

## Examining Gender-Related Vulnerabilities and Safety Risks Faced by Women in Public Transportation System: A Case Study of Abuja, Nigeria

Tolufashe, Stephen Afolabi

Department of Logistics and Transport, School of Innovative Technology (SIT), Federal University of Technology, Minna, Niger State, Nigeria. E-mail: [stevesuccess2010@yahoo.com](mailto:stevesuccess2010@yahoo.com)  
Tel: +2348061603927

Ojekunle, Joel Ademola

Department of Logistics and Transport, School of Innovative Technology (SIT), Federal University of Technology, Minna, Niger State, Nigeria. E-mail: [j.ojekunle@futminna.edu.ng](mailto:j.ojekunle@futminna.edu.ng)  
Tel: +2348037014529

Morenikeji, Oluwole Olakanmi

Department of Urban & Regional Planning, School of Environmental Technology (SET), Federal University of Technology, Minna, Niger State, Nigeria. E-mail: [oluwole@futminna.edu.ng](mailto:oluwole@futminna.edu.ng) Tel: +2348121530747

### Abstract

Gender-related vulnerabilities and safety risks continue to shape the daily mobility experiences of women in urban transportation systems. In Abuja, Nigeria's Federal Capital Territory (FCT), public transportation remains largely insensitive to women's distinct safety, accessibility, and comfort needs. This study examines the nature and extent of gender-based vulnerabilities and safety risks faced by women using public transport in Abuja, Nigeria. A mixed-methods research design is being adopted, combining household surveys, structured interviews, and focus group discussions across twelve wards of the Abuja Municipal Area Council. A total of 1,315 participants is being selected based on Dillman's (2007) formula, resulting in 1,021 valid responses at a 97% confidence level and a 3% margin of error. Data were analyzed using descriptive and inferential statistical techniques in SPSS. Findings indicate that 65.4% of respondents perceive no gender inclusion in transport planning, and only 3.8% acknowledge women's participation in transport decision-making. Major safety and accessibility challenges include exposure to harassment and insecurity (35.9%), high transport fares (31.8%), overcrowding (14.5%), long walking distances (6.3%), and lack of child-friendly facilities (6.5%). The study concludes that gender inequalities and weak institutional frameworks exacerbate women's vulnerability and restrict their safe participation in public mobility. Recommendations include integrating gender-responsive transport policies, inclusive planning, and safety-focused design interventions to enhance women's protection, accessibility, and equitable participation in Abuja's public transportation system.

**Keywords:** Abuja, Gender Vulnerability, Public Transportation, Safety Risks, Women's Mobility.

## INTRODUCTION

Safe and inclusive public transport is crucial for gender-equitable cities, as it enables women to access work, education, healthcare, and social opportunities without fear (World Bank, 2023). Globally, however, transport systems remain largely gender-blind in planning, design, and operation, exposing women to harassment, violence, high costs, and limited first- and last-mile connectivity that is how people get from their starting point to the main transport system, and then from that system to their final destination. In low- and middle-income countries such as Nigeria, these challenges are intensified by weak regulation, limited data disaggregation, and overcrowded informal transport modes, which increase risks for female travelers (World Bank, 2023). Insufficient representation of women in transport decision-making further reduces the likelihood that safety, lighting, sheltered waiting areas, and child-friendly facilities are adequately addressed. Nigeria mirrors these global trends while exhibiting acute local vulnerabilities. Gender dashboards and UN Women data indicate persistent gender gaps in political representation and high prevalence of violence against women, highlighting governance and monitoring challenges that affect transport safety (UN Women, 2024).

Empirical studies show clear gender disparities in mobility. Women use public transport more frequently than men but face greater discomfort, harassment, cost barriers, overcrowding, and inadequate facilities, limiting their mobility and choices (Abdullah, Ababio-Donkor & Adams, 2022). Despite these findings, significant knowledge gaps persist: Abuja still lacks spatially disaggregated, safety-focused evidence that systematically links women lived experiences with transport planning decisions, service design, and institutional accountability mechanisms. More localized, mixed-methods research is needed to quantify exposure to risks, identify institutional barriers, and inform evidence-based interventions (World Bank, 2023). It is against this backdrop

that this study examine study examines gender-related vulnerabilities and safety risks for women in Abuja’s public transport, connecting commuter experiences to planning and operational practices and offering recommendations for gender-responsive transport governance.

### **Gender Vulnerabilities**

Gender vulnerabilities in urban transport refer to women’s structural disadvantages in accessing public transport, including lower income, complex trip-chaining for care responsibilities, and higher reliance on public transport. In Abuja, Nigeria, 72.1% of women earn less than NGN 5,000 per month, compared with 31.2% of men, while 69.1% of women make five or more trips per week, compared to 48.6% of men (Abdullah, Ababio-Donkor & Adams, 2022). These vulnerabilities are exacerbated by limited safe waiting areas, poor accessibility for children, and a car-oriented transport network, which restricts affordable mobility options for lower-income women.

### **Safety Risks**

Women face physical, psychological, and social hazards while using public transport, including harassment, assault, overcrowding, and unsafe walking routes. In Nigeria, 93% of female students reported sexual harassment on public transport. Between 2020–2024, Abuja recorded 1,623 transport-related crime incidents, with 38.7% occurring on public buses (Medayese, Akande & Magidimisha-Chipungu, 2025). Safety concerns influence mobility choices, often causing women to avoid night travel or choose costlier services, thereby undermining equitable access.

### **Women’s Mobility**

Women’s mobility in Abuja is characterized by frequent trips, longer travel times, and reliance on lower-cost shared modes. About 73.6% of women reported commuting times above 30 minutes compared with 31.2% of men (Abdullah, Ababio-Donkor & Adams, 2022). Modes of travel

included shared taxis (58.12%), tricycles (10.18%), ride-hailing (16.3%), buses (8.22%), and motorbike taxis (7.05%). Women were also more likely to rely solely on public transport (47.75%) and travel outside peak hours (54.6%), reflecting complex travel needs for work, household, and caregiving activities.

### **Public Transportation System (Abuja)**

Abuja's transport system includes buses, tricycles, taxis, and the 45 km Light Rail with 12 stations, which moved over 250,000 passengers in its first 100 days (African Development Bank Group, 2024). However, public buses account for only 0.12% of vehicular traffic compared with 86.81% for private cars, highlighting the dominance of private vehicles. Overcrowding, long waits, limited-service coverage, and weak regulatory coordination reduce reliability, particularly affecting women who depend on affordable and flexible services (Abdullah, Ababio-Donkor & Adams, 2022).

### **Accessibility and Inclusivity**

Transport accessibility and inclusivity measure how well the system accommodates women's needs, including child-friendly facilities, safe walking routes, and affordable fares. Women in Abuja reported lower satisfaction with fares (mean 4.60 compared to 3.02 for men), safety, and comfort (Abdullah, Ababio-Donkor & Adams, 2022). Nigeria's transport policies largely lack gender-responsive provisions, and women constitute only 20% of the transport workforce (Lawanson, 2024). Poor pedestrian infrastructure and car-oriented design disproportionately affect women with caregiving responsibilities or limited mobility.

### **Urban Transport Planning and Policy**

Urban transport planning in Nigeria remains male-dominated, and gender considerations are minimally integrated. The Federal Capital Territory Transportation Secretariat oversees planning

and regulation, but coordination gaps persist, and public transport remains unreliable (FCT Transportation Secretariat, n.d.; Sub-Saharan Africa Transport Policy Programme (SSATP), 2022). Projects such as the Light Rail and BRT demonstrate ambition, but gender-specific needs, such as safe waiting areas, off-peak services, and child-friendly facilities, are not systematically embedded.

### **Socio-Spatial Dimensions of Risk**

Women's exposure to transport risks in Abuja depends on location, time, and mode. Those living in satellite towns experience longer commutes, and 73.6% have travel times above 30 minutes (Abdullah, Ababio-Donkor & Adams, 2022). Travel outside peak hours (54.6%) increases vulnerability due to poor lighting and unsafe stops. Limited pedestrian infrastructure and long distances amplify risks during access to transit. Public buses, which many women use, account for 38.7% of transport-related crimes, emphasizing the socio-spatial dimensions of risk (Medayese, Akande & Magidimisha-Chipungu, 2025).

### **EMPIRICAL REVIEW**

Safety concerns, particularly fear of crime and harassment, significantly constrain women's mobility in public transport systems. Ceccato and Loukaitou-Sideris (2022) found that women are substantially more likely than men to feel unsafe especially at night or in poorly monitored areas causing many to avoid certain routes and thereby limiting access to education, work, and caregiving opportunities. This fear-driven restriction of movement underscores how insecurity perpetuates gender inequality in urban mobility. Ouali, D'Este, and Christidis (2020) empirically examine gendered perceptions of safety in urban public transport using large-scale customer satisfaction survey data drawn from multiple cities across different world regions. The study is grounded in the premise that perceived safety is a critical determinant of public transport use and that women and men experience and evaluate safety differently. Analyzing data from 28 cities

worldwide, revealed that women are 10% more likely to feel unsafe on metros and 6% more likely on buses than men, while only 45% feel secure in metro stations and 55% on buses. These figures illustrate how perceptions of safety shape overall satisfaction with public transport. Factors such as overcrowding, violence, and empty carriages amplify these insecurities. Gekoski, et al (2017), in a rapid evidence assessment for the UK Department for Transport, reported global harassment rates on public transport ranging from 15% to 95%, with developing regions recording the highest figures due to prevailing patriarchal norms that treat public spaces as male domains. The study warned that without systemic intervention, women risk becoming “transit captives” socially isolated by fear and lack of safe alternatives.

Research by Gazarin (2024) in Cairo’s informal settlements is showing that transport accessibility is being deeply shaped by gendered power structures, with women’s movement being constrained by safety risks, long distances, and high travel costs. Informal transport modes, while filling service gaps, often expose women to additional vulnerabilities due to weak oversight, which if not addressed can lead to conflict (Abdulkadir and Alabi, 2022). In Nigeria, Odufuwa, Akinwale, and Olufemi (2021) are finding that women are experiencing greater mobility stress than men in Lagos, largely due to long waiting times, extended travel durations, and high fares. These stressors are revealing how unsafe, unreliable, and unaffordable transport options are limiting women’s urban participation. Similar findings in India by Mahadevia and Advani (2016) are showing that low-income women are restricting their travel due to affordability and safety concerns, illustrating a shared pattern across the Global South. Policy studies, such as Hamilton et al. (1991) are demonstrating how transport privatization in the UK is reducing service access in low-income areas, disproportionately affecting women who are relying on affordable transit. Peters (2013) is emphasising that women’s mobility challenges, rooted in unpaid care responsibilities and exposure

to harassment, are remaining largely invisible in transport planning models. Gender-blind approaches are persisting despite global awareness campaigns, while gender-targeted interventions, like women-only transport in Mexico City, are offering temporary relief but are risking reinforcing segregation (Dunckel-Graglia, 2013). Collectively, these studies are revealing a pervasive pattern: women's vulnerability in public transport is stemming from interlocking social, spatial, and policy failures that are compromising safety, are limiting accessibility, and are reinforcing inequality in urban mobility systems.

## **MATERIALS AND METHOD**

This study adopts a mixed-methods design, integrating quantitative and qualitative approaches to examine women's accessibility, mobility experiences, and safety concerns within Abuja's public transport system. Using Dillman's (2000) sampling formula and the projected 2025 AMAC population of approximately 1,960,323, 1,315 questionnaires are proportionately distributed across the twelve wards. Follow-up visits and community engagement yield 1,021 valid responses, representing a 77.7% response rate. High-density wards such as Gwarinpa, Wuse, and Kabusa record the highest returns, while smaller wards report fewer responses, ensuring representativeness and enhancing reliability and generalisability.

The study collects socio-demographic data (age, gender, education, occupation, income, household composition) and travel behaviour data (trip frequency, purpose, mode choice, timing, cost, and perceptions of safety) to assess gendered mobility patterns. Accessibility and infrastructure data focus on route availability, service coverage, pedestrian facilities, and terminal conditions, while safety data capture experiences of harassment and travel-related risks. Policy and institutional information are obtained from agencies such as FCTA and AUMTCO, supplemented by interviews and focus groups, to examine cultural norms and operational factors influencing women's mobility.

Secondary data from national sources (NBS, 2023; FMT; AUMTCO), international agencies (World Bank, 2020; UN Women, 2020; ITF), academic literature (Peters, 2013; Porter et al., 2011), and local theses provide contextual background, comparative perspectives, and community-level evidence, strengthening data triangulation. Questionnaires serve as the primary instrument, capturing respondents' socio-economic characteristics, travel experiences, challenges, and perceptions.

## **RESULTS AND DISCUSSIONS**

Women in Abuja face significant safety and security challenges on public transport, including harassment, unwanted physical contact, and theft. These experiences heighten anxiety, restrict travel during off-peak hours, and influence route and mode choices, confirming safety as a critical barrier to women's mobility. Accessibility, affordability, and service quality further shape women's urban participation. Limited route coverage, irregular schedules, and high costs disproportionately affect low-income women, forcing reliance on riskier or more expensive transport options. Such constraints reduce engagement in work, education, and social activities. Transport infrastructure and operations also impact travel experiences. Poorly maintained stations, inadequate lighting, and infrequent services exacerbate vulnerability and discomfort, whereas reliable routes, frequent services, and safer facilities improve confidence and efficiency. These findings highlight the interconnected influence of safety, affordability, and operational quality on women's mobility. Addressing harassment, enhancing service reliability, and upgrading infrastructure are essential for promoting gender-inclusive urban transport in Abuja.

Figure 1 shows that many commuters in Abuja, waiting at bus stops or terminals do not feel safe. Out of 1,021 respondents, almost three-quarters shared this concern, with 47.0% agreeing and 27.0% strongly agreeing that they feel unsafe while waiting. Only a small fraction of about 9%

said they felt safe, while 16.8% remained neutral, likely reflecting mixed experiences depending on the time of day, location, or level of crowding. The numbers highlight a critical problem. Bus stops and terminals, which should serve as safe access points into the city’s transport system, are instead seen as risky spaces. Poor lighting, lack of security, overcrowding, harassment, and exposure to petty crime all contribute to this sense of insecurity.

For women, children, and the elderly, these risks often feel even greater, leading them to avoid certain stops or restrict their movements to “safer” times. When passengers feel unsafe, they limit their use of public transport, which in turn reduces access to education, work, and other opportunities.

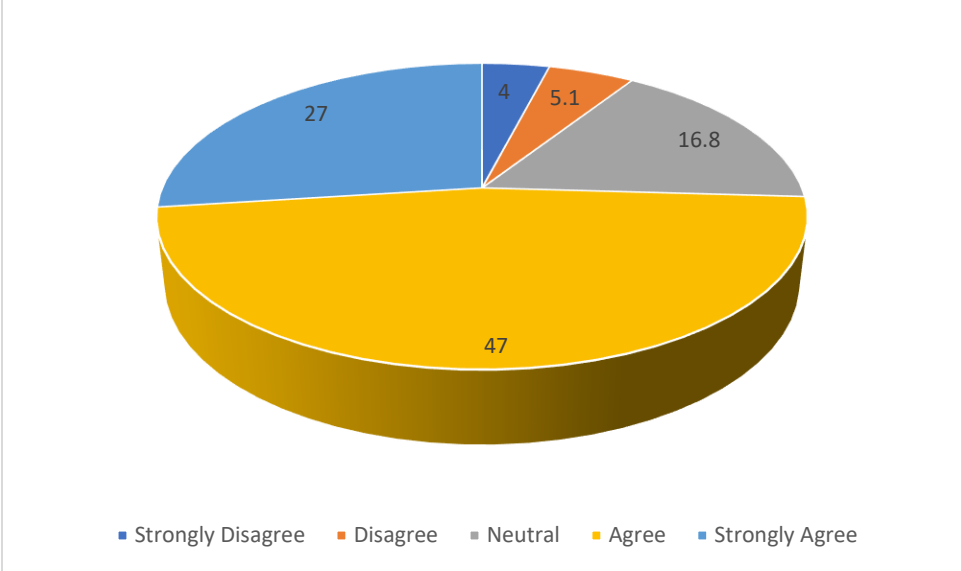


Figure 1 Perceptions of Lack of Safety While Waiting at Bus Stops or Terminals  
Source: Field Survey (2025)

It also deepens inequality, as the most vulnerable groups end up with the fewest safe and reliable options. In short, waiting for a bus should not feel like taking a risk. To restore confidence and ensure fair access, bus stops and terminals need urgent improvements like better lighting, visible security, safer designs, and environments that protect rather than endanger commuters.

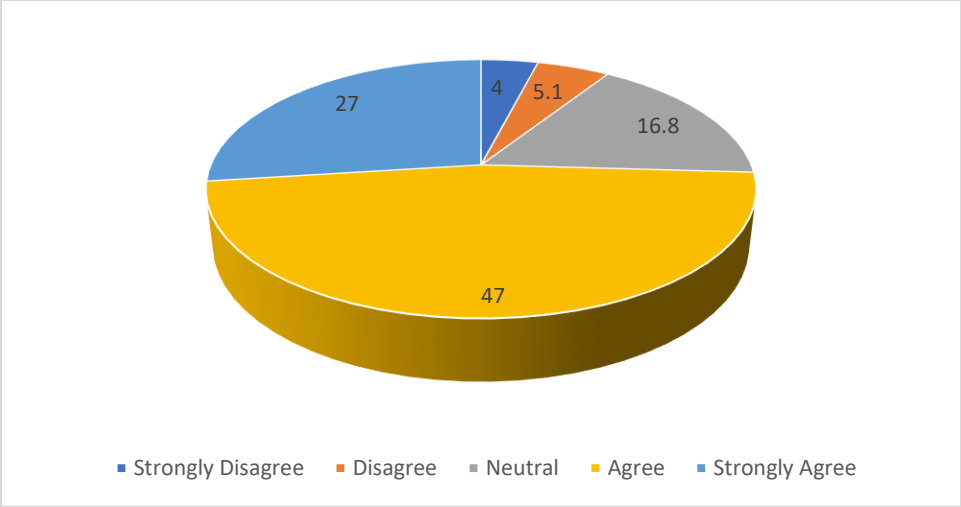


Figure 2 Perceptions of Lack of Safety Inside Public Transport Vehicles  
**Source:** Field Survey (2025).

Figure 2 shows a troubling reality for many commuters in Abuja, most passengers do not feel safe inside public transport vehicles. Out of the 1,021 respondents, nearly three-quarters admitted to this concern, with 47.0% agreeing and 27.0% strongly agreeing that they experience a lack of safety during their journeys. Only about 9% felt otherwise, while 16.8% were neutral, possibly reflecting mixed experiences or uncertainty depending on time, route, or circumstances. What stands out here is that inside the very vehicles meant to move people safely, insecurity is the dominant perception. Overcrowding, verbal or physical harassment, reckless driving, and poor regulation are likely fueling these fears. For women, the elderly, and other vulnerable groups, this lack of safety can be especially limiting, discouraging them from using public transport altogether. When people do not feel safe, they change their behaviour avoiding certain vehicles, routes, or times of travel, or even spending more on alternative transport. This not only reduces trust in the public transport system but also deepens mobility inequality, leaving vulnerable groups with fewer options to access work, education, or social activities. The public transport should offer freedom and connection, but for many in Abuja, it feels like a risk. Making these spaces safer through

stronger regulation, visible security, and passenger-friendly measures is essential to restoring confidence and ensuring fair access for everyone.

Figure 3 shows that verbal harassment is a common experience for public transport users. Among the 1,021 respondents, nearly three-quarters (74%) reported experiencing verbal harassment, with 47% agreeing and 27% strongly agreeing. Only a small fraction around 9% disagreed or strongly disagreed, while 17% remained neutral, possibly reflecting occasional or uncertain experiences. These findings highlight verbal harassment as a major concern that can negatively affect passengers' sense of safety and comfort, particularly for women, the elderly, and other vulnerable groups.

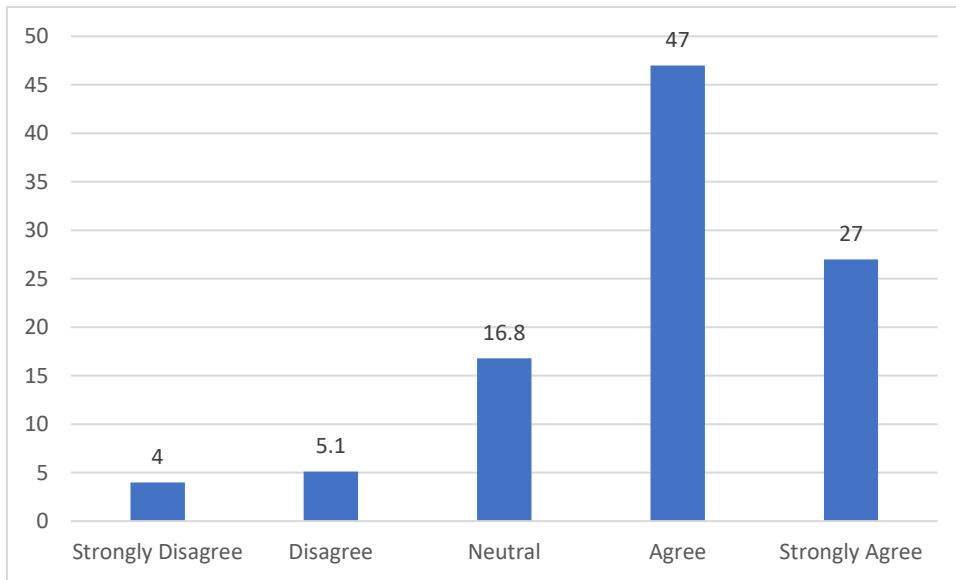


Figure 3 Respondents' Experiences of Verbal Harassment While Using Public Transport  
Source: Field Survey (2025)

The prevalence of such incidents points to the need for stronger safety measures, behavioral monitoring, and awareness campaigns. Gender-sensitive strategies such as reporting mechanisms, safe zones, or women-only transport options should be considered to protect vulnerable passengers. Left unaddressed, verbal harassment may deter public transport use, pushing people

toward less sustainable or more expensive alternatives and undermining urban mobility goals. Overall, these results underscore the importance of targeted interventions to create a safer, more inclusive public transport system.

The findings in Figure 4 show just how much safety worries shape people’s travel choices in Abuja. Out of the 1,021 respondents, nearly three-quarters admitted that they avoid using public transport at certain times because they do not feel safe. Almost half (47.0%) agreed with this statement, while more than a quarter (27.0%) strongly agreed. On the other hand, only a small fraction of about 9% said safety concerns don’t influence when they use public transport. Another 16.8% stayed neutral, possibly reflecting mixed experiences or uncertainty. What this tells us is clear: for many passengers, especially at night or in poorly secured areas, safety fears directly affect their mobility.

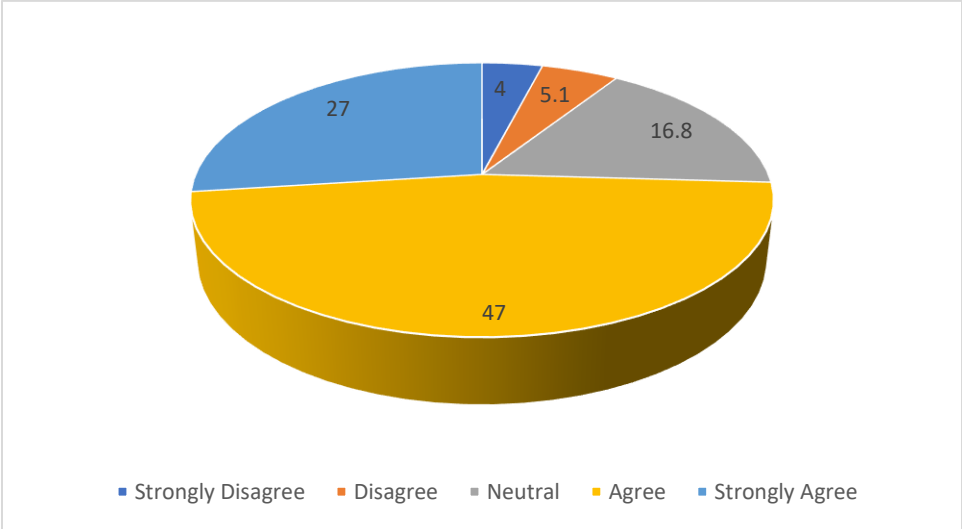


Figure 4 Avoidance of Public Transport at Certain Times Due to Safety Concerns  
Source: Field Survey (2025)

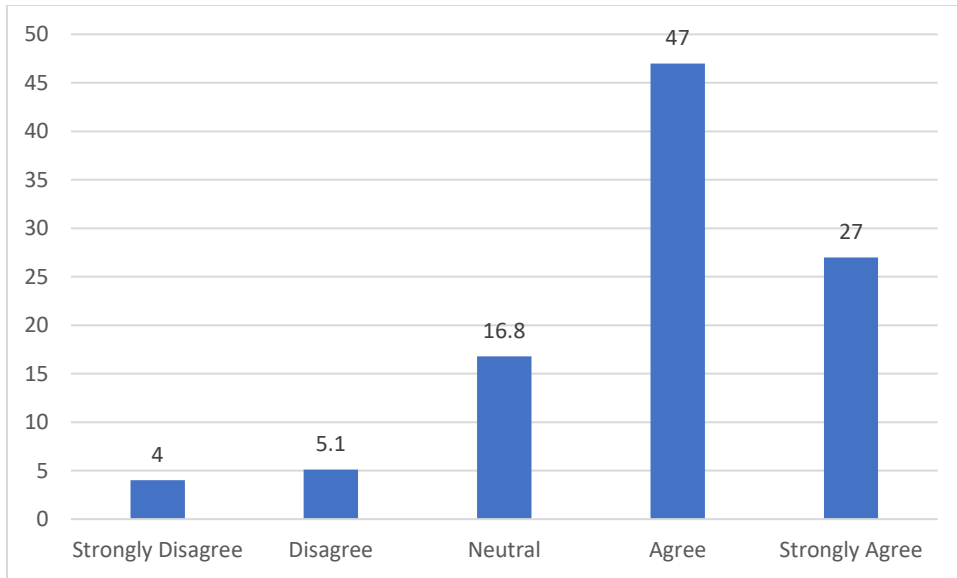


Figure 5 Perceptions of Government Efforts Toward Ensuring Women’s Safety in Public Transport  
**Source:** Field Survey (2025)

Figure 5 shows that most respondents (74.0%) believe the government is making efforts to ensure women’s safety in public transport, with 47.0% agreeing and 27.0% strongly agreeing. Only about 9% disagreed, while 16.8% were neutral, suggesting some uncertainty about the visibility or impact of these efforts. Although public perception of government action is largely positive, persistent safety concerns such as harassment, poor lighting, and inadequate facilities show that policies are not fully translating into lived security for women. Stronger enforcement, visible safety initiatives, and direct engagement with women users are crucial to bridge this gap and build lasting trust in the transport system.

## CONCLUSION

This study examined the gendered vulnerabilities and safety risks women face in Abuja’s public transportation system, highlighting how income disparities, caregiving responsibilities, limited mobility options, and weak infrastructure deepen their exposure to insecurity. Women’s greater

reliance on public transport makes them more vulnerable to harassment, overcrowding, and poor safety conditions, particularly during off-peak hours and in poorly lit areas.

Abuja's transport planning and operations remain largely gender-insensitive, prioritizing private vehicle use over inclusive and affordable public transit. Institutional fragmentation, weak policy implementation, and the absence of gender-responsive frameworks sustain inequities in accessibility and safety. Integrating gender perspectives into transport policy, infrastructure design, and service delivery through better lighting, surveillance, safe terminals, affordable fares, and gender training for operators is essential to enhance women's safety and mobility confidence. Ultimately, promoting a safe and inclusive transport environment for women is both a social justice imperative and a pathway to greater economic productivity and urban sustainability. A shift toward gender-responsive mobility planning, rooted in data-driven policy and stakeholder collaboration, will ensure Abuja's transport system becomes equitable, secure, and empowering for all.

## **RECOMMENDATIONS**

Firstly, the Federal Ministry of Transportation (FMT) and the Federal Capital Territory Transportation Secretariat (FCTTS) should integrate gender-responsive frameworks into transport policies and planning. This entails conducting gender impact assessments for all transport projects and aligning initiatives with the National Gender Policy and SDG 5 to address women's specific mobility and safety needs.

Secondly, the Federal Capital Development Authority (FCDA), in collaboration with the Nigeria Police Force and FCTTS, should strengthen transport safety infrastructure. Measures such as adequate lighting, CCTV surveillance, secure terminals, and safe pedestrian routes will reduce women's exposure to harassment, particularly during off-peak hours.

Additionally, the Abuja Urban Mass Transit Company (AUMTCO) and the Infrastructure Concession Regulatory Commission (ICRC) should enhance affordability and inclusivity by expanding routes, introducing gender-sensitive operations, and offering fare subsidies to improve access for low-income women.

Furthermore, the FCTTS, working with the National Institute of Transport Technology (NITT) and the National Bureau of Statistics (NBS), should improve institutional coordination and capacity building through gender-sensitivity training, collection of gender-disaggregated data, and regular monitoring of transport safety indicators.

Finally, the National Orientation Agency (NOA) and Area Councils should promote community engagement and awareness campaigns on gender equality and transport safety. Collaborations with women's groups, transport unions, and civil society organizations will ensure interventions reflect women's lived experiences and strengthen reporting and advocacy mechanisms.

## REFERENCES

- Abdullah, A., Ababio-Donkor, A., & Adams, C. A. (2022). Gender disparities in the access and use of urban public transport in Abuja, Nigeria. *Sustainability*, *14*(9), 5219.
- Abdulkadir, A. and Alabi, A. (2022). Implication of Government's Intervention Programme in Communal Conflict: A Comparative Study of Share-Tsaragi Andzango-Kataf Communal Conflicts in North Central Nigeria. *Advance*. July 15, 2022. Doi: [10.31124/advance.20163788.v1](https://doi.org/10.31124/advance.20163788.v1)
- African Development Bank Group. (n.d.). P-NG-D00-003: Abuja Bus Rapid Transit (BRT) Project Study.
- Ceccato, V., & Loukaitou-Sideris, A. (2022). *Fear and safety in transit environments: Global perspectives*. Routledge.
- Dillman, D.A. (2007) Mail and internet survey: the tailored design method (2<sup>nd</sup> Ed.). John Wiley & Sons Inc.
- Dunckel-Graglia, A. (2013). Women-only transportation: How “pink” public transport contributes to gender segregation in Mexico City. *Gender, Place & Culture*, *20*(5), 624–644.

- Gazarin, M. (2024). *Transport accessibility and women's empowerment in Cairo's informal settlements* (Master's thesis). American University in Cairo.
- Gekoski, A., Gray, J. M., Adler, J. R., & Horvath, M. A. H. (2017). *The prevalence and nature of sexual harassment and assault on public transport: A rapid evidence assessment*. UK Department for Transport.
- Hamilton, K., Jenkins, L., & Gregory, A. (1991). *Public transport and women's employment: The impact of bus deregulation in Britain*. University of Leeds, Institute for Transport Studies.
- Lawanson, T. (2024). Gender-informed mobility planning, governance and policy in African cities: Status, barriers and ways forward. *VREF*.
- Mahadevia, D., & Advani, D. (2016). Gendered mobility in Ahmedabad: A study of low-income women. *Economic & Political Weekly*, 51(39), 50–58.
- Medayese, S., Akande, O. S., & Magidimisha-Chipungu, H. H. (2025). Public transport safety and crime patterns in Lagos and Abuja. *Discover Cities*, 2(1), 95.
- Odufuwa, B. O., Akinwale, A. A., & Olufemi, A. (2021). Gender differences in mobility stress and coping strategies in Lagos, Nigeria. *Journal of Transport Geography*, 93, 103062.
- Ouali, N., D'Este, G., & Christidis, P. (2020). Gender and safety in urban transport: Global evidence from customer satisfaction surveys. *Transport Policy*, 99, 236–247.
- Peters, D. (2013). Gender and sustainable urban mobility. in *global report on human settlements 2013: planning and design for sustainable urban mobility* (pp. 85–114). UN-Habitat. <https://unhabitat.org>
- SSATP. (2022). Sustainable mobility and accessibility policy report: Nigeria.
- UN Women. (2023). Gender and sustainable cities. <https://www.unwomen.org>
- World Bank. (2023). *Closing gender gaps in transport* (World Bank Gender Thematic Policy Notes). World Bank.