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Barriers and facilitators experienced by wheelchair users when using minibus taxis in Africa: A scoping review

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Background: Accessible transport is essential for achieving the sustainable development goals. Persons with disabilities often struggle to access public transport with different impairments leading to unique access barriers. Wheelchair users face physical and attitudinal challenges when accessing minibus taxis, a common mode of public transport in Africa.

Objectives: The objective of this review was to explore the barriers and facilitators that wheelchair users in African countries experience when using minibus taxi services.

Method: The scoping review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis guidelines for reporting on scoping reviews as well as the Joanna Briggs Institute scoping review guidelines. Eight databases were searched. Two reviewers screened articles in Rayyan. Data were analysed and synergised through a convergent integrated approach.

Results: The literature search yielded 236 titles, of which 20 were included after further review. Studies were from four African countries, mostly South Africa (n = 14), Ghana (n = 4), Sierra Leone (n = 1) and Zimbabwe (n = 1). Key findings such as structural (obstructed sidewalks, potholes), mechanical (vehicle design), economic (paying for wheelchairs and carers), attitudinal (impatience, rudeness) and institutional (ableism, lack of political will) barriers and facilitators were identified.

Conclusion: Despite minibuses having evolved into a cheap mode of public transport in most African countries, their design and operating practices still prevent wheelchair users from using them with ease and dignity.

Contribution: This review presents barriers and facilitators that wheelchair users experience when using minibus taxi services. Future research should focus on reconfiguring transport services offered by minibus taxis to provide equal access for wheelchair users in Africa and beyond.

Keywords: access; wheelchair users; transportation; minibus taxis; barriers; facilitators; low-income countries; universal access.

Introduction

It is estimated that more than 80 million people in Africa are living with some form of disability. This number constitutes between 10% and 20% of the general population of Africa (Disabled World 2022). Persons with disabilities often face inequality, exclusion, a lack of opportunities, unemployment and poverty. They are often relegated to the margins of society (Bjerkan & Øvstedal 2020; Tennakoon et al. 2020). Among the complex causes of inequality and exclusion related to disability are challenges regarding community mobility, which includes the use of public transport (Bekiaris et al. 2018; Mindell et al. 2025; Park, Chowdhury & Wilson 2020). Being able to negotiate public transport systems independently facilitates a feeling of belonging and dignity among persons with disabilities (Chapman et al. 2024).

Achieving many of the sustainable development goals, such as good health and well-being, quality education, decent work and economic growth as well as sustainable cities and communities, requires, among other things, investment in inclusive, sustainable, accessible and

safe public transport (United Nations 2015). In addition, the right to health, education, employment and other basic human rights as ensconced by the *United Nations Convention on the Rights of Persons with Disabilities* (United Nations 2006) is dependent on access to transport. Community mobility opportunities must be created for all, especially for people considered most vulnerable such as women, children, persons with disabilities and older persons (United Nations 2015). However, Vanderschuren and Nene (2021) found that except for Ghana and South Africa, persons with disabilities are omitted from or superficially included in transport policies of African countries. International and South African policies and legislation such as the *Disability Inclusive Public Transport brief* (Frye 2019) supported by the United Kingdom Department for International Development and the Transformative Urban Mobility Initiative (TUMI) and the *South African White Paper on the Rights of Persons with Disabilities* (Department of Social Development [DoSD] 2016) advocate for inclusive public transport. Even with these policies, there is a general neglect of the barriers confronting persons with disabilities when wanting to access public transport (Fredericks, Visagie & Van Niekerk 2024a, 2025a, 2025b) across the globe (Mindell et al. 2025; Unsworth et al. 2021), but more so in middle- and low-income countries (Kett, Cole & Turner 2020), including Africa (Duri & Luke 2025; Fredericks et al. 2024a, 2025b; Lister & Dhunpath 2016; Ndebele 2020; Odame et al. 2023a).

Wheelchair users are a subgroup of persons with disabilities with unique transport needs. The impairments that necessitate the use of a wheelchair also hinder mobility and the physical ability to access various transport modes (Kett et al. 2020). The focus of this scoping review is specifically on the accessibility of minibus taxis for wheelchair users, a common mode of public transport in South Africa and other African countries (Neumann, Röder & Joubert 2015). Accessibility can be defined in various ways, but definitions usually recognise the interdependence of physical, political, economic and social factors (Antipova et al. 2020).

Wheelchair users face multiple, interrelated access barriers that impact the physical accessibility, affordability, safety and acceptability of minibus taxi services (Cawood & Visagie 2015; Lister & Dhunpath 2016; Vergunst et al. 2015; Visagie, Visagie & Fredericks 2023). Barriers affecting physical access include the height at the entrance to minibus taxis and the distance between the wheelchair and seat that prevents independent transfer to and from minibus taxis for most wheelchair users (Chiwandire & Vincent 2017; Gudwana 2019; Pretorius & Steadman 2018; Vanderschuren, Baufeldt & Phayane 2015; Visagie et al. 2023). While minibus taxi fares are relatively low, affordability is reduced when wheelchair users are charged additional fares for their caregivers and wheelchairs (Duri & Luke 2022c). The lack of seat belts, reckless driving, overloading and wheelchair users being unable to maintain their balance all cause a sense of feeling unsafe (Gudwana 2019; Kett et al. 2020; Lister & Dhunpath 2016). Some minibus taxi drivers have a negative attitude towards wheelchair users and do not always stop to pick them up or are impatient and rude when they do stop. The main reason for not picking up wheelchair users is because wheelchair users are slower to embark and disembark, leading to a loss of time and thus money (Lister & Dhunpath 2016).

Research have focused on wheelchair users' access to minibus taxis, either as the primary focus of the study (Gudwana 2019; Lister & Dhunpath 2016) or as a theme that emerged when exploring access to services such as health care (Cawood, Visagie & Mji 2016; North & Visagie 2020; Vergunst et al. 2015). The aim of this scoping review was to identify research in the field and describe the barriers and facilitators experienced by wheelchair users in African countries when making use of minibus taxis. The review focused on the question: What are the barriers and facilitators wheelchair users in Africa experience when using minibus taxi services?

Research methods and design

Design

The scoping review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis guideline for reporting on scoping reviews (PRISMA-ScR) (Tricco et al. 2018) as well as the updated Joanna Briggs Institute (JBI) guideline for conducting the scoping reviews (Peters et al. 2020). The scoping review was conducted to explore existing literature on the experiences of African wheelchair users utilising minibus taxis, with specific attention to the barriers and facilitators influencing their accessibility, to provide background information against which possible solutions could be explored in a further study. The updated JBI guideline (Peters et al. 2020) ensures that scoping reviews are methodologically rigorous, transparent and reproducible, helping researchers to map existing knowledge, identify evidence gaps and inform future research, practice and policy. The five steps that were followed included:

- developing a review question
- searching studies
- selecting studies
- data extraction
- data analysis, synthesis, and presenting findings.

Search strategy

The search was done between 01 February 2024 and August 2024 by Fredericks et al. (2025a), supported by a librarian from Stellenbosch University Library. The following databases were searched: Medline (Pubmed), EBSCOhost (Academic Search Premier, AfricaWide Information, CINAHL, Health Source: Nursing/Academic), Scopus, Web of Science, ProQuest and Sabinet. Reference lists of the included articles were searched manually for further articles. A systematic review accelerator was used with the help of a librarian for the development of the search string contained in Box 1 (databases search strategy).

Box 1: Databases search strategy.

Wheelchairs OR disabled persons (Mesh)
Wheelchairs OR 'wheelchair users' OR 'disabled persons' OR Handicapped OR 'People with Disabilities' OR 'Persons with Disabilities' OR 'Physically Handicapped' OR 'Physically Disabled' OR 'Mobility impairments'
AND
Transportation OR Automobile (Mesh) C Transportation OR 'Minibus taxis' OR 'Public Transport'
AND
'Barriers and Facilitators' OR Barriers OR Facilitators
AND
low-income population OR poverty OR developing nation OR developing country (Mesh Terms)
Mesh
Angola OR 'Burkina Faso' OR Burkinabe or Burundi OR 'Cabo Verde' OR 'Cape Verde' OR Cambodia OR Cameroon OR 'Central African Republic' OR Chad or Chadian or Tchad OR Comoros OR Comoran OR Congo or Congolese OR 'Cote d'Ivoire' OR Ivorian OR Djibouti OR Egypt or Egyptian OR Eritrea OR Ethiopia OR Gambia OR Gambian OR Ghana OR Guinea OR 'Guinea Bissau' OR Kenya OR Lesotho OR Mosotho or Basotho OR Liberia OR Madagascar OR Malawi OR Mali OR Malian OR Mauritania OR Micronesia OR Moldova OR Mongolia OR Morocco OR Moroccan OR Mozambique OR Mozambican OR Niger OR Nigerien OR Nigeria OR Rwanda OR 'Sao Tome and Principe' OR Senegal OR 'Sierra Leone' OR 'Solomon Island' OR Somalia OR Sudan or Sudanese OR Swaziland OR Swazi OR Tanzania* OR Togo OR Togolese OR Tunisia OR Uganda OR Zambia OR Zimbabwe OR 'global south' OR Sahara* OR 'sub-Saharan Africa' OR 'Africa south of the Sahara' OR 'southern Africa' OR 'developing country' OR 'developing nation' OR 'developing population' OR 'developing world' OR 'less developed country' OR 'less developed nation' OR 'less developed world' OR 'under developed country' OR 'under developed world' OR 'underdeveloped country' OR 'underdeveloped nation' OR 'underdeveloped world'

Note: Restrictions included dates from 2010 to 2024 and only articles in the language English. Because of South Africa hosting the soccer world cup in 2010, public transport was upgraded in South Africa. This supposedly included access for people with disabilities.

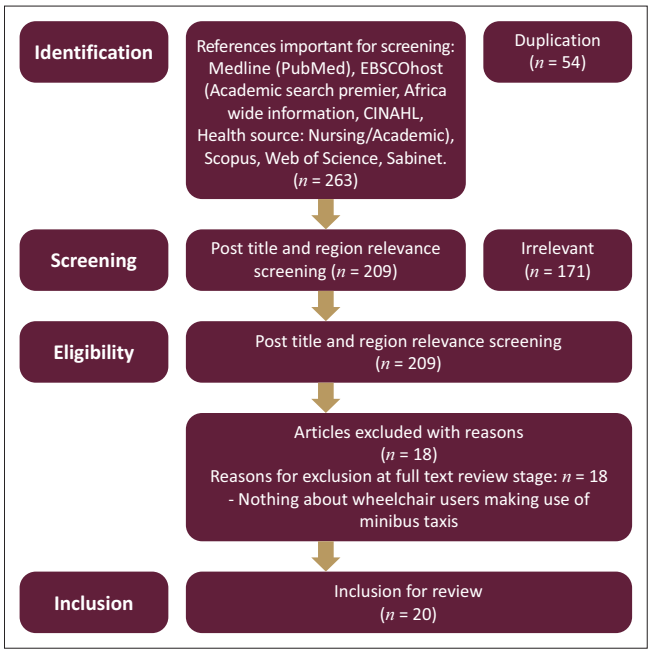
Eligibility criteria

In accordance with the JBI guidelines, the population, concept and context framework (PCC) were used to define the review parameters (Peters et al. 2020):

- Population: Wheelchair users. Studies were eligible if the participants were wheelchair users or the study focuses on wheelchair users. Studies focusing on transport access for persons with disabilities who did not use wheelchairs were excluded.
- Concept: To be included, studies had to focus on accessing minibus taxis as a means of public transport and community mobility. All barriers experienced regarding natural, manufactured or structural, mechanical, environmental, financial, health and safety concerns, attitudinal, psychosocial and institutional as well as all facilitators used to overcome the barriers were included. Studies that focused on accessing other modes of public transport and/or private transport were excluded.
- Context: Studies from African settings were included.

Article selection and description

References were imported into Rayyan, a free online tool (Ouzzani, Hammady & Fedorowicz 2016), that was used for the screening of titles, abstracts and full texts by two independent reviewers (first and second authors). Disagreement between the reviewers were resolved through discussion, and no mediation by a third party was needed. As indicated in Figure 1, the literature search yielded 236 titles, of which 54 were duplicates. A total of 209 titles and abstracts were screened, of which 171 were irrelevant. A total of 38 full texts were reviewed, and 20 of these were included in the scoping review.



CINAHL, cumulative index to nursing and allied health literature.

FIGURE 1: Literature search process.

Data extraction, analysis and synthesis

An Excel spreadsheet was created for data extraction that was undertaken by the first two authors. The following data fields were mapped: name of journal, year of publication, first author, aim of the study, study setting, study design, population, number of participants, sampling strategy used, gender, and age range. Barriers and facilitators that influenced the accessibility of minibus taxis for wheelchair users were identified across studies and summarised, along with the trends and gaps in the research.

Both quantitative and qualitative studies were included as research in both paradigms produced findings that answered the review question (Cerigo & Quesnel-Vallée 2020). Data were analysed and synergised through a convergent integrated approach. The review question guided inductive coding (Zaman 2018). The first and second authors coded the data independently and then reached consensus based on the relevance of codes to the review question. Codes were conceptualised into sub-themes using an iterative and consultative process. The sub-themes responded to two deductive themes, that is, barriers and facilitators.

The methodological quality of the included articles was not analysed in keeping with scoping review methodology (Peters et al. 2017).

Ethical considerations

An application for full ethical approval was made to the Health Research Ethics Committee of Stellenbosch

University, and ethics consent was received on 22 April 2021 (No. S21/01/009).

Results

Table 1 shows that of the 20 articles, 19 reported on research and one was an opinion piece. Of the 19 research articles, 16 used a qualitive descriptive or explorative design. Two studies used a mixed methods design, and two used cross-sectional surveys. One of the surveys included an audit of a central business district (Owusu-Ansah, Baisie & Oduro-Ofori 2019). Most of the studies (n = 14) were conducted in South Africa, while four were conducted in Ghana and one in Sierra Leone. Of the South African studies, nine were conducted in metropolitan areas and five in rural areas. Participant groups included wheelchair users, their caregivers, minibus taxi drivers, healthcare service providers and other experts.

Barriers to minibus taxi use

Structural environmental barriers

Structural environmental barriers refer to aspects of the built environment that prevent wheelchair users from accessing minibus taxi services (Amin, Razak & Akhir 2021; Bezyak, Sabella & Gattis 2017). These included factors such as unpaved surfaces, open drains, lack of or uneven pavements without kerb cuttings, street crossings and street furniture (Duri & Luke 2022c). Fourteen of the 20 articles reported on structural environmental factors (Aenishänslin, Amara & Magnusson 2020; Duri & Luke 2022a, 2022b, 2022c, 2022d; Gudwana 2019; Lister & Dhunpath 2016; Ndebele 2020; Odame et al. 2023a, 2023b; Owusu-Ansah et al. 2019; Pilusa et al. 2021; Tshaka et al. 2023; Vergunst et al. 2015).

Vivid descriptions of structural barriers in urban and rural areas were provided.

Some reviewed studies found that in urban areas, structural environmental barriers included congested traffic, unpaved, uneven roads and pavements, potholes in roads and pavements, open maintenance holes and drains, rubbish as well as high pavements with no ramps (Duri & Luke 2022d; Ndebele 2020; Owusu-Ansah et al. 2019; Pilusa et al. 2021). Traffic lights at street crossings lacked push buttons to ensure sufficient time for safe crossing of pedestrians

TABLE 1: Summary of included articles.

Number	Authors and date	Aim	Country	Methodology
1	Aenishänslin, Amara and Magnusson (2020)	To explore the experiences of persons with physical disabilities accessing and using rehabilitation services in Sierra Leone.	Sierra Leone	Qualitative
2	Duri and Luke (2022a)	To understand the perspectives of public transport drivers on their encounters with passengers with disability, and the impact this has on public transport inaccessibility.	South Africa, Tshwane Gauteng	Qualitative
3	Duri and Luke (2022b)	To investigate the structural barriers experienced by people with disabilities in accessing transport.	South Africa, Tshwane Gauteng	Quantitative
4	Duri and Luke (2022c)	To identify transport barriers encountered by people with disability in Africa.	South Africa, Tshwane Gauteng	Scoping review
5	Duri and Luke (2022d)	To identify issues with urban transport infrastructure in the City of Tshwane that contribute to inaccessible transportation.	South Africa, Tshwane Gauteng	Qualitative
6	Gudwana (2019)	To explore the experiences of persons with mobility impairment in accessing public transport in Knysna townships in the Western Cape province.	South Africa Knysna	Qualitative
7	Kahonde, Mlenzana and Rhoda (2010)	To explore the persons with physical disabilities' experiences of the rehabilitation services they received at Community Health Centres in Cape Town.	South Africa Cape Town	Mixed methods
8	Lister and Dhunpath (2016)	This article focuses on the management of the taxi industry in the eThekwini Municipality.	South Africa eThekwini	Qualitative
9	Magaqa, Ariana and Polack (2021)	To examine the availability and accessibility of rehabilitation services in a rural district of South Africa in order to explore why unmet needs for rehabilitation services persist.	South Africa Eastern Cape	Mixed methods
10	Ndebele (2020)	This article illustrates the inaccessibility and discriminatory nature of public transport in Zimbabwe and highlights the causes and consequences of this situation.	Zimbabwe	Opinion piece
11	North and Visagie (2020)	To explore and describe the experiences of carers of persons with Cerebral Palsy (CP) (Gross Motor Function Classification Scale [GMFCS] IV/V), around keeping advanced seating services appointments at a tertiary healthcare facility in the Western Cape province.	South Africa Western Cape	Qualitative
12	Odame et al. (2023a)	This study seeks to fill the gap by exploring stakeholders' responses to the travel needs of commuters with disability in the Accra Metropolitan Assembly.	Ghana Accra Metropolitan Assembly	Qualitative
13	Odame et al. (2023b)	To examine the responsiveness of public transport operators to the travel needs of commuters with disabilities in Accra.	Ghana Accra Metropolitan Assembly	Qualitative
14	Owusu-Ansah et al. (2019)	This research extends the understanding of disability and geography through the analysis of surface topography and structural barriers as well as the spatial experiences of the mobility impaired in terms of transportation, access and utilisation of public spaces and general services in Kumasi, Ghana.	Ghana Kumasi	Survey
15	Pilusa, Myezwa and Potterton (2021)	To explore environmental factors influencing the prevention of secondary health conditions in people with spinal cord injury.	South Africa Gauteng	Qualitative
16	Vergunst et al. (2015)	To explore the challenges faced by people with disabilities in accessing healthcare in Madwaleni, a poor rural Xhosa community in South Africa.	South Africa Madwaleni	Qualitative
17	Rivasplata and Le Roux (2018)	To explore ways in which transport in Cape Town can better serve youth with disabilities, encouraging their participation in arts activities and facilitating their integration into society.	South Africa Cape Town	Qualitative
18	Tijm, Cornielje and Edusei (2011)	To examine the effectiveness of lifestyle, change interventions for people with intellectual disabilities.	Ghana Kumasi	Qualitative
19	Tshaka, Visagie and Ned (2023)	To identify the challenges leading to non-use of healthcare services among persons with mobility impairments in Cofimvaba.	South Africa Cofimvaba	Qualitative
20	Visagie et al. (2023)	To describe the psychosocial community mobility experiences of stroke survivors using wheelchairs in a town in the Western Cape province of South Africa.	South Africa Worcester	Qualitative

Note: Both barriers and facilitators are presented by using the same four categories namely: structural, mechanical, economic, attitudinal and institutional.

(and wheelchair users). Minibus taxi ranks were often unpaved with uneven, muddy or dusty surfaces. Owusu-Ansah et al. (2019) and Ndebele (2020a) found that street vendors obstructed pavements and access points like ramps and bridges. These barriers, together with congested foot, vehicular and sometimes animal traffic, made wheelchair mobility difficult or impossible and restricted or prevented access to minibus taxi pick-up points (Duri & Luke 2022c). Odame et al. (2023b) reported on inadequate or no shelter at minibus taxi pick-up points.

In rural African contexts, the terrain was commonly described by previous studies as rough, with unpaved roads that are narrow, steep and uneven (Gudwana 2019; Pilusa et al. 2021; Tshaka et al. 2023; Vergunst et al. 2015). Vergunst et al. (2015) showed that hills, valleys, river crossings without bridges and forest areas had to be negotiated by wheelchair, often over long distances, to reach taxi pick-up points. Wheelchair users were sometimes unable to leave their yards because of rough terrain and an absence of paths or roads (Pilusa et al. 2021). Some studies described participants using single-track, uneven, rocky footpaths to reach the actual dirt road (Tshaka et al. 2023; Vergunst et al. 2015). Surfaces of unpaved roads were generally covered with loose gravel or sand in the dry season and slippery mud in the rainy season, making them unsuitable for wheelchair users (Vergunst et al. 2015). These findings show that universal access principles were not applied during design and construction of roads, pavements and minibus taxi ranks.

Mechanical barriers

Mechanical barriers refer to aspects related to the design of the minibus taxi, such as its height off the ground, seating arrangements, grab handles and seatbelts. Five of the studies reported on the mechanical barriers (Duri & Luke 2022c; Odame et al. 2023b; Savill et al. 2003; Tijm et al. 2011; Visagie et al. 2023). One of the most common findings, and arguably the biggest barrier for wheelchair users, related to the height differences during transfers into and out of minibus taxis; distances from the ground to the taxi floor and between the taxi floor and seat were reported to pose challenges (Odame et al. 2023b; Tijm et al. 2011). Because wheelchair users generally have impairments affecting their musculoskeletal systems, standing and/or climbing in and out with such height differentials is impossible (Visagie et al. 2023). In addition, commonly used minibus taxis in African settings have no special boarding equipment such as ramps or hoists (Duri & Luke 2022c). Thus, taxi drivers, guards, caregivers or fellow commuters often physically pick wheelchair users up and place them in the minibus taxi; in the process, the wheelchair users are pulled and pushed by persons who have not been trained to do transfers safely and with sensitivity (Visagie et al. 2023). Because minibus taxi drivers and guards are not trained to physically transfer wheelchair users (Duri & Luke 2022c; Fredericks et al. 2024a; Savill et al. 2003), they and wheelchair users alike are at risk of injury during transfers (Duri & Luke 2022c; North & Visagie 2020). Duri and Luke (2022a) found that minibus taxi drivers sometimes refuse to assist wheelchair users because of a fear of being held accountable if a wheelchair user is injured. The transfer is even more of an ordeal for female wheelchair users who must endure being touched by male strangers (Gudwana 2019). In addition, grab handles were not available or not positioned optimally for wheelchair users to use during transfers or for balance during transit (Duri & Luke 2022a, 2022b, 2022c). Alarmingly, most minibus taxis were reported not to have seatbelts (Duri & Luke 2022a, 2022b). This compromised everybody's safety and meant wheelchair users with reduced functional balance because of leg and trunk impairments could not rely on the external stability a safety belt would provide (Duri & Luke 2022a, 2022b; Gudwana 2019).

Fredericks et al. (2024a) described that the limited space inside minibus taxis, with narrow aisles and small seats, leaves little place for movement or to store a wheelchair (North & Visagie 2020). Owusu-Ansah et al. (2019) agreed and pointed out that space limitations were even worse in minibus taxis that were reconfigured to carry more passengers. The already limited space is further reduced resulting in decreased space to manoeuvre, thus making it impossible for those who need transfer assistance and/or space to accommodate their legs because of impairments (Owusu-Ansah et al. 2019). The described mechanical barriers created a serious access barrier and fed into economic barriers.

Economic barriers

The second biggest barrier to access described in the studies was the perceived reduction in earnings brought about by additional time and space requirements associated with serving wheelchair users. The money a minibus taxi owner and driver earns is dependent on the number of trips made per day and the number of passengers per trip. Expressive narrative examples by Lister and Dhunpath (2016) showed that both taxi drivers and owners saw wheelchair users as reducing their income on both scores. Wheelchair users take longer to transfer in and out of the minibus taxi (Kahonde et al. 2010; Lister & Dhunpath 2016; North & Visagie 2020), and time is lost (Fredericks et al. 2024a; North & Visagie 2020), which might mean one less trip at the end of the day. Lister and Dhunpath (2016) and Visagie et al. (2023) described this as the main reason why minibus taxi drivers did not stop to pick up wheelchair users, most especially not during peak hours (Kahonde et al. 2010; Lister & Dhunpath 2016; Ndebele 2020; Rivasplata & Le Roux 2018). The wheelchair also takes up space that a paying customer could have occupied; therefore, income is lost if that space is not paid for. If wheelchair users cannot transfer by themselves or depend on the taxi driver and guard for assistance, someone must accompany them, at extra cost. These two factors escalate the taxi fare for wheelchair users, making a trip unaffordable for many (Kabia et al. 2019; Kirabo, Carter & Steinfeld 2020; North & Visagie 2020). These economic barriers experienced by wheelchair users show that this group is still negatively constructed as a burden or an inconvenience by impatient minibus drivers who do not want to pick up wheelchair users, especially during peak hours.

Attitudinal barriers

The studies reported that wheelchair users were also experiencing insurmountable attitudinal barriers. Among others, attitudinal barriers composed of negative beliefs of minibus taxi drivers and co-commuters towards persons with disability, such as impatience, fear and stigma. Negative beliefs fuel negative attitudes (Visagie et al. 2023). Thus, it was no surprise that 12 studies reported on attitudinal barriers (Duri & Luke 2022c; Gudwana 2019; Kahonde et al. 2010; Lister & Dhunpath 2016; Ndebele 2020; North & Visagie 2020; Pilusa et al. 2021; Rivasplata & Le Roux 2018; Tijm et al. 2011; Visagie et al. 2023). Wheelchair users, on the other hand, also experienced a range of negative emotions from social anxiety and feelings of shame and belittling (Gudwana 2019; Visagie et al. 2023) to being unhappy and angry (Duri & Luke 2022a, 2022c; North & Visagie 2020; Tijm et al. 2011) when using minibus taxis. These attitudinal barriers result in an unacceptable level of service that negatively affects the self-esteem and confidence of wheelchair users. When combined with other existing barriers, they often cause wheelchair users to avoid using minibus taxis, even though this mode of transport is one of the most affordable options available.

Institutional barriers

The findings also reported that wheelchair users were experiencing institutional barriers, which included lack of political will among politicians and local government officials, leading to poor implementation or non-existent legislation, policies and strategic planning (Vanderschuren & Nnene 2021). However, according to Duri and Luke (2022c) and Rivasplata and Le Roux (2018), it is one of the main reasons of inequitable access to minibus taxis services. Four studies reported on institutional barriers (Duri & Luke 2022c; Lister & Dhunpath 2016; Odame et al. 2023a; Rivasplata & Le Roux 2018). Findings indicated little collaboration between stakeholders in transport systems with different groups operating in silos. Studies reported that wheelchair users were not involved in the planning of minibus taxi services. Without hearing their voice, their needs cannot be addressed (Duri & Luke 2022a, 2022c; Rivasplata & Le Roux 2018). Odame et al. (2023a) indicated that no one takes the responsibility or leadership to drive the agenda with regard to accessible minibus taxi transport for wheelchair users. Without policies and the political will to enforce implementation, wheelchair users might continue to struggle to access minibus taxis.

Structural, mechanical, economic, attitudinal, and institutional facilitators to minibus taxi use

Facilitators to minibus taxi access for wheelchair users were less of a focus than barriers in the reviewed studies. Only five of the studies addressed facilitators. The facilitators identified in the five studies primarily focused on recommending potential solutions to existing barriers, rather than empirically evaluating the feasibility or effectiveness of those proposed solutions.

Duri and Luke (2022d) indicated that local authorities should do periodic infrastructure audits of pedestrian environments and sidewalks. These audits should provide guidance on the need for maintenance, repair and upgrading. Similarly, regular audits of the conditions of minibus taxi ranks should be conducted, and wheelchair users should be involved in these audits (Duri & Luke 2022d). Finally, Duri and Luke (2022d) recommended that universal access principles are applied during planning and development of new minibus taxi ranks.

Three studies reported on mechanical facilitators. Duri and Luke (2022a) recommended regulations for the manufacturing of minibus taxis that include the placement of grab handles at suitable places for wheelchair users, seatbelts on all seats and more leg-room. They further stated that minibus taxis should be compliant with universal access principles. A recommendation by Odame et al. (2023b) was that minibus taxi drivers should consider reserving or prioritising some seats for wheelchair users. Tijm et al. (2011) recommended specially modified minibus taxis for wheelchair users.

Lister and Dhunpath (2016) suggested that subsidies, coupons, or contracts to provide transport for wheelchair users on specific routes might help reduce the cost of taxi services for individual wheelchair users and ensure that taxi drivers do not lose money when providing services to wheelchair users. Contract services hold the additional advantage that wheelchair users and local government can keep minibus taxi drivers accountable for rendering services. It will also ensure minibus taxi services will be available for wheelchair users on a regular basis (Lister & Dhunpath 2016). Duri and Luke (2022c) suggested that private capital is found, and the private sector be asked for financial assistance to address the economic barriers.

Duri and Luke (2022c), Lister and Dhunpath (2016) and Gudwana (2019) addressed attitudinal facilitators. They suggested broad education and awareness-raising on disability starting at schools and in homes to reduce attitudinal barriers. Furthermore, they suggested training and education for minibus taxi drivers on the transport needs of wheelchair users as well as how to communicate with and assist wheelchair users during transfers. Lister and Dhunpath (2016) suggested that vouchers be made available to cover the cost of the education and skills training of taxi drivers. It is hoped that with training, taxi drivers will have a more positive attitude towards wheelchair users and that wheelchair users will experience less stress and anxiety when using minibus taxi services (Lister & Dhunpath 2016).

Three studies reported on institutional facilitators (Duri & Luke 2022a; Odame et al. 2023a; Lister & Dhunpath 2016). The focus was on including the voice of the wheelchair users in planning and a stronger political will to drive implementation of policy and legislation. The only way for policymakers and service providers to understand the

experience of wheelchair users is to hear their voice through making them part of the planning processes. Odame et al. (2023a) highlighted the importance of establishing a wheelchair user-inclined transport policy with actionable penalties, including that minibus taxi drivers who do not comply with policy requirements face fines or possible prison terms. As indicated, these suggestions might act as facilitators to minibus taxi access for wheelchair users, but they must be explored in future research.

Discussion

The aim of this scoping review was to identify and describe the barriers and facilitators experienced by wheelchair users in Africa when making use of minibus taxis. While the use of minibus taxis for public transport seems to be rather unique to the African context, the barriers experienced by current participants are echoed in studies and reviews that focus on public transport (bus, train, taxi, ferry, streetcar) access for persons with mobility impairments or wheelchair users from around the world (Chapman et al. 2024; Hernandez & Rodriguez 2024; Liu et al. 2023; Miller et al. 2025; Park et al. 2023; Unsworth et al. 2021). What was heartening was the sentiment shared by Unsworth et al. (2021) that despite numerous barriers, public transport access for people using wheeled mobility devices is constantly improving worldwide. However, Africa was notably missing from the world regions mentioned by them.

Current results showed that wheelchair users' difficulties started when leaving their homes with structural barriers in what Park et al. (2023:189) call the 'out of vehicle environment', preventing them from reaching and manoeuvring around minibus taxi pick-up points. Infrastructure barriers such as the absence of or poorly maintained sidewalks and inaccessible stations limited access to public transport for wheelchair users globally (Liu et al. 2023; Mindell et al. 2025; Unsworth et al. 2021). As structural barriers are often human-made (Duman & Asilsoy 2022), they are avoidable and should not occur in equitable societies. Barriers like potholes, occupied pavements and no bridges over rivers are a few of the visible consequences of deep-rooted inequality and disregard for vulnerable members of society. In their systematic review study on pavement accessibility, Soares Müller et al. (2023) highlighted that the entire segment of a sidewalk must be free of barriers for it to be considered accessible for persons with disabilities. One obstacle along the way can prevent access to the entire route. They argue that the importance of accessible sidewalks is not always acknowledged in Global South countries, as could be seen in this study as well. For safe wheelchair use, sidewalks must be wide enough, not overly sloped, well maintained and free of obstacles with regular kerb cuts (Soares Müller et al. 2023).

Structural barriers link closely to institutional barriers, which explains why legalisation and policies are not being implemented (Duri & Luke 2022b; Kett et al. 2020; Lister & Dhunpath 2016). Limited financial resources are often blamed for poor policy implementation in African settings (Hoeyi & Makgari 2021; Mhazo & Maponga 2022). However, insufficient recognition is given to contributing factors, such as a lack of political will, other priorities, widespread corruption and disregard for vulnerable persons that are endemic in South Africa. In addition, seeking the input of persons with disabilities during planning and development of transport infrastructure is a necessity if they are to use the infrastructure autonomously and safely (Hernandez & Rodrigues 2024; Soares Müller et al. 2023). However, they are not always consulted in the development and implementation of community mobility planning (Hernandez & Rodrigues 2024; Soares Müller et al. 2023).

Disregard can be driven by unfamiliarity and a lack of understanding of the other's position. In the context of the current review, decision-makers might have little knowledge and understanding of the ground-level pressures and expectations of drivers, fellow commuters and wheelchair users. Thus, awareness-raising and education are called for. At the same time, participative processes of planning and action are essential (Duri & Luke 2022a; Kett et al. 2020; Lister & Dhunpath 2016; Savill et al. 2003; Vanderschuren & Nnene 2021). The transformative power of participatory processes in which taxi drivers and persons with disability shared experiences and planned together has been illustrated (Fredericks et al. 2024b). Should government fail in this responsibility, private enterprise and non-governmental organisations (NGOs) can take it up, as was done by Shonaquip Social Enterprises with the development of the *Let's Talk mobile* application for parents (Trafford et al. 2020), which provides an opportunity for parents of children with disabilities to help monitor implementation of the *White Paper on the inclusion of persons with disabilities* (DoSD 2016).

The identified barriers often revolved around the attitudes and actions of taxi drivers. They were seen as disrespectful, rude, unwilling to stop, unwilling to help, in a hurry and focused on making money. Chapman et al. (2024) found that being treated with disrespect and as a burden negatively impacted the self-worth of wheelchair users in Australia. A systematic review by Park et al. (2023) confirms that negative attitudes and negative encounters with service providers and fellow commuters reduce self-confidence and increase anxiety among persons with disabilities when using public transport. However, current results also acknowledged the predicament minibus taxi drivers face in safeguarding their incomes and/or businesses. It was suggested that taxi drivers be trained on communicating with wheelchair users and assisting them into and out of the taxi (Duri & Luke 2022c; Lister & Dhunpath 2016). Unsworth et al. (2021) also recommended training of transport vehicle operators. Familiarity and understanding foster empathy and break down fear and anxiety, which means that training might also change taxi drivers' attitudes towards wheelchair users (Savill et al. 2003). However, the recommendation is difficult to enact as minibus taxi drivers are not required to complete a formal training course

(Department of Transport 2020). Such courses would have provided an opportunity for training on assisting wheelchair users. Even so, it remains an important possible facilitator that needs further exploration.

Persons with disabilities, including wheelchair users, often live in poverty. Because of little income and competing needs, wheelchair users struggle to afford minibus taxi fees even while it is the cheapest form of public transport (Aenishänslin et al. 2020; Duri & Luke 2022c; Fredericks et al. 2024; Magaqa et al. 2021; Ndebele 2020; North & Visagie 2020; Odame et al. 2023a; Vergunst et al. 2015; Visagie et al. 2023). Transport cost as a barrier to access and a reason for cutting down on travelling was found around the globe for different types of transport, such as trains and buses (Fredericks et al. 2024a; Park et al. 2023); (Fredericks et al. 2025b; Mindell et al. 2025). Wheelchair users do not get special rates when using minibus taxis (Odame et al. 2023b). They also do not receive financial support to specifically compensate for minibus taxi costs. The money must come from the social grant that also pays for food, medication and other costs of living. In addition, having to pay for caregivers and wheelchairs means they might pay three times the going rate per trip (Fredericks et al. 2024a).

The financial burden on wheelchair users can be alleviated through subsidies, coupons or contracts facilitated by local government. By providing taxi drivers with contracts to transport wheelchair users, the government will be able to stipulate agreements regarding routes, accessibility of vehicles and training of minibus taxi drivers on interacting with persons with disabilities and assisting wheelchair users safely into and out of minibus taxis. Wheelchair users must have a voice in the planning and budget allocation of such services to ensure that their needs are met (Morta-Andrews 2018).

As in this study, inaccessibility of public transit vehicles was also described by Liu et al (2023) referring to buses in the United States, and Park et al. (2023) in a systematic review. Minibuses became taxis by default and were never designed with the needs of wheelchair users in mind (Duri & Luke 2022a, 2022b). They are manufactured in bulk on assembly lines; thus, individual modifications are costly. Changing their design or retrofitting vehicles currently in use will also be expensive and not easy to do (Park & Chowdhury 2022). Unsworth et al. (2021) indicated that further research is necessary to determine optional vehicle design to facilitate access for persons with mobility impairments. The use of ramps for boarding and research on optimal ramp design was also mentioned by Unsworth et al. (2021). In the meantime, stakeholders can engage with minibus taxi designers regarding the position of design features such as grab handles. The number of grab handles can be increased, and they should be placed where they can be of maximum benefit to wheelchair users. Adding more grab handles at strategic places inside the minibus taxis will assist wheelchair users and the general public alike.

Most of the other mechanical barriers can only be addressed through costly changes, such as modifying individual vehicles or reducing the passenger-carrying capacity. Odame et al.'s (2023b) suggestion for a dedicated seat with priority access given to vulnerable commuters is strongly supported as a starting point.

That way, if a wheelchair user is transported, they get that seat, but if not, other commuters can use it. Other commuters know that should a wheelchair user be picked up, they must vacate the seat if it is in use.

Across African countries, similar barriers impacted the accessibility of minibus taxi services and wheelchair users' experiences to such an extent that their combined effect made it difficult for most, and impossible for some, to use the services. International authors concur that if the identified barriers are not mediated, wheelchair users' freedom of movement will remain restricted, and they will continue to be excluded from community participation (Bjerkan & Øvstedal 2020; Cepeda, Galilea & Raveau 2018; Tennakoon et al. 2020). At societal level, many sustainable development goals (SDGs), such as no poverty, good health and wellbeing, quality education, sustainable economic growth and productive employment, reduced inequalities, sustainable cities and communities will not be achieved (United Nations 2015).

Universal design principles have been in existence since the 1960s and should underpin the development and maintenance of manmade spaces. Current application of universal design principles is often inconsistent (Chapman et al. 2024). Unsworth et al. (2021) recommended that universal design principles be promoted in the public transport sector. However, social and occupational injustice will prevail when the political and communal will to implement mitigating strategies is lacking, as was shown in this review and supported by Zallio and Clarkson (2021) as well as Stafford and Volz (2016).

Limitations

Limited findings on facilitators for accessible minibus taxis for wheelchair users were identified. The lack of analytical studies was also a limitation and indicates a need for future research. The inclusion of only wheelchair users from the African continent was another limitation.

Conclusion

Minibuses were not designed to be used as taxis or as a means of transport for wheelchair users. Their versatility, the dire transport needs in South Africa and other African countries and entrepreneurship have meant they evolved into taxis. Non-disabled commuters can get in and out, tolerate the cramped space and even take the safety risks – often because alternatives are limited and minibus taxis offer cheap and convenient services. Conversely, wheelchair users are excluded from what would be, for many, their only form of public transport because they are hampered

getting in and out, need more room to manoeuvre, are faced with rudeness and disrespect and lose the advantage of the fare being low, as they must pay double or triple fares. The question that remains for future investigation is: 'How can transport services offered by minibus taxis be reconfigured to be accessible for wheelchair users?'

Recommendations

The findings of this scoping review can assist with future planning of public transport services in general and minibus taxi services specifically for wheelchair users in the African context and other similar settings. The identified barriers and suggestions for facilitators can assist researchers and other interested parties in developing and researching focused strategies to overcome specific structural, mechanical, economic, attitudinal and institutional barriers. The results provide policymakers and local governments with specific areas of concern that they can address to facilitate accessible minibus taxi services for wheelchair users. Wheelchair users and taxi drivers must be active participants in planning and design of services they respectively provide and use. Universal design principles should be included in all future public transport planning and implementation.

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Competing interests

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Authors' contributions

Jerome P. Fredericks formulated the research aim and objectives with the primary study leader Surona Visagie. Surona Visagie and Lana van Niekerk provided academic guidance, mentorship, supervision and editing contributions throughout the research, including the formulation of the objectives, design of the work and data analysis, and contributed to the writing and editing of the manuscript.

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Data availability

The datasets generated and analysed to support the findings of this study are available from the corresponding author, Jerome P. Fredericks, upon reasonable request.

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