

DOES TAMIL NADU'S FREE BUS TRAVEL POLICY IMPACT WOMEN'S LIVES?

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ABSTRACT

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Sustainable Development Goal 5 aims to achieve gender equality by 2030, and various national and state policies and programs are being implemented with a gender-inclusive perspective. Women often rely on male members of the family to meet their needs and due to COVID-19 pandemic losses and ongoing price hikes on essential goods, many working women in the informal sector, such as domestic workers, construction workers, agricultural workers and daily wage employees, are finding it difficult to survive. Poor women who are destitute, separated, widowed, disabled or migrated are the worst affected as they have no choice but to work and earn money to survive. Women pushing for their livelihood means their mobility is more important in the face of job losses and economic opportunities. Also, in the face of rising petrol and diesel prices, transportation costs have been identified as a key burden for families, which many women have been unable to afford. In this context, the Tamil Nadu government announced free public bus travel for women in June 2021 in an attempt to alleviate travel costs and enhance women's work participation rates. This research paper investigates the economic and social impact of the 'Free Bus Travel Policy' on women in the Sivaganga district of Tamil Nadu, by using a mixed method design adopting both quantitative survey (150) and qualitative interviews (30). The free bus travel policy has impacted women's economic and social lives, especially among women from lower-income groups, and the majority of them have agreed that this scheme has increased their access to economic resources, mobility, and financial independence. However, the scheme suffers limitations such as lack of proper time management, lack of suitable infrastructure, and lack of frequent buses that are to be provided to have an effective implementation of the scheme.

Keywords: Free bus travel; economic independence; mobility; gender equality; sustainable development

1. INTRODUCTION

Women, who make up half of India's population, continue to face socioeconomic disadvantages, preventing gender equality from being achieved. Women often rely on male members of the family to meet their needs due to the patriarchal norms prevailing in society. Women's mobility is highly restricted due to such socio-cultural norms and therefore women are less likely to pursue higher education, limiting their ability

to become economically independent. As a result, they are less likely to be employed, work in less productive jobs, earn less, or are more likely to engage in unpaid work. According to a labour force survey carried out in 2017, women make up only 15.5% of the entire workforce in urban India (Singhai & Singhai, 2021) and the World Bank Policy Research Working Paper also highlighted that female labour force participation dropped by 19.6 million women (i.e., declined by 11.4 percent) from 2004–2005 to 2011–2012. About 53 percent of this drop occurred in rural India among those aged 15 to 24 years. It acknowledged the different factors, including household composition, socioeconomic status, and level of education, that have significantly influenced the decline. They recommended improving the educational status, abilities, and employment opportunities for women and girls to reverse this decrease. (Andres et al., 2017). To improve women's educational and economic participation, mobility is crucial because it has a strong association with women's asset ownership, labour force participation, as well as higher wages and salaries (Singhai & Singhai, 2021; Mehta & Sai, 2021).

Another significant factor that contributes to the decrease in the workforce is the restricted mobility of women due to fears for their safety (sexual assault) and the stigma associated with women working outside the home (Siddique, 2022; Chakraborty & Lohawala, 2021). Lack of protection and security in public spaces and on public transportation hinders women's capacity to participate equitably. Women, nevertheless, find ways to work close to their houses to limit such fears and to balance work and household responsibilities (Anand & Tiwari, 2006; Jayachandran, 2021). Women who commute long distances to work also struggle with the high cost of transportation. This forces them to spend more money on travel than they can afford, creating further hardship for other expenses like food, healthcare, and education (Anand & Tiwari, 2006). Women generally don't have access to private transportation, so they choose jobs that are close by or easily accessible by public transportation. The main issue is that their capacity to have better livelihood opportunities outside of their homes is highly affected by their limited mobility owing to safety and security concerns on one side, and the constrained accessibility and affordability of transport due to the expensive transportation costs on the other (Allen, 2018; Alberts et al., 2016).

Women's transportation and travel experiences differ from those of men, due to the socioeconomic differences that still exist, and their choice to travel is influenced by a variety of factors, including income, the mode of transportation, the time, and whether they will be accompanied by children or not. Women who work have diverse travel patterns and increasingly balance work and childcare while travelling. A population-representative travel survey of 19 major cities in 13 countries on 6 continents, including a mix of cities from low-, middle-, and high-income countries, found that women are more likely than men to take public transportation (Goel et al., 2023). Women use public transportation for a variety of purposes including going to work, school, and the market where accessibility and affordability are major challenges. Therefore, these women are disproportionately affected by the travel costs due to wider socio-economic disparities (Motherwell, 2018).

The COVID-19 pandemic aggravated this situation as both men and women faced job losses and a lack of income. Women were more likely to lose their jobs and income as a result of the pandemic's containment measures (Dang & Nguyen, 2021). Many working women in the informal sector, such as domestic workers, construction workers, agricultural workers, and daily wage employees, are finding it difficult to survive due to COVID-19 pandemic losses and ongoing price hikes on essential goods. Approximately 90% of the informal labourers experienced a decrease in income and food expenses during the lockdown (Swarna et al., 2022) and 45% of domestic workers lost their jobs, according to a study done in three major Indian cities (Sumalatha et al., 2021). A decrease in family income has ultimately reduced the purchasing power of households due to the increase in prices of food commodities and fuel, which is a major threat to food security. Bina Agarwal (2021) claims that job losses in women are associated with food insecurity, poverty, debt, and loss of assets. Poor women who are destitute, separated, widowed, disabled, or migrated are the worst affected as they have no choice but to work and earn money to survive. Also, in the face of rising petrol and diesel prices, transportation costs have been identified as a key burden for families, which many women were unable to afford. It is in this context, In June 2021, the Tamil Nadu government announced free public bus travel for women in an attempt to alleviate travel costs and enhance women's work participation rates. Women, particularly daily wage workers, are expected to attain economic independence and be free of poverty and misery as a result of this scheme.

The objective of this research paper is to analyse the benefits of the free bus travel scheme for women and its impact on their lives in terms of women's mobility, empowerment, and quality of life. This study also analyses the challenges and problems faced by women while using this free bus travel scheme and its implementation challenges so as to rectify it by providing appropriate and gender responsive recommendations for the successful implementation of the scheme.

2. LITERATURE REVIEW AND THEORETICAL PERSPECTIVES

A wide range of issues prevent women from participating in the workforce. Nonetheless, one of these factors is women's mobility, which is socially constrained. This section provides a gender-focused overview of the literature and theoretical background pertaining to women's mobility and transportation-related challenges.

2.1 Women's mobility

Women's mobility is essential for economic opportunities that increase their workforce participation, yet they face several barriers in the labour market and commuting. The barriers under five key issues were highlighted by MacDonald (1999), who looked at the connections between women's employment and commuting. These included "(i) women's shorter work trips because they earn less, (ii) women choose shorter trips to balance household and work responsibilities, (iii) female-dominated jobs necessitate short work trips because they are more likely to be close to home, (iv) women's shorter work trips are a symptom of spatial entrapment and (v) a spatial mismatch between homes and jobs". When analysing the patterns, Hanson and Pratt (1988) discovered that almost two-thirds of the research participants chose their workplace based on where they lived. The results showed sharp gender differences: 63 percent of the male respondents chose their employment depending on where they lived, as opposed to 93 percent of the female respondents. Men travel for work more than two-thirds of the time, compared to women, who travel for work just half the time, according to Gonzales (2018). Contrarily, only one in eight of men's trips is for family obligations, compared to nearly one in three of women's trips for domestic duties. This demonstrates an explicit gender difference in the travel pattern of men and women, which is based on socially constructed (gendered) roles where men participate in productive (paid) roles while women engage in reproductive roles that are unpaid and undervalued (Lehmann, 2020). This societal structure was held to reinforce women's subordinate position in the labour market (McDowell, 1983), and it consequently resulted in a gendered labour market.

Uteng (2012), who examined transportation patterns in urban and rural contexts in both developed and developing nations, concluded:

Many similarities are to be found when comparing gendered travel behaviour among the developed and developing parts of the world. [Common features comprise gendered differentiated access and attitudes to private and public transport, differences in child and elder care responsibilities, the resultant escort trips and finally the differences emerging from the contextualization of female roles. However, certain key points special to the developing world are the existence of huge disparity between the 'urban, educated, middle-class' versus 'urban, uneducated, low-income women; access to activities/ urban spaces/ transport modes/ and socially-sanctioned movements in 'rural and semi-urban areas' versus 'cities and metropolises'; the existence of slums and permeation of religious beliefs in the society putting tangible borders on women's participation in the outside world.]

Singhai and Singhai (2021) identified three key factors that affect women's transport choices: cost, personal security, and time. These factors will help women meet their practical needs, such as getting in to schools and markets, and their strategic needs, such as access to social and economic opportunities. Since the expenses of safe and secure transport are too high for women, they have lower wages, experience spatial limitations, and have less mobility than males (Tiwari, 2014). The barriers identified by various researchers that prevent women and girls from accessing education, health care, and employment include a lack of safe, comfortable, convenient, and affordable transportation (Uteng, 2012), as well as a fear of sexual violence (Kash, 2019, Dunckel-Graglia, 2016; Neupane & Chesney-Lind, 2014). According to Valentine (1989), the concept of spatial expression of patriarchy is when men rule the public space and women lack the confidence to live alone or work in particular occupations that prevent women from being independent.

Women experience spatial limitations as a result of patriarchal power dynamics, socially imposed gender roles, and economic inequality, which in turn restricts their mobility, access to activity places, participation in labour markets, and ability to make money on their own. Several transportation policies were created to address these restrictions, including formal surveillance with on-site security personnel (Gekoski et al., 2015) and the installation of CCTVs in public transportation systems as a result of recent technological advancements (Ministry of Housing and Urban Affairs, Government of India, 2014). Women-only vehicles have been reported to have advantages by certain authors (Dunckel-Graglia, 2013), and they are becoming increasingly common in developing nations (Uteng, 2012). As institutions are dominated by male members who reflect masculine norms and have normative authority over their agenda (Kronsell, 2005), early transport policies are gender-neutral and have not equally reacted to women's and men's mobility requirements (Thynell, 2016). Transport, however, is not gender-neutral, thus to build effective transport policy, a gender analysis of women's travel behaviour, needs, priorities, and opportunities must be recognized in the local

context. In India, Ministry of Housing and Urban Affairs, Government of India (2014) suggested police-verified conductors, drivers, GPS for public and intermediate public transportation, closed circuit television (CCTV) cameras in all transportation infrastructure, and street lighting to help prevent violence against women. However, these recommendations need to be implemented with a gender-responsive approach. To promote gender equality, gender perspective tactics must be incorporated into the development, planning, implementation, monitoring, and evaluation of policies. This will lessen the burden of travel and the created (gendered) roles. This "free travel for women" policy, which allows women of all classes, castes, and gender identities to travel for free on public transportation, is seen as a policy that promotes gender equality in transportation.

2.2 Free bus travel policy

Free bus services, commonly referred to as a free fare public transportation (FFPT), are available in various countries, particularly in Europe. To reduce traffic congestion, energy consumption, and air pollution, industrialized nations are implementing free bus policies in metropolitan areas. This will help them address environmental and climate change challenges (European Environment Agency, 2013). In some countries, including the UK, Canada, and China, the elderly are given free bus rides. Young adults between the ages of 12 and 18 are given free bus rides in other nations, like Malaysia. The purpose of a free bus service in developing nations is to help the low-income population improve their quality of life and employment opportunities by lowering their transportation expenditure (Sukor et al., 2021).

India offered free bus travel for women in the nation's capital New Delhi in 2019. Tamil Nadu is the third state to implement this policy in 2021 after Punjab (Shivakumar, 2021). With 29 states and 8 union territories, India is a very populous country. Tamil Nadu is one of the southernmost states, and according to the 2011 Census, it has 72 million residents, making it the sixth most populous state nationwide. Furthermore, it has the third-highest level of urbanization and the fifth-highest gross state domestic product (State Planning Commission, Government of Tamil Nadu, n.d.). However, 51.6% of people reside in rural areas, and majority of them rely only on agriculture for their livelihood (Census Operations Tamil Nadu, Government of India, 2011). The labour force participation rate in rural areas is higher (62.8%) compared to urban areas (53.6%) in Tamil Nadu and the female workforce participation is almost half (38.4%), when compared to males (78.6%) (Ministry of Labour and Employment, Government of India, n.d.). Women's work is primarily dependent on agriculture where around 55 percent of women are engaged in agriculture and the rest in non-agricultural activities. Female employment in the primary sector has decreased by 22.7 percent, while it has increased in the secondary and tertiary sectors by 19 and 3.7 per cent, respectively, between the years 1999–2000 and 2011–2012 (Sundari, 2021). The same study's rural-urban data reveals that, as a result of industrialization, women workers' regular wage/salaried employment has increased in urban regions, whereas it has decreased (by 55 to 63 per cent) in rural areas, where they are more likely to engage in casual labour. Overall, the percentage of female workers has climbed very slightly from 31.5 per cent in 2001 to 31.8 percent in 2011, while the proportion has fallen in rural areas relative to metropolitan ones. (Sundari, 2021).

In light of this, the Tamil Nadu State Government has introduced the "Zero-ticket Bus Travel Scheme for Women" (ZTBT), which allows all women (irrespective of their age, class, caste, ethnicity, region, religion, disability status etc) to travel on corporation buses for free. The goal of this free bus service scheme is to improve women's mobility and work participation, leading to a higher quality of life. In 2017, the Institute for Transportation and Development Policy (ITDP) conducted research in which women bus commuters in Chennai identified affordability and safety as their top concerns. Shreya Gadepalli, the South Asia program lead for ITDP, emphasized that women rely more on public transportation because they have less access to private vehicles than men do (Shah et al., 2017). This program is anticipated to empower women in the state by increasing their access to employment and education. By increasing the proportion of women who ride on the buses that offer safety for women, the program also aims to change the environment for travel. (Shivakumar, 2021). This study analyses the benefits and impacts on the lives of women as well as the challenges they face under this scheme.

2.3 Theoretical perspectives

Many academics from various fields, including built environment (Hayden, 1980; Matrix, 1984), human and transport geography (Monk & Hanson, 1982; McDowell, 1993; Law, 1999), and others have examined the differences between men and women's travel patterns using quantitative data from travel surveys. Some research indicates that women use public transportation more frequently and for shorter distances than males do to get from home to work (de Madariaga, 2013). Feminist theories recognize gender-based differences, and these gender differences result from patriarchal power dynamics that influence gender roles and interactions. While males are permitted to utilize public spaces, patriarchal power relations keep women responsible for domestic duties and confine them to the private sphere, restricting their mobility and

independence (Uteng & Cresswell, 2008). The gendered division of labour that results in unequal opportunities for women in the workforce was addressed by second-wave feminism. After the introduction of gender mainstreaming (Grieco & McQuaid, 2012; Roberts, 2013) in the field of feminist geography, the subjects of gender and travel, mobility, and space are currently being discussed. With an intersectionality approach, feminist human geography focuses on the diversity and differences among women and between women and men in various contexts. Feminists in the field of human geography focus on two key issues: first, the mobility restrictions brought on by the fear of sexual assault (Valentine, 1989); second, the gendered spatial divisions of labour (Law, 1999; Levy, 2013), i.e., the male-centred, androcentric views of social relations. The literature on gender and mobility is extensive in developed nations' urban environments because of changing gender relations brought about by the "dual-earner" home model and rising female labour force involvement (Spain, 2002), and it is observed that there are the least number of researches conducted in developing nations, especially in the rural context.

Feminists emphasise that women's needs should be prioritized in the development of more sustainable cities so that they can be more easily accessed for employment possibilities and have sustainable transportation policies. Human geography feminists use a mixed methodological approach, including qualitative methods and case study approaches to examine gender and mobility relations whether 'mobility shapes gender' and a quantitative approach to determine whether "gender shapes mobility" (Hanson, 2010). In the literature, a range of methodological approaches are used, but the majority of the research relies on the quantitative analysis of data from national databases, and these studies were unable to address the disparities between how men and women navigate space. Few studies analyse the commuting and employment trends in particular locations using qualitative in-depth analyses and case studies. (MacDonald, 1999).

The current research will focus on the methodological flaws of confining research to one methodology, such as quantitative research in human geography or qualitative research in feminism. To understand the travel patterns and behaviour of women from various categories, such as age, community, income and work status, disability status, and regional and religious status, this study engages the feminist geography theoretical approach by using mixed methods and the intersectionality approach. By conducting the investigation in rural rather than urban settings, this study also overcame the geographical bias (Lehmann, 2020).

3. RESEARCH DESIGN AND METHODS

This study adopted a mixed-methods design with a quantitative survey and qualitative interviews which were conducted during June and July 2022. The quantitative data were collected through a questionnaire among 150 women and girls, who were randomly selected from the passengers of the free public bus service from the three main routes in the Sivaganga district of Tamil Nadu: Karaikudi–Tiruppur, Karaikudi–Devakottai, and within Karaikudi (to nearby villages). The Sivaganga district was chosen purposively as it is one of the rural, predominantly agricultural districts of Tamil Nadu with an economically backward population and a relatively higher incidence of poverty (Sundari, 2021). These three routes were specifically chosen since Karaikudi is the centre of education and employment in the Sivaganga district and because it has a university. Thirty women participated in qualitative interviews simultaneously. These women included those who were waiting for the bus as well as those who were coming home from work and interested in giving time for the interview. Participants represented various demographics in terms of age, educational background, working status and working sectors, ability status, marital status, and different community and religious backgrounds. The questionnaire consisted of three sections: (1) socio-demographic and economic status, (2) travel information, and (3) the impact and benefits of the scheme. The data was analysed using SPSS version 22 with frequency count and percentages. Descriptive statistics such as means and standard deviations were used. Using Patton's (2005) methodology, a thematic analysis of the data was carried out. This involved reading through the transcripts and making notes as a preliminary examination of the data, coding the data by segmenting and labelling the text, and connecting the themes relevant to the study's focus.

4. FINDINGS

The study's findings are outlined in this section, which starts with the sociodemographic, employment and travel profiles of the beneficiaries of the free bus travel scheme. It then goes on to discuss the advantages of the program and how it impacts the beneficiaries' access to financial resources, mobility, and freedom.

4.1 Profile of the free bus travel scheme beneficiaries

4.1.1 Socio-demographic profile of the respondents

It is crucial to comprehend the socio-demographics of beneficiaries under this free bus travel scheme to study the benefits and impact of the scheme. Though this scheme is applied to women and girls of all ages, Table 1 reveals that the majority of the respondents (44%) were in the age group between 18 and 30, followed by the age group between 31 and 60 (39.3%), who are considered to be in the productive age group contributing to the workforce. Compared to young and adult women, elderly women and adolescent girls are reported to travel on buses less frequently.

Table 1: Distribution of respondents by socio-demographic characteristics (n = 150)

Age of Respondents	Frequency	Percent
Less than 18	21	14.00
18–30	66	44.00
31–60	59	39.30
Above 60	4	2.70
Education	Frequency	Percent
Illiterate	13	8.67
Primary	10	6.67
Middle	15	10.00
High School	17	11.33
Higher Secondary	17	11.33
Diploma	14	9.33
UG	34	22.67
PG	21	14.00
PhD	3	2.00
Other	6	4.00
Marital Status	Frequency	Percent
Unmarried	52	34.70
Married	73	48.70
Widowed	14	9.30
Divorced	8	5.33
Destitute	2	1.30
Other (Pls specify)	1	0.67
Religion	Frequency	Percent
Hindu	101	67.30
Christian	24	16.00
Muslim	24	16.00
Other (Pls specify)	1	0.70
Community	Frequency	Percent
OC	18	12.00
BC	96	64.00
SC	26	17.30
ST	3	2.00
Other (Pls specify)	7	4.70
Residence	Frequency	Percent
Rural	62	41.30
Urban	88	58.70
Ability Status	Frequency	Percent
Abled	145	96.70
Disabled	5	3.30
Family Size	Frequency	Percent
1–4	106	70.66
5–8	36	24.00
8–12	7	4.67
Above 12	1	0.67

The educational profile of the beneficiaries reveals that nearly half of the respondents (48%) have completed tertiary education and diploma, indicating that more educated women are using this service for transportation to their jobs. However, as indicated in Table 1, women with lower educational standing also use this service, which accounts for roughly one-tenth of respondents at each level of schooling. The accessibility of the local buses makes it clear that women with various educational backgrounds use this service.

Of all beneficiaries surveyed, married women make up almost half of the respondents (48.7%), followed by girls who are not married (34.70%). Few of them are widowed, divorced, or destitute. Hindus make up over two-thirds of the population, followed by Christians and Muslims. India has a caste system, and Indians are divided into four broad groups based on their caste, including OC (other community), which includes upper caste, BC (backward community), which includes middle level caste, SC (schedule caste), which includes lower caste people, and ST (schedule tribe), which includes all tribal people. When respondents are broken down by community, it is observed that the majority (64%) are from backward communities, 17.3% are from schedule castes and two percent are from schedule tribes. This program only benefits three percent of the population with disabilities, which is due to the absence of transportation infrastructure that is accessible to them. Women from rural and urban areas use this service however majority of them are from urban areas. The majority of beneficiaries (70.66%) come from nuclear families, while the remaining beneficiaries (29.34%) come from joint families.

4.1.2 Economic and employment profile

The economic profile of the respondents is based on variables such as beneficiary type, working sectors, type of informal work, and the income earned by the beneficiary to examine the beneficiaries' economic situation. The majority of beneficiaries who responded to the survey were working women (69.33%), followed by students (22%) as shown in Table 2. Less than one-tenth of women were homemakers. Among the working population, the majority of the beneficiary respondents were working in the informal sectors with no job security (65.4%), whereas 34.6% of the beneficiary respondents were working in the formal sector, either in the public or private sector. Beneficiary respondents from the informal sectors include construction, textile, agriculture, vendors, traders, and so on, of which an equal number of beneficiaries (17.65%) belong to construction workers and textile workers. Flower traders form the majority of the informal work that constitutes nearly one-fifth of the respondents.

Table 2: Distribution of respondents by employment characteristics

Type of Beneficiary (n = 150)	Frequency	Percent
Students	33	22.00
Working Women	104	69.33
Homemakers	13	8.67
Total	150	100.00
Working Sector (n = 104)	Frequency	Percent
Working in the formal sector (Government)	13	12.50
Working in the formal sector (Private)	23	22.10
Working in the informal sector	68	65.40
Total	104	100.00
Type of Informal Work (n = 68)	Frequency	Percent
Agricultural labourers	5	7.35
Agricultural farmers	11	16.18
Construction work	12	17.65
Textile workers	12	17.65
Vegetable vendors	7	10.29
Flower traders	13	19.11
Other traders/work	8	11.77
Total	68	100.00

The incomes of the respondents are given in Table 3 where the majority of the beneficiaries (80.77%) earned less than Rs. 20,000 per month, which is equivalent to USD 240/ month, and are regarded as belonging to the lower and middle classes. Among the majority, more than half of the women worked in the informal sector (57.71%) without any job security and made less than Rs. 20,000/USD 240, while 23.06% did so in the formal sector with jobs that are guaranteed.

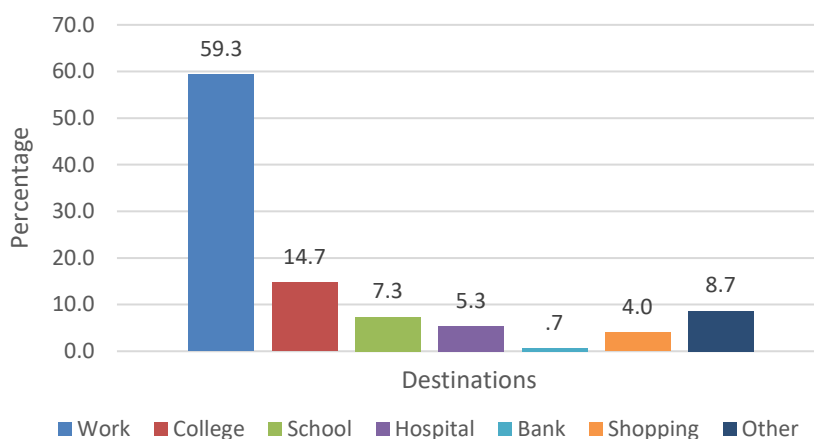
Table 3: Distribution of respondents by income and type of working sector (n = 104)

Average Income per Month in Rs. (\$)	Formal Sector	Percent	Informal Sector	Percent	Total	Percent
Less than 2,000 (\$24)	0	0.00	1	0.96	1	0.96
2,001 to 5,000 (\$24.1 to \$60.24)	2	1.92	16	15.40	15	17.32
5,001 to 10,000(\$60.25 to 120.48)	12	11.54	31	29.81	43	41.35
10,001 to 20,000 (\$120.49 to 240.96)	10	9.60	12	11.54	22	21.14
20,001 to 30,000 (\$240.97 to 351.44)	7	6.73	5	4.81	12	11.54
30,001 to 50,000 (\$361.45 to \$602.40)	4	3.85	2	1.92	6	5.77
above 50,000 (\$502.40)	1	0.96	1	0.96	1	1.92
Total	36	34.60	68	65.40	104	100

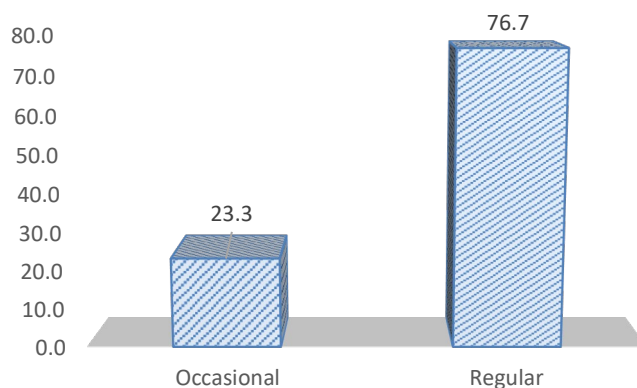
4.1.3 Travel profile of the beneficiaries

This section provides the travel profile of the beneficiaries which is based on the information on trip purpose, trip frequency, travel distance, and travel cost.

Purpose of Trip: As shown in Figure 1, the majority of respondents (59.3%) travelled for work-related reasons, followed by students attending college and/or school. In addition, the respondents used the free bus service for other purposes including travelling to the hospital, shops, the bank and other places. Therefore, this program benefits the vast majority of working women and students.

**Figure 1:** Percentage distribution of respondents by purpose of trip

Frequency of Trips: Most of the respondents use this free bus service frequently (76.7%) because they must go to work regularly, which makes it more accessible for them (Figure 2). Additionally, because it is free, women travel without having to pay anything, allowing them to use the service whenever they want. Few respondents occasionally used this service for the many purposes listed in Figure 1.

**Figure 2:** Percentage distribution of respondents by frequency of trips

Travel Distance Per Trip (from home to destination): More than half travel a long distance (more than 10 km) to get to work (Figure 3), particularly working women, followed by students pursuing higher education (Figure 4). In other cases, mobility is limited due to their long trips to work outside the home and also for safety reasons. Due to social restrictions on mobility, nearly half of those surveyed chose to travel fewer than 10 km to work (Figure 3).

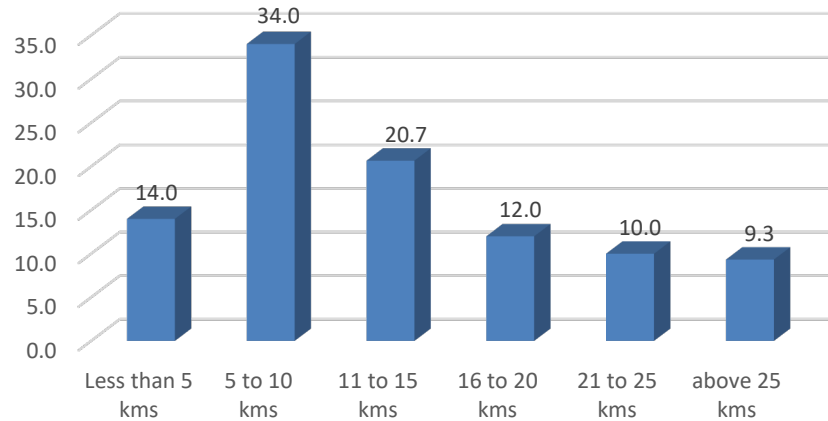


Figure 3: Percentage distribution of respondents by travel distance per trip

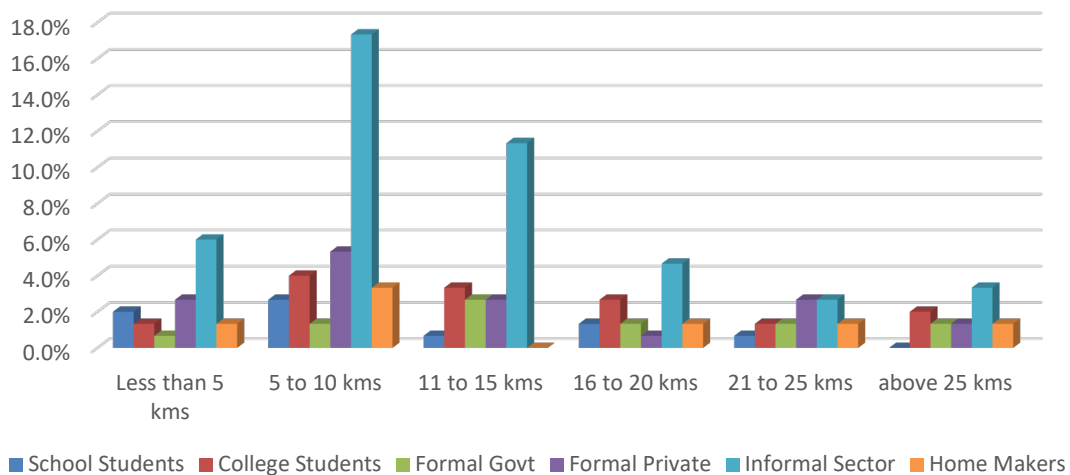


Figure 4: Number of responses by distance per trip and type of beneficiary

Travel Cost per Trip: Fuel price increases have made travel more expensive, making it less affordable for poor and disadvantaged families. A household's travel budget is important because everyone must travel to work to earn money for the family. Additionally, as students must rely on their parents to cover the expenses of their journey to and from schools or universities, poor families are often unable to pay for transportation. The cost of the trip, if it had to be paid for, was a question that the respondents were asked. According to Figure 5, 46.7% of the respondents would have had to spend less than Rs. 25 (30 cents) for each trip, and almost 32% between Rs. 26 (30 cents) and Rs. 50 (60 cents). Depending on the distance and the cost, it would have cost them around Rs. 200 (\$2.4) to Rs. 1,500 (\$18) per month, or one to twelve percent of their monthly income (Figure 6). 17.3% of the respondents had to spend more than Rs. 50 (60 cents) to 75 (90 cents) per trip which is a huge amount of money when calculated for a month. Due to the high expense of travel, women tend to look for jobs closer to home, which restricts their access to prospects for work that pays well and requires competence.

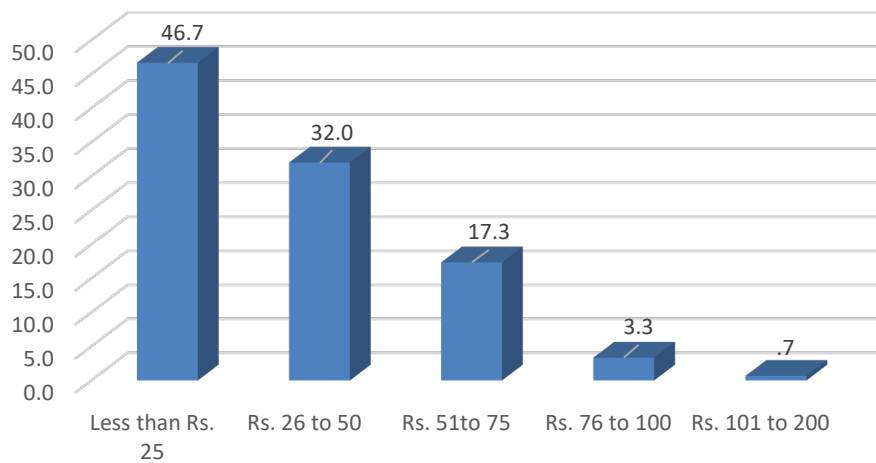


Figure 5: Percentage distribution of respondents by travel cost per trip

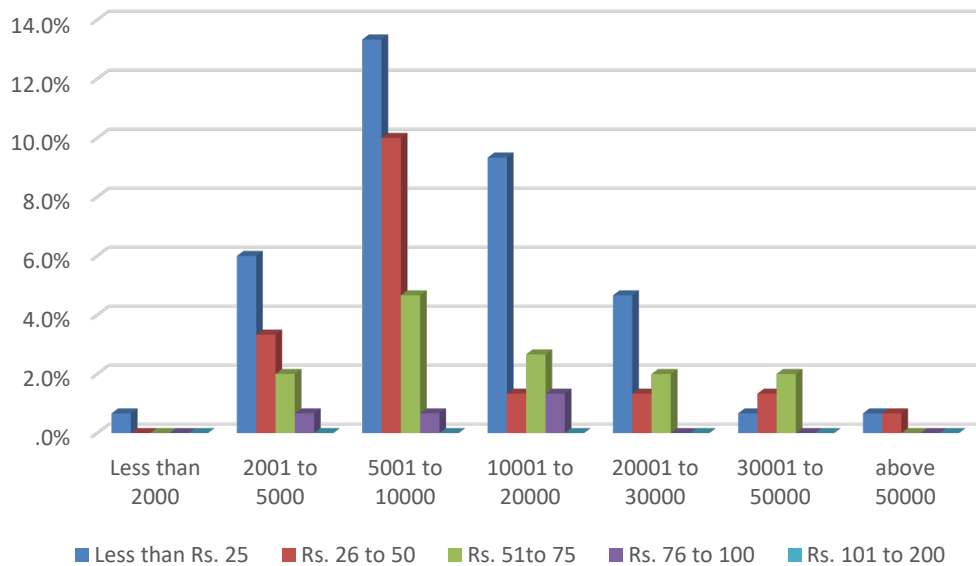


Figure 6: Number of responses by income and travel cost per trip

4.2 Benefits of the scheme

4.2.1 Affordability

For women and girls from economically disadvantaged backgrounds, especially students, the free bus service program is a huge financial relief because they cannot rely on their family's income to cover the expense of their travel. Making travel cost-free makes destinations accessible for women and there is no question of affordability as it is free for them to travel anywhere and anytime. Since this program is open to all women and girls, families with more female members—whether they be mothers, daughters, or sisters—may benefit from it. In this survey, it was discovered that more than half of the respondents were the only family members to benefit under this scheme, while 36.7% of respondents benefited along with one more family member (Table 4). As a result, depending on the number of beneficiaries in the family, this program helps families reduce their travel-related financial burden, which in turn enables them to save up to three times as much money.

Table 4: Distribution of respondents on the benefits and impact of the free bus service scheme (n = 150)

Number of Members in the Family Benefiting from This Scheme	Frequency	Percent
One member	86	57.30
Two	55	36.70
Three	7	4.70
Four	2	1.30
Benefits	Frequency	Percent
Helps to save money	119	79.34
Big financial support	21	14.00
Free from the burden of travel cost	5	3.33
No benefit	5	3.33
Money Saved per Month due to Free Travel	Frequency	Percent
Less than Rs. 200	1	0.70
Rs. 201 – Rs.500	92	61.30
Rs. 501 – Rs. 700	30	20.00
Rs. 701 – Rs. 900	17	11.30
Rs. 901– Rs.1,100	3	2.00
Rs. 1,101 – Rs.1,300	1	0.70
Rs.1,301 – Rs.1,500	4	2.70
Above Rs. 1,500	2	1.30
Total	150	100.00

4.2.2 Accessibility

Accessibility was assessed in terms of cost, availability, and ease of travel such as convenience and time efficiency. It is free and therefore it is accessible to all women and girls. However, they face challenges in accessibility in terms of availability and ease of travel. The biggest problem cited by the respondents is "overcrowding," (30.66%) which is followed by "no frequent buses available" (22.66%) (Table 5). The qualitative data shows that during peak hours, buses are overcrowded and drivers are stopping them farther from the bus stop rather than at the stop itself. Respondent #7 stated, "I have a job and need to get to the workplace on time. But at rush hour, the buses are packed, making it hard for us to commute. Another issue is that because of the crowds, bus drivers fail to stop at bus stops." To get to work or school on time, they pay on a private bus because it is very difficult to board public transport buses due to overcrowding. 17.33% of the respondents cited poor time management as another significant problem. Sometimes they had to wait a long time as they did not know the actual arrival time.

Table 5: Distribution of respondents on the problems they face in accessing the free bus service

Problems (Multiple Responses)	Frequency	Percent
Buses are crowded	46	30.66
No frequent buses are available	34	22.66
Charges for luggage are high	9	6.00
Bus times are not suitable	7	4.66
Buses do not come at the right time	26	17.33
The conductors shout and do not stop at the bus stops	8	5.33
No problems	31	20.66

Women working in the informal sector responded that this scheme is suitable only for students and women working in the formal sectors as a greater number of buses are available during the opening and closing time of office or school times. Since frequent buses are not available in their communities outside of peak travel times, it is challenging for them to get to markets to sell their products as traders and vendors. "I sell vegetables, so I have to bring them to the market early in the morning," one vegetable vendor remarked (Respondent #9). I had to board a private bus and pay the fare because there weren't any public buses running at the time. They must either wait for a longer period or take private buses while paying the fare to avoid losing that day's sales and profits due to being late to the market. They encounter yet another challenge with luggage. Although the government waives the cost for women, it does not waive the fare for the luggage that women

carry, instead charging extra, preventing some women from making use of the free bus service. They use this free bus service only when returning home as they no longer have any luggage to carry.

Other beneficiaries retorted that this program does not assist women with disabilities because the buses lack the infrastructure for them. Some of the males who operate the buses are jealous of women who are permitted to use the public transit system for free, and therefore do not stop the buses at the stops. A few respondents claimed that bus drivers yell at them and make disparaging remarks about women's mobility. One aged respondent (Respondent #6) mentioned that “bus conductors shout at women and make statements like “because it is free, even an old woman is not remaining at home,” and “even to buy a local food (parotta) they get ready and come to use the bus.””

Respondents were questioned regarding the solutions to the above-mentioned issues. Table 6 lists a few of the respondents' ideas to enhance the free bus service program. 56% of the respondents, or more, agreed that the number of buses should be increased to make them more regularly available and to reduce congestion. A few respondents argued that the fee for checked baggage should be waived, and a few others said that the government should perform routine bus maintenance and ensure that buses arrive on time, which is more crucial for regular users.

Table 6: Distribution of respondents by the proposed suggestions to improve the scheme

Suggestions	Frequency	Percent
Frequent of buses to be arranged	84	56.00
No charges for luggage	9	6.00
The scheme should only be made available for students and distressed women	5	3.33
Regular maintenance and time	10	6.67
No response	42	28.00

4.3 Impact of the scheme

The impact of the scheme on women's lives (economic and social impact) was assessed using a Likert scale, as shown in Table 7, where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. Ten items related to economic and social impact were used and Cronbach's alpha was 0.93 indicating strong reliability. The free bus travel scheme has impacted women's economic and social lives and the majority of them have agreed that this scheme has increased their access to economic resources, mobility, and financial independence with a mean interval between 3.3 to 3.76 (agree). More than half of the respondents have agreed that this scheme has reduced their burden towards transportation and were able to save that money to gain other economic resources. This scheme also has increased their mobility and have that sense of financial independence claimed by more than half of the respondents. Ten items related to economic and social impact were discussed under the following three sub sections.

4.3.1 Access to economic resources

Generally, women prefer to work close to home accepting the low wages due to the social restrictions on mobility. But this scheme has opened an opportunity for women and girls to travel longer distances to work / study and have better employment opportunities where more than half of the respondents have agreed that they were able to find better employment/work with increased salary/wages as indicated in Table 7. Another important impact is that due to the free bus service, they are free from the financial burden of transportation, which enables them to save money. Table 4 shows that 79.34% of the women save money as a result of the free trips and 14% of them thought that forgoing the travel expenses was a significant financial help. It is observed that the respondents can save money ranging between Rs. 200 and Rs. 1,500 every month. Table 4 shows that the majority of beneficiaries (61.30%) saved between Rs. 201 and Rs. 500 per month, followed by 20% who saved between Rs. 701 and Rs. 900 per month, which is a promising sign for their financial situation. Figure 7 demonstrates that this program had a positive impact on all beneficiary categories, including women working in informal sectors who were able to save between 200 and 500 rupees.

Some other respondents also expressed that this scheme is good for students as it relieves parents from the financial strain of transportation. One of the parents (Respondent #15) said “Before this scheme, I had to pay Rs.75 every day for myself and my daughter's bus fare, which is a significant portion of my monthly salary. The expense of travel is reduced as a result of this plan”. The money spent on travel now may be used toward a successful education that will enable girls to become economically independent by securing a job after completing their higher education. Both working women and stay-at-home mothers use this travel cost for other purposes such as health and nutrition for their families, repayment of loans, and purchasing essential household supplies.

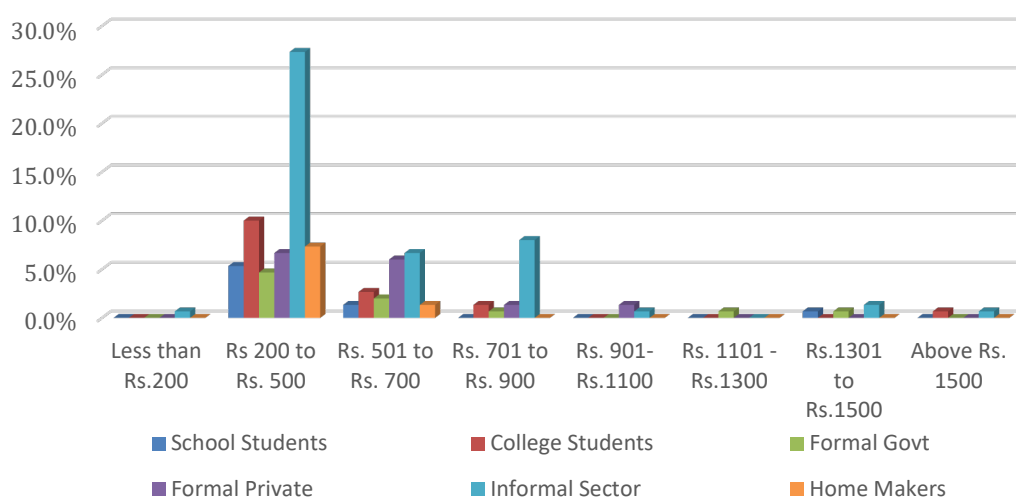


Figure 7: Number of responses by type of beneficiary and money saved

4.3.2 Impact on the mobility of women

The ultimate aim of the scheme is to increase women's mobility and thereby increase female workforce participation. Certainly, this scheme has enabled the mobility of women to a larger extent which was agreed with by 60.7% of the respondents, as shown in Table 7 item no.7, and they can travel without fear of harassment/abuse on public transport. Previous experiences and incidences of sexual harassment in public places and on public transport have created fear among girls and their parents that limits their confidence in using public transport. After the introduction of this scheme, several women and girls began to travel by public transport which alleviates the fear of harassment among the girls and women.

Table 7: Percentage distribution of responses economic and social impact on the Likert scale (1—Strongly Disagree, 2—Disagree, 3—Neutral, 4—Agree, 5—Strongly Agree)

	Items on the socioeconomic impact	1	2	3	4	5	Mean	SD
1	The cost of bus travel was preventing me from travelling by bus before the free bus travel scheme	5.3	7.3	27.3	57.3	2.7	3.4467	0.87881
2	I studied (worked) closer to home (with lower wages/salary) before the introduction of this scheme	2.7	16.7	25.3	52.7	2.7	3.3600	0.88447
3	Having free bus travel, I have now found a better institution (job/work) even if it is farther from my home (with increased wage/salary)	6.0	15.3	22.0	53.3	3.3	3.3267	0.97964
4	Having free bus travel relieved me from the financial burden of allocating a huge budget for travel every month	0.7	6.0	24.0	64.7	4.7	3.6667	0.69192
5	Having free bus travel helped me to use that money for other purposes (well-being of family members, repayment to money lenders)	2.7	2.7	19.3	70.7	4.7	3.7200	0.71532
6	Having free bus travel helped me to save money (a partial amount per month)	1.3	6.0	16.0	68.7	8.0	3.7600	0.73895
7	Having free bus travel increased my mobility any time without any fear	2.7	8.0	24.7	60.7	4.0	3.5533	0.80715
8	Having free bus travel helped me decide independently on my mobility	1.3	8.0	24.7	62.7	3.3	3.5867	0.74353
9	Having free bus travel helped me not to depend on anyone for bus fare	3.3	10.0	24.0	58.0	4.7	3.5067	0.86503
10	Having free bus travel has improved my quality of life	2.0	10.7	22.7	60.0	4.7	3.5467	0.82402

4.3.3 Freedom of movement

The implementation of the scheme has increased the mobility and freedom of movement of women and girls. The majority of the respondents, as shown in Table 7, concurred that they choose their mobility independently and are not required to rely on their family members to cover the cost of transportation. In the qualitative interviews, the respondents stated that this scheme is good and helps to save money because it is

free. According to Respondent #22, "The travel money is saved because I do not have to pay for it." The Respondents also emphasized how helpful it is to travel at any time without worry or financial strain; Respondent #29 said, "I am not afraid because I am travelling with other female passengers." Overall, the scheme is good for economically vulnerable sections of society.

5. DISCUSSION

Women's participation in labour and their educational attainment are significant contributors to economic growth, especially in developing nations (Tayal & Mehta, 2021; Oztunc et al., 2015). Women's engagement in school and the workforce and their independence and autonomy face significant obstacles due to a lack of access to safe transportation and mobility restrictions. (Uteng & Turner, 2019). The commute of women differs from that of men and is frequently impacted by lower wages, household responsibilities, and the nature of employment (MacDonald, 1999). Women are more reliant on public transportation systems because of their low incomes and limited access to private vehicles, but they are afraid to use public transportation because of sexual harassment, robberies, and traffic accidents (King et al., 2021). Research from developing nations shows that investing in secure public transportation has a positive impact on employment, where women may benefit more than men (Martinez et al., 2020; Seki & Yamada, 2020).

Intending to increase women's workforce participation and to increase the economic growth of the country, the state government of Tamil Nadu has introduced a free bus service for women. It is considered a gender-responsive transport scheme that provides safety, security, and affordable and accessible transport by improving women's access to education, health, and employment to achieve gender equality. The study aimed to explore the benefits gained by women through the scheme and its impact on women's lives. Three important aspects emerged from the analysis regarding the benefits and impact: (i) affordability and accessibility, (ii) financial independence and economic empowerment, and (iii) mobility with safety and security.

5.1 Affordability and accessibility

The availability of public transportation during peak hours helps women workers, but it affects their freedom of movement due to price issues and physical safety concerns. If the public transportation infrastructure is unreliable and expensive, women are prevented from pursuing better career options away from home and are forced to settle for low-paying local positions (Uteng & Turner, 2019). With the introduction of this scheme, women are free to travel anywhere within the district and they are free from the travel cost burden, enhancing their access to public transport services. In this study, many young and middle-aged women are using this service for the productive purpose of contributing to the workforce. Educated and married women from backward communities are also using this service for transportation to their places of work. This service was also equally used by women employed in the informal sector who had less education and no job security. Women from the lower and middle classes earning less than Rs. 20,000 per month were using this service largely. According to the quantitative study, many young girls, married working women from lower and middle classes, women who work in the unorganized sector, and women who are disabled use this service. The implementation of this plan included an intersectional approach because it also took into account transgender people and other sexual identities. Although there are frequent buses available during the morning and evening peak hours for women and girls to travel to and from workplaces and schools, qualitative intersectionality analysis results indicated that this program is better suited for female students and women employed in the formal sector than those employed in unorganized ones. Women working in the informal sector, such as vegetable sellers and flower sellers, had to leave their villages before dawn to travel to the city, where they could conduct their trade and earn a living. However, there aren't many buses running early in the morning and late at night, so they had to wait for many hours. Similarly, women with disability also face the challenges with the infrastructural design even though their travel is free. The qualitative interviews also expressed the other problems women experienced in the accessibility including (i) overcrowding (ii) lack of frequent buses, (iii) poor time management, and (iv) extra charges for luggage carried by the female vendors. In terms of bus service frequency and journey time, reliability is crucial for efficiency and affordability (Borhan et al., 2019). The beneficiaries also suggested increasing the number of buses and frequency of the buses in time, which would reduce the crowding, and also waiving the luggage fare for female vendors and traders to benefit from this scheme effectively.

5.2 Financial independence and economic empowerment

Women and girls now decide on their mobility independently and are no longer dependent on male family members or other family members for transportation expenses. Half of the respondents make longer commutes to work or school to take advantage of the greater educational and job possibilities with higher income. Women's access to affordable and safe transportation can have a significant impact on the labour

market. Employment provides women with an independent income and helps them gain more control over economic resources, consequently enabling them to have more decision-making power (Lei et al., 2019). Beneficiaries can save on one to twelve percent of the income that they were spending on the transportation cost earlier, which will be helpful for their economic self-sustenance. This scheme not only empowers women economically but also helps them to have access to higher education and health.

5.3 Increased mobility with safety and security

Women and girls are afraid to take public transportation due to the fear of violence (Shah et al., 2017). India has had a lot of instances of sexual assault on transport, especially in capital city, Delhi, due to the lack of co-passengers on the buses. Threats to urban safety and security in public transportation have increased in most developing cities, particularly among women (Kacharo et al., 2022). For instance, a study conducted by the UN on women in Delhi, found that 85 percent had experienced some form of sexual harassment within the year, with 51 percent of those incidents occurring when using public transportation and another 42 percent occurring while waiting for public transportation (Jagori, 2011). After the horrifying Nirbhaya Gangrape case, which occurred on a bus as the victim was travelling home late at night, laws against sexual harassment became stricter (Bajpai and Pal, 2021). Women's mobility, accessibility, and confidence are impacted by a lack of safety and security in public areas particularly on public transportation. To put an end to this fear, the Indian Government and the State Government (Delhi) have developed mobile safety devices and emergency response applications for women's safety. Some of the mobile applications were developed and are used in the nation's capital city, including Suraksha Women Safety (SWS), Amrita Personal Safety System (APSS), VithU, an emergency application to send alert messages, and R-Mitra, a mobile application to protect women in trains (Bajpai and Pal, 2021). Other steps include creating a task force to ensure the safety of women using public transportation, installing CCTV cameras, and installing LED lights in unsanitary areas. Similar to this, the government of Tamil Nadu has introduced a number of measures to ensure the safety of women, including a helpline, where a nearby police patrol vehicle will reach the victim as soon as possible; the Kavalan SOS App for Women; and, more recently, the KaavalUthavi App, which has new features that sends alerts messages. CCTV cameras have been installed to public buses from the Nirbaya's Fund, a central government initiative named after a gangrape victim. Government buses in Chennai, the capital of Tamil Nadu, will be the first to have panic buttons and CCTV cameras installed, with other districts to follow. (Express Web Desk, 2023). The study area, Sivagangai district, is yet to get these facilities but this free bus service is exclusively for women. It encourages more female students to pursue higher education, and reducing their fear of sexual harassment, as it allows more women on board. This reduces the chances of women and girls traveling alone on the buses and this was evident from both quantitative and qualitative results. Many nations use women-only carriages, which were introduced to stop sexual harassment in public spaces. India has implemented women-only buses and ladies-only metro trains in order to reduce sexual assault. These initiatives are seen as a "step backward for women," or "another form of victim blaming" and even compared to apartheid rather than a means of resolving problems (Newton, 2015). But there are also views that it has some benefits (Dunckel-Graglia, 2013), such as the fact that 45% of women feel safer in women-only carriages, particularly at night (Kehoe, 2014). Despite not offering a long-term fix, it fosters a sense of security and protects against abuse.

6. CONCLUSION

Gender equality is essential for sustainable development that includes access to education, increasing female labour force participation, elimination of violence against women, and a reduction of poverty which has been addressed by this free bus service scheme. Women gain significant benefits through this scheme that not only help them to meet their practical needs, such as access to schools, and markets but also contribute to their strategic empowerment by facilitating access to social and economic opportunities. This is the ultimate aim of the sustainable development goal 5. Gender and travel are a crucial topic which needs to be integrated into travel policies at the national as well as the global level. Women's access to sustainable modes of transport and women's safety, comfort and convenience are very important for women's education and employment which will increase women's economic participation. However, there are concerns such as proper time management, suitable infrastructure, and increased availability of buses to have an effective implementation of the scheme. Once these concerns are addressed, there is no doubt that the scheme will play a significant role in bringing safe, comfortable, convenient transport for women towards achieving gender equality. The study has limitations due to the small sample size, however, future studies can be carried out with a larger sample to analyse the benefits and challenges of the scheme nationally as well in an international context with the focus on mainstreaming gender into transport policies.

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