TRANSPORTING THE PHYSICALLY CHALLENGED IN BENIN-CITY, NIGERIA

OMIRIN, Olayide Josiah & OJEKERE, Stanley
Department of Urban and Regional Planning
Faculty of the Social Sciences
University of Ibadan, Ibadan.
(joeomirin@yahoo.com)
+2348033342807

Abstract
The study investigated the role of public transport in meeting the transport needs of the physically challenged persons in Benin City. It examined the trip patterns and accessibility barriers encountered by these specialized group of people in the use of existing public road transport infrastructure and services. The concept of transport equity was used to anchor the study. Data for the study were obtained from primary and secondary sources and a snowball sampling technique was used to approach 157 crippled and 69 blind respondents in three core Local Government Areas of Benin City. Data obtained were quantitatively and qualitatively analyzed using Pearson Product. Moment correlation to test the hypothesis of the study at 0.01% significance level. Findings based on the perception of the physically challenged (crippled and blind) respectively, revealed a gross transport disequity in the areas of infrastructure design.(bad roads,64.3% and 84.1%), and service accessibility(poor terminal facilities,91% and 90%);unaffordable transport fares administration,(63% and 57%); prolonged waiting time at bus-stops and unfriendly attitude of public road transport staff among other factors. The study advocated the protection of the rights of the physically challenged to unhindered mobility by the removal of accessibility barriers both physically and structurally. It also recommended a more humane treatment from the transport service staffers.

Keywords : Accessibility barriers, transport equity, transport infrastructure, physically challenged people

INTRODUCTION

There are physically challenged persons in all parts of the world and at all levels of the society. Both the cause and the consequences of disability also vary throughout the world. The challenges faced by this group of people are enormous, while the paucity of reliable data on them makes it difficult to form a useful picture of the scale and nature of their needs. The world situation on the physically challenged is bleak; with over 400 million persons having a disability globally (Venter *et al*, 2002). According, to World Health Organization estimates, about 140 million of all physically challenged persons in the world are children, while 160 million are women (Ndinda, 2005). In developed countries, specifically the United Kingdom, about 11.5 million persons (19% of the population) are physically challenged, while about 6% to 10% of the populations in developing countries have a disability (Despouy, 1993; Venter *et al*, 2002). Moreover, about 40% to 50% of all physically challenged persons in developing countries have sensory disabilities (such as blindness, poor vision, poor hearing and impaired speech); while 20% to 50% have physical disabilities and 7% to 15% have cognitive disabilities (Venter *et al*, 2002).

However, Fletcher and Hurst (1995) observed that poor socio-economic conditions contribute to incidence of disability, especially among developing countries. To this end, Kamal (2010) opined that malnutrition, dangerous working conditions, road crashes and limited access to vaccination programs and health care, poor hygiene, poor environmental sanitation, inadequate information about the causes of impairments, conflict and war, and natural disasters all cause disability. Accommodating the needs of physically challenged persons is still largely seen as a welfare function of the state and Non-Governmental Welfare Organizations, especially among developing countries (Venter *et al,* 2003). Nonetheless, the human rights approach to disability, in which physically challenged persons have the

right to participate in socio- economic and political activities, is slowly gaining acceptance among some developing countries (Ndinda, 2005). Indeed, the provision of adequate and equitable service for all groups is the essence of urban planning, while transportation is one of the most important elements of such service (Basorun, and Rotowa, 2012).

Transportation is a process that involves the movement of commuters, goods and services from a given point of origin to a specific destination (Okoko, 2006). According to World Bank (2002) transportation is a means to access business activities, education, employment and recreational opportunities; thus contributing to policy effectiveness and enhancement of security through reduced isolation. It determines the regional patterns of development, economic viability, environmental impacts, and maintenance of socially acceptable levels of quality of life. Thus, transportation is fundamental in breaking isolation and strengthening of individual's capital base (Odufuwa, 2007). However, in many developing countries inadequate public transport infrastructures and service are often the norm rather than the exception; a situation which has not helped the mobility of physically challenged persons. According to Venter *et al* (2003), most developed countries have made substantial progress in improving access to transport systems for Persons With Disabilities (PWDs), whereas in developing countries, the phenomenon is a relatively new area of discourse which requires urgent attention. Disability however can be classified into five categories-namely; sensory disability, learning disability, physical disability, cognitive disability (mental) and others. However, this study will focus on physically challenged persons with mobility impairment, such as the crippled and the blind.

The socio-economic implications of inability of persons with disabilities to gain access to various trip destinations are enormous. This can be observed in the form of reduced mobility, resulting in reduced livelihood opportunities; and ultimately, impoverishment of this group of people in the study area. The study is anchored on the concept of transport equity.

Theoretical and Conceptual Frame

Equity, according to Litman (2014), refers to justice and fairness. It is the distribution of impacts (benefits and costs), and the degree to which such distribution is considered fair and appropriate. In other words, equity requires the consideration of the peculiar characteristics of people when deciding how available public resources should be utilized. Equity in transportation planning and management entails the provision of reasonable transport services that is more accessible for transit-dependent population. Essentially, equity planning is concerned with reducing inequalities. Thus, Krumholz (1982) defined equity planning as an effort to provide more "choices to those residents or individuals who have few, if any choices at all". This implies that the physical capability and a host of other factors that constrain the mobility of certain groups need to be considered and given necessary attention.

But why equity in transport?. Transport and mobility play key roles in the struggle for civil rights and equal opportunity among physically challenged persons. Affordable and reliable transport system allows PWDs to access important opportunities in education, employment, healthcare, housing, and community life. However, investments in transport infrastructure, particularly in developing countries, have disproportionately favored cars and highways, while those who cannot afford cars or do not drive cars often lack viable transport options.

Transport equity, according to Litman (2014), can be categorized into two; firstly, horizontal equity which relates to the distribution of impacts between individuals and groups considered equal in ability and need. Horizontal equity is of the view that individuals and groups considered equal in ability and need should receive equal shares of resources, bear equal costs, and in other ways be treated the same unless a subsidy is specifically justified. This suggests that public policies should avoid favoring certain groups of individuals, while neglecting others. Secondly, vertical equity which relates to income and social class and is concerned with the distribution of impacts between individuals and groups that differs in abilities and needs and in this case, by income or social class. By this definition, transport policies are equitable if they favour economically and socially disadvantaged groups such as persons with disabilities, thereby compensating for overall inequities. In this regard, vertical equity lends support to affordable modes, discounts and special services for economically and socially disadvantaged groups, and ensures that disadvantaged groups do not bear excessive external costs financially. Translating these two categories of transport equity would however require the measurement of the transport impact in relation to individual mobility needs. These analyses can be classified into three and they are ; per capita analysis which assumes that every person should receive an equal share of resources for mobility purpose; per mile or per trip analysis which assumes that people who travel more should receive more resources; and, cost recovery analysis which assumes that people should receive public resources for whatever purpose in proportion to how much they pay in fees and taxes (Litman, 2014).

Litman and Brenman (2012) emphasized that there are two general approaches for addressing transport inequity. Firstly, the *programmatic solutions* which target special protections and services at particular disadvantaged groups; and secondly, *structural changes* that affect overall policies and planning activities. For instance, special mobility services for people with severe disabilities, and special facilities such as wheelchair ramps are examples of programmatic strategies or approach. Moreover, broad policy reforms intended to increase transport system affordability and diversity such as better walking, cycling, public transit, taxi, delivery services, and development policies that help create more accessible, multi-modal communities, are examples of structural solutions. However, most programs aimed at addressing transport equity involve a combination of both approaches.

Related Literature

Disability is a relatively new area of discourse in many developing countries, especially in the realms of public transportation. Interestingly, some persons are likely to experience one form of disability or the other at some point in their lifetime, either personally or in caring for physically challenged family member/friend. Sadly, about 4 million persons (7%) of the population of South Africa have disability while in Nigeria about 10 million persons (7%) are physically challenged (Venter *et al,* 2002; Smith, 2007). Nonetheless, the number of physically challenged persons is expected to increase all over the world, a trend largely driven by current global economic recession, urbanization-urban poverty and increasing number of people over the state pension age. It is worthy of note that records on the causes, incidence and typology of disability are scarcely available. However, available record indicates that there are variations in the incidence of disabilities across the world; with 7% reported in South Africa in 1996, 2.5% in India in 1991, 1.9% in Mexico in 2000, 10% in Malawi in 2001, 10% in Mozambique in 2001, 6.5% in Latin America in 2001 and 10% in the European Union in 2000 (Venter *et al,* 2002; 2003). In

view of the above, it was suggested that the incidence of disability is more likely to be twice as high among the lowest income groups compared with other groups in most societies.

Similarly, Agunloye (2011) perceived transport as one of the elemental factors required for any land use development pattern, as it forms intrinsic part of settlement development needed to open up regions and provide access to natural resources and socio- economic opportunities. Moreover, transportation, when perceived from allocative perspective, tends to contribute substantially to the infrastructural development of the society while from the distributional perspective, it contributes to providing individuals with necessities of life (Ogwude, 2011).

Transport infrastructure on the other hand refers to the arteries for the flow of people, goods and information which are necessary to drive an economy (Zou *et al*, 2008). More recently, there appears to be a pressing need to rebuild the nation's infrastructures as a whole; but rebuilding the nations transport infrastructure should drive this effort so as to provide the basis for addressing the distributional aspects of transport in the context of economic development (Ogwude, 2011). Given the importance of reliable and adequate transport infrastructures to any nation, the situation of Nigeria's road transport infrastructure, particularly in meeting the mobility needs of PWDs is considerably poor. Road infrastructure in a broad sense, include; carriage way, pathway, ramp, pedestrian walk way, drainage system, culverts, bridges and street lights amongst others. According to Akanbi *et al* (2013) less than 50% of the national road networks are in fair or good condition, causing an average death of 50 persons per day; carrying less than 300,000 tonnes of freight annually.

Physically challenged persons have continued to be among the most marginalized groups in most societies (UNDP, 2010).In the last three decades all over the world the fundamental human rights of physically challenged person's, like those of other non-physically challenged persons has been recognized and accepted. For instance, the international community's adoption of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), came to being on May 8, 2008. This Convention on the Rights of persons with disabilities, together with the world programme of action and the standard rules on equalization of opportunities for persons with disabilities adopted in1994, provides for a strengthened international normative framework for disability-inclusive development. Interestingly, some of the articles of the UNCRPD centered on the issue of accessibility. Specifically, article 9 required countries to identify and eliminate obstacles or barriers and ensure that PWDs have access to the built environment, public transport infrastructures and service etc. Similarly, articles 24 and 27 of UNCRPD, focused on physically challenged person's rights to access education and employment as equal to those of non-physically challenged persons. Article 28 further recognizes the rights of physically challenged persons to adequate standard of living through provision of food, clothing and shelter without any discrimination.

Nonetheless, it is well documented in various studies (Elwan, 1999; Venter *et al,* 2003; Nadia, 2005 and UNDP, 2010) that in most countries, notably developing countries, PWDs are more likely to be among the poorest as they are often excluded from basic socio-economic necessities of life such as education, employment, health care service, social services and recreational activities due to limited access to public transport infrastructures and service required to meet these needs. In other words, the high rate of poverty among physically challenged persons can partly be attributed to mobility restrictions. In the light of this McKee (2010), remarked that the availability of wheelchairs is an indicator of basic levels of mobility. She noticed a high correlation between the level of wheelchair supply and gross domestic product per capita in developed and emerging world. Mobility in this context however, refers to having

transport service going where and when one wants to travel; being informed about the services; knowing how to use them; being able to use them; and having the means to pay for them.

Accessible public road transport infrastructures and service however, enhance livelihood opportunities among PWDs and by extension those of their immediate families. Accessibility in this light is seen as the potential or opportunities for interaction to take place. It's a measure of the freedom of individuals to decide whether or not to participate in different activities (Karst,and Bert,2004).

However, in view of the multitude of these highlighted barriers that hinder the daily participation of PWDs in urban life, their access to road transport infrastructure and services becomes imperative. This is why this study is set to examine how the physically challenged persons, namely the blind and the crippled are transported in Benin-City, Nigeria.

Indicators of Mobility Challenges and Measurement

According to a research survey in England (Campion *et al,* 2003), discovered that transportation is a slightly more important priority for wheelchair users and visually impaired people in England and Wales, as well as being of particular importance for "disabled people who live in rural areas and in London". Research by RNIB highlights the inaccessibility of public transport and the pedestrian environment for visually impaired people in Great Britain (RNIB, 1999 and 2002). A National Autistic Society report also by (Broach *et al*, 2003), found that lack of accessible transport options meant that some people with autistic spectrum disorders in England and Wales were confined to their homes, and that 'less visible access issues are being ignored, as providers focused on making transport accessible for people with physical disabilities'. People with learning difficulties were also found to face difficulties in accessing public transport and travelling independently (Lavery *et al*, 1997). Although both the Leonard Cheshire and DPTAC studies included people with physical and sensory impairments and learning difficulties, neither included mental health service users or survivors or other impairment groups. Further research is however still required into the transport barriers faced by different impairment groups (DETR, 2000; Gallon, 2000).

In this same light, a survey in 1990 found that 4 out of 5 disabled people had problems with transport and two-thirds said that difficulty with using public transport was one reason for not going out more and travelling further afield (Consumers Association, 1990). The DPTAC (2002) research found that: Local rail services were perceived to be the most difficult to use (by 38% of respondents), followed by bus services (33%). Bus drivers were rated as the most unhelpful of transport staff (by 20% of respondents). 47% of disabled people said they would travel by public transport more if transport staff were better trained to deal with their needs, and this rose to 66% of those aged 16-44 and 67% of wheelchair users surveyed. 40% of disabled people say that they are afraid of travelling by public transport. There is more social exclusion where public transport services are considered poor. The DWP 'Disabled for Life' research (Grewal *et al,* 2002), found that the difficulties most commonly mentioned by disabled people in Great Britain were getting to and from bus stops or stations (23%), or on and off buses and trains (24%). This indicator is highlighted in Table 1.

Table 1: Indicators of Mobility Challenges Among Physically Challenged Persons

Type of difficulty	Percentages (%)
Getting to and from bus station/stop	23
Getting on/off bus or train	24
Travelling by Taxi	8
Changing modes of transport	8
Getting from bus stop	9
Getting information about accessible transport	6
Booking Ticket	5
Ensuring assistance is available	5
Other difficulties	2
Same as non-physically challenged persons	9

Source: Adopted from (Grewal et al, 2002; McKee, 2010).

The Study Area and Methodology

Benin City is the capital of Edo State in Southern Nigeria. The city is accessed by major arterial routes such as Benin-Lagos, Benin-Warri, Benin-Auchi/Abuja, Benin-Asaba/Onitsha and Benin- Ifon/Akure. The geographical co-ordinates of Benin City lie within latitudes $6^{0}26^{/}$N and $6^{0}31^{/}$E; and longitude$5^{0}35^{/}$E and $5^{0}41^{/}$E. It was the political and administrative headquarters of the then Mid-western Region, later Bendel State and now Edo State. Benin City comprises of the urbanized part or city core of five administrative local government areas namely; Oredo, Ikpoba-Okha, Egor, Ovia North-East and Uhunmwun Ode. According to the 2006 census, Benin City has a population of 1,085,892 with a total land area of about 112.5 sq.km. All of this provided the setting for the research.

The study adopted both quantitative and qualitative research design whereby the primary data were collected through structured questionnaire and Focus Group Discussion (FGD). The sample frame for the study is 1,614 determined from 2013, national population baseline survey of physically challenged persons (crippled and blind) in three core local government areas of Benin City namely, Oredo, Egor and Ipoba-Okha. A sample frame of 242 respondents comprising blind and crippled was taken. A snowballing sampling technique was then adopted to approach the 242 physically challenged respondents out which of 226 respondents were finally sampled. Two sessions of FGD was held with the physically challenged persons (crippled and blind)

some principal officers of government ministries and staff of Non-Government Organisations (NGOs)/Charity Organisations. The aim of this, is to identify the mobility needs of the PWDs and assess the role of public road transportation systems in meeting such needs. Secondary data were obtained from publications such as textbooks, journals, government reports, and conference proceedings. Quantitative data collected from primary source were subjected to statistical analysis using descriptive and inferential statistics, while qualitative data were content analysed.

FINDINGS AND DISCUSSIONS

The result of the study is discussed under the following headings, namely: socio-demographic characteristics of physically challenged persons; perception of public transport infrastructures and service; travel pattern/mobility constraints and accessibility barriers in the use of public road transport infrastructures and service among physically challenged persons.

Socio-Demographic Characteristics of the Physically Challenged

Gender distribution of respondents (crippled and blind respectively) was examined as shown in table 2. The result indicates that of the 157 crippled, 146 (93%) were males while 65 (94.2%) of the 69 blind were equally males. The predominantly male figures can be attributed to greater mobility among male respondents in their quest for interaction and livelihood in the study area.

The study also found out that the bulk of the age range of the crippled was between 20-35 years (88.6%) while contrastingly the bulk of the blind 55 (79.7%) were above 45 years. The advanced years recorded by the blind was due to the advantage of being led about by younger dependents who invariably are their children or close relatives.

Marital status of respondents (crippled and blind respectively) as shown in table1 ,indicates that about 91% and 73% of the respondents were single while 8.9% and 27.5% were married. The higher percentage of singles among the respondents is attributed to incidence of disability and limited livelihood opportunities.

Also, more than 49% and 57% of the crippled and blind respondents, respectively had no formal education. This is attributed to high incidence of ignorance and/or lack of motivation for specialized educational facilities/schools that meets with their peculiar needs in the study area.

Occupation distribution of respondents (crippled and blind respectively) as shown in table 1, revealed that less than 1% of the respondents were civil servants while about 6% of the crippled and the blind respectively accounted for artisan/self-employed whereas more than 91% and 82% represented the unemployed. Altogether 88.9% of the respondents were unemployed. This of course is attributed essentially to lack or limited access to livelihood opportunities.

Monthly income of respondents (crippled and blind respectively) indicates that about 1% and 7% of the respondents earned within 20,000-29,000 Naira ; more than 5% and 8% earned within 10,000 and 19,000 Naira; and more than 94% and 84% respectively earned less than 10,000 Naira. The study revealed that more than 91% of the respondents earned below the monthly minimum wage of 18,000 Naira and are thus confined to living below the poverty line with little or no hope of leading a decent life.

Investigations on the mobility status of the respondents, reviewed that all (100%) sampled blind respondents were mobility-dependent requiring at least someone to assist in piloting them about. In the case of crippled respondent, only 32% of these were mobility- dependent and 68% could move about un-assisted (Table 1) Mobility-

dependency of some of the physically challenged people sampled in this study implies that their disability compelled some able-bodied members of the society to be 'idle' and not gainfully employed as they are depended upon by these physically challenged individuals.

Table2: Socio-Demographic Characteristics of Respondents

Characteristics	Classification of Disability					
	Crippled Number of respondent (N=157)	%	Blind Number of respondent (N=69)	%	Total Number of respondent(N=226)	%
Gender						
Male	146	93	65	94.2	211	93.4
Female	11	7	4	5.8	15	6.6
Age(years)						
Less than20	3	1.9	0	0.0	3	1.3
20-25	45	28.7	2	2.9	47	20.8
26-30	54	34.4	1	1.4	55	24.3
31-35	40	25.5	3	4.3	43	19
36-40	5	3.2	5	7.2	10	4.4
41-45	9	5.7	3	4.3	12	5.3
Above45	1	0.6	55	79.7	56	24.8
Marital status						
Single	143	91.1	50	72.5	193	85.4
Married	14	8.9	19	27.5	33	14.6
Education						
No formal education	78	49.7	40	57.8	118	52.2
Koranic	20	12.7	9	13.0	29	12.8
Primary/standard	42	26.8	7	10.1	49	21.7
Secondary/Technical / grade II	17	10.8	13	18.8	30	13.3
Occupation						
Artisan/self Employed	9	5.7	4	5.8	13	5.8
Unemployed	144	91.7	57	82.6	201	88.9
Civic service	0	0.0	1	1.4	1	0.4
Pensioner	1	0.64	7	10.1	8	3.5
Others	3	1.9	0	0.0	3	1.3
Income						
Less than N10,000	148	94.3	58	84.1	206	91.1
N10,000-N19,000	8	5.1	6	8.7	14	6.2
N20,000-N29,000	1	0.6	5	7.2	6	2.7
Travelling status						
Dependent	50	32	69	100	119	52.7
Not dependent	**107**	**68**	**0**	**0.0**	**107**	47.3

Sources: Author's Field Survey, 2016.

Perception of the Condition of Public Road Transport Infrastructures and Service among Physically Challenged Persons

Perception of the respondents on the condition of access road was examined as shown in table 3. The study revealed that 37.7% and 15.9% of the crippled and blind respondents rated the condition of access road as "fair" while 64.3% and 84.1% respectively rated the roads as poor. None of the respondents rated the access road in the city as being in good condition in terms of meeting their mobility needs. Observed poor rating of the access roads might the connected with total absence of provision of road furniture to accommodate the mobility needs of the blind and crippled, portending great danger for this group of people. Vulnerability of this set of people to danger is buttressed by the following statement by a physically challenged person during an FGD session.

> *"I had difficulties moving along access roads in my area. The roads are in bad condition and my wheel chair is equally worn-out; it cannot move properly"…(Physically challenged wheelchair user, Benin City,2016).*

Condition of the streets was also examined, in which 30.6% and 14.5% of the crippled and blind respondents respectively, rated the service streets as 'fair' whereas about 70% of the crippled and more than 85% of the blind considered these service streets as 'poor' both in setting and outlook. These service streets were thus inadequate in meeting the travel needs of over70% of the physically challenged in the study area. This however suggest that mobility constraint is a necessary burden among the respondents, owing to unfriendly surface condition of streets, resulting in their marked isolation and limited livelihood opportunities.

Investigations on the condition of walkway revealed that more than 78% of the crippled and about 86% of the blind affirmed that the condition of the walk ways was poor in most parts of the city, and as such, were not suitable in meeting the mobility needs of the respondents in the study area, owing to the fact that they were designed for non-physically challenged persons(Table 2). This view was corroborated by another physically challenged participant during an FGD session.

> *"I have difficulties moving my wheelchair along the walkways because the pavement is rough and uneven. Oftentimes the few walkways are occupied by commercial activities"……. (Physically challenged wheel chair user, Benin City,2016).*

The condition of bus-stops/terminal facilities was also examined. The study revealed that about 8% and 10% of the crippled and blind respondents respectively, considered bus-stops/terminal facilities as 'fair' while 92% of the crippled and 58% of the blind respectively, remarked that bus-stops/terminal facilities were 'poor'. This result indicates that terminal facilities/stops were perceived not to be adequate in meeting the travel needs of about 91% of the respondents. This view was further buttressed by a physically challenged person during the FGD session:

> *"I had difficulties boarding a bus at terminals; there are no shelter and seats for the handicapped and when the bus arrived after a*

long wait, other passengers are in a rush. They often trample on me"… (Blind physically challenged person, Benin City 2016).

Table3:Perception of the Condition of Public Road Transport Infrastructures and Service

Perception	Classification of Disability					
	Crippled	%	Blind	%	Total	%
	Number of respondent (N=157)		Number of respondent (N=69)		Number of respondent	100
Very Good	-	-	-	-	-	-
Good	-	-	-	-	-	-
Fair	56	35.6	11	16	67	29.6
Poor	50	32	38	55	88	38.9
Very Poor	51	32.4	20	29	71	31.4
Service streets						
Very Good	-	-	-	-	-	-
Good	-	-	-	-	-	-
Fair	48	30.6	10		58	25.7
Poor	69	44	36	52.2	78	34.5
Very Poor	40	25.4	23	33.3	90	39.8
Walkway						
Very Good	-	-	-	-	-	-
Good	-	-	-	-	-	-
Fair	34	21.9	10		44	19.5
Poor	62	39.5	35	50.7	100	44.2
Very Poor	61	38.5	24	34.8	82	36.3
Bus-stops/terminal						
Very Good	-		-	-	-	-
Good	-	-	-	-		
Fair	13	8	7	10	20	8.8
Poor	84	53.5	32	46.6	106	46.9
Very Poor	60	3838.2	30	43	100	44.2

Sources: Author's Field Survey, 2016.

Travel Patterns and mobility Constraints of the Physically Challenged

Trip pattern as shown in table 4, indicates that about 2% and 3% of respondents (crippled and blind respectively) made their trips to school whereas 7% and about 6% respectively went to places of religious activities while 11.5% and 5.8%

was to hospitals Also,14% and about 9% of the respondents made their trips to work while more than 65% and about 77% of trips were made to places of informal activities i.e. begging, shoe mending etc. in the study area. This result shows that the predominant trip pattern among the physically challenged were trips made to access places of religious, work and informal activities.

Frequency of trips among respondents was examined as shown in table 4. The result reveals that 80.3% and 78.3% of respondents (crippled and blind respectively) said they engaged in daily trips whereas 19.7% and 21.7% says they make their trips weekly. This is an indication that the predominantly daily trip frequency were trips towards posts for begging and soliciting for alms.

Mode of travel of respondents also reveal that 69% and 97% of respondents (crippled and blind respectively) travel by public transport whereas 31% and 3% says they make use of non-motorized transport (NMT) especially for short distance trips.

Satisfaction with Accessibility to Public Road Transport Service

Satisfaction of respondents with accessibility to public road transport service was examined. The result revealed that about 15% and 22% of the crippled and blind respectively, considered public road transport service as fair in terms of accessibility while 85% and 78% rated this as poor and unsatisfactory (Table 4). One of the participant at the FGD session attested to the difficulties encountered when boarding public buses.

" Boarding government owned public buses is usually an Herculean task; bus entrance is high from the floor, and no one is willing to assist me to board; when the buses move, they don't allow me to alight at my prefered stop; they always take me to their own designated bus-stop which is further away from where I live"…(Crippled, physically challenged person, Benin-City,2016).

Affordability of Public Road Transport Service

Affordability of public road transport service was examined. The result revealed that 5% of the crippled and 1.4% of the blind respondents respectively rated affordability of public road transport service as 'cheap and affordable' while over 31% of the crippled and 47% of the blind remarked that it was moderate. 63% of the crippled and 51% of the blind respectively, considered the service to be very costly. This affordability factor was corroborated by a blind man who solicited for transport fares subsidy for the physically challenged during the FGD session:

"I pay as much as 200 Naira for my to and fro trip everyday using public transportation; the same amount paid by other healthy passengers; no consideration whatsoever for my situation and plight. I am just a roadside artisan whose income is taken away by transportation fares" …(Blind physically challenged person, Benin- City,2016).

Reliability and Safety of Public Road Transport Service

About 79% of the crippled and 93% of the blind generally, considered the reliability of the transport service as poor. This unreliable nature of the public transport system was attested to by a blind respondent thus:

"Most times when I wait for public road transport it does not come on time, and when it comes, it is quickly occupied by

other passengers, leaving me behind"…(Blind physically challenged person, Benin- City, 2016).

However, over 80% and 76% of the respondents (crippled and blind respectively) strongly agree that public transport was not a safe travel mode for them. Most of them complained about the unfair and inconsiderate attitude of the transport staffers to them.

Table 4: Travel Pattern among Physically Challenged Persons

Travel Pattern	**Classification of Disability**					
	Crippled Number of respondent (N=157)	**%**	**Blind Number of respondent (N=69)**	**%**	**Total Number of respondent (N=226)**	**% 100**
Work	22	14	6	8.7	28	**12.4**
Hospital	18	11.5	4	5.8	22	**9.7**
School	3	1.9	2	2.9	5	2.2
Religious activity	11	7	4	5.8	15	6.6
Informal activity	103	65.6	53	76.8	156	**69**
Trip frequency						
Daily	126	80.3	54	78.3	180	**79.6**
Weekly	31	19.7	15	21.7	46	**20.4**
Travel Mode						
Public Road Transport	108	69	67	97	175	77.4
Non-Motorized	49	31	2	3	51	22.6
Total	157	100	69	100	226	**100**

Sources: Author's Field Survey, 2016.

Table 5: Public Road Transport Service and Mobility Constraints among PWDs

Public Transport Service	**Classification of Disability**					
	Crippled Number of respondent	%	Blind Number of respondent	%	Total Number of respondent	**%**
Satisfaction with Accessibility						
Very Good	-	-	-	-	-	**-**
Good	-	-	-	-	-	**-**
Fair	25	15.9	15	21.7	40	17.7
Poor	100	64	24	34.8	86	38.1
Very Poor	32	20.3	30	43.5	100	44.2
Total	157	100	69	100	226	100
Formal Public Transport						
Very Good	-	-	-	-	-	-
Good	-	-	-	-	-	-
Fair	15	9.5	7	10	23	10

Poor	97	61.8	33	47.7	121	54
Very Poor	45	28.7	32	46.3	82	36
Informal Public Transport						
Very Good	-	-	-	-	-	-
Good	-	-	-	-	-	-
Fair	6	3.8	4	5.8	10	4.4
Poor	91	58	35	50.7	116	51.3
Very Poor	60	38.2	30	43.5	100	44.2
Affordability of service						
Cheap	8	5.1	1	1.4	9	3.9
Moderate	50	31.8	33	47.8	99	43.8
Costly	99	63.1	35	51	118	52.2
Reliability of Service						
Very Good	-	-	-	-	-	-
Good	-	-	-	-	-	-
Fair	34	21.7	5	7.2	39	17.3
Poor	73	46.5	29	42	80	35.4
Very Poor	50	31.8	35	51	107	47.3
Safety of Public Transport						
Strongly Agree	127	80.9	53	76.8	180	79.6
Agree	17	10.1	11	16	28	12.4
Disagree	13	7.7	5	7.2	18	7.9
Attitude of Transport Staffs						
	19	12.1	9	13	28	12.4
Poor	90	57.3	33	47.8	123	54.4
Very Poor	48	30.6	27	39.1	75	33.2

Source: Author's Field Survey, 2016.

Hypothesis testing the significant relationship between public road travel mode and mobility challenges among physically challenged persons in Benin City.

To test for this hypothesis, a regression analysis was run on the data set to determine if there exists a variation or not. $\hat{Y} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \ldots + \beta_9 X_9$

Where; $\hat{Y}$ is dependent variable; public road travel mode and X_1boarding, X_2, Alighting, X_3, Time to board/alight, X_4, Travel information. X_5, Inaccessible bus stops/ terminal, X_6 Waiting Time, X_7, Travel Cost, X_8, Attitude of Transport staff, X_9, Aisle and seating spaces are all in independent variable.

H_0 There is no significant relationship between public road travel mode and mobility challenges among physically challenged persons in Benin City.

H_I There is significant relationship between public road travel mode and mobility challenges among physically challenged persons in Benin City.

Public road travel mode (being dependent variable) and mobility challenges (being the independent variable).

Model summary is shown in Table 6. The R^2 which is the coefficient of determination is 0.562 which is based on the sample and shows a positively biased estimate of the proportion of the variance of the dependent variable accounted for by the regression model. This shows that 56% of the independent variables used as predictors were influenced by public road travel mode among physically challenged persons while the remaining 44% accounted for other variables.

The adjusted R^2 0.544 shows 54% relationship between the independent variables and the dependent variable.

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.750[a]	.562	.544	.26605

a. Predictors: (Constant), narrow aisle and seating spacing, alighting difficulties, limited time in boarding and alighting, waiting time, high coast of travel, inaccessible bus stops/terminal, boarding difficulties, attitudes of transport staffs and travel information.

Source Author's Field Survey, 2016.

ANOVA was used to validate the hypothesis as shown in Table 7. The result of this regression analysis shows the details of the calculated value at degree of freedom (df) = 9 at 0.05 level of significance with an F-ratio of 30.815. This indicates that the regression model is statistically significant (19.631) and the calculated value on the regression table is 0.000 which is lesser than 0.05, indicating that the chances are almost zero for the result of the regression model to be due to random events instead of a true relationship. In view of this; the researcher rejects the null hypothesis (H_0) and accepts the alternative hypothesis ($H_{1)}$. The implication of this is that the Null Hypothesis (H_0) which states that "There is no significant relationship between public road travel mode and mobility challenges among physically challenged persons in Benin City" is rejected while the alternative Hypothesis (H_1) which states that "There is significant relationship between public road travel mode and mobility challenges among physically challenged persons in Benin City is accepted.

Table 7: ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	19.631	9	2.181	30.815	.000[b]
	Residual	15.289	216	.071		
	Total	34.920	225			

a. Predictors: (Constant), narrow aisle and seating spacing, alighting difficulties, limited time in boarding and alighting, waiting time, high cost of travel, inaccessible bus stops/terminal, boarding difficulties, attitudes of transport staffs and travel information.

b. Dependent variable: public road travel mode

Source Author's Field Survey, 2016.

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.241	.113		37.651	.000
	Boarding	-.602	.097	-.356	-6,210	.000
	Alighting	-.545	.071	-427	-7.667	.000
	Time to board/alight	.101	.039	.130	2.574	.011
	Travel information	-.018	.061	-.019	-.299	.765
	Inaccessible bus stops/ terminal	-.021	.038	-.028	-.542	.589
	Waiting time	-.076	.046	-0.99	-1.651	.100
	Travel Cost	-.021	.045	-.025	-.460	.646
	Attitude of travel staffs	-.121	.047	-.158	-2.587	.010
	Aisle and seating Spacing	.032	.036	.045	.901	.369

A. Dependent variable: public road travel mode

Source Author's Field Survey, 2016.

Recommendations

This study has looked at the transport of physically challenged persons in Benin -City, and from the analysis presented, it recommends that legislation in form of laws and regulations, aimed at addressing the multi-faceted barriers that hinder the physically challenged persons from gaining access to public road transport infrastructure and service should be seriously considered in the study area. This is needful in order to protect the rights of the physically challenged persons as well as to secure their full participation in all spheres of socio-economic pursuits. Effective regulation is required particularly in the area of access design features on new vehicles designated for public transport.

Physical planning in the study area should also embrace inclusive design approaches, particularly in the design of highways. Structural accessibility barriers that affects physically challenged persons in the use of access roads/service streets in the study area should be eliminated through a system of redesign and reconstruction by government. This is essential in securing adequate access for all groups in the city.

Modern public mass transit buses fitted with gadgets to accommodate wheel chair users should be introduced in Benin -City especially with the public transport carriers beginning with the Edo Intra-City Transport Service (ECTS) owned by the State government. In addition, these buses should satisfy the criteria of universal bus design

for all. Also, the availability and supply of personalized mobility aid in the form of Non Motorized Transport gadgets (NMT), contributes in no small way to the mobility of physically challenged persons. This study is therefore advocating that there is the need for government, corporate organizations and other stakeholders in Benin city to provide these self-powered and electrically powered wheelchairs, cane-sticks etc. to ease mobility difficulties among physically challenged persons. Motorized wheel chair is needful, particularly for aged physically challenged persons who may need to use the wheel chair over long distances.

The training of public road transport staff and managers has emerged as an important aspect of delivering accessible public road transport service. There is therefore the need to develop disability awareness/orientation training courses for formal and informal road transport staffers by appropriate government institution in Benin city. This will enable transport staff to be better informed about the mobility needs of these physically challenged passengers and how to meet such needs in the interest of transport equity.
Concessionary transport fares in form of targeted subsidies should be granted to physically challenged persons using formal public road transport travel options, so as to reduce their travel burdens generally.

Conclusion

The role of public road transport in meeting the transport needs of physically challenged persons is very valuable in the area of inclusive transportation in our cities. The study has examined perception of the condition of public road transport infrastructures and service among physically challenged persons in Benin -City. From the survey it was found out that road transport infrastructure and service were not adequate in meeting the travel needs of the physically challenged persons. These infrastructure and services however were designed without taking into cognisance the transport needs of the physically challenged persons thereby resulting in transport disequity. Whereas, accessible, affordable, inclusive and sustainable public road infrastructure and service is fundamental to breaking social exclusion and poverty among physically challenged persons. To this end, there is the immediate need for government to meet the transport demands of these physically disadvantaged persons to enhance their livelihood standards.

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