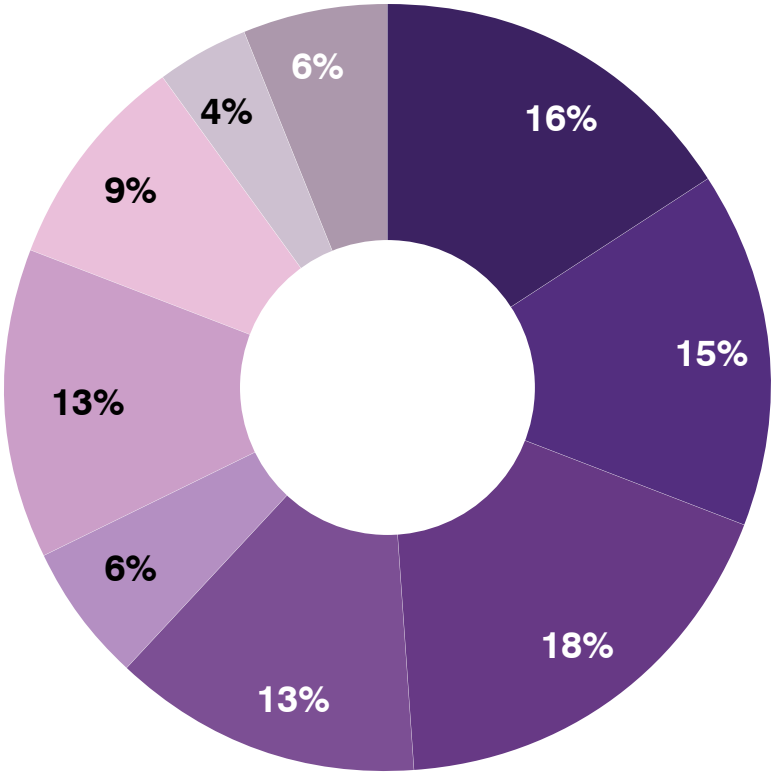


Figure 32

Which mode of public transport do you think is the safest?

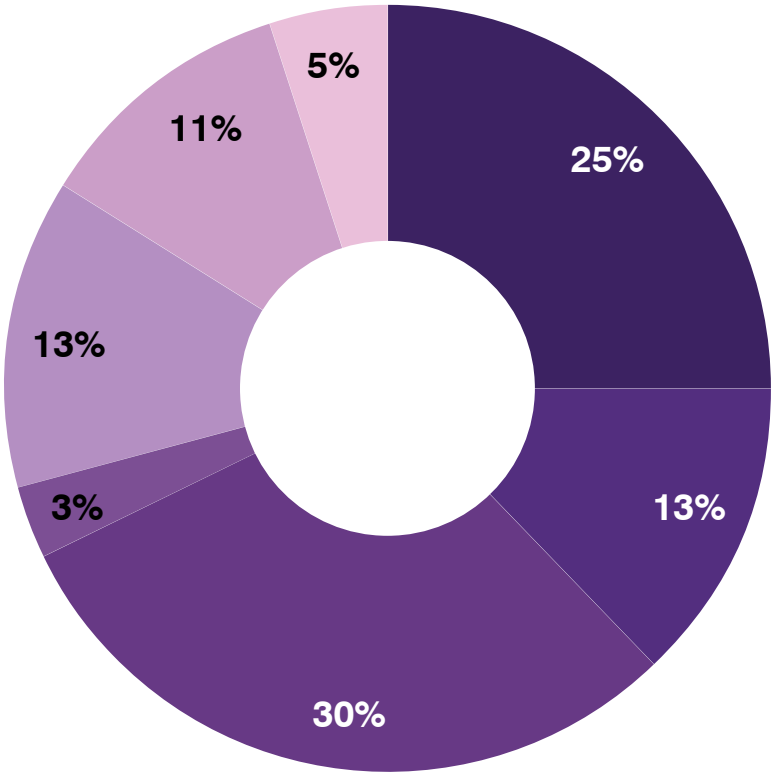


Figure 33

Have you ever said no to an opportunity (educational/ work related) due to the commute being unsafe?

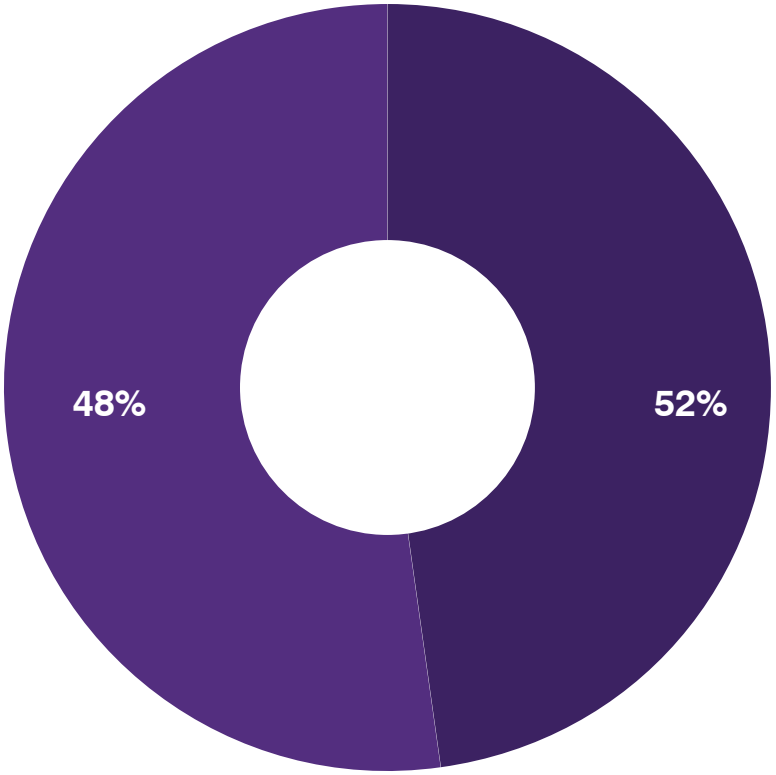
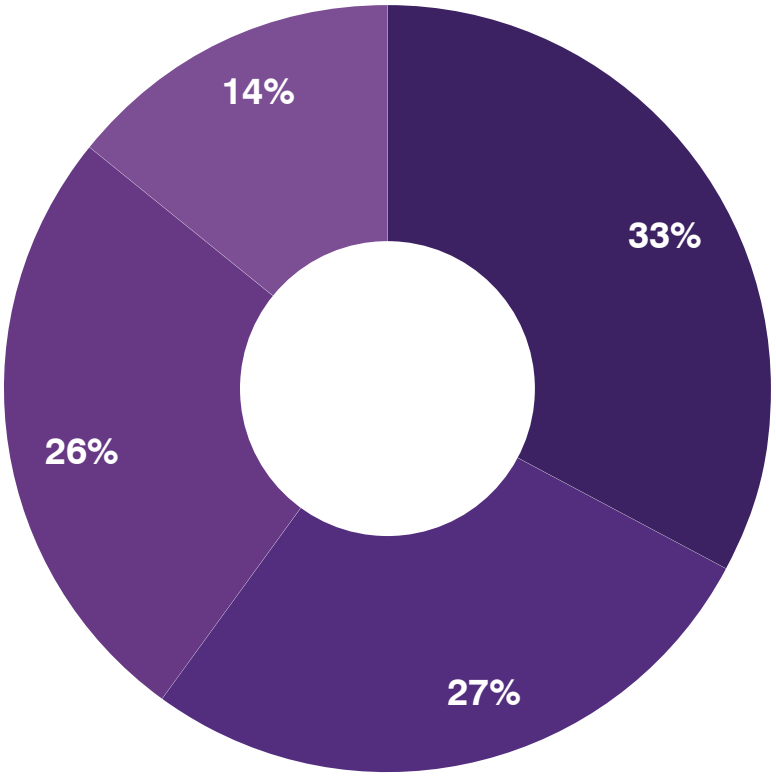


Figure 34

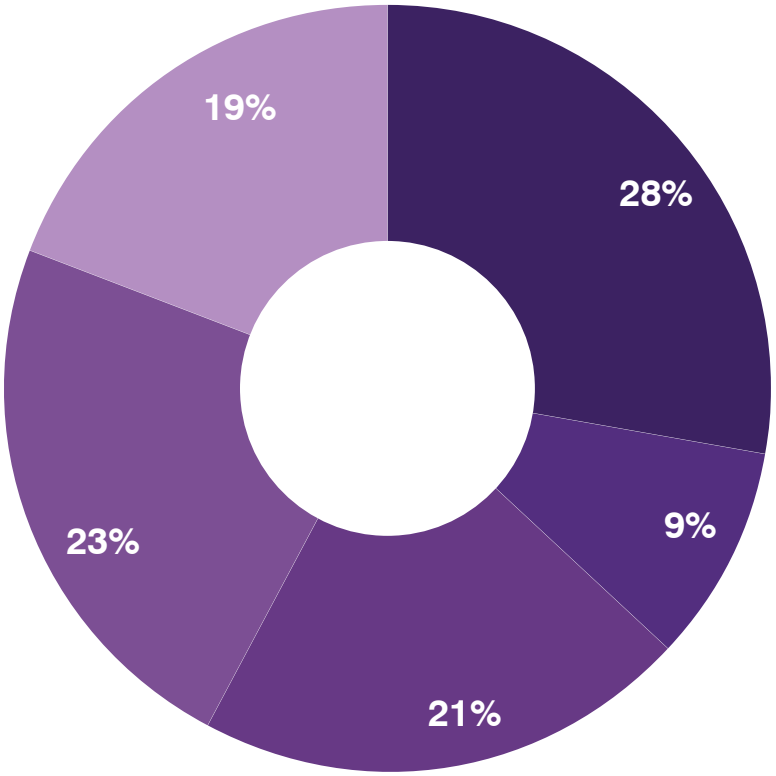
I would change my mode of transport to public transport if:



- I felt safer
- It was cleaner
- It had better connectivity
- It was cheaper

Figure 35

What is the supporting infrastructure required in public transport systems that is most essential for you?



- Hygeine and safe toilets
- Creches
- Lighting
- Seating
- Density of area/ proximity of activity hubs

4

MOBILITY TRENDS AND ANALYSIS BASED ON DISAGGREGATED DATA

MOBILITY TRENDS BY AGE

A] Type, Use, and Frequency of Mobility

- An age-disaggregated analysis of the respondents covered in this report indicates that women aged above 35 years and in the 18–24-year bracket use public transport the most, at 90 percent (see Figure 36). Public transport is least used by women aged 31-35 years, at 78 percent. Of the women who use public transport, local taxi services and cycle rickshaws are used least across all age groups, ranging from 1 percent to 6 percent (see Figure 37).
- Autorickshaws are the most commonly used form of public transport, ranging from 21 percent to 23 percent across all age groups (see Figure 37). Four-wheelers and two-wheelers are the most-used form of private vehicles across all age groups of women who do not use public transport. Women aged above 35 years use four-wheelers the most (100 percent)

among all age groups (see Figure 38). About 68 percent of women aged below 18 years use four-wheelers. About 46 percent of respondents in the 18-24 age group and 41 percent in the 25-30 age group use two-wheelers.

- Most women use public transport to either reach their workplace or education (see Figure 39). Additionally, most women spend between 30 minutes to two hours commuting in a day (see Figure 40).
- About 63 percent of all under 18 respondents travelled less than 10 km per day (see Figure 41) and spent the least amount on their daily commute among all age groups—about 36 percent of those under 18 spent less than INR 50 (see Figure 42). Women aged above 35 years spent most in their daily commute—22 percent of women in the above 35 age group spent more than INR 400 on their daily commute, as compared to only 7 percent of respondents below 18 years, and 3 percent aged 18-24 years.

Figure 36
Do you use public transport?

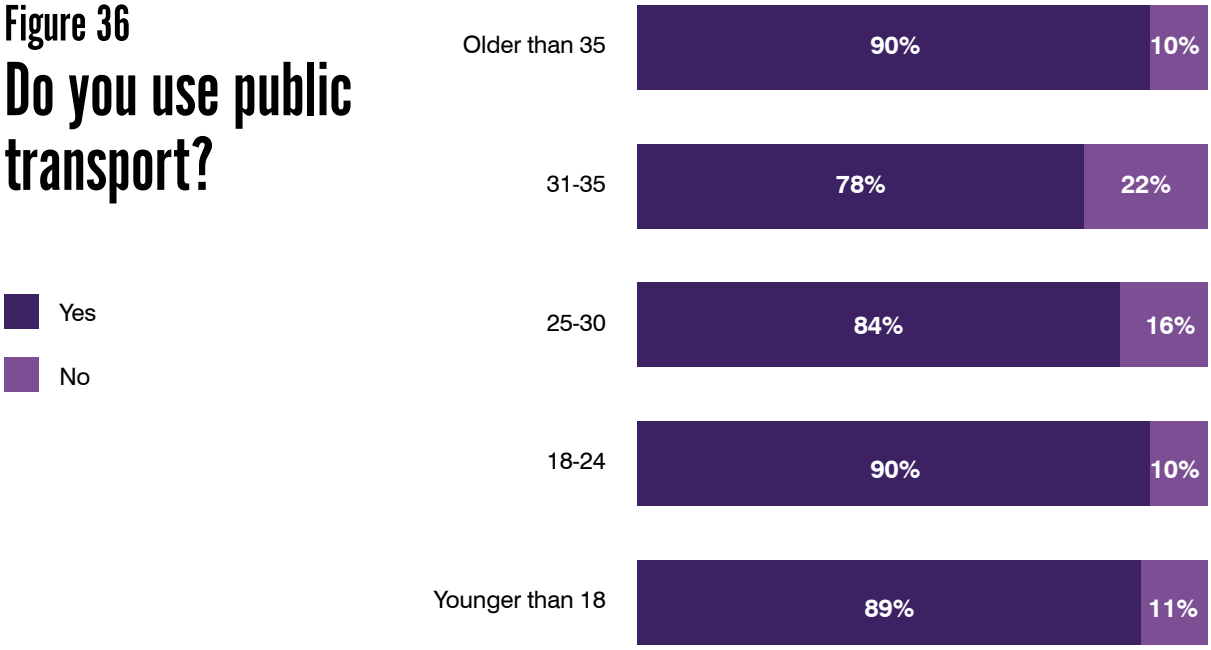


Figure 37

What kind of public transport do you use?

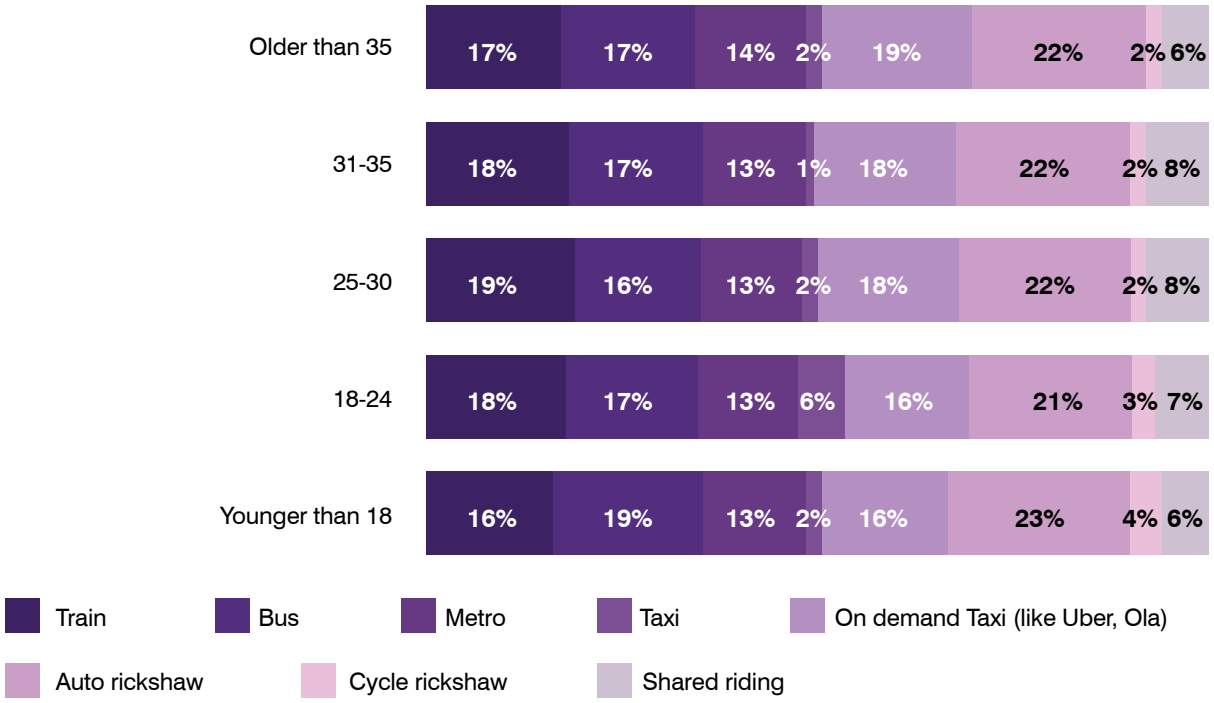


Figure 38

What kind of transport do you use?

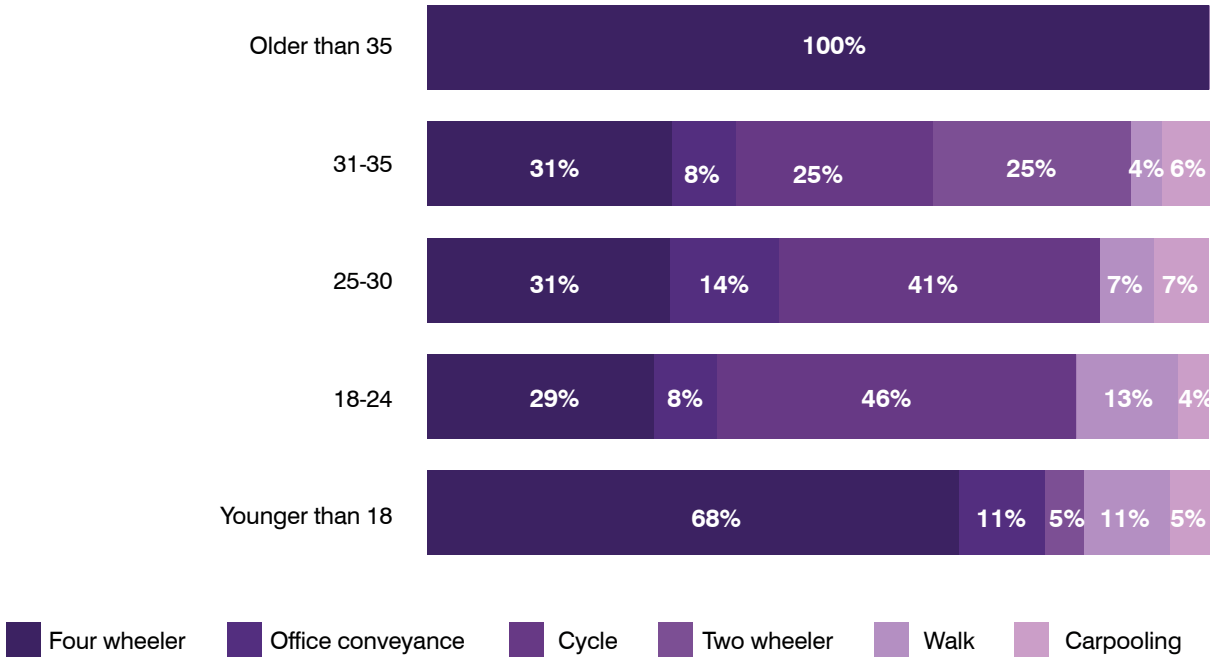


Figure 39

For what purpose do you use public transport?

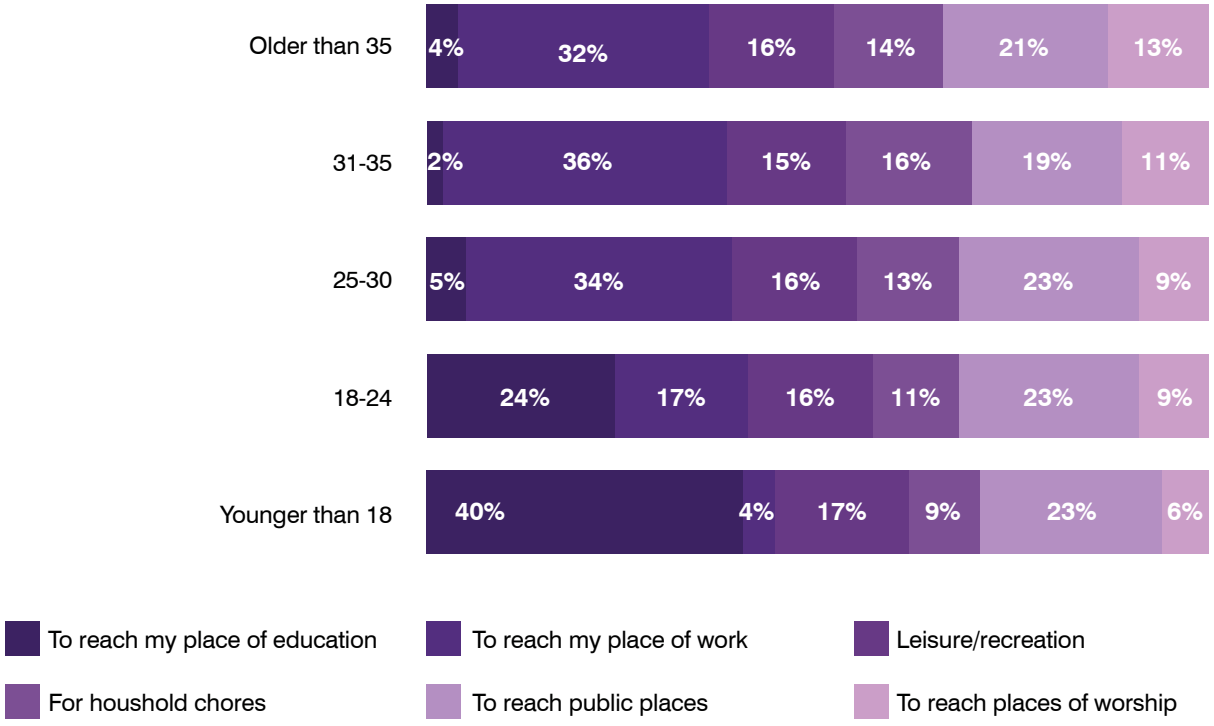


Figure 40

What is the average amount of time you spend commuting per day?

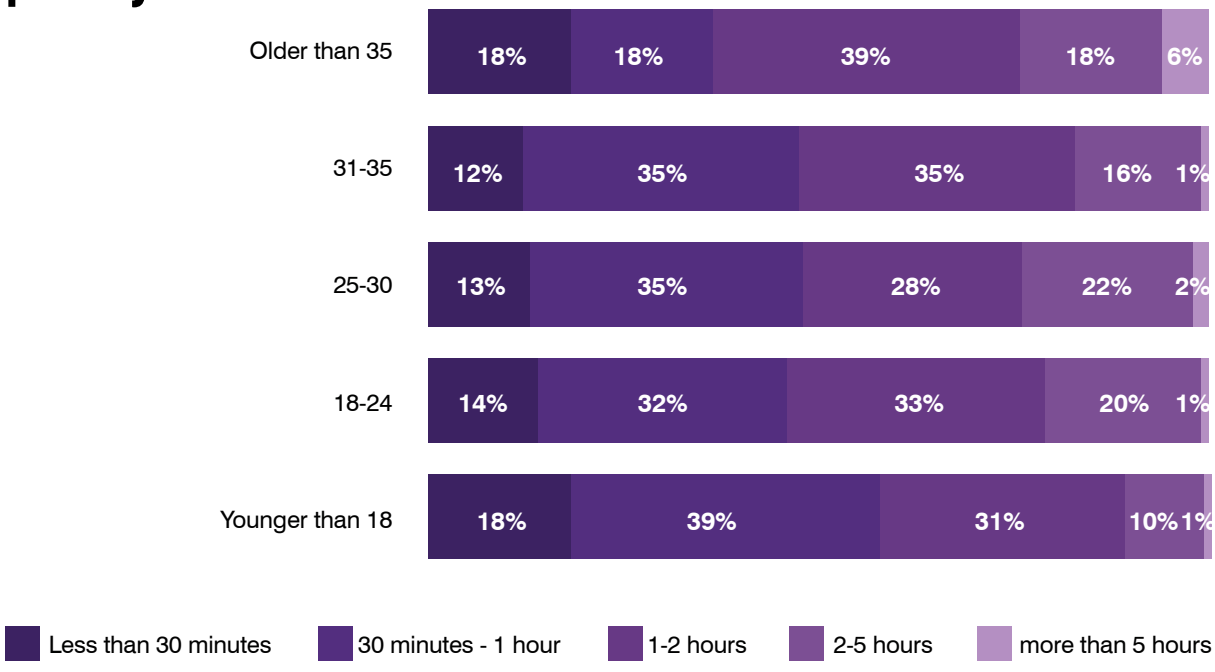


Figure 41

What is the average number of kilometers you travel per day?

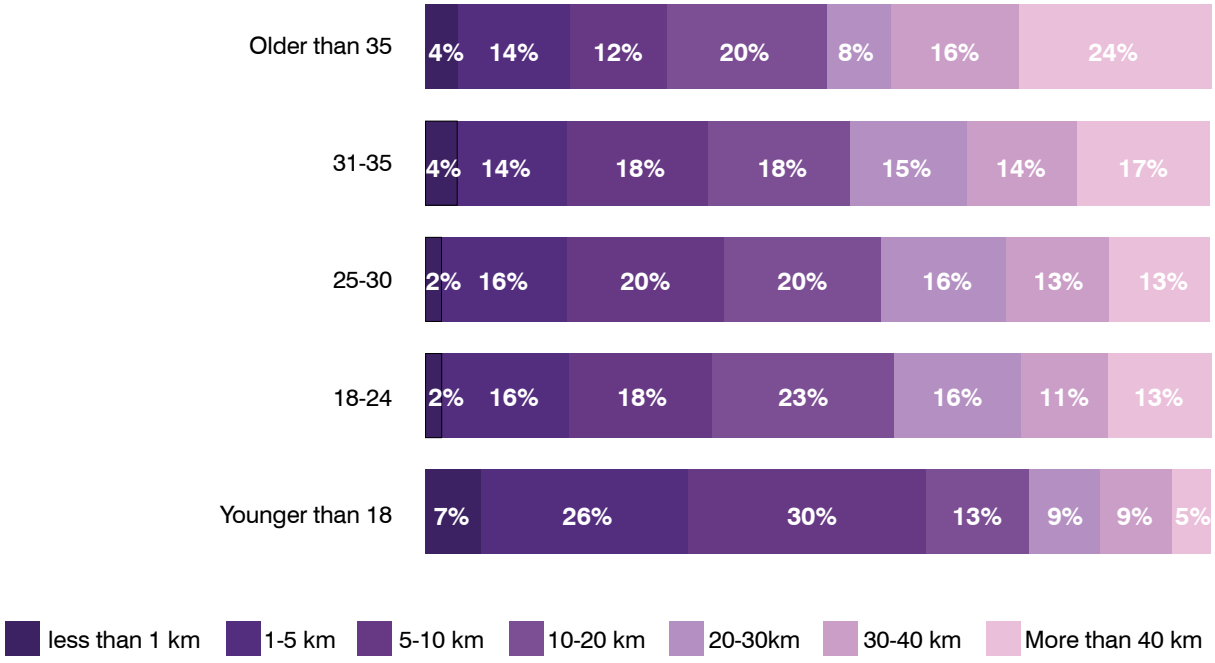


Figure 42

How much do you spend on your daily commute (in INR)?

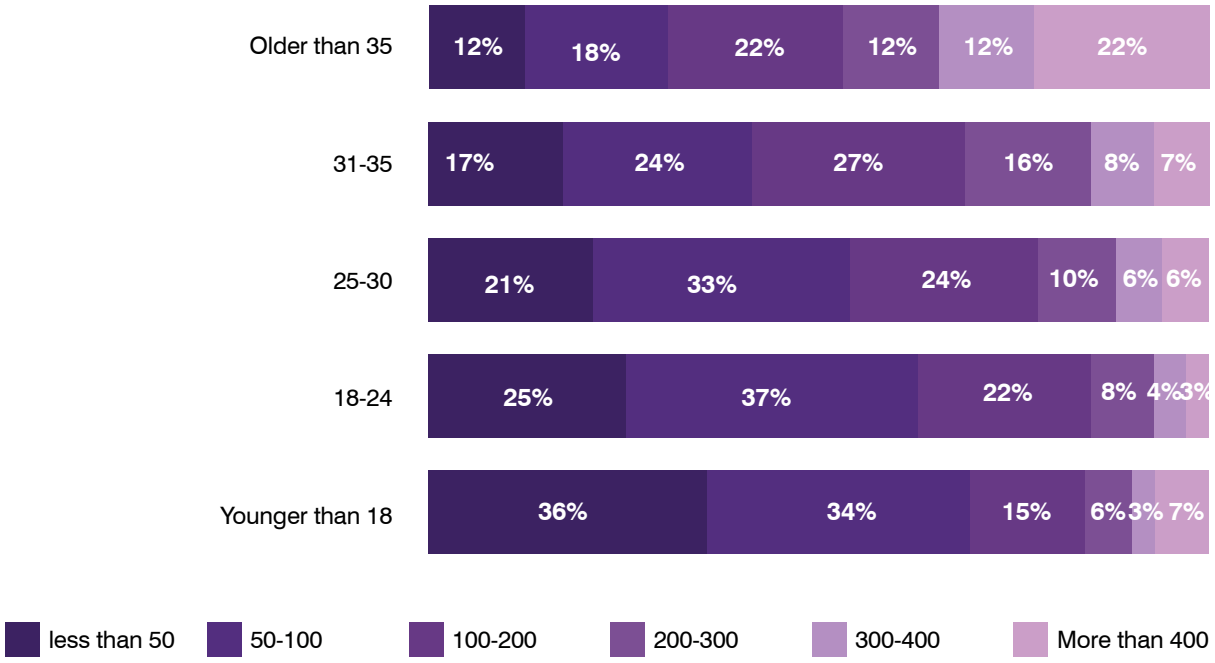


Table 5

Preference, by Age: Public vs Private Transport

AGE GROUP	PUBLIC	PRIVATE
Accessibility in terms of distance to home/work/education		
Younger than 18	69%	31%
18 - 24	70%	30%
25 - 30	64%	36%
31 - 35	64%	36%
Older than 35	64%	36%
Reduction in travel time		
Younger than 18	45%	55%
18 - 24	57%	43%
25 - 30	55%	45%
31 - 35	61%	39%
Older than 35	53%	47%
Personal safety		
Younger than 18	36%	64%
18 - 24	44%	56%
25 - 30	49%	51%
31 - 35	45%	55%
Older than 35	53%	47%
Reliability		
Younger than 18	40%	60%
18 - 24	48%	52%
25 - 30	46%	54%
31 - 35	30%	70%
Older than 35	45%	55%
Comfort		
Younger than 18	9%	91%
18 - 24	12%	88%
25 - 30	15%	85%
31 - 35	18%	82%
Older than 35	20%	80%
Is public transport hygienic and clean?		
Younger than 18	37%	63%
18 - 24	36%W	64%
25 - 30	36%	64%
31 - 35	36%	64%
Older than 35	39%	61%

C] Safety Concerns

- Women's preferences and mobility trends depend highly on their concerns for personal safety. Most women consider the metro to be the safest mode of transport, followed by trains.
- Over 30 percent of women in all age groups also think that more women officers in public transport, a dedicated cab service for women and women drivers will be useful infrastructure improvements for their safety. These findings indicate that having women in positions of control or authority may be a key feature for women when considering their safety on public transport.
- Crowds and congestion and the lack of monitoring and surveillance continue to remain the primary reasons (accounting for over 50 percent of the reasons) for women feeling unsafe when using public transport across ages.
- Across age groups, a large share of women (between 24 percent and 34 percent) find it unsafe to share their private spaces inside a private vehicle and public transport vehicles with chauffeurs or co-passengers. In line with this, ticket counters (which tend to be open spaces) are felt to be least unsafe across the mobility chain.
- Safety concerns also affect women's mobility patterns. An overwhelming number of women reported that the time of the day affects their travel. For instance, 97 percent of women aged 18-24 years felt safest while travelling between 7 am to 5 pm. Similarly, 89 percent of the respondents below 18 years and 77 percent aged above 35 years felt safest while travelling between 7 am to 5 pm.
- About 62 percent of the female respondents below 18 years and 58 percent of the women aged 18-24 think India's urban transport system is unsafe.
- The survey results also indicate that in instances of sexual harassment, women across all ages either took action themselves, chose to ignore the situation or did not feel safe to take action. Only 2 percent to 3 percent of women across all ages reported the situation to the authorities.

Figure 43
Does the time of the day affect your use of public transport?

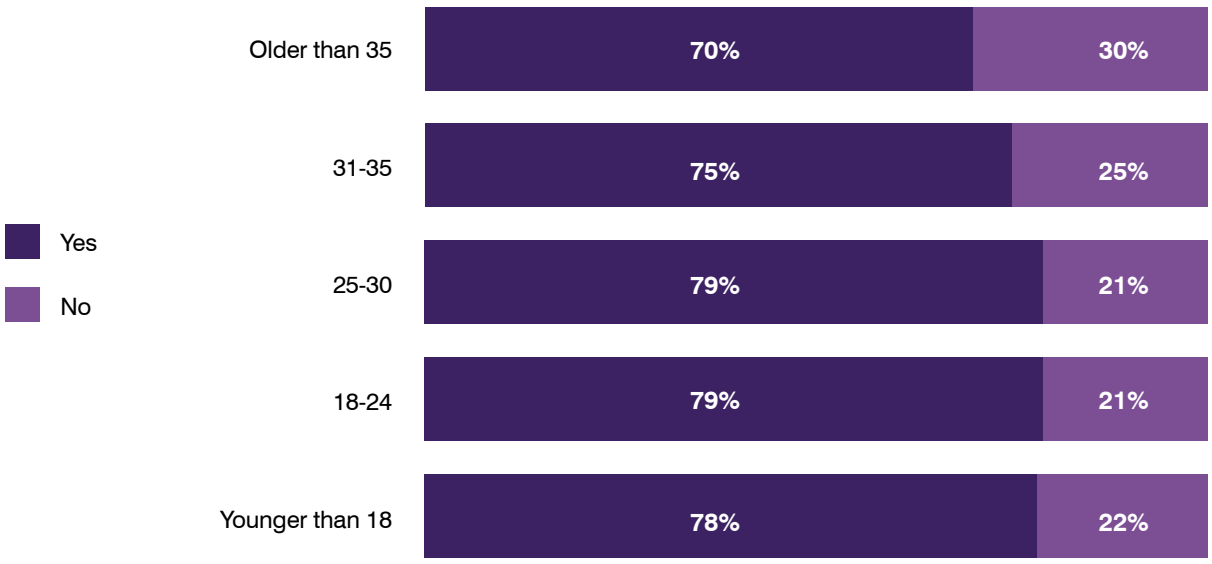


Figure 44

When do you feel the safest travelling?

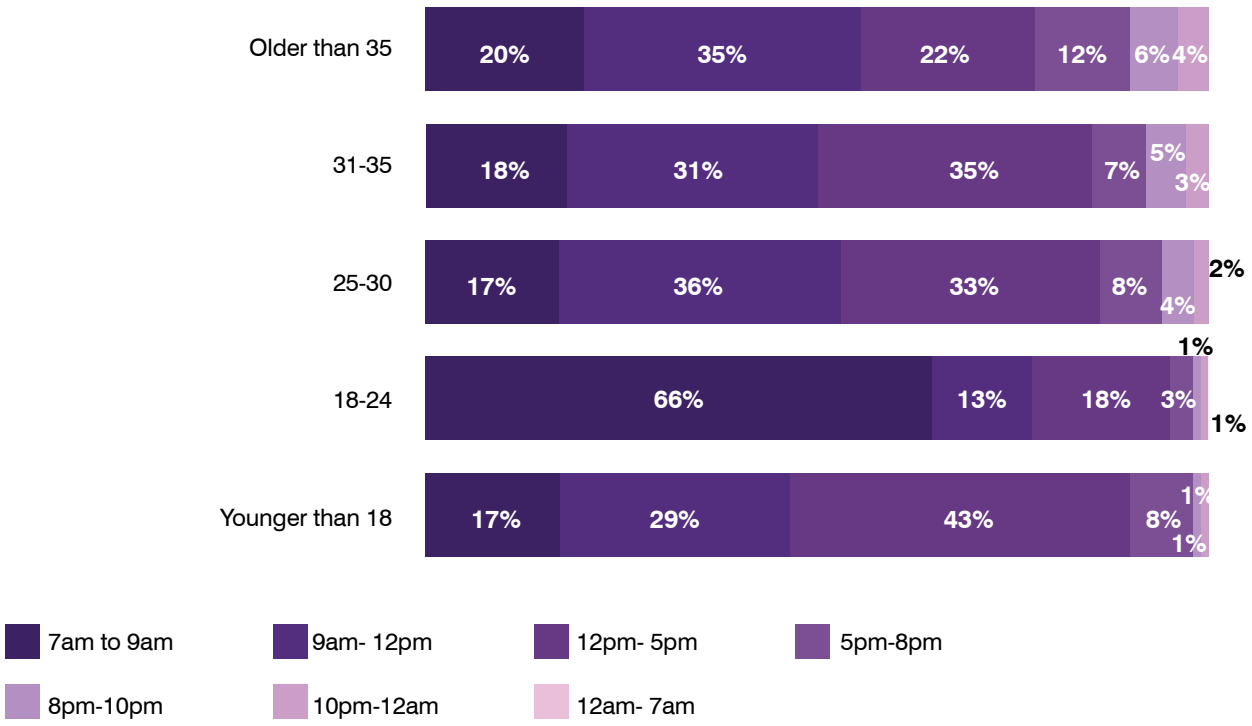


Figure 45

What are the reasons for you feeling unsafe while using public transport?

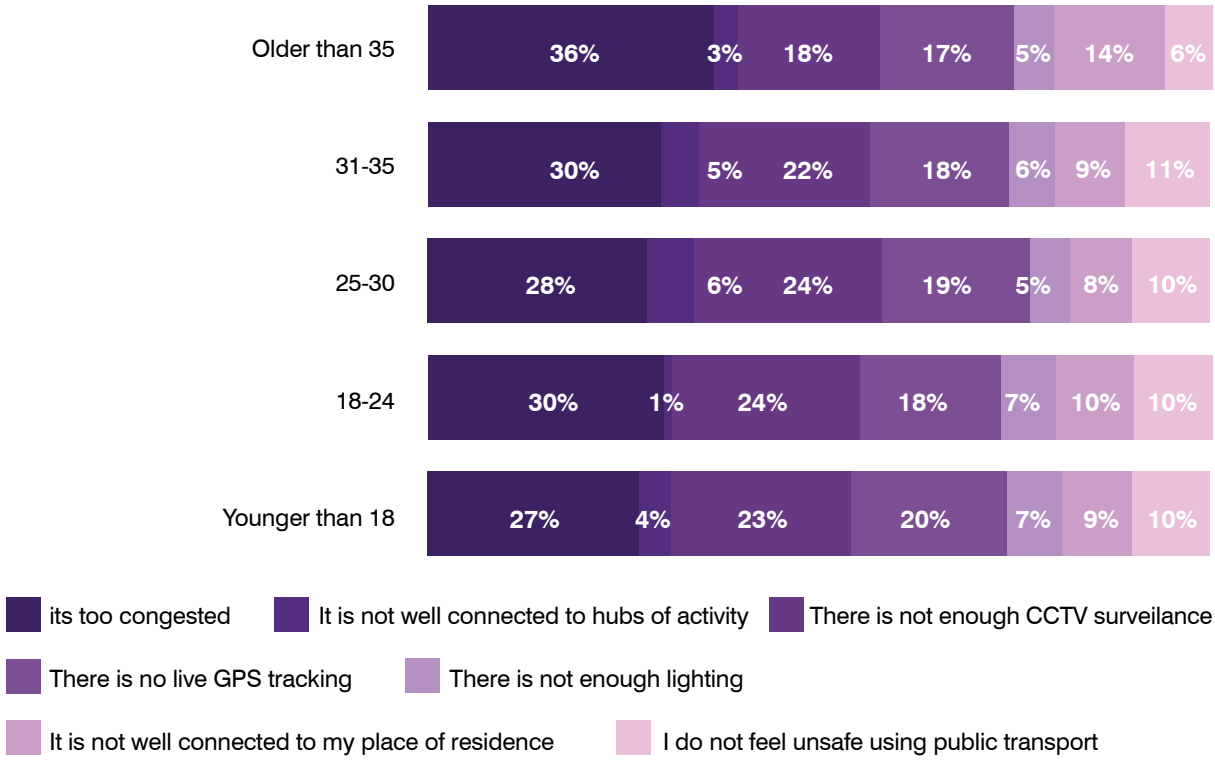


Figure 46

Which mode of public transport do you think is the safest?

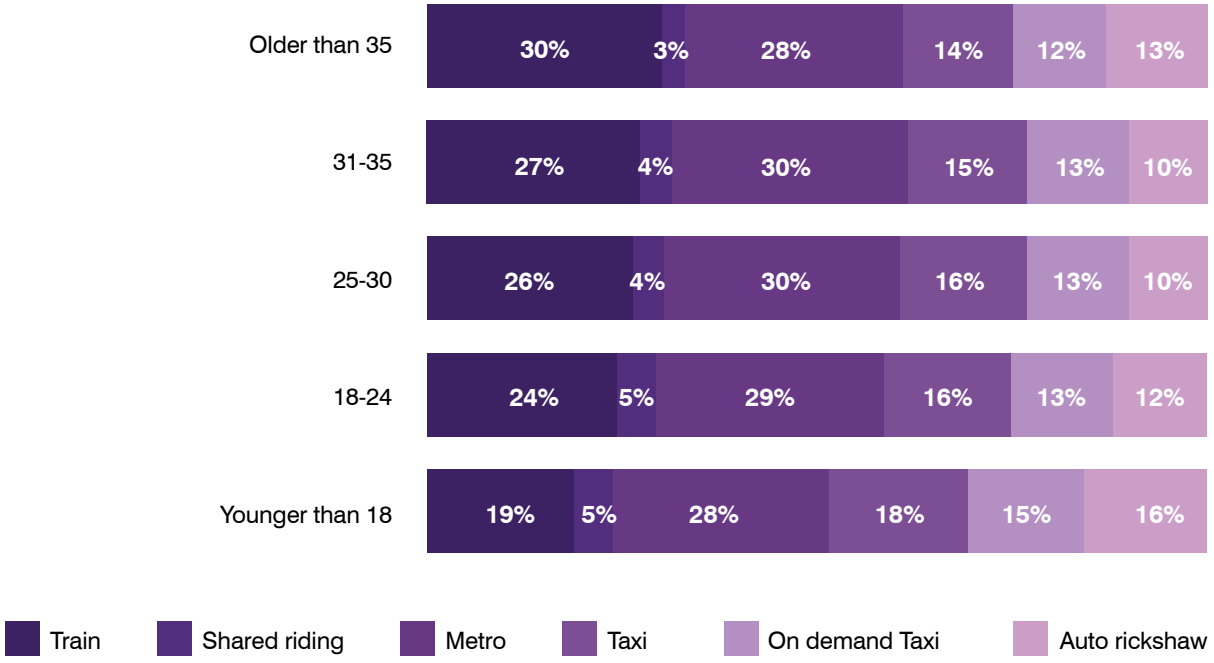


Figure 47

How have you addressed the situation?

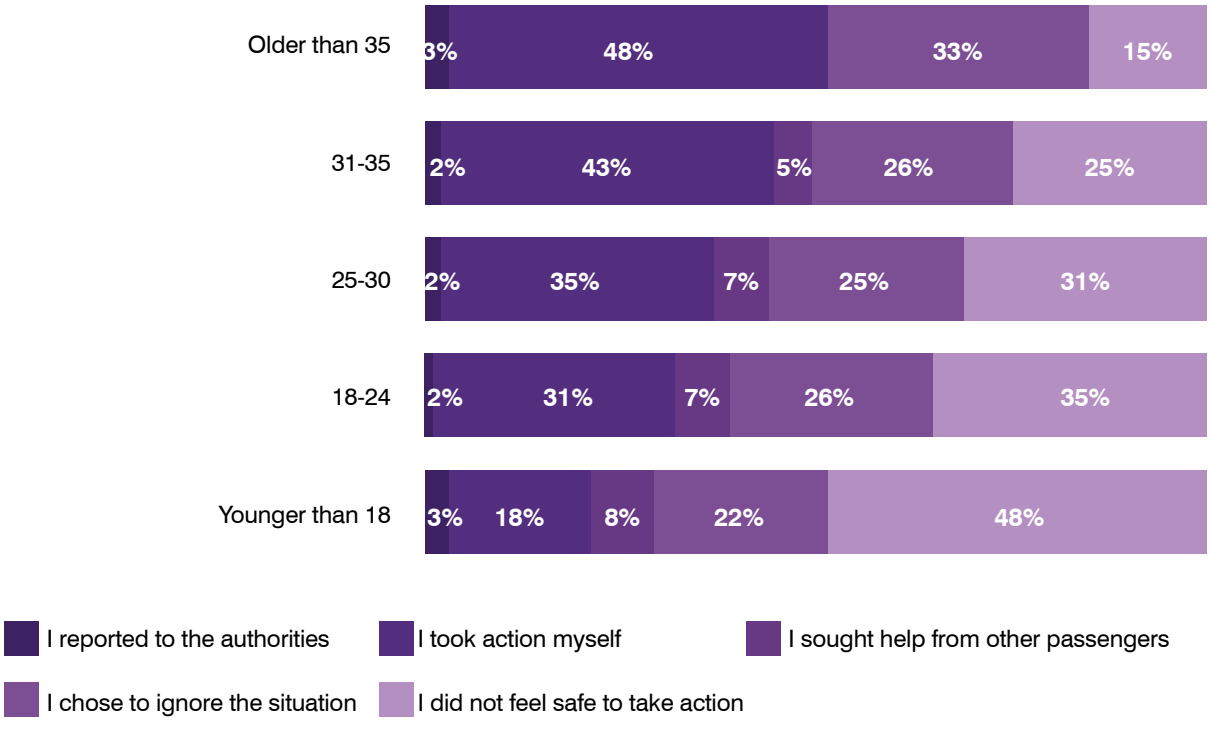
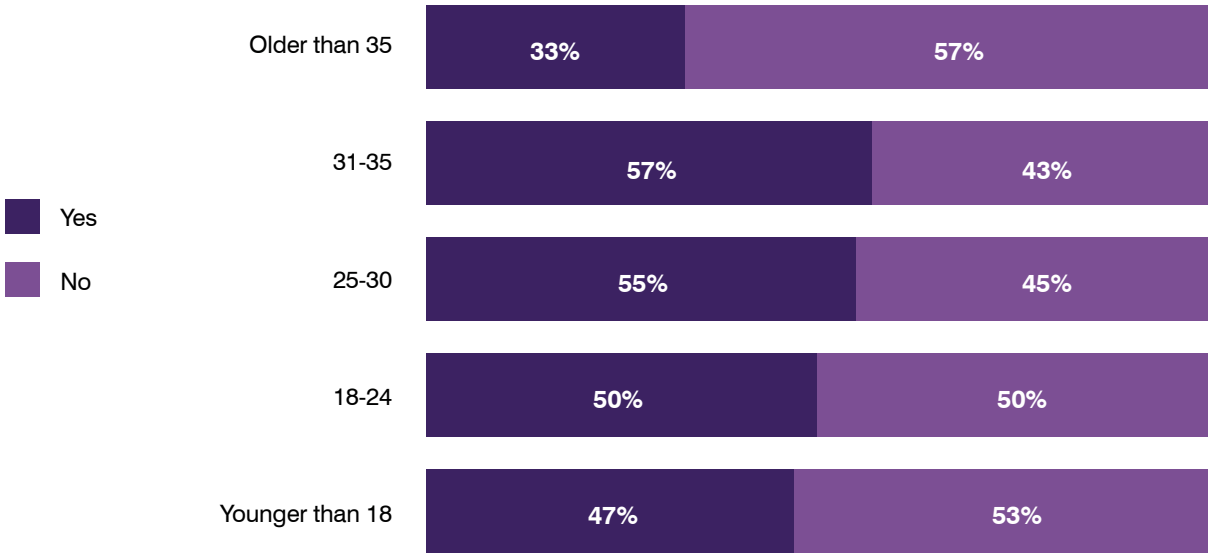


Figure 48

Have you ever said no to an opportunity (educational/work related) due to the commute being unsafe?



MOBILITY TRENDS BY EDUCATION

A] Type, Use, and Frequency of Mobility

- Public transport was used by 92 percent of students, while 85 percent of non-student respondents used public transportation. Of these, graduate students constituted the largest chunk, at 43 percent, followed by higher secondary students, at 35 percent.
- Among students who used public transport, autorickshaws remained the most-used mode of transportation, at 27 percent. Trains were more popular among non-students, at 25 percent, as compared to 21 percent of students. The use of local taxi services and cycle rickshaws was the lowest for both categories.
- Among the female students who used private transport, 49 percent used two-wheelers and 36 percent used four-wheelers; among non-students, 38 percent used two-wheelers and 32 percent used four-wheelers (see Figure 49). About 15 percent of non-students used office conveyance.
- Of the students who used public transport, 33 percent used it to reach their place of education while 23 percent of non-students used it to reach their place of work (see Figure 50).
- In terms of distance, non-students travelled longer—15 percent travelled more than 40 km as compared to 11 percent of students (see Figure 51). There was no significant difference in the amount spent on the daily commute between students and non-students.

Figure 49

Mode of private transport used by students and non-students

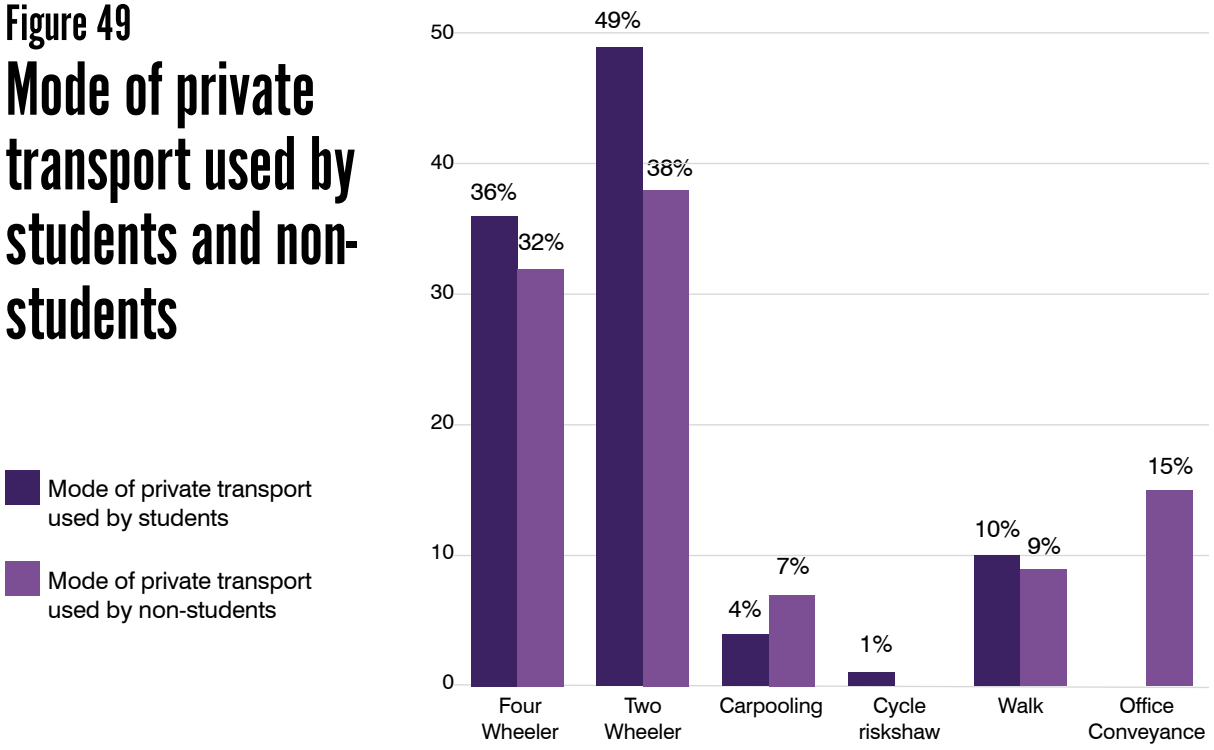


Figure 50

For what purpose do you use public transport?

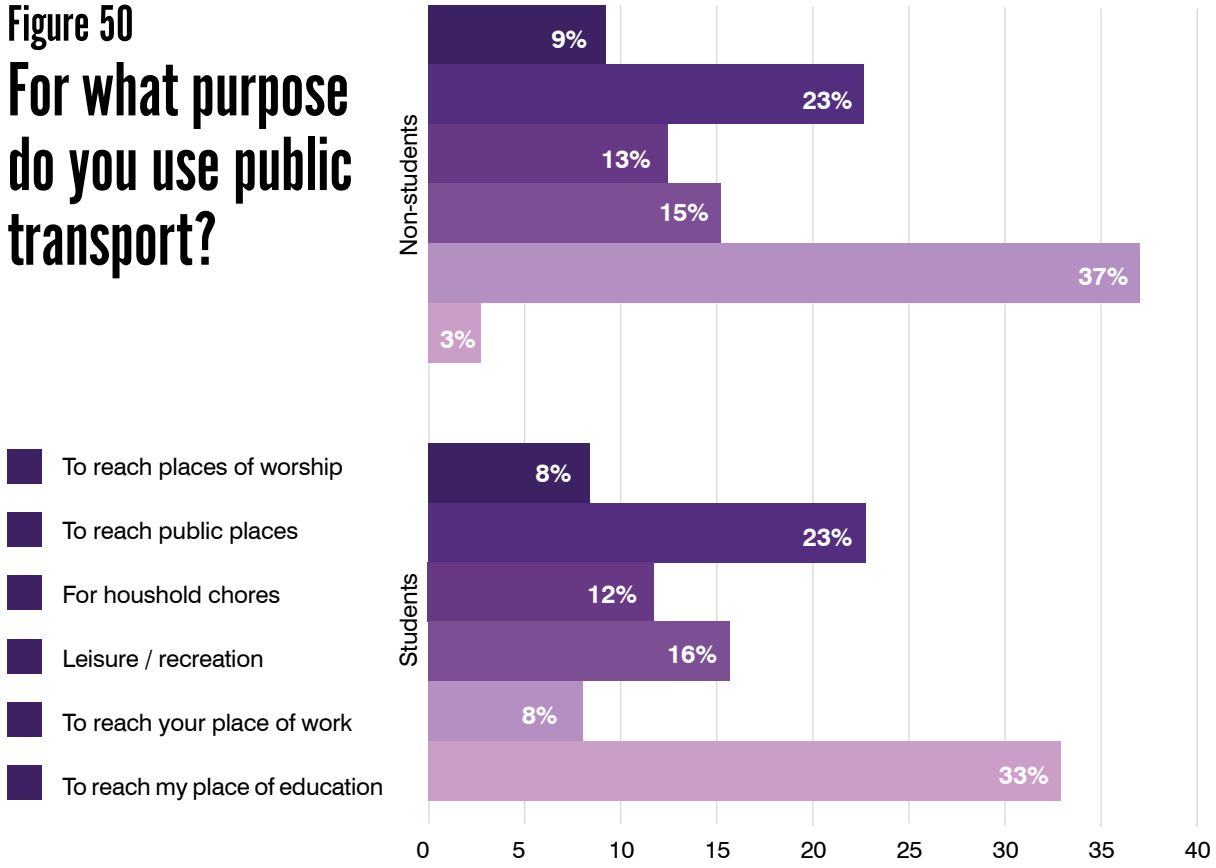
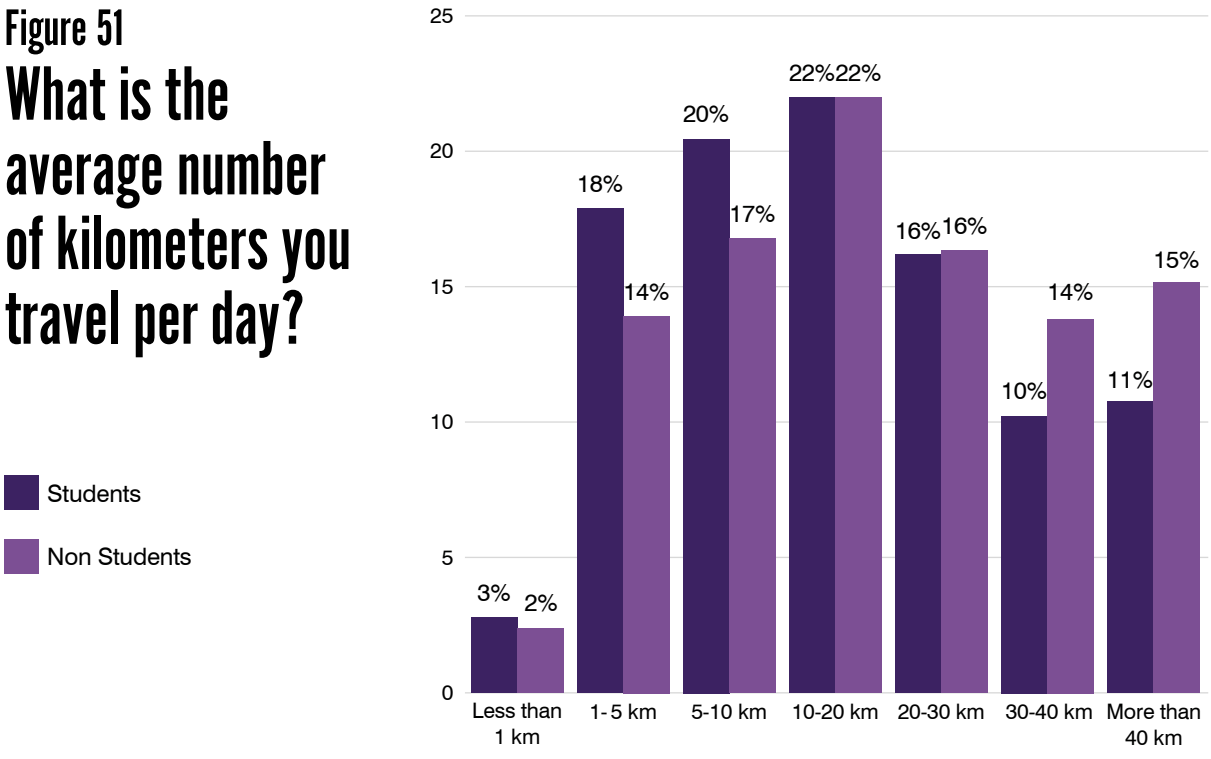


Figure 51

What is the average number of kilometers you travel per day?



B] Preferences: Public vs Private Transport

- About 59 percent of non-students who use public transport felt that it reduced their travel time as compared to 54 percent of students (see Table 6).
- About 70 percent of students and 66 percent of non-students felt that their access to public transport was better than private transport.
- Only 36 percent of students found public transport to be clean and hygienic, as compared to 64 percent of non-students.
- About 91 percent of both students and non-students strongly felt that the means of transport should be environment-friendly.

Table 6
Preference, by Education: Public vs Private Transport

STATUS	PUBLIC	PRIVATE
Accessibility in terms of distance to home/work/education		
Students	70%	30%
Non-Students	66%	34%
Reduction in travel time		
Students	54%	46%
Non-Students	59%	41%
Personal safety		
Students	40%	60%
Non-Students	49%	51%
Reliability		
Students	41%	59%
Non-Students	47%	53%
Comfort		
Students	10%	90%
Non-Students	16%	84%
Is public transport hygienic and clean?		
Students	36%	64%
Non-Students	64%	36%

C] Safety Concerns

- About 79 percent of both students and non-students agreed that the time of the day affects their usage of public transport, with the other 21 percent saying that the time of the day does not matter.
- The sense of safety among both groups was the highest between 12 noon and 5 pm—45 percent students and 34 percent of non-students felt safest during those hours. In comparison, 7 am to 9 am was considered less safe—only 16 percent of students and 17 percent of non-students felt it was safest to travel at this time (see Figure 52). There is a low sense of safety at night among both groups—73 percent students and 66 percent non-students felt 10 pm to 7 am to be the most unsafe time to travel.
- Furthermore, 60 percent of students and 56 percent of non-students felt that public transport in India is unsafe. Harassment in public transport was felt more by non-students, at 91 percent, than students, at 53 percent (see Figure 53).
- To address the harassment in public transport, the majority of non-students and students took action themselves or did not feel safe to take action, while only 2 percent reported to the authorities (see Figure 54).
- Both students (31 percent) and non-students (36 percent) consider the metro to be the safest mode of transport, followed by the train (22 percent of students and 32 percent non-students), while only 5 of students and 8 percent of non-students found autorickshaws to be the safest (see Figure 55).
- At least 5 percent of both students and non-students missed education and/or work-related opportunities due to unsafe commute. Most students and non-students also felt that they would prefer public to private transport if it were safer.
- Moreover, 6 percent of both students and non-students were advised to avoid travel at certain times and certain places.
- Hygiene and safe toilets are considered the most important supporting infrastructure required in public transport systems by students and non-students, followed by proper seating and lighting infrastructure (see Figure 56).

Figure 52

When do you feel the safest travelling?

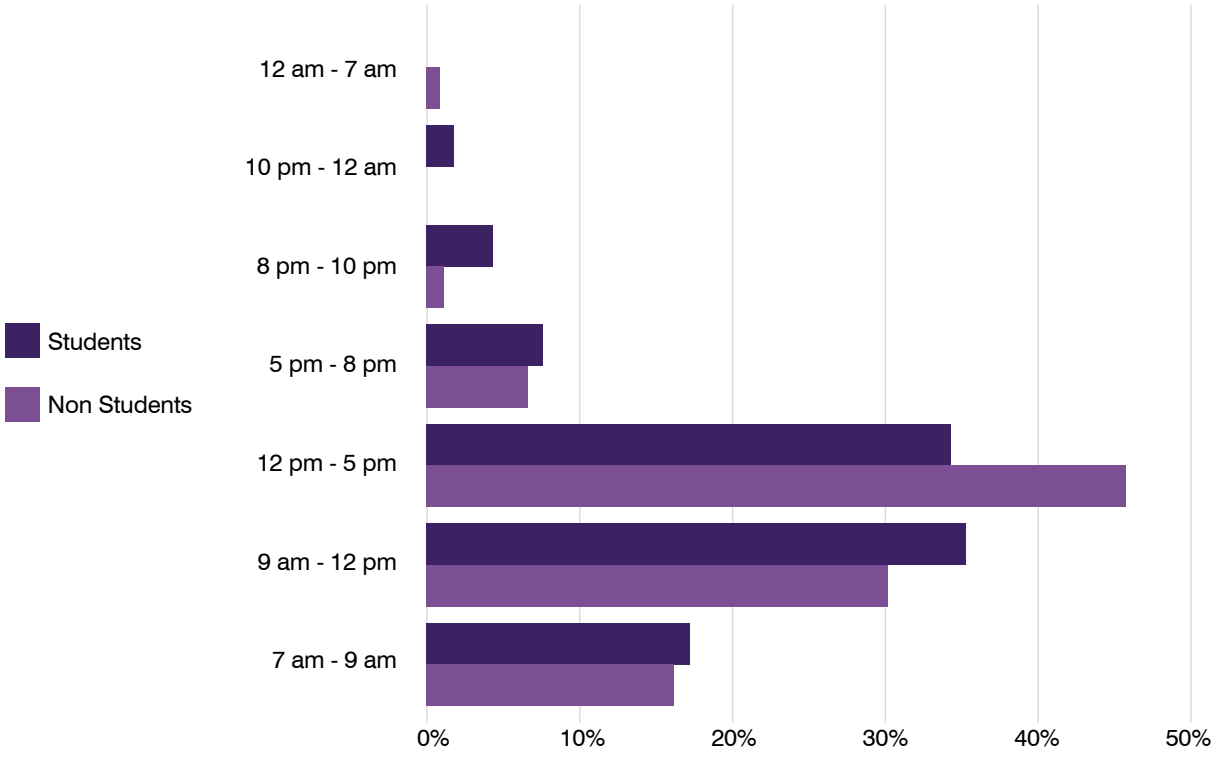


Figure 53

Have you ever been sexually harassed while travelling using public transport?

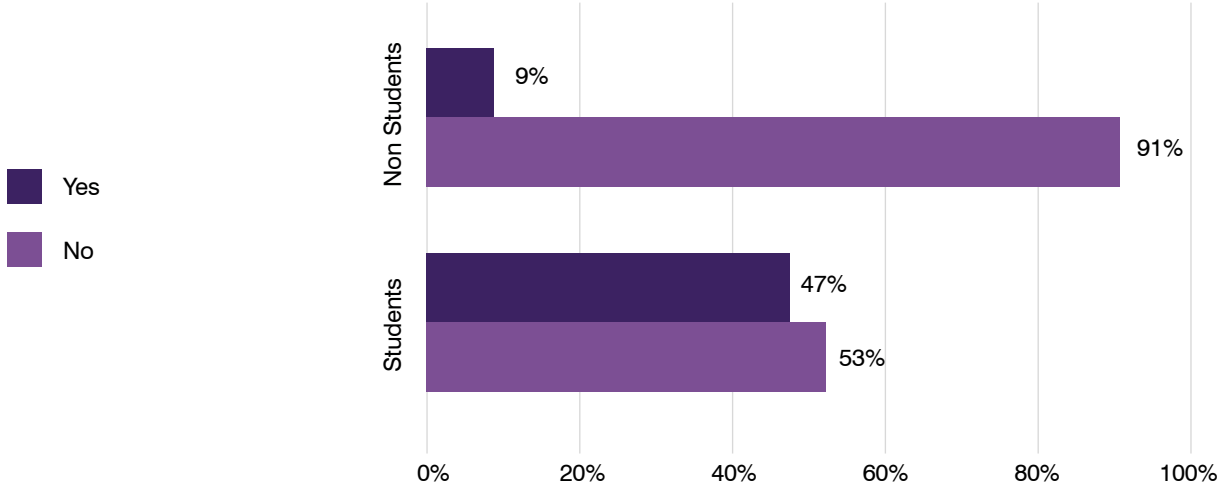


Figure 54

How have you addressed the situation?

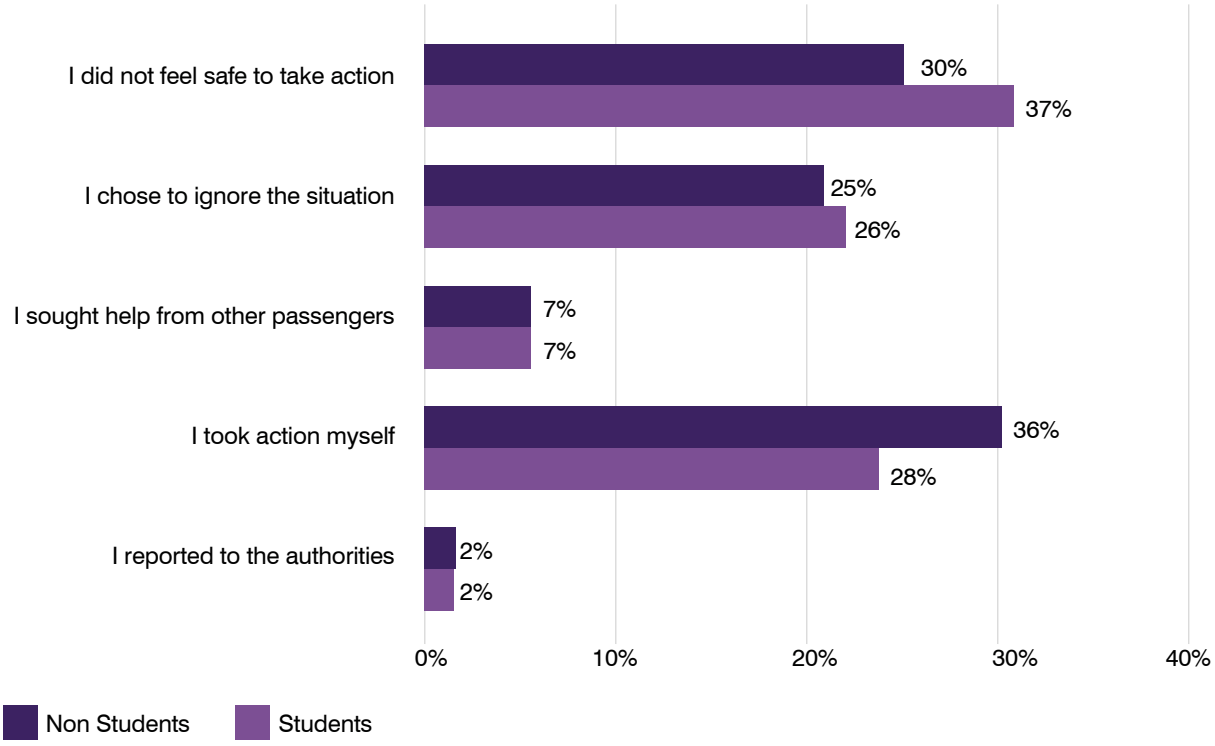


Figure 55

Which mode of public transport do you think is the safest?

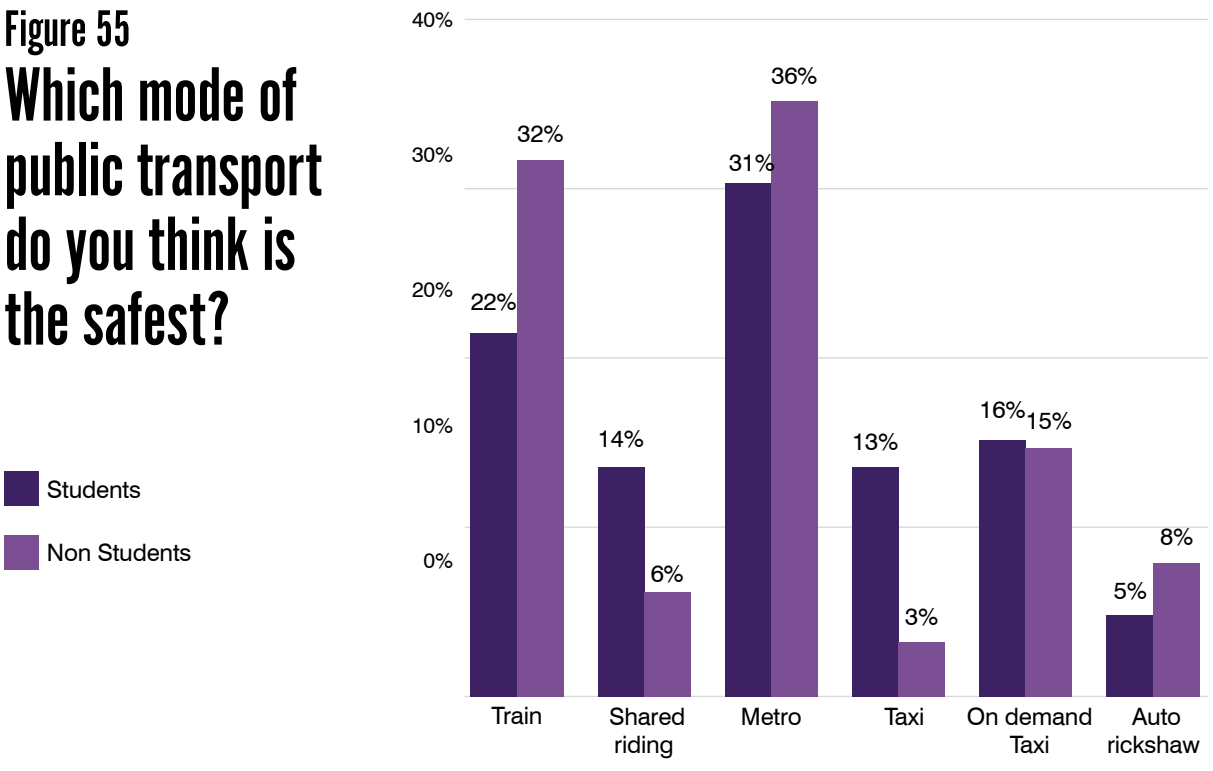
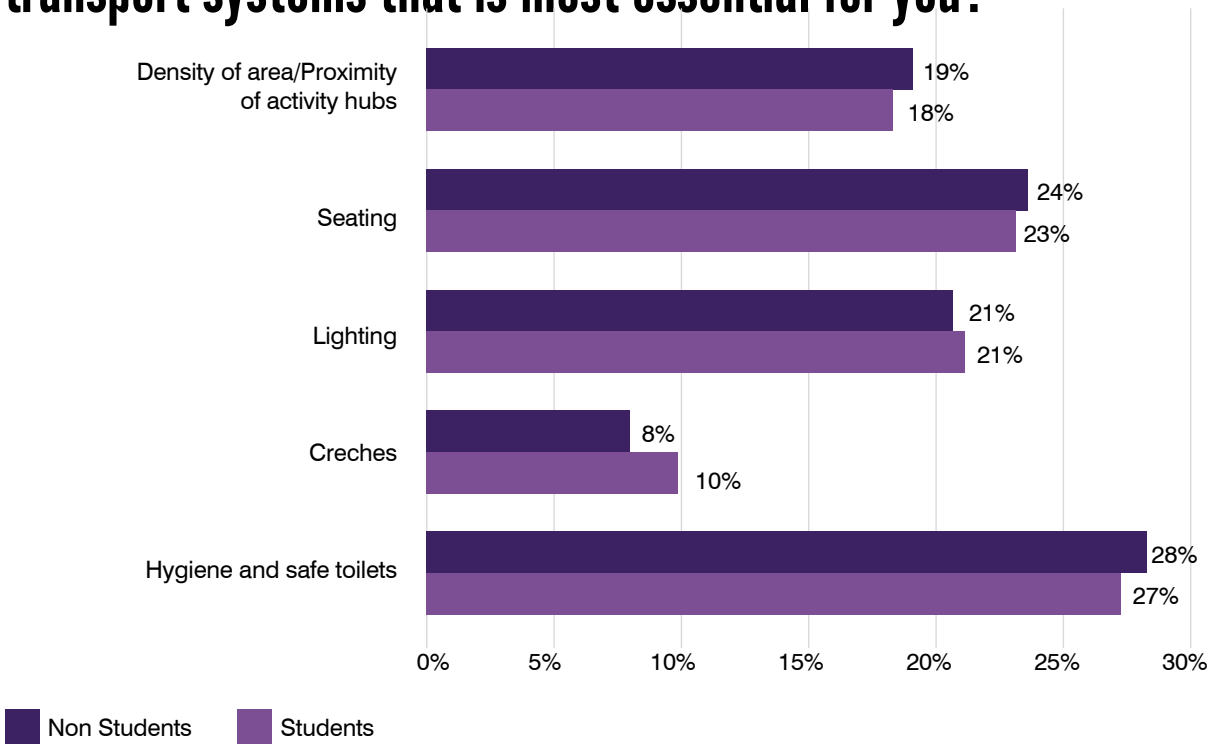


Figure 56

What is the supporting infrastructure required in public transport systems that is most essential for you?



Mobility Trends by Residential Status

A] Summary: Type, Use, and Frequency of Mobility

- Women living with their families/parents use public transport the most, at 91 percent (see Figure 57). Among the respondents who use public transport, a non-app-based taxi is the least preferred mode of transport across all residential statuses (see Figure 58).
- Cycle-rickshaw usage averages between 1.8 percent to 3.2 percent, with women living alone using it the most. This could be a consequence of women who live alone being more independent to use such a slow-moving and potentially unsafe form of travel. The use of trains, buses, autorickshaws and on-demand taxis are the highest and consistent across the variables.
- The most-used form of public transport for women is the autorickshaw.
- Of the respondents who do not use public transport, about 5 percent who live with family/ parents and about 2 percent who live with their partner/spouse use walking as a mode of transport, a significantly lower figure than those who live alone (23 percent) or with roommates (23 percent). This alludes to a form of independence living alone begets, which the use of cycle-rickshaw as public transport suggested as well.
- Of the women who do not use public transport, the motorised two-wheeler is the most commonly used form of transport by those who live with family/parents (45 percent). Office conveyance is used most by women who live alone and is significantly higher than in the other variables of living status.[d]
- About 33 percent of women living with families/ parents used public transport to reach places of worship, while only about 6 percent of women living alone used it for the same purpose (see Figure 60). The least-used reason for using public transport is for education among women who stay with their spouse. Using public transport to reach public spaces or for leisure and recreation was lowest among respondents staying with family/parents.

[d] The Shops and Establishments Act mandates that companies provide door-to-door conveyance to women working beyond 7 pm to ensure their safety, which could explain why the use of office transport is highest among women living alone.

Figure 57

Do you use public transport?

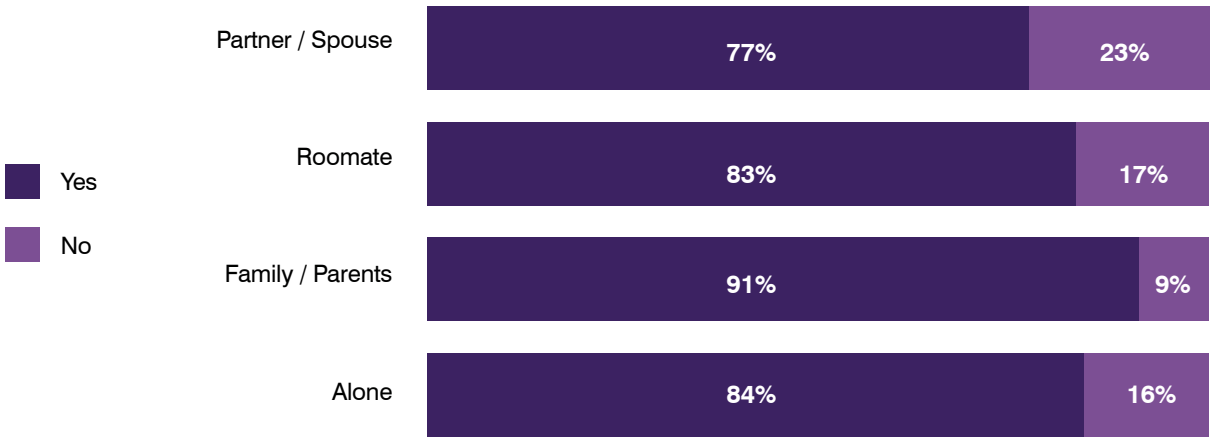


Figure 58

What kind of public transport do you use?

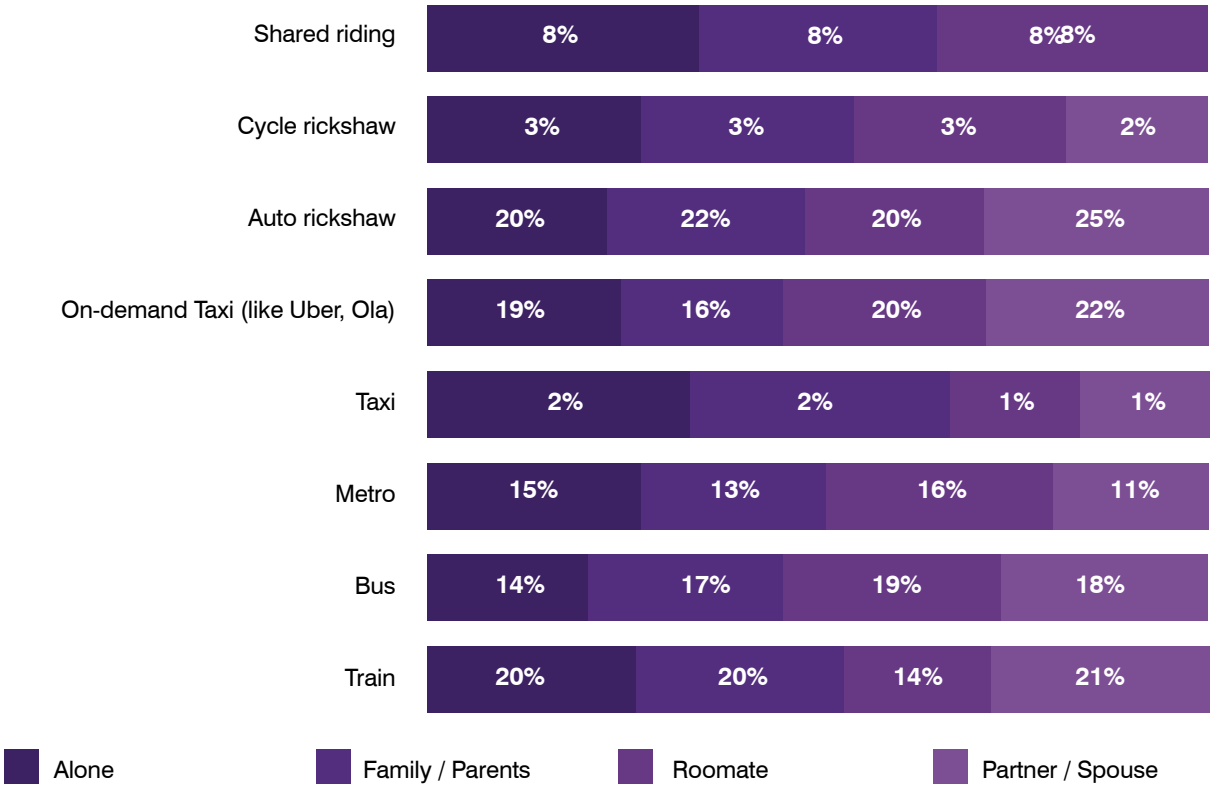


Figure 59

What private mode of transport do you use?

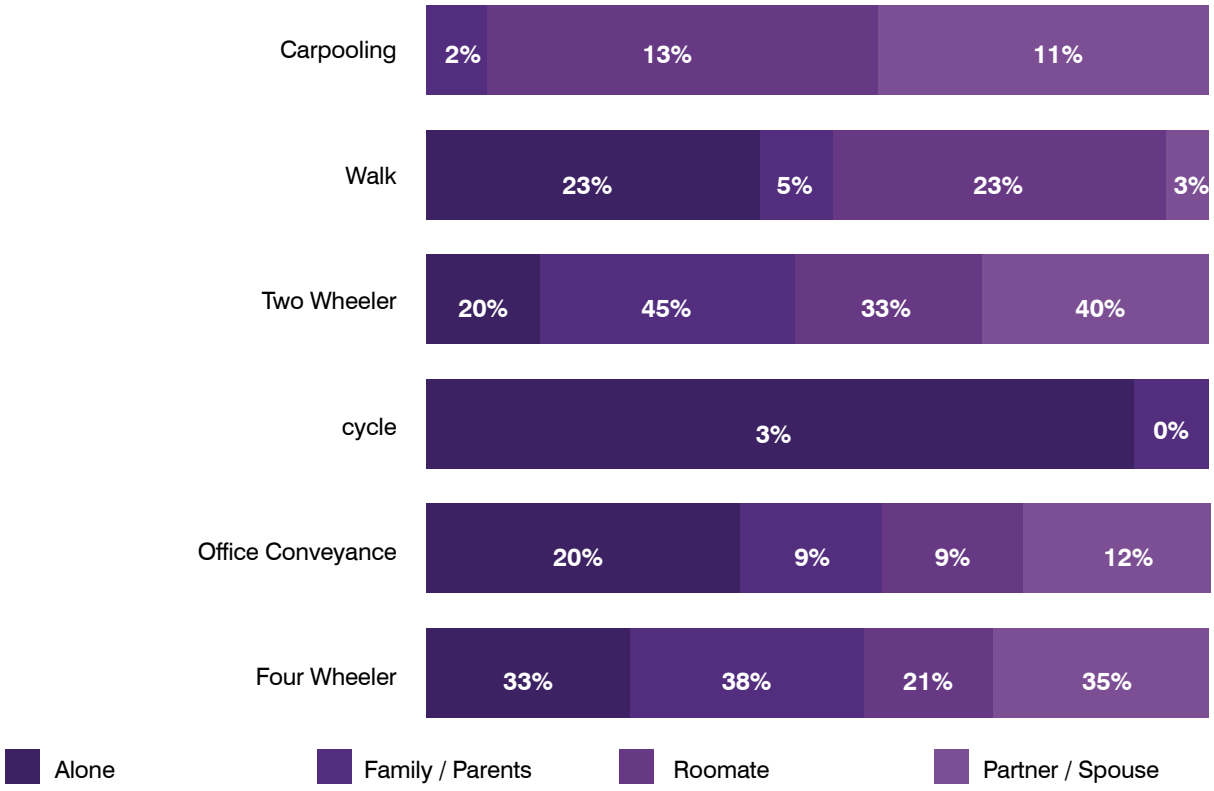
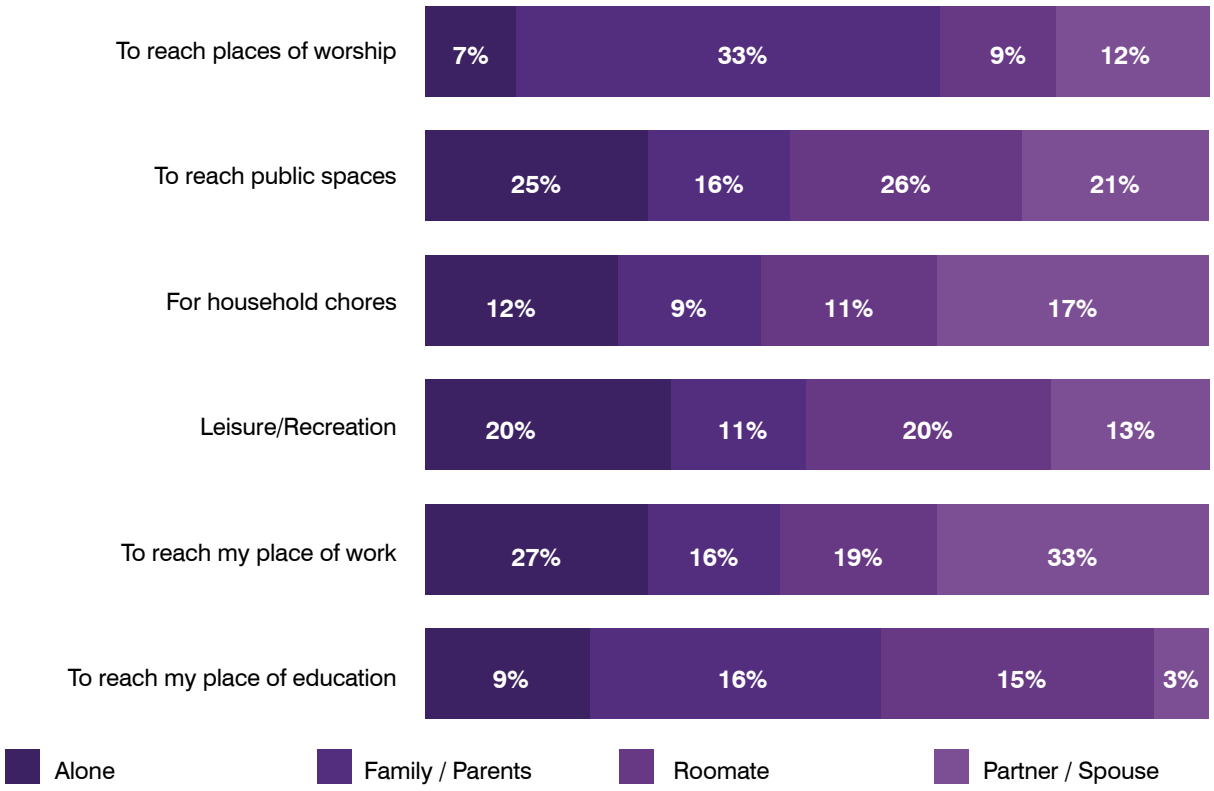


Figure 60

For what purpose do you use public transport?



B] Preferences: Public vs Private Transport

- There were no significant variations in preferences for women across living status over whether public or private transport reduced travel time. This is a glaring public planning issue, as public transport is meant to drastically reduce travel time, making it the preferred mode of transport in dense cities. However, women across all categories of living status did report that public transportation is more accessible in terms of distance to home or places of work and education. Private transport is preferred for safety and reliability across all categories, with an overwhelming number finding private transport more comfortable and not finding public transport hygienic and clean, which reflects the overall findings.

Table 7
Preference, by Residential Status: Public Vs Private Transport

STATUS	PUBLIC	PRIVATE
Accessibility in terms of distance to home/work/education		
Partner/Spouse	60%	40%
Roommate	62%	38%
Family/Parents	68%	32%
Alone	65%	35%
Reduction in travel time		
Partner/Spouse	54%	46%
Roommate	47%	53%
Family/Parents	56%	44%
Alone	44%	56%
Personal safety		
Partner/Spouse	44%	56%
Roommate	43%	57%
Family/Parents	45%	55%
Alone	48%	52%
Reliability		
Partner/Spouse	40%	60%
Roommate	39%	61%
Family/Parents	45%	55%
Alone	43%	57%
Comfort		
Partner/Spouse	13%	87%
Roommate	9%	91%
Family/Parents	13%	87%
Alone	14%	86%
Is public transport hygienic and clean?		
Partner/Spouse	35%	65%
Roommate	38%	62%
Family/Parents	36%	64%
Alone	33%	67%

C] Safety Concerns

- Over 80 percent of respondents across all living status categories report that the time of day affects their use of public transport, and they feel safer during the day and between 9 am to 5 pm. Women feel most unsafe after 5 pm, with 12 am to 7 am seen as the most unsafe time.
- Respondents across the living status categories think urban public transport in India is unsafe (see Figure 61), with women living alone finding it most unsafe (66 percent).
- The majority of women across living status categories report that they have been sexually harassed while using public transport (see Figure 62), highest among women living alone (66 percent).
- Women across the living status categories said they do not feel comfortable going to the authorities to report instances of sexual harassment on public transport (see Figure 63). Most either took action themselves, did nothing, or felt unsafe to take any action.
- A substantial number of respondents across the categories (70 percent and higher) said they do not even know the emergency number for transport services, pointing to a lack of awareness of redressal measures (see Figure 64).
- Although most women said they had not been restricted by parents/families from using public transport, among those who said they have, safety was the main reason for the restriction. A similar trend was seen with whether young women have restrictions from spouse/partner to use public transport.
- The main reasons for feeling unsafe for women across living status categories are congestion, not enough CCTV cameras and a lack of live GPS tracking (see Figure 65). This is in tandem with the overall findings.
- Many women feel unsafe due to concerns of accidents and breakdown in the transport infrastructure (see Figure 66). This suggests that infrastructure changes are important to increase safety from harassment and accidents.
- Most women across the categories find the metro the safest mode of public transport, followed by the train, taxi, on-demand taxi and autorickshaw (see Figure 67). Shared riding is seen as the least safe mode of public transport. This means a crowd is important to be safe, but congestion is also a factor that makes women feel unsafe.
- Most women said they would change their mode of conveyance to public transport if they felt safer, followed by better connectivity and then if the services were cleaner, with the least number saying the lower cost will be a factor for change.
- Avoiding commuting at certain times and places and having safety apps to send live locations is the best measure women seem to take to keep themselves safe while commuting, while 'being accompanied by a male' is the least chosen option (see figure 69)

Figure 61

How safe do you think the urban public transport in India is?

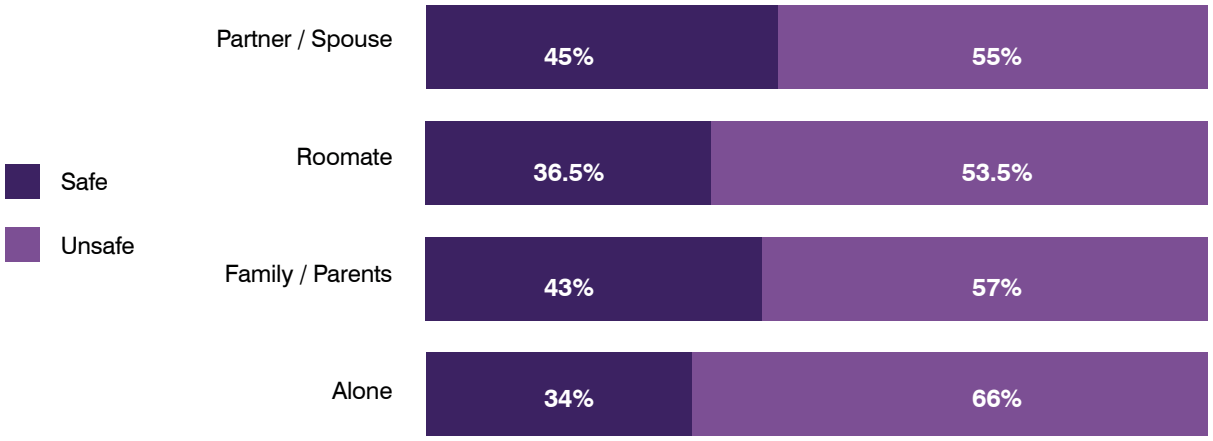


Figure 62

Have you ever been sexually harassed while travelling using public transport?

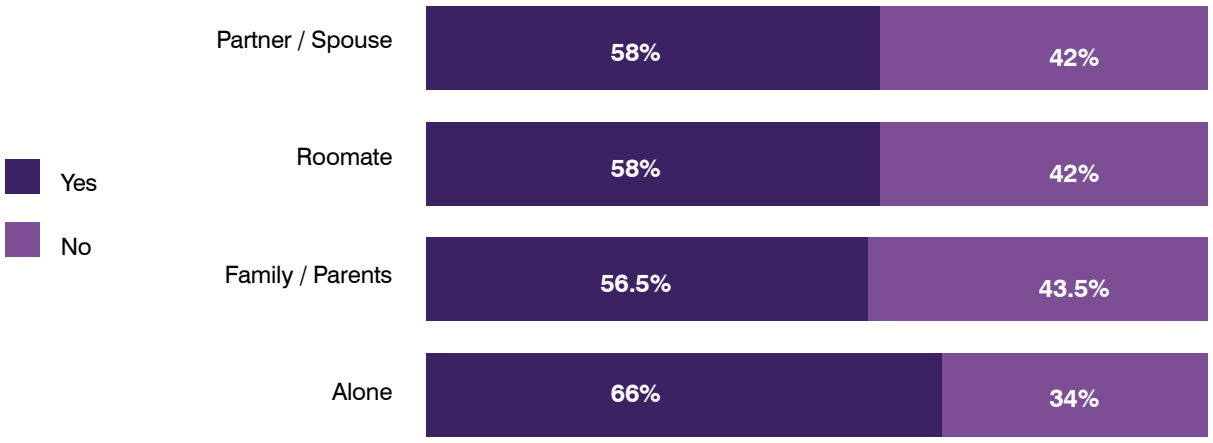


Figure 63

How have you addressed the situation?

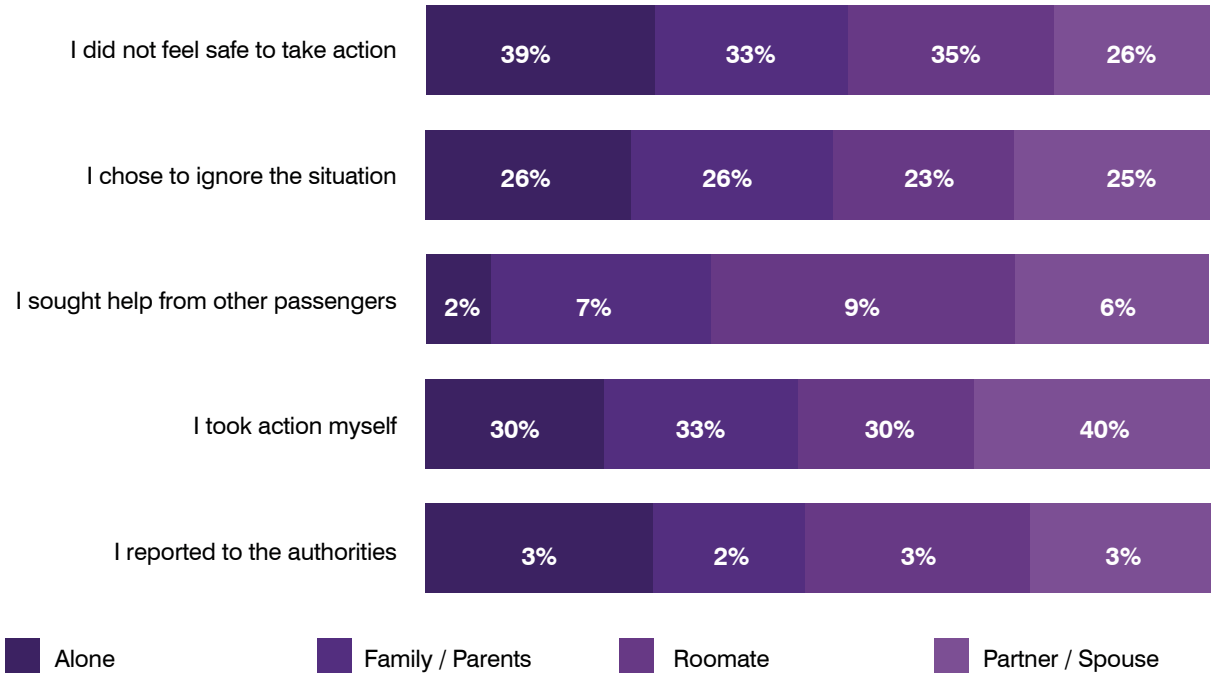


Figure 64

Do you know the emergency contact numbers for transport services?

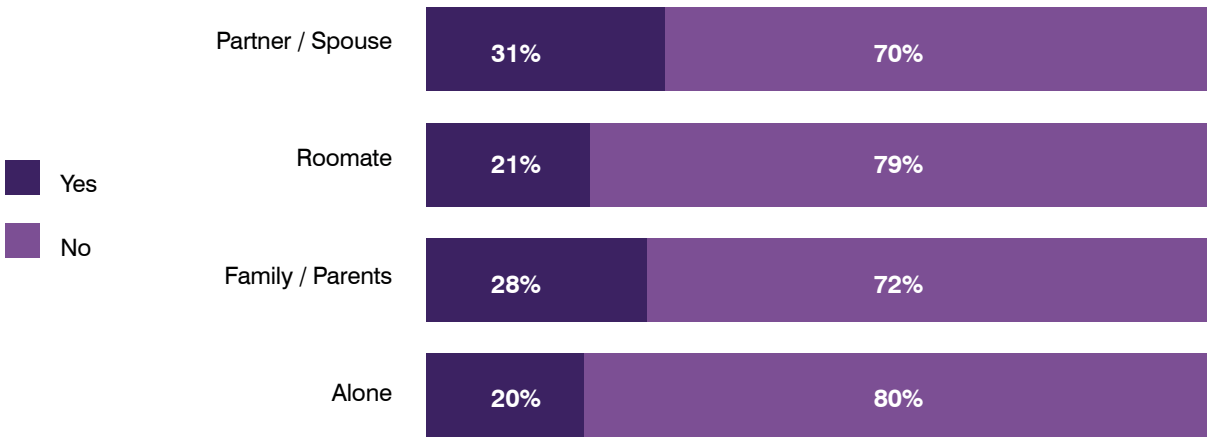


Figure 65

What are the reasons for you feeling unsafe while using public transport?

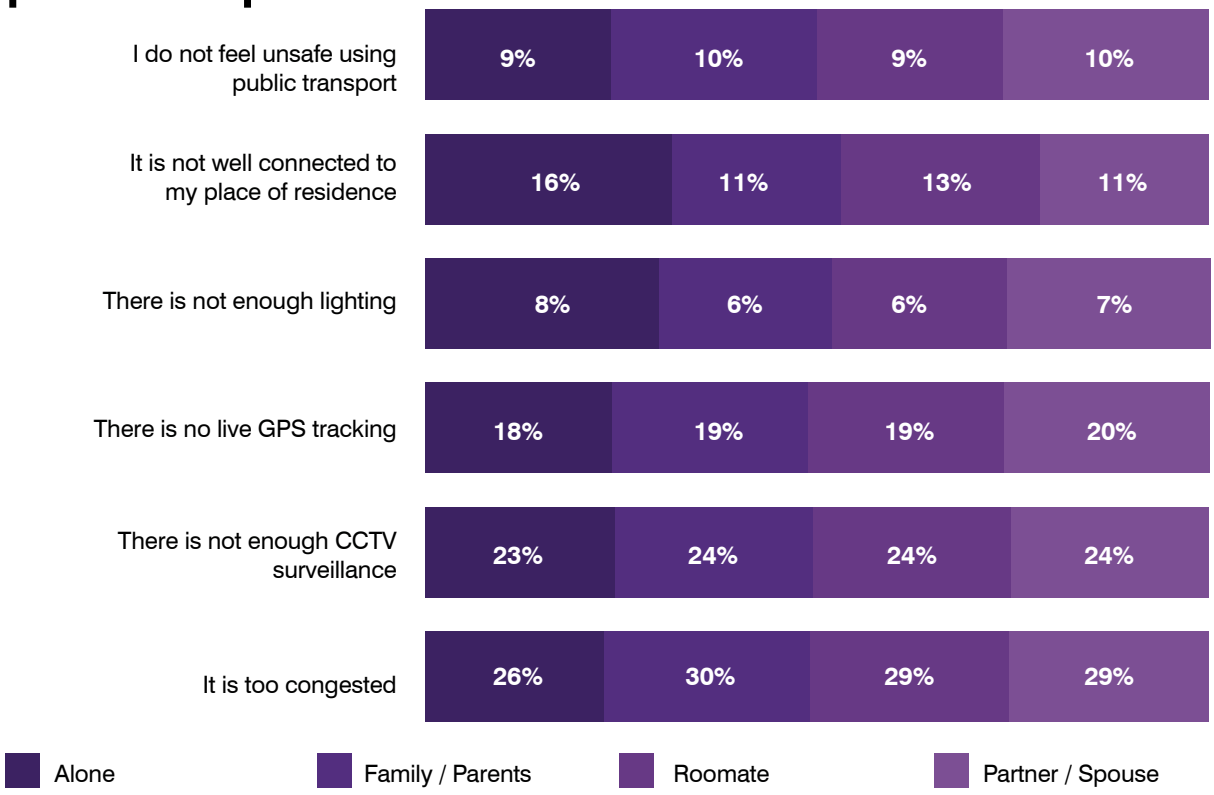


Figure 66

Do you feel unsafe due to concerns of accidents and breakdown in the transport infrastructure?

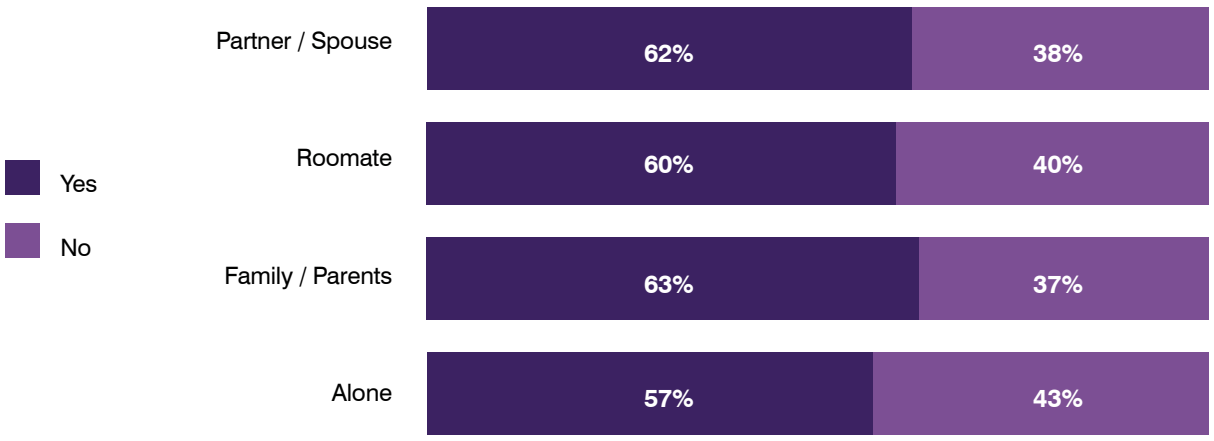


Figure 67

Which mode of public transport do you think is the safest?

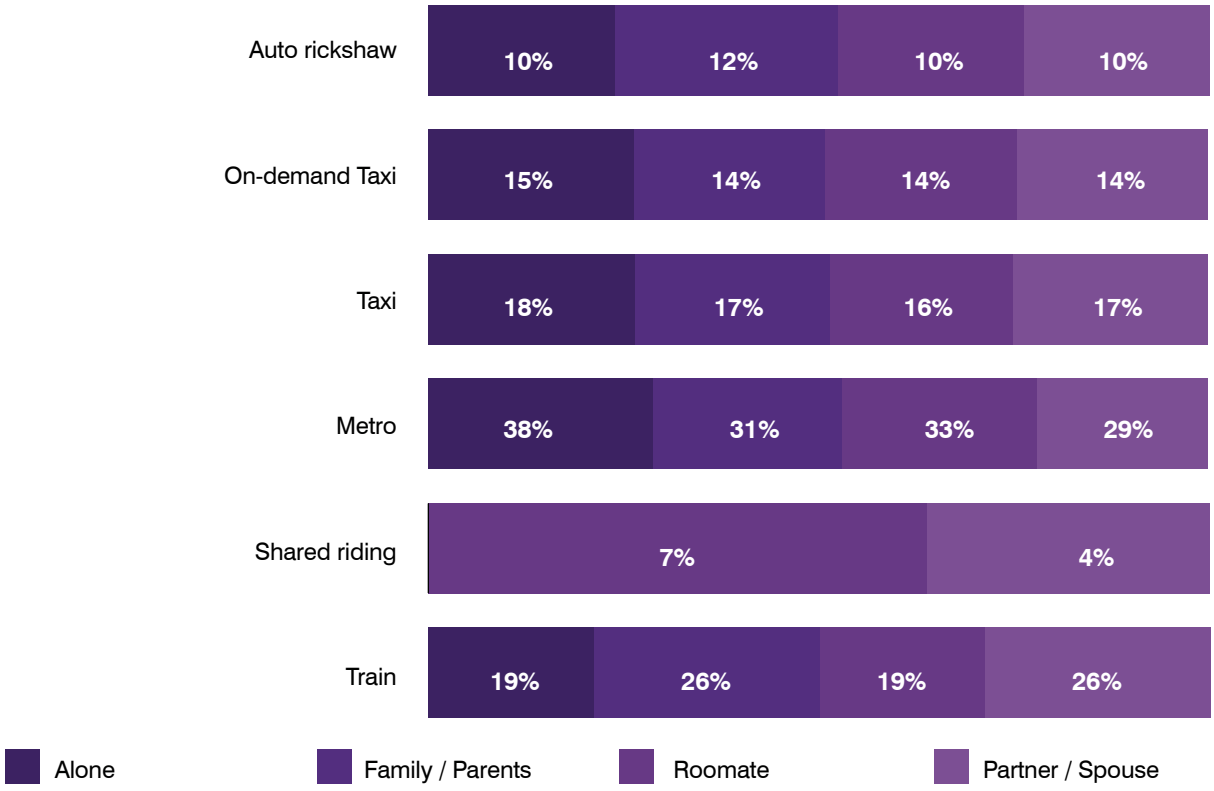


Figure 68

Have you ever said no to an opportunity (educational/work related) due to the commute being unsafe?

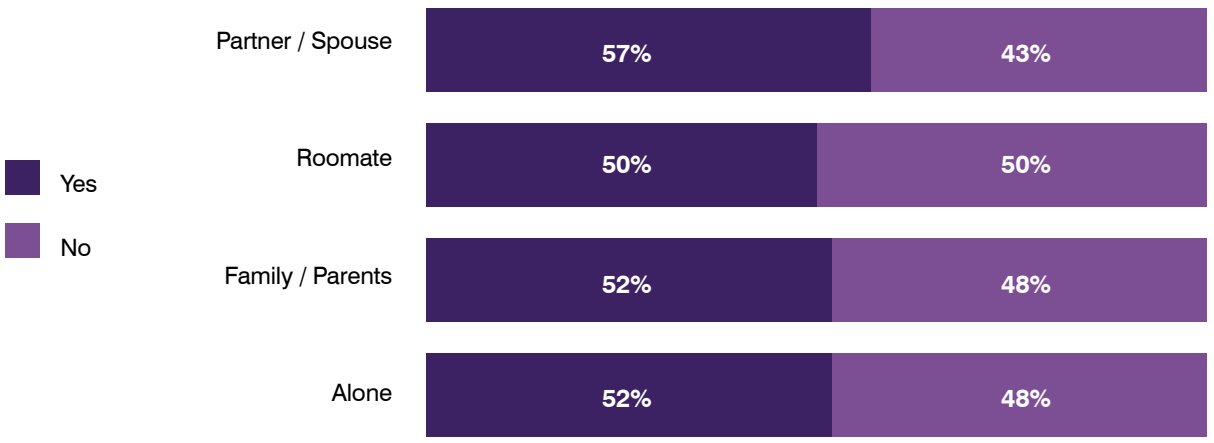
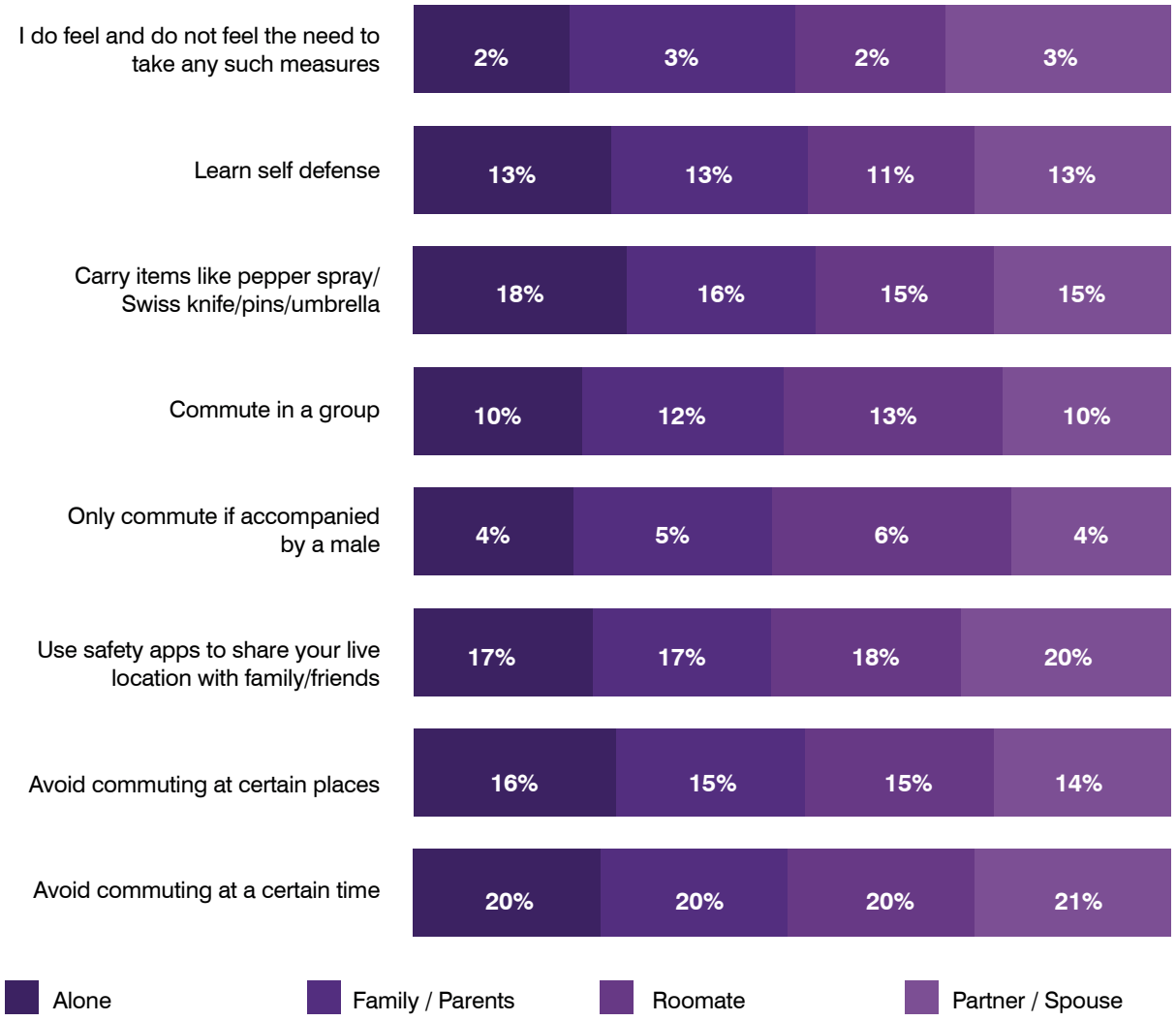


Figure 69

What precautionary measures do you take/have been advised to take to keep yourself safe while commuting?



MOBILITY TRENDS: 15 MOST POPULATED CITIES VS OTHERS

A] Type, Use, and Frequency of Mobility

- The analysis of the responses disaggregated by women living in the top 15 most populated metros versus the other cities in the survey shows that:
- Most women in both categories use public transport, at 87 percent (see Figure 70)
- Of those who use public transport, women from both categories preferred using the autorickshaw (at 22 percent), while the normal taxi is the least chosen, at 2 percent (see Figure 71). The autorickshaw is the most-used mode of transport (along with the train, at 21 percent, in the top 15 most-populated cities; 22 percent in the other cities)
- For women who do not use public transport, the most-used mode of transport is two-wheelers in the top 15 cities (see Figure 72). The use of office conveyance is significantly higher in the top 15 than other cities, and cycles are used more in others than the top 15
- Women in other cities use public transport to reach public spaces (23 percent), while the highest reason for use in the top 15 cities is to reach their place of work (see Figure 73). In the overall findings, women used public transport to reach public places the most. Therefore, this disaggregated finding is important.

Figure 70
Do you use public transport?

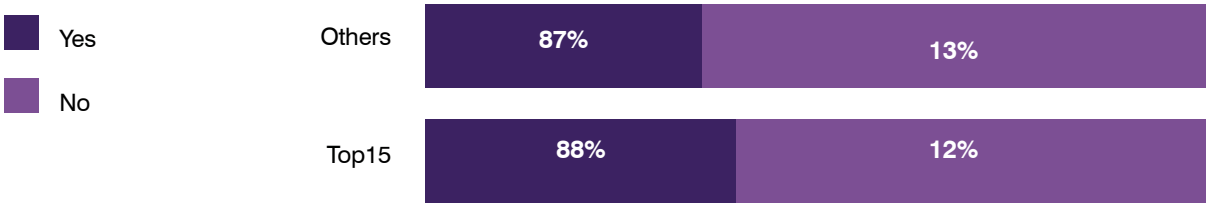


Figure 71

What kind of public transport do you use?

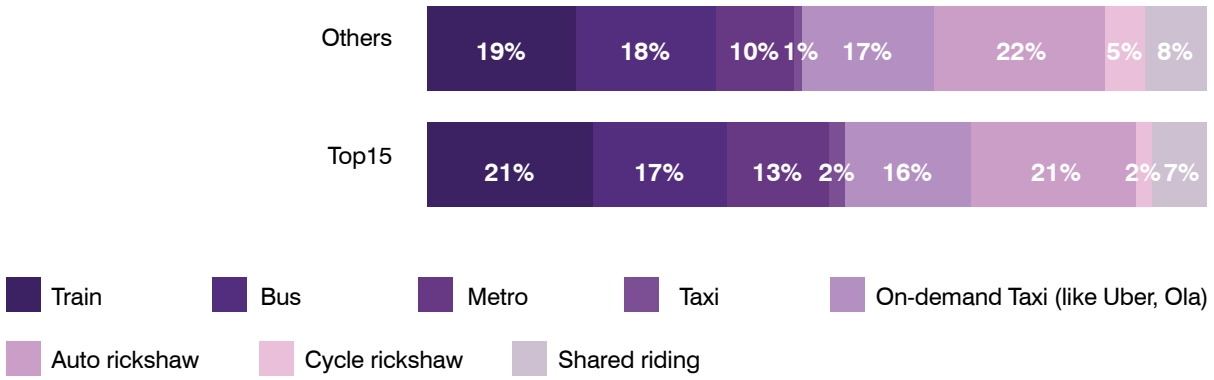


Figure 72

What kind of private transport do you use?

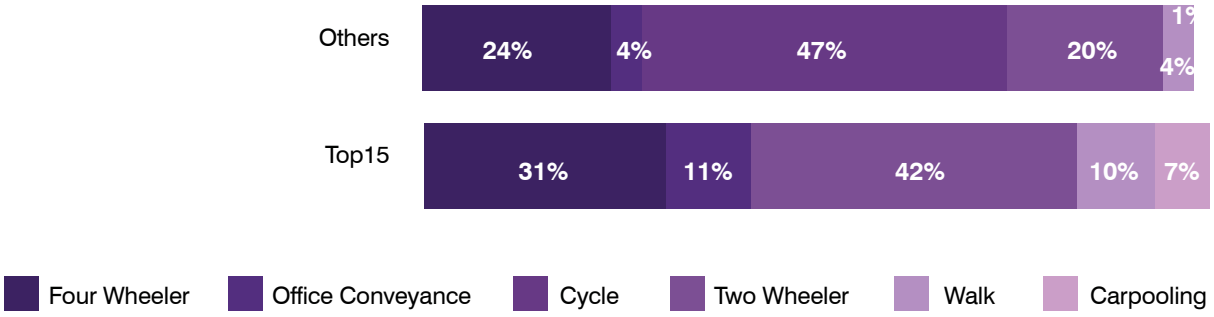
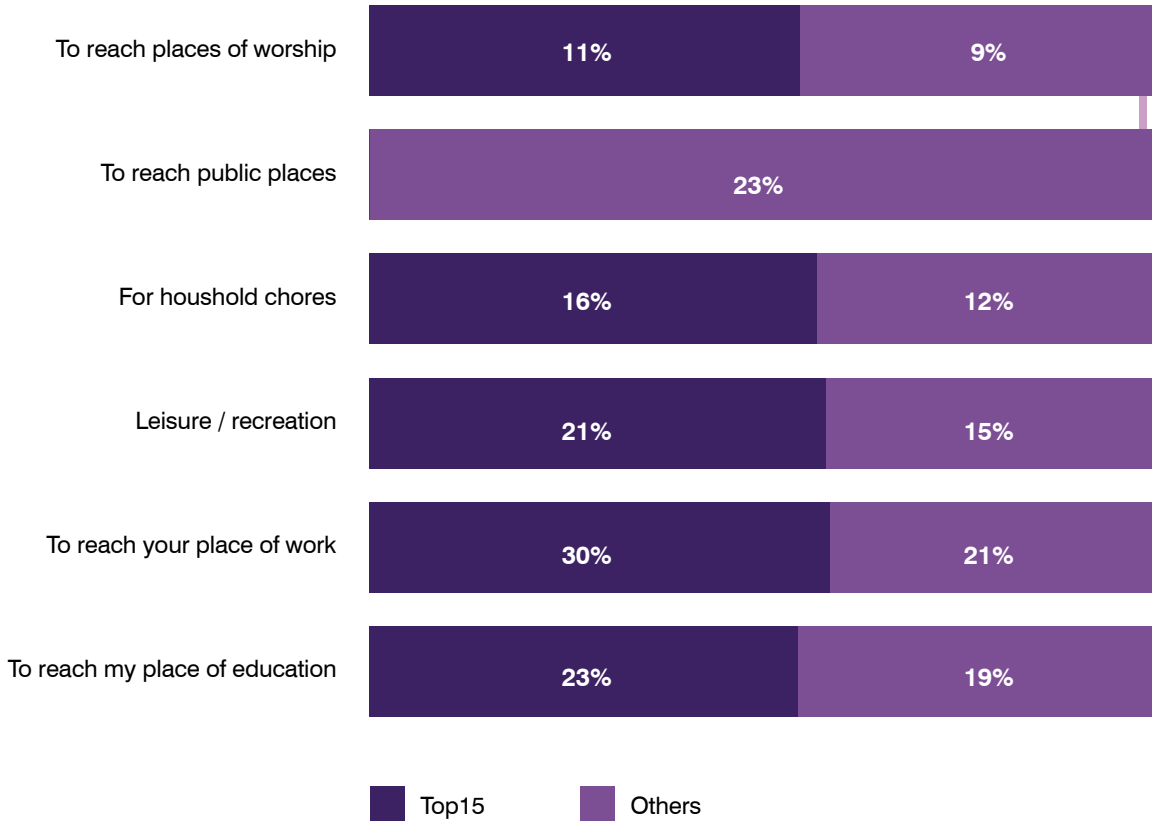


Figure 73

For what purpose do you use public transport?



B] Preferences: Public vs Private Transport

Table 8
Population-wise Preference: Public Vs Private Transport

	PUBLIC	PRIVATE
Accessibility in terms of distance to home/work/education		
Top 15 metros	69%	31%
Other cities	57%	43%
Reduction in travel time		
Top 15 metros	58%	42%
Other cities	46%	54%
Personal safety		
Top 15 metros	46%	54%
Other cities	60%	40%
Reliability		
Top 15 metros	45%	55%
Other cities	42%	58%
Comfort		
Top 15 metros	13%	87%
Other cities	12%	88%
Is public transport hygienic and clean?		
Top 15 metros	36%	64%
Other cities	36%	64%

While women in both the top 15 most-populated metros and other cities find public transport more accessible to their destinations, women in the top 15 cities believe public transport reduces travel time more than private conveyance, but it is the opposite for the other cities (see Table 8). This corroborates the fact that there is a larger focus on interconnected and multimodal public transport networks in larger urban spaces that will reduce travel time. Notably, 60 percent women in other cities find public transport safer than private transport, which deviates from the usual trend established by the survey (although more women in both categories find public transport unclean, uncomfortable and unreliable).

C] Safety Concerns

- Women across both city categories felt safer during the day, and the 7 am to 5 pm hours. Women feel most unsafe steadily post 5 pm, with the 12 am to 7 am hours being seen as the most unsafe (see Figure 74)
- A substantial percentage of women in both city categories do not feel comfortable going to the authorities to report instances of sexual harassment on public transport (see Figure 75). Most women either took action themselves, did not do anything, or felt unsafe to take any action.

- About 72 percent of women in both categories do not know the emergency number for transport services, highlighting the need for awareness generation of redressal mechanisms, sensitisation of authorities, and building capacity to sensitively and effectively handle situations of harassment.
- The main reasons for feeling unsafe is congestion, not enough CCTV cameras, and no live GPS tracking (see Figure 76)
- Most women in both city categories chose the metro as the safest mode of public transport, followed by the train, taxi, on-demand taxi and autorickshaw, with shared riding the least safe (see Figure 77)

Figure 74
When do you feel the safest travelling?

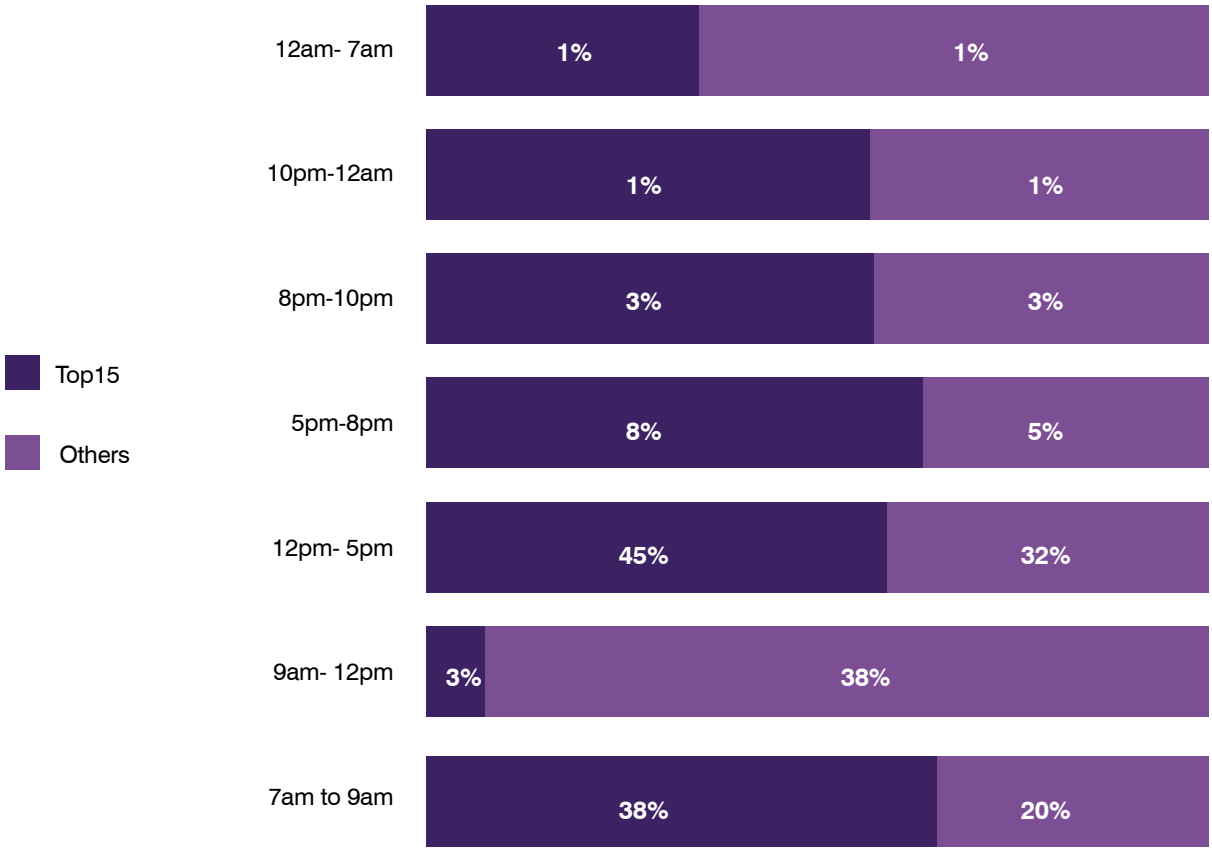


Figure 75

How have you addressed the situation?

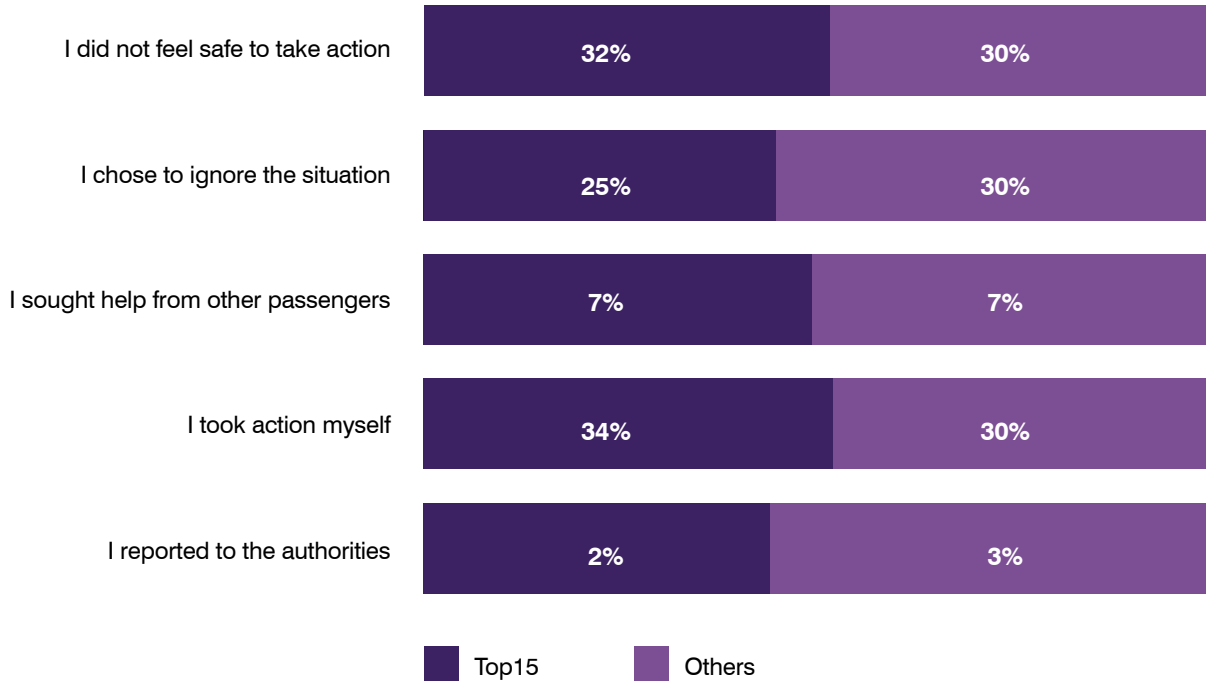


Figure 76

What are the reasons for you feeling unsafe while using public transport?

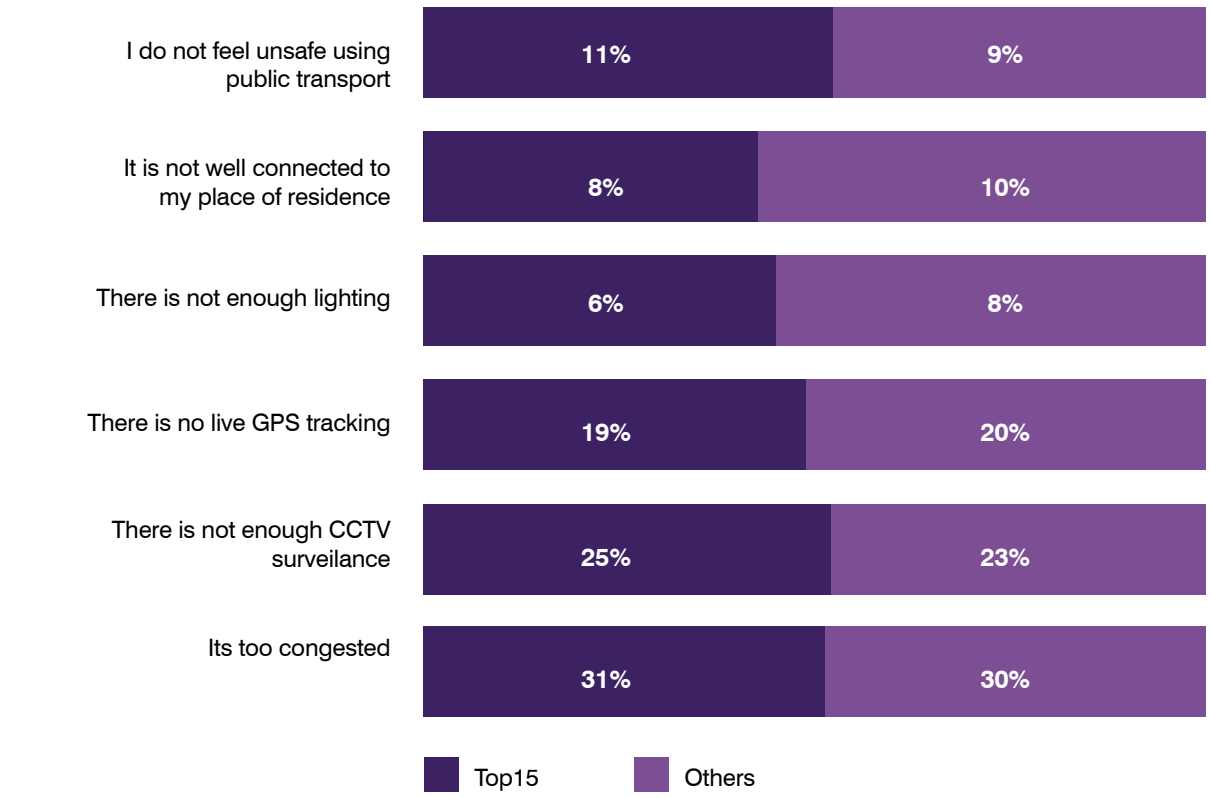
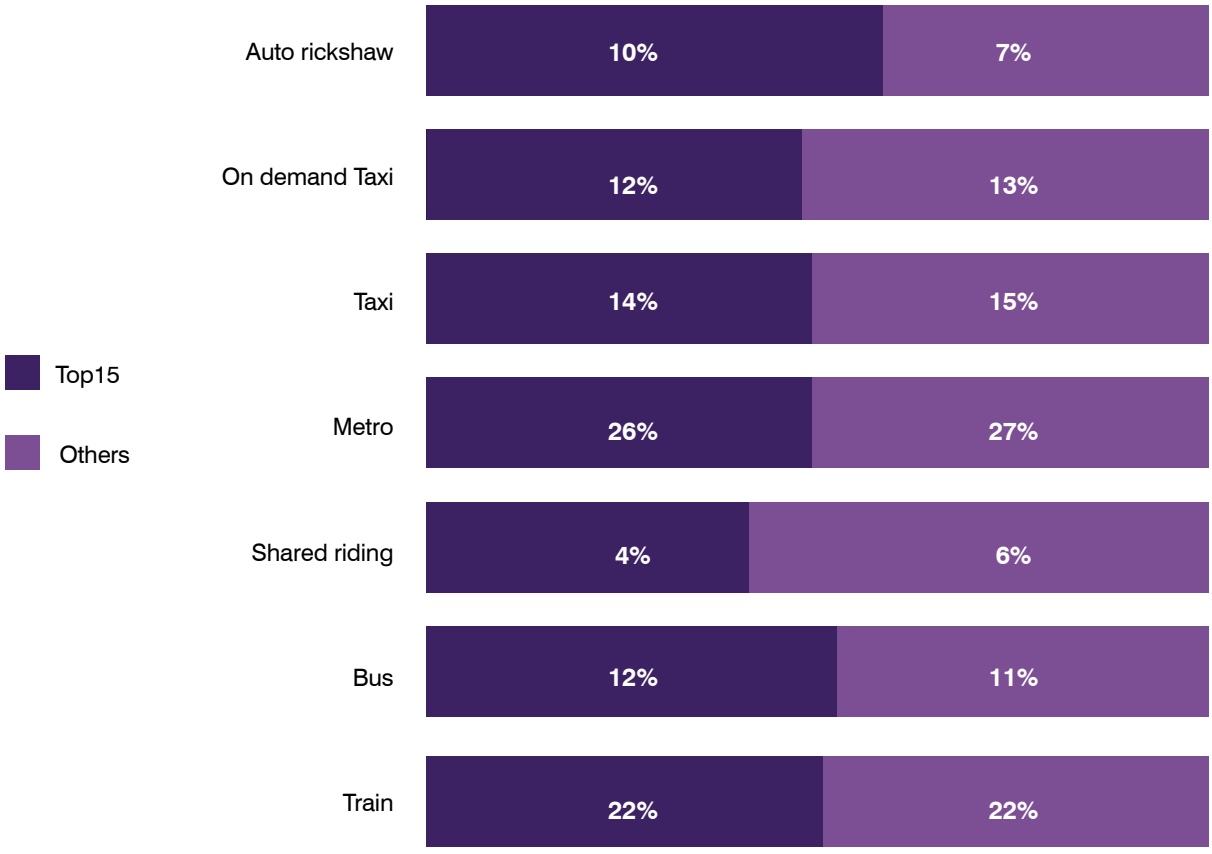


Figure 77

Which mode of public transport do you think is the safest?

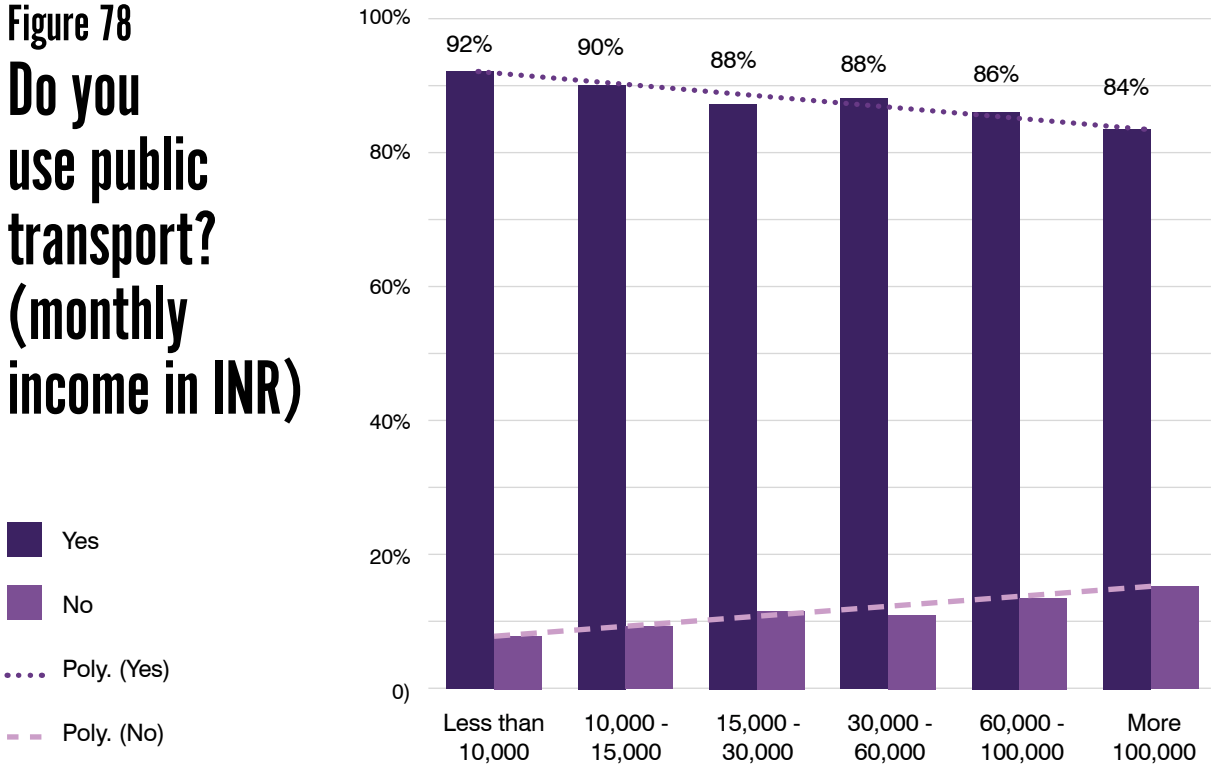


Mobility Trends by Monthly Income

- Of all 4262 respondents, 24 percent earn between INR 30,000-60,000 per month, followed by 23 percent of respondents in the income bracket INR 15,000-30,000 and 18 percent in the over INR 100,000 monthly income bracket.
- The use of public transport was highest in the less than INR 10,000 monthly income bracket, at 92 percent, followed by the INR 10,000-15,000 monthly income group, at 90 percent (see Figure 78). There is an inverse trend between income and the use of public transport—as the income increases, use of public transport decreases. The trendline (using public transport) slopes downwards in the first two income brackets, flattens in the middle-income brackets (INR 15,000–60,000) and continues to slope downward in the last two income groups.

Figure 78

Do you use public transport? (monthly income in INR)

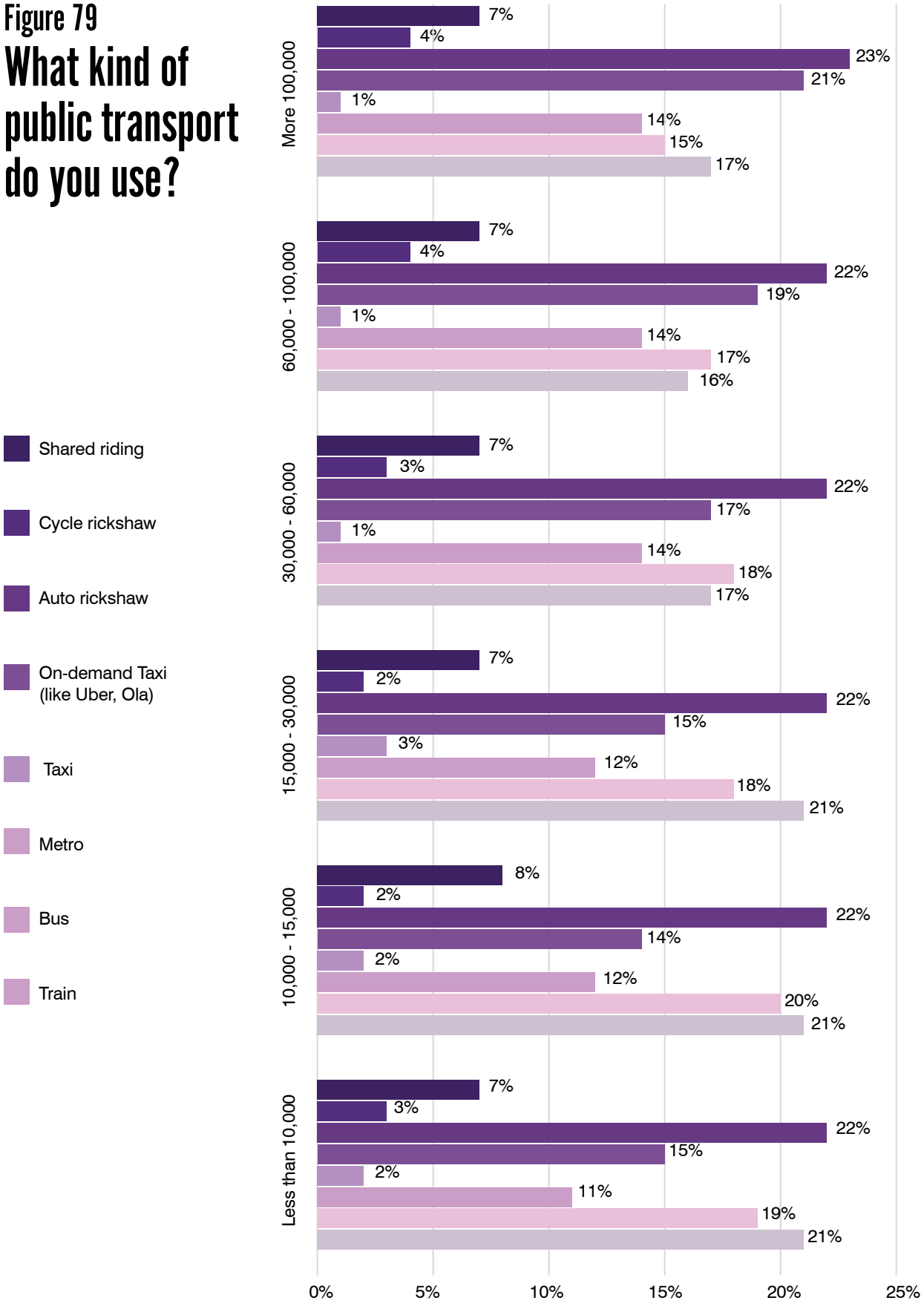


73% OF RESPONDENTS IN THE LOWEST MONTHLY INCOME BRACKET AND 71% OF THOSE IN THE HIGHEST BRACKET SAID THEY WOULD CHANGE TO PUBLIC TRANSPORT IF THEY FELT SAFER.

- Among those who use public transport, autorickshaws are consistently the most-used form of public transport, irrespective of income, at 22 percent to 23 percent (Figure 79). Shared riding, cycle-rickshaws and local taxi services remain the least-used modes of public transport across all income brackets.
- Among the lowest income bracket (less than INR 10,000), the main reason for using public transport was to reach the place of education. Among the middle-income groups—INR 10,000-15,000, INR 15,000-30,000 and INR 30,000-60,000—the main reason for public transport use was to reach their workplace.
- Most respondents spend INR 50-100 daily in commuting, irrespective of income. While most respondents (39 percent) in the lowest monthly income bracket (less than INR 10,000) spend between INR 50-100, 30 percent of the respondents in the highest income bracket (above INR 1 lakh) also spend between INR 50-INR 100. Only 3 percent to 7 percent of respondents in all income brackets spent more than INR 400 on daily commute.
- While 34 percent of respondents in the lowest monthly income bracket said they would change to public transport if it became cheaper, only 23 percent of the respondents in the highest monthly income bracket felt the same. However, 73 percent of respondents in the lowest monthly income bracket and 71 percent of respondents in the highest monthly income bracket said they would change to public transport if they felt safer.
- The demand for public transport may be affected by two important variables—price and service. According to the survey findings, respondents tend to spend similar amounts on commuting irrespective of income—a majority of respondents in both the lowest and highest income brackets spend about INR 50-100 per day. This may imply that factors other than price influence the use of public transport.
- The survey indicates that a majority of respondents find public transport to be more accessible than private transport. Therefore, non-price factors such as lack of alternative options or accessibility can influence respondents' decision in choosing public transport over private conveyance.

Figure 79

What kind of public transport do you use?



There appears to be a negative income elasticity of demand (YED)—the demand for public transport decreases with an increase in income (see Figure 78). Typically, inferior goods have a negative income elasticity of demand—if the consumer has the purchasing power through increased income, they prefer superior goods to inferior goods. Here, the trendline indicates that with an increase in income, respondents prefer using private vehicles instead of public transport. However, the use of private transport is also complementary to fuel prices and vehicle parking charges. Thus, an increase in fuel prices or parking charges is likely to reduce the demand for private transport. According to a study, the theoretical expectations indicated that the price elasticities increased with an increase in fuel prices and fell with lower fuel prices. There is also an expected decline in price elasticities with an increase in income. Measures such as a monthly conveyance allowance and free parking for women—especially in workplaces that are located far from the city centres or require late working hours—could reduce price elasticities of private vehicles for women.

Table 9
Income elasticity and revenue

	1 > YED > 0	0 < YED > 1	YED = 1
Price increase	Revenue falls	Revenue rises	Revenue is constant
Price decrease	Revenue rises	Revenue falls	Revenue is constant

Knowing the YED will also help policymakers decide whether to raise or lower the price of goods. If YED is positive and between 0 and 1, it indicates that the good is a normal good (private vehicles). In case of falling income, a reduction in price can compensate for a reduction in demand for the normal goods. Additionally, if the YED is positive and more than 1, demand for the good responds more than the proportionate to a change income. This indicates that the good will be considered a luxury good. A rise in price of this luxury good (with an increase in income) can increase the revenue.

MOBILITY TRENDS BY EMPLOYMENT

A] Type, Use, and Frequency of Mobility

Of all 4262 respondents, 52 percent are employed and 48 percent unemployed. About 64 percent of women who do not use public transport are employed while 37 percent are unemployed. About 85 percent of the employed and 91 percent of the unemployed use public transport (see Figure 80).

Among the employed, 90 percent receive a regular salary, 9 percent are self-employed, 0.8 percent are daily-wagers and 0.2 percent are homemakers. Among the regular salaried people, 85 percent used public transport while 15 percent did not. Among the self-employed, 81 percent used public transport while 19 percent did not. Moreover, almost all daily wagers use public transport.

A higher percentage of employed women do not use public transport than unemployed women (see Figure 78). Women who are both employed and unemployed use autorickshaws as the most preferred form of public transport. The least used form of public transport is normal taxi, followed by cycle rickshaw and then shared riding (see Figure 81),

Unemployed women mostly use public transport to reach education places, while employed women use it to reach places of work (see Figure 81).

Figure 80
Do you use public transport?

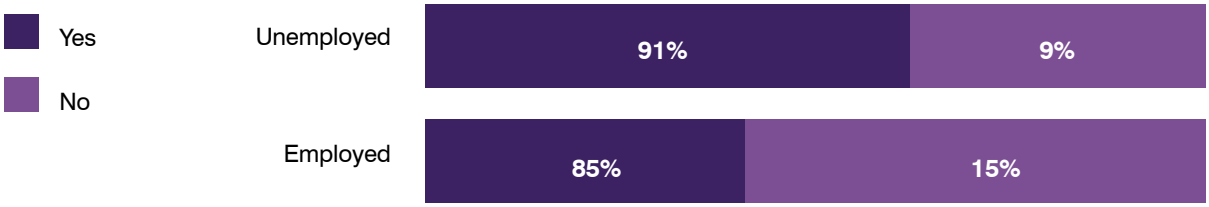


Figure 81

What kind of public transport do you use?

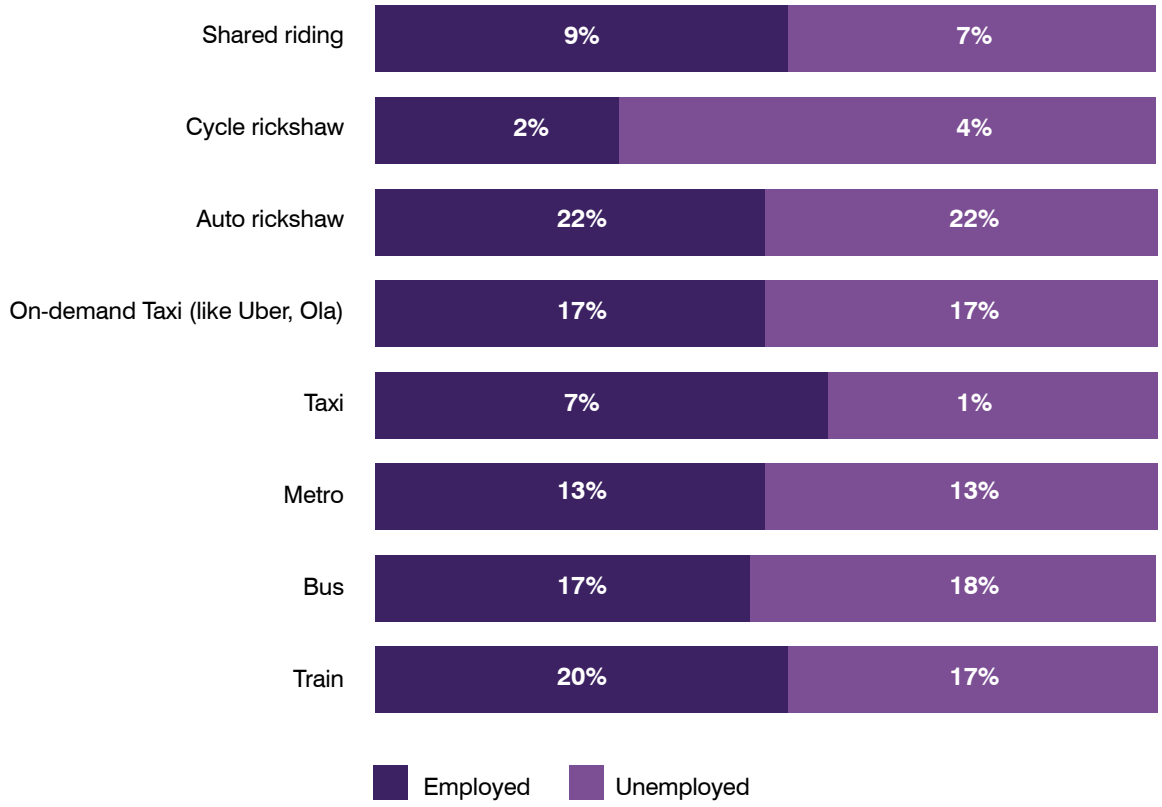
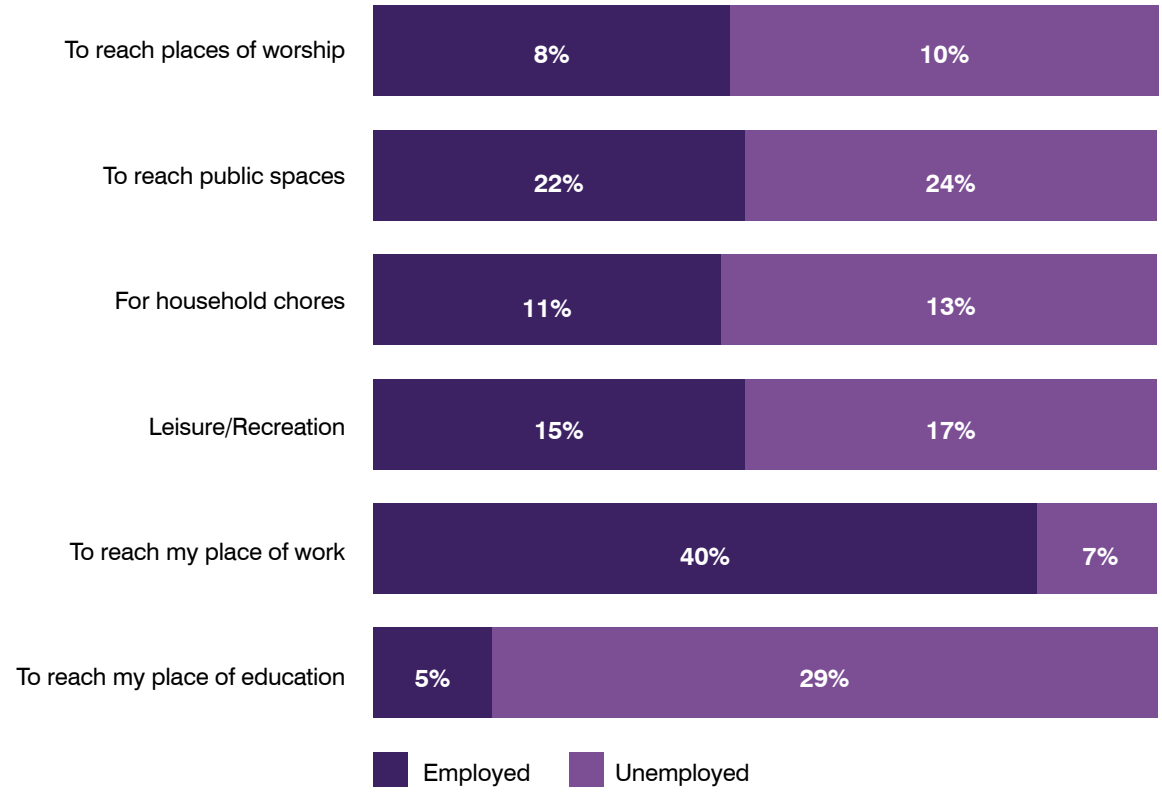


Figure 82

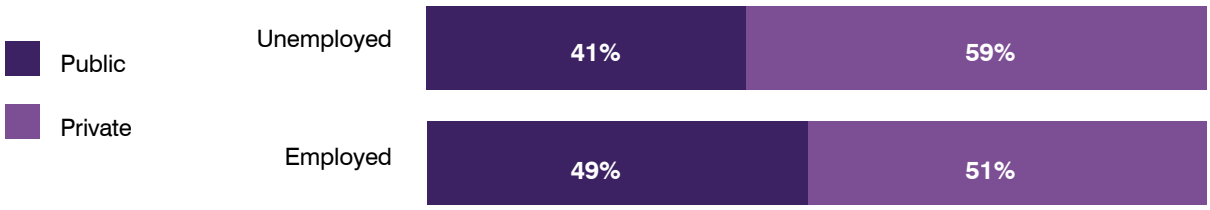
For what purpose do you use public transport?



B] Preferences: Public or Private Transport

- Women across both categories believe public transport reduces time and is more accessible to workplaces and education than private transport.
- A higher percentage of unemployed women find private transport safer than public transport compared to employed women (see Figure 83).

Figure 83
Which mode of transport is safe?



c] Safety Concerns

- Women across both categories use peak hours and non-peak hours for travel, but use peak hours significantly more than non-peak hours (see Figure 84).
- Women who are employed use peak hours more than women who are not employed.
- While women who are employed feel interchanges (bus stops, train platforms, traffic lights) are the most unsafe element of the mobility chain, unemployed women feel most unsafe inside a public transport vehicle and at interchanges (Figure 85).
- While women feel most unsafe in interchanges (19 percent), they also feel unsafe inside public transport vehicles (17 percent) and private vehicles (16 percent). This suggests that the transit mode is deemed risky where there is less control over familiarity in surroundings and destinations, as opposed to the end or beginning of a destination.
- Most women find the metro to be the safest form of public transport, followed by the train, with the use of a normal taxi being deemed least safe at 3 percent, followed by shared riding which only 6 percent women found safe (see Figure 86).
- Most women said they have turned down an education and/or work opportunity due to the unsafe commute (see Figure 87). This is an important finding because it suggests that female labour force participation and education is somehow related to unsafe commute.
- Most women who do not use public transport feel they would use it if it were safer (see Figure 88).

Figure 84
At what time of the day do you use public transport?

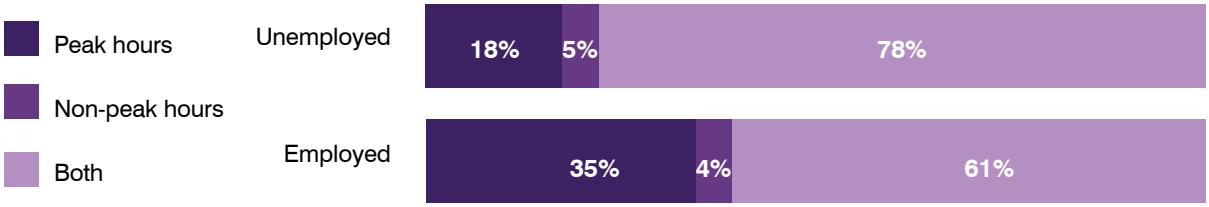


Figure 85
Which part of the transport mobility chain is most unsafe?

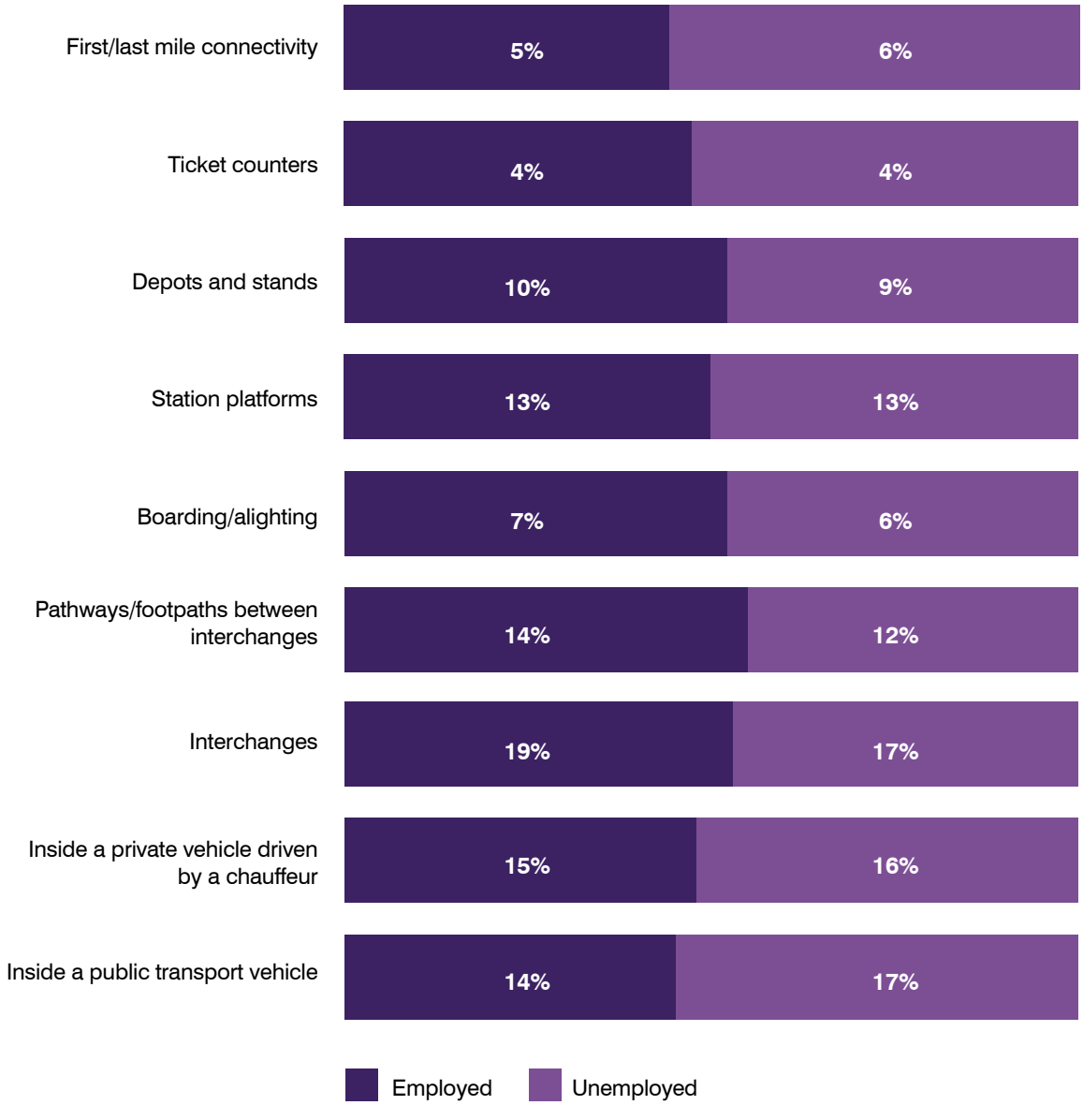


Figure 86

Which mode of public transport do you think is the safest?

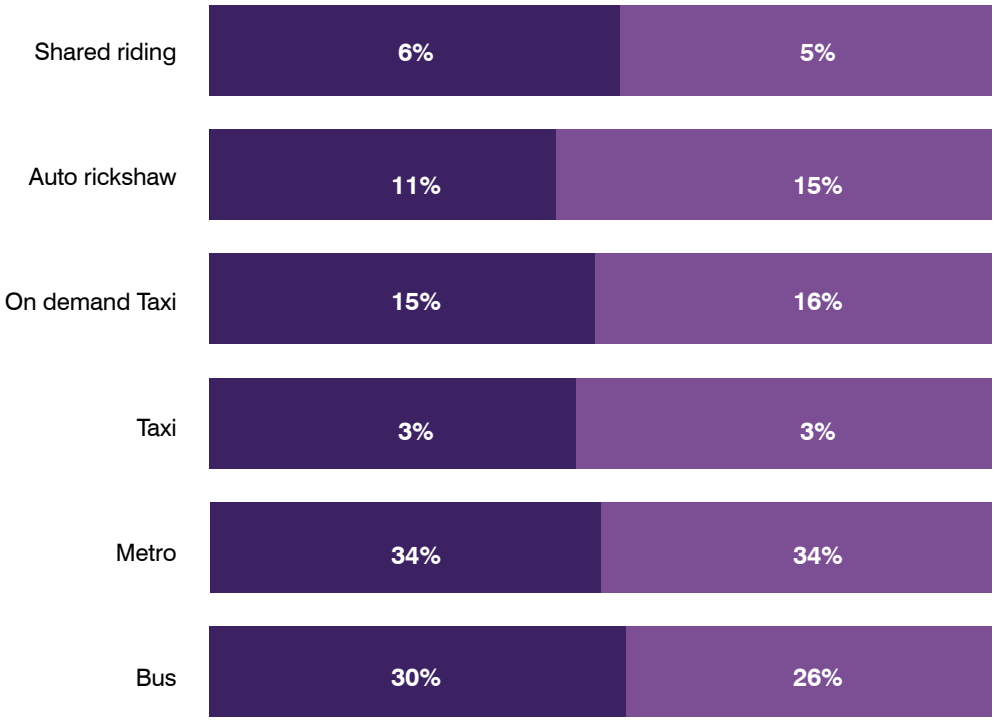


Figure 87

Have you ever said no to an opportunity (educational/work related) due to the commute being unsafe?

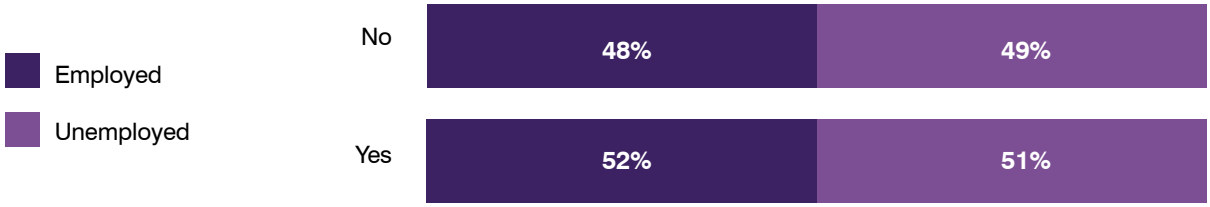
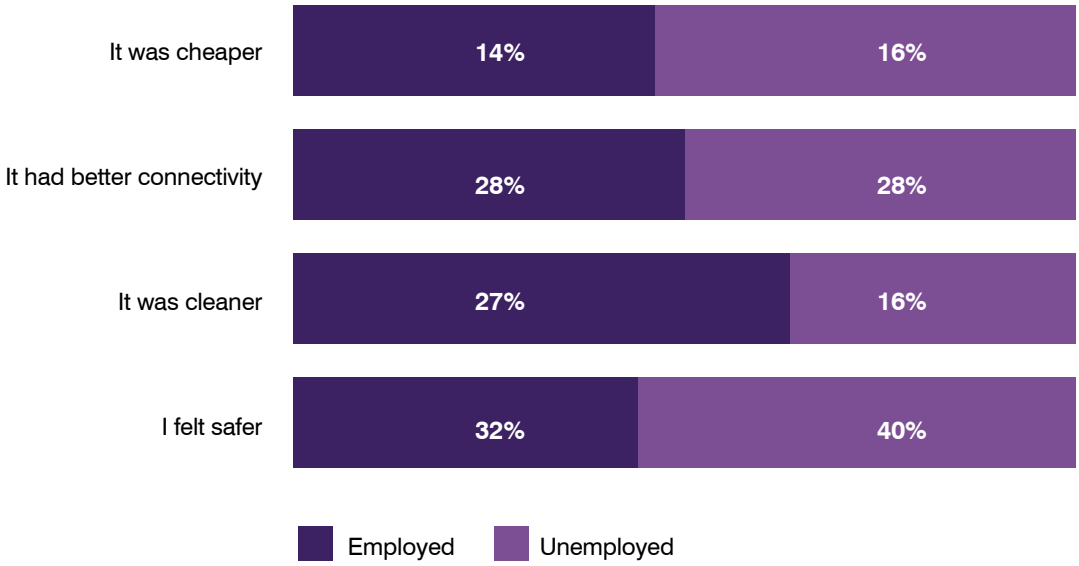


Figure 88

I would change my mode of transport to public transport if ...



5

LOGISTIC REGRESSION ANALYSIS

A] Use of public transport is the dependent variable, income is the continuous variable and student/non-student is the categorical variable.

H0: There is no significant relationship between the outcome (use of public transport) and the predictor variables (current education status and income level)

H1: There is a significant relationship between the outcome (use of public transport) and the predictor variables (current education status and income level)

Result:

The model summary shows that there is a significant relationship between the outcome and the predictor variables. Since the p value is <0.001 (see Annex), we reject the null hypothesis in favour of the alternate hypothesis; therefore, there is a significant relationship between the use of public transport and current education status and income. The reference class for

the odds ratio is student and zero income. As the odd ratio for monthly income is lesser than 1, there is a negative relationship between the outcome and the predictor—i.e., **with an increase in income, the probability of using public transport decreases. There is a 47.7 percent chance of using public transport if the respondent is not a student. For respondents who are students with no income, the probability of using public transport is 14 times higher than that of not using public transport. The probability of using public transport is highest among respondents who are students with no income. Similarly, the probability of using public transport is lowest among respondents who are non-students with income greater than 1 lakh.**

B] Use of public transport is the dependent variable, age is the continuous variable and employment status is the categorical variable.

H0: There is no significant relationship between the outcome (use of public transport) and the predictor variables (employment status and age).

H1: There is a significant relationship between the outcome (use of public transport) and the predictor variables (employment status and age).

Result:

The model summary shows that there is a significant relationship between the outcome and the predictor variables. Since the p values are <0.001 and 0.015 (see Annex), we reject the null hypothesis in favour of the alternate hypothesis; therefore, there is a significant relationship between the use of public transport and employment status and age. The reference class for the odds ratio is unemployed female respondents aged zero. As the odd ratio for age is lesser than 1, there is a negative relationship between the outcome and the predictor—i.e., **with an increase in age, the probability of using public transport decreases. There is a higher probability of using public transport if the respondent is unemployed—63.9 percent chance of using public transport if the female respondents are unemployed. The probability of using public transport is highest among female respondents who are unemployed and younger than 18 years. Similarly, the probability of using public transport is lowest among employed female respondents older than 35 years.**

6

POLICY RECOMMENDATIONS

1. SAFETY INTERVENTIONS

Personal safety is the most important factor affecting women's choices and preferences of transport. About 33 percent of all respondents, women across all age groups, residing in metros and non-metros, and living status categories were willing to shift from private to public transport if safety was ensured. Among all the respondents who use public transport, 56 percent have been sexually harassed while using such modes of conveyance. About 52 percent women have refused a work or education-related opportunity due to their commute being unsafe. The ORF-Youth Ki Awaaz survey helped identify key areas for improvement to assure women of enhanced safety while using public transport, which could lead to a rise in workforce participation and access to public spaces in cities:

i) **Congestion:** Women found public transport to be most unsafe due to congestion. Congestion is likely to occur when the supply of public transport falls short of the demand. Due to safety concerns, women have a narrower time frame to travel when using public transport. The findings indicate that women find the 12 pm-5 pm hours to be the safest time to travel, with 90 percent finding the 8 pm-7 am period to be the most unsafe. Most women take the precautionary measure of only travelling at certain times of the day to keep themselves safe. This significantly narrows down the 'safe window' for women to travel, thus resulting in higher congestion. According to a report for the National Centre for Biotechnology Information, cities like Mumbai already experienced a 20-percent shortage of public transport during evening peak hours before the pandemic, a figure expected to reach 25-percent when physical distancing measures are imposed.[38]

   To address the congestion problem, women must have a longer time frame within which they can safely travel. According to the survey, women travel for 30 minutes to two hours and 10-20 kms per day on average. Thus, more short- to medium-distance travelling options must be made available for them. One way in which this can be done is by shortening the routes and increasing the frequency of public transport options during peak hours (especially between 12 pm to 5 pm).

ii) **Lack of CCTVs:** Nearly 46 percent of the respondents found the lack of surveillance and monitoring through CCTVs to be a major deterrent for using public transport. To ensure women's safety, working CCTVs must be installed in all key transport junctions such as bus depots, train stations, street corners, taxi stands and narrow pathways. However, the mere installation of CCTVs is not enough to ensure secure monitoring. For safety-related surveillance to become more efficient, the CCTV footage must be monitored live by a special task force at the nearest traffic station.

iii) **Lack of GPS tracking:** The third most important factor for women feeling unsafe was the lack of tracking systems. In most cities, intermediate transport such as local taxi services, auto-rickshaws and cycle-rickshaws are not formally registered, making it difficult for them to be traced. Although the Central Motor Vehicle Act, 1988, and the State Motor Vehicle rules recognise the Regional Transport Authority as the registering authority for all vehicles, there is no institution to regulate and upgrade intermediate public transport (IPTs, such as autorickshaws, cycle-rickshaws, shared-riding and local taxis) with respect to routes, fares, vehicle performance and technology services.[39] Several cities like Mumbai, Kolkata and Delhi have a capped permit system for IPTs, resulting in a high number of unregistered vehicles. To ensure safety and GPS tracking, it is necessary to constitute a regulatory authority to ensure uniformity within the services provided by IPTs and other forms of public transport. This will enable authorities to make it mandatory for IPTs to install GPS tracking like the ones available in on-demand taxis.

iv) **More women in positions of authority:** Over 30 percent of women in all age groups reported that more women officers in public transport, dedicated cab service for women and women drivers will be useful infrastructure improvements for their safety. These findings illustrate the need for more women to be employed in positions of authority to oversee

monitoring, surveillance and infrastructure. About 90 percent of respondents felt most unsafe while travelling after 8 pm, highlighting the need for more surveillance and patrolling at night. GPS-enabled night taxi services with women drivers can improve safety during non-peak hours.

v) **Sensitising authorities:** It is important to note that while 56 percent of the respondents have reportedly been sexually harassed, only 2 percent reported the incident to the authorities, as seen in figure 25). Of the 56 percent, 33 percent took action themselves, while 33 percent did not find it safe to take any action, 26 percent chose to ignore the situation, and 6 percent sought help from other passengers. Similar trends are seen across all variables of the disaggregated data. Therefore, surveillance and monitoring authorities must be made more approachable and accessible to ensure emergency actions and proper grievance redressal. Bus drivers, conductors, ticket collectors, and similar authorities should be regularly gender-sensitised to address women's safety concerns.

vi) **Emergency numbers:** About 72 percent of the respondents did not know the emergency contact numbers for transport services. There is a need for better visibility and accessibility of emergency contact numbers at all public spaces. Advertisements warning against harassment should be displayed along with emergency numbers and helpdesk information. Information related to routes, fares and timings must also be displayed clearly to avoid misinformation.

2. INFRASTRUCTURE INTERVENTIONS

i) **Hygiene and toilets:** To improve safety and accessibility of public transport for women, the physical infrastructure must be gender-sensitive. About 87.5 percent of respondents felt that hygiene and the availability of safe toilets is the most important supporting infrastructure for public transport systems. Of the women who use public transport, 61 percent felt that public transport is not hygienic and clean. Often, bus stations, train stations and public spaces lack the availability of safe and clean public toilets. Lack of clean toilets can dissuade women from using public transport and create an unsafe environment for them. Clean and accessible public toilets are essential for safe, comfortable and reliable modes of travelling. The public toilets must be well-lit and centrally located around travel junctures such as bus depots, stands and stations.

ii) **Seating infrastructure and lighting:** For about 23 percent of the total respondents, seating was the most crucial form of supporting infrastructure in public transport. Of all the respondents, 65 percent spend 30 minutes to two hours on an average while commuting each day. Therefore, having sufficient seating arrangement becomes essential to ensure safe travel. About 21 percent of respondents felt that lighting was the most important infrastructure for public transport. All transit must stop such as bus stands, train stations and taxi stands must have sufficient lighting to make travelling safer for women post daylight hours. Proper lights should also be installed near footpaths, pathways, near public toilets and near bridges.

iii) **Two-wheeler stands near education institutions:** The survey indicates that two-wheelers are the most used form of private transport by students and non-students to reach their place of education or place of work. To ensure proper accessibility to educational institutions and workplaces, affordable, secure and dedicated two-wheeler stands must be built near schools, colleges and office hubs. This will enable women to access their place of education and work and encourage them to travel independently.

iv) **Building informal surveillance:** In her concept of "eyes on the street,"[e] author Jane Jacobs highlighted the importance of informal surveillance of the urban environment.[40] In essence, informal surveillance could be simply provided by more people being present on the streets—vibrant public spaces can make people feel safe, despite being among strangers. Building a pleasant atmosphere near public transport interchanges through parks, shopping areas, street vendors and civic centres could attract a mix of activity and create vibrant community spaces. This bottom-up community planning approach can create networks of mutual care and provide indirect surveillance for women.

v) **Gender-sensitive urban design:** Better designed physical infrastructure such as wide pathways with sufficient lighting, eliminating dark corners and view-obstructing structures, universally accessible interchanges, public toilets and women-dedicated safe parking spaces can contribute to improving women's sense of safety. Mixed land-use planning, where office spaces are encouraged in residential areas, can reduce women's work-related commute to isolated areas. Additionally, gender-sensitive design features such as benches, handrails, and other supportive street furniture are important for women travelling with children, pregnant women, the elderly, and the disabled. These benches and handrails must also take into consideration a woman's height and specific requirements. Hand grips in buses and trains must also be at a convenient height for women.

3. SCOPE FOR REFORMS

i) **Safety for working women:** The survey indicates that while 52 percent of the respondents are employed, only 10 percent of them use office conveyance. As more women participate in the labour force and work late hours, it is crucial to ensure that they have safe means of travelling between their residences and workplaces. Safe office conveyance is an important responsibility of employers towards their employees. Therefore, policies must hold employers accountable to ensure that equal opportunity for women to participate in labour is provided through secure access to their workplaces.

However, this does not mean there can be laxity in public transport being equipped with the infrastructure to create a safer travel passage throughout the day and night. To

[e] Essentially, more people on the streets will mean safer neighbourhoods.

ensure women's safety, Section 66(1)(b) of the Factories Act states that "no woman shall be required or allowed to work in any factory except between the hours of 6 am and 7 PM," which could very well be an effect on the lack of users in the night time, together with safety reasons. An amendment to the Factories Act states that a night shift working hours for women shall be allowed only if the employer provides adequate safeguards in the factory by ensuring the "protection of dignity and honour, protection from sexual harassment, and remain fully responsible for safety within the factory premises and during transit from workplace to their home."[41] Night shift laws that enable women to work are redundant if women do not have multiple avenues of safe and secure modes of transport since door-to-door office conveyance at night is only provided by companies that can afford it. Since most respondents use public transport to reach public places and work, policies to ensure a safe mode of travel is essential to increase workforce participation rates and prevent dropouts.

ii) **Gender audits and budgeting:** To improve gender equality through inclusive planning and investment, the Ministry of Finance has mandated that every ministry set up a gender cell and carry out gender budgeting exercises to ensure that government spending is inclusive of women's specific requirements. Detailed guidelines have been issued to all ministries on undertaking gender performance audits, gender mainstreaming in all sectors, gender budgeting and proposing specific measures to facilitate access of public services to women. Gender budgeting includes earmarked urban expenditure for women-specific infrastructural needs, such as women's requirements for housing, transport, recreation and markets.

iii) **Robust gender-disaggregated mobility data:** While reports such as this shed light on women's mobility preferences and the effect of safety concerns on these choices, more women-specific data is required for targeted policy decisions. It is essential to carry out a modal split, where the percentage of male and female residents using particular forms of transport is assessed. Gender-disaggregated data, including the mapping of routes used by women, specific usage routes and the reasons for lack of safety and the availability of amenities around modes of transport, is also crucial for policy decisions.

iv) **Catering to the mobility of care:** Transport facilities that cater to the non-student and non-working women who travel for household chores, taking kids to school, and other unpaid work should be considered. Income-generating trips (productive) are often considered more important than reproductive (caregiving trips). As a result, men (who are considered the income generators) have more access to motorised public transport.[42] Therefore, special buses to schools, colleges and markets at certain times can be considered. Eventually, mobility of care and the policy decisions regarding it should be gender-neutral (as caregiving should not just be just a woman's role, and income generation just a man's role).

v) **Last-mile and first-mile connectivity:** A NITI Aayog report on enabling shared mobility in India showed that there is a growth spurt in private vehicle ownership in India, leading to higher congestion (the cost of which is estimated to be INR 1.47 lakh crore annually in Delhi, Mumbai, Kolkata and Bangalore) and increasing vehicular emissions rates that are adversely affecting human health

and the environment. The report enumerates that a modal shift to shared mobility can help mitigate these challenges and "enable efficient asset utilization by transitioning from a model of ownership of private assets to usership of shared assets."[43] While this modal shift could be revolutionary in terms of making transport affordable, efficient and sustainable, the ORF-Youth Ki Awaaz survey illustrates that local taxi services, shared riding and autorickshaws were considered safe by only 3 percent, 5 percent and 11 percent of women, respectively. For women to embrace shared riding, there must be better mechanisms to address issues of insecurity. A specific study for safety in shared riding is recommended for this endeavour.

While taxi and shared riding were considered unsafe, IPTs constituted about 34 percent of the kind of public transport used. It is important to note that all three modes of IPT provide either first-mile or last-mile connectivity. They directly also affect the usage of other local public transport services such as metros, trains and buses. This stage of travelling is most crucial in terms of safety concerns. Thus, electric bikes at stations and more gender-friendly footpaths are reforms that must be considered.

vi) **Promoting e-rickshaws:** E-rickshaws are among the most important forms of IPTs. It has been estimated that about 60 million Indians use e-rickshaws every day.[44] These e-rickshaws are an excellent form of transport as they provide cheaper, more environment-friendly and accessible means of transit as compared to autorickshaws for short distances. The survey highlights that an overwhelming majority of women (91 percent) feel their means of transport must be environment friendly. Policymakers must consider stepping in to financially support and incentivise e-rickshaw drivers to provide a suitable IPT option for local use.

vii) **Multimodal means of transport:** To reduce the dependence on private transport, Indian cities must aim to shift towards a multimodal urban transport system. Such a system helps integrate different types of public transport options to provide individuals with a seamless end-to-end travelling experience. Global cities like Hong Kong have adopted this means of transportation—the Hong Kong mass rapid transit (MRT) system consists of 11 lines, spanning approximately 230 km. One MRT station is situated below the Hong Kong-Macau ferry terminal and two other bus terminals. Thus, three different modes of transport are available within a distance that can be covered on foot in six minutes.[45] This form of systematic transport planning can ensure safe and efficient end-to-end travelling for women.

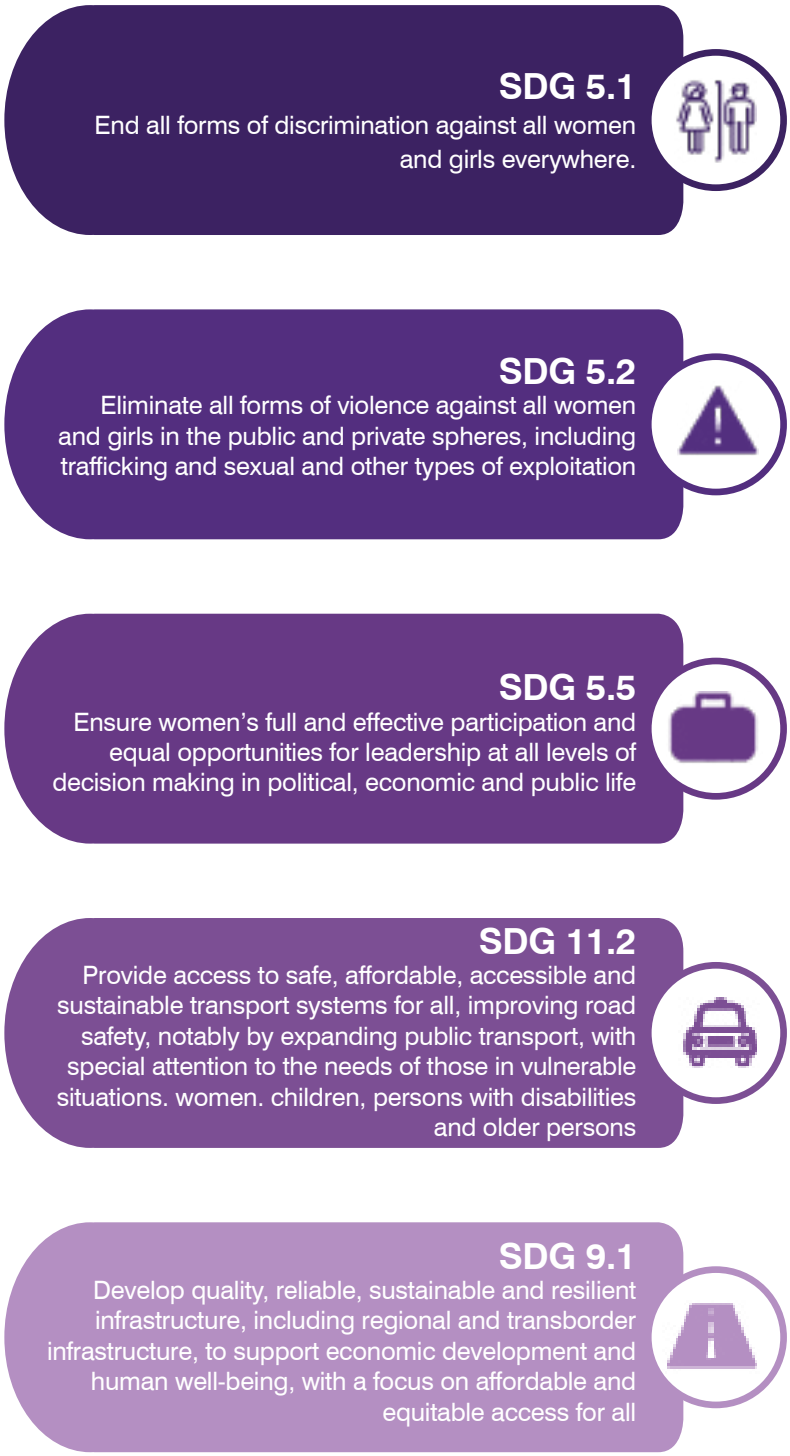
7

CONCLUSION

Women's access to urban transportation plays a crucial role in achieving India's Sustainable Development Goals (see Figure 89). Improved public transportation not only broadens women's economic and social opportunities but also plays a vital role in curbing urban congestion and environmental damage. Women's mobility is also directly related to their economic and social opportunities. Limited access to safe transportation can increase the 'hidden barriers' to women participating in the labour market and negatively impact their access to education, further exacerbating the gender gap. India's young demographic accounts for more than 60 percent of the population. As the survey findings show, with an increase in age, the probability of using public transport decreases, meaning India's young women must be able to traverse and access the public transport landscape to reach their potential.

Figure 89

SDG targets related to safe travel for women



According to the survey, about 52 percent of all respondents have refused work or education-related opportunities due to unsafe commutes. Specific sections of the population, such as women over 35 years, are highly dependent on public transport—the survey indicates that 90 percent of women above 35 years use public transport. It is also evident that the probability of using public transport is higher amongst students and unemployed youth. As the survey findings have shown, there is a higher probability of using public transport if women are unemployed, and the likelihood of using public transport is lowest among employed respondents older than 35 years. Unemployed women feel most unsafe inside a public transport vehicle rather than in interchanges, as all other categories (age, income, living status, education) feel. The percentage of women not using public transport was the least in lower-income groups—6 percent in the below INR 10,000 income group and 8 percent in the INR 10,000-INR 15,000 income bracket. This means that most women cannot afford any sort of post-pandemic shift to private modes of transport. Non-motorised transport is also not the most feasible mode as most women who use public transport travel at least 10-20 km per day. Therefore, public transport, which is cheaper than a private option—and the only option for most young women in India—needs to be made more accessible and safer. It must be strengthened to ensure safe, efficient, accessible and sustainable movement of people, goods and services.

In terms of improvement in physical infrastructure, the increased availability of safe toilets is an essential supporting infrastructure for public transport systems for women. To make the wait at interchanges more comfortable and safer, there is a need for better seating infrastructure and lighting. To encourage women to be more independent and travel safely, more two-wheeler stands near education institutions can be built. Further, considering that last-mile connectivity is important and preferred, investment in more e-rickshaws, e-bikes, and safer pedestrian zones and footpaths is vital.

To address the safety concerns, policymakers must aim to decrease congestion by increasing public transport options and accessibility. An improved study of women's travelling patterns can ensure better access to public transport for them. There is a need for improved CCTV surveillance coverage with real-time responsive task force and GPS tracking on all modes of transport, especially IPT options. More women authority figures in transport task forces can further ensure safety for women. To make public transport more secure, there must be increased gender sensitisation and better awareness of redressal mechanisms among authorities responsible for tackling harassment.

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The authors would like to thank:

Dr. Samir Saran, Dr. Ramanath Jha, and Ms. Mitali Mukherjee for their guidance, support, and invaluable suggestions for strengthening this report.

Kirrat Sachdeva for her inputs on the design and dissemination of the survey.

Dr. Renita D'Souza for her guidance for creating the survey and the methodology of the report.

Nayantara Batra, Srijita Bose, Akanksha Shah for their help in data sorting and tabulation.

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ANNEXURE

A] Cities surveyed

1. Adalaj
2. Adilabad
3. Adra
4. Agra
5. Ahmedabad
6. Ahmednagar
7. Aizawl
8. Akola
9. Alappuzha
10. Allahabad
11. Aurangabad
12. Baharampur
13. Balangir
14. Ballari
15. Balurghar
16. Bankura
17. Bathinda
18. Belagavi
19. Bengaluru
20. Bhilai Nagar
21. Bhilwara
22. Bhiwandi
23. Bhopal
24. Bhubaneswar
25. Bhuj
26. Chandigarh
27. Chennai
28. Cherthala
29. Coimbatore
30. Cuttack
31. Darjiling
32. Devanagere
33. Dehradun
34. Delhi
35. Dhule
36. Dibrugarh

37. Durg
38. Faridabad
39. Guntur
40. Gurgaon
41. Guwahati
42. Habra
43. Haldwan/Kathgodam
44. Hardwar
45. Hisar
46. Hubli-Dharwad
47. Hugli-Chinsura
48. Hyderabad
49. Indore
50. Jabalpur
51. Jaipur
52. Jalandhar
53. Jammu
54. Jamshedpur
55. Jind,
56. Kadi
57. Kalyan-Dombivali
58. Kancheepuram
59. Kunnur
60. Kanpur
61. Kapurthala
62. Karimganj
63. Karjat
64. Khammam
65. Kharar
66. Kochi
67. Kolkata
68. Kottayam
69. Lucknow
70. Madurai
71. Mahad
72. Mahbubnagar
73. Mahasena
74. Malegaon
75. Mangaluru
76. Marmagao
77. Meerut
78. Mhaswad
79. Mira-Bhayandar
80. Mohali
81. Moradabad
82. Mumbai
83. Nagpur
84. Naihati
85. Nashik
86. Nedumagad
87. Nelamangala
88. New Delhi
89. Nizamabad
90. Noida
91. Palakkad
92. Palghar
93. Panaji
94. Panchkula
95. Panvel
96. Patna
97. Pondicherry
98. Pune
99. Rae Bareli
100. Raigarh
101. Raipur
102. Ramanagaram
103. Ranchi
104. Ratnagiri
105. Rewari
106. Rishikesh
107. Robertsgani
108. Rohtak
109. Sainthia
110. Sambalpur
111. Sangareddy
112. Satara
113. Shillong
114. Simla
115. Shivamogga
116. Siddipet
117. Siliguri
118. Sonipat

119. Srirampore
120. Sundarnagar
121. Surat
122. Tamluk
123. Tasgaon
124. Tehri
125. Tezpur
126. Thane
127. Thirumangalam
128. Thiruvallur
129. Thiruvanathapuram
130. Tiruchirappali
131. Tirupati
132. Udaipur
133. Ujjain
134. Uran
135. Vadodara
136. Valsad
137. Vapi
138. Varanasi
139. Vasai-Virar
140. Warangal Telangana

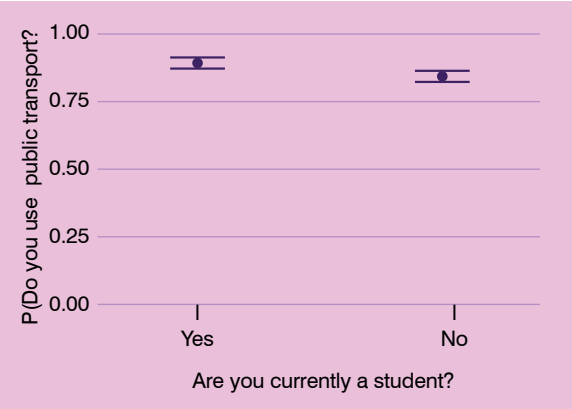
B] Top 15 most populated cities surveyed (based on Census 2011)

1. Mumbai
2. Delhi
3. Bangalore
4. Hyderabad
5. Ahmedabad
6. Chenna
7. Kolkata
8. Surat
9. Pune
10. Jaipur
11. Lucknow
12. Kanpur
13. Nagpur
14. Indore
15. Thane

C] LOGISTIC REGRESSION ANALYSIS

Model Summary - Do you use public transport?										
Model	DEVIANCE	AIC	BIC	DF	X^2	P	MCFADDEN R^2	NAGELKERKE R^2	TJUR R^2	COX & SNELL R^2
H_0	3150.859	3152.859	3159.214	4250						
H_1	3077.725	3083.725	3102.789	4248	73.135	<.001	0.023	0.017	0.017	0.017

Estimates plots



Coefficients

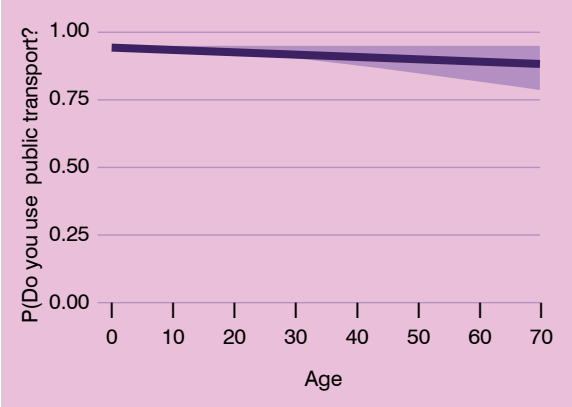
	ESTIMATE	STANDARD ERROR	ODDS RATIO	Z	Wald Test		
					WALD STATISTIC	DF	P
(Intercept)	2.785	0.118	16.194	23.504	552.423	1	< .001
What is your monthly household income (x 1000 INR)?	-0.007	0.001	0.993	-4.907	24.074	1	< .001
Are you currently a student? (No)	-0.74	0.102	0.477	-7.276	52.943	1	< .001

Note. Do you use public transport? level '1' coded as class 1.

D) LOGISTIC REGRESSION ANALYSIS

Model Summary - Do you use public transport?										
Model	DEVIANCE	AIC	BIC	DF	X^2	P	MCFADDEN R^2	NAGELKERKE R^2	TJUR R^2	COX & SNELL R^2
H_0	3150.339	3152.339	3158.694	4248						
H_1	3115.265	3121.265	3140.329	4246	35.074	< .001	0.011	0.008	0.008	0.008

Estimates plots



Coefficients

	ESTIMATE	STANDARD ERROR	ODDS RATIO	Z	Wald Test		
					WALD STATISTIC	DF	P
(Intercept)	2.644	0.172	14.073	15.334	235.121	1	< .001
Age	-0.017	0.007	0.983	-2.432	5.915	1	0.015
Are you currently employed? (Employed)	-0.447	0.102	0.639	-4.405	19.402	1	< .001

Note. Do you use public transport? level '1' coded as class 1.

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