Tec Empresarial
P-ISSN: 1659-2395; E-ISSN: 1659-3359

SMART MOBILITY IN INDIA: PERCEPTIVE COMPARISON BETWEEN MEN AND WOMEN

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Abstract:
A significant problem in the study of travel decision-making has been gender disparities in travel behaviour. Social justice includes a crucial component called gender equity in travel services. When compared to male residents, female residents engage in much more leisure activities and use public transportation. Male inhabitants also exhibit a disproportionately greater journey frequency per day and a disproportionately longer space span of trips, according to the statistics. Based on these gender differences in travel behaviour, a complete transport service system that adjusts to the population structure, particularly the gender structure, is required to offer differentiated and tailored travel services in order to safeguard women's travel rights and to advance transport equity. One of the fastest-growing sectors in the shared economy is the mobility industry, which offers app-based services for using shared vehicles such as bikes, parking, shuttles, and more. The admiration of smartphones and businesses that offer on demand mobility are to blame for its fast expansion. It is said to have altered how people move. But how well do we understand how it affects gender equality in the workplace? The majority of the study on shared mobility is concentrated on examining its effects on commuter usage, congestion, environmental considerations, car ownership, and modal shift, according to the findings of an exploratory review of the literature on the topic. Women's access, safety, ease, and comfort of mobility are given very little consideration, despite the fact that their travel requirements differ significantly from human ones. There are opinions, conjectures, and even professional opinions about the potential effects; nonetheless, the information that is now available plainly demonstrates the fact that these services primarily used by men, suggesting that they are simply deepening sex disparity in our cities. The causes of this gendered tendency can be identified through thorough empirical investigations in both emerging and developed nations, so that they can be addressed in order to achieve equality of gender in urban mobility.

Keywords: Gendered Equity, Gendered mobility, Car-sharing, bike-sharing, and smart mobility

Introduction:
The equality of men and women with regard to EV usage and the construction of the infrastructure for charging is examined in this article. The study's objective is to give a summary of the individual user needs the difference between men and women and how this information can be used to develop charging infrastructure and the Electric Vehicle advantages in recent times. The current

electric mobility system is not best for women when considering the equality and inequality of men and women, especially in infrastructure. The article makes suggestions to facilitate women's access to electric mobility. Both men and women generally spoke about topics that they had in common with PEV owners. Regardless of whether the group was all male, all female, or mixed gender, there were considerably more commonalities than differences in the conversations. They concur that their PEV satisfies their demands for daily driving. For the purpose of raising the quantity of PEVs on the road and for the benefit of others if not themselves, they would like to see a public charging network created in their neighbourhood. They would want to pay for the quantity of electricity they consume from a public charger rather than the duration of time their PEV is connected to it.

Gender Mobility:

To eliminate gender disparities and promote more environmentally friendly growth that takes into account women's environmental behaviour, transport regulations must have a gender perspective. Jensen, A. F.,(2013). The movement patterns of women vary from men in a number of well-established ways. These distinctions haven't been taken into account in transit planning for a very long time. Over the last forty years, standardized practices and methodologies that are primarily based on men's mobility patterns individual commutes to work during rush hours by private motorized transportation have greatly influenced urban transportation planning and policy-making around the world. Kim, J., (2014).

The "grey" literature, or studies commissioned by governmental and international organisations (the World Bank, OECD, EC, UN, NGOs, etc.), has seen an increase in interest in gender and transportation. These studies offer knowledge for planning procedures that take gender into account. These studies are especially pertinent to women's adoption of new vehicles. Women place a higher emphasis on practicality, durability, and less-polluting automobiles than do men. Vassileva, I., & Campillo, J. (2017).

Impacts of smart mobility:

Several research works have been carried out to examine the benefits and impacts of smart mobility services, such as car- and bike-sharing, on various urban indicators, such as vehicle ownership, modal share and shift, transit use, and vehicle usage. Ride-sourcing and ride-sharing services have not yet gotten as much attention as they should because they are still quite new. An overview of earlier studies on the impacts of smart mobility from around the globe can be found in the subsections that follow. Kraemer, M.U.G. (2020)

Smart mobility and Gender parity:

The consequences of digitalisation on gender equality were collated. It was based on carefully chosen academic works and documentation, which included expert summaries and assessments from a workshop with invited specialists. Xie, J., & Zhu, Y. (2020). One broad conclusion is that none of the trends examined would categorically make achieving Swedish gender equality policy goals easier or harder because they offer both possibilities and problems. It highlighted some crucial conceptual topics. First, the new digital instruments for the information technology industry, where there is already a gender gap, smart mobility solutions are being developed. Due

to this gap, the designers are not well equipped to raise pertinent issues regarding the social repercussions of these services, particularly with regard to gender equality. These issues have a significant bearing on how tools are designed. Second, smart mobility opens up more alternatives for being mobile, most of which are accessible via smartphones and similar devices. Shaheen, S., & Chan, N. (2016). This presupposes that those who want to use them have both the technological means and the knowledge necessary to use them (also known as "digital literacy"). The fact that women often earn less than males and may face greater barriers to employing new technologies suggests that this assumption may be incorrect.

Direct role of gender in the transportation sector:

Gender can play a direct role in transportation in a number of ways. Overall, gender can play a significant role in transportation by influencing safety concerns, access to transportation, employment patterns, and infrastructure design. It is important for transportation planners to take gender into account when designing transportation systems to ensure that they meet the needs of all users. Banerjee, A., & Raju, S. (2009).

Conceptual Model:

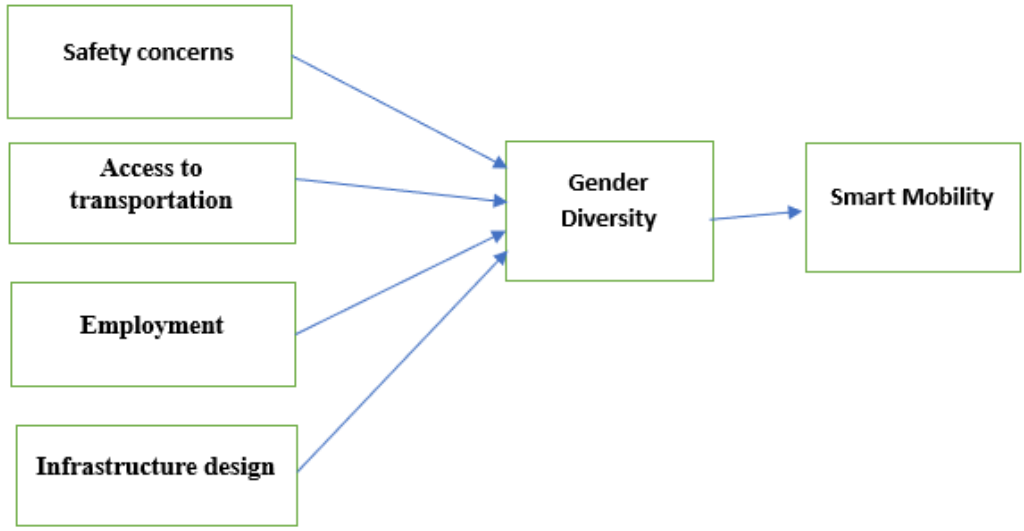

Fig 1 : Singh, Y. J. (2020).

Safety concerns: Women may choose a different mode of transportation if they are more likely to be harassed or attacked when utilizing public transit or going alone at night. Instead of using public transportation, women may choose to travel in groups, use ride-sharing services, or drive their own vehicles. Law, R. (1999). Ensuring equitable access to mobility for all and advancing social justice can be significantly aided by gender equality in transportation. To guarantee that gender equality in transportation does not have unforeseen effects, safety concerns need to be addressed. Sexual harassment and assault are one of the biggest safety risks associated with gender equality in transportation. When taking public transit, especially late at night or in remote locations, women and gender minorities are frequently more vulnerable to harassment and abuse. Dasgupta, S.

(2018). This may be the result of inadequate lighting, security precautions, or transportation options, along with a lack of criminal accountability.

Infrastructure for transportation has a physical design that raises additional safety concerns. Many transportation systems are built with speed and efficiency in mind, not everyone's safety and comfort. For cyclists, pedestrians, and other road users who are vulnerable, particularly women and gender minorities who may be more prone to face harassment or violence, this can result in unsafe situations. Jain, R., & Bhatia, M. (2017). Additionally, cultural or societal barriers that prohibit women and gender minorities from taking public transit may be a result of social norms and expectations concerning gender roles and mobility. These barriers might exacerbate social isolation and make moving around more difficult. To address these safety problems, it is imperative that the interests and perspectives of women and gender minorities be given priority in the planning and design of transportation. Sultana, S., & Weber, E. (2019). This could mean developing policies and strategies to prevent harassment and assault, investing in well-lit, secure stations and other infrastructure improvements, and engaging with the community to better understand their transit-related preferences and needs. By giving safety and inclusion top priority, we can ensure that gender equality in transportation is achieved in a way that benefits everyone. Dasgupta, S. (2018).

Access to transportation: Women's access to transportation may be restricted in some nations due to cultural norms or economical limitations. Their ability to participate in activities outside the home or to travel to work, school, or doctor's appointments may be hampered as a result. Thakuriah, P., & Metaxatos, P. (2000). Smart mobility is the process of optimizing transportation networks to increase their safety, sustainability, and efficiency through the use of data analytics and cutting-edge technologies. Access to transit is one of the main elements of smart mobility. For people to get to their places of employment, education, healthcare, and other necessities, they must have access to transportation. Wang, D., Cheng, Y., & Li, Z. (2020).

Electric vehicles (EVs) provide a more efficient and environmentally friendly form of transportation, they are a crucial component of smart mobility. EVs can be included into smart grids to provide more effective energy distribution and charging. All things considered, data analytics and technology are used to improve access to transportation in a smart mobility system. Users will have more convenient and reasonably priced options as a result, and transportation networks may become more sustainable, safe, and efficient. Li, Y., Wang, D., (2021).

Employment: Transportation requirements and employment patterns might be influenced by gender roles. Women might be more likely to be responsible for taking care of others, which could make it difficult for them to drive vast distances for work or to commute during specific hours. Lei, L., Desai, S., & Vanneman, R. (2019). Taking into account the varying travel habits and requirements of men and women is a crucial component of achieving gender equality in smart

mobility. Men are more likely to drive a car, while women are more likely to walk, cycle, and take public transit. Jägerbrand, A. (2020). This is frequently brought on by things like having to take care of others, having less money, and being afraid for one's safety. Promoting gender equality in smart mobility can be aided by creating transportation systems that take into account these various travel patterns and needs. Fujii, S. (2020).

Policymakers, urban designers, and transportation providers must collaborate with a variety of stakeholders and give gender-responsive planning and design top priority in order to advance gender equality in smart mobility. Women's organizations and advocacy groups should be consulted, gender-disaggregated data analysis should be carried out, and women and non-binary people should be included in decision-making processes. Wardman, M. (2019). In conclusion, implementing gender equality in smart mobility entails developing services and systems for transportation that are secure, open, and sensitive to the various demands of men, women, and non-binary people. Policymakers, urban planners, transportation corporations, and other stakeholders must work together to achieve gender equality in smart mobility. Akin, A. (2020).

Infrastructure design: Gender can also have an impact on how transportation infrastructure is designed. For instance, when it comes to seating arrangements on public transit, illumination, and safe and accessible pedestrian pathways, women could have different needs than men. In 2020, García-Jiménez and Mauriello Maintaining social cohesiveness and the efficient running of economic activity depend heavily on transportation. Apart from guaranteeing individuals' everyday movement, transportation plays a crucial role in the production and dissemination of goods. Adequate infrastructure is a fundamental need for transportation networks to operate. Vanneman, R. (2019 To make sure that they don't unintentionally reinforce gender stereotypes and biases, smart mobility solutions should be created with gender equality in mind. For instance, instead of assuming that male passengers are the default, autonomous cars should be designed to take into account the safety of all passengers, including women. Schwanen, T., Lucas, K., & Akin, A. (2020).

How Gender Equality impact over smart mobility:

Gender equality and smart mobility are two significant and interconnected challenges. The term "smart mobility" describes the application of cutting-edge technology and creative transit strategies to enhance mobility and lessen traffic in metropolitan regions. Vassileva, I., & Campillo, J. (2017). On the other side, the idea of treating people of all genders equally and without discrimination is known as gender equality. Enhancing women's access to transportation is one way that smart mobility may support gender equality. Women frequently experience particular difficulties with transportation, such as restricted access to public transit and safety worries. Smart mobility solutions that give women more accessible and secure transportation options, such ride-sharing services and driverless cars, can aid in addressing these issues. Qu, X. (2020). Smart mobility also improves access to job possibilities, which can help close the gender gap in the

workforce. The added duties that women frequently shoulder, such childcare, might make commuting to work challenging. Work-life balance can be achieved by women through the use of smart mobility solutions like telecommuting and flexible work schedules. Akin, A. (2020). In conclusion, smart mobility has the potential to increase gender equality by giving women access to more practical and secure transportation options, closing the gender pay gap in the workforce, and encouraging more gender-sensitive approaches to transportation planning and design.

Conclusion:

The transport sector is still overwhelmingly male, employing more men than women, as is well known in the smart mobility community. It has been noted that historical, social, political, and conventionally held gender views of women as the primary caregivers in the family are some of the factors that lead to gender inequality in the access to and employment in the transportation sector. The situation can't be improved unless transportation companies, educational institutions, and policy-making bodies help implement the extra steps required to guarantee equal access to jobs and transportation for men and women are taken into account. The goal of these additional programs is to provide equal opportunities for women to advance in their careers and to divide up household caregiving duties.

In summary, there are a number of ways that smart mobility could advance gender equality. Smart mobility can enhance women's access to work, education, healthcare, and other vital services, allowing them to engage more fully in society, by offering safe and accessible transportation options. Furthermore, smart mobility can contribute to the creation of more equal and sustainable cities as well as close the gender gap in emissions related to transportation. However, it is crucial to take into account the unique mobility requirements and preferences of women and other marginalized groups, as well as include them in the development and application of transportation policies and technology, in order to guarantee that smart mobility actually advances gender equality. By doing this, we can build a smart mobility future that is genuinely equal and inclusive.

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