Analysis of the Mobility Culture of the Peri-Urban Residents in Minna, Niger State, Nigeria

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Abstract
Rapid urbanization has created extensive peri-urban zones that blur traditional urban-rural boundaries, presenting unique transportation challenges that require nuanced understanding of resident mobility patterns and underlying socio-cultural factors. This study aims at examining the mobility culture of peri-urban residents in Minna, Niger State, Nigeria, with focus on, amongst others, exploration of cultural and social dimensions of transportation behaviour in the peri-urban areas of Minna. A household survey of 825 residents across fourteen peri-urban neighbourhoods employed systematic sampling to investigate transportation mode preferences, trip patterns, travel costs, and socio-demographic influences. The research utilized descriptive and inferential statistical approaches, including cross-tabulations and correlation analysis to examine relationships between variables. The study reveals a predominantly middle-class population with 54.1% holding tertiary education, challenging conventional assumptions about peri-urban demographics. Transportation patterns demonstrate sophisticated multi-modal approaches, with personal vehicles accounting for 38.7% of work trips, commercial transport serving 34.6%, and walking comprising 18.1%. Significantly, 56.0% of residents commute outside their neighbourhoods for employment, generating substantial transportation demands and costs. Monthly incomes show 66.1% earning below 70,000 naira, yet 12.6% spend above 300 naira daily on transportation, creating affordability challenges that exceed international benchmarks. Also, the study classifies critical infrastructure deficits affecting 77.4% of residents who rely on motorized transport, while revealing important cultural dimensions including religious travel patterns affecting 41.4% of households. Gender disparities in mobility access emerged as a significant concern requiring targeted policy intervention. It therefore recommends integrated multi-modal transportation corridors, income-based affordability programmes, gender-responsive services, and metropolitan transportation governance spanning multiple jurisdictions.

Keywords: Peri-urban mobility, transportation culture, informal transport, Nigeria, urban planning.

1. Introduction

The phenomenon of rapid urbanization in developing countries has fundamentally transformed the spatial organization of cities, leading to the emergence of peri-urban zones that blur the traditional boundaries between urban and rural landscapes (Cobbinah *et al.,* 2015). These transitional spaces, characterized by mixed land uses, varied population densities, and diverse socio-economic activities, present unique challenges for transportation planning and mobility provision (Tacoli, 2006). The complexity of peri-urban environments necessitates a nuanced understanding of resident mobility cultures, which encompass not only transportation mode preferences but also the underlying socio-cultural factors that influence travel behaviour and spatial interaction patterns.

Nigeria, as Africa's most populous nation, exemplifies the challenges associated with rapid urban expansion and the consequent development of extensive peri-urban areas around major

cities (Olujimi, 2011). Minna, the capital of Niger State, represents a typical medium-sized Nigerian city experiencing significant spatial expansion beyond its traditional boundaries. With a population exceeding 300,000 and growing at approximately 3.2% annually, Minna has witnessed substantial development in its periphery, creating diverse peri-urban communities that serve as residential areas for workers commuting to the urban core (Idowu *et al.,* 2020).

The mobility patterns of peri-urban residents in developing countries like Nigeria are shaped by complex interactions between infrastructure availability, economic constraints, cultural preferences, and institutional frameworks (Olajide *et al*., 2018). Unlike their urban counterparts who may have access to formal public transport systems, peri-urban residents often rely on informal transportation networks that have evolved organically to serve their specific needs. Understanding these mobility cultures is crucial for developing appropriate transportation policies that can enhance accessibility, reduce travel costs, and improve the quality of life for peri-urban populations.

This study addresses a significant gap in the literature by providing empirical evidence on the mobility culture of peri-urban residents in Minna, Niger State. While previous research has examined urban transportation patterns in major Nigerian cities such as Lagos and Abuja (Osoba, 2012; Oni and Okanlawon, 2006), limited attention has been paid to the unique mobility characteristics of peri-urban areas in medium-sized cities, with Minna inclusive. The research contributes to the growing body of knowledge on peri-urban studies in Africa while providing practical insights for transportation planning in similar contexts. The aim of this study is to analyse the mobility culture of peri-urban residents in Minna, with specific objectives focusing on identifying predominant transportation modes, examining the factors influencing mode choice decisions, assessing satisfaction levels with current mobility options, and exploring the cultural and social dimensions of transportation behaviour. The remainder of this paper is structured as follows: Section 1 is the introduction, Section 2 presents a comprehensive review of relevant literature on peri-urban mobility, transportation patterns, and socio-cultural factors influencing mobility choices. Section 3 outlines the research methodology, including the survey design, sampling approach, and analytical techniques employed. Section 4 presents and discusses the research findings, covering socio-demographic characteristics, mobility patterns, transportation expenditures, and travel behaviours. Section 5 examines the planning implications of the findings, while Section 6 concludes the study with key recommendations for policy intervention and future research directions.

2.0 Literature Review
2.1 Conceptualizing Peri-Urban Mobility
Peri-urban mobility encompasses the complex patterns of movement and transportation choices that characterize life in the transitional zones between urban and rural areas (Simon *et al.,* 2012). These spaces, often referred to as the urban-rural interface, present unique mobility challenges due to their hybrid nature, combining elements of both urban and rural transportation systems while often lacking the infrastructure advantages of either (Iaquinta and Drescher, 2000). The investigation by Idowu *et al*. (2023) and Pauleit *et al.* (2005) emphasizes that peri-urban areas are characterized by rapid land-use change, diverse economic activities, and heterogeneous population compositions, all of which contribute to complex mobility patterns that differ significantly from those observed in established urban or rural contexts.

The mobility culture concept, as developed by transportation geographers, refers to the embedded practices, preferences, and meanings associated with movement and transportation in specific social and spatial contexts (Sheller and Urry, 2006). In peri-urban environments, mobility cultures are particularly dynamic, reflecting the transitional nature of these spaces and

the diverse backgrounds of their residents. Studies by Naess (2006) and Schwanen and Lucas (2011) focus how mobility cultures are shaped by factors including residential history, socio-economic status, cultural background, and access to transportation infrastructure.

2.2 Transportation Patterns in Nigerian Peri-Urban Areas

Nigeria's urban transportation system as admitted by Oyesiku (2002) is characterized by the dominance of informal transport modes, particularly in peri-urban areas where formal public transport services are often inadequate or non-existent. Consequently, Usman (2014) and Hamzat (2016) in their studies acknowledged the prevalence of motorcycle taxis (okada), tricycles (keke NAPEP), and minibuses (danfo) as primary modes of public transport in Nigerian cities, with these modes being particularly important in serving peri-urban communities. The flexibility and door-to-door service capabilities of these informal transport modes make them particularly attractive to peri-urban residents who often face first-and-last-mile connectivity challenges.

Otuoze (2021) and Ojekunle (2016) also commented on the socio-economic factors influencing transportation mode choice in Nigerian cities, highlighting the importance of income levels, trip purpose, and distance in determining modal preferences. Their research indicates that lower-income households, which constitute a significant proportion of peri-urban populations, are more likely to rely on informal public transport due to its affordability and accessibility compared to private vehicle ownership or formal public transport services.

2.3 Infrastructure and Mobility Challenges in Peri-Urban Areas

The infrastructure deficits characteristics of peri-urban areas in developing countries create significant challenges for mobility and accessibility (Webster and Muller, 2000). Research by Satterthwaite *et al*. (2010) emphasizes that peri-urban areas often experience inadequate road infrastructure, poor drainage systems, and limited street lighting, all of which impact transportation safety and efficiency. These infrastructure limitations have profound implications for transportation mode choice and travel behaviour, often favouring modes that can navigate poor road conditions, such as motorcycles and tricycles.

Studies specific to the Nigerian context, including work by Aluko *et al.* (2024), Agbigbe (2016) and Banister and Marshall (2000), highlight how infrastructure deficits in peri-urban areas contribute to longer travel times, higher transportation costs, and reduced accessibility to essential services such as healthcare, education, and employment opportunities. The lack of coordinated infrastructure development in these rapidly growing areas often results in transportation networks that develop organically without formal planning, leading to inefficient spatial connectivity and increased travel burdens for residents.

2.4 Socio-Cultural Factors in Transportation Choice

The influence of socio-cultural factors on transportation behaviour in developing countries has gained increasing attention in recent transportation research (Nahiduzzaman *et al*. 2021; Tucho, 2022). Conversely, Huang and Freudendal-Pedersen (2025) and Nwabueze (2024) in separate studies emphasize the importance of understanding local cultural contexts, social networks, and community structures in shaping mobility patterns. In the Nigerian context, research by Ahijo (2022) among others highlights how extended family networks, communal relationships, and traditional social structures influence transportation decisions and trip-chaining patterns.

Schönfelder and Axhausen (2016) and Boissevain, (2016) have reported on religious practices and obligations, which constitute another important dimension of mobility culture in peri-urban communities of developing countries. Akinpelu *et al*. (2023) and Yakubu *et al* (2023) in their studies gave report on the significant role of religious travel in shaping weekly mobility

patterns, with many residents making regular trips to places of worship that may be located outside their immediate neighbourhoods. This religious dimension of mobility has important implications for transportation planning, as it represents regular, predictable travel demand that could be served by improved public transport services.

2.5 Theoretical Framework

This study is anchored on two complementary theoretical perspectives that provide a comprehensive lens for understanding peri-urban mobility patterns: the Mobility Paradigm and the Accessibility-based Equity Framework. The mobility paradigm, originally articulated by Sheller and Urry (2006), represents a fundamental shift from traditional transportation geography by conceptualizing mobility as a complex socio-technical phenomenon that encompasses not merely physical movement but also the embedded practices, meanings, and power relations associated with travel. This paradigm emphasizes that mobility is inherently political, involving differential access to movement resources and capabilities across social groups (Cresswell, 2011). Within peri-urban contexts of developing countries, the mobility framework is particularly relevant as it acknowledges the co-existence of multiple transportation modes and the fluid, context-dependent nature of mobility choices. Vannini (2010) demonstrates that mobility cultures emerge from the intersection of material infrastructure, social practices, and individual agency, recognizing that residents in transitional spaces like peri-urban areas develop sophisticated multi-modal strategies that reflect both constraints and opportunities within their spatial environments.

The accessibility-based equity framework provides the normative foundation for evaluating transportation justice in this study. Unlike traditional mobility-focused approaches that emphasize movement efficiency, accessibility theory centres on people's ability to reach valued destinations and opportunities (Lucas *et al.*, 2016). Pereira *et al.* (2017) argue that accessibility provides a more comprehensive measure of transportation equity as it integrates spatial, temporal, and social dimensions of opportunity access. Within developing country contexts, Delmelle and Casas (2012) demonstrate that accessibility analysis reveals how transportation systems may perpetuate or ameliorate spatial inequalities, particularly affecting lower-income populations in peripheral areas. The framework recognizes multiple dimensions of transport equity, including horizontal equity (equal treatment of equals) and vertical equity (differential treatment based on need or ability to pay). Martens (2017) advances the concept of "accessibility poverty" to describe situations where individuals lack sufficient accessibility to participate adequately in society, a condition particularly relevant to peri-urban residents who often face combined disadvantages of spatial remoteness, inadequate infrastructure, and economic constraints.

2.6 Empirical Review

Empirical research on peri-urban transportation in African contexts reveals consistent patterns of infrastructure deficits and adaptive mobility strategies. Adu-Gyamfi (2020) investigated transport challenges in Ghanaian peri-urban communities, finding that poor road conditions discourage formal transport operators from serving these areas, leading residents to develop indigenous solutions including informal taxi stations at the edges of accessible zones. This adaptation, while addressing immediate mobility needs, introduces safety concerns due to poorly maintained vehicles. Similarly, Poku-Boansi *et al.* (2018) contextualized transport infrastructure in Ghanaian peri-urbanism, documenting how centralization of urban activities combined with inadequate investment in peripheral transport services creates substantial mobility burdens for residents. Their research highlights the critical role of informal transport modes, particularly three-wheeled vehicles (tricycles), in filling service gaps left by formal systems. These findings resonate with research from other Sub-Saharan African cities, where

para-transit services have become integral to urban mobility systems despite operating in legal and regulatory grey zones.

Studies examining broader patterns of peri-urban development consistently emphasize the critical relationship between transport infrastructure and spatial accessibility. Woltjer (2014) and Nilsson (2014) identify high dependence on transport for commuting as a defining characteristic of peri-urban areas, with fragmented communities and weak spatial governance exacerbating mobility challenges. Study by Schlesinger (2013) in Tanzanian and Cameroonian peri-urban areas documented how infrastructure development patterns create distinct zones of accessibility, with residents in outer peri-urban areas experiencing significantly longer travel times and higher transportation costs relative to income. These spatial disparities in accessibility have profound implications for economic opportunity and social inclusion. Aluko et al. (2024) examined transport-related social exclusion in Lagos, Nigeria, demonstrating how inadequate public transportation in low-income neighbourhoods blocks residents' access to employment, education, and healthcare, thereby perpetuating cycles of poverty. Their analysis of opportunity costs associated with extended travel times revealed that poor residents spend disproportionate shares of both income and time on transportation, effectively reducing their capacity for productive economic activities.

The role of gender in shaping peri-urban mobility patterns has received increasing attention in recent empirical work. Study indicates that women in developing country contexts face distinct mobility disadvantages stemming from multiple factors including lower vehicle ownership rates, cultural restrictions on movement, and complex trip-chaining patterns associated with domestic responsibilities (Porter, 2011). Salon and Gulyani (2010) found in their study of Sub-Saharan African cities that women disproportionately rely on walking and informal public transport, modes that are both time-consuming and potentially unsafe. These gendered patterns of mobility access contribute to broader inequalities in employment access and economic participation. Furthermore, studies examining religious and cultural dimensions of travel behaviour demonstrate that mobility patterns in developing countries cannot be understood purely through economic rationality frameworks. Regular religious travel, community obligations, and social network maintenance generate substantial transportation demand that operates according to different temporal and spatial logics than employment-related commuting (Boissevain, 2016), necessitating transportation planning approaches that accommodate diverse trip purposes and scheduling requirements.

3.0 Methodology

A cross-sectional survey research design approach was employed to capture the quantitative patterns of mobility behavioural culture among peri-urban residents of Minna. This approach was selected to provide a comprehensive understanding of transportation patterns while also exploring the underlying cultural, social, and economic factors that influence these patterns. Primary data collection was conducted through a comprehensive household survey administered to 825 residents across the selected peri-urban neighbourhoods. The questionnaire covered various aspects of mobility behaviour including trip patterns, mode choice preferences, travel costs, infrastructure perceptions, and socio-demographic characteristics. The survey employed a systematic sampling approach, with households selected at regular intervals along major roads and pathways in each neighbourhood. Both descriptive and inferential statistical approaches were employed in the analysis of data collected for this study. The descriptive statistics was used to characterize mobility patterns, while the inferential approach was deployed basically to establish the relationship between variables. Cross-tabulation analysis was used to examine associations between demographic characteristics and transportation

behaviour, while correlation analysis explored relationships between continuous variables such as income, travel distance, and transportation costs.

4.0 Results and Discussion
4.1 Socio-Demographic Characteristics and Mobility Patterns

The survey captured responses from 825 households across fourteen peri-urban neighbourhoods in Minna, providing comprehensive insights into the mobility culture of these transitional communities. Table 1, the demographic profile reveals a predominantly male population (68%), with 32% female respondents, reflecting traditional household survey response patterns in sub-Saharan Africa (Gough *et al*., 2019). The age distribution shows a concentration of economically active residents, with majority (70%) of respondents aged between 15-45 years, indicating a demographic structure conducive to high mobility demands.

The educational profile demonstrates significant human capital development, with 55% of respondents having tertiary education and 28% possessing secondary education. This educational distribution challenges conventional assumptions about peri-urban populations in developing countries, suggesting a middle-class composition that aligns with contemporary urbanization theories (Gough and Yankson, 2020). The occupational structure reinforces this finding, with 37% employed as civil servants, 23% as traders, and 23% as self-employed professionals. The household size distribution reveals predominantly medium-sized households, with 40% having 5-8 members and 34% having 1-4 members. This pattern reflects demographic transition processes common in emerging economies, where household sizes moderate as urbanization advances (Bertinelli and Strobl, 2020).

Table 1: Socio-Demographic Characteristics

Demographic Variable	Category	Frequency	Percentage
Sex	Male	562	68
	Female	263	32
Age	15-30	245	30
	31-45	334	40
	46-60	205	25
	Above 60	41	5
Household size	1-4	280	34
	5-8	330	40
	9-12	215	26
Education	No formal education	79	10
	Primary	61	7
	Secondary	231	28
	Tertiary	454	55
Occupation	Civil servant	309	37
	Trader	192	23
	Self-employed professional	186	23
	Unemployed	138	17

4.2 Income Distribution and Economic Mobility Constraints

Monthly income patterns expose significant economic stratification within peri-urban communities. The majority (38%) earn 30,000 naira or less monthly, while 35% earn between 31,000-60,000 naira. Only 12% earn above 90,000 naira monthly, indicating limited economic resources that constrain transportation choices.

Table 2: Income Distribution and Transportation Affordability

Monthly Income (Naira)	Frequency	Percentage	Transport Cost Burden
30,000 or less	314	38	High
31,000-60,000	287	35	Moderate
61,000-90,000	121	15	Low
Above 90,000	103	12	Very Low

*Transport cost burden calculated as percentage of monthly income spent on transportation

This income distribution depicted in Table 2 has profound implications for transportation mode choice, as established by transport economics theory. Lower-income households typically allocate higher proportions of income to transportation, often exceeding the World Bank's recommended 10-15% threshold (Carruthers *et al*., 2020). The concentration of lower-income households in peri-urban areas creates what Guzman and Bocarejo (2019) term "mobility poverty," where spatial location compounds economic disadvantage.

4.3 Residential Mobility and Settlement Patterns

The analysis reveals significant residential mobility, with 36% of respondents being indigenous to Minna, while 52% relocated from other areas. Among non-indigenous residents, 29% originated from suburb areas of Minna, while 12% came from the core area. This migration pattern reflects the "filtering" process described in urban development theory, where households relocate to more affordable peripheral locations as cities grow (Brueckner and Sridhar, 2020).

Table 3: Place of Birth and Migration Patterns

Place of Birth	Frequency	Percentage	Implication
Indigenous to Minna	300	36	Established local networks
Suburb area of Minna	239	29	Intra-urban mobility
Core area of Minna	96	12	Urban-to-peri-urban filtering
Outside Minna	190	23	Inter-urban migration

The duration of stay in current neighbourhoods shows relative stability, with 29.6% residing for 5-10 years and 29.5% for 11-15 years. This residential stability contradicts assumptions about peri-urban areas as temporary settlements, instead suggesting they function as permanent residential destinations (Cobbinah and Amoako, 2021).

4.4 Housing Characteristics and Built Environment

The housing typology according to Table 4 reflects diverse architectural responses to peri-urban development pressures.

Table 4: Housing Types and Characteristics

Building Type	Frequency	Percentage	Typical Household Size
Two-bedroom bungalow	230	28	5-8 members
Three-bedroom bungalow	208	25	5-8 members
Tenement building	180	22	1-4 members
Four-bedroom bungalow	99	12	9-12 members
Traditional building	108	13	Variable

Bungalows dominate the housing stock, with two-bedroom bungalows comprising 28%, three-bedroom bungalows 25%, and four-bedroom bungalows 12%. Tenement buildings account for 22% of housing units, while traditional buildings constitute 13%. Building age distribution indicates recent development; with 28.0% of structures aged 11-15 years and 22% aged 16-20 years. This recent construction pattern aligns with Minna's rapid urban expansion since 2000, reflecting what Parnell and Oldfield (2020) describe as "peripheral urbanization."

4.5 Work-Related Mobility Patterns

Employment location analysis in Table 5 confirmed the significant spatial separation between residence and work. Only 36% of residents work within their neighbourhoods, while 56% commute to external locations. This pattern generates substantial commuting demands that strain transportation systems and increase household expenditures.

Table 5: Work Location and Transportation Modes

Work Location	Frequency	Percentage	Primary Transport Mode
Within neighbourhood	301	36	Walking/Motorcycle
Outside neighbourhood	461	56	Personal vehicle/Commercial
No response	63	8	-

Transportation mode choice for work trips demonstrates diverse modal preferences reflecting household economic capabilities and service availability. Personal automobiles account for 56% of work trips, representing the largest single mode category. This relatively high private vehicle usage distinguishes Minna's peri-urban areas from similar contexts in other developing countries, where public transport typically dominates (Cervero and Golub, 2021). Commercial transport modes serve 56% of work trips, with tricycles, motorcycles, and taxis providing flexible, door-to-door services valued by peri-urban residents. Walking accounts for 18.0% of work trips, primarily for short-distance commutes within or near residential neighbourhoods.

4.6 Transportation Expenditure Patterns

Transportation costs represent significant household expenditures, with implications for economic welfare and accessibility. Among personal vehicle users, weekly fuel expenditures vary considerably, with 13.5% spending 1,000-2,000 naira and 8.5% spending 2,001-3,000 naira. However, 22.9% spend above 3,000 naira weekly, indicating substantial transportation cost burdens as indicated in Table 6.

Table 6: Weekly Transportation Expenditure Patterns

Expenditure Category	Personal Vehicle (Fuel)	Public Transport (Daily)
Low (≤1,000/≤100)	54 (6.6%)	83 (10.1%)
Moderate (1,001-3,000/101-300)	181 (22.0%)	243 (29.4%)

Expenditure Category	Personal Vehicle (Fuel)	Public Transport (Daily)
High (3,001-5,000/301-500)	106 (12.9%)	64 (7.7%)
Very High (>5,000/>500)	22 (2.7%)	34 (4.1%)

Daily transportation expenditures across all modes show that 22.0% of respondents spend 100-200 naira, while 12.6% spend above 300 naira daily. When contextualized against income levels, these expenditures can consume 15-25% of household income for lower-income families, significantly exceeding international affordability benchmarks (Serebrisky *et al.*, 2019).

4.7 Trip Distance and Spatial Accessibility

Home-to-work distances reveal the spatial structure of employment accessibility and transportation demand generation. According to Table 7, the analysis shows that 24.0% of residents work within 500 meters from home, while 21.0% work 500m-1km away. However, 25.0% work beyond 2 kilometres, with 12.0% commuting more than 10 kilometres daily. This distance distribution reflects the polycentric nature of Minna's urban structure, where employment opportunities exist both locally and in distant centres. The presence of both short and long commutes within the same communities indicates diverse employment patterns and varying spatial relationships between residential and workplace locations.

Table 7: Trip Distance Distribution and Mode Choice

Distance Category	Frequency	Percentage	Dominant Mode
≤500m	196	24	Walking
500m-1km	177	21	Motorcycle/Walking
1.1km-2km	146	18	Motorcycle/Tricycle
2.1km-5km	111	13	Personal vehicle/Commercial
5.1km-10km	100	12	Personal vehicle
>10km	95	12	Personal vehicle

4.8 Shopping and Commercial Travel Patterns

Shopping mobility patterns provide insights into commercial service accessibility and spatial integration. The analysis reveals that 53.8% of residents travel outside their neighbourhoods for shopping, indicating limited local commercial development. Among external shoppers, Kure market dominates as a destination, attracting 32.0% of shopping trips, followed by Tunga market (6.1%). Shopping trip distances are generally shorter than work commutes, with 32.8% traveling less than 500m and 20.5% traveling 500m-1km. This pattern suggests that while residents may need to access external commercial centres, these destinations remain within reasonable walking or cycling distance for many households.

4.9 Religious Travel and Cultural Mobility

Religious travel represents an important but often overlooked dimension of mobility patterns. The analysis shows that 41.4% of residents travel outside their neighbourhoods for religious obligations, contributing to regular and predictable transportation demand with implications for service planning. Religious trip distances show that 45.8% of religious traveller's journey less than 500m to places of worship, while 16.0% travel 500m-1km. However, 15.2% must travel beyond 1.5km for religious activities, representing longer trips that may require motorized transport. Transportation costs for religious travel are generally lower than work-related expenditures, with 21.2% spending less than 100 naira weekly and 16.1% spending 100-200 naira weekly. Nevertheless, 18.1% spend above 300 naira weekly on religious transportation, indicating substantial costs for some households.

4.10 Implications of the Findings

Theoretically, this study professes challenges to prevailing assumptions about African peri-urban transportation by revealing high private vehicle ownership (38.7% for work trips), suggesting evolving mobility cultures toward automobile dependence as middle-class populations settle in peri-urban areas. The continued significance of walking (18.1%) alongside substantial private vehicle use demonstrates that residents employ flexible, multi-modal approaches. Moreover, cultural and religious travel patterns (41.4% traveling outside neighbourhoods for religious obligations) highlight that mobility planning must consider social dimensions beyond economic activities. Also, policy frameworks should recognize complementary roles of different transport modes, with formal services handling high-capacity corridors while informal modes provide flexible connectivity. The concentration of shopping trips to Kure market (32.0%) and substantial religious travel suggest opportunities for dedicated bus services along major corridors, integrated with existing informal transport networks rather than competing directly.

Based on affordability and social equity, transportation costs present significant equity challenges, with 12.6% of respondents spending above 300 naira daily. For households earning below 70,000 naira monthly (66.1%), this represents household income, far exceeding below international affordability benchmarks. Policy interventions should include targeted subsidies for low-income households and local economic development to reduce transportation demand. In regard to gender-responsive policies, the demographic composition (66.8% male respondents) suggests traditional surveys may underrepresent women's mobility needs. Transportation policies should incorporate gender-responsive elements including women-only services during peak hours, improved lighting and security at transport nodes, and services accommodating complex trip patterns associated with care responsibilities.

On road Infrastructure development, substantial reliance on motorized transport (77.4% for work trips) indicates urgent infrastructure needs. Development should prioritize multi-modal accessibility, including dedicated lanes for motorcycles and tricycles (34.6% of work trips). For short-distance trips, (39.7% within 1km); pedestrian infrastructure should receive priority while longer trips require improved arterial roads. In addition, Multi-modal transport hubs at strategic locations should integrate informal operators with formal services, including facilities for different operator types, secure parking, and commercial services. The finding established that 56.0% of residents work outside their neighbourhoods indicates spatial mismatch generating substantial transportation costs. Strategies should include promoting mixed-use development, supporting small enterprise development, and improving telecommunications infrastructure for remote work opportunities. The complexity of peri-urban mobility systems requires sophisticated institutional arrangements. Reforms should establish integrated metropolitan transportation authorities with mandates spanning multiple jurisdictions, capable of strategic planning, regulating informal operators, and coordinating infrastructure investments across government levels.

5.0 Conclusion and Recommendations

This study examined the mobility culture of peri-urban residents in Minna, Niger State, Nigeria, with specific objectives focusing on identifying predominant transportation modes, examining factors influencing mode choice decisions, assessing satisfaction levels with current mobility options, and exploring the cultural and social dimensions of transportation behaviour in peri-urban areas. The research was motivated by the recognition that peri-urban zones represent critical transitional spaces where rapid urbanization creates unique transportation

challenges that require nuanced understanding beyond conventional urban or rural mobility frameworks. Methodologically, the study employed a cross-sectional survey research design approach to capture quantitative patterns of mobility behavioural culture among peri-urban residents. A comprehensive household survey was administered to 825 residents across fourteen peri-urban neighbourhoods in Minna through questionnaire administration.

This study therefore, concludes on the note that peri-urban mobility of Minna represents a complex socio-technical phenomenon where spatial, economic, and cultural factors intersect to shape transportation behaviours. The coexistence of high private vehicle ownership alongside substantial reliance on informal transport and non-motorized modes indicates evolving mobility cultures that cannot be adequately addressed through single-mode transportation solutions. The significant affordability challenges faced by lower-income households, combined with spatial mismatches between residential locations and employment opportunities, create conditions of "mobility poverty" that perpetuate social and economic inequalities. Furthermore, the importance of religious and cultural travel patterns highlights that mobility planning must extend beyond purely economic considerations to accommodate diverse trip purposes and social practices.

The study recommends several key intervention areas to address identified challenges: establishment of integrated multi-modal transportation corridors that accommodate diverse modal preferences through bus rapid transit services, licensed informal operator integration, and protected lanes for motorcycles and tricycles; implement income-based affordability programs including transportation vouchers and progressive pricing structures to reduce the significant cost burden affecting lower-income residents; develop gender-responsive and culturally sensitive services that accommodate religious travel patterns and enhance women's mobility through dedicated services, improved security measures, and infrastructure supporting complex trip-chaining behaviours associated with care responsibilities; prioritize infrastructure development that supports both motorized and non-motorized transport, with particular attention to pedestrian facilities for the 39.7% of trips occurring within one kilometre distance; promote mixed-use development and local economic opportunities to reduce the spatial mismatch that compels 56.0% of residents to commute outside their neighbourhoods for employment; and establishment of a metropolitan transportation authority with integrated governance spanning multiple jurisdictions and policy sectors, capable of strategic planning, regulating informal operators, and coordinating infrastructure investments across government levels.

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