



TOWARDS MAKING NAIROBI A WALKING FRIENDLY CITY

By Evaristus M. Irandu

INTRODUCTION

Walking is dominant in developing cities in the Global South and is a low carbon means of transportation (Banister, 2005; Conservation Law Foundation, 1995; SIDA, 2020). However, the concerns of pedestrians are often ignored (Lukenangula, 2017; SIDA, 2020). Due to the rapid increase in ownership of motor vehicles and growing need to satisfy rapidly growing urban population, motorised transport systems are prioritised. Consequently, the needs of pedestrians who mainly use non-motorised transport infrastructure and urban streets are ignored (Banister 2005; Conservation Law Foundation 1995).

According to the UN-Habitat (2013), urban streets play many roles apart from serving as links between various destinations. They act as common spaces for various users, including diverse gender, age, and socio-economic groups, who can engage in social, cultural, political, and economic activities (UN-Habitat, 2013). In any city or urban centre, streets play an important role in enabling residents to move freely from one part of the city to the next, meet, conduct business, socialise, and relax.

In recent years, cities in Kenya like in many other African countries have experienced a rapid increase in motorisation rate (Irandu, 2021). This has led to traffic congestion, air pollution and unsafe streets. As city authorities plan to accommodate increasing motorised traffic, vehicles take up more and more public space. This leaves little or no space for social and economic activities that contribute to sustainable urban development. Cities in Kenya face unprecedented challenges in addressing the surging motorisation rate. (Irandu, 2021). The overall objective of the study was to discuss strategies to make streets in Nairobi's CBD more pedestrian friendly. This involved a) establishing the category of the users of the streets in the CBD b) examining the level of education of street users c) establishing the reasons for making streets in the CBD people friendly) analyzing modal choice and formulating appropriate strategies to make the City of Nairobi people friendly. The findings of the study may assist policy makers in formulating strategies to ensure a more walking friendly and environmentally sustainable city.

Photo credit: Nicholas Gray, Nairobi, Kenya, 2022. <https://unsplash.com/photos/a-group-of-people-walking-down-a-street-cJezwjFJlJq>.

LITERATURE REVIEW

Importance of pedestrianisation of urban streets

Today, about 50% the global population lives in cities. By 2050, more than 70% of the world's population will be urbanised (UNFPA, 2007). Urbanisation in developing countries will be the driving force behind this global demographic change. It is projected that by 2050, developing countries will accommodate 80% of the global urban population of about 6 billion (UN- HABITAT, 2008). This is likely to exacerbate the transport problems already experienced in larger cities such as Shanghai, New Delhi, Cairo, Nairobi and Mexico City among others.

Urban sprawl experienced in these cities is likely to present insurmountable challenges in formulating strategies to promote sustainable transportation. This has led to adoption of walkability as a core urban design element because of the many benefits it confers to urban residents. Walking is active mobility and is considered the first and last mode used in any travel (Tufa, 2019). Walking is healthy and very environmentally friendly (AASHTO, 2004).

Each year, a large number of pedestrians lose their lives on the public roads. Many of them leave their homes daily to school, work, places of worship, and homes of friends never to return. Globally, pedestrians constitute a greater number of all road deaths, and in some developing countries, this proportion is high. Inadequate pedestrian walkability infrastructures cause more people injuries in traffic-related crashes while walking and some of whom become permanently disabled. These incidents cause much suffering and grief as well as economic hardship for families and loved ones (Tufa, 2019).

Although previous studies seem to suggest that pedestrians are overrepresented in road traffic crashes and fatalities in Nairobi (Khayesi, 1997; Gichuhi, 2007; Ogendi et al, 2011), there is lack of accurate information on actual road traffic crashes involving them and details on the nature their injuries. Ogendi et al, (2013) conducted a study on the road traffic crash trauma cases in Nairobi City and established that about 59% of road trauma admissions by road user categories at the Kenya National Hospital (KNH) in Nairobi were pedestrians.



Photo credit: Michael Njoroge, Nairobi Traffic, 2022. <https://unsplash.com/photos/a-busy-street-full-of-traffic-bHOOp42Od3o>

According to (CDKN, 2021), pedestrians accounted for an average of 64.5% of traffic fatalities in Nairobi from 2015-2019. This is consistent with several studies (NTSA, 2020) and the broader literature showing that Nairobi city's design is largely not people-centric, and the greatest danger to a pedestrian's life is the car.

Creating improved safety and access for pedestrians requires providing safe places for people to walk, as well as implementing traffic control and design measures, which allow for safer street crossings and attractive sidewalk spaces. Rapid urbanisation has led to urban transport crises and urban sprawl faced in many cities of the developing countries. This has called for transport planning to provide the infrastructure to facilitate this nature of movements (Givoni and Banister, 2010).

Although authorities have been switching from one motorised mode to another in an attempt to reduce traffic congestion in urban areas, yet solution has never been found (ibid). Pedestrians and other urban street users have their own rights such as safe walkways and pollution free environments. These are summarised in The International Charter for Walking (<https://walk21.com/wp-content/uploads/2020/02/walking-charter-document-2020.pdf>). It should be appreciated that people have the right to walk, access, and use urban public spaces. While cities of the developed world have plans to transform arterial streets to accommodate pedestrians and further to create liveable streets, cities of the developing world are more preoccupied with building arterial streets for motorised vehicles, thereby ignoring the needs of pedestrians that constitute the biggest users of streets (UN-Habitat, 2013).

However, growing evidence and international consensus claims that prioritisation of motorised vehicles is a short-term approach that temporarily eases traffic flow, but also stimulates growth in vehicle numbers and use that will again result in more congestion (Fig. 1). According to the ITF (2012), walking is not only an attractive alternative that complements motorised transport, but also an important response to climate change emergency, fossil fuel dependence, pollution, maintaining mobility for an ageing population, health and managing the explosion in motorisation expected in low-income and middle-income countries. Hence, pedestrianisation of urban streets is beneficial to urban residents.

Pedestrian-only streets should be strategically located and easily accessible from residential and commercial spaces. They should be well connected to the public transport systems, bicycle routes and parking. Thus, walking like cycling too, offers numerous health and ecological benefits to urban residents (Irandu, 2021). However, walking in cities faces many challenges such as longer journeys due to urban sprawl, more road traffic accidents (RTAs) and low priority given to it by planners.



Fig. 1: Traffic Congestion on University Way, Nairobi; Source: Author, 2021.

Significance of walking in Cities

Walking is common in the cities of developing countries (SSATP, 2015; Vanderschuren and Jennings, 2017; SIDA, 2020). As Okyere et al (2021) observes, majority of the people living in African cities have to walk every day because they are both mobility and income poor. Even where Non-Motorised Transport facilities are available, they are often dilapidated. This presents challenges to people who are physically challenged (Vanderschuren, et al, 2022). In most African cities, walking is the dominant mode of transport (Pendakur, 2005: Bahendwa, 2017; Lukenangula, 2017). For example, Bahendwa (2017) found that walking accounts for about 47 percent of all daily trips made throughout the City of Nairobi. In addition, walking supports public transport, improves overall liveability of a city, provides accessibility within built-up areas and offers alternative means of movement away from private vehicles for short-distance trips. Despite dominance of walking in cities of the developing world, little attention is paid to planning for and exploiting its benefits. Urban sprawl tends to discourage walking, thereby promoting motorised transport (Kiunsi, 2013: Anciaes, Nascimento, & Silva, 2015).

Walking in the City of Nairobi

According to the Nairobi Integrated Urban Development Master Plan (NIUPLAN, 2017), about half of all daily walking trips (46.7%) in Nairobi involves school journeys. Majority of the people living in informal settlements are poor and cannot afford public transport or private cars. Most of these people walk for various trip purposes (Fig. 2).



Fig. 2: People walking on the streets in Nairobi, Kenya.
Source: The Star: <https://www.the-star.co.ke/news/2016-05-27-70-of-kenyans-walk-take-matatus-to-work-world-bank/>

The Non-Motorised Traffic Policy (NMT, 2015), recommended implementation of safe footpaths and cycle lanes on major streets. However, progress on implementation of cycle lanes and footpaths has been slow (Wanjala, 2019). This is because pedestrians in the City of Nairobi like in many other developing cities are considered a lower priority in urban planning (Lukenangula, 2017).

Pedestrians face many problems during rainy season when they are splashed with muddy water by speeding motorists. Besides, some pedestrians risk their lives by crossing busy streets where there is no zebra crossing or footbridge (Fig. 3).



Fig. 4: Provision of walkways and cycle paths on Muindi Mbingu Street, Nairobi. Source: Author, 2023.

It is high time the City's urban design gave priority to pedestrians and not vehicles. Nevertheless, this situation is changing as some of the recent road construction in the CBD has seen better emphasis on pedestrian walkways. A large part of the CBD has seen the construction of pedestrian walkways and cycle lanes (Fig. 4). This is particularly so on Jomo Kenyatta Avenue and Muindi Mbingu Streets, which are some of the major streets in the CBD.



Fig. 3: Pedestrians crossing anywhere on the street because of lack of footbridges and lack of walkways.

However, pedestrian walkways are still inadequate and people spill over to the streets where they conflict with motor vehicles. This often leads to road traffic accidents (RTAs). Besides, street vendors occupy some of the available street spaces, which exposes them to risks of being run over by vehicles (Fig.5.). This is mainly because street vendors do not have specially designated areas to operate from (Tufa, 2019).



Fig. 5: Street vendors selling their items on the street in Nairobi's CBD.
Source: Author, 2023

RESEARCH METHODOLOGY

As already stated, the overall objective of the study was to discuss strategies to make streets in Nairobi's CBD more pedestrian friendly. To achieve this objective, the mixed methods research approach was adopted. This involved thorough search and review of available published and unpublished literature on the topic. Research articles in peer reviewed journals, dissertations and government manuals were critically examined.

A questionnaire survey was used targeting pedestrians using the streets in the entire CBD. Pedestrians were randomly intercepted as they walked to offices, business premises, green spaces, bus stops and sidewalks.

The questionnaire was administered to those pedestrians randomly picked and willing to be interviewed. In total, 1000 pedestrians were interviewed. A series of personal interviews was conducted during two consecutive weeks. The survey times chosen were morning, lunch, and mid-afternoon intervals. These time periods were chosen to allow inclusion of a wide mix of pedestrians with different trip purposes in the sample. 4 Key informant interviews (KII) were purposely selected, 3 from the State Department of Transport of the Ministry of Transport and Infrastructure and 1 Nairobi City County official. The CBD of Nairobi is marked by Uhuru Highway, Jomo Kenyatta Avenue, Tom Mboya Avenue and Haile Selassie Avenue (Fig. 6).

Data was analysed using cross tabulations, frequency diagrams, charts and chi square test(X²).

The two hypotheses tested are:

Ho1: There is no difference between category of respondents and frequency of use of street per week.

Ho2: There is no difference between level of education and frequency of use of street per week.

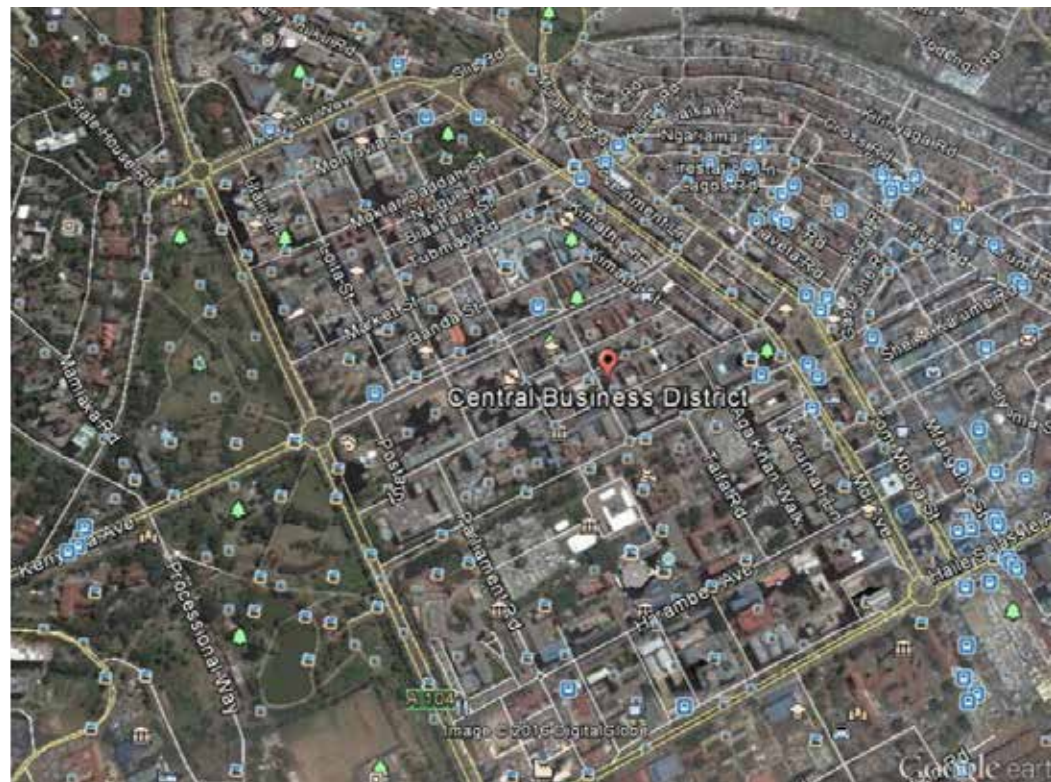


Fig. 6: Map showing Nairobi's CBD, Kenya.

Source: Google Earth, 2016. https://www.researchgate.net/figure/Map-showing-Nairobi-central-Business-District-Source-Google-earth-2016_fig1_308634389.

Results and discussion

When pedestrians were asked to state the category they belong to the responses are as shown in Fig. 7. About 50% of them consisted of public servants (e.g. teachers, City County employees, Central Government employees) and business people who have retail and wholesale businesses in the CBD and street vendors. These are the people who walk in the CBD daily for various trip purposes.

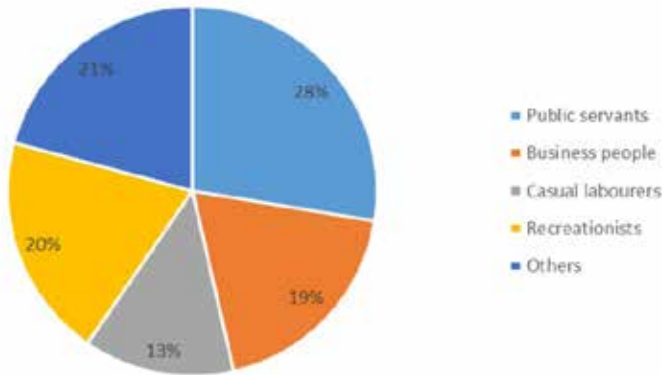


Fig. 7: Category of Respondents.
Source: Author, 2023

When pedestrians were asked to state their age, their responses are as shown in Fig.8 below. About 62% of the pedestrians were aged between 20 and 39 years. This is an interesting finding for it shows that majority of the people walking on the streets of Nairobi are young adults. This finding is consistent with that of Kinyingi et al (2020) in their study on walkable streets in Machakos Town in Kenya. They observed that the young adults are “active members of the community with the ability to walk” (Kinyingi et al, 2020: 389).

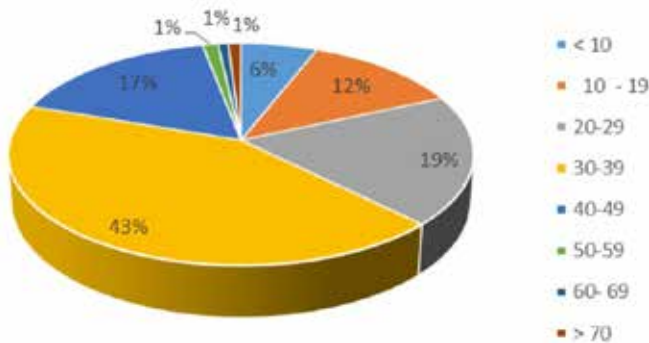


Fig. 8: Age of Respondents.
Source: Author, 2023

When respondents were asked to state the reasons pedestrian friendly streets in the CBD of Nairobi are needed, their responses are as shown in Fig. 9. The main reasons mentioned were safety (32%), reduction of traffic congestion (20%) and social equity and inclusiveness (18%). The urban poor living in informal settlements mostly walk to reach their destination. Making streets pedestrian friendly provides a sense of equality and inclusiveness. Such residents also feel that they belong to the City and that their needs are considered in urban street design and planning (Wanjala, 2019; Sagaris & Tiznado-Aitken, 2020).

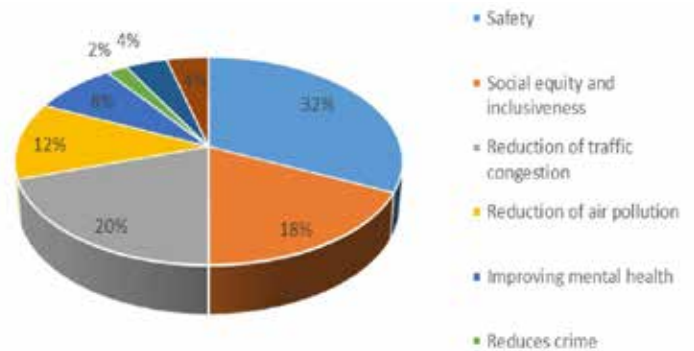


Fig. 9: Reasons pedestrian friendly streets in CBD are needed.
Source: Author, 2023

When respondents were asked to state the mode of transport they use for various trips to the CBD, the responses are as shown in Fig. 10. From Fig.10, it is apparent that walking is the dominant mode of transport in Nairobi’s CBD. This is what has also been established by other studies elsewhere (UN Habitat, 2013; Vanderschuren & Jennings, 2017; Porter et al., 2020; Benton et al., 2023). Walking which is a form of active transport, is environmentally friendly for it does not produce emissions. Buses and matatus are also very important for commuters who cannot walk for one reason or the other.

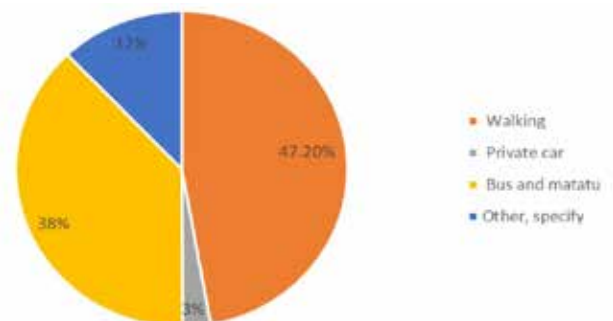


Fig. 10: Modal choice.
Source: Author, 2023

To test the first hypothesis that “there is no difference between category of respondents and frequency of use of street per week” a contingent table (Table 1) was prepared and X2 test applied.

Table 1: Contingent table for category of pedestrians and their frequency of street use

Category	Frequencies (observed)	Expected	O-E	(O-E) 2
Public servants	276	200	76	5,776
Business people	188	200	-12	144
Casual labourers	132	200	-68	4,624
Recreationists	196	200	-4	16
Others	208	200	8	64
Total	1,000			

Source: Author, 2023

The calculated value is 53.12 while the critical value is 9.49 with 4 degrees of freedom, and at 0.05% probability level. The null hypothesis that “there is no difference between category of respondents and frequency of use of street per week” is rejected. This seems to suggest that the category of pedestrians to some extent determines the frequency of use of a given street in the CBD. This is because different trip categories of pedestrians use streets for various trip purposes such as business, street vending, office work, recreation and so on. Hence, the frequency of use of streets in the CBD by each category is expected to vary.

To test the second hypothesis that “there is no difference between level of education and frequency of use of street per week, a contingent table (Table 2) was prepared and X2 test applied. The calculated value is 157 while the critical value is 9.49 with 4 degrees of freedom, and 0.05% probability level. Therefore, the null hypothesis is rejected. This seems to suggest that there is a difference between the level of education of pedestrians and their frequency of use of streets per week. There is a likelihood that pedestrians who are more educated are likely to use streets in the CBD more frequently than those with lower education.

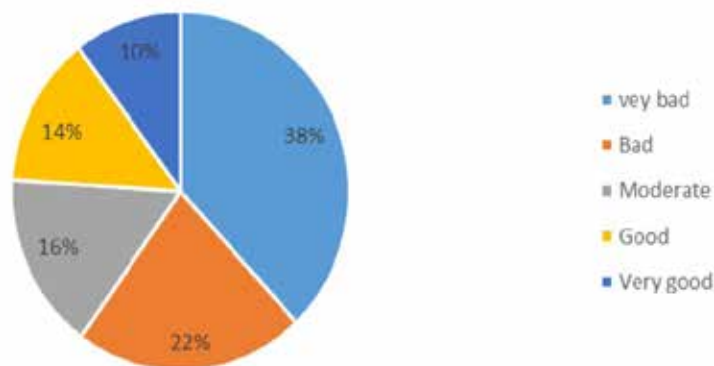


Fig. 11: Condition of pedestrian infrastructure in the City's CBD.
Source: Author, 2023

Table 2: Contingent table for the Level of education of pedestrians

Education level	Frequencies (observed)	Expected	O-E	(O-E) 2
Primary level	320	200	120	14,400
Secondary level	260	200	60	3,600
Diploma	180	200	-20	400
First degree	130	200	-70	4,900
Postgraduate level	110	200	-90	8,100
Total	1,000			

Source: Author, 2023

Fig.11 shows that about 60% of pedestrian infrastructure in Nairobi leaves much to be desired. About 38% of the infrastructure is very bad while 22% can be classified as bad. However, the City authorities recognise the importance of improving pedestrian infrastructure to make urban streets more pedestrian friendly.

Recently, the Nairobi Metropolitan Services (NMS) has embarked on a project to provide walkways and cycle paths thereby giving pedestrians priority over motorists within and around the CBD. When complete, the project will lead to significant reduction in the number of motor vehicles entering the CBD while accommodating an influx of pedestrians (<https://citizentv.co.ke/news/a-section-of-the-newly-refurbished-kenyatta-avenue-inside-the-nairobi-central-business-district-cbd-photo-courtesy-334787/>).



Photo credit: Lorenzo Cerato, Nairobi, 2020. https://unsplash.com/photos/man-in-pink-shirt-sitting-on-blue-and-white-wooden-carriage-during-daytime-o1ixqnCCy_w

CONCLUSION AND POLICY IMPLICATIONS

The main findings of this study are summarized below:

a) Walking is the dominant mode of transport in Nairobi. About 47.2% of the respondents stated that they walk to work, school or for recreation, while 38% said they use public transport such as buses and 'matatus'.

b) Pedestrians want streets in the CBD of Nairobi to be people friendly for safety (32%), reduction of traffic congestion (20%) and social equity and inclusiveness (18%). This is an important finding with serious policy implications. There is need to provide adequate pedestrian infrastructure to ensure safety of people when walking on city streets or crossing. Some of the pedestrian infrastructure include footpaths, cycle paths, zebra crossing and fly-overs.

The urban poor living in informal settlements mostly walk to reach their destination. Making streets pedestrian friendly provides a sense of equality and inclusiveness. This in line with Agenda 2030, which promises not to leave any one behind (UN, 2015).

c) The two hypotheses tested using chi-square(X²) test were rejected. Pedestrians who are more educated are likely to be more aware of the benefits of pedestrian friendly streets than those with little education. In this connection, the City authorities should sensitize residents with little education on safe use of urban streets. There should be adequate signage to provide guidance on crossing the street or where to cross safely. Different categories of pedestrians use streets for various daily trip purposes such as business, street vending, office work, recreation and so on. Therefore, the category of pedestrians has some influence on the frequency of use of city streets. Street vendors occupy large street spaces, which exposes them to traffic crashes. There is need to provide ample and secure space(s) for street vendors away from the CBD.

Throughout the world, investments in cities have been skewed towards car-centric development rather than improving NMT facilities for pedestrians and cyclists. However, this is gradually changing in many cities including Nairobi. Before COVID-19 outbreak, City authorities in Nairobi had embarked on pedestrianisation of the CBD to make it more people friendly and to reduce road traffic accident rates. This is the trend in many other cities worldwide and its tempo has picked up due to corona virus. COVID-19 pandemic has forced cities to reimagine, rethink and transform streets urgently for people and not for vehicles (Irandu, 2020).

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Photo credit: Mwakapila Victor. <https://www.pexels.com/photo/men-and-bazaar-on-street-in-town-20177680/>

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