

Impact of Transportation Planning on Public Transportation Accessibility and Convenience. A Passenger Satisfaction Perspectives at Dar es Salaam, Tanzania.

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Abstract: *The accessibility and convenience of public transportation systems significantly influence the overall mobility and satisfaction of passengers in urban areas. This study aimed at investigating the impact of transportation planning on public transportation accessibility and convenience, focusing on the perspectives of passenger satisfaction in Dar es Salaam, Tanzania. Dar es Salaam, as a rapidly growing urban center, faces significant challenges related to transportation, with a burgeoning population and increasing demands for efficient and accessible public transportation. The study used both qualitative and quantitative methods. The study had a sample size of 100 respondents who were distributed with questionnaires as well as focus group and interview as data collection tools. Quantitative as well as qualitative data were analyzed through SPSS and Microsoft Excel. The findings indicated that that passenger satisfaction on the case of accessibility to the public transport hub differed according to the distance from their residence up to the point where there is public transportation stop or hub as the majority of respondents were not satisfied with accessibility issue as they were supposed to walk a long distance to access public transport hub. Effective route planning were found to easy the accessibility of public transportation. Likewise, in the case of convenience as the passenger satisfaction, most of the respondents pointed that fare is not affordable as public transport fare always increases when fuel price increase but when fuel price drops the fare still remain the same without also dropping making passengers not satisfied. The study recommends the government to establish an integrated transport system that seamlessly connects various modes of transportation, such as buses, and ferries, this integration will ensure efficient and convenient transfers for passengers, reducing travel time and enhancing accessibility.*

Keywords—Transportation planning, Public Transportation, Public Transportation Accessibility, Public Transportation Convenience, Passenger Satisfaction.

1. INTRODUCTION

Transportation planning involves the development and implementation of strategies, policies, and infrastructure to ensure efficient and sustainable transportation systems and it encompasses various aspects, including route planning, frequency of service, infrastructure development, fare structures, and more [1]. Transportation planning plays a pivotal role in shaping the quality of public transportation systems and their effectiveness in serving the needs of the community [2], therefore customer satisfaction, in this context, is a key metric to gauge the success of transportation planning efforts.

The importance of an effective and efficient public transportation system in contributing to human development cannot be overstated due to the fact that public transportation provides an affordable and accessible means of mobility for a wide range of people, including those who cannot afford private vehicles, the elderly, people with disabilities, and low-income individuals hence promoting social inclusion and reduces transportation-related disparities [3]. A well-designed public transportation system usually lead to the creation and maintenance of livable communities with high-density land use and by promoting compact, mixed-use developments,

public transport can reduce urban sprawl, minimize the need for long travels, and encourage vibrant urban cores. Moreover, reducing the number of private vehicles on the road, public transport normally eases traffic flow, which, in turn, reduces the environmental impact of congestion, including air pollution and stress [4].

Despite the benefits public transportation offers, there are still several challenges that hinder the effectiveness of public transportation systems for instance, many public transportation systems suffer from inadequate coverage, frequency, and capacity, making them unattractive to potential users which results into underutilization of public transit and perpetuates reliance on private vehicles. Furthermore, passengers anticipate to have safe, punctual, and comfortable public transportation services and if buses, trains, or trams are not well-maintained or reliable, people may be discouraged from using them. Improved public transportation contributes significantly to urban sustainability, social equity, and overall human development by enhancing the quality of life and reducing the environmental footprint of cities and this requires a well-designed transportation planning.

The impact of transportation planning on public transportation accessibility and convenience from a customer satisfaction perspective is a crucial area of study and practice within the field of urban planning, transportation engineering,

and public policy [5]. With the world's population increasingly moving to urban areas like in Dar es salaam it is now estimated to have a population of 7,776,000 [6] and in 2020 there were about 9,541 mini-buses (privately owned), notably known as “Daladala” voyaging in Dar es Salaam’s roads and by the end of 2019, there were about 30,000 tri-cycles known as “Bajaji” in the country—with 95 per cent of those Bajaji working as passenger’s vessels in Dar es Salaam[7], so due to this population, there is a growing need for efficient, sustainable, and accessible transportation systems and public transportation plays a pivotal role in addressing congestion, environmental concerns, and the mobility needs of urban residents [8, 9].

According to [10], public transportation agencies and authorities are increasingly recognizing the importance of customer satisfaction due to the fact that satisfied passengers are more likely to use public transit, and a positive public transportation experience can contribute to a reduction in the use of private vehicles. As per [11], customer satisfaction measures how well public transportation systems meet the needs and expectations of riders and it is usually influenced by various factors, including reliability, comfort, safety, affordability, cleanliness, and the overall quality of the transit experience.

Accessibility play fundamental role in public transportation planning, it ensures that transportation services are available to all members of the community, regardless of physical disabilities, income, or other factors and it usually includes considerations such as the location of transit stops, the presence of ramps and elevators, and the affordability of fares [12]. According to [13, 14], accessibility involves the proximity of transit stops or stations to where people live and work, as well as the presence of features such as ramps, elevators, or escalators for individuals with disabilities.

A study conducted by [15], found that passengers value transportation systems that are reliable, easy to use, and that offer convenient scheduling and routes, their study further considered factors like the frequency and reliability of services, ease of fare payment, information availability, and connectivity between different modes of transit (e.g., buses, trains, subways, and Bajaj) to be essential factors on public transportation planning. A well-designed public transportation system usually leads to reduced traffic congestion, lower carbon emissions, and increased economic development in areas well-connected by transit.

A research carried out by [3, 16], found that satisfied passengers are more likely to use public transit, and a positive public transportation experience generally contributes to a reduction in the use of private vehicles. So transportation planners must consider a range of factors to improve accessibility and convenience and this includes studying ridership patterns, conducting surveys, analyzing demographics, and coordinating with other urban development initiatives to ensure that public transportation effectively serves the community.

Encouraging the use of public transportation over private vehicles as per [17] was found to help in reducing greenhouse gas emissions and at the same time alleviating traffic

congestion from which planning decisions prioritizing these goals usually leads to a more sustainable and convenient transportation system. A research conducted by [18] found that, promoting the use of public transport, non-motorized transport, and electric cars normally reduces significantly greenhouse gas emissions in cities and in addition, employing the overcrowding charge and refining city planning by encouraging mixed-use development and walkability also contributes to this goal. Additionally, endorsing telecommuting was also found to be a nominal approach of reducing the necessity for car travel, which in turn reduces greenhouse gas emissions.

Ensuring that public transportation systems are accessible and convenient for passengers is essential for promoting social inclusion, reducing congestion, and mitigating environmental impacts. However, despite its importance, public transportation systems often face challenges in meeting passenger expectations regarding accessibility and convenience. The effectiveness of transportation planning in addressing these challenges is a critical concern, particularly from the perspective of passenger satisfaction. There is a pressing need to comprehensively investigate and understand the issues surrounding the impact of transportation planning on public transportation accessibility and convenience, with the aim of improving passenger satisfaction.

The aim of this study is to investigate the role of transportation planning in enhancing public transportation accessibility and convenience, ultimately leading to increased passenger satisfaction. The study also aims to examine the impact of demographic factors, and economic considerations on transportation planning decisions, with the goal of providing recommendations and insights for policymakers, transportation authorities, and urban planners to create more effective and passenger-centric public transportation systems.

The main contributions of this study is to fill a crucial gap in the literature by examining public transportation planning through the lens of passenger satisfaction. Its contributions range from a better understanding of passenger needs to actionable recommendations for creating more inclusive, convenient, and efficient public transportation systems, with the ultimate goal of enhancing the quality of life in urban areas.

The remaining part of this paper is organized as follows: Methodology is in section two, while results and discussion is in section three and finally conclusion is presented in section four.

2. METHODOLOGY

The study employed a mixed-methods research design, combining both quantitative and qualitative research methods. Structured surveys were administered to 100 public transportation passengers to gather quantitative data on their satisfaction levels, preferences, and demographics, the surveys were designed to assess aspects of accessibility, convenience, and overall satisfaction. In-depth interviews and focus groups were conducted with a subset of survey respondents to capture qualitative insights and respondents were encouraged to provide detailed accounts of their

experiences and suggestions for improvement. Qualitative data from interviews and focus groups were transcribed and analyzed thematically while quantitative data were analyzed through using SPSS 26.0 (Statistical Package for Social Science version 26.0) and Microsoft Excel.

3. RESULTS AND DISCUSSION

In this part the results and discussion of the findings are presented, they begin with simple demographic information of respondents followed by main indicating factors in the form of usage pattern of travel, accessibility and conveniences about passengers’ satisfactions.

3.1 DEMOGRAPHIC INFORMATION

This sub section presents general information of respondents such as age, gender of the passenger, marital status of passengers and location where passengers are

Table 1, shows the age of the respondents who were approached with questionnaires and interviews and as observed, it was found that the majority about 40% were aged between 25 and 35 as this is the most productive group who were either employed or they were dealing with business activities at the city center so they were frequently required to go let say at Kariakoo to buy some materials in wholesale and sell them in retail way at their places that is why they were majority. But, the respondents who were aged between 13-25 in which their percent were only 25, were mostly students either in primary level education or secondary level of education so they were supposed to travel daily for the sake of attending school periods and they were supposed to wake up early as most of them lamented that public transport tended to ignore them because of their ability to pay students transport fare which most of the bus conductors and drivers

Variable	Attribute	Frequency (n=100)	Percent (%)
Age	13-16	25	25
	17-25	25	25
	25-35	40	40
	Above 35	10	10
	Total	100	100
Gender	Male	68	68
	Female	32	32
	Total	100	100
Marital Status	Single	30	30
	Married	62	62
	Divorced	8	8
	Total	100	100
Location	Mbagala	35	35
	Mbezi-Kimara	45	45
	Pugu	5	5
	Tegeta	10	10
	Kigamboni	5	5
	Total	100	100
Monthly Income	< 100,000/=	20	20
	100,000-300,000/=	28	28
	300,000-500,000/=	42	42
	> 500,000/=	10	10
	Total	100	100

residing. All these information are shown in Table 1.

3.1.1 Age of the respondents

thought to be small enough compared to adult fares. While those respondents who aged above 35 were found to have the capability to drive their own private cars but in some few circumstances, they use public transport because of either breakdown of their cars or some unavoidable emergencies.

3.1.2 Gender of the respondents

Most of the respondents who were always on travel were found (which was about 68% of the total respondents) to be male as shown in Table 1, as mostly they cited that they were responsible for day to day buying of the goods to be sold on their shops and those responsible to sell the goods at home were female counterparts that is why there were only 32% of the total respondents who were female, additionally most of the females expressed a greater concern for personal safety, leading them to prefer alternative transportation modes like motorcycle or famously known as motorcycle guys (“*bodaboda*”) or opts to stay at home waiting for male counterparts to bring the required goods to be sold for the time interval until they are finished or about to be finished. In addition, responsibilities related to childcare and household duties also influenced the female transportation activities as they thought it were their responsibility to stay at home and take care of their children and other home activities rather than having to travel to city center (Kariakoo) or Kivukoni (where there is a fish markets) to buy the required goods. A part from business activities carried by those passengers who travels daily, there is also a group of employees who have attends their working station daily and still it was found that most of the respondents were males rather than females and this also applies to primary or secondary school students in which most of the students were found to be boys rather than girls and when one of the respondent was asked about this situation, his answer was clear that female students were in advantaged group to be carried by motorcycle guys (“*bodaboda*”) guys rather than male students who had to fight himself.

3.1.3 Marital status of the respondents

Most of the information collected from the respondents indicated that marital status plays an important role on the use of public transportation like the information in table 1 which shows that the married couple were very comfortable on the use of public transportation compared to unmarried couples and as shown there were 62% of the respondents who were married and mostly used public transportation to do their businesses on daily basis like sometime going together to work if they are working on the same place due to the fact that public transport was seen to be more cost-effective than maintaining multiple private vehicles, especially in urban areas where parking and fuel costs are climbing to large extent. Furthermore public transport are preferred by married couples because of avoiding traffic jams along the way which may cause delay to reach the work place and this is mainly for the couples who works together or their offices are nearby. For the couples who are not employed, it was found that most of them especially male were busy with town trips using public transport because they thought they are cheap choice of transportation compared to private transportation for the sake of buying goods in

wholesale and bringing to their housewives for selling in retail in order to gain higher profit and this was echoed by one respondent who said that:

“...my wife is housewife because she is not employed, so I opened the shop in the form of kiosk in our street which she sells small goods like sim recharge vouchers, soda, beers, rice and the likes. Because she cannot be capable to wake early in the morning to go to Kariakoo or Kivukoni to find such kind of goods frequently, I use my time to bring those goods to her so that she might use that time to do other activities like house works and taking care of the family that is why I always come to town and the kind of transport I use is generally public transport in the form of DalaDala or sometimes Bajaj which is very cheap... ”

The above narration was the married respondent’s comment, but not only married couples are busy with town trips using public transport but also unmarried respondents albeit few who were also using the same kind of transport like one respondent argued that she frequently use public transport to town trips because of its price compared to the cost of using private transportation especially in city center but then she continued that using public transport comes with the cost of not enjoying the freedom like having a comfortable seats as sometimes she used to stand from in a crowded environment from Gongo la Mboto up to Kivukoni but all this because she needed to save some amount which she added to her business.

3.1.4 Location of the respondents

Another demographic factor considered on this study is the location of the respondents from their home locations up to the bus stops in city centers and the chosen locations were Mbagala (Kilwa Road), Pugu which covers also areas like Gongo la Mboto (Nyerere Road), Mbezi-Kimara or generally Morogogo Road, Tegeta which covers Bagamoyo Road and finally Kigamboni. As shown in table 1, a large number of respondents were from Mbezi-Kimara which covers all areas along Morogoro road like Kiluvya, Kibamba, Kimara and the likes in which 45% of the total respondents were coming from this location a part from this, the data collection were carried out at Gerezani where Bus Rapid Transit (BRT) have its final stop for Kariakoo area and Ferry where BRT has also its final stop for respondents carrying their activities around Posta area and Kigamboni. For the respondents from Mbagala area which was about 35% of the total respondents usually make daily town trips using Dala Dala as there is no working BRT along that road albeit it was opened for few days during SabaSaba exhibition and after exhibition was closed the BRT services was also closed, so

the residents along this Mbagala locations suffers a lot to use public transport which makes most of them to use private transportation, like one of the respondent was quoted saying that:

“...I am living at Mtoni kwa Azizi Ali with my family and I’m working at Posta as a Network Engineer at BOA bank, so my work requires me to arrive early in the morning around 07:30 am but because of the transport problem I have to wake up at 04:00 and start my travel but because most public transport buses or Bajaj do not start their journey at Mtoni kwa Azizi Ali, I’m always missing seats because the public transport buses arrives with full or crowded chances which sometimes makes me to miss the travel and arrive late at work, thus me and my wife have decided to frequently use our private transport up to Gerezani where I park my car around the areas and from there I use BRT up to my work place which is Posta and this is my daily routine for six week days...”

The same sufferings residents along Mbagala get also applies to most part of Dar es salaam where BRT have not started their routes and those areas includes Nyerere road areas, Kigamboni areas and Bagamoyo road areas.

3.1.5 Monthly income of the respondents

Monthly income of the respondents are clearly displayed in table 1, and as it can be shown the majority of the respondents which was about 42% of the total respondents were found to have the middle monthly income between 300,000/= - 500,000/= indicating that most working group are responsible for using public transport compared to others like those whose monthly income are less than 300,000/= combined because those ones are responsible for either guarding jobs or small businesses which sometimes do not prompt them to frequently use public transport because of the nature of their income, like one respondent when questioned about the impact of monthly income on the use public transport he directly said that:

“...my monthly income is around 150,000/= and I live at Vingunguti area along Nyerere road and I work at Kariakoo (Congo street) as a guard in one of the Mobile Phone shop, so I use public transport rarely because of the nature of my income as the public transport fare from Vingunguti to Kariakoo is around 500/= per one trip and if there is a return then it is 1000/= per month is

30,000/= remember from my salary I have not removed my meals when am at work plus the money required to take care of my family, so if I count on all these expenses I keep myself away from using public transport daily rather I use my private transport (walking) but if it happen I got an emergency then there is no way I resume using public transport. So in this case my monthly income determines which transport I prefer...”

But for those respondents whose monthly income were above 500,000/=, used public transport rarely as most of them were capable to own their own vehicles which made them to not frequently use public transport but when the circumstances occur then there is no way to escape public transport for example when their vehicles gets breakdown and they are supposed to have town trip, as one of the respondent who directly was quoted saying:

“...I was going to work with my own car but after reaching Buguruni, my car got breakdown as the engine was overheating so I decided to call mechanic guy to fix my car but it seemed not possible to fix within short time, so I decided to leave it to the mechanic and then opted to use public transport and as you know when you start your trip from Buguruni to Kivukoni all seats are almost full so you have to stand from the beginning up to Kivukoni which is very unsatisfactory and uncomfortable...”

From above narrations it can be summarized that monthly income has a great influence on the decision of whether to use public transport or private transport since people with high monthly income are less likely to use public transportation compared to those with low monthly income who have no alternative other than using public transport.

3.2 Accessibility as a Passenger Satisfaction Factor

Accessibility is a fundamental factor in public transportation planning as it directly impacts the satisfaction and inclusivity of passengers. In this section, the researcher distributed the questionnaires together with interview and focus group questions regarding the accessibility services as passenger’s satisfaction factor. The distributed questions were categorized in terms of access to transportation hubs and route planning.

3.2.1 Access to transportation stations or stops

Access to transportation station from home is very important as it removes some inconveniences regarding the distance needed to walk up to bus stop or to the point where the passenger can access the public transport. Figure 1 for example shows the proximity of the public transport here bus stop whether it is very far from the passenger’s home or nearby and as indicated the majority of the respondents about 35% of the total respondents agreed that they needed to walk for a while to access bus stand or bus stop which means they didn’t need another means of transport to access the transport hub but they needed to waste some time to reach like one of the respondent who was quoted that:

is either Kimara or Ubungo which to my side causes uncomfotability or unsatisfactory service for both cases firstly the distance and secondly the seat miss... ”

But in some locations the public transport access is very nearby up to the point there is no need to walk for a long distance and this is evidenced by 25% of the respondent who agreed that most bus stops are nearby their places in which they walk for a short time before accessing the bus stop like one respondent responded that:

“...my home was very far from the bus stops and I used to walk for almost 20 minutes to

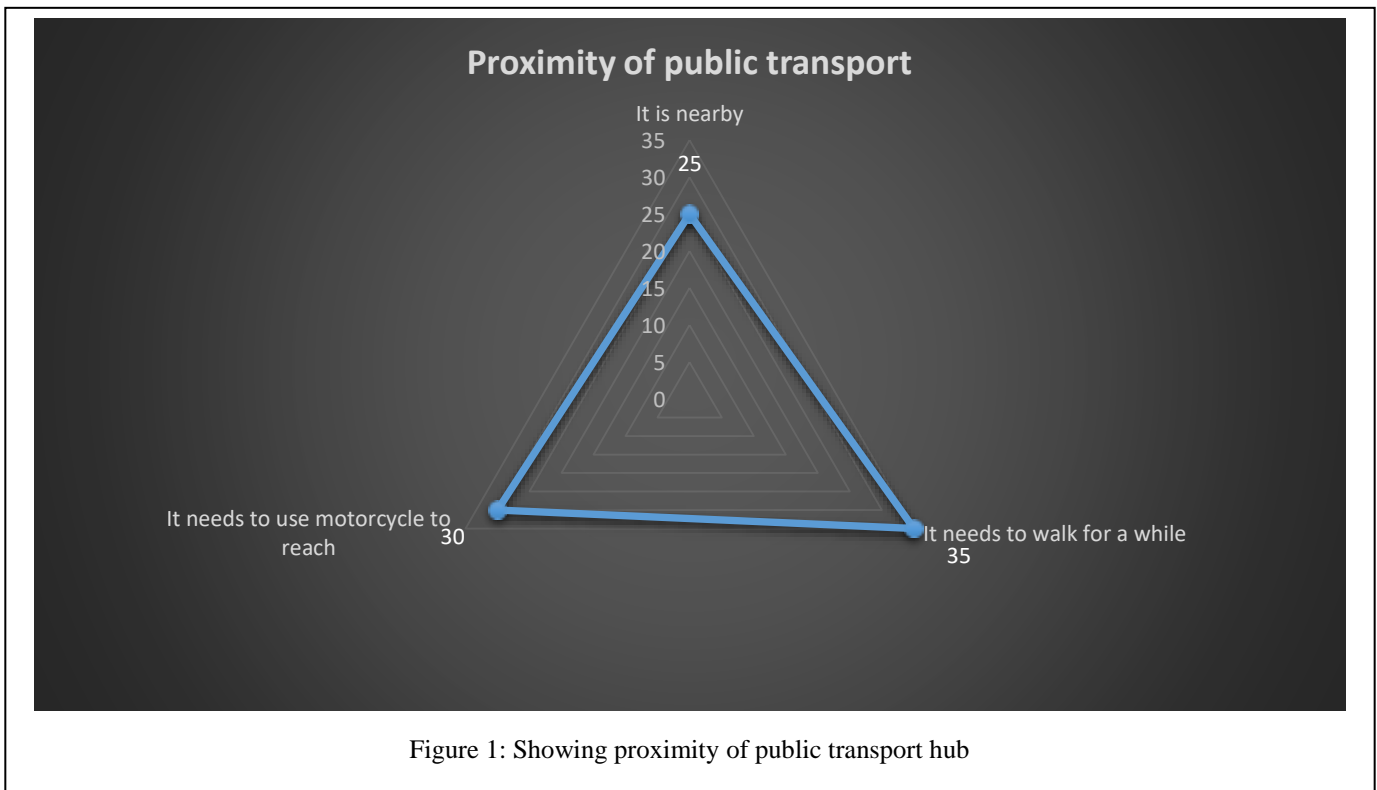


Figure 1: Showing proximity of public transport hub

“...I live at Kiwalani Minazi Mirefu whenever I want to go to Ubungo or Kimara I’m required to walk for almost 30 minutes in order to go to Tazara or Mchicha where I can get direct public transport moving to the mentioned location which always makes me be tired even before I started the journey and because Tazara or Mchicha are not starting points for buses then sometimes you may find the min buses (Dala dala) are crowded so you may miss the seat and then stand from that point to the last stop which

access the bus stop but thanks God in Magufuli era and during the streets road planning, it happened the road passed outside my house and later on there was an introduction of bus routes for example BomBom to Tandika which mostly passes on the streets this made easy to access the public transport without wasting time as you cannot too much time walking to find the bus stop...”

There are also some places in Dar es Salaam where the bus stops or transportation hubs are very far to the extent that passengers need to use another transport in order to reach

the public transport hub or stop like during interview with one of the respondents he said that:

“...my residence is at Mpiji Magohe nearby Mkandawile secondary School where the distance from my place up to the public transport hub is very far which always prompts me to pay 1000/= for motorcycle to pick me to the bus stand making

is its accessibility to the passengers.

3.2.2 Route planning to satisfy passengers

One of the important aspect of passenger satisfaction is the public transportation route planning which enables passengers to access bus stop easily without using much time to reach the transportation hubs. Well-planned routes ensure that public transportation is accessible to a broader population, including those living in remote areas like Kivule

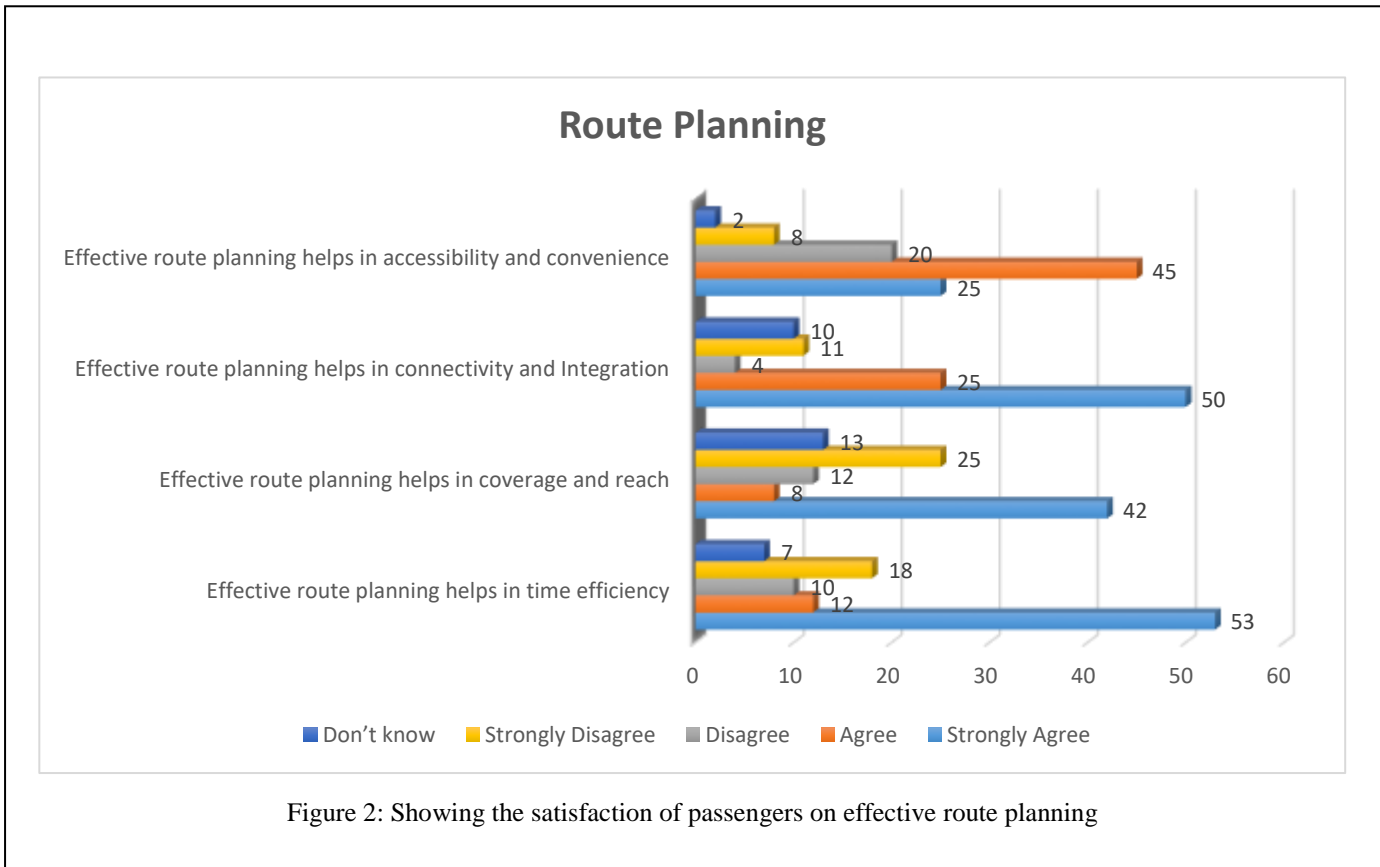


Figure 2: Showing the satisfaction of passengers on effective route planning

unnecessary costs which could have been reduced only when the transport bus stop could have been close to the residents...”

As per above comments, it can be observed that passenger satisfaction on the case of accessibility to the public transport hub differs depending on the distance from their place up to the point where there is public transportation stop or hub as the large number of respondents were not satisfied with accessibility issue so the government and transportation planners needs to come up with the solution which will satisfy both group like during Magufuli era as President many streets were accessed with tarmac roads which prompted the beginning of the routes passing on those streets. Findings from this study concurs with the findings from the study carried out by [19], who concluded that one of the biggest satisfaction factor on the public transportation

or Kimara Bonyokwa or with limited mobility. Convenient routes with well-connected stops or stations usually makes the system more user-friendly, encouraging more people to opt for public transport over private vehicles. As shown in Figure 2, effective route planning in the case of accessibility, it was found that 45% of the respondents agreed that effective route planning to have helped in accessing the bus stops as when route is well planned then it will be very easy to reach to the bus stops compared to the unplanned route for example one of the respondent said that:

“...before the route was planned to pass in our street, we used to have a long walk towards bus stop but after by then Sumatra granted license to have route which passes in our street then it became easier for us to

reach the bus stop which eventually made us to be satisfied with the route planners...”

But another respondent who was among 25% of the total respondents who strongly agreed that effective route planning helps in accessing public transportation hub as when well-designed route passing in residential areas minimizes time wastage for the passenger to walk to find the transportation hubs hence making the passengers satisfied with the planners. Even though some passengers were satisfied with effective route planning in accessibility, there are other passengers who were totally dissatisfied for example 8% of the respondents were totally disagreed with planning citing that even though roads pass in their streets but still there are problems on the number of buses or Bajaj passing on their streets like one respondent said was quoted that:

“...my streets just got tarmac road early this year and after constructing tarmac road LATRA commissioned the route which pass in our street but the problem is the min buses which passes in this road most of them are worn out to the extent that sometime you may get rust while stepping out of the vehicle, sometimes you may wait for almost two hours without any public transport passing in your stop, so for me I strongly disagree that having route planned due to accessibility helps to satisfy passengers no...”

Effective route planning also helps in connectivity and integration as shown in Figure 2, in which the majority of the respondents which was about 50% strongly agreed on the issue of connectivity and integration in relation to effective planning for instance it is very easy for passengers from Kigamboni area to reach Mbezi-Kimara through connecting point of Kivukoni where BRT has a bus stop there and they have their buses going to Mbezi, the same fact about those passengers coming from Gongo la Mboto and wanting to go to Kigamboni they have to take the bus from Gongo la Mboto and land to Kivukoni where they will get the ferry to Kigamboni and from there they may get min buses to complete Kigamboni trip. When interviewed, one of the respondent responded that:

“...I always do my jobs at Kibaha but I live at Mbagala, because of effective route planning, connectivity of public transport has made my journey to be easy because I always use buses going from Mbagala rangi tatu to Mbezi and from there I take the buses going to Kibaha so generally I use only two buses from Mbagala to Kibaha which sometimes minimizes transport cost

but when I need to save time I use three buses in the sense that one from Mbagala to Gerezani where I board BRT buses up to Mbezi in order to escape traffic congestion at Buguruni and Tazara then from Mbezi because there are no jams I board the buses going to Kibaha easily, so generally this route planning helps me a lot in terms of connectivity...”

But a part from those who strongly agree that effective planning helps in connectivity and integration, there are other respondents about 11% of the total respondents who strongly disagree on that notion by saying that route planners were needed to plan only one route from let say Gongo la Mboto to Kibaha instead of having connectivity like one respondent said:

“...to have many connectivity is a wastage of time and sometimes is like gambling because myself I live at Pugu but I frequently go to Tegeta to work so this requires me to take two buses one from Pugu to Mawasiliano and other from Mawasiliano to Tegeta but sometimes you get seated from Pugu but after reaching Mawasiliano and when in a hurry you find the bus which is already to take off to be full so I have to either wait for another car to be full or use the crowded car which in turn makes some disturbance, but when there was direct route from Pugu to Tegeta such kind of disturbance would disappear and using public transport will be satisfactory and comfortable...”

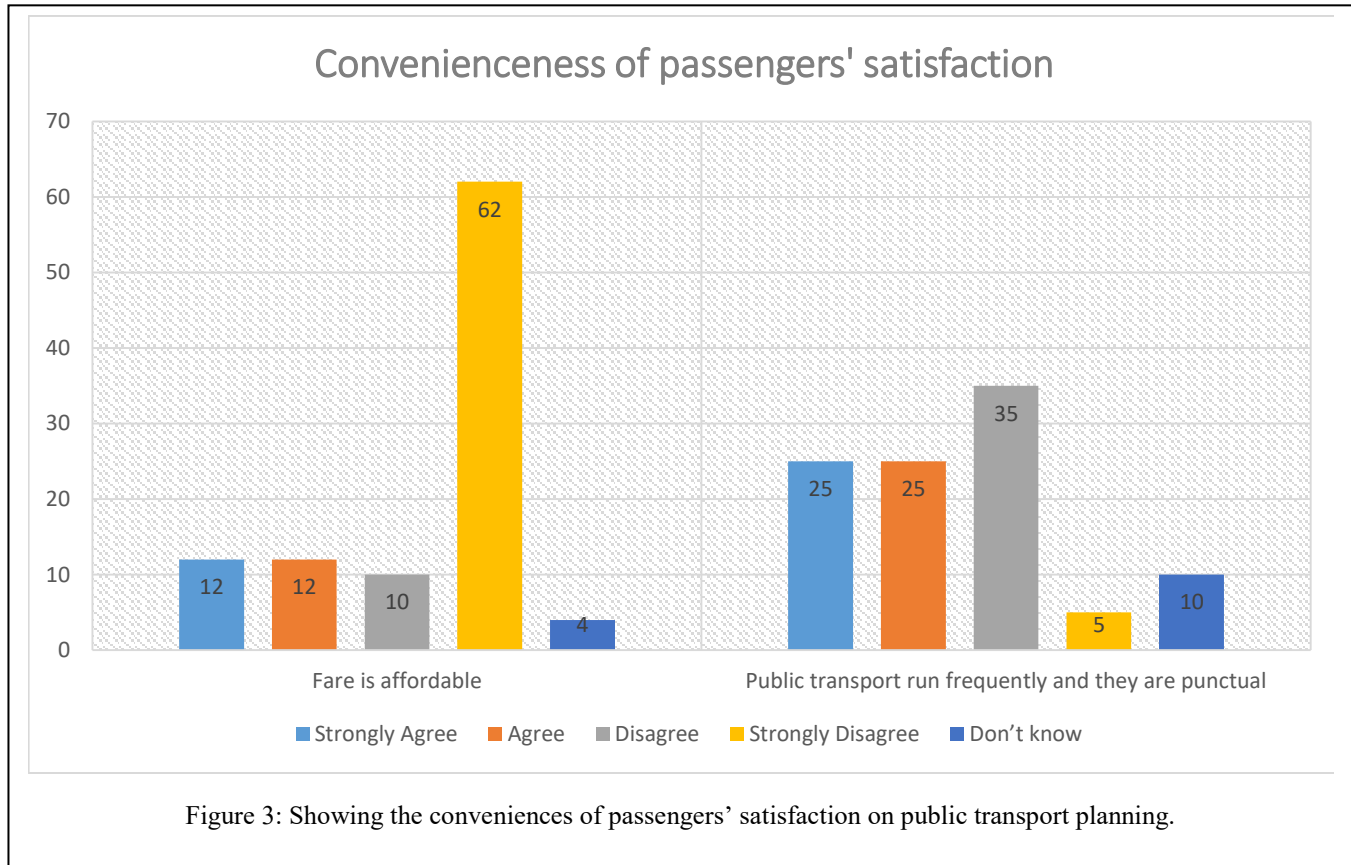
In terms of time efficiency it was found that the majority of respondents about 53% of the total respondents strongly agreed on the effective route planning to be helpful in time efficiency as it ensures that the travel time is optimized, reducing delays, minimizing unnecessary stops, and avoiding congested areas and on top of that passengers are more satisfied when they rely on public transportation to get them to their destination on time and without unnecessary delays. Like one respondent said:

“...the introduction of flyover has to some extent helped in optimizing time in the sense that the unnecessary traffic congestion on the intersection points like Tazara intersection and Ubungo intersection have reduced waiting time in the queue for me who comes from Temeke and frequently going to Mbezi, so the introduction of those

flyover to me somehow has reduced travel time...”

In terms of coverage and reaching to any area, majority of the respondents about 42% of the total respondents strongly agreed that effective route planning played an important role on satisfying the passengers who resides in remote areas of the Dar es salaam like those living in Mtoni-

So generally, effective route planning helps in ensuring the satisfaction of passengers using public transportation, because authorities always creates a more efficient, accessible, and user-friendly system that meets the diverse needs of the community and contributes to overall satisfaction among passengers. The results from this part resembles with the findings from Shbeeb [20], who found that,



Mtongani or Kivule where it was un reachable before extending route coverage to those places. On extending coverage of routes it ensures that a diverse range of destinations is accessible through public transportation and this is particularly important for meeting the needs of a diverse population, including those living in suburban. So the ability to reach various destinations easily contributes to overall passenger satisfaction. Like one passenger said:

“...before extending the road to Kijiwe Samri in Kiwalani to tarmac level the public transport was used to be luxurious as many buses or min buses used to end their route up to Vingunguti so I was supposed to walk up to Vingunguti in order to board the min bus which was time wastage but when the route was extended to Kijiwe Samli then it became luxurious hence now I am satisfied with route coverage and extension...”

there is a great relation between passenger satisfaction and route coverage and extension in which he concluded that passengers residing in remote areas of the City centre were very happy after their areas were connected with roads going to City inn tarmac level.

3.3 Convenience as a Passenger Satisfaction Factor

Passenger satisfaction in public transportation is closely tied to convenience and when public transportation systems are convenient and user-friendly, they become an attractive alternative to private cars, reduce traffic congestion, and promote sustainable urban living and this, in turn, leads to higher ridership and more satisfied passengers. The more convenient the transportation system, the more likely passengers are to use it regularly. In this subsection, convenience as satisfaction passenger factor was measured in terms fare affordability and whether public transportation vessels run frequently and they are punctual or not. As shown

in Figure 3, in the case of fare affordability as the cause of conveniences of passengers' satisfaction, it was found that the majority of the respondents 62% of the total respondents strongly disagreed that fare is affordable and they condemned Land Transport Regulatory Authority of Tanzania (LATRA) for not controlling the price of oil which makes the transport fare to explode for even short distance travel and they blamed the authority for keeping fixed fare even though someone doesn't go up to the end of the route but still required to pay the same fare as the one ending with the car and this was echoed by one respondent who condemned that:

"...authority dealing with transport planning is not serious in terms of fixing transport fare because how possible the one who drops after two stops has to pay the same fare like the one who ends with the car, this must be checked out and regulated. Also this tendency of upping fare immediately after fuel price changes also bores a lot as some fuel stations had still reserves of the oil they kept with the old fuel price but when the fuel price ups then the stations also changes their prices but also when the fuel in the world market drops no transport buses or Bajaj who drops the transport fare making this unfair and I'm not satisfied at all with this. So generally I am not satisfied with the transport fare..."

Some other respondents 12% of the total respondents shown to strongly agree with the affordability of fare when using public transport as they cited that running those buses requires high cost including maintenance cost and they went far by comparing when they use private transport to the point they are going will they have used the same price like the one they pay for public transport? For instance one respondent was quoted saying that:

"...I have the car which I use rarely when going to work because of the cost of running it because I live at Kigamboni and I work at Mlimani City, when I decide to use my car it incurs me a cost of approximately 10,000/= from Kigamboni to Mlimani City this only for fuel plus ferrying from Kigamboni to Kivukoni but when I decide to use public transport, I barely use only 3200/= so how can someone convince me that public transport is not affordable? So for me I am very satisfied with the public transport fare..."

4% of the respondent were found to know nothing whether the transport fare is affordable or not and they were

having strong reason that if someone want to know the affordability of fare is when there is a boycott of those public transport, like one respondent said:

"...I used to blame government for not scaling the public transport fare to move with the reality of current life until one day when it occurred boycott in which almost all public transport vehicles parked and the only available transport was motorcycle (bodaboda) who that day upped up their fare for example from Tegeta to Mwenge public transport fare is 500/= but that day bodoboda were charging 4000/= and there were no option rather than to pay so that I can attend my job and from that day up to now I respect a lot public transport and I am more than satisfied with their service that is why I say I don't know whether their price is affordable or not..."

For the case of public transport running frequency and being punctual, it was found that 35% of the total respondents disagreed that public transport run frequently and they are always punctual because in some areas it sometimes takes almost one hour without any public transportation crossing on that area so in that case it cannot be argued that public transport are punctual or they run frequently and this was seconded by one respondent who was quoted:

"...in my location which is Kitunda the public transport are like gold in the sense that you may sometime get lucky and find the bus at the station or stop and when you miss that one then you have to wait until another car return and this one have to wait until it is full which is wastage of time and in terms of punctuality, there is no such thing in my area because if we passengers are there then why waiting for others whom you don't know whether they are coming or not, so generally myself I'm not satisfied at all for the case of frequency of public transport to appear on the bus stop as well as punctuality..."

Some other respondents like 25% agreed and strongly agreed that public transport run frequently and they are punctual in some areas like Mbezi where there is public transport for 24 hours and there are many cars so the frequency of cars entering and leaving the bus stops is high making it satisfactory to passengers and a part from frequency of running there is punctuality in which many public transport cars do not wait until the passengers are full as they compete to find the passengers on the way for example when one car is

at the station with passengers and at the same time when another car comes the one which was at the station start to move giving the chance for the arriving car. So this makes even the waiting time at the station to be minimized and at the end the passengers get satisfied as per respondent X who echoed:

"...at Buguruni, there are 24 hours public transportation to any area for example if I want to go to Kariakoo there are many min buses coming from Vingunguti, Gongo la Mboti and Tabata so the frequency of vehicles here is high and there are no time wastage because of the competition of buses so this makes me to feel very comfortable and satisfied wherever I want to go it is easy for me because this stop is multipurpose and is at the junction of every location in Dar es Salaam..."

10% of the total respondents responded that they know nothing about the frequency of public transport running and their punctuality because for them what they need is only to reach to the destination they are going and they are ready to wait for some time until the public transport arrives and some said they are very happy if the min buses or Bajaj arrives with empty passenger as they feel satisfied to choose their preferred seats comfortably and this satisfies them.

In summary, convenience is a multifaceted factor that significantly impacts passenger satisfaction. Public transportation authorities must create a more user-friendly and efficient system that meets the diverse needs of passengers, ultimately leading to higher levels of passenger satisfaction and increased ridership. Given the diverse nature of public transportation systems, providing convenient and user-friendly services is essential for ensuring passenger satisfaction.

4. CONCLUSION

From the findings it was found that passenger satisfaction on the case of accessibility to the public transport hub differs depending on the distance from their residence up to the point where there is public transportation stop or hub as the majority of respondents were not satisfied with accessibility issue as they were supposed to walk a long distance to access public transport hub albeit few respondents who were satisfied with accessibility as they were residing very close to the public transportation hub and these are the ones who were satisfied with accessibility issues. Furthermore, effective route planning were found to ease the accessibility of public transportation as most respondents agreed that for the roads which are passing on the streets like in Kiwalani, it is very easy to get public transport as min buses or Bajaj just passes on their doors thus reducing waiting time as passengers need

to walk for a long time to access public transportation stop or hub. Likewise, in the case of convenience as the passenger satisfaction, most of the respondents pointed that fare is not affordable as public transport fare always increases when fuel price increase but when fuel price drops the fare still remain the same without also dropping making passengers not satisfied albeit few respondent who agreed that public transport fare is affordable by pointing that running public transport min buses or Bajaj is expensive so the fare need to be balanced in order to enable the services. Lastly, it was found that in some part of Dar es Salaam, there is high frequency and reliability of public transport like Kimara and Buguruni causing passengers to be more than satisfied but in some places there is very low frequency of the same service especially in the places like Kitunda hence causing unsatisfactory among passengers. However, despite notable progress, the research also identified certain persisting challenges which include issues related to overcrowding during peak hours, maintenance gaps in infrastructure, and limitations in last-mile connectivity.

5. RECOMMENDATIONS AND FUTURE WORK

The study would like to recommend the following:

- The government should establish an integrated transport system that seamlessly connects various modes of transportation, such as buses, and ferries, this integration will ensure efficient and convenient transfers for passengers, reducing travel time and enhancing accessibility.
- The government or authority dealing with transportation should ensure that the transportation system is accessible to all individuals, including those with disabilities, this shall involve incorporating features such as wheelchair ramps, audible signals, and tactile paving at transportation hubs and on public transportation vehicles.
- The government should invest in the development and maintenance of transportation infrastructure, including roads, bridges, and terminals, to ensure smooth traffic flow and reduce travel time. Improving the condition of roads will significantly enhance the convenience of public transportation.

In the future research must be carried out on:

- Conducting a comprehensive study to analyze passenger travel behavior and patterns in Dar es Salaam, focusing on factors influencing mode choice, travel frequency, and route preferences.
- Investigation of the role of policy and governance in shaping the accessibility and convenience of public transportation in Dar es Salaam.

- Conducting an in-depth analysis to understand how improved public transportation accessibility and convenience in Dar es Salaam affect the socioeconomic status of different communities.

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