What Do Women And Girls Want From Urban Mobility Systems?

March 2019

A study by:

OLA MOBILITY INSTITUTE

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About OMI: Ola Mobility Institute (OMI) is a policy and social innovation think-tank of Ola that is focussed on developing knowledge frameworks at the intersection of mobility and public good. The Institute concerns itself with public research on the social and economic impact of mobility as a service, the climate footprint of mobility innovations, skill development and job creation, transportation-oriented urban planning, and the digitisation of mobility, among others. All research conducted at OMI is funded by ANI Technologies Pvt. Ltd. (the parent company of brand Ola).

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Dr. Ranjana Kumari,
Director, Centre for Social Research.

India could boost its GDP by USD 0.7 trillion in 2025 by bringing millions of women into the economy, estimates McKinsey Global Institute. Today, women do not participate in the economy freely because of mobility constraints, among various other reasons. In view of this, Ola Mobility Institute's study on women's urban mobility preferences and choices is excellent and timely. The study covered 11 cities and included the opinions of 9,935 female respondents on issues related to the urban mobility system and mobility requirements in the Indian context. The report, with its analysis of gender-segregated data of the needs, preferences, choices, and aspirations of users of urban mobility, could be used as a reference document for government authorities for policy decisions.

While safety is important, women's choice of different modes of mobility is also determined by aspects of comfort, accessibility, affordability, reliability, and coverage (especially in the case of public transport). These preferences should also be considered while planning public transport.

As India grows, women and girls' mobility choices and perceptions should be mainstreamed. We require a holistic and inclusive transport system that will cater to the needs of people in a geographical area duly considering their preferences, needs, and aspirations, along gender-segregated lines. The findings of the research will help in drafting a blueprint for the same.

MESSAGE

Dr. O. P. Aggarwal,
CEO, World Resources Institute, India.

A safe society is one where everyone, especially women and children, can move freely and safely to be able to access opportunities for their growth and well-being. 'Freedom to move' is central to the idea of a safe city.

When mobility solutions are gender-friendly, equitable and therefore, accessible, they facilitate social circulation and eventually help create a secure community. Safe transit plays an important role in improving women's self-esteem and sense of independence. It enables them to get connected to jobs. The untapped pool of human resources gets a new marketplace which further gives a boost to the economy. In addition to the safety during the commute, the points from which the commute is accessed also needs to be designed with gender-concerns in mind. Accessible pavements, well-lit bus-stops, and safe parking zones make safe mobility a reality.

Mainstreaming gender in mobility planning, and implementation has long term positive economic and social consequences for society.

Dr. P. S. Pasricha,
D.G.P., Maharashtra (Retd.),
Traffic Management
and Road Safety Expert,
Chairman, The DeRisQ Group.

While it is a matter of pride for all Indians that our nation is marching ahead at a galloping pace, the lack of accessibility of our mobility systems - the backbone of any city, responsible for driving economic growth - is a matter of grave concern for all. The challenge of safety and accessibility that women face on the move is real. Overcrowding in public transport, poor street lighting, inadequate and insecure walking environment, and near absence of security measures in public transport and para-transit services - crucial especially for night travel - are some of the maladies plaguing the urban mobility systems in India today that do not inspire confidence in women.

Such inadequate mobility services prevent women from participating in economic activities as freely as men. It is, therefore, heartening to note the recommendations on gender-mainstreaming of mobility that the Ola Mobility Institute has presented in this report. These recommendations are pragmatic and easily implementable. It will, however, be essential to have an efficient and effective monitoring system in place. Equally important will be the participation of the concerned government agencies and their support in ensuring that the recommendations are adopted, implemented, and holistic. We must remember that accessibility and safety cannot be the concern of any one institution; each of us has a role to play. Together, we can bring about change. Let us commit ourselves to this mission so that posterity does not find any fault with us.

ACKNOWLEDGEMENT

This report is the outcome of evaluating mobility data from the Ease of Moving Index India Report 2018 prepared by the Ola Mobility Institute. Over 200 surveyors were involved in the first edition of the mobility survey. We are grateful to Ms. Lakshmi and her team of surveyors who immersed themselves in primary data collection.

We are also deeply grateful to our external reviewers for providing valuable feedback on the report.

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- Dr. Ranjana Kumari, Director, Centre for Social Research
- Reecha Upadhyay, Campaigns Director, Purpose.com

DEFINITIONS

Captive User is a user whose current mode of travel is not by choice, but necessity.

Intermediate Public Transport: Modes of transport that serve as a feeder service to mainline public transport routes.

Mobility Of Care as a concept provides a framework for recognizing, measuring, making visible, valuing and properly accounting for all the travel associated to those caring and home related tasks needed for the reproduction of life. These daily tasks continue to be mostly performed by women, but as men increase their participation in care activities, gender approaches to transport planning will become more and more significant for individuals of both sexes (Madriaga 2013).

Non-Motorized Transport also known as active transport and human-powered transport includes walking, bicycling and variants such as small-wheeled transport (skates, skateboards, hand carts) and wheelchair travel (VTPI 2018).

Other Workers, according to the Census of India (2011), are defined as those not engaged as agricultural workers, cultivators, and in household industry.

Time Poverty means not having the time to do discretionary activities. From a gender perspective, it refers to the lack of time for leisure due to women's role in paid and unpaid care work.

Traffic Calming refers to various design features and strategies intended to reduce vehicle traffic speeds on streets.

Trip Chaining at its most basic level, includes a stop on the way to another destination. From a gender perspective, it often implies the combination of multiple care-related trips and/ or with work trips.

Women's Safety involves strategies, practices and policies which aim to reduce gender-based violence (or violence against women), including women's fear of crime (UN Habitat 2000).

LIST OF FIGURES

Image credit: redtea

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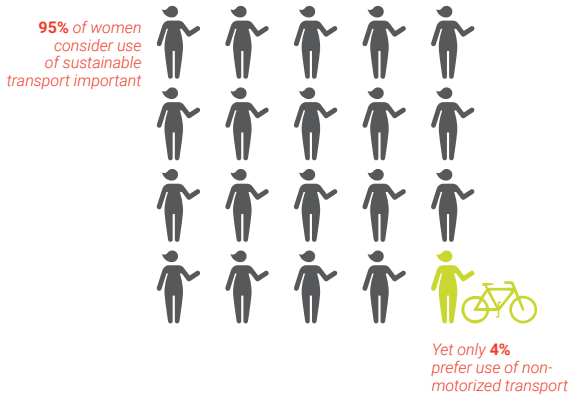
EXECUTIVE SUMMARY

According to a study by the McKinsey Global Institute, Indian women contributed just 17 percent of national GDP, less than half the global average of 37 percent. India could boost its GDP by USD 0.7 trillion in 2025 with about 70 percent of the increase coming from bringing 68 million more women into the economy. While this will require addressing multiple gender gaps, there is a need for evidence to direct urban transport investments to cater to women and girls.

In 2018, Ola Mobility Institute conducted a survey of 43,486 individuals along 52 parameters in 20 cities across India. These were used to develop urban mobility indicators and rank cities based on people's perceptions of their commute and use of different modes of transport. This research, ***What do women and girls want from urban mobility systems*, undertakes a gender disaggregated analysis of the subset - 11 cities[1] with 9935 female respondents** (41 percent of the female respondents) - **to bring forth women and girls' perspectives of urban mobility in India[2].**

The analysis revealed that women were constantly making decisions about their commuting modes. Even though there was not a significant difference between men and women's perceptions of streets and public transport, there was a sharp difference in the use of public transport modes. While women constituted around 38 percent of bus users and 35 percent of metro/train users, they were 40-45 percent of auto-rickshaw, on-demand taxi and shared public transport users. This may be due to the convenience offered by these services, especially for short travel distances.



PERCEPTION OF NON-MOTORIZED TRANSPORT

95 percent of the female respondents consider it important to use environmentally sustainable modes of transport. However, the stated preference for commuting modes revealed that only 4 percent of women preferred non-motorized transport, which may be linked to their perception of the street environment. 57 percent women perceived that there were either no footpaths or that they were discontinuous or encroached upon. Similarly, 69 percent felt that there were either no

[1] *Ahmedabad, Bengaluru, Bhuvaneshwar, Chennai, Hyderabad, Indore, Jammu, Kochi, Mumbai, Mysuru and New Delhi*
[2] *Read more in the Scope and Limitations section of this report*

cycle tracks or only along a few roads. This is a cause for serious concern as one-third female 'other workers' in Indian cities walk and cycle to their place of work and are perhaps captive users who will shift to other modes of transport with increasing incomes. Similarly, around 2 million women walk 2-5 kilometers every day, distances that could be covered in half the time by cycling.

Women want streets to be improved, with 74 percent stating that footpaths and 68 percent stating that cycle tracks are required in cities. Some cities such as Chennai, Bengaluru, and Pune have made strides towards improving pedestrian infrastructure. **Along with improved street lighting and patrolling in secluded areas in the night - wide, shaded, universally accessible footpaths and safer road crossings along with supporting amenities such as public toilets, seating and spaces for street vendors - benefit everybody but women, elderly and children to a greater extent.**

PERCEPTION OF PUBLIC TRANSPORT

91 percent of women felt that public transport was very unsafe, somewhat unsafe or safe. Though gruesome incidents of violence against women have received attention in mainstream media, this data suggests that most women may face harassment such as verbal abuse, staring, groping, cat calls, whistling, molestation which needs to be addressed to improve their perception of safety. However, safety is one among other key parameters that women use to decide on a mode of public transport. **Women are willing to use public transport with 96 percent prioritizing affordability, coverage, frequency, safety and comfort.**

However, preferences for public transport change sharply with increase in incomes. Public transport was the preferred mode of transport for half the women earning less than Rs 15,000 per month. It shifted to the least preferred mode (2 percent) for those earning more than Rs 1,00,000 per month. **Lower-income women prioritized better coverage, affordability and frequency of public transport whereas higher-income women prioritized comfort, coverage and affordability necessitating a nuanced approach to the provision of public transport services.**

Women and girls are constantly making decisions about their commuting mode and expect their public transport systems to be affordable, reliable, frequent, comfortable, clean and safe.

WHAT **WOMEN** WANT
FROM THEIR CITY'S STREETS

74% FOOTPATHS

68% DEDICATED CYCLE LANES

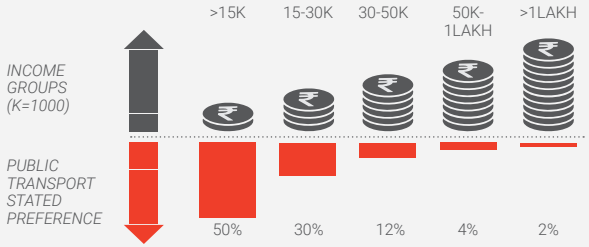


Fig 1: Women's stated preference for public transport

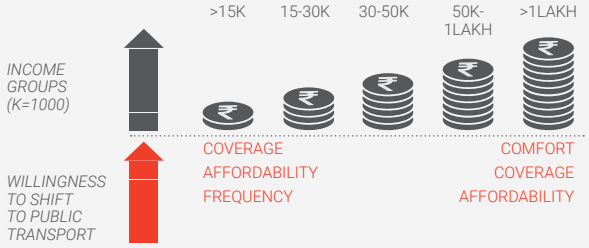


Fig 2: Women's willingness to shift to public transport

RECOMMENDATIONS TO MOBILITY SURVEYS

As India grows, women and girls' travel patterns and perceptions should be mainstreamed, and this starts with data collection. Mobility surveys must consider differences across gender, occupations, income groups and include lower-income women in the informal economy. Further, surveys should be designed to capture differences in travel patterns such as trip chaining, travel with dependants or others, travel in the peak and off-peak hours, women's time poverty from transport and specific questions - qualitative and quantitative - to understand how notions of safety, comfort, affordability, reliability, convenience and accessibility are gendered.

Transportation is not only infrastructure but the means to participate in the work force and to live a fuller life.

Image credit: Eric Parker

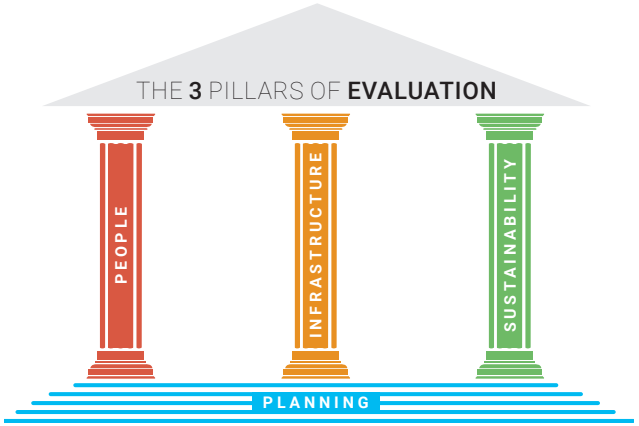
1. BACKGROUND

Urbanization in India has been accompanied with increased motorization. There is a broad consensus amongst policy makers, researchers and practitioners that urban India's existing travel mode share, which is dependent on walking, cycling, bus-based public transport and intermediate public transport needs to be preserved. However, policies and investments focusing on sustainable modes of transport have largely ignored women (Khosla 2009).

This is a missed opportunity as data from the Census of India (2011) shows that around two out of three female workers in urban areas commute for work, and a higher proportion of women (72 percent) compared to men (61 percent) walk, cycle and use bus-based public transport[3]. The predominant policy focus on tracking women's movement and increased surveillance to create safer public transport does not capture how women's mobility depends on service reliability, scheduling, affordability of public transport (ADB 2013) and infrastructure and behavior of public transport frontline workers.

In 2018, Ola Mobility Institute published **The Ease of Moving Index India Report 2018**, which interviewed 43,486 respondents across 20 cities under the three pillars of **People, Sustainability,** and **Infrastructure.**

People: This included the indicators of pattern of travel, quality of life, and perception. These indicators measured pattern of commuters' modal choice, and perceptions regarding reliability, accessibility, safety, affordability and comfort in public transport.



Infrastructure: This pillar assessed the efficiency and reliability of mobility systems in cities. The indicators of road condition, riding quality along with availability of parking spaces, infrastructure for cycling and network can help analyze the congestion profile of the cities along with facilities to promote non-motorized transport for sustainable mobility.

Sustainability: This evaluated cities on their efforts to lower transport emissions, building non-motorized transport infrastructure, reducing air pollution, designing of green spaces during city and mobility planning, and on measures taken to increase the adoption of zero-emission mobility.

Mobility Planning tied these pillars together to provide insights into the aspirations of people through a pan-India analysis of urban mobility on the parameters important for planning of sustainable and inclusive transportation systems.

This exploratory research leverages the above data to provide evidence on women and girls' perceptions and expectations from urban mobility systems.

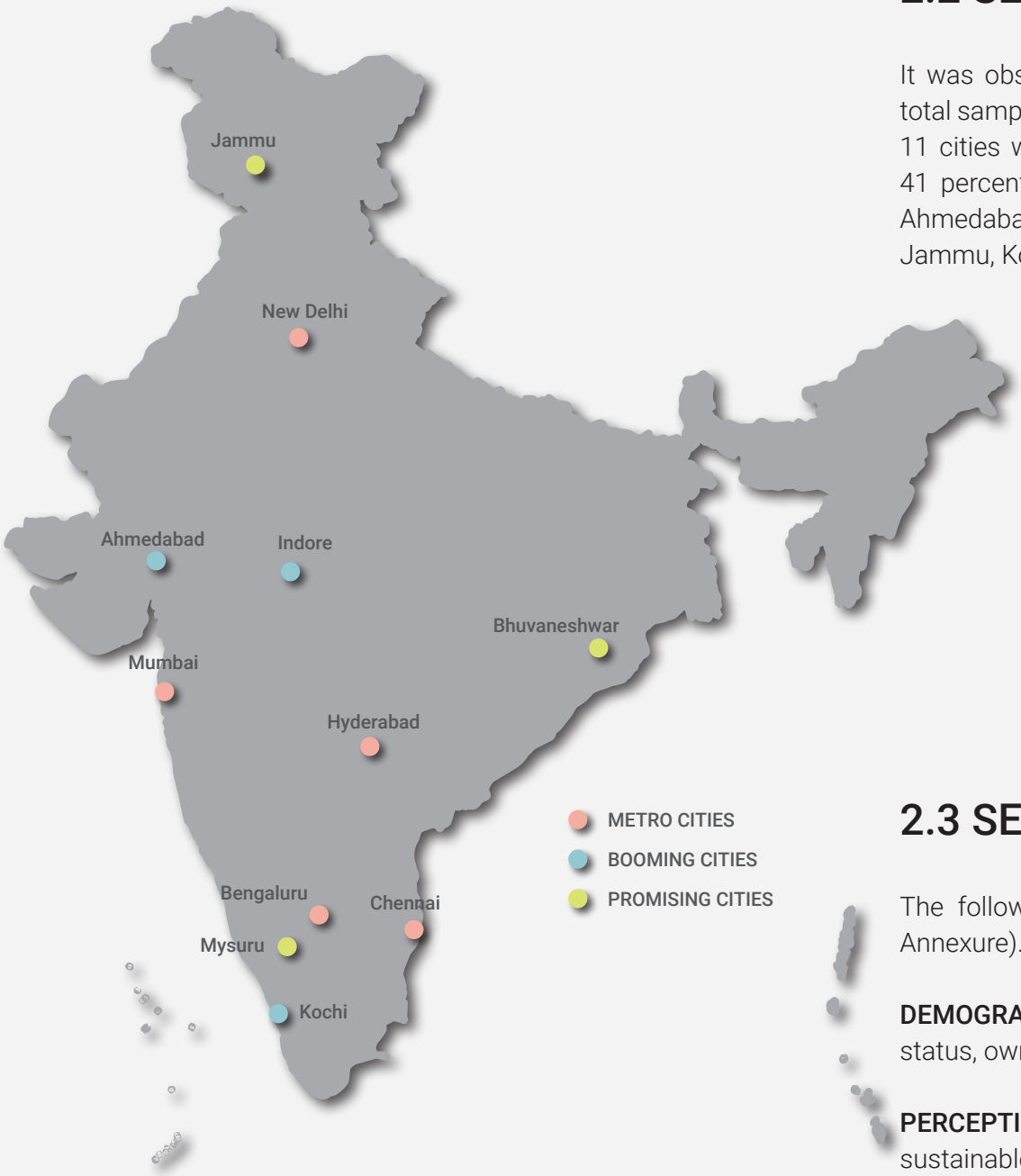
[3] *Though women's cycling mode shares are much lower than men*

2. RESEARCH METHODOLOGY

2.1 RESEARCH QUESTION

This report asks the following research question:

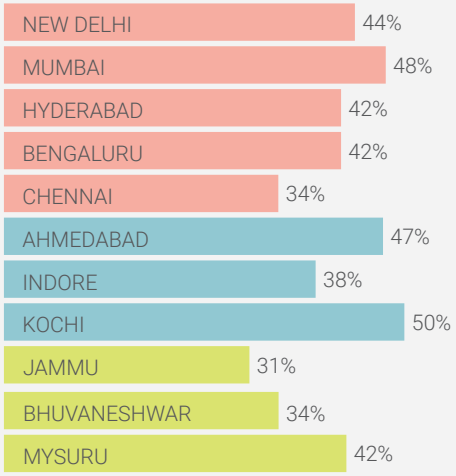
> ***What do women and girls perceive and expect from our urban mobility systems, how does it differ by gender and amongst different groups of women?***



Reference: Ease of Moving Index - India Report 2018

2.2 SELECTION OF CITIES

It was observed that female respondents constituted 31 percent of the total sample of 43,486 surveys. This was used as a baseline to select cities. 11 cities with 24,023 respondents were chosen and women constituted 41 percent of this sample. The selected cities include a mix of scales: Ahmedabad, Bengaluru, Bhuvaneshwar, Chennai, Hyderabad, Indore, Jammu, Kochi, Mumbai, Mysuru and New Delhi.



Percentage of female respondents from each city

2.3 SELECTION OF SURVEY INDICATORS

The following indicators are analyzed from the mobility survey (Refer Annexure). These include:

DEMOGRAPHY: Age, education, individual monthly income, occupational status, ownership of vehicles and average kilometers traveled daily.

PERCEPTION OF URBAN MOBILITY: Willingness to use environmentally sustainable modes of transport and preference of mode for daily commute.

PERCEPTION OF NON-MOTORIZED TRANSPORT: Ownership and use of bicycles, perception of coverage and condition of footpaths, cycling infrastructure, cycle parking at transit stops, provision of street lighting.

PUBLIC TRANSPORT ACCESS AND USE: Use of public transport mode and frequency, reason for using and not using public transport, use of smart cards, distance, mode of access and waiting for public transport.

PERCEPTION OF PUBLIC TRANSPORT: Perception of the public information system, safety, affordability, accessibility, comfort, reliability and cleanliness of public transport, first and last mile connectivity.

PERCEPTION OF PERSONAL MOTOR VEHICLES AND MOBILITY: Importance of owning a car and willingness for carpooling.

2.4 SCOPE AND LIMITATIONS

This research uses data from the Ease of Moving Index India Report 2018 as a starting point. In the survey data, 52 percent of the women belonged to age group of 20-40 years with more than three-fourths having a graduate education and above, indicating a bias towards educated, working women. Lower-income women in the informal economy were underrepresented[4].

The index used stated preference surveys to compare different alternatives - either on preferred commuting mode or willingness to use public transport. It is acknowledged that stated preferences may differ from real preferences or actual behavior, but are used in mobility surveys to evaluate alternatives.

Since the survey focused on comparing perceptions of urban mobility across cities, it does not delve into a detailed account of women and girls' travel, trip chaining patterns, and mobility of care (Madriaga 2013), among others. The responses were graded on a Likert scale[5] and therefore does not include qualitative questions.

[4] *Refer Section 6: Recommendations to Mobility Surveys*
[5] *It is used to grade people's perceptions or attitudes*

3. REPORT STRUCTURE

The report is structured as follows:

Section 4 Respondent Profile

Section 5 Presents key findings on preferred modes of commute and willingness to use public transport, perception of non-motorized transport, use and perception of public transport.

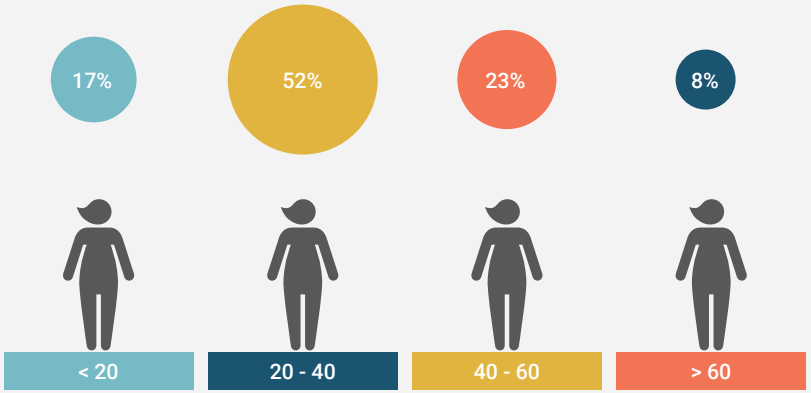
Section 6 Makes recommendations to mobility surveys.

Section 7 Concludes the report.

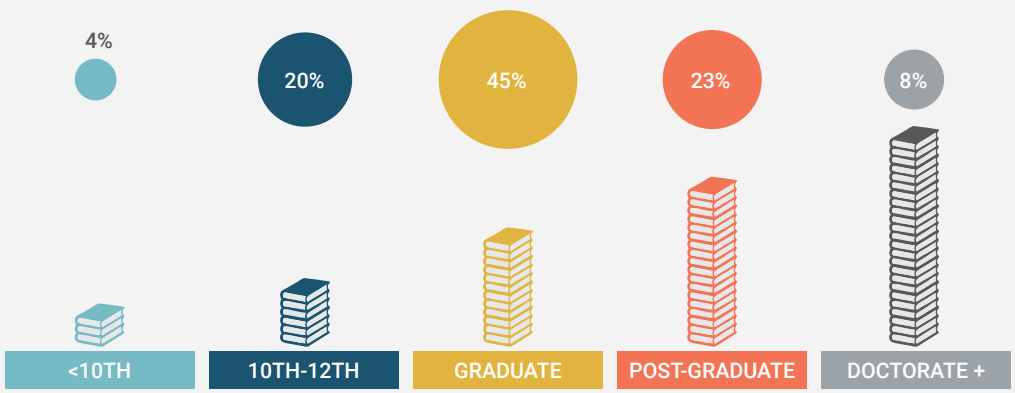
4. RESPONDENT PROFILE

The demographic details of a total of **9,935** females are briefly summarized.

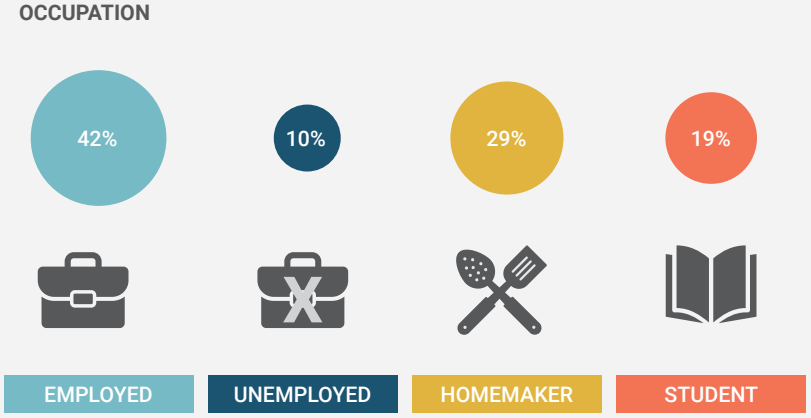
AGE



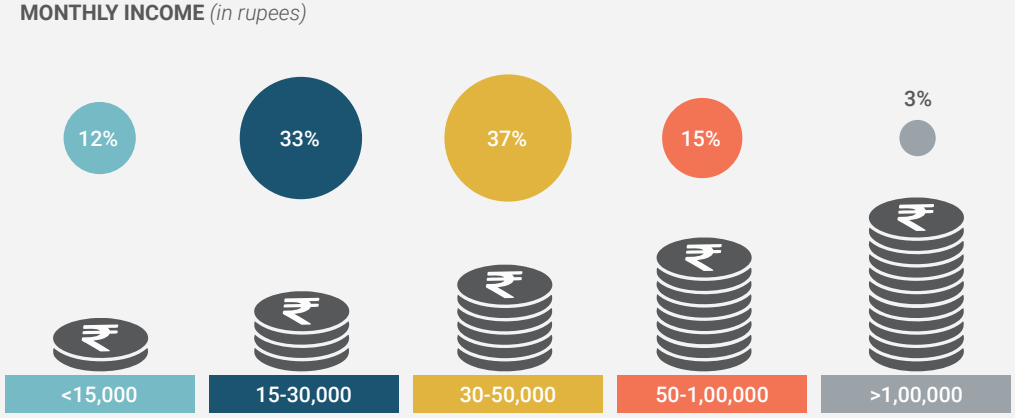
EDUCATION



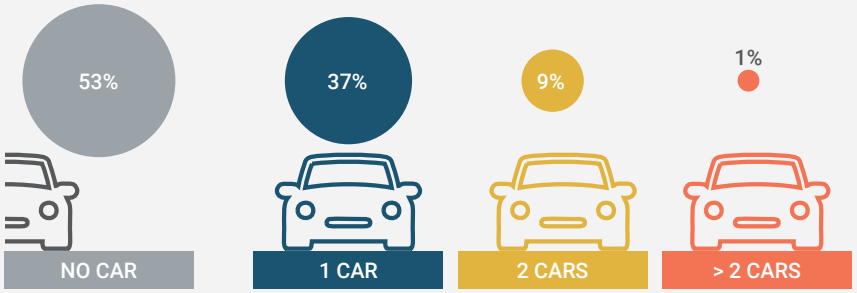
OCCUPATION



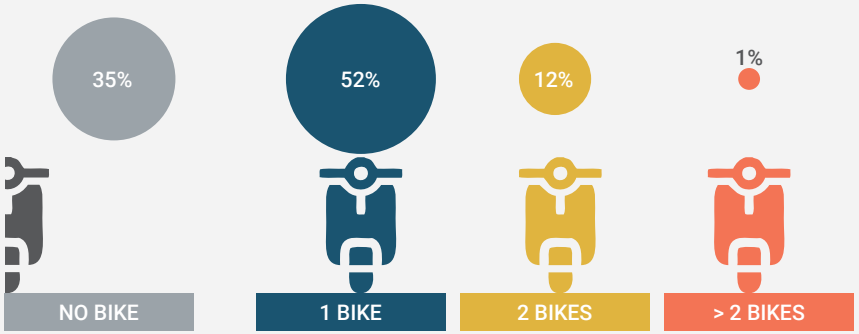
MONTHLY INCOME *(in rupees)*



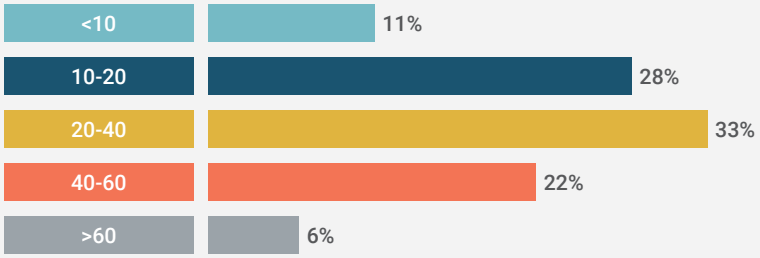
HOUSEHOLD CAR OWNERSHIP



HOUSEHOLD BIKE OWNERSHIP



DAILY COMMUTE *(in kilometers)*



5. KEY FINDINGS

The key findings are summarized under four sections:

5.1 Stated Mode Preference and Willingness to Use Public Transport

5.2 Non-Motorized Transport

5.3 Public Transport

5.4 Personal Motor Vehicles

5.1 STATED MODE PREFERENCE AND WILLINGNESS TO USE PUBLIC TRANSPORT

OVERALL AND DIFFERENCES BY GENDER

While the use of environmentally sustainable modes of transport was important for 95 percent of female respondents, their stated preference for daily commuting modes indicated otherwise.

Women preferred personal motor vehicles followed by taxi/ cabs, public transport and autos. While men also preferred personal motor vehicles, this was followed by public transport, taxi/ cabs and then autos. Like women, only 4 percent of men preferred non-motorized modes.

When asked if they were using a personal motor vehicle, would they be willing to use public transport, 96 percent of women prioritized five aspects – affordability, coverage, frequency, safety and comfort.

DIFFERENCES BY INCOME

With increase in individual monthly incomes, the stated preference for public transport sharply reduced.

Half the women earning less than Rs 15,000 per month preferred public transport followed by personal motor vehicles (19 percent).

FIG 3: WOMEN AND MEN'S STATED PREFERENCE FOR DAILY COMMUTING MODE

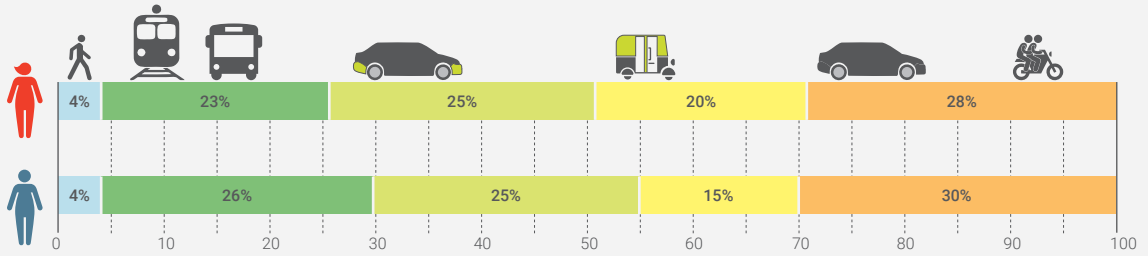


FIG 4: WILLINGNESS OF WOMEN USING PERSONAL VEHICLES TO USE PUBLIC TRANSPORT

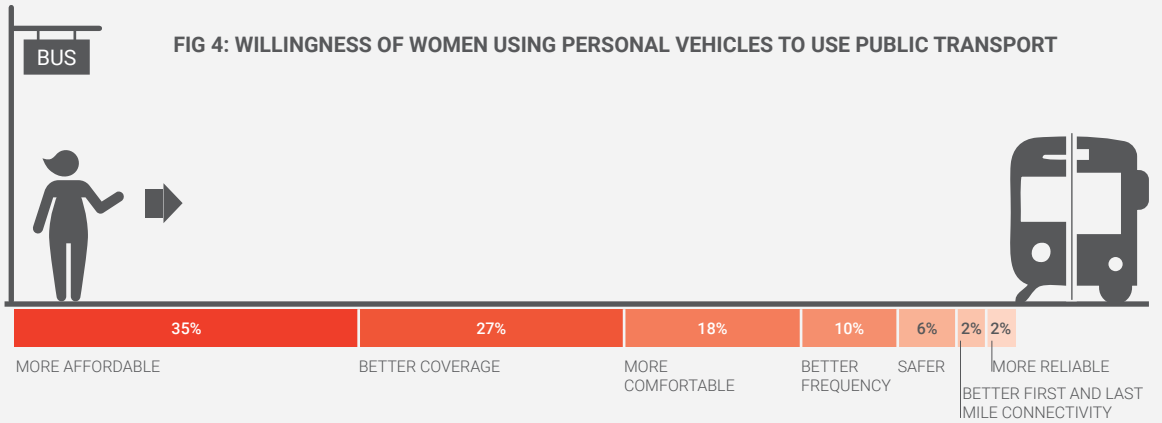
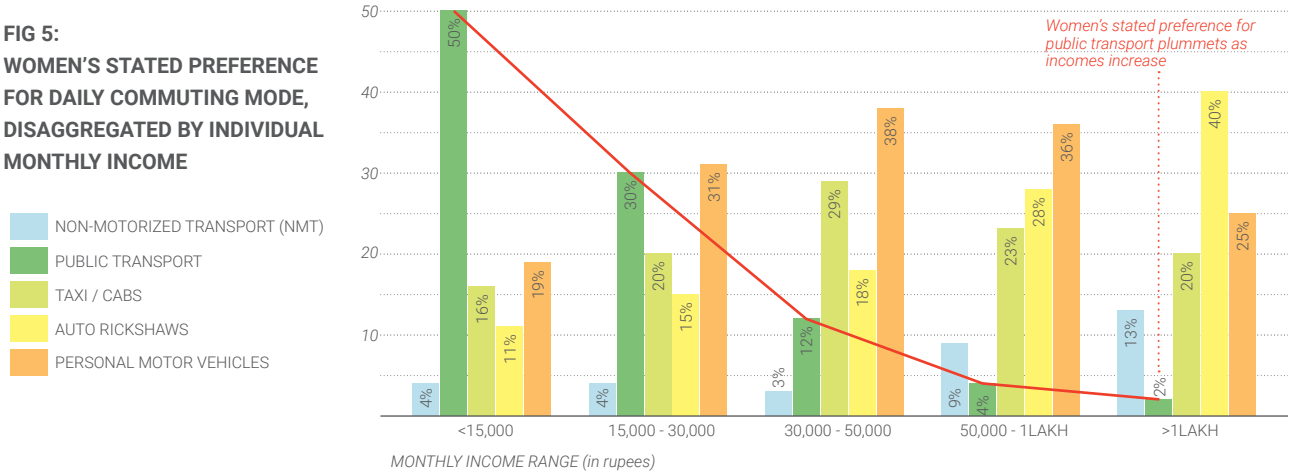


FIG 5:
WOMEN'S STATED PREFERENCE FOR DAILY COMMUTING MODE, DISAGGREGATED BY INDIVIDUAL MONTHLY INCOME



The stated preference for public transport (30 percent) appeared to be in close competition with personal motor vehicles (31 percent) for women earning between Rs 15,000-30,000 per month. Public transport preference came at a distant fourth for women earning Rs 30,000-50,000 per month.

The priorities for shifting to public transport for more than three-fourths of lower income women included better coverage, affordability followed by frequency. For higher income women, it was comfort, coverage followed by affordability[6].

The biggest casualty is non-motorized transport with only 4 percent of women in lower income groups preferring it. Surprisingly, 9 percent of women earning between Rs 50,000-1,00,000 per month and 13 percent of those earning more than Rs 1,00,000 per month stated a preference for non-motorized transport. It will have to be investigated whether non-motorized transport is seen as a daily commuting mode or for leisure. However, this may be explained by the increase in car-free days in some of the selected cities in this sample – such as Bhopal, Mumbai, Chennai, and Bhuvaneshwar.

INFERENCES AND POLICY IMPLICATIONS

Women's very low stated preference for non-motorized transport is disturbing. Studies (Safetipin n.d.) have shown how crowded, dark, high, uneven and unshaded footpaths affect women disproportionately, as they may feel unsafe, be prone to harassment and are often accompanied by dependants (either children or the elderly). Piecemeal attempts focusing on street lighting alone are insufficient and there is an urgent need to improve walking and cycling infrastructure in Indian cities. Some cities such as Chennai, Bengaluru, and Pune are leading the way. However, we need to ensure that women's voices are a part of this process. Pedestrian infrastructure should adopt a level of service approach to avoid overcrowding and ensure well-lit, shaded, universally accessible footpaths and safer road crossings (Shah et al. 2017). Supporting amenities such as public toilets, seating, spaces for street vendors and play areas for children should be included. Women's presence in public spaces should be increased by providing employment opportunities for them in street redesign projects - either in construction or as street vendors, traffic police and security personnel. This will serve dual purposes - increase their participation in the work force and improve gender diversity of public spaces - in turn contributing to women's safety.

Women's stated preference for public transport reduced rapidly with increase in incomes, implying that a nuanced approach maybe required in providing public transport services for different income groups. Further, women's higher stated preference for rickshaws (as compared to men) may indicate that this mode is convenient for short work and household trips for this group of respondents. Since women may undertake caretaking responsibilities and travel to destinations not served by formal bus services, intermediate public transport may fill this gap. More research is required on the role of rickshaws and intermediate public transport in general in women's daily life, but the above findings indicate that this mode needs to be recognized and regulated (Shah et al. 2017) to provide women and girls a safer, comfortable and convenient journey.

[6] *The concern for affordability seems counterintuitive for higher income groups and may need to be explored further.*

5.2 NON-MOTORIZED TRANSPORT

OVERALL PERCEPTIONS AND EXPECTATIONS

The low stated preference for non-motorized transport (in Section 5.1 Stated Mode Preference and Willingness to Use Public Transport) can be understood when read along with the perception of footpaths and cycling infrastructure in cities.

PEDESTRIAN INFRASTRUCTURE AND STREET LIGHTING

Only 7 percent of women felt that seamless footpaths were available throughout their city. 57 percent felt that their city did not have footpaths or were discontinuous and encroached and 35 percent perceived most or all their roads as dark. 74 percent of women and 78 percent of men wanted dedicated footpaths in their city. While these perceptions will need to be verified with field visits, the findings are not surprising considering that walking and cycling infrastructure is neglected in transport investments (GIZ 2015).

BICYCLE OWNERSHIP AND USE

The use and ownership of bicycles reaffirm global research on women's lesser access to personal vehicles such as bicycles and higher concern for cycling conducive environments (GRHS 2013). Bicycles were owned by 30 percent of women as compared to 40 percent of men and one-third of the women used it for commute purposes, followed by leisure (27 percent) or both (27 percent).

However, amongst women, 46 percent of students and 48 percent of unemployed women owned bicycles indicating the importance of a low or no cost mode of transport for these groups.

FIG 6: WOMEN'S PERCEPTION OF FOOTPATHS IN THEIR CITY

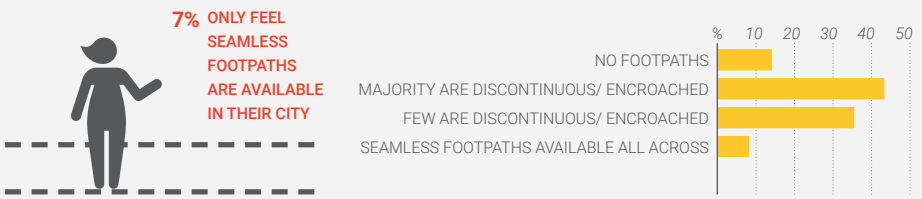


FIG 7: WOMEN'S PERCEPTION OF STREET LIGHTING IN THEIR CITY

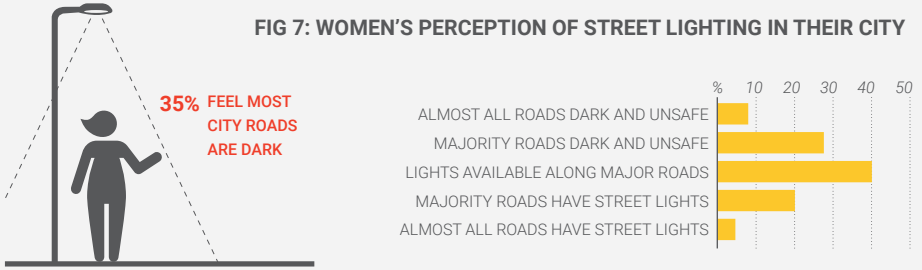
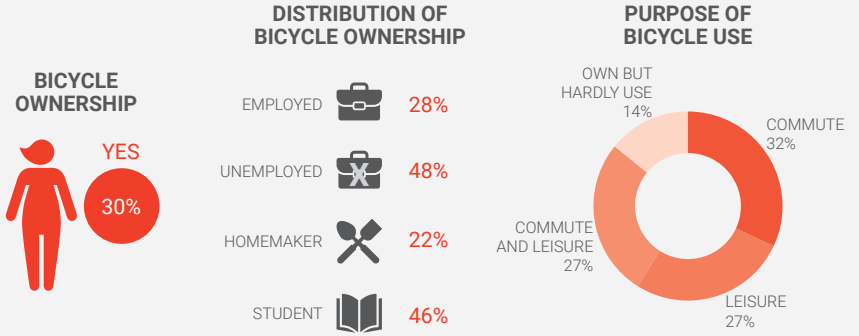


FIG 8: OWNERSHIP, DISTRIBUTION, AND USE OF BICYCLES AMONG WOMEN



Women's reasons for not cycling included insufficient cycling infrastructure (32 percent), that it was not convenient (27 percent), not safe (20 percent) and both of the above (21 percent). There was an overwhelming demand for safer cycling networks with more than two-thirds of women (68 percent) and three-fourths of men wanting cycle tracks in their cities.

FIG 9: WOMEN'S PERCEPTION OF CYCLE TRACKS IN THEIR CITY

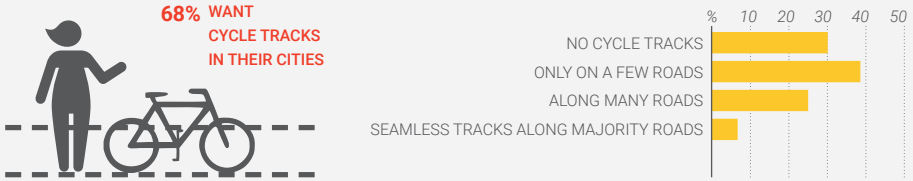
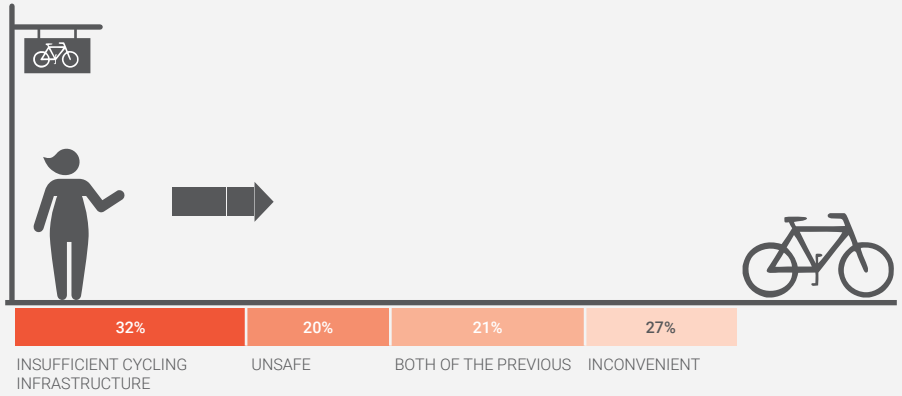


FIG 10: WOMEN'S REASONS FOR NOT BICYCLING



INFERENCES AND POLICY IMPLICATIONS

Currently, 30 percent of female other workers walk and a meagre 3 percent cycle to their place of work. With 2 million women in cities walking 2-5 km to their workplace (Census 2011), the bicycle has the potential to become a vehicle for reducing women's time poverty and promoting their economic empowerment.

However, the concern for road safety, a hostile street environment due to a lack of shaded, continuous, dedicated cycling tracks in Indian cities combined with street harassment, might make cycling – which has provided women mobility and freedom globally – an undesirable mode.

Women's access to bicycles needs to be improved along with creating well-lit, uniform, shaded cycle tracks along arterial and sub-arterial roads in cities and traffic-calming along collector and local roads. Cycling infrastructure projects must include education programs to teach women and girls how to ride and repair bicycles and instill confidence in bicycling through groups (Shah et al. 2017).

5.3 PUBLIC TRANSPORT

MODE AND FREQUENCY OF PUBLIC TRANSPORT

The findings revealed that 59 percent of women compared to 66 percent of men used public transport, with two-thirds of the trips being made daily (43 percent) or weekly (23 percent). Gender comparison of motorized transport use indicated that women constituted 38 percent of bus users, 35 percent of metro/ train users and 40-45 percent of rickshaw, on-demand taxi and other shared mode users.

REASONS FOR USING PUBLIC TRANSPORT

Women's reasons for using public transport were affordability (40 percent), convenience (26 percent), time saved (18 percent) with 15 percent stating that they had no other option. Close to half of employed women felt that public transport was affordable as compared to 36 percent of home-makers, students and unemployed women.

USE OF SMART CARDS

Only 55 percent of women used smart cards, which increased to 63 percent for students and 59 percent for unemployed women.

FIG 11: WOMEN AND MEN'S USE OF PUBLIC TRANSPORT

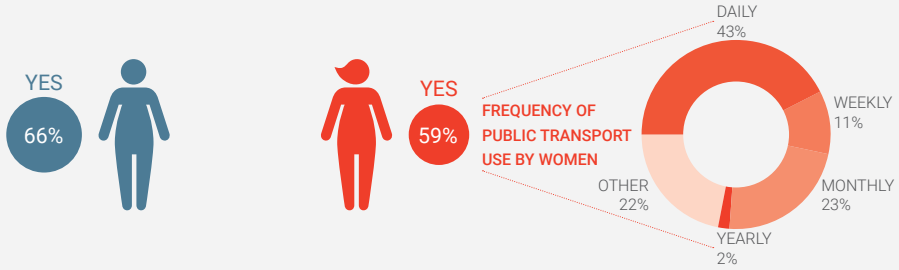


FIG 12: MOTORIZED TRANSPORT MODE SHARE, DISAGGREGATED BY GENDER

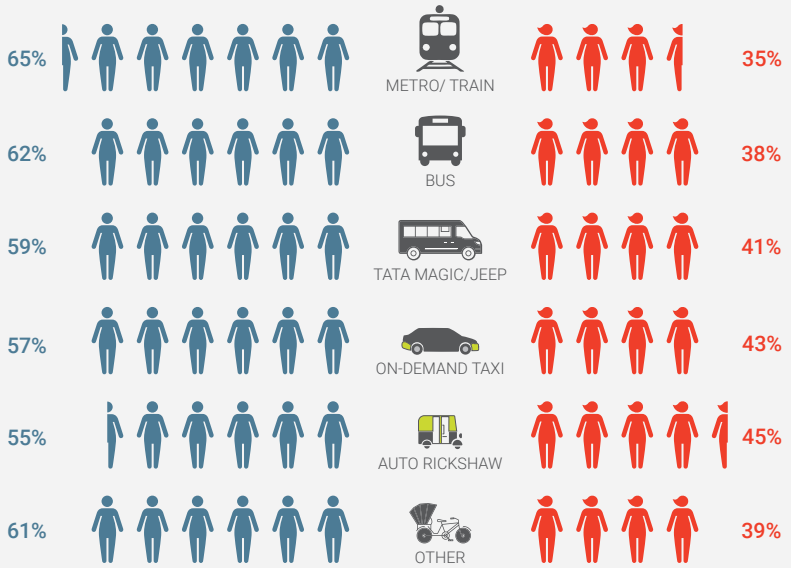


FIG 13: WOMEN AND MEN'S USE OF DIFFERENT MOTORIZED TRANSPORT MODES

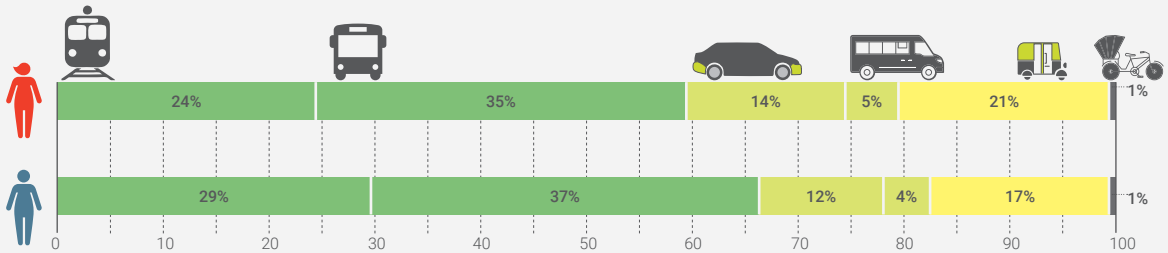


FIG 14: WOMEN'S REASONS FOR USING PUBLIC TRANSPORT

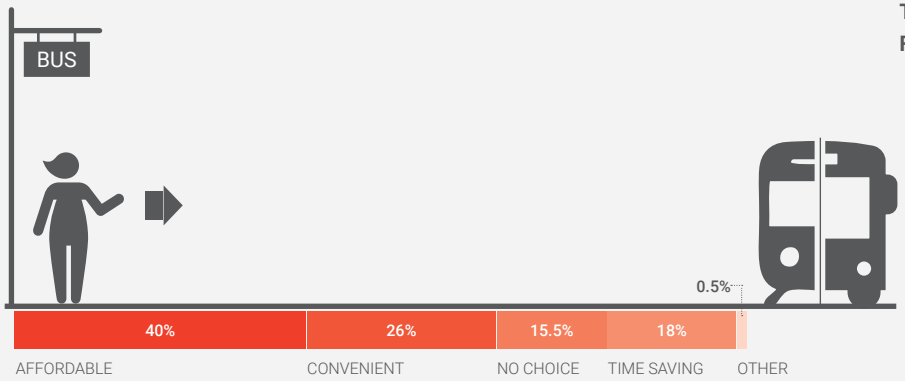


FIG 15: PERCEPTION OF PUBLIC TRANSPORT AFFORDABILITY FOR WOMEN

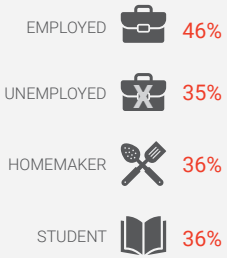
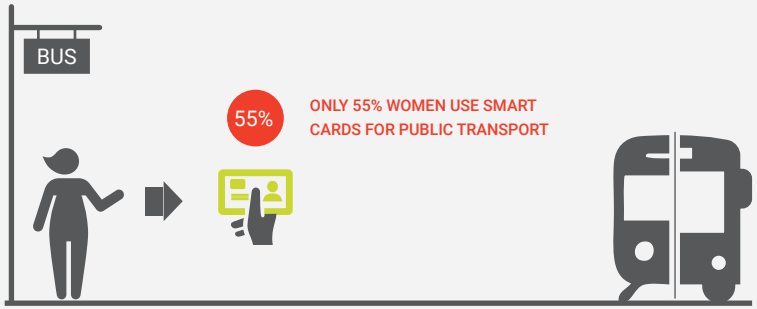
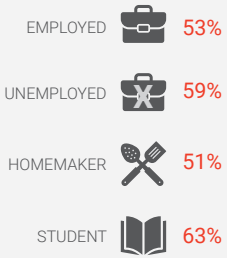


FIG 16: WOMEN'S SMART CARD USAGE





Increasing smart card access and use could ameliorate trip-chaining costs and reduce transfer time. Since a higher proportion of women as compared to men rely on rickshaws, fare integration policies can explore the feasibility of integrating these modes, especially for first and last mile connectivity

IMPLICATIONS AND POLICY RECOMMENDATIONS

Women's mode share of buses and metro/trains can inform reservation of seats in these modes and in improving the experience of the entire public transport journey. For example, fare integration policies are being pursued by public transport authorities, which have a potential to ameliorate women's increased cost from trip chaining as well as reduce transfer time. Since a higher proportion of women as compared to men rely on rickshaws, fare integration policies can explore the feasibility of integrating these modes, especially for first and last mile connectivity.

FIRST AND LAST MILE CONNECTIVITY

77 percent of women compared to 81 percent of men felt that last mile connectivity needed to be improved.

ACCESS TO PUBLIC TRANSPORT BY WALKING

31 percent of women and 33 percent of men lived within 5 minutes' walk from a public transport stop with more than 80 percent of women and men living within a 15-minute walk from a public transport stop.

WAITING TIME

24 percent women and 28 percent men had to wait less than 5 minutes for a bus with half the number of women and men waiting for 5-15 minutes.

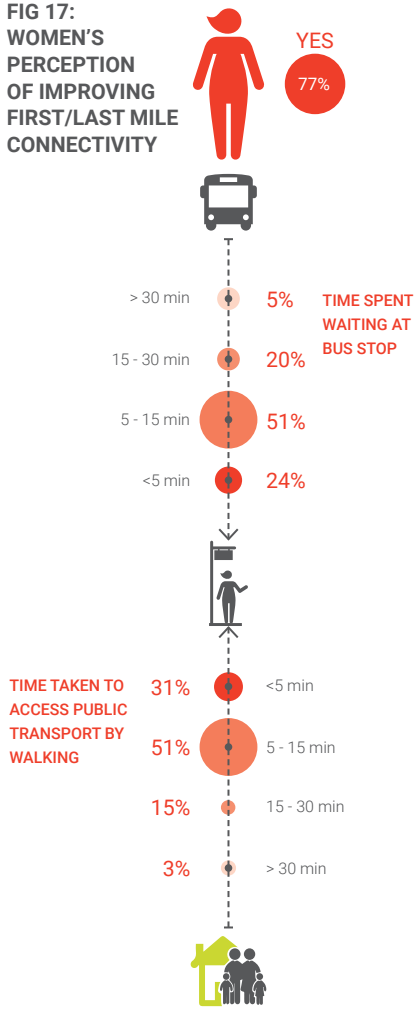
MODE OF ACCESS TO A BUS STOP

Women's higher reliance on walking and on intermediate public transport for first and last mile connectivity was evident as they walked (35 percent) and used other shared transport (24 percent) followed by two-wheelers (22 percent), cycles (11 percent) and cars (8 percent). Men also used these modes, but to a slightly lesser degree: walking (34 percent), two-wheelers and other shared transport (22 percent each) with a higher use of cycles (13 percent) and cars (9 percent).

CYCLE PARKING AT TRANSIT STOPS

Only 29 percent of respondents felt that there were cycle stands at a majority of transit stops in their city.

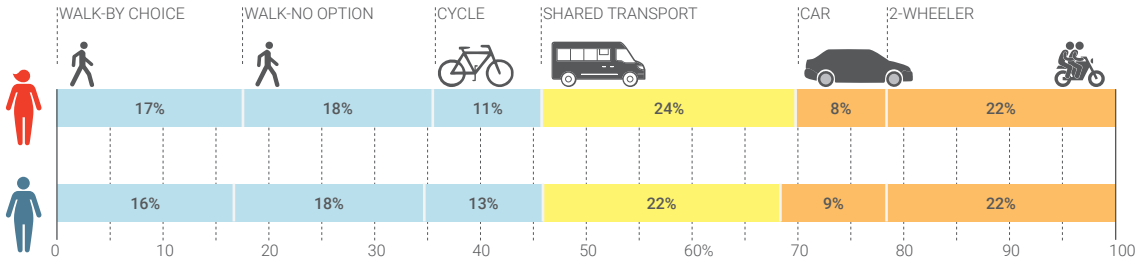
FIG 17: WOMEN'S PERCEPTION OF IMPROVING FIRST/LAST MILE CONNECTIVITY



IMPLICATIONS AND POLICY RECOMMENDATIONS

First and last mile connectivity is one of the most critical links of a public transport journey. It was observed that while more than 80 percent of respondents lived within 15 minutes (1.2 kilometres) walk from a public transport stop – distances that can be traversed by walking and cycling - currently, only 47 percent of the respondents use these modes. As outlined in Sections 5.1 and 5.2, the use of non-motorized transport can be encouraged through gender-responsive walking and cycling infrastructure as well as cycle parking at stations and a dense network of public bicycle sharing stations. Similarly, waiting at public transport stops can be reduced by providing real-time information on the arrival of buses and metros/ trains through mobile applications and websites.

FIG 18: WOMEN AND MEN'S MODE OF ACCESS TO A BUS STOP



PERCEPTION OF PUBLIC TRANSPORT

PUBLIC INFORMATION SYSTEM

89 percent of women and men felt that the public transport information system was not designed such that information was available and easily accessible.

SAFETY

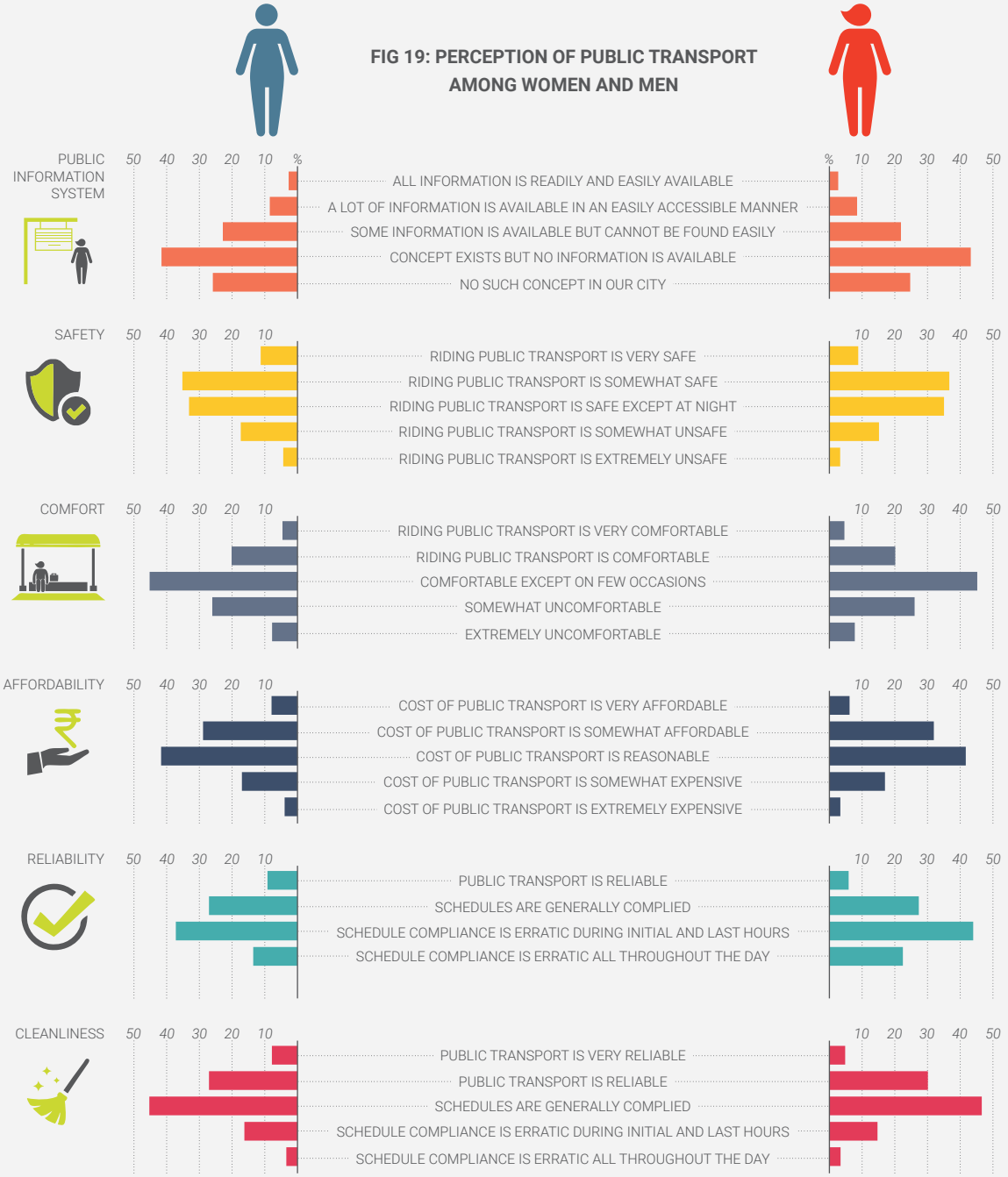
While 3 percent of women and men felt that public transport was extremely unsafe, 9 percent of women and 11 percent of men felt that it was very safe. Most of the responses, 88 percent of women and 85 percent of men felt that public transport was somewhat safe, somewhat unsafe and safe except at night.

While gruesome incidents of violence against women have received attention in mainstream media, this data might point towards the daily harassment that women and girls face such as staring, groping, catcalls, whistling which needs to be measured.

COMFORT

24 percent of women and men perceive public transport to be comfortable. Three-fourths of women and men found public transport very uncomfortable (6 percent), somewhat uncomfortable (25 percent) and comfortable except on a few occasions (45 percent).

FIG 19: PERCEPTION OF PUBLIC TRANSPORT AMONG WOMEN AND MEN



AFFORDABILITY

21 percent of women and men felt that public transport was expensive. Amongst different groups of women, 18 percent of employed women felt that public transport was expensive compared to 21 percent of home-makers, 22 percent of students and 25 percent of unemployed women.

RELIABILITY

Two-thirds women and men felt that public transport was unreliable and schedule compliance was erratic during the initial and last hours of operation of public transport.

CLEANLINESS

35 percent of women felt that public transport was somewhat clean or very clean, 46 percent of women felt that it was clean except for a few stops and buses and 19 percent of women identified it as dirty and very dirty.

IMPLICATIONS AND POLICY RESPONSES

The gender disaggregated analysis did not reveal significant differences between men and women's perception of public transport. It however underscored the importance of a safe, affordable, comfortable, clean and reliable public transportation system for women and girls.

It must be noted that the above categories are deeply gendered and approaches to improve safety may need to explore whether it is safety from crime, road safety and / or safety from sexual harassment. Similarly, discomfort may arise due to overcrowding with different impacts for men and women. For men, it may imply the lack of personal space and stealing whereas for women it may entail increased vulnerability to sexual harassment over and above other concerns. Men and women's desire for a reliable transportation system may stem from reducing waiting times. However, these can have different impacts such as exacerbating women's time poverty from transport, and increasing vulnerability to sexual harassment at a public transport stop.

Affordability also has gendered implications as male members of a household are likely to get access to personal motor vehicles. The lack of affordability can exacerbate lower income women's time poverty from transport, limit the use of public transport and subsequently, education and employment opportunities. More questions are required which investigate the gendered differences in the perception of public transport.

5.4 PERSONAL MOTOR VEHICLES

While 53 percent of all respondents said that their households did not own a car, ownership was not important for 23 percent of the women as compared to 21 percent of the men. Both men and women seemed open to the idea of putting their car for hire to earn an extra income. However, women respondents were more ambivalent than their male counterparts as 24 percent of the female respondents answered definitively compared to 26 percent of the male respondents. This could be due to a greater concern for their safety when pooling their vehicle with other passengers.

FIG 20: WOMEN'S PERCEPTION OF PERSONAL MOTOR VEHICLES

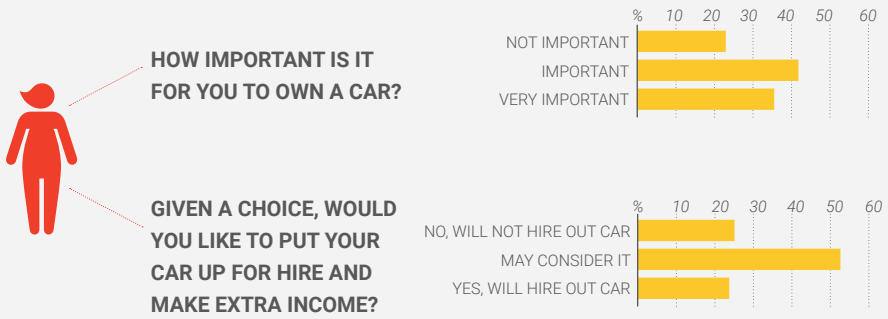


Image credit: fightbegin

6. RECOMMENDATIONS TO MOBILITY SURVEYS

The gender disaggregated analysis of the Ease of Moving Index India Report 2018 provides insights into how mobility surveys can be structured. The following recommendations are made:

1 DEMOGRAPHY

The ratio of female respondents should be 50 percent of the sample, as they constitute close to half our urban population. Further, individual monthly income is a key variable affecting women's mode of travel and female respondents should include those in the informal sector such as domestic workers, street vendors etc. It is recommended to define demographic categories closer to the Census.

2 EMPHASIS ON NON-MOTORIZED TRANSPORT

Mobility surveys tend to underestimate non-motorized travel, and therefore questions on commuting modes must include these.

3 TRAVEL PATTERNS

Questions on the number, ratio of work and non-work number of trips in the peak and off-peak hours might provide better insights into women's mobility as they are often also responsible for care-related trips in the household.

4 SAFETY

Safety from crime, road safety and safety from sexual harassment - these need to be clearly specified and differentiated. Further, the nature and prevalence of sexual harassment on streets and in public transport needs to be probed so that this can be measured and tracked annually, especially due to underreporting of crimes.

BEHAVIOR CHANGE INITIATIVES

The choice of options on the willingness to shift to public transport should also include communicating a zero-tolerance approach to violence against women in public transport, encouraging women and bystanders to report instances of sexual harassment by setting up effective complaints redressal systems, creating standard operating procedures and training frontline transport workers and including more female frontline transport workers (Shah et al. 2017).

5

SUPPORTING INFRASTRUCTURE

Functioning and maintained toilets, creches, seating, street vendors, pharmacies, clinics can improve comfort for those traveling with dependents and should be considered as part of public transport infrastructure, and mobility surveys should rate these amenities.

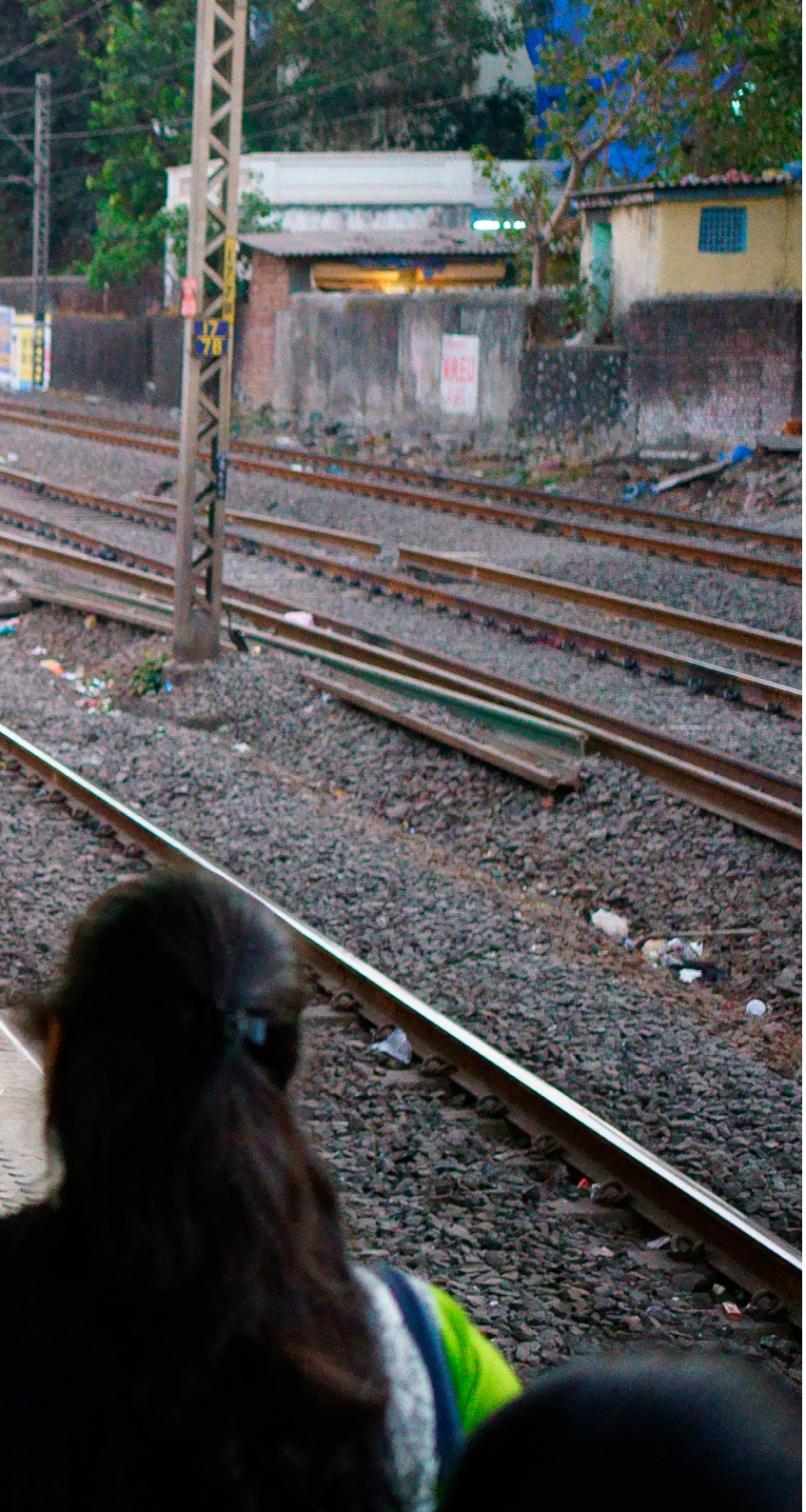
6

7

QUALITATIVE ASSESSMENTS

The gender disaggregated analysis of the perceptions of non-motorized and public transport revealed slight differences between men and women. It will be helpful to conduct focus group discussions to provide a nuanced understanding of what women and girls want.

Image credit: redtea



7. CONCLUSION

The gender-segregated analysis of the Ease of Moving 2018 survey revealed that women and girls are not silent spectators but form opinions, and actively make choices and decisions about how to commute.

Singular responses and “smart” solutions which focus primarily on increasing surveillance do not address how women combine work and care-related trips and the increased costs resulting from these, their lack of access to bicycles and safer cycling environments, discomfort and daily harassment on streets and crowded public transport. We need data - qualitative and quantitative – by gender, income and occupation groups to ensure that transport investments benefit different groups of women. Urban transport planning cannot change societal mindsets . Let it not become a barrier but an enabler for women to participate in the workforce and to live a fuller life.

ANNEXURE

QUESTIONNAIRE: EASE OF MOVING INDEX FOR INDIAN CITIES

KNOW THE RESPONDENT

1. What is your age group?
a. < 20 Year
b. 20 - 40 Years
c. 40 - 60 Years
d. > 60 Years

2. What's your gender?
a. Male
b. Female
c. Transgender

3. Currently you are
a. Student/Studying
b. Homemaker/Housewife
c. Unemployed
d. Employed (part-time, full-time, self-employed)

4. If employed, what's the range of your monthly income
a. < 15000 per month
b. 15000 – 30000 per month
c. 30000 – 50,000 per month
d. 50, 000 – 1,00,000 per month
e. > 1,00,000 per month

5. Your qualification
a. < 10th
b. 10 – 12th Pass
c. Graduate
d. Post Graduate
e. Doctoral and above

6. No of Cars owned
a. 0
b. 1
c. 2
d. 3 and above

7. How important is it for you to own a car?
a. Very important
b. Important
c. Not important

8. Given a choice, would you like to put your car up for hire and make extra income
a. Yes, I would be up for it
b. May be, I can explore the idea
c. Will not do it.

9. No of two-wheeler owned
a. 0
b. 1
c. 2
d. 3 and above

10. In your personal vehicle, what type of fuel do you use?
a. Petrol
b. Diesel
c. CNG
d. Electric

11. Do you own a bicycle?
a. Yes
b. No

12. If yes, you use it for
a. I use it for leisure
b. I use it for commute
c. Both of the above
d. I own but I hardly use it

13. If you do not use it, the reason being
a. I don't find cycling safe in the city
b. I don't find sufficient infrastructure for cycling in city
c. Both of the above
d. I just don't find it convenient

EVALUATION (DIRECT)

1. Do you use public transport?
a. Yes
b. No

2. If no, reason for not using the public transport
a. I don't want to
b. it is not available
c. it is not convenient
d. it's not safe

3. If yes, reason for using public transport
a. Don't have other option
b. Convenient
c. Affordable
d. Time-Saving
e. other (Specify _____)

4. If yes then which mode and frequency
a. Bus (daily, weekly, monthly)
b. On demand transportation (Ola/Uber) (daily, weekly, monthly)
c. Shared Taxi (Cab Aggregator Pooling, Tata Magic etc.) (daily, weekly, monthly)

d. Rickshaw (Autos, E-Rickshaw etc) (daily, weekly, monthly)
e. Metro/Train (daily, weekly, monthly)
f. Any other (please specify) (daily, monthly, weekly)

5. Do you possess smart card / monthly pass for travel?
a. Yes
b. No

6. Travel time from home to work
a. Up to 15 mins
b. 15-30 mins
c. 30-60 mins
d. More than 60 mins

7. Do you think electric vehicles would be able to replace the conventional fuel-driven vehicles by the year 2030?
a. Yes
b. No
c. Maybe

8. What deters you from using an electric vehicle currently?
a. Electric vehicles are very expensive
b. I don't find them reliable
c. I am concerned about the charging infrastructure
d. I don't think the performance is at par with the conventional vehicles
e. I don't have much information about electric vehicles

9. What can the government do to make electric vehicles more popular?
a. Provide subsidy
b. Provide Infrastructure
c. Introduce Electric buses in Public Transport
d. Invest in Research and Development to make it more reliable

10. Marks to public information system (access to real time information on availability of public transport)
a. 1 – No such concept in our city
b. 2 – Concept exists but No information available
c. 3 – Some Information available but can't find it in an easy manner at a single place
d. 4 – A lot of information available in an easily accessible manner
e. 5 – All information is readily and easily available

11. Marks to road condition - Width of city roads
a. 1 –Almost all the Roads in City are Narrow
b. 2 – Majority of city roads are narrow
c. 3 – Only some parts of the City have wide Roads
d. 4 – Majority of City Roads are wide enough
e. 5 – City has a network of sufficiently wide Roads

12. Marks to road condition - Congestion on city roads
a. 1 – Almost all City Roads are Congested throughout the day
b. 2 – Only some areas are Congested throughout the day
c. 3 – Congestion is only during morning and evening peak hours
d. 4 –Congestion occurs only Occasionally
e. 5 – My City is not Congested

13. Marks to road condition - Potholes on city roads
a. 1 – Almost all the Roads in the City have potholes
b. 2 – Majority of the City Roads have potholes
c. 3 – Few City Roads have potholes
d. 4 – Majority of the City Roads have good riding quality
e. 5 – Almost all the City Roads have good riding quality

14. Marks to road condition - Lighting provisions on city roads during night hours
a. 1 –almost all roads look very dark and unsafe
b. 2 – majority roads look very dark and unsafe
c. 3 – Street Lights are available along Major Roads
d. 4 – Majority Roads of the City have the provision of Street Lighting
e. 5 – Almost all the city roads have Street Lights

15. Marks to public transport - What is your level of comfort while traveling in public transport?
a. 1 – Riding Public Transport is extremely Uncomfortable
b. 2 – Riding Public Transport is somewhat Uncomfortable
c. 3 – Riding Public Transport is Comfortable except on a few occasions
d. 4 – Riding Public Transport is Comfortable
e. 5 – Riding Public Transport is very Comfortable

16. Marks to public transport - Safety in Public Transport
a. 1 – Riding Public Transport is extremely Unsafe
b. 2 – Riding Public Transport is somewhat Unsafe
c. 3 – Riding Public Transport is Safe except at Night
d. 4 – Riding Public Transport is somewhat Safe
e. 5 – Riding Public Transport is very Safe

17. Marks to public transport - Reliability in Service of Public Transport
a. 1 – Schedule compliance is erratic all throughout the day
b. 2 – Schedule compliance is erratic during initial and last hours
c. 3 – Schedules are generally complied with
d. 4 – Public Transport is reliable

18.Marks to public transport - Affordability of Public Transport
a. 1 – Cost of Public Transport is extremely expensive
b. 2 – Cost of Public Transport is somewhat expensive
c. 3 – Cost of Public Transport is reasonable
d. 4 – Cost of Public Transport is somewhat affordable
e. 5 – Cost of Public Transport is very affordable

19. Marks to public transport - Cleanliness of Public Transport
a. 1 – Public Transport is extremely dirty
b. 2 –Public Transport is somewhat dirty
c. 3 –Public Transport is clean except for few Stops and Buses
d. 4 –Public Transport is somewhat clean
e. 5 –Public Transport is very clean

20. Marks to the parking situation - Ease of Parking
a. 1 – I have to wait for a very long time and it's very difficult to get a parking
b. 2 – I have to wait for a considerable time before I get parking
c. 3 – I have to wait for a short time before I get a parking
d. 4 – I don't have to wait for parking

21. Marks to the parking situation - Parking Pricing
a. 1 – Cost of Parking is extremely expensive
b. 2 – Cost of Parking is on the higher side
c. 3 – Cost of Parking is reasonable
d. 4 – Parking is free

22. Marks to the parking situation - Parking availability near Public Transport Stops
a. 1 – Parking near Transit Stop is not available
b. 2 – Parking available but not sufficient
c. 3 – Parking available is sufficient
d. 4 – There is oversupply of Parking at the Transit Stop

23. Marks for the cycle track and footpaths - Physical Condition of the Cycle Track
a. 1 – There are no Cycle Tracks in the City
b. 2 – There are Cycle Tracks along few Roads
c. 3 – Cycle Track along many roads
d. 4 – Seamless Cycle Tracks available in the majority of areas

24. Marks for the cycle track and footpaths - Physical Condition of Footpaths
a. 1 – There are no Footpaths in the City
b. 2 – There are Footpaths but with discontinuations and are encroached
c. 3 – Footpaths along the majority of roads with few discontinuations
d. 4 – Seamless Footpaths available all across the City

25. Marks for the cycle track and footpaths - Cycle Parking Provision at Transit Stops
a. 1 – There are no Cycle Stands at Transit Stops
b. 2 – There are Cycle Stands at few Transit Stops
c. 3 – There are Cycle Stands at major Transit Stops
d. 4 – There are Cycle Stands at the majority of Transit Stops
e. 5 – There are Cycle Stands at all the Transit Stops

EVALUATION (OBJECTIVE)
1. You get access to public transport after how many minutes of walk
a. < 5 minutes
b. 5 – 15 minutes
c. 15 – 30 minutes
d. > 30 minutes

2. How much time do you have to wait for a bus to arrive?
a. < 5 minutes
b. 5 – 15 minutes
c. 15 – 30 minutes
d. > 30 minutes

3. Do you find walking and cycling safe in the city?
a. Yes
b. No

4. Would you like to have separate cycle lanes?
a. Yes
b. No

5. Would you like to have separate footpaths?
a. Yes
b. No

6. How do you reach the bus stop?
a. Walk, no other option
b. Walk, the preferred alternate
c. Cycle
d. Two-Wheeler
e. Car
f. other shared transport (auto, cab, carpool / shared cab etc.)

7. Do you feel, first and last mile connectivity needs improvement in your city for better public transport?
a. Yes
b. No

8. How much time do you spend in transit each day? (overall commute time in a day)
a. < 30 minutes
b. 30 - 60 minutes
c. 60 - 90 minutes
d. 90 - 120 minutes
e. > 120 minutes

9. Percentage of monthly salary spent on Transport
a. < 10%
b. 10 – 15%
c. 15 – 20%
d. 20 – 25%
e. > 25%

10. Kilometers commuted in City daily on an average
a. < 10 km
b. 10 – 20 km
c. 20 – 40 km
d. 40 – 60 km
e. > 60 km

EVALUATION (COMPARATIVE)
1. What is your preferred mode of transport for daily commute?
a. Non-motorized transport
b. Public Transport
c. Personal Vehicle
d. Taxi/Cabs
e. Auto

2. If using personal vehicle, will you be willing to use public transport if, (mark all applicable)
a. Has better frequency
b. Has better coverage
c. Becomes more affordable
d. Becomes more comfortable
e. Becomes safer
f. Becomes more reliable
g. Has better first & last mile connectivity

3. Do you feel mobility situation has improved over the last 5 years?
a. Yes
b. No

4. How important is it for your means of transport to be environmentally friendly?
a. Very Important
b. Important
c. Not at all important

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