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Economic and Environmental Studies (E&ES)

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Suggested Citation: Adetunji, Musilimu (2018) : Travelling preferences of the elderly and their perception of transport services in Lokoja, Kogi State, Nigeria, Economic and Environmental Studies (E&ES), ISSN 2081-8319, Opole University, Faculty of Economics, Opole, Vol. 18, Iss. 1, pp. 9-29, <https://doi.org/10.25167/ees.2018.45.1>

This Version is available at:

<https://hdl.handle.net/10419/193070>

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Travelling preferences of the elderly and their perception of transport services in Lokoja, Kogi State, Nigeria

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Abstract: This study assessed the travel characteristics of the elderly population in Lokoja metropolis in North Central Nigeria. This was with a view to developing a database for proper formulation and implementation of a sustainable transport policy for elderly people in Lokoja metropolis in particular and in Nigeria in general. The introductory part of the paper considers the population of the elderly in different parts of the world, but with an emphasis on Lokoja metropolis of North Central Nigeria. A review of related literature, which forms another section of the work, reveals the age population and travelling preferences and pattern of elderly people in different parts of the world. Both primary and secondary data were elicited for this research. The primary data on the travelling preferences of the elderly were obtained from the three residential areas identified in the city. Materials for the study are of three types: socioeconomics characteristics of the elderly, the purposes for which they embarked on trips, and the mode of transportation and the distance they cover per day. A systematic random sampling procedure was used to select the elderly population in Lokoja. This was based on the principle of one in every tenth building along the major roads in each of the residential areas. A total of 200 elderly people were selected for the questionnaire survey, of whom 197 completed their questionnaires, which were subsequently analysed. The analysis was based on tables and other empirical statistical evidence.

Keywords: elderly people, transport, urban, perception and planning

JEL codes: R40, R41, R42, L91

<https://doi.org/10.25167/ees.2018.45.1>

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1. Introduction

The World's population is aging as more people now live statistically longer than in the previous two decades. Improved medical facilities coupled with other environmental factors have led to an increase in life expectancy (UN, 2013: 3). Globally, the number of persons of age 60 and above has been estimated by the UN Population Division to increase from less than 800 million to slightly more than 2 billion in 2050 (Bloom et al., 2011: 1). The increase in the number of the elderly is a global phenomenon but differs significantly from country to country. For instance, in 2005, Nigeria ranked among the top 30 countries in the world as regards the size of its population aged 60 and above. Nigeria had the largest category of this age group in Sub-Saharan Africa, with over 6 million people aged 60 and above. And by 2030, Nigeria will have had the largest population of the older citizens in Sub-Saharan African countries, with over 12 million people aged 60 and over (Velkoff and Kowal, 2006: 4). It is therefore interesting to observe that the size of the elderly population in many Sub-Saharan African countries is roughly equivalent to that of some developed countries. For instance, Nigeria's elderly population is about the same size as those of South Korea and Canada (Velkoff and Kowal, 2006: 4). An increase in aging population poses a great problem to countries that are not adequately prepared for such a phenomenon, particularly relating to issues of easy access to healthcare facilities, recreation, workplaces and recreation location (Musselwhite et al., 2015: 1). In many countries, the elderly population still live an active life. They have aspirations. They may still be working, escorting their grandchildren to schools and participate in community services (Musselwhite et al., 2015: 1). Thus, Mackett (2015: 6) has highlighted the relevance of keeping elderly people mobile in order for them to contribute to the development of the society they live in. Among others, such contributions include issues relating to employment, childcare and giving public talks on development. The accessibility of elderly people to some of these activities located in any geographical space require efficient and functional transport systems which are generally lacking in Nigeria and in many developing countries (Adetunji, 2013: 51; Nwachukwu, 2014: 108).

It is pertinent to note that travel demand of elderly people has generally been growing in the literature. Little or no differentiation has been made between the transport needs of the elderly and those of other categories of people in Nigeria, whereas the existing few studies on the elderly mobility in Nigeria have focused on trip purposes and modal choice (see Ipingbemi, 2010: 287; Olawole and Aloba, 2014: 111), especially in Southwestern Nigeria. Elsewhere, in Nigeria, similar or more detailed studies on elderly population are yet to be

carried out. It is on this background that this research was designed to examine the travel behaviour of the elderly and their level of satisfaction with public transport services in a medium-sized city of Lokoja in North Central Nigeria.

2. Literature review

There are numerous studies of elderly people's preferences regarding travelling for different purposes in the developed world in the literature. In affluent societies, access to efficient and effective transport services is closely associated with better quality of life and sound health (Banister and Bowling, 2014: 107; Nordbakke and Schwanen, 2013: 15). The elderly people's preference for the mode of travelling, which relies on the car for different trip purposes, may result in environmental health challenges, such as pollution, traffic congestion and frequent accidents on transport corridors (Rosenbloom, 2001: 383; Schwanen et al., 2001: 347; Alsnih and Hensher, 2003: 911). However, the use of public transport as alternative to car trips for elderly people will reduce transport cost, low emission and promote social benefits for less privileged people who are prone to social exclusion in their peer groups (Rosenbloom, 2001; Burkhardt, 2003; Currie and Delbosc, 2010; Engels and Liu, 2011; Buys et al., 2012 cited in Troung and Somenahalli, 2015: 148).

Socio-economic characteristics of elderly people have been found to affect their choice of the mode. For instance, in research conducted on travelling mode choice of elderly people to leisure activities in Neitherland, Schwanen et al., (2001: 357) observed that women are far dependent on public transport than men and rely on both the car and bicycle less frequently than public transport. Kim and Ulfarsson's (2004: 117) and Troung and Somenahalli (2015: 148), in their studies on the mode choices among elderly people in Washington DC, noted that the use of public transport decreased with high income and increased with automobile ownership. According to them the probability of using public transport is highly correlated with shorter distances to bus stops and longer trip lengths. In a similar study on elderly people's choices before and after shopping in London, Su et al., (2009: 38) argued that the use of public transport is highly correlated with residents of the inner city of London with higher bus stop density. In the same report travel cost, availability of a car in the household, and bus stop density are statistically significant in shopping trips.

In an assessment of the frequency of public transport usage among the elderly people in Adelaide, Australia, Troung and Somenahalli (2015:151) similarly noted that the majority of older people with driving licenses drive their personal cars when they travel. According to

them, approximately 14% of the respondents have difficulty walking due to the old age. Private car accounted for 80% of all trips for the elderly they sampled. They also found that the elderly women tend to drive less and travel more frequently by public transport (Rosenbloom, 2006: 128). In another study conducted in Montreal on the choice of transport mode and trip length among elderly populations, Moniruzzaman et al., (2013, cited in Troung and Somenahalli, 2015: 148) affirmed that the use of public transport decreased with advanced age and possession of driving license among the elderly population. It is obvious from these studies that mobility of the elderly has been given the prime of place in transport studies in the developed world particularly with a view to reducing the loneliness of old people and other factors associated with this segment of the population.

Unlike what exists in the developed countries, very few studies have been conducted on mobility of the elderly in developing countries, particularly in Nigeria. For instance, Ipingbemi (2010: 287) has examined the travel pattern as well as mobility constraint of 264 elderly people in Ibadan metropolis. He found that trips to work and health related ones accounted for 31.8% and 27.1% of the journey purposes. The use of bus and walking accounted for 30% and 29.6% of the modal splits. The study revealed that poor vehicle design, waiting time as well as poor facilities at the terminals are the major constraints for effective utilisation of public transport services in Ibadan. In a similar study in Osogbo, also in South Western Nigeria, Olawole and Aloba (2014: 109) examined mobility characteristics of the elderly and the associated level of their satisfaction with transport services in the state capital. They noted that an average of 2.88 trips were generated per day. An approximately 58.4% of elderly people have non-personal means of transportation. Similarly, in another study of elderly mobility characteristics in Southwestern Nigeria, Odufunwa (2006: 63) affirmed that inadequate provision of effective and efficient public transport services has a significant impact on modal splits of the elderly for intra and intercity travel purposes. A cursory look at literature shows that very little work or none exists on mobility of the elderly outside South-western Nigeria. Hence the present study of the elderly in the north central part of the country is highly relevant. Apart from the fact that transport services in southwestern Nigeria differ from those available in north central part of the country, public transport services are concentrated on primary arterial roads in Lokoja metropolis (Adetunji, 2017: 5). This implies that elderly poor who live far from the main road may have lesser access to transport services available in the city. Also, many of the studies on elderly people's mobility in Nigeria did not examine the older people's choice mode of transport for different trips.

Similarly, the frequency of use of public transport services by the elderly for different journey purposes and perception of transport problems were conspicuously ignored in some of the research on elderly people's mobility. Based on this background, this study aims to examine travelling mode preferences of the elderly people in Lokoja in north central Nigeria. The main objectives are to examine trip purposes, length, frequency as well as assessing the level of satisfaction of this segment of the population with public transport services in the study area.

3. Study Area

Lokoja metropolis is the study area. The city is located on latitude $7^{\circ} 45' 27.56'' - 7^{\circ} 51' 04.34''$ N and longitude $6^{\circ} 41' 55.64'' - 6^{\circ} 45' 36.58''$ E of the equator on the confluence of the Rivers Niger and Benue (see Figure 1), with a total land coverage of about 63.82 sq. km. (Adeoye, 2012: 41). The city is strategically located at the transition zone between the Southwestern, Southeastern and Abuja, the Federal Capital territory of Nigeria. Given its geographical position in Nigeria, Lokoja has witnessed and continues to witness a large volume of intra city vehicular movements on the daily basis. Three types of road networks are found in Lokoja metropolis. These include Trunk A- Federal Roads (highways), Trunk B- State Roads, and Trunk C- Local Government Roads. The Trunk A Roads comprise the Federal highways that connect Lokoja to other towns and states of the federation. The Trunk B- State Roads are the intra urban road networks. Because some of these trunk B roads are narrow, poorly maintained and connect few residential areas, many public transport services such as tricycles, taxi and mass transit are forced to use the federal highways in the city (Adetunji, 2017: 5). This has led to road traffic congestions and traffic crashes within the metropolis. The last categories of urban route in Lokoja metropolis are Local Government Roads which link low density residential parts of the city. Many of these roads are earth surfaced roads, with poor transport facilities. Some of the elderly poor that live in the outskirts of Lokoja have less access to transport services.

Lokoja has a population of 195,261 (National Population Census, 2006). This figure was expected to increase to 264,891 in 2016 (using a national population growth rate of 3.05%). Since elderly population constitutes a significant proportion (20%) of the entire population of Nigeria (Alonge, 2016), it has become imperative and reasonable to examine the travelling mode choices of this category of people. This will enable all stake holders in the state to plan and provide comfort for the elderly who constitute a large percentage of the vulnerable population in the state.

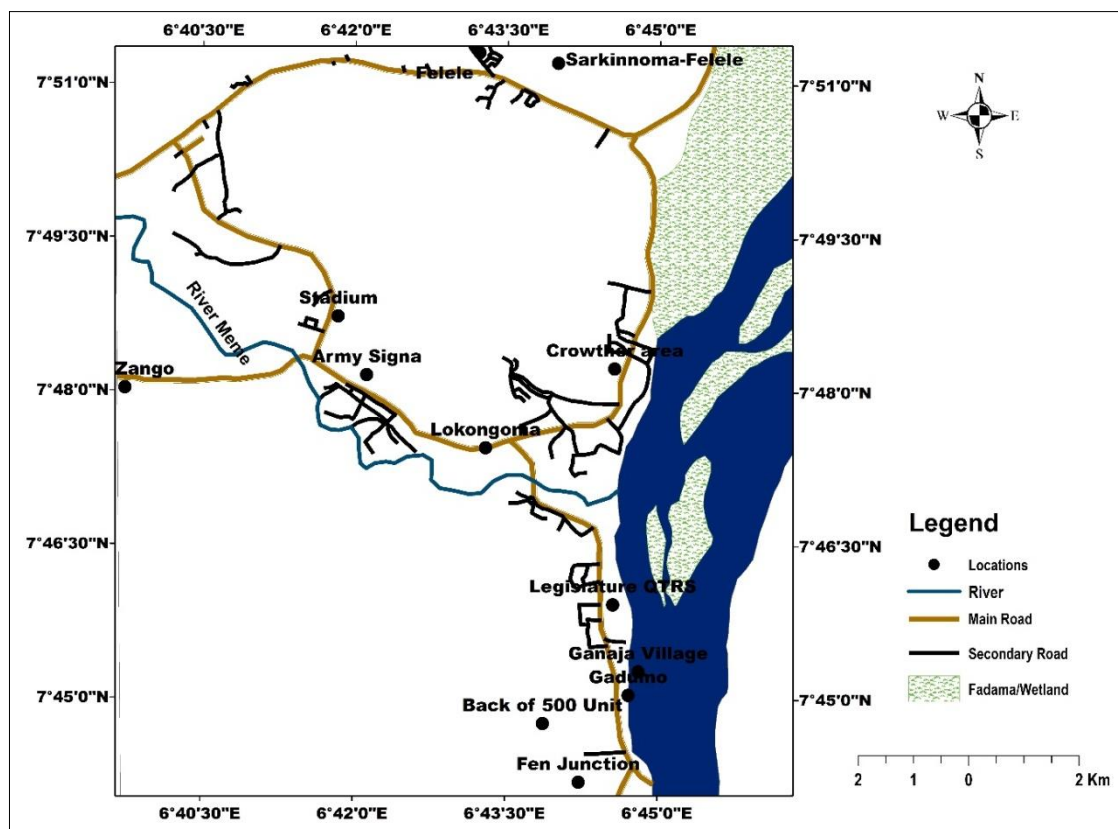


Figure 1. Important locations in Lokoja

Source: Adetunji, 2017: 3

4. Materials and Methods

4.1. Materials

The data used for this research are of three types. The first type focuses on the socioeconomic characteristics of elderly people such as sex, age, level of education and possession of personal means of transportation. The second category focuses on different trip purposes of elderly people such as trip to work, shopping, recreation or social trips. The third class of data required is on trip characteristics of the elderly people, such as trip length and choice of mode to different places and frequency of trips. Also required is the level of satisfaction of the service delivery of public transport operators to the elderly during their trips to different activity centres.

4.2. Methods

There are no accurate data on the number of elderly population in Lokoja. According to Alonge (2016), the elderly population constitutes 20% of the entire Nigerian population as

at 2016. This percentage was subsequently used as the base line to determine the elderly population in Lokoja metropolis. Thus, the 20% of the estimated population (264,891 in 2016 as mentioned earlier) will be approximately 52, 978 elderly people in the city. Furthermore, Krejcie and Morgan (1970: 608) methodology was adopted for this study. Accordingly, the appropriate sample size for a population of 52,978 is 380 samples. However, only 200 elderly people who were willing to provide information on their travelling preferences in the last one month to the survey (June 1, 2017 to June 30, 2017) of the data collection and their level of satisfaction with public transport service were subsequently analysed in the study.

For an effective administration of the questionnaire to the elderly population on their travel preferences in Lokoja metropolis, the city was divided into three residential areas based on land use characteristics and housing density; namely High, Medium and Low density areas. In each of these residential areas identified in the city, an average of 70 elderly people were targeted for questionnaire administration. However, more elderly people living in the high density areas cooperated with research assistants more than in the medium and low density areas of Lokoja. Similarly, in each of the residential areas, a systematic sampling procedure was adopted to select buildings along the major roads at one in every ten buildings. In each of the buildings selected, only one elderly person (60 years and above) was selected for the questionnaire administration. All in all, a total of 200 elderly people completed the questionnaire, but only 197 of them were suitable for analysis.

4.3. Data Analysis

Both descriptive and inferential statistics were employed to analyse the data. Table of frequency and percentages were used to discuss the socio-economic characteristics of elderly people, such as sex, age and level of their education. An analysis of variance was employed to determine the trip frequency among the elderly. Pearson product-moment correlation coefficient¹ was employed to examine the strength of the relationship between the elderly possession of personal means of transportation and holding of a valid driver's license. Also, a 5-point Likert scale model was employed to assess the perception of the elderly people on the problems encountered on transit during their different trips. Those variables used are rated as follows: 5 = Highly Dissatisfied; 4 = Dissatisfied; 3 = Undecided; 2 = Satisfied and 1= Highly Satisfied (Yoade and Fatusin, 2017: 31).

¹ The Pearson product-moment correlation coefficient is a measure of the strength of the linear relationship between two variables.

5. Results and discussion

5.1. Socio-economic characteristics of the population of the elderly

The age classification of the population of the elderly shown in Table 1 reveals that 40.5% are between the ages of 60 and 64 years. Approximately 22% of the aged people are between 65 and 69 years. Less than 15% of elderly people are above 75 years of age. Further analysis shows that more elderly men (63.3%) responded to the questionnaire administration than the elderly women in the study area. The educational profile of the elderly reveals that 23.8% of the aged people have no formal education. This is not surprising in that formal education in the entire Northern Nigeria has been low until recently (Federal Government of Nigeria, 2017). Approximately 11.4% of the old people have primary education, 12.4% have secondary education, while more than 50% of the elderly people indicated that they have higher qualifications.

Table 1. Socio-economic characteristics of elderly people in Lokoja

Variable	Categories (Years)	Frequency	Percentage (%)
Age group	60-64	75	40.5
	65-69	40	21.6
	70-74	49	26.5
	More than 75 years	21	11.4
Sex	Male	119	64
	Female	67	36
Educational profile	Non-formal educa.	44	23.8
	Primary school	21	11.4
	Secondary School	23	12.4
	Tertiary	97	52.4
Income per month	Less than ₦ 20,000	73	37.1
	₦20,000- ₦40,000	47	23.9
	₦41,000- ₦60,000	68	34.5
	More than ₦60,000	9	4.6
Personal means of transportation	Walking	77	40.1
	Motorcycle	40	20.8
	Tricycle	2	1.0
	Car	73	38.0

Source: author's field survey, 2017.

With reference to the income distribution among the elderly in Lokoja, Table 1 reveals that 37.1% of them earn less than ₦20,000 per month either as stipend/remittance from their children or relatives. 24% of the elderly people earn between ₦21,000 and ₦40,000 per

month. Another 34.5% of the older people earn between ₦40 and ₦60,000 per month in the city. Only 4.6% of the aged population in Lokoja earn more than ₦60,000 per month. This indicates that more than 80% of the elderly populations in Lokoja live below the poverty line (World Bank, 2015). This level of poverty may affect the elderly travel patterns, the level of accessibility and satisfaction with the provision of service delivery of public transport operators. Table 1 also shows that more than 60% of the elderly people rely on public transportation for their day to day transactions. Approximately 38% of the elderly indicated that they have personal cars which they use when the need arises. Table 1 also reveals that more than 40% of the elderly population do not own personal means of transportation. This is likely to affect their trip length, mode of transportation and frequency of trips in the city.

The possession of personal means of transportation by the elderly population and a valid driver's license shows a high and positive correlation ($r = 0.61$). Correlation coefficient is significant at the 0.01 level. The result of this analysis is tangential to findings of many studies of mobility of the elderly, carried out in the developed world that the possession of driver's license is a precondition for driving, and using their personal cars to make different trips (Alsnih and Hensher, 2003: 911; Buehler and Nobis, 2010: 64). Many of the elderly people interacted with in the study area, who claimed that they hold a valid driver's license, also indicated that they rely on their personal car for different trips.

Table 2. Relationship between possession of driving licence and owning a personal means of transportation

		Do you own a valid motorcycle/driver's license?	Which of these means of transport do you own?
Do you own a valid motorcycle/driver's license?	Pearson Correlation	1	.601**
	Sig. (2-tailed)		.000
	N	171	171
Which of these means of transport do you own?	Pearson Correlation	.601**	1
	Sig. (2-tailed)	.000	
	N	171	193

** . Correlation is significant at the 0.01 level (2-tailed).

Source: author's own computation, 2017.

5.2. Trip purposes in Lokoja

Like other members of the family in any urban setting, nationally or internationally, elderly people generally participate in different trip purposes such as work, social, religious

and shopping trips. Figure 2 reveals that only 17% of the elderly population in Lokoja engage in work trips. The reason for this is not far-fetched because the majority of those interviewed may have retired from their various work places. Further analysis reveals that 21.7% of the elderly people participate in social and leisure trips. Shopping trips accounted for 15.8%, religious trips (25.3%) represent the largest proportion of trips engaged by the older people in the study area. This is likely to be the case in most African societies, where the elderly tend to be more religious compared to when they were younger. Approximately 11.8% of the aged people make trips to banks to withdraw either their pension benefits or money sent to them by their children or relatives. Hospital trips for the treatment of their illness or medical check-up accounted for only 8.4% of the elderly trips in Lokoja metropolis. The result of these findings is similar to the study carried out by Ipingbemi, (2010: 287) in Ibadan metropolis in southwestern Nigeria, where he observed that elderly population usually engaged in different trips such as trips to work, to medical health providers, trips for religious purpose, to do shopping, to the bank and to visit friends and relatives as the occasion demands.

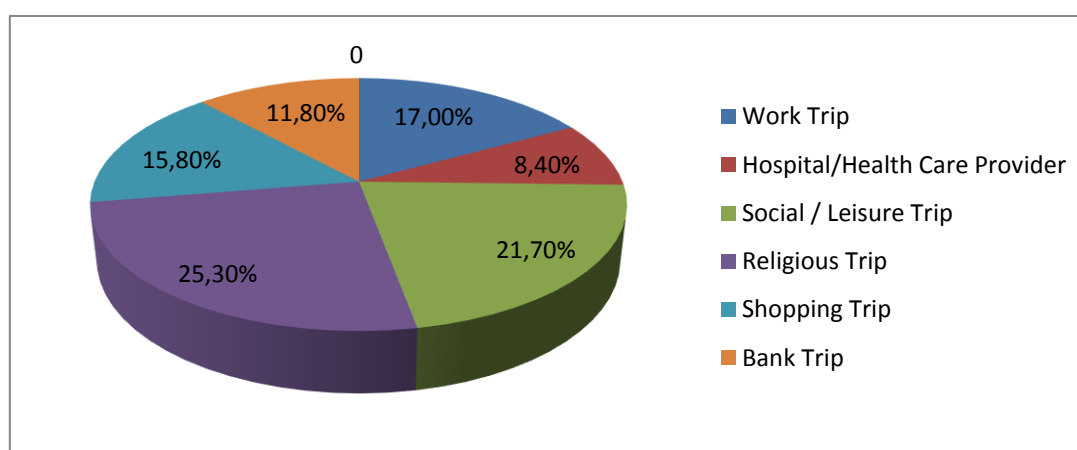


Figure 2. Trip purposes

Source: author's own computation, 2017

5.3. Distance travelled for different purposes

The geographical location of residences in relation to different purposes of trips determine to a greater extent the average distance travelled. Table 3 indicates that 64.3% of the elderly travel less than 2kms to work within the study area. More than 50% of the aged people are from the high density areas of Adankolo, Kabawa, Kporoka, Barracks areas of the city. Generally, elderly people are not expected to travel long distances to work because of their age. A further analysis reveals that 30.7% of the elderly travel between 2 kms and 4kms to work. An estimated 58.1% of these elderly people who live in low density areas of Zango

Daaji and Five Hundred Housing Units and Commissioners Quarters travel for more than 4kms. In terms of shopping trips, Table 3 reveals that 68.2% of the elderly population commute less than 2 kms for shopping in the high density areas of Lokoja. This is so because some departmental stores, shopping malls, and many other commercial activities are concentrated along the major roads of Lokoja. A significant proportion (40%) of the elderly who travel more than 4 kms reside in the medium density areas of Felele and Lokongoma Phases 1 and 11. A further analysis reveals that 72% of the population of the elderly travel between 2 and 4kms for shopping. The assessment of trips for social purpose in Table 3 indicates that an approximately 50% of the population of elderly people travel between 2 and 4 kms in the medium density areas of Lokoja, while 40.2% of the population of elderly people travel for more than 4 kms in the low density areas. It can be inferred from the above analysis that more than 50% of the older population travel short distances to different activity centres in the study area. This is similar to the report of Mattson (2012: 38) which found out that elderly people are expected to travel less than their younger counterparts to reach various destinations because the travel distance decreases with age.

Table 3. Distance travelled by elderly people for different purposes among residential areas in Lokoja

Residential density/ trip purpose	Less than 2 kms		2-4 kms		More than 4 kms	
	No	%	No	%	No	%
Work						
High Density	47	52.2	10	23.3	2	28.6
Medium Density	17	18.9	8	18.6	4	57.1
Low Density	26	28.9	25	58.1	1	14.3
Total	90	100.0	43	100.0	7	100.0
percentage	(64.3%)		(30.7%)		(5.0%) (140)	
Hospital						
High Density	4	13.8	15	51.7	10	34.5
Medium Density	6	42.9	5	35.7	3	21.4
Low Density	1	6.7	13	86.7	1	6.7
Total	11	19.0	33	56.9	14	24.1
Social Trip						
High Density	23	46	13	26	14	28.5
Medium Density	10	35.7	14	50	4	14.3
Low Density	6	14.3	19	45.2	17	40.5
Total	39	32.5	46	38.3	35	29.2
Shopping Trip						
High Density	30	68.2	14	31.8	0	0.0
Medium Density	4	18.2	9	40.9	9	40.9
Low Density	5	20.0	18	72.0	2	8.0
Total	39	42.9	41	45.1	11	12.0

Source: author's own computation, 2017.

5.4. Mode choice for different trip purposes among the elderly in Lokoja

Elderly people rely on different modes of transportation for their different trips. Figure 3 indicates that 10.1% of the population of the elderly walk to work, an approximately 26.3% rely on tricycle for their journey to work. More than 50% go to work in their personal cars. With respect to trips to hospitals, more than 50% of the elderly rely on public transportation, such as motorcycle (24.2%), taxi (19.4%) and tricycle (6.5%). Only 3.2% of the older people walk to health care providers for their medical attention. Similarly, an approximately 40.2% of elderly people rely on public transport for their shopping trips. 12.4 % of the population of the elderly walk for their shopping trips. Figure 3 indicates that 34.5% of the elderly people walk to religious centres in the study area. It can be inferred from Figure 3 that more than 40% of the population of elderly people in Lokoja metropolis either rely on public transport services or walk to different activity patterns. It implies that public transport system needs to be improved, made efficient and effective so as to encourage the elderly poor to participate in different trips in the urban centre.

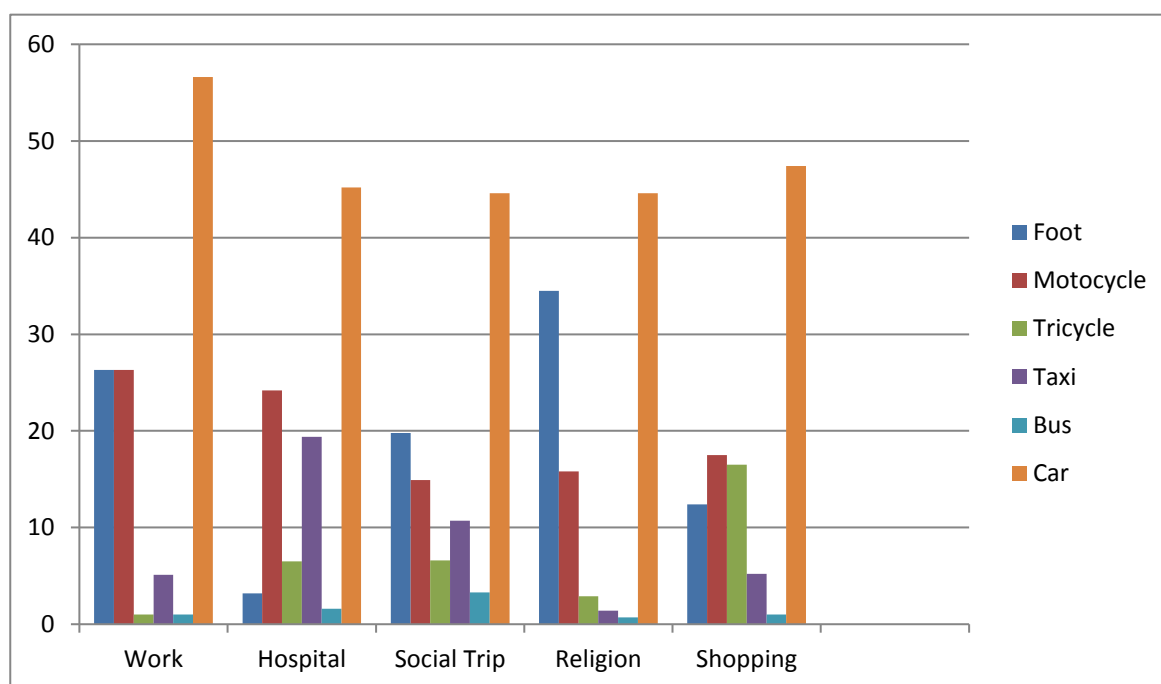


Figure 3. Choice of transportation mode by the elderly for different trip purposes in Lokoja

Source: author's own computation, 2017

It is pertinent to note that the elderly people's choice of the mode of transportation for different trips varies with residential location relative to the destinations of their activity travel patterns in the city. The result of One -Way Analysis of Variance in Table 4 reveals that the

choice of mode of transportation to work by the elderly ($F= 4.994$, $p<.01$); to hospital ($F=3.497$, $p<.04$), on a social trip ($F=12.111$, $p<.00$); for religious purposes ($F= 18.037$, $P<.00$); on shopping trips ($F=8.778$, $P<.00$) and visits to banks ($F=1.459$, $p<.240$) varies with the location of residence of older people. Generally, it is believed that the population of the elderly poor who live in the low density areas of Lokoja, where transport infrastructure is poor, are likely to trek some distances to the main road in order to board public transport services for their different trips. Similarly, the population of the elderly who live in high density areas, where many urban activities are concentrated particularly at Kabawa, Karaworo and Adankolo are likely to commute on foot to various destinations. The elderly population that have personal means of transportation are more likely to travel by their cars to various destinations.

Table 4. Residential location of elderly people and their mode of transport in Lokoja

ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.
What means of transport do you use to get to the activity points? (i) Work	Between Groups	38.813	2	19.406	4.994	.009
	Within Groups	369.187	95	3.886		
	Total	408.000	97			
(ii) Hospital	Between Groups	20.172	2	10.086	3.497	.037
	Within Groups	170.167	59	2.884		
	Total	190.339	61			
(iii) Social (friends and relatives)	Between Groups	88.482	2	44.241	12.111	.000
	Within Groups	427.385	117	3.653		
	Total	515.867	119			
(iv) Religious	Between Groups	154.884	2	77.442	18.037	.000
	Within Groups	579.616	135	4.293		
	Total	734.500	137			
(v) Market	Between Groups	59.251	2	29.626	8.778	.000
	Within Groups	317.243	94	3.375		
	Total	376.495	96			
(vi) Bank	Between Groups	10.074	2	5.037	1.459	.240
	Within Groups	217.517	63	3.453		
	Total	227.591	65			

Source: author's own computation, 2017.

5.5. Frequency of use of public transport by the population of the elderly in Lokoja

The frequent use of public transportation for different purposes by the elderly in Lokoja metropolis was considered in terms of reliability, affordability, safety and

convenience. Table 5 reveals that there is high and positive correlation between the frequent use of public transportation by older people and their perception of its reliability and safety. Some of the elderly poor people interviewed were of the opinion that the public transportation is more accessible and reliable for their different journey purposes whenever the need arises. Similarly, in terms of safety of the patronage of public transportation by the population of elderly, Table 5 indicates that there is high and positive correlation between the frequent use of public transportation by the elderly people and their perception of safety. A further analysis shows that there is moderate and positive correlation between the frequent use of public transportation by older people and their perception of convenience of the service delivery. The attitude of the public transport operators shows a moderate correlation to the frequency of use of public transportation in the city. Some of the older people interacted with indicated that they were used to the irrational behaviour of public transport operators, since they are less privileged to use their personal cars for their different trips.

Table 5. Frequency of use of public transport by the elderly for different purposes in Lokoja

		Correlations					
		Frequency of public transport use	(ii) Affordability	(iii) Reliability	(iv) Safety	(v) Convenience	(vi) Attitude of operators
Frequency of public transport use	Pearson Correlation	1	-.025	-.180*	-.272**	.021	-.017
	Sig. (2-tailed)		.763	.031	.001	.793	.836
	N	171	143	143	152	154	147
(ii) Affordability	Pearson Correlation	-.025	1	.621**	.529**	.553**	.325**
	Sig. (2-tailed)	.763		.000	.000	.000	.000
	N	143	153	150	152	152	151
(iii) Reliability	Pearson Correlation	-.180*	.621**	1	.630**	.601**	.458**
	Sig. (2-tailed)	.031	.000		.000	.000	.000
	N	143	150	154	151	151	150
(iv) Safety	Pearson Correlation	-.272**	.529**	.630**	1	.498**	.428**
	Sig. (2-tailed)	.001	.000	.000		.000	.000
	N	152	152	151	162	158	156
(v) Convenience	Pearson Correlation	.021	.553**	.601**	.498**	1	.562**
	Sig. (2-tailed)	.793	.000	.000	.000		.000
	N	154	152	151	158	167	158
(vi) Attitude of operators	Pearson Correlation	-.017	.325**	.458**	.428**	.562**	1
	Sig. (2-tailed)	.836	.000	.000	.000	.000	
	N	147	151	150	156	158	158

*. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

Source: author's own computation, 2017

The socioeconomic characteristics of the elderly population particularly their income level determines to a great extent the choice of transportation mode for different trips in the study area. The result of the One-Way Analysis of variance in Table 6 indicates that the mode of transport to work ($F=4.710 <P.00$); visits to hospitals ($F= 2.628 <p.03$); social trips ($F=6.457<p.00$); trips for religious purpose ($F=7.481<p.00$); going shopping ($F=6.632<p.00$) and visits to banks ($F=3.544<p.00$) varies with the level of the income of the older population.

Table 6. Choice of mode of transportation by older people

		Sum of Squares	Df	Mean Square	F	Sig.
What mode of transport do you use to get to the point of activities? (i) Work	Between Groups	96.553	6	16.092	4.710	.000
	Within Groups	314.356	92	3.417		
	Total	410.909	98			
(ii) Hospital	Between Groups	36.685	5	7.337	2.628	.034
	Within Groups	153.578	55	2.792		
	Total	190.262	60			
(iii) Social (friends and relatives)	Between Groups	112.442	5	22.488	6.457	.000
	Within Groups	393.558	113	3.483		
	Total	506.000	118			
(iv) Religious	Between Groups	186.901	6	31.150	7.481	.000
	Within Groups	541.303	130	4.164		
	Total	728.204	136			
(v) Market	Between Groups	115.967	6	19.328	6.632	.000
	Within Groups	259.366	89	2.914		
	Total	375.333	95			
(vi) Bank	Between Groups	60.294	6	10.049	3.544	.005
	Within Groups	167.297	59	2.836		
	Total	227.591	65			

Source: author's own computation, 2017.

The frequency of trips to different activity patterns vary among the elderly in the city. The result of One-Way Analysis of Variance in Table 7 reveals that there is a gender variation among the elderly on trip frequency to social activity ($F=4.523, p < 0.013$), religious

activity ($F=1.543$, $p<.218$) and work ($F=1.545$, $p<.217$) across the three residential areas identified in the city.

Table 7. Analysis of variance of the trip frequency among the elderly population in Lokoja

ANOVA						
		Sum of Squares	Df	Mean Square	F	Sig.
(i) Social (friends and relatives)	Between Groups	13.430	2	6.715	4.523	.013
	Within Groups	167.769	113	1.485		
	Total	181.198	115			
(ii) Religious	Between Groups	2.979	2	1.490	1.543	.218
	Within Groups	131.309	136	.966		
	Total	134.288	138			
(iii) How often do you perform the trip(s) (i) work	Between Groups	1.319	1	1.319	1.545	.217
	Within Groups	85.387	100	.854		
	Total	86.706	101			

Source: author's own computation, 2017.

5.6. Perception of transport challenges to the elderly in Lokoja

Transportation infrastructure in Nigeria is grossly inadequate and poorly maintained (Ogunsanya, 2004: 17). The situation in Lokoja metropolis is critical as many residents have little access to functional and efficient transport facilities (Adetunji, 2017: 2). In an attempt to determine the perception of older people on the problems of transportation encountered during their different journeys in the study area, the following variables were considered: condition of road networks, design of public transport vehicles, long access time to the bus stop, transport fare, state transport services, reckless driving, prevalence of insults from public transport operators and maltreatment of older people in public transport services. The variables used to assess the perception of older people on the problems encountered on transit are subjective and on a 5-point Likert scale in which the feeling of the elderly people is rated (Yoade and Fatusin, 2017: 31). The ratings are as follows: 5 = Highly Dissatisfied; 4 = Dissatisfied; 3 = Undecided; 2 = Satisfied and 1 = Highly Satisfied.

In order to obtain the aggregate of older people's perception on the challenges of urban transportation in Lokoja, the Residents' Perception Index as used by Afon et al., (2006: 6); Yoade and Fatusin, (2017: 31) was employed. In this method, a weight value of 5, 4, 3, 2

and 1 is assigned to each rating according to its value. The summation weight value (SWV) for each variable (problem) is obtained from the addition of the product of weight value of each rating and the number of responses to each rating (Afon et al., 2006: 6; Yoade and Fatusin, 2017: 31). This method/tool has been adopted and modified in this study and referred to as Elderly Perception Index. This index value was finally obtained by dividing MVW by the total number of respondents (elderly) who rated each problem.

$$\text{Elderly Perception Index (EPI)} = \text{MWV} / \text{N}$$

where

EPI = Elderly Perception Index

MWV = Mean Weight Value of the perception of urban transportation problem

N = Elderly rating each problem of urban public transportation.

Table 8 shows aggregate elderly people's views of each of the problem of urban transportation in Lokoja. The nearer the Summation of Perception Index to 5, the greater the level of dissatisfaction with the problem of transportation of elderly people in the study area.

The average EPI denoted by $\text{EPI} = \sum \text{EPI} / \text{N}$ (Summation of Elderly response of Highly Dissatisfied, Dissatisfied, Undecided, Satisfied, Highly Satisfied / Summation of Frequency of Elderly Responses) where n = the number of the problems identified.

The Elderly Perception Index (EPI) of urban transportation challenges for their different trips in Lokoja is $30/8 = 3.75$ (Table 8). This implies that elderly people perceive and rate the challenges of transportation in Lokoja as dissatisfied. Of all the variables highlighted as problems of elderly mobility in the study area, poor condition of road networks is the major problem and ranked highest (4.21) by the elderly people. In actual fact, some of the intra city roads in Lokoja are not tarred and barely motorable; those that are tarred with bitumen have developed potholes that hinder the free movement of vehicles with serious health implications on the commuters. Further analyses reveal that reckless driving by some of the road users was ranked second (4.12) by the older people. Prevalence of insults from public transport operators was ranked third (3.87) as one of the major challenges of elderly mobility in Lokoja metropolis. The design of public transportation, particularly tricycle which is one of the commonest mode of public transportation for intra city movement in Lokoja, is ranked lowest (3.41) among the problems of public transportation identified in the city. This is so because many of the elderly people interacted with express their dissatisfaction with the manner they are being conveyed like frozen chickens during their intra city movements.

Table 8. Perceptions of urban transportation problems by the elderly in Lokoja

Problem of transportation of Elderly	Highly dissatisfied		Dissatisfied		Undecided		Satisfied		Highly Satisfied		Summation of frequency of elderly Response	SWV	MWV
	FER	WV	FER	WV	FER	WV	FER	WV	FER	WV			
Bad Road	78	(390)	74	(296)	17	(51)	9	(18)	2	(2)	180	757	4.21
Prevalence of insult from public transport operators	46	(230)	77	(308)	37	(111)	11	(22)	3	(3)	174	674	3.87
Special treatment of the elderly on public transport services	42	(210)	65	(260)	37	(111)	20	(40)	1	(1)	169	622	3.68
High transport fare of public transport services	23	(115)	72	(288)	41	(123)	30	(60)	5	(5)	171	591	3.46
Design of public transport services	24	(120)	63	(252)	41	(123)	40	(80)	1	(1)	169	576	3.41
Reckless driving	74	(370)	59	(236)	28	(84)	8	(16)	3	(3)	172	709	4.12
Long access time to the bus stop	17	(85)	62	(248)	73	(219)	12	(24)	3	(3)	167	579	3.47
State transport services	25	(125)	102	(408)	29	(87)	16	(32)	2	(2)	174	654	3.78

Source: author's own computation, 2017.

6. Conclusion and Planning Implications

The study assessed the travel preferences of the elderly and their perception of transport services in Lokoja metropolis, North Central Nigeria. The travel characteristics of elderly people and their opinions of the quality of transport services were elicited from two hundred (200) respondents who provided information on their travelling preferences in the city. Using both descriptive and inferential statistics, the findings revealed that the elderly people rely on public transport services for their different trips in the study area. It can be inferred from the result of this analysis that transport infrastructure and services provision for the elderly have not been put into consideration in the city planning. The implication of this analysis is that if transport infrastructure is not efficient and effective for elderly people, it makes them less accessible to different activities located in the urban space. This may be the result of loneliness, probability of illnesses and high mortality rate among the elderly. It is

therefore pertinent that all stake holders (local, state and federal government) should put in place policies and better transport infrastructure for the elderly so as to enhance sustainable transport development in Lokoja and similar other cities in Nigeria.

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PREFERENCJE PODRÓŻNICZE OSÓB STARSZYCH I ICH POSTRZEGANIE USŁUG TRANSPORTOWYCH W LOKOJA, KOGI STATE, NIGERIA

Streszczenie

W badaniu przedstawiono charakterystykę podróży osób starszych w metropolii Lokoja w północno-środkowej Nigerii. Miało to na celu stworzenie bazy danych umożliwiającej właściwe sformułowanie i wdrożenie zrównoważonej polityki transportowej dla osób starszych w szczególności w metropolii Lokoja i ogólnie w Nigerii. Wstępna część artykułu przedstawia populację osób starszych w różnych częściach świata, ale z naciskiem na metropolię Lokoja w północno-środkowej Nigerii. Przegląd pokrewnej literatury, która stanowi kolejną część pracy, ujawnia populację wiekową i preferencje podróżnicze oraz strukturę osób starszych w różnych częściach świata. Zarówno dane pierwotne, jak i wtórne zostały pozyskane dla tego badania. Podstawowe dane dotyczące preferencji podróżniczych osób starszych uzyskano z trzech obszarów mieszkalnych zidentyfikowanych w mieście. Materiały do badań dotyczą trzech elementów: cech socjoekonomicznych osób starszych, celów, dla których wyruszają w podróże, oraz rodzaju transportu i odległości, którą pokonują dziennie. Do selekcji osób starszych w Lokoja zastosowano systematyczną losową procedurę pobierania próbek. Było to oparte na zasadzie: co dziesiąty budynek wzdłuż głównych dróg w każdym z obszarów mieszkalnych. W badaniu ankietowym wytypowano 200 osób starszych, z których 197 wypełniło ankietę, które następnie poddano analizie. Analiza została oparta na tabelach i innych empirycznych dowodach statystycznych.

Słowa kluczowe: osoby starsze, transport, urbanistyka, percepcja i planowanie.

Kody JEL: R40, R41, R42, L91

<https://doi.org/10.25167/ees.2018.45.1>