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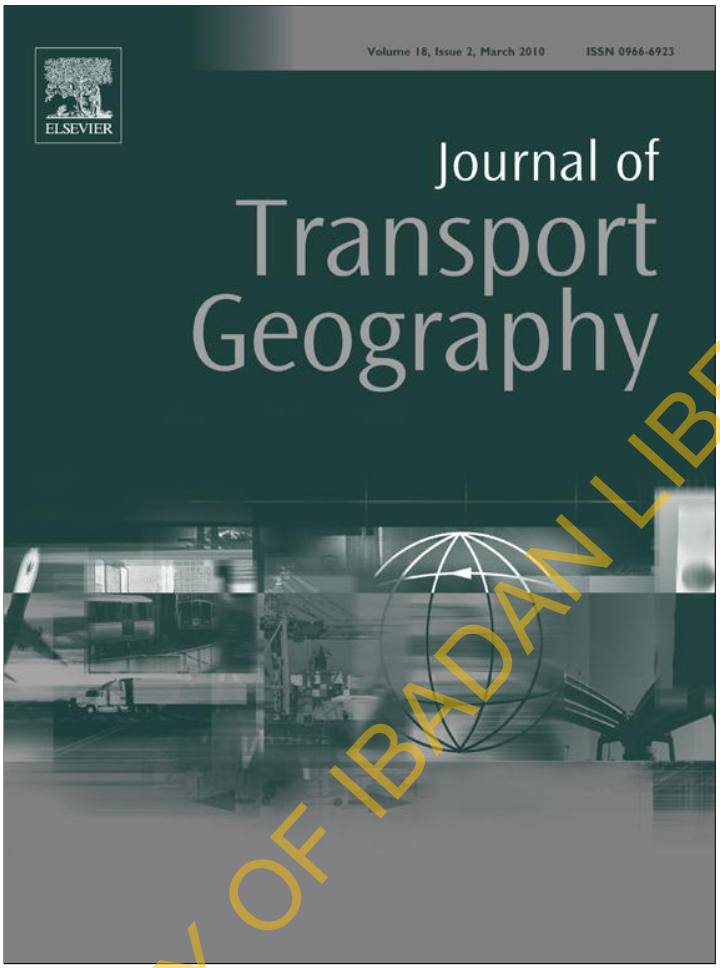

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Travel characteristics and mobility constraints of the elderly in Ibadan, Nigeria

Olusiyi Ipingbemi *

Department of Urban and Regional Planning, University of Ibadan, Ibadan, Nigeria

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ABSTRACT

The paper assessed the travel characteristic and mobility crisis of the elderly in Ibadan Metropolis. A sample of 264 elderly people completed a questionnaire survey. Tables of percentages, graphs and chi-square were used for data presentation. Findings showed that 60.3% of the respondents were married, 70.3% had no more than secondary education and over 50% earned less than N20,000 per month mainly from working and remittances. Work and health related trips accounted for 31.8% and 27.1% of the journey purpose. Similarly, the use of bus and walking accounted for 30% and 29.6% of the modal split. Chi-square analysis indicated significant variations in terms of travel time and transport cost in the three density zones. Vehicle design, long access and waiting time as well as poor facilities at the terminals were identified as constraints to the effective mobility of the elderly. The paper identified both short and long term measures for ameliorating the mobility crisis and transport burden of the elderly in Ibadan Metropolis.

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1. Introduction

The geographical mobility and spatial interaction of urban residents are crucial to the effective functioning of the city. Accessibility is the key to a city's sustainability. However, in recent years due to increasing urbanization the issue of mobility for the urban populace within urban space has been a major challenge to transport planners in developing countries. In the last five decades, many cities have grown fourfold necessitating the need for longer journey and travel time within the cities (Fuller, 2008). In most cities in developing countries, gross inadequacies of public transport, overcrowded buses, environmental pollution, and poor road infrastructure are the major mobility challenges of urban population (Oni, 2004).

Studies on the trip pattern and travel behaviour of urban residents in Nigeria are robust and comprehensive (Ayeni, 1975; Olayemi, 1977; Ogunjumo, 1986, 1989; Fadare, 1986, 1989). However, conspicuously missing from these studies is the transport for the elderly persons. Their transport demand have always been lumped together with other members of the society without taking cognizance of the fact that they belong to the disadvantaged group which needs special attention. Therefore, the issue of transportation of the elderly has become a sizeable gap in transport knowledge in Nigeria. The need to focus on them is borne from the fact that the life style of the elderly makes their travel patterns different from those produced by the adult population and their frailty which reduces their ability to cope with existing transport infrastructure and services. Similarly, before any meaningful and purposeful transport policy for the elderly can be put in place, there is the need to examine and understand the socio-economic characteristics as well as the problems surrounding the activity patterns and travel behaviour of the elderly because of its implications on transport planning.

This paper therefore provides initial contributions to the understanding of the travel characteristics and transport constraints of the elderly in Ibadan Metropolis. The study is an experimental one in that a more detailed account of the mobility pattern and transport constraints of the elderly requires proper funding for a more detailed survey than undertaken here. The paper is divided into six sections including this introduction. Section 2 is on the literature review while the methodology is discussed in Section 3. Section 4 is the result and discussion. Ways for achieving better mobility for the elderly is in Section 5 while Section 6 is the conclusion.

2. Literature review

Extensive research has hitherto been carried out on travel characteristics and behaviour in many developed and developing cities focusing on household socio-economic factors that influence trip making (Johnston, 1983; Maunder, 1984; Oyesiku, 1995; Olatubara, 1995; Mbara and Maunder, 1997). Results from such studies suggest that shorter trips are made on foot while longer trips tend to rely on some form of motorized transport. A greater proportion of journeys by women tend to be local, short and principally for shopping (Grieco et al., 1989) and accompanying children to school. These studies were basically on the generality of the population without age dis-aggregation on who makes the journey.

* Tel.: +234 8056378062.
E-mail address: odoile2002@yahoo.com

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However, attention has recently been focused on the travel behaviour and activity pattern of the elderly especially in the developed countries. This has become necessary because of the increasing number of the elderly; and the fact that the elderly travel patterns are different from those produced by the generality of the population and travel problems are related to their lack of physical resilience, which to some degree, either large or small, handicap them in the use of general transport facilities. Ashford and Bell (1979) found in the UK that the elderly made on the average 89% fewer trips than the national average. They noted further that the elderly journey purposes were completely different from the general population. In the same vein, as the age of the elderly increases it is increasingly less likely that they will be able to go out at all.

While the private vehicle still represents the preferred mode of satisfying mobility needs by the elderly in the advanced countries, the situation is different in developing countries because the main means of transportation is by public transport and walking. Odufuwa (2006) in the study of elderly in Nigeria observed that more than 80% of the respondents depended on various means of urban public transport for intra and inter city travels, though most of the public transport facilities are in a deplorable condition. Mohan (2005) noted that the existing buses, terminals and public transport operations are full of obstacles that prevent the elderly from accessing activities that contribute to living a dignified and meaningful life. Similarly studies on the safety of the elderly have shown that they have lower biomechanical tolerances to injury than younger persons (Evans, 1991; Mackay, 1998), primarily due to reduction in bone strength and fracture tolerance (Padmanaban, 2001). In the same manner, the elderly are more likely to be involved in road crashes at intersections (Bruff and Evans, 1999; ECMT, 2001). For instance, compared to other road users, the elderly are more than twice as likely to get killed in a serious accident. It is therefore important that pragmatic transport solutions are implemented in order to ameliorate the transport burden of the elderly in developing countries particularly in Nigeria.

3. Land-use pattern, city configuration and methodology

Ibadan metropolis is made up of five Local Government Areas (LGAs) with a landmass of 463.33 km^2 representing 14.83% of the total land area of Oyo State. Traditional, the occupation of the Ibadan people is trading and crafting. The favourable climate condition also encourages farming activities. One major feature of agricultural economy in the city is that the bulk of food production is carried out under the traditional system of shifting cultivation. The major arable crops grown include yam, cassava, maize, tomatoes among others while perennial crops comprise of cocoa, coffee, kolanut and palm oil.

Ibadan city which used to be a war camp grew without due consideration for effective planning, resulting in both planned and unplanned areas in the city. The unplanned areas of the city, which are also the core of the city, are located in the south eastern part which is predominantly inhabited by the indigenous population of the city. The core areas are the high density areas such as Beere, Oja'ba, Labiran, Oje, Inalende among others. The age of the zone (core areas) can be seen in the red roofs and antiquity of the buildings. There are hardly any gaps between buildings resulting in monumental ventilation and accessibility problems. Many of the buildings do not directly face the roads or streets because they are at the back of other buildings. The roads themselves are narrow and usually without drainage channels making transportation on foot temporarily difficulty anytime it rains.

The middle-density zone is a creation of the waves of in-migration into Ibadan since the beginning of 20th century. This came to existence as result of the indigenous population who are now rich and can afford to buy land in this zone. Also, the congestion at the core which makes it impossible for them to find land to build new houses forces them to occupy this zone. The low density areas (at the outskirt) are usually Government Reservation Areas and government estates. Almost all the houses have fences around with flower beds and gardens in place. The inhabitants are top civil servants, doctors, top business executives, university lecturers and administrators as well as other professionals. These categories of people earn high income and are usually mobile.

The intra-urban movement in Ibadan is closely related to the existing land-use patterns, particularly the areal distribution of housing, employment opportunities and recreation facilities (Filani, 1994). Traffic arises from the inhabitants desire to have access to their places of work and residences and to utilize the various recreation, health and social facilities available in the city. Accordingly, the main traffic generating areas include the Secretariat located in the north east and constituting the largest employment concentration point in the city; Apata Industrial Areas to the west and other industrial centres scattered all over the urban areas. Also included are the various daily and periodic markets such as Gege, Oje, Dugbe, Mokola, Oja'ba. The various educational and health institutions and several recreational facilities such as Trans Amusement park and the University of Ibadan zoo are among the traffic generating centres. It is the interaction among these various centres on one hand and between residences and these centres on the other that generates the cross-currents of intercity movements in Ibadan.

Road transport provides the major vital link between all these spatially differentiated land-use patterns. With the increasing rapid expansion of sub-urban residential districts, the city white collar workers and business executives are becoming widely separated in terms of physical distances from their work places. The work places are still largely concentrated in the north of the city while the residential districts are found mainly in the southern parts. This spatial and structural pattern of land-use has implications for the volume of intra-city traffic generated when workers are moving each day to and from their work places. The daily morning northward movement and late afternoon southward flow of the traffic generates heavy traffic density along the major routes from either direction.

Ibadan is an example of a typical African city in terms of the provision of transport infrastructure. The roads are bad and there is near absence of ancillary facilities such as road shoulders and walkways. On most of the road sections there are no road signs and where they are available they are in deplorable condition. Pedestrians compete with moving traffic for the use of roads due to the absence of pedestrian facilities. This puts pedestrian safety at risk. Similarly, because there are no public parking facilities vehicles are parked indiscriminately on road shoulders (where available) and carriageway causing traffic disruption and congestion.

Primary data were obtained from the elderly 60 years and above. Based on the 1991 elderly population projection for 2006, 290 elderly representing 0.3% of the elderly population were selected for questionnaire administration. The population projection was made based on the growth rate provided by the National Population Commission (NPC) because there are no recent data on the elderly population in Ibadan Metropolis. Also, details of the 2006 population and housing census have not been released. A residential classification system was adopted for the administration of questionnaires to the elderly population. According to Olayiwola (2006) three zones of residential development can be identified in Ibadan; they are: (i) The inner traditional core area (high density). (ii) The intermediate zone between the inner traditional core and the periphery (medium density). (iii) The newer residential districts and periphery (low density). To this end, 69 questionnaires were administered in the low density areas while 87 and 134 questionnaires were administered

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in the medium and high density areas, respectively. However, a total of 264 questionnaires were retrieved for analysis.

Convenience sampling was used in picking respondents in each zone. Convenience sampling was adopted because of the population cohort involved. The sampling method involves selecting respondents which are easiest to obtain for the sample. Respondents that fall within the age cohort (elderly) of the study were interviewed as soon as the interviewer comes across them until the required sampled size was reached. The bulk of the secondary data were obtained from the internet due to the paucity of data in respect of the research on transportation for the elderly in Nigeria. Descriptive statistics were used to depict demographic and socio-economic characteristics of the respondents while chi-square analysis was adopted to show variations in travel time and transport cost in the three residential zones.

4. Results and discussion

4.1. Socio-economic characteristics of the elderly

The basic elements included in these socio-economic characteristics of the elderly are sex, age, marital status, education, employment among others. 59.1% of the elderly were females. This cut across the three density areas. The higher percentage of females is due to the fact that women tend to spend more time at home than men. Hence, more women were available to respond to the questionnaires. The age structure of the elderly showed that 38% of them were between 60 and 64 years, 26.5% between 65 and 69 years and 20% between 70 and 74 years. Those above 75 years old accounted for the remaining 15.5%

Most of the elderly were married. Married respondents accounted for 60.3% while 31.1% were widowed. In high density area only 50% of the respondents were married while 41.7% were widowed. The high incidence of widowed respondents in the high density area may be attributed to low standards of living that results from their poverty level as well as poor hygiene that encourages communicable diseases which can lead to death. Gbehe (1999) opined that high density areas experience low standards of living because of their relatively low income.

Furthermore, the educational attainment of the elderly indicated that 23.7% had no formal education while those educated to the primary school level accounted for 21.4%. Respondents with secondary and tertiary level education constituted 25.2% and 29.8%, respectively. There is a significant variation in educational level in the three zones. The high density areas recorded the highest proportion of respondents without any formal education (46.8%) compared to 17.5% in the medium density areas and a mere 4.5% in the low density areas. With respect to tertiary education, 56.8% of the elderly in low density had tertiary education as against 30.0% in the medium and mere 4.3% in high.

Monthly income analysis showed that more than 50% of the elderly earned less than N20,000[1] monthly. Only 1.5% of them earned more N40,000 per month. In the high density areas 62.5% of the sample population earned less than N10,000 per month as against 4.5% and 5.0% for the low and medium density areas, respectively. The income source also varies across the three densities. While pension accounted for the highest percentage of income source for the respondents in low density, remittance and employment ranked highest in the medium and high density areas, respectively. The prevailing economic situation in the country coupled with lack of social security for the elderly explains why many of them still engaged in one type of work or the other for sustenance. This was found to be common in high density area. It must be noted that education attainment as well as income level and source are interwoven and related.

4.2. Journey purpose, trip pattern and travel behaviour of the elderly

Journey purpose shows locations where the elderly visit. It implies places where they carry out their activity pattern. In this paper trips to five activities were considered. These included trip to work, religious centres, health facility, bank, and visit to friends/families. Table 1 shows the distribution of journey purpose.

Work trips accounted for 31.8% of the total (Table 1). This is expected because as noted earlier most of the elderly are still working in order to survive. Investigations showed that even for those who receive remittance from their children/relatives, some of them still work because of the prevailing economic situation in the country. This is at variance with studies in Great Britain and some other developed countries where shopping and medical trips predominate over work trips (Helena and Juliet, 2007; Rosenbloom, 2004). The seemingly large percentage of health trips show that many of the elderly suffer from old age diseases that require regular medical attention, such as hypertension and diabetes. Hakamies-Blomqvist et al. (2003) identified arthritis, heart diseases, arterial hypertension, diabetes and various forms of dementia as common age-related conditions. These medical conditions do not only pose safety risk but their management requires huge capital outlay. Therefore, many of the elderly who have medical problems but are relatively poor to foot the medical bills resort to spiritual solution (prayer). It is not surprising therefore that trip to religious activities accounted for 15% of the total trips. Similarly, because the elderly on many occasions are lonely they visit friends and family members in order to free themselves from boredom. The reasons are clear. One, many of them particularly those in high density areas cannot afford consumer goods such as a television, radio and phone that can keep them company. For those who have a phone (mobile), the call rate is prohibitive. Similarly, for the elderly that have television and radio, the erratic power supply in the country does not allow them to enjoy these consumer goods. More importantly, visiting friends and families is traditional to the people. Friends or relations could be visited without prior notice and such individuals would be accommodated and entertained. Such interactions release stress and tension as well as providing individuals the opportunity to 'laugh away their problems'. This in a way has replaced visits to recreational facilities. This was found to be very prominent in the medium and high density areas. Trips to banks are not expected to be high because they are undertaken occasionally sometimes twice or once a month.

4.2.1. Work trip

Analysis of the travel distance of work trip from home revealed that 11.1% and 88.9% of elderly in low and high density areas travelled less than 1 km to their workplace. The high percentage of respondents in the high density areas in this category is traceable to the fact that most of the respondents engaged in trading and

Table 1
Journey purpose.

S/n	Journey purpose	Percentage
1	Work	31.8%
2	Health	27.1%
3	Religion	15.1%
4	Friends/families	14%
5	Shopping	8%
6	Bank	4%
		100

Source: Author's fieldwork (2007).

[1] The exchange rate in 2007 was 1 USD = N130.

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Table 2
Hospital trips of the elderly.

Density	Distance										
	<1 km no%		2–4 km no%		5–7 km no%		8–10 km no%		>10 km no%		Total no%
Low	12	18.8	6	9.4	36	56.2	6	9.4	4	6.2	64
Medium	20	25	30	37.5	16	20	14	17.5	–		80
High	90	75	20	16.7	10	8.3	–	–	–		120
Total	122	46.1	56	21.3	62	23.5	20	7.6	4	1.5	264

Source: Author's fieldwork (2007).

commercial activities located close to their homes. Further analysis of the travel time showed that more than 70% of respondents in the high density area spend less than 20 min to get to their work place. The corresponding percentages in the low and medium densities are 25% and 40%, respectively. The majority of the elderly in the high density area get to their work place by walking. Investigations also revealed that a large number of the elderly use cars and public transport in the low and medium densities. With respect to transport fares, about 80% of those who use public transport in the high density pay less than N20. However, in low and medium densities the corresponding percentages are 30% and 48%, respectively. Almost all the respondents go to work on daily basis.

4.2.2. Hospital trips

Trips to hospital indicated that 75% of the elderly in the high density area travel less than 1 km to reach hospital while the corresponding percentage for medium density area is 25%. On the other hand, about 70% of the respondents in the low density area (high income) travel more than 5 km to get to hospital where as in the high density area no respondents travel up to 5 km to get to hospital as shown in Table 2. The high percentage of people who travel more than 5 km in low density area may not be unconnected with the vehicle ownership in the area which avails the inhabitants the opportunity to travel longer distances.

Travel time for hospital trips revealed that more than 90% of the elderly in the low density area spend less than 30 min to get to hospital. This is so because most of them have personal vehicles which enable them to get to their destination easily. However, for those in high density area about 60% of those who use public transport spend between 40 and 60 min to get to hospital. This may have considerable influence on hospital attendance and in the process force them to adopt alternative means of health care. For instance, long distances in reaching health facilities by the elderly in Kenya resulted in their preferred use of herbalists and traditional healers who were cheaper and closer (HelpAge International, 2002).

Furthermore, transport fares vary across residential densities. For instance, over 80% of the respondents in high density area pay less than N20 to reach hospital because more than 86% of them walk to hospital. In the low density area, a high proportion of the elderly spend over N100 on a hospital trip which is due primarily to the preference of respondents for hiring taxis for such trips because of the urgency and importance of the trip sometimes.

4.2.3. Religious trips

The pattern of trip to religious centres indicated that 17.1% of the elderly in the low density area travelled less than 1 km to religious centres from their homes. The corresponding percentage for the medium and high are 8.5% and 74.3%, respectively. The high percentage of elderly people in the high density areas that travel for less than 1 km to religious centres might be due to the proliferation of religious centres especially in the high density area where planning regulations are hardly observed. A travel time analysis also indicated that 40.7% in low density travel between 0 and 20 min before getting to a centre for worship compared to 80.0% and 36.4% in the medium and high density areas. Also, higher percentage of respondents in the high density area visit religious centres more frequently than the elderly in the low and medium density area. Most of the elderly in the high density areas get to the religious centres by walking because of the proximity thereby spending less money than their counterparts in the low and medium density areas.

4.2.4. Visitation trips

Fig. 1 revealed that elderly people undertook longer distance trips on visits to friends and family unlike other trips. For instance, 50% and 25% in the low and medium density areas traveled between 2 and 4 km on visits to friends and family members. However, in the high density area about 70% of the elderly traveled less than 1km to visit friends and family members. This is so because the high density area is the core of Ibadan Metropolis where most of the indigenous inhabitants of the city reside. Many of them still reside within the core of the city because that is where they have their family and friends.

Apart from walking that accounted for more than 60% of the modal split, the majority of the elderly still rely on public transport to visit friends and family members. For those that make use of public transport buses accounted for between 70% and 80% across the three residential zones. However, the use of car is high in the low density area compared to the other two densities. Travel time indicated that 30%, 40% and 58% of the elderly traveled less than 20 min to visit friends in the low, medium and high density areas, respectively. Also, about 65% of the respondents travel more than 40 min to visit friends and relations in the low density area. The corresponding percentage for high density is 26%. The high percentage of the elderly spending more than 40 min to reach their destination in the low density area is due to their enhanced income and higher vehicle ownership as noted earlier.

4.2.5. Bank trips

Travel pattern of the elderly to banks showed that 40% and 80% of the respondents in the low and high density areas travel less than 1 km to a bank. The percentages of the elderly that travel between 1 and 2 km in low, medium and high density areas were 20%, 60% and 15%, respectively. Only few elderly in the high density area travel more than 4 km in order to access banking facilities. However, for those in a low density area, 35% of the respondents travel for over 3 km to get to a bank because many of them have personal vehicles and higher incomes that enable them to hire a taxi. As a result of this many of them spend less time to get to a bank. For instance, more than 80% of them spend less than 20 min to get to a bank. The corresponding percentage for high density is 40%.

Transport fare to the bank varies across the three residential zones. For example, in low density area more than 75% of the elderly spend less than N20 on a banking trip while in the high density the percentage is 35%. Further investigations revealed that many of the elderly in the low density area pay little for the banking trip since they don't need to hire a taxi unlike the hospital trip that is more important.

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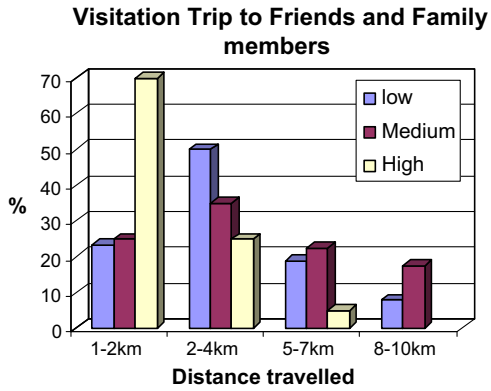

Fig. 1. Visit to friends and family members.

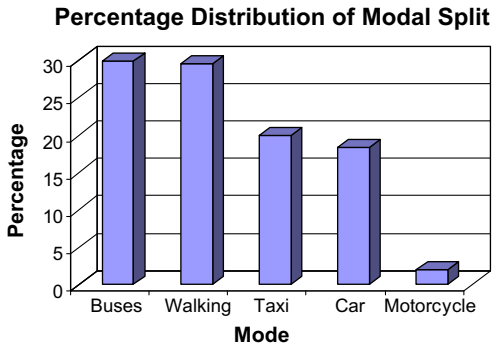

Fig. 2. Percentage distribution of modal split.

4.3. Modal split of the elderly

The modal split of the elderly showed that the use of buses accounted for 30% of the total trip, walking 29.6% and taxi (kabukabu) 20%. Car and motorcycle use accounted for 18.4% and 2%, respectively as shown in Fig. 2. The majority of car and taxi trips are in the low residential density area due partly to high income enjoyed by the elderly in this area. Bus trips are common in both medium and high density areas. Walking alone accounted for about 65–70% of trips in high density areas. Motorcycle proved to be a poor choice as a mode of transport for the elderly due to their frailty and the poor safety record of the mode.

4.4. Access and waiting time at bus stops

With respect to public transportation, there are few designated bus stops in Ibadan because bus stops are informally associated with the activities taking place close or adjacent to the road. A bus stop could be named 'carpenter' if carpentry work takes place very close to the road. Undesignated bus stops are found at junctions, intersections, large schools and hospitals, banks among others. Therefore, many bus stops do not meet minimum spacing standards and have neither seat nor shelter, which induces fatigue and tiredness, anytime there is prolonged waiting time. Investigations revealed that more than 80% of the elderly in all the three density areas spent between 5 and 10 min as access time to bus stops. This is more pronounced in the high density area because of poor planning. Similarly, waiting time at bus stops depicts variations among the three zones. 48.0% and 58.8% of the elderly in low and high density areas stay for more than 5 min at the bus stops. The large percentage of the elderly that stays more than 5 min may be because of their inability to struggle with younger population for vehicles at the bus stops especially during peak periods. Lack of shelter and seats at the bus stops also compound their transport problems.

4.5. Ranking of transport constraints of the elderly

The transport constraints of the elderly were ranked in the three density areas and the result is presented in Table 3. The ranking was based on the total score obtained from the respondents.

Table 3 indicates that reckless driving by other road users especially motorcycle operators was ranked as the most important transport constraint of the elderly in low density areas. This is because many of them drive their personal cars that give them the opportunity to assess the driving behaviour of other road users. However, in both medium and high density areas, this is not a big problem. The long access time to bus was ranked moderately in both low and medium density areas but very important in high density area. Getting to stops was the second most important difficulty in using public transport by the elderly in Australia (NSW, 2000), while waiting at bus stops without shelter was one of the difficulties facing the elderly in North American cities (Geoffrey and Gina, 2001).

Furthermore, design of commercial vehicles was ranked high in medium density area where public transportation is intensively used. For instance, the distance between ground and the step of the vehicle is often too high which makes it difficult for the elderly to board and alight from vehicles on time. Also, the elderly suffer age-related abuse when using public transport. HelpAge International (2002) observed in Zimbabwe that the elderly were being pushed and shoved around by other passengers. Older people had to wait for several hours while the buses go by without stopping. Studies in Brazil and Argentina reflected similar discrimination with buses deliberating not stopping for older people (HelpAge International, 2002). Some of them complained about drivers' insensitivity to their needs i.e. not waiting for them to sit, impatience with their questions and not stopping close enough to stops. This becomes worse when the elderly carry loads, which always draw the indignation of the bus conductors who shout at them without regard for their age. Such embarrassments affect the travel behaviour of the elderly.

Also, long waiting time and poor facilities at the bus stops were identified as a problem confronting the elderly in Ibadan. The bus stops have no shelter and seats as well as other facilities that could make life comfortable for the elderly. This item was ranked very high in both medium and high density areas. This is because substantial number of them makes use of public transportation.

Furthermore, the study took a step further to test for spatial variation in the mobility pattern of the elderly in the three zones. The result of the chi-square analysis indicated that there is significant spatial variation in the mobility pattern of the elderly in the three residential zones with respect to travel time and transport cost. With respect to travel time, the chi-square test of significance of spatial variation among the three residential zones indicated that $\chi^2 = 8.58$. The calculated value is greater than the table value of 5.99 at 0.05 significance level. This implies that that there is significant variation in travel time to different activities by the elderly in the three density areas. In terms of transport cost, the calculated chi-square (χ^2) is equal to 7.20 while the table value is 5.99 at 0.05 significance level. It also showed a significant spatial variation in transport cost to different activities among the elderly in the three density zones.

5. How to achieve better mobility for the elderly

The above findings showed that the mobility pattern of the elderly is different from the general population and their transport constraints are spatially differentiated. Therefore, in order to

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Table 3
Ranking of transport constraints of the elderly in Ibadan metropolis.

S/n	Transport constraints of the elderly	Low density	Middle density	High density
a	High transport fare	2	4	3
b	Long access time	3	3	2
c	Design of commercial vehicles	5	2	4
d	Poor facilities and long waiting time at bus stops	4	1	1
e	Reckless driving by other road users	1	6	6
f	Insult from commercial drivers conductors	6	5	5

Source: Author's fieldwork (2007).
Note: 1(most important constraint): 6 (least important constraint).

enhance the mobility of the elderly, the following short and long term measures are suggested.

Short term measures include the provision of sidewalks and more pedestrianized areas for the elderly population since most of their trips are short distance. Organized sidewalks for pedestrians are currently either non-existent or have been taken over by street trading especially in medium and high density areas. The absence of sidewalks means that elderly pedestrians are forced to share available road space with moving vehicles with the inherent danger of road crashes.

It was observed during the study that there were few designated bus stops in the city. The available ones are those informally created by bus drivers. To this end, there is the need to construct some designated bus stops with acceptable spacing standards. Also, a sizeable proportion of the elderly interviewed complained about the absence of seats, benches and shelter at bus stops. In view of the failing physical and health conditions of the elderly people, it is important that the government in partnership with the private sector provides shelters with comfortable seats at designated bus stops.

Furthermore, it was observed that one of the factors hindering the movement of older people within Ibadan city is the reckless driving habits of other drivers. Their inability to process information rapidly due to deteriorating mental capabilities results in their vulnerability and exposure to accidents either as drivers or pedestrians. It is therefore important that appropriate road safety agencies such as the Federal Road Safety Commission (FRSC) and the Nigerian Police should ensure that younger drivers comply strictly with traffic rules and regulations. Similarly, training programmes and enlightenment campaigns should be embarked upon to educate drivers, especially commercial transport operators on the need to obey traffic rules and regulations.

As a long term measure, the government must address the issue of vehicle design. The distance between the ground and the step poses a lot of difficulty to older people. The government can enter into joint venture with some car manufacturers to develop a low step floor or buses with easy entrance for the elderly. The low floor vehicle would be helpful for disembarking. Disembarking causes anxiety for older people because they are often not certain of the distance to the ground. Low floors can help alleviate these fears. In the same vein, special seats could be reserved on these buses for the elderly passengers. Also, because of the high level of poverty among the elderly it is suggested that they should be granted fare concessions. However, this should reflect the socio-economic characteristic of the ageing population in the city. In other words, elderly in the low density areas may need to pay more for the same length of trip than their counterparts in the medium or high density areas. Similarly, pedestrianization of certain streets is pertinent as a long term measure.

6. Conclusion

The elderly represent an important and distinctive component of the society. The examination of their travel characteristics is crucial because of the peculiar travel pattern of the elderly and its implications for transport planning. The study therefore explored the travel characteristics and mobility constraints of the elderly in a typical indigenous city in Nigeria. Its findings are also relevant to cities in developing countries particularly those in Africa.

The research showed that more than 60% were married, about 70% had no more than secondary education and over 50% earned less than N20,000 per month mainly from working and remittances. Work and health related trips accounted for 31.8% and 27.1% of the journey purpose. Walking and the use of bus which accounted 30% and 29.6%, respectively were an important mode of transport for the elderly especially in the high density area. However, most cities study had no pedestrian facilities such as walkways. Where they are available, their condition had deteriorated and in many instances they have been taken over by street trading forcing pedestrians to compete with moving traffic on the carriageway.

Furthermore, the public transport which suppose to provide effective mobility for the elderly is beset with a myriad of problems. The design of the vehicle in terms of the distance between the ground and the step can make the elderly afraid. Coupled with this is insulting behaviour from the conductors and the drivers as well as the passengers because the elderly are slow to run to the vehicle and sluggish to board and alight from the bus. Long access and waiting time as well as poor facilities at the terminals were identified as constraints on the effective mobility of the elderly. It is therefore imperative to mainstream public transport services to make them more responsive to the older people's needs. The paper identified both short and long term measures for addressing the mobility constraints of the elderly. The short term measures include the improvement of sidewalks, provision of facilities at bus stops and enforcement of relevant traffic laws to curb the excessiveness of young drivers. While the long term measures have to do with improving vehicle design, provision of subsidies to the elderly as well as evolving appropriate transport policies; for ameliorating the mobility crisis and transport burden of the elderly.

Note added in proof

The exchange rate in 2007 was 1 USD = N130.

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