

Unmet travel needs and quality of life of rural elderly in osun state, Nigeria

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Abstract

Mobility is fundamental to economic development, social inclusion and quality of life of the elderly. Available studies on mobility of the elderly in Nigeria are limited on the degree of knowledge they provide on issues such as travel demand, unmet travel needs and the impact of transport services on quality of life of the elderly in rural areas. This paper explores mobility characteristics, unmet travel needs and the impacts of travel characteristics on the quality of life of rural elderly in Osun State, Nigeria. Data were obtained using questionnaire survey through multistage sampling techniques from 273 elderly in 60 rural settlements. Descriptive and inferential statistics were used for the data analysis. The results showed that trips generated vary across trip purposes with work trips accounting for the highest trip generated. Travel distance was found to be within 1 km distance of respondents' residence and accounted for 76.28% total trip travel distance. Walking was the primary mode of travel for the trips to work/farm (48.36%), religious centres (85.42%) and relative (93.57%). The study also showed that 30.77% of the elderly rated their quality of life poor and another 37.36% very poor. Most of the elderly who with poor and very poor quality of life also experienced high rate of unmet travel needs. The study identified unmet travel needs include trips to: work (18.68%), hospital (24.91%), religious (24.91%), relative (11.36%) and other trips (20.14%). The reasons identified as responsible for the unfulfilled travel needs include bad roads, poor health, unreliable transport services, behavior of transport services providers, irregular transport services and issues of safety. The study concluded that the varied travel needs and challenges of the elderly can be improve through a realistic understanding of the needs, using strategies that forge partnerships between and among public and private stakeholders in the transport sectors.

Keywords: Mobility, unmet travel needs, elderly, rural areas, Nigeria

Introduction

Issues surrounding ageing population are numerous and create the need for societies around the world to develop strategies which allow elderly to stay engaged and active within their communities (World Health Organization, 2002). Mobility of the elderly is one of such issues. Mobility is fundamental to quality of life of the elderly (Schwanen et al., 2012; Ziegler and Schwanen, 2011; Webber et al, 2010). Mobility is broadly defined as the ability to move oneself (e.g. by walking, by using assistive devices, or by using transportation) within community environments that expand from one's home, to the neighborhood, and to regions beyond (Webber et al , 2010). According to Porter et al, (2013) 'Mobility, or lack of it, is likely to be implicated in many facets of older people's lives', which include among other access to: income, health facilities, relative, worship centres domestic water and firewood sources.

In developed countries, ageing of populations is already challenging the ability of transport systems to provide mobility for older people most especially in

the areas of the vehicles, passenger comfort, the road system and the quality of public transport. Mobility issues of the elderly in Nigeria, a developing country with expected future growth in the population of the elderly in both absolute number and as a proportion of the total national population (NPC, 2003, Togonu-Bickersteth, 2014), are yet to be fully understood due to scarcity of research on the subject and also as a result of the country population composition.

The expected increase in the number of the elderly in Nigeria is not limited to the urban areas. Elderly population in the rural areas are expected to increase too (NPC, 2003). Future increase in population of the elderly in the country is expected to have varieties of implications on their travel pattern, mobility, quality of life and transport infrastructure especially in the rural areas.

In anticipation of future increase in population of the elderly in Nigeria, mobility and travel patterns of the rural elderly in Nigeria become major issues of concern for several reasons. For example, rural areas

in the country are inhabited by the bulk of the nation's population, majority of which are the elderly (Filani, 1993; NPC, 2003). Consequently, rural elderly in the country are affected by transport constraints such as poor transport infrastructure, lack of all weather roads; low government involvement in the provision of public transport services; high cost of transport services and exclusion of rural settlements during raining season from tarred road network, poor transport infrastructure that characterized the nation transport system (Fadare, 1990; Ikporoukpo, 1987; Ipingbemi, 2010; Olawole et al., 2016).

In addition to providing solutions to the general transportation problems identified above, the interest in understanding issues of elderly mobility in Nigeria is also based on the following reasons. Firstly, the traditional family social supports enjoyed by the elderly in the country are gradually fading away, and the elderly are mostly required to be self-supportive in all facets of life (Akinyemi and Togonu-Bickersteth, 2014). One of such disappearing supports is the reduction in the provision of transport services to the elderly (Olawole&Aloba, 2014). Second, available transport infrastructure and services in the country are not designed to meet mobility needs of the elderly and other vulnerable groups (Ipingbemi, 2010).

Third, though a number of recent studies have examined mobility characteristics of the elderly in Nigeria studies (Odufuwa, 2006; Ipingbemi, 2010; Olawole & Aloba, 2014; Olawole, 2015), these studies are particularly relevant as they document important aspects of elderly mobility and travel behaviour in the urban areas of the country. They are limited in the degree of knowledge they provided on mobility issues of the elderly such as their travel demand their unmet mobility needs and the impact of available transport services on their quality of life.

According to Hjorthol (2013) knowledge on unmet mobility needs are needed because measures enhancing the mobility of older people may help enhance their wellbeing and improve their quality of life. Understanding the mobility of elderly is important for the development and implementation of adequate national mobility strategies for the elderly.

The present study builds on the existing works and the place of 'mobility or lack of it' in the overall wellbeing of the elderly to examine mobility, unmet travel needs and quality of life of rural elderly in Osun State, Nigeria.

Concepts of mobility and unmet travel needs

Data and Methods

Study area

The academic literature on the mobility and unmet travel needs of the elderly is growing rapidly. Mobility and transport needs have been analysed and classified in several ways in the literature. Metz (2000) describe mobility in relation to quality of life and personal needs using five elements: achieving access to desired people and places; psychological benefits of movement; health benefits of movement (e.g. physical exercise), benefits from involvement in social and local community and benefits from potential travels. Alsnih and Hensher (2003) conceived that meaning of mobility should include one or more of the five dimensions: access to destinations; the psychological benefits of travel, including a sense of independence; the benefits of physical movement; maintaining social networks; and potential travel.

According to Siren, Hjorthol, and Levin (2015), transport needs can be grouped into two main categories: "serious needs", such as medical appointments and emergencies, and "discretionary needs", such as spontaneous trips, visiting people and in general as a means of achieving pleasure.

Studies on mobility have understood unmet travel needs of the elderly in terms of trips and activities that people need or would like to do more, but for a variety of reasons they are prevented from doing so. Luiu et al (2016) defined unmet travel needs as those mobility needs that remain unfulfilled due to the inability to accomplish needed or desired journeys and activities.

In the last decade studies of mobility and unmet travel needs of the elderly have explored the factors associated with unmet travel needs (Kim2011; Siren and Hakamies-Blomqvist 2004). For example, Siren and Hakamies - Blomqvist (2004) examined variation in the level of unmet travel needs to ten trip purposes among men and women aged 65+ in Finland, according to age, gender, education, driving license, and residential location. The found out that unfulfilled travel needs are greater among older adults without a driving license or living in a rural setting especially when gender, age and educational level are controlled.

Kim (2011) explores unfulfilled activity needs in general among elderly in the USA (aged 65+). The Study found that poor health is one of the main predictors of unmet travel needs and further shows that elderly with lower availability of a personal vehicle are more likely to experience unfulfilled activity needs.

In this study unmet travel needs of the elderly is understood primarily in terms of unfulfilled travel needs emanating from transport related barriers.

The study location is Osun State, Nigeria. The study area lies between Latitudes 70N and 80N and Longitudes 40E and 6.20E. It has an area of 14,875

km² and an estimated population of 3,423,535 million people in 2006 (NPC, 2006). Osun state had the highest percentage (81.1%) of elderly in Nigeria as at 1991 (NPC, 2003). The State comprises of thirty Local Government Areas and shares boundaries with Kwara, Ekiti, Ondo, Oyo and Ogun States (Figure 1). The major means of transportation in Osun State is road transport. Three categories of roads can be

identified namely Local Government Area (LGA) roads, State roads and the Federal roads. There are more of the first two categories of roads in the State than the Federal roads. Transport services in the sampled communities are provided by private operators. The common transport services provided consists of bus/taxi and motorcycle services.

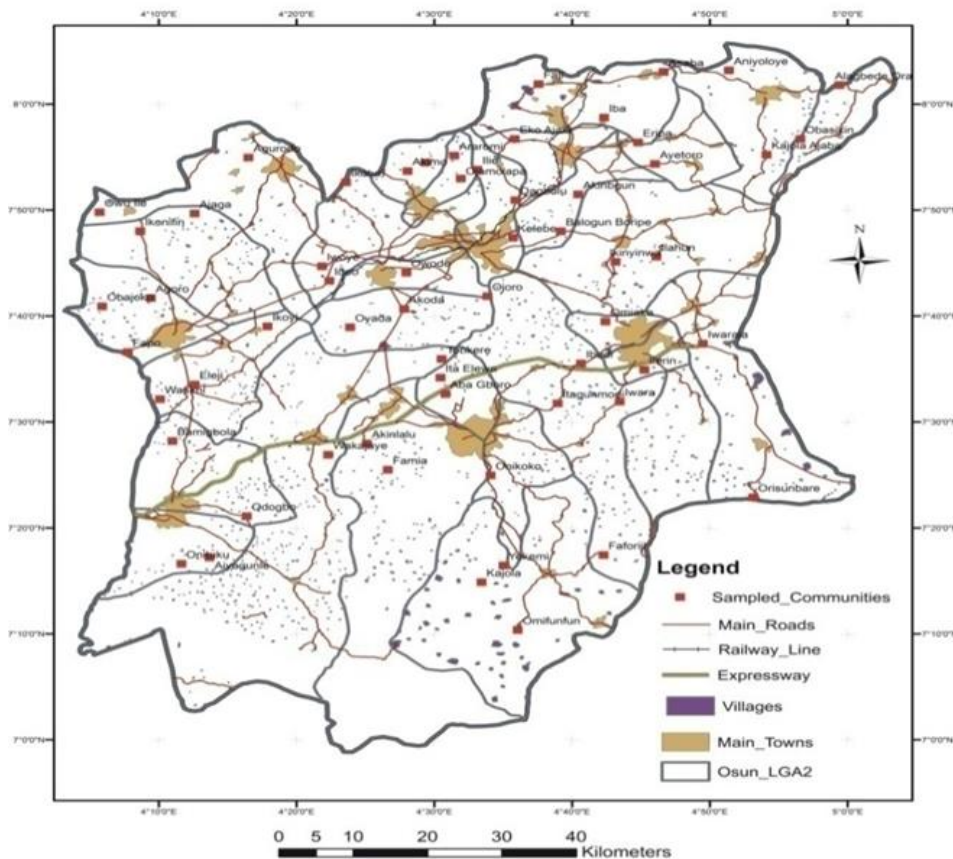


Figure 1: Map of Osun State showing sampled rural communities
Source: Olawole, 2013.

Data Source

This study relies on primary data collected in 2013 for a study on road transport and socio-economic development in rural areas of Osun State, Nigeria. The data were collected through a multi stage sampling procedure. The first stage involved the selection of rural settlements(s) from a comprehensive list of settlements and population of Osun State on Local Government Area bases by National Population Commission (NPC, 1991). Two rural settlements with projected population of 6000 and below as at 2013, were selected using a table of random numbers from each of the thirty LGAs in the state. The choice of two settlements per LGA was based on the fact that the population from which the samples are drawn is homogenous in terms of procedure and all subsequent selected households were chosen at uniform intervals-“k” (see Odimegwu

occupation, livelihood, socio-economic and mobility characteristics.

A total of sixty (60) rural settlements were selected for this study. In the second stage, households were selected from sampled settlements for the survey. To ensure effective and objective selection of households, a household list was compiled during the field survey for every sampled settlement. The number of questionnaires administered in each settlement was based on a sample size of 10 percent of the listed households per settlement. The use of 10% sample size in this study is not new. For example, Ogunsanya (1987) in a study of rural food production in Nigeria, suggested a maximum of 10% sample of rural household heads on studies involving rural residents. The first household sampled was selected through ballot et al, 2005; Adewuyi and Ogunjuyigbe, 2003, Olawole, 2013). In all, a total of 1514 questionnaires

were administered for the study on road transport and socio-economic development in Osun State, Nigeria, out of which 273 of the respondents aged 60 years and above were extracted for this study.

The questionnaire designed for the research had three main sections. 'Section-1' comprised items related to socio-economic characteristics of respondents. "Section-2" comprised items related to mobility characteristics and travel behaviour. Each of the items on travel behaviour consists of questions relating to different trip purposes and 'Section-3' comprised items related to problems associated with rural travel behaviour and quality of life of the respondents. The section on quality of life, included a self-rating of the quality of lives on a 5-point Likert scale, based on the socio-economic indicators and well-being with a response scale ranging from 'very poor, poor, not so poor, good to very good. To examine respondents' perception of the impact of travel distance, travel cost and travel time on the quality of life, a number of transport related conditions were listed and respondents were asked to comment on their level of agreement or disagreement.

Data Analysis

Data entry was performed using Epi Data, an open source data entry software, and were analysed with SPSS version 15. Descriptive and inferential statistics were used to examine difference in respondents' socio-economic and mobility characteristics; unmet travel needs and quality of life.

Results

Socio-economic characteristics

The study shows that the distribution of the sample in terms of gender is almost equal. Male made up

49.45% of the respondents while females constituted 50.55%. About 35% were between 60 and 64 years. This was followed by 28.94% who were between 65 and 69 years, 22.34% were between 70 and 74 years and 13.55% who were above 75 years. Most of the elderly were married (Table 1). Majority (47.99%) of the respondents lack former education while, 34.43% had primary school education. More than half of the respondents were engaged in one form of business venture or the other and earned an average of N=15,000 or less per month. The unemployed and retired elderly constituted 6.23% and 1.10% respectively.

Studies have shown that elderly in Nigeria are involved in income generating ventures unlike their counterparts in advanced countries that stop working at retirement age. In a study of elderly in Ibadan, Nigeria, Ipingbemi (2010) report that majority of the elderly were engaged in different employment opportunities and linked the trend to "the interrelationship between education attainment and sources of income on one hand and; the prevailing economic situation in the country". In another study, Akinyemi, & Togonu-Bickersteth (2014) observed that in Nigeria's rural landscapes the elderly work until "they practically cannot work anymore". Similarly, to improve the wellbeing of the elderly economically, recent debates on retirement age in Nigeria have favoured moving the age of retirement to 65 or 70 years for different professions (Fayehun & Salami, 2014). The implication of this is that as the educated elderly are encouraged to engage in income generating ventures and be socially relevant in their old age, their transport need and demand will also increase.

Table 1 Sample Characteristics (in %)

Sample Characteristics		No	%
Gender	Male	135	49.45
	Female	138	50.55
Age Group	60 to 64 Years	96	35.16
	65 to 69 Years	79	28.94
	70 to 74 Years	61	22.34
	Above 75 Years	37	13.55
Marital Status	Single	5	1.83
	Married	216	79.12
	Widowed	52	19.05
Level of Education	No Formal Education	131	47.99
	Primary Education	94	34.43
	Secondary Education	42	15.38
	Tertiary Education	6	2.2

Monthly Income Group	=N= 15,000 and Below	151	55.31
	=N= 15,001 to =N=30,000	43	15.75
	=N=30,001 to =N=60,000	79	28.94
Nature of Occupation	Farming	116	42.49
	Business	137	50.18
	Retired	3	1.1
	Unemployed	17	6.23

Mobility and Trip Characteristics

The essence of mobility is to provide access to desired people and places (Metz, 2000) and the ability of an individual to travel is influenced by several factors, among which are household ownership of transport means and trip characteristics. Using trip characteristics of the elderly to measure the degree of their access to places and people as indication of their mobility characteristics, this section examined respondents' trips to four essential activity locations including work, hospital, visits to relatives and religious centres. The components of the trips examined include travel modes, travel, time and costs.

Table 2 shows the distribution of trip purposes. Work place/farm (37.70%) was the dominant trip

attracting activity. The seemingly high percentage of work trips is in line with the above finding on employment status of the elderly and similar outcomes of related studies in Nigeria (Ipingbemi 2010; Olawole and Aloba, 2014; Ale, 2016). Trip to religious centres accounted for 33.98% of the total trips placing religious trips the second highest trip generated by the elderly. This is expected as most elderly use their unused time performing religious functions. Trip to relatives and hospitals accounted for 24.78% and 3.54% respectively. The low trips to hospitals among the rural elderly can be attributed to location factor as most hospitals are urban center based.

Table 2. Total trips by gender and purpose of rural elderly in Southwestern Nigeria

Activity	Men(n =178)		Women (n =95)		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Work	138	36.51	75	40.11	213	37.70
Hospital	19	5.03	1	0.53	20	3.54
Relatives	94	24.87	46	24.60	140	24.78
Religious	127	33.60	65	34.76	192	33.98
Total	378	100.00	187	100.00	565	100.00

Trip Distance

Travel distance was similar for all trips surveyed. The most common trip length in terms of distance was 1km or less, and the second highest traveled distance was 1-2 km (see Table 3). Majority (76.28%) of the respondents traveled a distance of less than 1km to all trip purposes. Trips to religious centers (88.85%), relatives (80%) and work place (69.96%), constituted the bulk of trip destinations with 1km distance of sampled residences. The proportion of the elderly that traveled between 1km and 2km to activity points is 12.04%. Some (7.43%) of the elderly traveled between 2km to 3km and 1.77%

traveled between 3km to 4km within the study area to the four activity points. With regard to trip distances above 4km, about 2.48% of the elderly traveled 4km and above to the four activities points (Table 3). Travel distance followed the same pattern when the data were disaggregated in terms of trip purposes except for trip to hospitals. Most (60%) hospital trips distances are above 4km and mostly outside the elderly immediate environment. This is due to the fact that hospitals are higher order service points and are usually located in urban centers (see Abiodun, 1971).

Table 3. Travel Distance

Trip Distance	Trip Purposes (in %)				Total
	Work	Hospital	Religion	Relatives	
Below 1KM	69.96	0	88.54	80	76.28
1KM To 2KM	15.02	0	6.25	17.14	12.04
2KM To 3KM	11.74	15	5.21	2.86	7.43
3KM To 4KM	2.35	25	0	0	1.77
Above 4KM	0.94	60	0	0	2.48
Total	100	100	100	100	100

Trip Modes

From the survey, it was found that rural elderly traveled to and from trip different destinations mostly by walking (Figure 2). The results showed that the walking was the primary mode of travel for the journey to work/farm (48.36%), religious centres (85.42%) and relatives (93.57%) except trips to hospitals. The second most common mode was commercial motorcycles taxis (21.77%). Other

modes: taxi / bus (6.19%) and personal vehicles (1.59%) accounted for the respondents' means of travel to different activity points (Figure 2). The choice travel modes rarely changed when the data were further disaggregated according to trip purpose except for trip to hospitals. For instance, the highest modal shares for trip to hospitals are commercial bus/taxi (50%), motorcycles (40%) and private vehicle (10%).

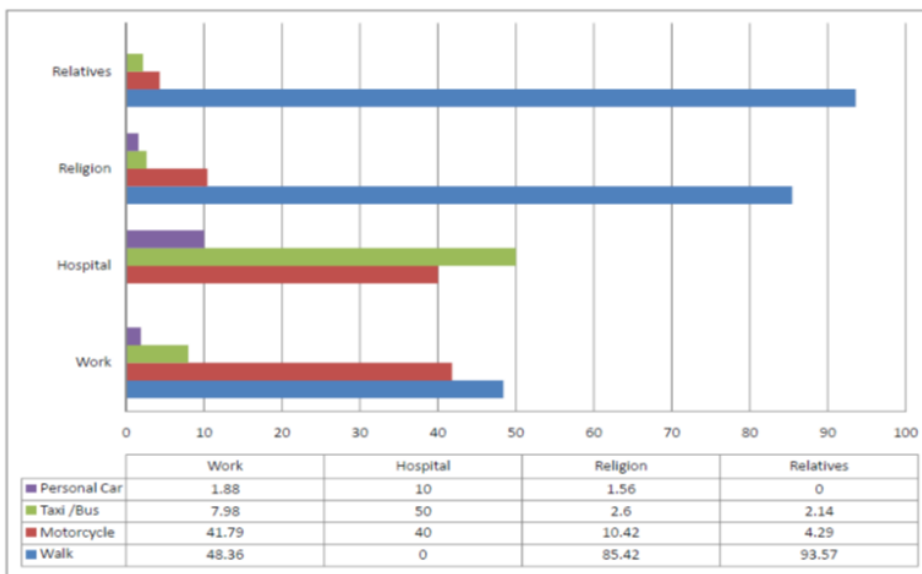


Figure 2. Travel mode

Unmet travel needs of the elderly

The ability to leave the home are essential aspects of the quality of life of elderly. With increasing age, travel activities outside home decreases and unfulfilled travel needs increase (Siren and Hakamies-Blomqvist, 2004). Table 4 illustrates the variety of unmet travel needs of rural elderly by age groups in the study communities. The table indicates that hospital and religious trips are the highest unmet travel needs of the elderly. Hospitals (24.91%) and religious (24.91%) trips are identified by the elderly as most important activities points they would have liked to visit the more. Trips to farmland ranked

second in the unmet travel needs of the elderly. Other trips such as trip to local markets, community store and meetings, collectively accounted for 20.14% of the unmet trips.

The proportion of unmet travel needs reduces as age of the elderly increases (Table 4). This is due to fact that moving out and within their locality becomes more difficult for the elderly as their age advances. Table 4 also shows that unmet travel needs among the elderly varies significantly by trip purposes ($\chi^2 = 130.49, df=7, P<0.001$) and by age categories ($\chi^2 = 97.35, df=21, P<0.001$).

Table 4. Unmet travel needs by age group

Unmet Trips	Age Group				Total
	60 to 64 Years	65 to 69 Years	70 to 74 Years	Above 75 Years	
Work- Farm	11.36	0.37	4.03	2.93	18.68
Hospital	11.72	4.03	8.42	0.73	24.91
Religion	11.72	9.89	2.2	1.1	24.91
Relative	6.23	3.3	0.73	1.1	11.36
Others	9.8	6.22	4.03	0	20.14
Total	50.83	23.81	19.41	5.86	100

In terms of possible reasons responsible for unmet travel needs, the elderly were asked to identify such reasons. Table 5 shows that several reasons accounted for the identified unmet travel needs of the elderly including bad roads (34.80%), state of health (21.98%) and unreliability of service (11.36%). Other important reasons for unmet travel needs are poor behavior of transport services providers (8.42%), irregular transport services (6.96%) and issues of safety (4.5%). Less important among the

reasons for unmet travel needs include transport cost (4.03%), long waiting hour for vehicles (4.03%), poor quality of service (2.20%) and issues of safety (4.5%). Interestingly, the use of mobile phone in place of travel (6.25%) was seen as one of the reasons for unmet travel needs. Some of the elderly are of the view that the use of GSM to communicate deprived them of physical contact and health benefits associated with actual travel.

Table 5. Reasons for Unmet travel needs

Variable	Case	Frequency	Percent	χ^2	df	P
Reasons for the unmet trips	Bad Roads	95	34.80	222.92	8	0.00
	High Fare	11	4.03			
	Long Waiting Time	11	4.03			
	unreliability of service	31	11.36			
	Irregular Transport Services	19	6.96			
	Poor Quality of Service	6	2.20			
	Behavior of transport services providers	23	8.42			
	Too weak to go out	60	21.98			
	Use GSM in place of trip/travel	17	6.23			

Quality of life

The ability to get out and about is seen as a key element in quality of life especially among the elderly (Banister and Bowing, 2004). When asked to rate their quality of life, 30.77% and 37.36% perceived themselves as having very poor and poor quality of life respectively, 9.52% perceived their quality of life as not so poor. Respondents that rated themselves as having good and very good quality of life are 14.29%

and 8.06% respectively (Table 6). Figure 3 shows variation in the rating of quality of life by different age group of the elderly ($\chi^2 = 42$, $df=12$, $P<0.001$). The rating remains the same when the data were further disaggregated according to gender. For instance, the mean ratings of quality of life are similar between male (2.29 ± 1.26) and female (2.36 ± 1.28).

Table 6. Quality of life

Quality of life rating	Frequency	Percent	χ^2	df	P
Very Poor	84	30.77	95.88	4	0.00
Poor	102	37.36			
Not So Poor	26	9.52			
Good	39	14.29			
Very Good	22	8.06			

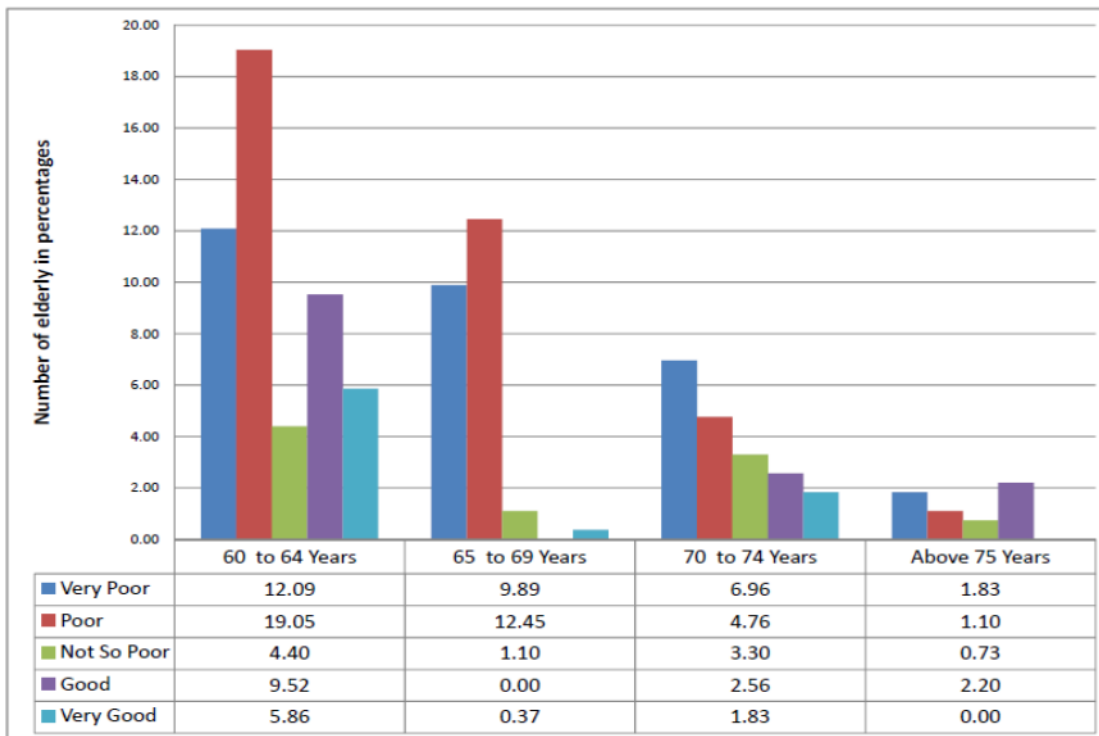


Figure 3. Quality of life by age groups

Table 7 shows the association between total trips and quality of life. In terms of total trips, elderly who rated their quality of life as very poor and poor generated more trips in the range of (1 to 3) trips than elderly who rated their quality of life as good

and very good. The same set of elderly with higher trip rates also have higher number of unmet travel needs, especially with respect to trips to hospitals, religious activities, relative and family living in urban centres (Figure 4).

Table 7 .Quality of life and total trips of the elderly

Variable	Case	Quality of life rating					Total
		Very Poor	Poor	Not So Poor	Good	Very Good	
Number of Trips	1 trip	6.23	8.06	1.1	2.93	2.56	20.88
	2 trips	14.65	19.41	4.76	6.96	2.56	48.35
	3 trips	9.52	8.79	2.56	2.56	2.56	26.01
	4 trips	0.37	1.1	1.1	1.83	0.37	4.76

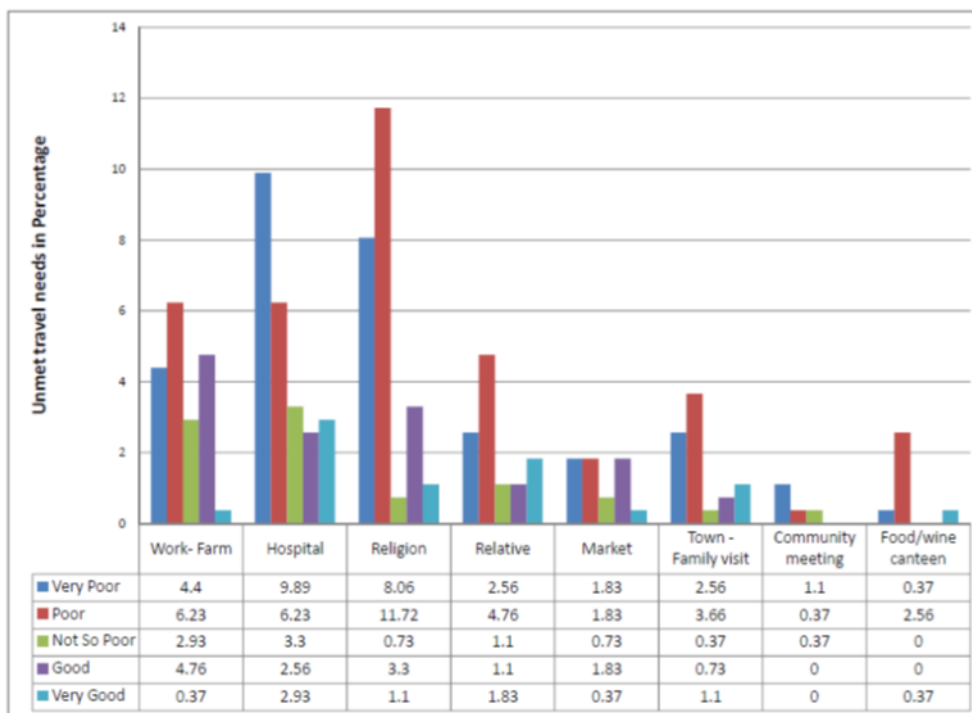


Figure 4. Quality of life and unmet travel of the elderly

Discussion

This study has examined elderly mobility, unmet travel needs of rural elderly and also investigated the relationship between trip characteristics and quality of life of elderly people in rural areas of Osun State, Nigeria. Findings on the socio-economic characteristics and employment status of the elderly in the state are consistent with similar studies in urban centres of Nigeria (Ipingbemi, 2010; Olawole and Aloba, 2014). The high proportion of the elderly involved in economic activities differs substantially from the studies in developed countries (Hjorthol et al. 2010). This finding is a reflection of the level of poverty among the elderly in Nigeria (Ipingbemi, 2010; Akanni and Togonu-Bickersteth, 2014). The implications of this finding is that the more the elderly are involved in economic activities, the more trips are demanded and in the process of attaining the desired trips the elderly are likely to be exposed to series of transport problems which impact negatively on the quality of life of the elderly.

Trips generated vary across purposes with work trips constituting the highest trip generated. This corroborated the finding on employment status of the elderly. The study also revealed that trips to religious centres are equally important and ranked second. The study shows that elderly spend most of their time in and around their dwellings as travel distance was found to be within 1 km and similar for all trips purposes except for hospital trips. This finding is in line with the outcomes of previous studies that established the dominance of short travel

distance in trip patterns of the elderly (Olawole and Aloba, 2014; Ipingbemi, 2010; Rietveld, 2000). The implication of this is that commercial buses / taxi /motorcycles, the dominant means of transport in rural areas in the country, are rarely used by the elderly within their immediate environment except for trips to hospitals or to visit relatives in the urban centres. This is in line with several studies that showed that elderly do not use public transport as much as other groups (Schmöcker et al. 2007; Schwanen, Dijst and Dieleman 2001; Whelan et al. 2006).

An important finding of this study is that of low ownership and utilisation of personal cars by the elderly. This can be attributed to the low level of ownership of vehicles in the rural area of the country. This is in contrast with findings on same subject in North America and Europe, where as high as 92% of elderly trips are made by car (Rosenbloom and Stahl, 2002)

The study also shows a general low rating of quality of life by the elderly. Interestingly, most of the elderly who rated their quality of life as poor also indicated that they lack access to personal vehicle and experienced high rate of unmet travel needs. This finding agrees with Kim (2011) finding in USA on the relationship between elderly (65+) with lower availability of a personal vehicle and their likelihood of experiencing unfulfilled activity needs.

This suggests that low perception of quality of life is an incentive for the tendency to generate more trips. The implication of this is that several unmet travel needs among the elderly arises from the perceived low quality of life and the need to fulfill basic travel needs.

With regards to unmet mobility needs, four trip purposes (work, hospital, religious and social trips) constitutes the main unmet travel needs of the rural elderly. The proportions of unmet travel needs generally decrease among the respondents with increases in age. Decrease in travel need among the older elderly (75+) can be attributed to the loss of agility and solitary life that characterized these category of elderly in the rural landscape of Nigeria.

The reasons advanced for the unmet need by the respondents in order of importance include bad roads, poor health, unreliable service, rude behavior of transport services providers, irregular transport services and issues of safety.

Conclusion and Recommendations

The results of the study showed that the travel patterns and mobility need of the elderly are important in their wellbeing as most of the sampled elderly rated their quality of life very low and have several unmet travel needs. Solving the mobility needs of such segment of the population is fundamental to improving the total quality of life of the elderly in the country and also in providing solutions to transportation challenges limiting the attainment of fulfill and inclusive life for rural elderly in the society. In this regards, the varied mobility needs of the elderly can be meet through a realistic understanding of the needs, using strategies that forge partnerships between and among public and private stakeholders in the transport sectors.

References

- Abiodun, J.O (1971): Service Centres and Consumer Behaviour within the Nigerian Cocoa area. *GeografiskaAnnaler. Series B, Human Geography* 53, (2):78-93
- Adewuyi, A and Ogunjuyigbe, P (2003): The role of men in family planning: An examination of men's knowledge and attitude to contraceptive use among the Yorubas. *African Population Studies* 18, (1): 35-49.
- Akinyemi, A.I andTogonu-Bickersteth, F (2014): Ageing and National Development in Nigeria:Costly Assumptions and Challenges for the future. *African Population Studies* 27,(2): 361-371
- Ale, S.A (2016): Analysis of mobility patterns of the elderly in rural areas of Ondo State, Nigeria. Unpublished Ph.D Thesis. Department of Geography,ObafemiAwolowo University, Ile- Ife, Nigeria. Pp. 232.
- Alsnihi, R. and Hensher, D. A (2003): The mobility and accessibility expectations of seniors in an aging population. *Transportation Research A: Policy and Practice* 37,(10): 903–16.
- Fadare, O (1990): Problems of rural-urban passenger flow: The example of Oranmiyan Local Government. Special issue, *Ife Social Sciences Review* 11, (1 and 2): 88-97
- Fayehun, O. A and Salami, K. K (2014): Older persons and malaria treatment in Nigeria. *African Population Studies* 27,(2): 424-433
- Filani, M. O (1993): Transport and rural development in Nigeria. *Journal of Transport Geography* 1,(4):248- 254.
- Haustein , S and Siren, A (2014): Seniors' unmet mobility needs – how important is a driving license? *Journal of Transport Geography* 41: 45–52
- Hjorthol, R (2013): Transport resources, mobility and unmet transport needs in old age. *Ageing and Society* 33, (7):1190 - 1211
- Ikporukpo, C.O (1987): An Analysis of the accessibility of public facilities in Nigeria. *Socio-economic Planning Sciences* 21,(1): 61– 69.
- Ipingbemi, O (2010):Travel characteristics and mobility constraints of the elderly in Ibadan, Nigeria. *Journal of Transport Geography* 18, (2): 285–291.
- Kim, S (2011): Assessing mobility in an aging society: personal and built environment factors associated with older people's subjective transportation deficiency in the US. *Transp. Res. Part F* 14,(5): 422–429
- Luiu, C., Tight, M and Burrow Michael (2016): The unmet travel needs of the older population: a review of the literature, *Transport Reviews*,1-19. DOI:10.1080/01441647.2016.1252447
- Metz, D. H. (2000).Mobility of older people and their quality of life. *Transport Policy* 7,(2): 149–152.
- National Population Commission (1998): 1991 Population Census of the Federal Republic of Nigeria: Analytical Report at the National Level. NPC, Abuja, Nigeria
- National Population Commission (2003): The elderly, Nigeria population census 1991 Analysis. Volume 3, Abuja – Nigeria. Available at <<http://www.population.gov.ng/index.php/publications/143-elderly>>
- Odimegwu, C., Adewuyi, A., Odebiyi, T., Aina, B., Adesina,Y., Olatubara, O and Eniola, F(2005):Men's Role in Emergency Obstetric Care in Osun State of Nigeria. *African Journal of Reproductive Health* 9 , (3): 59-71
- Odufuwa, O. B (2006): Enhancing mobility of the elderly in Sub-Saharan African cities through

- improved public transportation. *Journal of International Association of Traffic and Safety Sciences* 30, (1): 60–66.
- Ogunsanya, A. A (1987): Food production problems in rural Nigeria. *Habitat International* 11,(2): 71-75.
- Olawole, M.O., Arilesere, O.A and Aguda A.S (2016): Accessibility to rural services: A GIS-based analysis of secondary schools in Ife Region. *Nigerian Geographical Journal* 10(2):110-125
- Olawole, M.O. (2015) : Analysis of intra-urban mobility of the elderly in a medium-size city in Southwestern Nigeria. *Mediterranean Journal of Social Sciences* 6, (3/ S 2): 90-104
- Olawole, M.O and Aloba, O (2014): Mobility characteristics of the elderly and their associated level of satisfaction with transport services in Osogbo, Southwestern Nigeria. *Transport Policy*, 35: 105–116, DOI information: 10.1016/j.tranpol.2014.05.018
- Olawole, M. O (2013): Geospatial analysis of rural road transport and socio-economic development in Osun State, Nigeria. Unpublished Ph.D Thesis. Department of Geography, Obafemi Awolowo University, Ile-Ife, Nigeria. Pp. 298.
- Porter, G., Tewodros, A., Bifandimu, F, Gorman, M., Heslop, A., Sibale, E., Awadh, A and Kiswaga, L(2013): Transport and mobility constraints in an aging population: health and livelihood implications in rural Tanzania. *Journal of Transport Geography* 30: 161–169.
- Rietveld, P (2000): Non-motorised modes in transport systems: a multimodal chain perspective for the Netherlands. *Transp. Res. Part D: Transp. Environ.* 5, (1) : 31-36.
- Rosenbloom, S (2003): The Mobility Needs of Older Americans: Implications for Transportation Reauthorization. *The Brookings Institution Series on Transportation Reform*, 1-19
- Rosenbloom, S and Stahl, A (2002): Automobility among the elderly. The convergence of environmental, safety, mobility and community design issues. *EJTIR* 2, (4): 197-213
- Schwanen, T., Banister, D and Bowling, A (2012): Independence and mobility in later life. *Geoforum* 43, (6) : 1313–1322.
- Schmöcker, J.D., Quddus, M. A., Noland, R. B and Bell, M. G. H (2007): Mode choice of older and disabled people: a case study of shopping trips in London. *Journal of Transport Geography* 16,(4): 257–267.
- Schwanen, T., Dijst, M and Dieleman, M. F. M (2001): Leisure trips of senior citizens: Determinants of modal choice. *Tijdschrift voor Economische Sociale Geografie* 92,(3):347–360.
- Siren, A., Hjorthol, R., and Levin, L. (2015): Different types of out-of-home activities and well-being amongst urban residing old persons with mobility impediments. *Journal of Transport & Health* 2, (1): 14–21.
- Siren, A., Hakamies-Blomqvist, L(2004): Private car as the grand equaliser? Demographic factors and mobility in Finnish men and women aged 65+. *Transp. Res. Part F* 7, (2): 107–118
- Togonu-Bickersteth, F (2014): Ageing is not an emergency: Preparing for the new realities of ageing in Nigeria. *Inaugural lectures series 226*, Obafemi Awolowo University Ile-Ife, Nigeria. p.123.
- Webber, S. C., Porter, M.M and Menec, V. H (2010): Mobility in Older Adults: A Comprehensive Framework. *The Gerontologist* 50 (4): 443–450
- Whelan, M., Langford, J., Oxley, J., Koppel, S and Charlton, J (2006): *The Elderly and Mobility: A Review of the Literature*. Monash University Accident Research Center, Melbourne.
- World Health Organization (2002): *Active Ageing: A Policy Framework*. World Health Organization, Geneva. Available online at http://whqlibdoc.who.int/hq/2002/WHO_NMH_NPH_02.8.pdf
- Ziegler, F and Schwanen, T (2011): “I like to get out to be energized by different people”: an exploratory analysis of mobility and wellbeing in later life. *Ageing Soc.* 31, (5): 758–781