



## Exploring the Relationship between Women's Travel Behaviour and Adoption of Sustainable Transportation Practices

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**Abstract.** The fast and increasingly urban growth necessitated the drastic change in characteristics of travel behaviour of women. Amidst risks involved in different transportation systems and the realities of fiscal constraints, women struggle to have safe access and affordable transportation options. This study examines the relationship between women travels behaviour and adoption of sustainable transportation practices with special references to four (4) urban centres in Ogun State, Nigeria. A total of one thousand three hundred and sixty-six (1,366) completed questionnaires were used for the analysis. Pearson Product Moment Correlation (PPMC) was employed to investigate the correlation between the travel patterns of female's individuals and the implementation of sustainable transportation methods. The results from the correlation analysis depict a significant relationship between women's travel behaviour and adoption of sustainable transportation practices in Ogun State. The result further shows that the level of adoption of sustainable, transportation practices significantly influence women's travel behaviour and the out-of-town trips for all purposes.

**Keywords:** Gender mobility, sustainable transportation, urban growth, travel patterns

### 1. Introduction

The modern city being a centre of industry and commerce and a point for collecting, producing and distributing commodities of all kinds requires transportation which allows the movement of people and goods that the city to function. Since home and work places are not in the same location for many people, it therefore means that must travel. However, the rapid and increasingly complex urban growth has drastically changed the travel behavior of women. Women have very different and complex travel patterns than men; they have various destinations and modes of travel based on social,

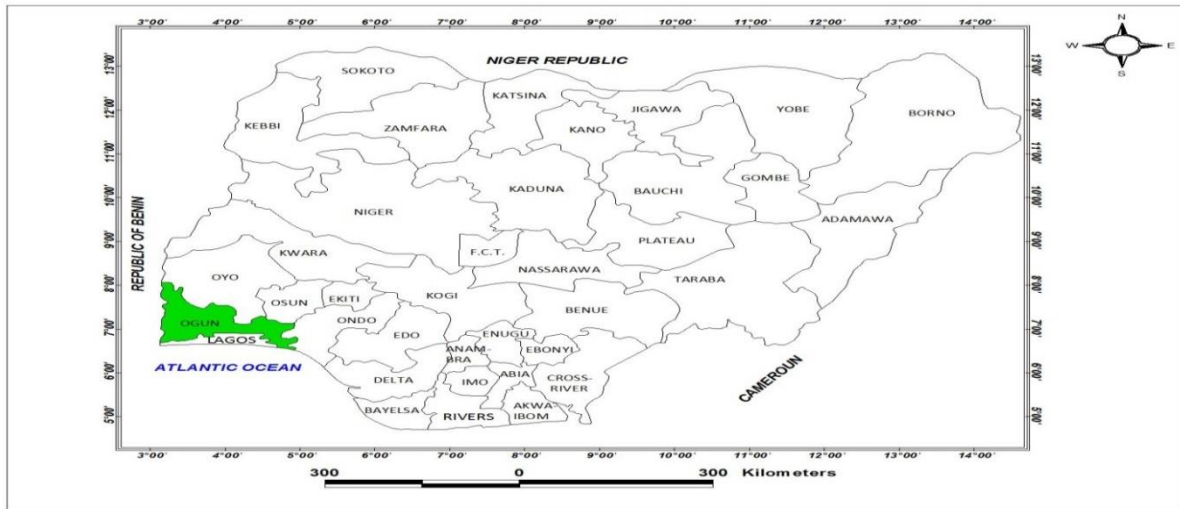
cultural, economic and demographic characteristics (Hayati, 2020; Nicholas, 2024). Mobility in women will not only empower women themselves, but also their families. Women's mobility allows women and family members to reach their destination and to increase production (Hayati, et al. 2020; Nicholas, 2024). The attraction of the city centre as the central business district (CBD), favourite work place/office, shops/malls, schools, recreation centres make the travel pattern almost aimed at the centre by both men and women. (Carlos, 2023; Hayati et al. 2020; Sharmin & Jonathan, 2024).

In most cases, women are most often disadvantaged by inadequate conditions of the infrastructure and transportation facilities in most developing countries/societies. The travel pattern of women is short and relies on non-motorized or public transportation modes; and these adverse transportation conditions change women's travel patterns and the modes they use. Women have distinct sense of responsibility towards themselves and their family; they have more limited access than men; their travel is related to reproduction and nurturing matters such as picking up children, shopping, working, recreation, or just to enjoy their time. (Hayati et al. 2020; Carlos, 2022). Amidst risks involved in different transportation systems, and the stark realities of fiscal constraints, women struggle to have safe access and affordable transport options and in extreme situations, they take to non-motorized transport modes like walking and cycling to create healthier conditions (Nicholas, 2024; Sharmin & Jonathan, 2024).

It is useful to identify the practices adopted by women which enable them to cope with the current challenges particularly if implicitly aligned with sustainable transportation practices. It is based on this backdrops that the study examines the relationship between women travels behaviour and the adoption of sustainable transportation practices

with special reference to four (4) urban centres in Ogun State, Nigeria. Ogun State, located in the Southwestern part of Nigeria, ranks as the 16<sup>th</sup> most populous state in the country out of the 36 states. The state covers a landmass of 16,409 square kilometers

and it shares an international boundary with the Republic of Benin to the west and inter-state boundaries with Oyo State to the north, Lagos and the Atlantic to the south and Ondo State to the east (see figure 1).



**Fig 1:** Map of Nigeria showing Ogun State.  
**Source:** Federal Ministry of Land and Survey (2019)

The research work is anchored on activity-based theory, patriarchal paradigm, travel demand theory and spatial interaction perspective. According to Axhausen and Garling (1992), the analysis of travel demand based on activity considers travel as a demand that is derived from the necessity to engage in activities that are spatially distributed. In other words, people rarely travel without a reason, but rather, it is often necessitated by a variety of activities such as work, shopping, education or hobbies, which require individuals to journey to different locations.

The concept of patriarchy refers to a societal structure in which males occupy positions of primary power and dominance in various domains, including political leadership, moral authority, social privilege and control of property. It can be said therefore that the relationship between patriarchy and gender is crucial to the women subordination position/gender inequalities in many sectors of the economy including transport.

Travel demand models are used to predict travel characteristics and usage of transport services under alternative socio-economic scenarios and land use configurations (Bhat & Koppelman, 2023). According to the theory, ultimately the demand for transport comes about because of the activity happening at the end of the trip.

Many spatial interaction models operate under the fundamental premise that the movement of goods, people, or information is contingent upon the characteristics of the origin and destination locations, as well as the distance between them. This

distance is often referred to as friction, and is a key factor in determining the flow of interactions between locations. In line with Rodrigue et al (2020) findings, the spatial interaction model can be generally formulated in the following manner:

**Tij:** The present study focuses on examining the interaction that occurs between two distinct locations, namely location *i* (origin) and location *j* (destination). The units of measurement associated with it are diverse and may encompass factors such as passenger count, freight weight, traffic volume and so on. This concept is also associated with a specific temporal framework, encompassing interactions occurring on an hourly, daily, monthly or yearly basis.

**Vi:** The attributes pertaining to the location of origin *i*. The attributes in question are frequently represented by variables of a socio-economic nature, including but not limited to population, job availability, industrial output, or any measure that serves as a proxy for the level of economic activity, such as gross domestic product.

**Wj:** The attributes pertaining to the destination location by *i*. This attribute employs comparable socio-economic variables to emphasize the interdependence of the locations.

**Sij:** The concept of *Sij* pertains to the characteristics that distinguish the geographical point of departure *i* from the geographical point of arrival *j*. The phenomenon commonly referred to as “friction of distance” or “impedance” is also recognized in academic circles as “transport friction.” The attributes in question are frequently represented by variables such as distance, transportation expenses, or duration of travel.

**2. Methodology**

The study employed the cross-sectional community survey design. Women in four cities in Ogun State were selected through a multistage sampling technique. A total of one thousand, five hundred and ninety-seven (1,597) respondents completed the questionnaire which were analyzed in relation to the sustainable transportation practices adopted by them for the intra-urban and inter-urban movements.

Pearson Product Moment Correlation (PPMC) was employed to investigate the correlation between the travel patterns of females' individuals and the implementation of eco-friendly transportation methods within the designated research region. Due to missing data, 1,366 cases were used for the correlation analysis.

**3. Results**

The results of the correlation analysis are as shown on Table 1. The Pearson correlation coefficient for the total score of sustainable practices by women and total daily trips for all purposes by women is – 0.078. This value denotes a negative correlation between the two variables, though the correlation is weak. It actually means that sustainable transport practices lead to a reduction in the number of daily trips by women. From the table, the observed significant of 0.004 indicates that the correlation coefficient is statistically significant at 5% level.

The table further shows the correlation value between the total score of sustainable practices by women and total out-of-town trips for all purposes by women. The Pearson correlation coefficient is given as 0.153 which indicates a positive correlation between the two variables. The observed significant value is given as 0.000 which is less than our critical level of a significant (0.05). This implies that the level of adoption of sustainable transportation practices significantly influences women's travel behavior and the total out-of-town trips for all purposes. This shows that the sustainable transportation of women does not reduce the out-of-town trips by women.

**Table 1:** Correlation between Total Score of Sustainable Practices by Women and Total Trips Generated

	Total Daily Trips	Total Out of Town Trips
Pearson correlation	-0.078	0.153
Significant Value	0.004	0.000
N	1366	1366

*Source:* Author's Computation with SPSS

**4. Summary and Conclusion**

The results from the correlation analysis depict a significant relationship between women's travel behaviour and adoption of sustainable transportation practices in Ogun State. One of the key determinants of travel behaviour is individual accessibility to the transport mode available to them. Sometimes, travel behaviour is influenced by not our choice of transport but the accessible mode of transportation available to us.

The findings from the study by Ademiluyi et al. (2024) have established that women without vehicles are associated with the adoption of sustainable transportation practices. This result demonstrates the effect of lack of vehicle as the basis for such practices. This result also shows that the adoption of sustainable transportation practices is not fully entrenched as intentional. The adoption of such practices is a response to the inadequacies and lack of vehicle among most of the women in the region.

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