

Problems Affecting the Accessibility of Physically-Challenged Individuals to Intermediate Public Transport Services in Oyo State, Nigeria

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Abstract- The greatest challenge of physically-challenged individuals is mobility, thereby making access to public transportation essential to independent living for these individuals. The study was conducted in Oyo State. Multistage sampling method comprising purposive and simple random sampling was used to select a sample size of 226 students from three special education centres in the state. Findings revealed that factors such as operators' impatience/discrimination, waiting time and lack of assistance were major problems that affects accessibility to IPTs. Furthermore, results showed that difficulties experienced by the physically-challenged individuals differ significantly by the nature of disability as evidenced by a chi-square value of 37.218, $p < 0.05$. It was therefore recommended that government should listen more to these transport disadvantaged people living with disabilities and integrate their concerns/suggestions in the design, implementation and monitoring of transport infrastructure and services as well as providing sustainable transport means to their transport challenges.

Index Terms: Accessibility, IPTs, Transport Disadvantaged, Physically-challenged

I. INTRODUCTION

The greatest challenge of physically-challenged persons is impediment in mobility [21]. Access to public transportation is essential to independent living for individuals with disabilities. It facilitates mobility for employment, education, health and medical services, leisure activities, and other community living activities. In particular, for individuals who lack the ability to use fixed-route or conventional public transportation, access to paratransit services is critical for meeting their mobility needs [20].

It is worth noting that, disabled people in most developing countries particularly Nigeria are ridiculed, exploited and often fall victims of social ostracism. They are also ignored, neglected, mistreated and experience lower levels of opportunities than the non-disabled group [17].

The Conventional Mass transits or Public transportation is not made easily accessible to the Physically-challenged individuals in terms of boarding and alighting vehicles, discrimination and lack of assistance, inconvenient bus stops location, long wait for buses, and difficulty in reading timetables or signage among others. Hence, this public transport system available doesn't cater adequately for the needs of the physically-challenged.

The nature of Intermediate Public Transport Services operation confers a wide range of advantages to its users. IPTs offers personalized services, particularly for passengers going to specific directions or places [1]. Another common feature observed is that informal public transport vehicles offer more flexible services than mass transit. They offer convenient door-to-door services or drop passengers on request at specific un-predetermined destinations. In addition, the urban IPTs sector generates a considerable number of employment opportunities as much as 10-20% of total employment in some cities [9]. Ref [22]

also noted that IPTs modes are regarded as an important component of urban transport in the cities of developing countries due to its distinguishing characteristics like low carrying capacity, low speed, low energy requirements, higher labour intensity, more dependable and small area of coverage.

Consequently, the lack of public transport to cater for the need of persons with disabilities informs their use of IPTs. Since IPTs are demand-responsive, the problem of accessibility is minimal but may still be experienced. The problems can include among others; scheduling problems, long waiting time, inadequate times of service, inappropriate driver attitude and missing of pickup appointments [2].

Accessibility is a key transportation element and is a direct expression of mobility either in terms of people, freight or information [19]. It should be noted that an efficient transportation system offers high levels of accessibility if the impacts of transport externalities are excluded. For instance, some studies have argued that inability to access transport can lead to people missing out on jobs, education and other social opportunities. From this perspective accessibility is the measure of the capacity of a location to be reached by, or to reach different locations [25]. This paper therefore attempts to examine the major challenges disabled individuals experience in accessing IPTs and determine if difficulties experienced by disabled individuals in accessing IPTs are significantly associated with the nature type of disability.

II. LITERATURE REVIEW

Access to transportation is essential for individuals to engage with their community; for obtaining employment, goods and services, healthcare, education, and social interaction [18]. Ref. [27] noted that individuals encountering difficulties in accessing transportation are considered 'transportation disadvantaged' and include aging individuals, individuals in a lower socioeconomic situation, and individuals with disabilities.

Transportation disadvantaged populations are less able to access employment opportunities, education services, health services, and other community resources associated with daily living [24]. Further, transportation disadvantaged individuals are often socially excluded, ultimately limited from participating within their community [5].

One of the major concerns for Physically disabled persons is social exclusion which according to [23] refers to "circumstances where individuals or groups of people are unable to participate in activities or to access goods, services and opportunities that are available to others as a fundamental part of belonging to society."

As reported by Ref. [23], 9% of the population in the United Kingdom over the age of 16 in 2013 had mobility difficulties. They made 572 trips on average compared with 977 by those without mobility difficulties. Inaccessible transport prevents some disabled people from taking jobs or attending interviews [4].

Accessibility is a slippery notion; one of those common terms which everyone uses until faced with the problem of defining and measuring it. Some authors defined it as "the ease with which people can reach distant but necessarily services." Ref [3] noted that "accessibility denotes the physical proximity or ability and ease of reaching various destinations or places offering opportunities for desired activities. Access in transport terms is largely synonymous with accessibility. Whereas mobility is defined as a measure of the "human agency" with which people choose to move themselves and their goods around, dependent on the performance of the transport system available and characteristics of the individual."

Accessibility is a key transportation element and is a direct expression of mobility either in terms of people, freight or information [19]. Individuals who lack accessibility to transportation may feel disempowered from the decision-making process in relation to where they are housed, the kind of job

opportunities and services which are available to them, the quality of the services they receive and their own ability to affect any changes in these aspects of their lives [14].

Individuals with disabilities are less likely to have access to transportation and are often not full participants within their community [14]. This access affects the availability of the services, education, and social interaction they need to lead healthy lives.

Again, transportation access has long been seen as a primary way to address individuals with disabilities' independence and self-determination [13]. Understanding the role of transportation access in the social exclusion of individuals with disabilities is necessary to best assure the full participation of individuals with disabilities in all aspects of society [15]. Accessibility depends on a number of factors such as: availability of transport services, awareness of such services, frequency of services, affordability and safety issues.

However, to participate more fully in their communities, individuals with disabilities may depend on their social network to mitigate barriers in transportation access. The resulting increased demand on individuals with disabilities already limited social network may further reduce their opportunities for social involvement [10]. This makes discrimination/ostracism another major factor in determining transportation accessibility to disabled individuals.

Despite the importance of transportation as an essential component of sustainable community. The right to travel and access basic facilities were not perceived by policy makers as a key factor that can enhance the livelihood or quality of life of disabled people in developing countries [8]. This fact was partly justified by the non-implementation of section 8 and 9 of the Nigerians Disability Decree of 1993.

Discrimination in this way is a form of social exclusion. At the individual level the impact of stigma and social exclusion can be devastating, leading to low self-esteem, poor social relationships, isolation, depression and self-harm. The impact of stigma on those individuals who are already coping with acute or chronic health problems can be profound [16].

Physical accessibility is important to disabled people. Disabled people often find public transport inaccessible. They can also experience a lack of flexibility in their travel choices; making it difficult to be spontaneous [6].

The main issues identified by less mobile people in respect to accessibility are:

- Boarding and alighting vehicles
- Drivers not waiting until passengers are seated before moving
- No one to provide assistance in getting on/off the vehicles;
- Bus stops located at inconvenient places, often with no form of shelter;
- Long wait for buses, sometimes entailing standing in the cold/heat
- Difficulty in reading timetables or signage, a making bus and trams stops and stations difficult to negotiate.

Although, since, IPTs are demand-responsive, some of these problems may still be experienced while trying to access IPT. According to Ref. [2], the problems can include among others: scheduling problems, long waiting time, inadequate times of service, inappropriate driver attitude and missing of pickup appointments.

IPT vehicles serve according to the market demands, and hence they tend to be flexible in terms of the passenger's needs and demands. They easily alter frequencies, rates, timings, and their operations resulting in favour of the market demand. This characteristic of IPT vehicles is one of the major attracting features that enable them to get passengers who prefer IPT over public transport [12].

III. METHODOLOGY

This study was conducted in Oyo State. Multi-stage sampling technique was used to select the sample size. The first stage involved a purposive selection of three (3) special educational centres in the study area. At the second stage, simple random sampling was used to select a sample size of two hundred and twenty-six (226) students from the two (2) special educational centres. A total of two hundred and nine (209) copies were retrieved out of which one hundred and ninety-two (192) copies were returned and found analyzable.

Data analysis involved using both descriptive and inferential statistics. Descriptive statistics includes the use of frequencies, percentages and contingency table to summarize the data gathered while inferential statistics include the use of Chi-square to validate the contingency tables.

IV. RESULTS AND DISCUSSION

Table 1: Factors Affecting the Accessibility of Physically-Challenged IPTs the Disabled

	Frequency	Percent
Boarding and alighting difficulties	16	8.3
Waiting time	44	22.9
Inconvenient location of IPTs/ Bus stop	20	10.4
Operator impatience/discrimination	46	24.0
Reading of signage/information	14	7.3
Difficulty in placing order	16	8.3
Lack of assistance in accessing the vehicle	36	18.7
Total	192	100.0

Source: Researcher's Field Survey (2019)

Table 1 revealed that three major factors affects the physically challenged individuals in accessing IPTs. These factors are: operator's impatience or discrimination, waiting time and lack of assistance in accessing vehicles as represented by 24%, 22.9% and 18.7% respectively.

However, the remaining 37.5% of the respondents identified factors such reading of signage and information, difficulties in boarding and alighting from vehicles, inconvenient location of IPTs/bus stops, operator's impatience/discrimination as well as difficulty in placing order as the factors that affect their accessibility to IPTs.

Test of Hypothesis

H₀1: The difficulties experienced by disabled individuals in accessing IPTs are not significantly associated with type of disability.

Test 1: Cross-Tabulations

Table 2: Crosstabulation

			Factors that make accessibility to IPTs difficult for Disabled individuals						Total	
			boarding and alighting	Waiting time	Location of Bus stops	Operator impatience	Reading of information	Placing of order		Lack of assistance
Nature of disability	Visual Impaired	Count	8	32	8	8	10	6	16	88
		% within nature of your disability	9.1%	36.4%	9.1%	9.1%	11.4%	6.8%	18.2%	100%
Nature of disability	Hearing Impaired	Count	8	12	12	38	4	10	14	98
		% within nature of your disability	8.2%	12.2%	12.2%	38.8%	4.1%	10.2%	14.3%	100%
Total		Count	16	44	20	46	14	16	30	186
		% within nature of your disability	8.6%	23.7%	10.8%	24.7%	7.5%	8.6%	16.1%	100%

Source: Researchers' Computation (2019)

Results from Table 2 revealed that 36.4% of those who are visually-impaired identified waiting time as a major challenge in accessing IPTs, 18.2% identified lack of assistance as a problem when accessing IPTs while the remaining 45.4% of those who are visually impaired identified other factors such as difficulty in reading of information, operators' impatience, lack of bus-stops and difficulty in boarding and alighting as a problem when accessing IPTs.

On the other hand, respondents who are hearing impaired identified operators' impatience (38.8%) as major challenge in accessing IPTs, 14.3% identified lack of assistance while 42.8% of those with ear impairment identified factors like waiting time, location of bus stops, placing of order and challenges with boarding the vehicle and alighting as a major problem, only 4.1% identified reading of information as major problem in accessing IPTs.

Test 2: Pearson Chi-Square Test

Table 4.3: Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	32.718 ^a	6	.000
Likelihood Ratio	34.763	6	.000
Linear-by-Linear Association	1.591	1	.207
N of Valid Cases	186		

Source: Researchers' Computation (2019)

The Pearson Chi-Square table above presents a Chi-square value of 32.718 with a probability value of 0.000. Hence, the association between two variables is statistically significant with **Asymptotic Significance (2-sided) < 0.05**.

Hence, the alternate hypothesis that the difficulties experienced by the physically-challenged individuals in accessing IPTs is associated with the type of disability is accepted.

V. CONCLUSION AND RECOMMENDATION

Three factors were identified as major difficulties in accessing IPTs by physically-challenged individuals which are operators' impatience or discrimination, waiting time and lack of assistance in accessing vehicles. It is worthy to note that the difficulties experienced by the disabled differ significantly by the nature of disability. While the visually impaired consider waiting time as the major difficulty experienced, the hearing impaired consider operator's impatience and discrimination their major difficulty. Access for all can only be achieved through improved transport infrastructure. According to Ref. [11], in order to achieve the goal of transport or access for all, government must move away from vehicle-centered transport to people-oriented mobility planning. Listening to transport disadvantaged people, particularly persons with disabilities and integrating their suggestions in the design, implementation and monitoring of transport infrastructure and services are crucial in meeting their mobility needs and providing sustainable solutions to their transport challenges.

REFERENCES

1. Aworemi, J.R., Salami, A.O., Adewoye, J.O and Ilori, M.O. (2008). Impact of Socio-economic Characteristics on Formal and Informal Public Transport Demands in Kwara State, Nigeria. *African Journal of Business Management*. Vol.2(4), pp. 072-076. www.academicjournals.org/AJMB
2. Bezyak, J.L., Sabella, S.A. and Gattis, R.H. (2017). Public Transportation: An Investigation of Barriers for People with Disabilities. *Journal of Disability Policy Studies*. Hammill Institute on Disabilities 2017, Vol. 28(1) 52–60. jdps.sagepub.com
3. Bryceson, D., Mbara, T. C., & Maunder, D. (2003). Livelihoods, daily mobility and poverty in Sub-Saharan Africa. *Transport Reviews*, 23(2), 177–196.
4. Campion, J., Greenhalgh, C. and Knight, J. (2003). Mind the gap: Leonard Cheshire's social exclusion report 2003. Available from <http://www.asksource.info/resources/mind-gapleonard-cheshires-social-exclusion-report-2003>
5. Casas, I. (2007). Social exclusion and the disabled: An accessibility approach. *The Professional Geographer*, 59(4), 463–77.
6. Centre for Research in Social Policy (2007). 'Evidence Base Review on Mobility: Choices & Barriers for Different Social Groups'
7. Department for Transport (2013). Valuing the social impacts of public transport Final report- March 2013
8. Elwan, A. (1999). "Poverty and Disability: A survey of the Literature." Social Protection Discussion Paper Series No. 9932. Social Protection Unit Washington DC: The World Bank
9. ESCAP/UNCHS (1987). Study on the Role of Informal Paratransit in the Socio-Economic Development of Urban Areas. Bangkok, Thailand.
10. Graydon, B. (2017). Transportation Related Challenges for Persons' with Disabilities Social Participation. Utah State University. [DigitalCommons@USU](https://digitalcommons.usu.edu/)
11. Ipingbemi, O. (2015). Mobility Challenges and Transport Safety of People with Disabilities (PWD) in Ibadan, Nigeria. *African Journal for the Psychological Study of Social Issues*. Vol.18 No.3 2015
12. IUT, (2014). Improving and Upgrading IPT Vehicles and Services: A Study, July, 2014. www.iutindia.org
13. Levinson, D. M., Wasfi, R., & El-Geneidy, A. M. (2006). Measuring the transportation needs of people with developmental disabilities. Paper presented at the 86th Annual Meeting of the Transportation Research Board, Washington, DC. Abstract retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1743631
14. Lucas, K. (2012). Transport and social exclusion: Where are we now? *Transp. Policy* 20, 105-113. <https://doi.org/10.1016/j.tranpol.2012.01.013>.
15. Lucas, K. and Currie, G. (2012). Developing socially inclusive transportation policy: Transferring the United Kingdom policy approach to the state of Victoria? *Transp.* 39 (1), 151-173
16. Mason, T., Carlisle, C., Watkins, C. and Whitehead, E. (2011). "Stigma and Social Exclusion in Healthcare". Routledge, London and New York
17. Odufuwa, B.O. (2007). Towards Sustainable Public Transport for Disabled People in Nigerian Cities. *Stud. Home Comm. Sci.*, 1(2): 93-101 (2007)
18. Preston J., & Rajé F. (2008). Investigating links between social capital and public transport. *Transp. Rev.: A Transnatl. Transdiscipl. J.* 28 (4), 529-547 <https://doi.org/10.1080/01441640701817197>.
19. Rodrigue, J.P. (2004). *Transport Geography on the Web*. Hofstra University. <http://people.hofstra.edu/geotrans>

20. Rosalyn, M. (1998). Paratransit Contracting and Service Delivery Methods. Transportation Research Board, National Research Council. National Academy Press. Washington D.C., 1998
21. Segun, J. (2017). Over 25m Nigerians are Disabled. This Day Newspaper
22. Shimazki, T. and Rahman, M. (1996). Physical characteristics of Paratransit in Developing Countries of Asia: Transportation in Asia-Pacific Countries. Vol.1 *Journal of Advanced Transportation*, Vol.30, No.2, pp. 5-24
23. Thoreau, R. and Mackett, R.L. (2015). Transport, social exclusion and health. Centre for Transport Studies, University College London, Gower Street, London, WC1E 6BT, Great Britain.
24. U.S. Department of Transportation, Bureau of Transportation Statistics. (2003). Freedom to Travel (Publication No. BTS03-08). Washington D.C.: Author
25. Venter, C.J., T. R. Bogopane, J. Camba, A.Venkatesh, N. Mulikita, D. Maunder and T. Savil. (2002). Improving Accessibility for People with Disability in Urban Areas. Proceedings of CODATU X, Lome
26. Yeo, R. (2001). "Chronic Poverty and Disability." Background Paper Number 4. Chronic Poverty Research Center. ADD Somerset
27. Yigitcanlar, T., Dodson, J., Gleeson, B., & Sipe, N. (2005). *Sustainable Australia: Containing travel in master planned estates* [Monograph]. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.589.7455&rep=rep1&type=pdf>. SEU (2003)

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