# What happens next? Exploring women's transport motility through the story completion method

Saakshi Joshi [a], Ajay Bailey [a,b,*]

[a] Transdisciplinary Centre for Qualitative Methods (TCQM), Prasanna School of Public Health Manipal Academy of Higher Education (MAHE), Manipal, Karnataka 576104, India
[b] International Development Studies, Department of Human Geography and Spatial Planning, Utrecht University, Princetonlaan 8a, 3584 CB Utrecht, the Netherlands

## ARTICLE INFO

## ABSTRACT

This paper explores the three elements of motility (access, competence, appropriation) through women's perceptions of travel using the metro rail in Delhi, India. Studies on metro rails are a recent phenomenon in developing countries where this is a relatively new transport mode. The concept of motility to explore gendered use of metro is useful in context of this South Asian city where women's movements (potential and actual) are contingent upon their ability to travel safely.

Data was collected using story completion methods. Participants were asked to complete an online semi-structured form that presented five fictional story stems/openings. Data in this paper is based on stories finished by 84 female participants across Delhi with varying demographic profiles. This paper advances qualitative research on women's mobility and transport use by highlighting situation-specific metro access; necessary skills to optimize access; and how women *actually use* the metro system.

Feelings of un/safety related to fear of sexual harassment, getting lost, and risk of contracting diseases in unhygienic conditions results in specific access of the metro to *feel* safe. Diverse skills to manage the access include: coping (e.g., adapting to delay in services), performative (e.g., mannerisms to feel safe from threat of violence), spatial (e.g., location of coach), cultural (e.g., awareness of norms), and sanitary skills (e.g., bodily modifications to feel safe from unhygienic conditions). Based on travel priorities and past mobility experiences (personal/shared), the skills and access shape *how* women travel and *what* they decide to do to travel safely.

This paper advocates for gender inclusive guidelines and collecting disaggregate data in transport, especially for newer metro systems being planned or constructed. It presents an opportunity to consider the barriers to women's potential mobility; how/where transport systems can play a part; and the use of qualitative research methods to appreciate the diversity of women's travel experiences across different segments of their journeys.

## 1. Introduction

In transport research, mobility is increasingly seen as more than just a physical movement between stops. It is an intrinsic aspect of daily life, influencing an individual's right to city through chances to study, work, expand networks, seek healthcare, or rejuvenate (Kett et al., 2020; Lucas et al., 2016; Turner and Fouracre, 1995). There has been a growing interest in exploring the *potential* for mobility itself. In this direction, Kaufmann et al. (2004) use 'motility' as the capacity of entities (persons, goods, or information) to be mobile in social and geographic space (p. 750). This potential is impacted by specific socio-cultural contexts

(Kaufmann et al., 2004; Shliselberg and Givoni, 2019), where different intrinsic (internalised or inherent) and extrinsic factors interact, leading to diverse forms of mobilities (Cho et al., 2013; Joshi et al., 2021; Lucas, 2011).

Building upon the concept of motility, we explore the elements of access, skills, and appropriation to understand how women *make use of* the existing metro system to travel safely in Delhi, India. By focusing on women's transport use and their mobility in public spaces, our study is aligned with the New Urban Agenda and the Sustainable Development Goals (SDGs), with their syncretic recognition of the necessity to provide safe and inclusive urban environment for women (SDG 11.2 and 11.7).

Safe urban spaces are linked with women empowerment and gender equality (United Nations, 2017). In transport research, extant studies show that the fear for safety is a key factor deciding women's ability to be mobile. Among different aspects of safety, including from physical injury or theft, safety from gender-based violence is a critical factor for women to not exercise their mobility potential, or to tailor it under existing social conditions and internalised norms. Sexual harassment and other forms of sexual violence impede women's ability 'to participate with no worry in school, work, and public life globally (Loukaitou-Sideris and Ceccato, 2020). This is highlighted in everyday actions including timing considerations, modal preferences, choice of clothing, chaperoned travel etc. (Didero et al., 2021; Tara, 2011; Uteng and Turner, 2019). Along with this very real threat of violence, transport research recognizes that women's travels differ largely from those of men (e.g., trip-chaining, frequency of trips, travel purpose) (Peters, 2013; Turner and Fouracre, 1995; Verlinghieri and Schwanen, 2020). This active, continuous engagement between gender and mobility (Hanson, 2010). has been the persistent push for gender-responsive transport policies and research (Hidayati et al., 2020; Joshi et al., 2022).

Against this growing body of research on gender and mobility in transport, we deep-dive into women's perceptions of one transport infrastructure in one city. We highlight women's ingenuity to persevere despite the everyday burden of travels, and the role of transport in enabling women and other socially disadvantaged groups to fully claim their motility.

## 2. Understanding motility to understand mobility

From the understanding of motility as a cell or organism's ability to move, Joan Abbott presented a departure by using the concept to explore movement between different social classes (Abbott, 1966). She distinguished between mobility and motility in the context of UK university students to show that a person 'capable of motion' (motility) may not ultimately be mobile (in actual motion), leading to frustrations (p.154). Since her work, motility has been used in the social sciences within migration studies, sociology, linguistics, cultural geography. For example, to understand the connection between migration and mobility of parents' language to their children (Houtkamp, 2018), to explore the meaning of and action behind everyday mobility for creating 'the good life' (Freudendal-Pedersen, 2007), to understand ideas around modernity under unpredictable conditions and globalization of western societies (Kesselring, 2016). Within transport research, motility gained momentum when mobility came to be seen as an act of moving in space which implied social change (Kaufmann, 2016). There was growing interest in research around the understanding that not all individuals are mobile in the same way, to the same extent, and that there was a need to highlight the factors which affect the capacities to be mobile.

This concept of privileging individual's circumstances is beneficial for exploring gendered transport use in regions such as South Asia where women's mobilities are highly impacted by gender-based violence and prevailing social norms (varying at micro-levels). These are reproduced in how public spaces are used (or not), and in the transport plans and infrastructures which result in unequal travel experiences (Datta and Ahmed, 2020).

Kaufmann et al. (2004) propose three interdependent elements of motility. We present below definitions and literature where these have been applied:

1) *Access* refers to the range of possible mobilities according to place, time, and other contextual constraints such as pricing (Didero et al., 2021; Flamm and Kaufmann, 2006). Among other factors, access also depends on the socio-economic position of individuals, including within their social network.
2) *Competence* or *skills* refer to abilities for mobility which include an individual's physical ability, acquired skills (e.g., knowledge of different travel routes), and organisational skills (e.g., planning for a

trip) (Flamm and Kaufmann, 2006). Shliselberg and Givoni (2019) further categorise skills as formal (e.g., obtaining license), spatial (e.g., navigation), technical (e.g., online information), informal skills (e.g., ability to handle the unexpected), and communication (e.g., interactions with travelers/staff). This research focuses on and advances a combination of these different competences which women deploy to shape and sustain their metro access.

3) *Appropriation/Cognitive appropriation* refers to how 'agents' (individuals, groups, networks, institutions) consider and select specific options based on their needs, understanding, aspirations, and plans (Flamm and Kaufmann, 2006). For Shliselberg and Givoni (2019), appropriation is a willingness to engage in different travel activities (e.g., commuting long distances). According to Didero et al. (2021), appropriation shows that opportunities and constraints to everyday mobility are perceived and interpreted by individuals depending on their own specific experiences and how they may have internalised social norms. In this paper, appropriation of the mode is based on past mobilities and travel priorities to ensure short- and long-term safe trips.

Within transport research, previous studies have explored motility in relation to transport mode choices, transport policies, and well-being primarily in a European context (de Witte et al., 2013; Kjaerulff, 2011). For instance, Cuignet et al. (2019) separate mobility into motility and actual movement and link them to older adults' well-being. Using gender as a lens to study the different elements of motility has been a rare undertaking. Didero et al. (2021) use the different categories of motility to explore the differing mobilities of Omani and Indian women in Muscat, where social norms, cultural restrictions, and differing socio-economic and citizenship positions are critical to women's mobility in a car-dependent urban society. Shliselberg and Givoni (2019) explore the importance of motility as mobility capital - a combination of mobility choices communicated through community and family and individual choices, among a heterogenous group of women in Israel.

We advance this concept by providing context specific insights to show how the three elements are operationalised by women under specific challenges and risks which determine their access (e.g., overcrowding) in specific transport spaces (e.g., platform). This will be useful for inclusive transport decisions which can further assist in women's right to move freely.

## 3. Being mobile: Understanding women's travel experiences

Women's transport experiences must be seen through a rights-based approach: an individual's right to move freely. A key impediment to that freedom of movement has been the gender-based violence that women face in public spaces across the world. Yet, sexual crimes against women in transit represent an 'invisible problem'; they are extremely under-reported crimes (Loukaitou-Sideris and Ceccato, 2020, p. 321). This emphasizes the need to continuously understand, improve, and expand the body of gender-inclusive transport research. An additional challenge is thinking about women as a homogenous sub-group of transport users. Important differences exist among women based on their intersectionalities of susceptibility (such as age, disability, income, location, etc.). This diversity and its role in transport-related mobility is yet to be fully acknowledged (Kakar et al., 2021).

Existing literature expands upon different aspects of women's un/safe mobilities. Research highlights the spatiality of travels in context of sexual violence, emphasising the door-to-door nature of travels. For example, in their study with university students to assess levels and types of victimization in rail-bound public transportation in Stockholm, Sweden, Ceccato et al. (2020) found that there were greater chances of sexual violence inside the wagon, then at the station, and then during the journey to and from home. Another strand of research reveals that temporality impacts women's travels and emotions. In their multi-sited research exploring night-time un/safety in Brazil and Belgium, Farina

et al. (2021) found that fear of crime was influential in shaping mobilities at night, and that transport modes also shaped feelings of un/safety. Their comparative study highlighted that even with dissimilar geographies, women faced similar challenges. Research has also explored how women respond to violence in public transport. Exploring women's experiences of sexual harassment in the London underground, Lewis et al. (2020) found that women were not responding to sexual harassment to prevent drawing attention to themselves, and to not disturb the co-passengers' and their own onward journeys. Their study also underlined that the transitory nature of the underground ensured that women had not fully registered harassment before it had already passed. Continuing in this vein is research on the long-term consequences these encounters produce. Infante-Vargas and Boyer (2021) discuss the psychological effects of gender-based violence in public transport. Women create 'maps of danger' when navigating the city, which consist of behavioural changes related to routes, routines, and journeys. Another important area of research is around the range of initiatives aimed at women's safety and their effectiveness. In their literature review of interventions, Gardner et al. (2017) found them to have mixed impacts. For instance, surveillance by trained employees was found more effective than lighting and CCTVs. Loukaitou-Sideris and Fink (2008) conducted a survey of U.S. transit operators, which showed a disconnect between existing safety practices of transit operators and the needs and desires of women passengers.

Within this research on women's safe transport use, we now reach the Delhi Metro. In developing countries, metro systems have been a recent phenomenon (Gopal and Shin, 2019) with few studies documenting their gendered use. In Delhi, the metro rail was introduced in 2002. Over the years, the metro network has spread over 389 km of the National Captial Region (covering Delhi, Noida, Gurugram), incorporating areas which account for some of the highest rates of crimes against women (intimate and stranger crimes) nationally (National Commission for Women, 2023; National Crime Records Bureau, 2023). Arising from this grim reality, the metro has often been discussed as a safer transport mode for women to navigate the city in contrast to road-based transport infrastructure such as buses even though the metro is not free from threats of harassment (Gopal and Shin, 2019; Tara, 2011). In the last decade, research on women's metro travels in Delhi has focused on its role in transforming women's geographies of commuting, increasing sense of agency, perceptions about the gender-segregated coaches, and barriers to metro use. Sadana (2010) in her ethnographic exploration of the metro through a spatial focus, highlights that the reactions to segregated coaches are less about how women are treated on the metro, and more about getting a seat or reinforcing gender stereotypes. She also discusses the increased sense of agency to traverse long distances independently with the metro. Tayal and Mehta (2021) highlight overcrowding, issues of safety, affordability, and user-friendliness as key challenges to women's metro use. Along with highlighting positive travel experiences using metro, Gopal and Shin (2019) touch upon behavioural strategies (e.g., clothing, time of travel) used by women to avoid risks to safety.

These different dimensions of research have often overlapped, stressing the scale of burden that being mobile forces upon a woman. The body of research from different geographies has also discussed that gender-based violence in public transport does not affect all women the same way. Different sub-groups (e.g., women with disabilities, younger or older women, differences in class, ethnicity) have unequal experience of violence (Ceccato and Loukaitou-Sideris, 2023; Infante-Vargas and Boyer, 2021), owing to the degrees of vulnerability.

## 4. Data and methods: Using story completion to explore motility.[1]

Our findings are based on qualitative data collected using the story completion method. We created five different story stems with fictional female commuters which were finished by 84 female participants (18 years and above) with varying demographic and metro use characteristics (Table 1 in appendix). The participants were asked to complete the stories using five sentences or more.

## 5. Introducing story completion

Story completion method involves participants following pre-written story stems and completion instructions given by the researchers (Clarke et al., 2019; Lupton, 2019). The story 'stems' or 'cues' are the opening lines of a story, written in a third-person or first-person format. These are derived from the research questions which are to be explored. The method helps to understand the perceptions people hold about specific topics and their meaning-making. It is especially beneficial when dealing with issues which are considered sensitive or where participants might be uncomfortable discussing personal experiences (Clarke et al., 2017; Gravett, 2019).

The method has a background in developmental psychology and psychotherapy, originating as a form of projective assessment technique where it was used by researchers to look at fixed meanings behind the stories (Gravett, 2019). Through their use of this method to explore infidelity, Kitzinger and Powell (2016) showed how along with meanings, stories could also be used to explore the discourses which inform story writing. The method has been used to explore perceptions about various themes including sexual intercourse (Lewin, 1985), menstruation (Moore, 1995), eating disorders (Walsh and Malson, 2010), orgasmic absence (Frith, 2013), health information practices (Lupton, 2019), and digital privacy (Watson and Lupton, 2021). A literature search did not show any results where the method has been used to explore gender and mobility in relation to transport use.

Our reason to use the story completion method was two-fold: severity of the coronavirus pandemic in Delhi, and the method's nonintrusive nature. During previous interviews for the research, we had observed discomfort from a few participants when discussing sexual harassment during travels. The fictional settings of the story stems provided participants anonymity since no questions would be asked directly from them.

## 6. Creating the research tool

The story stems (given in Findings) cater to specific spatio-temporal situations within the metro. We arrived at these story stems from literature review on women's transport use and interviews with women participants for an earlier phase of the project in Delhi. Another, more implicit factor has been the Delhi-based researcher SJ's own experiences of being a metro user since 2006.

## 7. Pilot and revisions

We created an online google form which began with close-ended questions to know the participants' demographic profiles, followed by the open-ended story stems. Initially we created six story stems. We also wanted to understand the demographic sketch of the fictional characters. Who were the characters that the participants were bringing to life? Our intent was to see the heterogeneity among women and how it could

---

[1] This research is part of an on-going project exploring challenges to accessing urban mobility infrastructures across four South Asian cities. Ethical clearance for this research was given by Utrecht University, The Netherlands (ERB Review subprojects Geo-L-19294).

shape their transport use, something which existing literature stresses. So, after each story stem, we inserted a question: 'In this story, what details did you give [protagonist name] (eg., age, income, marital status, employment status)?' We created the form in English and Hindi and conducted a pilot ($n = 21$). We shared it with acquaintances in Delhi and a few project colleagues involved in separate research via emails and messaging platforms. Some acquaintances shared it in their networks. For suggestions, we also shared the form with a researcher who has been using this method and has published articles on it.

We received crucial feedback on the time it took to finish all story stems We also found that the questions on the protagonists' sketches were not answered by all. We revised accordingly: reducing the number of stems from six to five; asking participants to use five sentences to finish the stories (in place of the earlier ten); removing the questions about the protagonists (here, we hoped for the heterogeneity to emerge from how the stories were written). With these revisions in place, we began data collection in March 2021.

## 8. Participant recruitment

Due to the pandemic, we collected data remotely. To reach out to participants, we made use of snowball sampling technique. SJ shared the google form with research participants from the earlier phase of the project. They shared it in their networks. We also shared the form on different social media platforms (e.g., LinkedIn, Facebook), through emails, and through messaging platforms. The participation was open to all women across the National Capital Region.[2] The participants were not compensated since the method was completely online and we did not directly recruit individuals to fill in the stories.

We received 89 responses in total (21 from pilot, 68 after revisions). We reviewed these for repetitions and finished stems, before shortlisting story stems finished by 84 participants. Participants' profiles (Table 1) reflected the networks we could reach out to remotely, during the pandemic. The participants were pre-dominantly within the 18–40 age group ($n = 60$). Most had a university level education ($n = 81$). Most of the participants were working, either as private sector workers ($n = 37$) or in the government sector ($n = 16$) with the least number of participants identifying as homemakers ($n = 4$), self-employed ($n = 4$), or as those actively looking for work ($n = 5$). Almost half of the participants were daily or weekly metro users, with most taking this transport for work ($n = 48$) and outings ($n = 38$).

The average word count of finished stories across the story stems was 35 with a word range from 3 to 204. This was not homogenous for all stems. Stories about a character waiting at a deserted platform at night, and another character being touched in a crowded space showed a higher average word count (40). The last two story stems around changing lines and washroom use, showed the lowest average word count (31). Thematic analysis of the finished story stems was conducted.

## 9. Limitations

Story completion is an innovative method for qualitative research, but we encountered some important limitations. Due to the on-going pandemic, we could only reach urban female populations with the access and skills to use digital technologies. This is not representative of the broader urban, female population which may face ownership, skill-based, and affordability issues in using the digital technologies or the metro. If the word counts of the last two story stems are indicative, there is possibility of fatigue/distraction being experienced by the participants. A possible way to overcome this is to shuffle the order of the stems, which we did not explore. Additionally, the pandemic also impacted the time participants could give to the research. These factors,

---

² National Capital Region (NCR) comprises Delhi and neighbouring satellite cities from the states of Haryana, Uttar Pradesh, and Rajasthan.

along with participants' comfort with typing and writing stories could be responsible for the variations in how the stories were written (length, syntax, style). The finished stories also could not reveal explicit diversity in the fictional characters' socio-economic realities, although the participants' own profiles showed this diversity (Table 1).

## 10. Findings: Women's safe travels in Delhi Metro

Completion of different story stems sheds light on the conditions which impact women's unconditional access to the metro. The stories reveal a multitude of skills to utilise the metro use. These include coping skills (e.g., adapting to delayed service), spatial skills (e.g., location of coaches), performative skills (e.g., mannerisms), and cultural skills (e.g., norms around age and gender). The stories highlight that the actual use of the metro is based on travel priorities and past mobility experiences. Below we discuss each story separately across the three motility elements. Fig. 1 summarises the motility elements based on the stories.

### 10.1. Decisions around choosing a coach for travel

*Story stem: Nidhi is using the Metro for the first time. The doors of the coaches in front of her open. There is a Women's Only coach and a general coach. Both are packed with people. Which coach does Nidhi finally enter? Why does she do it?*

The finished stories show that a threat of sexual harrasment (groping, pushing, staring) impacts women's access to the different metro coaches. Although Nidhi is portrayed as a first-time user of the metro, most stories ($n = 69$) depict her opting for the exclusive Women's Only coach. The feeling of un/safety linked with fear of sexual harassment is a major reason to opt for the Women's Only coach. This shows opting to be in one coach, and not the other many coaches which are the majority in a metro train i.e., opting to be in a much smaller space to feel safer, although all coaches can be accessed by any commuter. This indicates contracting one's presence in public spaces to feel safer. The stories indicate that Nidhi carries this fear due to past mobility experiences not related to metro, or from shared experiences which guide her in choosing a metro coach. Additionally, Nidhi's internalised social norms regarding proximity of unrelated women and men guide her feelings and her coach selection.

'*Nidhi decides to enter the Women's only coach…she preferred to use the Women's coach…She had too many bad experiences with men who took advantage of the close proximity in crowded public transport, to misbehave with female fellow travelers.*' (P11, daily Metro user for work, >51 years, government sector worker, university education, monthly household income bracket above 1,51,000 INR (1827 USD)).

'*She enters the women's only coach. This is because due to her upbringing and general non-mixing with the opposite sex, she is intimidated by the sight of the large number of men stuffed into the general coach…She has also heard stories of women getting groped etc on public transport.*' (P23, weekly metro user for outing, 31–40 years, private sector worker, university education, monthly household income bracket above 1,51,000 INR (1827 USD)).

Another aspect of Nidhi's access to the coaches is the fixed location of the Women's Only coach, which is the first coach in a metro. To prevent increased travel time, Nidhi enters any coach in front of her rather than walking to the Women's Only coach. Thus, Nidhi's selection of mode is guided by her travel priority (to save time) for which she relies on her spatial competence (location of coach). The story below shows that even though Nidhi *prefers* being in the gender-segregated coach, she does not want to risk missing the metro.

'*Nidhi…wishes to go to the women's coach but she is afraid that till the time she reaches there the train might leave the station. Since it is her first time in the metro she isn't aware how much will be the waiting time till then next metro comes…*' (P21, weekly Metro user for work, 18–30 years, government sector worker, university education, monthly household income bracket 100,001-1,51,000 INR (1210–1827 USD)).
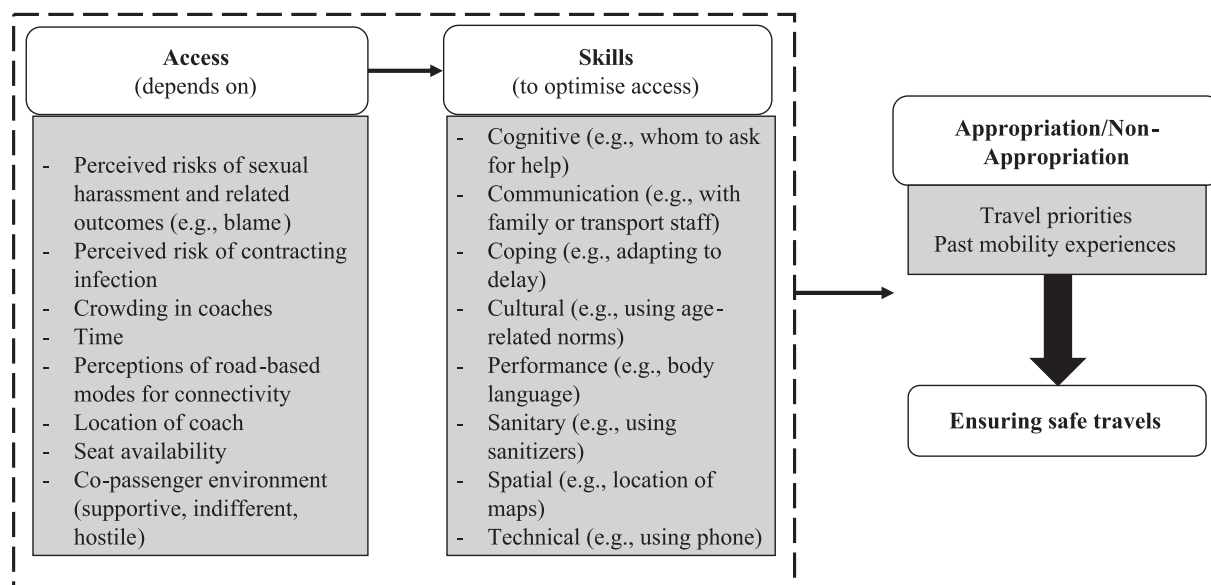
**Fig. 1.** Representation of the three motility elements for women's metro travels from the stories. Based on works by Kaufmann et al. (2004), Shliselberg and Givoni (2019). Created by authors.

### 10.2. Waiting at night for transport: Ensuring safe transit and travel times

*Story stem: It is after 10 in the night. Sneha is standing at a metro station platform. The platform looks deserted. She was delayed at work. An announcement informs her that there will be a delay in metro services. What all steps does Sneha take next?*

This story stem presented a female character at night, waiting at a station which might or might not have been deserted. All stories assumed the station to be deserted. All stories linked the time period of waiting, and the actions during this wait with a fear of sexual harassment, which has temporal (dark) and spatial (deserted platform) underpinnings. That the participants wrote stories with Sneha being concerned for her safety, is a strong reflection of how waiting at metro platforms is *perceived* by women. The fear of '*something* happening' impacts modal choice, travel time, waiting period, and last mile connectivity. Feelings of un/safety due to the unfamiliarity of a space (road) or unfamiliarity of driver also influence Sneha's transit options. Sneha uses her coping skills (e.g., adapting to unknown delay), spatial skills (e.g., location of CCTVs), technical skills (e.g., phone use), performative skills (e.g., appearance) to ensure safety. Appropriation or non-appropriation of the metro is done by increasing travel time, using specific spaces within the metro station premises, or non-use of the metro.

Most stories show Sneha waiting to take the next metro ($n = 50$). She extends her travel time in taking this action because it is perceived as a safer infrastructure due to certain measures (lighting, CCTVs, security staff) in comparison to road-based transport, which is seen as dark, unsafe, and unreliable. Barring the exclusive coach for women and the platform near it, all spaces carry the risk as sites of sexual harassment. Across the stories, Sneha uses communication and technical competence to alert familiar people about her whereabouts by calling them or via location sharing. She also uses these skills for non-appropriation of the metro by using another road-based mode ($n = 20$). Though road-based modes are linked with un/safety, they can reduce travel time.

'…She first finds a spot to wait near the women's coach and see around if there's other women beside her. She also looks out for security personnel and make sure she is under surveillance (camera) to avoid any untoward incidents…and communicate to people around her.' (P51, monthly metro user for outing purposes, 31–40 years, university education, government sector worker, monthly household income bracket 50,001–75,000 INR (605–907 USD)).

'…Afraid that this will delay her time to reach home and that she is the only person on this platform, she plans to come out of the station and board an auto rickshaw. If she waits on the station and even boards a train, it will be difficult for her to find a rickshaw back home at this hour. She books a cab through an app so that her family can track her ride. It takes her only 7 min to book the cab.' (P21, weekly metro user for work, 18–30 years, university education, government sector worker, monthly household income bracket 100,001-1,51,000 INR (1210–1827 USD)).

Additionally, to ensure safety from any anticipated actions (not explicitly mentioned in stories but point to a fear for one's safety at night), certain performative skills are highlighted. These include stance, appearance, or actions showing her being bold or brave when waiting at the platform.

'…she boldly puts her headphone and sits on the benches while vigilant about rest of the people near her.' (P31, weekly metro user for outing, 31–40 years, university education, homemaker, monthly household income bracket 75,000-1,00,000 INR (907–1210 USD)).

### 10.3. Being touched in a crowded space: Ensuring short- and long-term safe travels

*Story stem: Roopa is traveling inside a metro coach. The coach is crowded with men and women. She feels somebody is touching her from behind. What all can Roopa do in this situation?*

In this stem, 'being touched' is ambiguous, but most stories pin it as a deliberate act against Roopa, indicating the perceptions about the high prevalence of sexual harassment in metro travels. Along with this probability of harassment, *what* happens after the harassment also determines *how* Roopa uses the coach – a crowded coach can lead to escape and anonymity of the culprit; she can be blamed; she can be followed; she can confront, knowing that there are active security measures in place.

"…Once she catches him at it, she is the one to try to move away from him - she doesn't want to create a fuss in this packed coach. And what if the guy got angry and followed her out of the metro?…" (P23, weekly metro user for leisure, 31–40 years, university education, private sector worker, monthly household income bracket above 1,51,000 INR (1827 USD)).

Roopa uses her coping skills to confirm whether the touch is deliberate or accidental in a crowded space. Accordingly, she uses her competences in communication by asking for help directly or passively by raising her voice and drawing attention, through physical gestures (punching, nudging), and non-verbal communication (stare). She also

uses her technical and spatial skills (knowledge of metro services, specific spaces inside the metro coaches), and performative skills (modulating mannerisms).

'*...She can immediately address the person loudly enough and ask the purpose of the touching so that it is audible to other passengers also...Seek support from other fellow passengers or notify to the local security at the upcoming metro station.*' (P63, daily metro user for work, 31–40 years, university education, government sector worker, monthly household income bracket above 1,51,000 INR (1827 USD)).

Roopa's appropriation or non-appropriation of the metro is based on stopping harassment and ensuring short- and long-term safe travels. It includes increasing her travel time by changing metros or coaches, involving bystanders and metro staff to remove or stop the culprit, or not confronting by remaining silent or moving away. In majority of the stories, Roopa is shown as taking visible, decisive actions to stop further harassment. Roopa also uses the surrounding crowd to draw attention towards the culprit, actively asks for their support, and uses metro services such as emergency buttons or the metro redressal mechanisms. Few stories depict Roopa as staying silent, using gestures which do not draw attention, or removing herself physically from the situation ($n = 13$). In the story below, Roopa's action is linked with her pre-empting other passengers responding negatively in case she confronts.

"*She cannot do much because making a scene makes people call you 'too angry'. She can fidget a bit and if the person still doesn't move their hand she can try to turn around and try to make it known through eye contact that she is uncomfortable.*" (P29, monthly metro user for education, outing purposes, 18–30 years, high school education, student, monthly household income bracket above 1,51,000 INR pm (above 1827 USD pm)).

### 10.4. Reaching the destination: Navigating metro routes safely

*Story stem: Mrs. Kumar is traveling in a Metro to meet her daughter at another station. To reach that station, she must change Metro lines. Mrs. Kumar has forgotten which line she was supposed to change at. She is not carrying a phone...What steps does Mrs. Kumar take to reach her daughter?*

In writing this story stem, participants highlighted two aspects of feeling safe – reaching the destination without getting lost and trusting another person (passenger/staff) when asking for help. Based on her need to reach the destination and meet her daughter, she utilises her coping skills (e.g., awareness of maps) communication (co-passengers/staff), spatial skills (e.g., customer care), technical skills (e.g., reading a map), cognitive skills (e.g., seeking help), and cultural skills (e.g., age-related norms). Appropriation of the mode is done by increasing travel time (e.g., deboarding to change metro/seek assistance), or by navigating the metro route with help from co-passengers.

Creating a fictional female commuter with a daughter without mentioning their ages has been deliberate from our end to understand if age is a deciding factor in women's choices when they use the metro. We found that only two stories make explicit references to Mrs. Kumar's age (P16: middle-aged woman; P6: old aunty). But stories do refer to the adult mother and adult daughter characters, indicating an implicit reference to age.

Mrs. Kumar appropriates the metro to reach her destination in all stories but one where a modal switch to use an auto is shown. She navigates the metro route by taking assistance from co-passengers or metro staff. This indicates perceptions that the expansive network of different metro lines can be confusing for commuters to navigate through. Maps located in different places inside the coaches and outside in the metro premises are mentioned explicitly in some stories, indicating their active use in metro commutes ($n = 23$). The coloured footpaths inside the metro station indicating different lines are shown in one story. Seeking help from co-passengers is part of most stories ($n = 52$). Mostly, they are shown as willing to help and knowledgeable about the inter-changes for different metro lines. In a few stories, physical appearance of co-passengers is shown as an important consideration for Mrs. Kumar before asking them for help.

'*...ask the nice/kind looking woman to borrow a phone and call her her daughter...*' (P25, daily metro user for work, 18–30 years, university education, government sector worker, monthly household income bracket 50,001–75,000 INR (605–907 USD)).

To ensure that she reaches the correct destination, Mrs. Kumar is shown using the cultural norms around helping elders to increase her agency. Although barriers to transport use for older adults exist (Jahangir et al., 2021), this insight shows the use of ageing to afford them a 'privilege' in their metro travels.

'*Mrs Kumar exercises her old Indian aunty privilege with confidence. She asks her neighbor which station she needs to change lines...*' (P23, weekly metro user for leisure, 31–40 years, university educated, private sector worker, monthly household income bracket above 1,51,000 INR (1827 USD)).

### 10.5. Using washrooms: Ensuring sanitation and safety

*Story stem: Raina has just entered a metro station. She needs to use a toilet urgently. There is a washroom facility inside the metro station. She is usually unsure of using toilets in public spaces...What happens next?*

In this story, feelings of un\safety prevent a full access to the washroom facilities. These feelings are linked with - unhygienic conditions which present a risk of contracting diseases; fear of being in a deserted place; and fear of being watched/recorded inside a washroom.

Appropriation of the metro infrastructure is based on willingness to use washroom and urgency. Raina uses coping skills (e.g., awareness of washroom facilities), technical skills (e.g., reading signboards), spatial skills (e.g., location), communication (e.g., staff), performative skills (e.g., holding breath), and sanitary skills (e.g., using sanitary products). Non-appropriation of washrooms at the metro stations during her commutes includes waiting till she reaches her destination or finding an alternate washroom outside the metro premises.

In most stories, Raina uses the metro washroom due to the urgency of the situation, not because she wants to ($n = 59$). Raina perceives the metro washrooms as unsanitary. This includes unhygienic conditions of the physical environment, its sensory perceptions (odour), and lacking infrastructure (soap, water). When Raina does use the metro washroom, she carries sanitary accessories such as paper soaps or sanitiser sprays. This shows Raina's competence through awareness and preparedness about using public washrooms and perceiving them as dirty. Raina also prefers using the squatting style toilet because it is perceived to be safer to use than a western-style toilet. In addition, Raina modulates her breathing and vision to be able to use the washroom without it causing her sensory discomfort.

"*...I suggest her to use Indian toilet instead of english one as with the Indian one there are less chances of infection...*" (P64, once a year for leisure, 18–30, university educated, looking for employment, monthly household income bracket above 1,51,000 INR (1827 USD)).

'*...Not willing to use the hand wash she uses the soap strips she is carrying and leaves as quickly as possible. All the while covering her nose with some scarf.*' (P16, do not use metro, >51 years, university education, private sector worker, monthly household income bracket above 1,51,000 INR (1827 USD)).

Feelings of un/safety are linked with implicit fear of sexual harrassment in some stories. Even if washrooms are functional to use, access is hindered by fear for safety due to a deserted space or hidden cameras which causes Raina to forgo relieving herself. Here, appropriation of the infrastructure is through increase in her travel time as she uses her technical skills to ensure safety.

'*...So she went inside. Checked all the corners for hidden cameras, used her mobile app to locate cameras...*' (P82, monthly metro user for education, 18–30 years, student, university education, monthly household income bracket above 1,51,000 INR (1827 USD)).

'*...She is afraid to go alone as the washroom compound is deserted...*' (P21, weekly metro user for work, 18–30 years, university education, government sector worker, monthly household income bracket between

1,00,001-1,51,000 INR (1210–1827 USD)).

The next sections present discussion and conclusion based on the findings.

## 11. Discussion and conclusion: unconditional mobility wherever, whenever

With Delhi metro as the site of interplay between gender and mobility, this paper presented transit related spatio-temporal situations to understand *perceptions* about women's metro use. To explore these perceptions, we used the story completion method (refer Data and Methods, p. 7–10). Unlike the direct, personal nature of interviews, story completion offered the research participants a *range* of possibilities because of its third person setting. Previous studies have stressed that the analysis based on fictional stories can be viewed as produced 'from a combination of personal experience and the discursive contexts in which they make and share meaning '(Lupton, 2019; p.4). So, what did the stories show us? In opting for story completion, we were already interested in knowing beyond the participants' individual travels. The story stems were created to explore their thinking about the metro use. The finished stories can be seen as a reflection of the participants' feelings about these situations, their awareness of the metro infrastructure, and pre-empting of different possible outcomes. Thus, the stories highlight the participants' active, *imagined agency* which made them write about the characters' using multiple skills and/or taking actions to feel safe. Then, there were also stories with explicit traversing of thoughts from the participants to the fictional characters. Examples are phrases including 'I can relate to Sneha', 'I suggest her to use', 'Roopa should call out', 'In my view metro is the safest', 'I think she is more comfortable'. Such usage indicates the participants' cognisance of these travel situations, their own mental vigilance and preparedness (whether they actually do practice what they suggest here is in the grey; but it tells us of the possibilities they have thought out and would likely use or want to use). Thus, story completion can highlight participants' feelings, willingness to action, awareness of specific situations, and preferences. Within research exploring gendered transport use, it can be a useful method to discuss existing situations along with a range of possibilities. Used this way, it highlights the different aspects of women's travels and the different elements of the transport system which contribute to their mobility.

Using the finished stories, we explored the three elements of motility: access, skills, and appropriation (Fig. 1). How can motility help in transport research, especially on issues around gendered transport use? As Freudendal-Pedersen writes, 'Possibilities related to mobility are characterized by being able to do whatever you want, whenever you want, as often as you want' (2007, p. 38). We suggest another dimension: *wherever* you want. Be it a street, a metro platform, or a specific part of the city; urban spaces provide examples of the spatial dimension where women's *ability* and *right* to move is contested. This right and this ability to move freely is impacted by how a space can make women *feel*. The different elements making up a space (e.g., functional physical infrastructure, helpful/hostile people) play a role in how women feel and thus in how women move and to what extent.

From the stories, different aspects of 'feeling un/safe' emerge. Fictional characters take steps against threats of sexual harassment, to be safe from misinformation or being misguided/getting lost, and to be safe from contracting diseases in an unhygienic environment. The threat of sexual harassment and related trajectory of thoughts/actions (which underlines how much work women do, to travel safely) appears in what would seem like contradictory and fundamentally different spaces: crowded-deserted; physical-virtual. It looms in crowded places such as packed coaches; it pervades deserted places such as the platform and washroom compounds. In fact, it is not left out of the individual washroom cubicles either, which are meant for usage by one individual at one time.

These threats create pervasive intentions to protect oneself. And

these intentions result in a layered burden of responsibility for women. One, women must pre-empt and prepare for their travels. In the stories this is visible in their dependence on past mobility experiences to decide which coach to take, or in carrying pepper sprays or sanitizers during travels. It is also visible in the kind of awareness that the participants have given the fictional characters about the location of CCTVs or emergency buttons – things they might not use, but worth knowing where to find. Two, women travel with the knowledge that they are/ might be answerable for their travels. This is again rooted in past experiences, heard or shared stories, as well as internalised norms about women's presence in public spaces. This burden is a factor in how women decide to respond to harassment (e.g., being blamed; not confronting in case they are followed by the culprit later). Third, the need to protect themselves from anticipated threats combined with the fear of *something* happening evokes negative feelings about the transit space. This was visible in stories indicating feelings including anger, anxiety, fear. These layers indicate the kind of social space any transport infrastructure can be, for women. Such multitude of burdens also shows the emotional cost of travels. Are there ways in which transport can reduce such burdens which lead to prolonged travel precarities?

To reduce the burdens and to feel safe, women make use of the existing metro infrastructures. If women's choices on how to use the metro are informed by past mobility experiences, their choices are also informed by what is available to them. Stories show women's use of the human and non-human elements of the metro infrastructure. The metro staff and security have appeared in stories whenever an action was required/help was needed – as 'uniformed' presence in deserted areas/at night which provided a feeling of safety, for intervention/redressal in case of sexual harassment, or to enquire about delays in metro at night. Role of the human infrastructure within these stories stressed their importance within a transport environment and highlighted the trust placed in them for some concrete action. This 'proactive' portrayal of 'authorised' human presence was different from that of the co-passengers. Their portrayal was a mixture of helpful, indifferent, hostile, and even voyeuristic (e.g., making video rather than helping).

Simultaneously, physical infrastructures and women-centered initiatives have played important roles in the stories too. Participants showed the use of women-only coaches, standing near CCTVs at night, or using helpline numbers to fight against threats of sexual harassment. Where asking another passenger for directions evoked suspicion/doubts, elements such as maps or information centres proved useful. These elements in stories pointed to a certain degree of trust which was linked with the metro system which in turn could invoke feeling safe. These strands highlight the role that public infrastructure can play in creating safer spaces for users (Ait Bihi Ouali et al., 2021; Moreira and Ceccato, 2020). Initiatives like the gender-segregated coaches or reserved seats for women raise conflicting opinions. The stories show that these are a consistent ask from women to feel safe. But literature also establishes them as short-term measures which can prove to be exclusionary (Agrawal and Sharma, 2015; Luiz, 2013). As Dunckel-Graglia (2013) discusses about 'pink transportation' in Mexico City, such measures must be seen as part of a series of steps including changes in laws, support system for victims, and triggering conversations around gender discrimination. Together, parallel actions can attack gender inequality and related violence.

Along with the metro infrastructures, the fictional characters also used digital technologies to reduce feeling un\safe. They did it by being connected to others (e.g., location sharing, calling a friend) and by disconnecting themselves from the immediate surroundings (e.g., listening to music). This aspect also opens another thread for reflection – the diversity among women commuters. Globally, fewer women have access to and use digital technologies compared to men, the gap much wider in India (Chakraborty, 2020; United Nations, 2019). Within this population group, access to, knowledge and comfort about operating such technologies would be even lower for the ageing population (Fleming et al., 2018; Vaz De Carvalho et al., 2018). The stories in our

data collection were written by participants with the access to such digital technologies (refer Limitations on p.10). It is not reflective of *all* women commuters.

Along with issues of safety inside the coaches/at the platform, the stories discuss safety during the use of facilities such as washroom, which does not receive much space in transport literature discussing metro systems (Zhang et al., 2016). Here, perceptions about non-functionality and unhygienic conditions of the washrooms also link with women's safe travels. If women forego relieving themselves, it can result in discomfort during travels and health related consequences (Reddy et al., 2019). But using the washroom includes bodily modifications (such as holding breath) and involves perceptions about risks to health. This highlights the need to include women's bodily functions in planning and policy (Greed, 2016).

This paper shows the need for gender-disaggregate data in transport planning and approaching studies about transport from the lens of user experiences. As more cities in low- and middle-income countries look towards automated voices welcoming them inside metro stations, this research will prove beneficial in future guidelines and dialogues to ensure gender-sensitive services.[3] Such studies contribute to ensuring right to the city for individuals who continue persisting in the face of social disadvantages, including women.

## CRediT authorship contribution statement

**Saakshi Joshi:** Conceptualization, Data curation, Formal analysis, Methodology, Visualization, Writing – original draft. **Ajay Bailey:** Conceptualization, Funding acquisition, Project administration, Supervision, Writing – review & editing.

## Declaration of Competing Interest

None.

## Data availability

Data will be made available on request.

---

[3] Literature also questions the need for metro systems due to their role in amplifying inequalities in cities (Randhawa, 2012; Siemiatycki, 2006; Tiwari, 2013). It is important to explore the need of creating metro infrastructure where improving existing transport modes will suffice.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jtrangeo.2023.103547.

## References

Abbott, J., 1966. The concept of motility. Sociol. Rev. 14 (2), 153–161. https://doi.org/10.1111/J.1467-954X.1966.TB01157.X/ASSET/J.1467-954X.1966.TB01157.X.FP.PNG_V03.

Agrawal, A., Sharma, A., 2015. Gender contests in the Delhi metro: implications of reservation of a coach for women. Indian J. Gend. Stud. 22 (3), 421–436. https://doi.org/10.1177/0971521515594279.

Ait Bihi Ouali, L., Laffitte, C., Graham, D.J., 2021. Quantifying the impact of street lighting and Walkpaths on street inclusiveness: the case of Delhi. SSRN Electron. J. https://doi.org/10.2139/SSRN.3909297.

Ceccato, V., Loukaitou-Sideris, A., 2023. RESPONDING TO SEXUAL HARASSMENT ON TRANSIT Towards an Agenda for Research and Practice Responding to Harassment at Different Global South-Global North Contexts.

Ceccato, V., Näsman, P., Langefors, L., 2020. Sexual Violence on the Move: An Assessment of Youth's Victimization in Public Transportation. https://doi.org/10.1080/08974454.2020.1733732.

Chakraborty, S., 2020. Digital India. ISST Working Paper Series (2020), 1.

Cho, S., Crenshaw, K.W., McCall, L., 2013. Toward a field of intersectionality studies: theory, applications, and praxis. Signs 38 (4), 785–810. https://doi.org/10.1086/669608/0.

Clarke, V., Hayfield, N., Moller, N., Clarke, V., Hayfield, N., Tischner, I., 2017. Once Upon A Time. Cambridge University Press. http://www.cambridge.org/gb/academic/subjects/psychology/psychology-research-methods-and-statistics/collecting-qualitative-d.

Clarke, V., Braun, V., Frith, H., Moller, N., 2019. Editorial introduction to the special issue: Using story completion methods in qualitative research. In: Qualitative Research in Psychology, 16. Routledge, pp. 1–20. https://doi.org/10.1080/14780887.2018.1536378. Issue 1.

Cuignet, T., Perchoux, C., Caruso, G., Klein, O., Klein, S., Chaix, B., Kestens, Y., Gerber, P., 2019. Mobility among older adults: Deconstructing the effects of motility and movement on wellbeing 57 (2), 383–401. https://doi.org/10.1177/0042098019852033.

Datta, A., Ahmed, N., 2020. Intimate infrastructures: the rubrics of gendered safety and urban violence in Kerala, India. Geoforum 110, 67–76. https://doi.org/10.1016/j.geoforum.2020.01.016.

de Witte, A., Hollevoet, J., Dobruszkes, F., Hubert, M., Macharis, C., 2013. Linking modal choice to motility: a comprehensive review. Transp. Res. A Policy Pract. 49, 329–341. https://doi.org/10.1016/J.TRA.2013.01.009.

Didero, M., Nebel, S., Pfaffenbach, C., 2021. Gender and mobility in the car-dependent urban society of Muscat/ Oman. DIE ERDE – Journal of the Geographical Society of Berlin 152 (2), 126–144. https://doi.org/10.12854/ERDE-2021-533.

Dunckel-Graglia, A., 2013. 'Pink transportation' in Mexico City: reclaiming urban space through collective action against gender-based violence. Gend. Dev. 21 (2), 265–276. https://doi.org/10.1080/13552074.2013.802131.

Farina, L., Boussauw, K., Plyushteva, A., 2021. Moving safely at night? Women's nocturnal mobilities in Recife, Brazil and Brussels, Belgium. 29 (9), 1229–1250. https://doi.org/10.1080/0966369X.2021.1937064.

Flamm, M., Kaufmann, V., 2006. Operationalising the Concept of Motility: A Qualitative Study. 1 (2), 167–189. https://doi.org/10.1080/17450100600726563.

Fleming, A., Mason, C., Paxton, G., 2018. Discourses of technology, ageing and participation. Palgrave Communications 4 (1), 1–9. https://doi.org/10.1057/s41599-018-0107-7.

Freudendal-Pedersen, M., 2007. Mobility, motility and freedom: the structural story as analytical tool for understanding the interconnection. Swiss Journal of Sociology 33 (1), 27–43. https://doi.org/10.5169/seals-814218.

Frith, H., 2013. Accounting for orgasmic absence: exploring heterosex using the story completion method. Psychology & Sexuality 4 (3), 310–322. https://doi.org/10.1080/19419899.2012.760172.

Gardner, N., Cui, J., Coiacetto, E., 2017. Harassment on public transport and its impacts on women's travel behaviour. Australian Planner 54 (1), 8–15. https://doi.org/10.1080/07293682.2017.1299189.

Gopal, K., Shin, E.J., 2019. The impacts of rail transit on the lives and travel experiences of women in the developing world: evidence from the Delhi Metro. Cities 88, 66–75. https://doi.org/10.1016/J.CITIES.2019.01.008.

Gravett, K., 2019. Story completion: storying as a method of meaning-making and discursive discovery. Int J Qual Methods 18. https://doi.org/10.1177/1609406919893155.

Greed, C., 2016. Taking women's bodily functions into account in urban planning and policy: public toilets and menstruation. Town Plan. Rev. 87 (5), 505–524. https://doi.org/10.3828/TPR.2016.35.

Hanson, S., 2010. Gender and mobility: new approaches for informing sustainability. Gend. Place Cult. 17 (1), 5–23. https://doi.org/10.1080/09663690903498225.

Hidayati, I., Tan, W., Yamu, C., 2020. How gender differences and perceptions of safety shape urban mobility in Southeast Asia. Transport. Res. F: Traffic Psychol. Behav. 73, 155–173. https://doi.org/10.1016/j.trf.2020.06.014.

Houtkamp, C., 2018. The relevance of motility in language shift research. Language Problems and Language Planning 42 (1), 1–15. https://doi.org/10.1075/LPLP.00002.HOU/CITE/REFWORKS.

Infante-Vargas, D., Boyer, K., 2021. Gender-based violence against women users of public transport in Saltillo, Coahuila. Mexico. Journal of Gender Studies 31 (2), 216–230. https://doi.org/10.1080/09589236.2021.1915753.

Jahangir, S., Bailey, A., Hasan, U., Hossain, S., Helbich, M., Hyde, M., Bowers, B.J., 2021. "When I need to travel, I feel feverish": everyday experiences of transport inequalities among older adults in Dhaka, Bangladesh. The Gerontologist XX, 1–11. https://doi.org/10.1093/GERONT/GNAB103.

Joshi, S., Bailey, A., Datta, A., 2021. On the move? Exploring constraints to accessing urban mobility infrastructures. Transp. Policy 102, 61–74. https://doi.org/10.1016/J.TRANPOL.2020.11.005.

Joshi, S., Roy, S., Mowri, S., Bailey, A., 2022. Devising gender-responsive transport policies in South Asia, 30 (1–2), 59–76. https://doi.org/10.1080/13552074.2022.2066266.

Kakar, I.S., Peden, M., Jagnoor, J., 2021. Intersectionality based policy analysis: equity in mobility in India. Transp. Policy 101, 14–22. https://doi.org/10.1016/j.tranpol.2020.11.010.

Kaufmann, V., 2016. Mobility, Motility: What Determines our Ability to Move?.

Kaufmann, V., Bergman, M.M., Joye, D., 2004. Motility: mobility as capital*. Int. J. Urban Reg. Res. 28 (4), 745–756.

Kesselring, S., 2016. Pioneering mobilities: new patterns of movement and motility in a mobile world, 38 (2), 269–279. https://doi.org/10.1068/A37279.

Kett, M., Cole, E., Turner, J., 2020. Disability, mobility and transport in low- and middle-income countries: a thematic review. Sustainability 12 (2), 589. https://doi.org/10.3390/SU12020589.

Kitzinger, C., Powell, D., 2016. Engendering infidelity: essentialist and social constructionist readings of a story completion task. Fem. Psychol. 5 (3), 345–372. https://doi.org/10.1177/0959353595053004.

Kjaerulff, A.A., 2011. Motility–finding a way to mobility attitude and behavior. www.trafikdage.dk/artikelarkiv.

Lewin, M., 1985. Unwanted intercourse: the difficulty of saying no. Psychol. Women Q. 9 (2), 184–192. https://doi.org/10.1111/J.1471-6402.1985.TB00871.X.

Lewis, S., Saukko, P., Lumsden, K., 2020. Rhythms, sociabilities and transience of sexual harassment in transport: mobilities perspectives of the London underground. Gender, Place, & Culture 28 (2), 277–298. https://doi.org/10.1080/0966369X.2020.1734540.

Loukaitou-Sideris, A., Ceccato, V., 2020. Sexual violence in transit environments: Aims, scope, and context. In: Ceccato, V., Loukaitou-Sideris, A. (Eds.), Transit Crime and Sexual Violence in Cities: International Evidence and Prevention, First. Routledge, pp. 3–11.

Loukaitou-Sideris, A., Fink, C., 2008. Addressing women's fear of victimization in transportation settings. Urban Aff. Rev. 44 (4), 554–587. https://doi.org/10.1177/1078087408322874.

Lucas, K., 2011. Making the connections between transport disadvantage and the social exclusion of low income populations in the Tshwane Region of South Africa. J. Transp. Geogr. 19 (6), 1320–1334. https://doi.org/10.1016/j.jtrangeo.2011.02.007.

Lucas, K., van Wee, B., Maat, K., 2016. A method to evaluate equitable accessibility: combining ethical theories and accessibility-based approaches. Transportation 43 (3), 473–490. https://doi.org/10.1007/s11116-015-9585-2.

Luiz, L., 2013. Ladies seat: some reflections on reservations as restrictions. Asian Journal of Religious Studies 58 (5), 24–31.

Lupton, D., 2019. 'Things that matter': poetic inquiry and more-than-human health literacy. Qualitative Research in Sport, Exercise and Health. https://doi.org/10.1080/2159676X.2019.1690564.

Moore, S.M., 1995. Girls' understanding and social constructions of menarche. J. Adolesc. 18 (1), 87–104. https://doi.org/10.1006/JADO.1995.1007.

Moreira, G.C., Ceccato, V.A., 2020. Gendered mobility and violence in the São Paulo metro, Brazil. Urban Stud. 58 (1), 203–222. https://doi.org/10.1177/0042098019885552.

National Commission for Women, 2023. Retrieved July 26, 2021, from. http://www.ncw.nic.in.

National Crime Records Bureau. (2023).

Peters, D., 2013. Gender and Sustainable Urban Mobility. Thematic Study Prepared for Sustainable Urban Mobility: Global Report on Human Settlements, p. 2013.

Randhawa, P., 2012. Delhi metro rail: beyond mass transit. Econ. Polit. Wkly. 47 (16), 25–29.

Reddy, Y.M., Raghavan, S., Vedala, S.C., 2019. A narrative exposition on public toilet usage by women: a study from warangal. Indian Journal of Gender Studies 26 (1–2), 108–137. https://doi.org/10.1177/0971521518808100.

Sadana, R., 2010. On the Delhi metro: an ethnographic view. Econ. Polit. Wkly. 45 (46), 77–83.

Shliselberg, R., Givoni, M., 2019. Travel experiences as a source of motility: evidence from a study of adult women. Applied Mobilities 1–16. https://doi.org/10.1080/23800127.2019.1635779.

Siemiatycki, M., 2006. Message in a metro: building urban rail infrastructure and image in Delhi, India. Int. J. Urban Reg. Res. 30 (2), 277–292.

Tara, S., 2011. Private space in public transport: locating gender in the Delhi metro. Econ. Polit. Wkly. 46 (51), 71–74.

Tayal, D., Mehta, A.K., 2021. Working women, Delhi metro and Covid-19: a case study in Delhi-NCR. The Indian Journal of Labour Economics 2021 64:2 64 (2), 389–413. https://doi.org/10.1007/S41027-021-00313-1.

Tiwari, G., 2013. Metro rail and the City: derailing public transport. Econ. Polit. Wkly. 48 (48), 65–76.

Turner, J., Fouracre, P., 1995. Women and transport in developing countries: foreign summaries. Transp. Rev. 15 (1), 77–96. https://doi.org/10.1080/01441649508716902.

United Nations, 2017. New Urban Agenda. https://uploads.habitat3.org/hb3/NUA-English.pdf.

United Nations. (2019). The Age of Digital Interdependence: Report of the UN Secretary-General's High-level Panel on Digital Cooperation. moz-extension://13455acb-313a-41dd-8b4d-22cf086383e7/enhanced-reader.html?openApp&pdf=https%3A%2F%2Fwww.un.org%2Fen%2Fpdfs%2FDigitalCooperation-report-for%2520web.pdf.

Uteng, T.P., Turner, J., 2019. Addressing the linkages between gender and transport in low- and middle-income countries. Sustainability (Switzerland) 11 (17). https://doi.org/10.3390/su11174555.

Vaz De Carvalho, C., Cano Olivares, P., Roa, J.M., Wanka, A., Kolland, F., 2018. Digital information access for ageing persons. In: Proceedings - IEEE 18th International Conference on Advanced Learning Technologies, ICALT 2018, pp. 345–347. https://doi.org/10.1109/ICALT.2018.00086.

Verlinghieri, E., Schwanen, T., 2020. Transport and mobility justice: evolving discussions. J. Transp. Geogr. 87, 102798. https://doi.org/10.1016/J.JTRANGEO.2020.102798.

Walsh, E., Malson, H., 2010. Discursive constructions of eating disorders: a story completion task. Fem. Psychol. 20 (4), 529–537. https://doi.org/10.1177/0959353509350759.

Watson, A., Lupton, D., 2021. Tactics, affects and agencies in digital privacy narratives: a story completion study. Online Inf. Rev. 45 (1), 138–156. https://doi.org/10.1108/OIR-05-2020-0174/V1/REVIEW1.

Zhang, K., Chen, X., Zhang, S., Wilson-Gray, B., 2016. Towards a healthy ride: locating public toilets in the Shanghai metro system. Applied Spatial Analysis and Policy 11 (2), 381–395. https://doi.org/10.1007/S12061-016-9213-3.