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# Challenges of Mobility and Access to Transport for People with Visual Impairment and Blindness: An Exploratory Study

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**Abstract**
The ability to move around to get things done to fulfil one's wants, and needs is critical for independent living, irrespective of his or her age or existence of impairments or disabilities. Safe and efficient mobility with confidence is widely recognized as influential factors of the positive wellbeing of persons with visual impairment and blindness. Inability to confidently move around pushes persons with visual impairment and blindness to a risk of social exclusion. Even though research into this area is significant, such research in developing countries like Sri Lanka is quite limited. While aiming at bridging the said knowledge gap, this research intended to explore challenges and obstacles of mobility and transport experienced by people with visual impairment and blindness in Sri Lanka. This study adopted a qualitative method through in-depth interviews. Fifteen persons with visual impairment and blindness were purposively chosen to represent a wide range of social and economic boundaries and interviewed in May-August 2021. With the prior consent of respondents, interviews were recorded and transcribed. The interview transcriptions were analyzed using a thematic approach. Data triangulation was done through focus group discussion and observation methods. The results confirmed that persons with visual impairment and blindness confronted challenges and obstacles in mobility and transport that is discussed in six themes: deficient infrastructure, access to information, improper attitudes of sighted persons, service provider issues, personal attitudes, and support. The findings urge the importance of implementing the existing provisions while introducing relevant public policies and social awareness.

**Keywords:** Access to transport, Blindness, Mobility.

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## Introduction

Mobility is the ability to move freely in home and community from place to place, in a secure, efficient, and independent manner (Warren et al., 2014). Mobility heightens participation, independence, freedom, social inclusion wellbeing (Hammel et al., 2008). Unless due to illness or some physical incapacity, all human beings need to have the freedom of mobility. Whether it be indoor or outdoor, mobility is something that the sighted takes for granted. Nevertheless, it poses serious issues for people with visual impairment and blindness. While one's residence is an area that is quite familiar to people with visual impairment and blindness, its environment remains constant and therefore stable and comfortable. Even within certain indoor environments which are not that familiar (e.g., banks, religious place, government office, hospitals) poses unforeseen issues on people with visual impairment and blindness. Hence, the blind-friendly infrastructure within such places must also be developed. Importantly, people with visual impairment and blindness being outside the zone of familiarity and comfort are more prone to experience challenges and therefore much less predictable. Thus, freedom of movement of this community becomes seriously constrained. The challenges further aggravate when it comes to travelling. People with visual impairment and blindness rely on shared or public transport (buses and trains) services (Cochran, 2020; Brucker & Henly, 2019). Sri Lanka is no exception. Tuk-Tuk or taxi services are the other means used by the relatively better off.

In Sri Lanka, neither buses nor trains come equipped with provisions to assist people with visual impairment and blindness. The same applies to railway stations and bus stands, major or minor. All such facilities have been planned and implemented by the sighted, for the sighted. Thus, this community's social participation (in employment, education, personal hobbies, shopping, or other activity) is hampered. Persons with visual impairment and blindness ought to have alternate means of travel or are obliged to rely on their family members or others who provide transportation (Gallagher, 2011). People with visual impairment and blindness in Sri Lanka mostly prefer travelling by bus or a three-wheeler taxi, or depending on the distance, walk to their destination. Few, indeed, if any, have access to a private vehicle

(Suraweera, Hasintha and Gunasekara, 2020). Moreover, studies on mobility issues of people with visual impairment and blindness in Sri Lanka are few and far between and a main reason that prompted this investigative research.

This research aimed to explore challenges and obstacles related to mobility and transport encountered by people with visual impairment and blindness in Sri Lanka. The focus of this study limits walking environment and access to transportation facilities.

**Literature Review**

Mobility can be well-defined as the ability to move from one location to another in a secure, efficient, and independent manner. Mobility has two-fold: residential mobility where people move within their residential locations, and daily-to-weekly mobility where people travel within towns (Hanson, 2005). This study thus considered only daily mobility (or outside the residency) and transport is its integral part (Mobility Alliance, 2020). Lack or poor infrastructure facilities for walking environment and transport hampered the daily living of the people with visual impairment and blindness (Ranasinghe, 2014; OECD, 2006; Tokuda, 2001). Authors thus, emphasized that substantial development of walking environment (roads, sidewalks, pedestrian-crossings, bus and railway stations etc.,) and transport (seating, bus and train platform access) including access to information is vital for accommodating the needs of people with visual impairment and blindness namely education, employments, social interactions, marketing and other daily needs. Further, in conformity with the said point by Smith et. al. (2021) stated that absence of mobility excluded the disabled young people from participation in economic, social and community association. The importance of ensuring accessibility to personal mobility was universally recognized by the United Nations' Convention on the Rights of Persons with Disabilities (2006). However more than 150 countries have been signatories, in most countries implementation of such policy is fragmented. It is evident by literature where challenges encountered by people with visual impairment and blindness related to mobility and transport owing to lack of infrastructure facilities and ineffective or absence of national policies are widely documented.

Tokuda (2001) rigorously studied how sidewalks obstacles namely uneven sidewalks, vehicle parked on the sidewalks, other barriers, or obstacles on sidewalks, undulating sidewalks, imbalanced textured paving blocks, inappropriately placed traffic lights button refrained people with visual impairment and blindness from mobility and travel. OECD (2006) highlighted that absence of tactile based or audible walking environment reduced mobility of people with blindness that inevitably negated the use of transport services. Similar situations have also been observed in Sri Lanka where a study of Tennakoon et al. (2020) highlighted that built environment in terms of road infrastructure was not safe for people with sensory and physical disabilities. Further, this study revealed that pavements and sidewalks were poorly built, and they were obstructed by vehicle parking, vendors, and other advertisement posts and billboards. Moreover, physical design of public transport (bus and trains) for instance narrow, and very high footboards with many steps was found to be a serious barrier in get into vehicles on the one hand, and physical structure and location of bus stands and train stations were deemed to be inconvenient (e.g. very short platform of train stations, a wide gap between platform and train, bus-stops located in congested areas etc.,) on the other hand. Improving essential facilities such as seating arrangement in waiting areas for disabled, and developing steps-free, low-floor and obstacle free access to trains and buses is only effective with well-trained staff (Gallagher, 2011; OECD, 2006). Improving access to information related to transport and mobility through reader-friendly modes (mobile apps/webpages with screening reading facility, regular announcement at the stations, SMS alerts, recorded voice etc.) is another crucial area of concerns documented by many authors (Matthews et. al., 2015, OECD, 2006).

It is evident by literature where attitudes, perceptions, and awareness of the public has been attributed to unsafe and discomfort travelling of people with disabilities. People with disabilities mostly interact and expose themselves to public particularly when using public transport. There have been some incidents indicating lack of awareness of how to interact with disabled people reported in Sri Lankan society particularly related to travelling and transport. For instance, Tennakoon et al., 2020 revealed that, people in Sri Lankan society

curiously query about disability when meeting a disabled person, expressing sympathy. But, as stated, understanding is rather important than sympathy. In terms of service providers, some of bus drivers and conductors have not dealt with disabled people nicely as evidence shows. People with disabilities usually need time to get into/get off a vehicle, crossing the road, and buying travel pass or tickets than able-bodied. In such instances, some of drivers and conductors talk and behave irritably with no patience on them (Park, J., et al. 2017; Tennakoon et al., 2020).

Family and peer support for day-to-day work of people with visual disabilities has been identified as complementary for adaptation to environment and greater satisfaction of life (Bambara et al., 2009; Suraweera, Hasintha and Gunasekara, 2020; Suraweera et al., 2021). A study of Sri Lankan context has found that people with blindness are highly dependable on sighted people for getting into and getting off a vehicle when such vehicles are not blind-friendly (Suraweera, Hasintha and Gunasekara, 2020). In a related study by Bambara et al., (2009), instrumental support (or tangible support) by family or peers is crucial to proceed routine tasks of visual impaired people while their emotional support or encouragement to live within limited functions is also vital important.

**Methodology**

A qualitative in-depth interview approach was adopted as the main tool for data collection while data triangulation was done through focus group discussion (FGD) and observation methods. A pre-tested semi-structured interview protocol was used to interview 15 participants with visual impairment and blindness who, representing a diverse array of social and economic strata, were purposively selected. Interviews were conducted during May-August 2021 by a group of trained enumerators via telephone. The informed consent of individuals for participation in the in-depth interviews were obtained. The interviews proceedings were transcribed and translated into English. The transcriptions were subjected to thematic analysis technique to explore mobility and access to transport. While having the initial findings of the interviews, two FGDs with five participants with visual impairment and blindness in each session was carried out via zoom platform. Prior to discussion, informed consent was obtained

from each participant of both FGDs. Each participant was given equal time to express their thoughts. Later, certain places (Railway station in Hunupitiya, central bus stand in Pettah and Piliyandala, Multi-Modal center in Makumbura, Fort, Maradana and Hunupitiya railway stations, overhead crossing in Maradana station, and some roads from Wellawatte to Bambalapitiya, Deans Road between Zahira College, Colombo 10 to National Eye Hospital, Colombo and Viharamahadevi park) had been observed. The study was granted the ethics approval by Faculty of Graduate Studies, SLIIT, Malabe.

**Results and Discussion**

The thematic analysis using transcriptions of in-depth interviews derived 6 themes that were elaborated in this section. Further, findings were validated using evidence from FGDs and observations where necessary.

**Participants**

A total of 15 respondents involved in the in-depth interviews where majority was males (62%). Mean age of the respondents was 36 years (SD +/- 7.5) and minimum and maximum ages were 24 years and 50 years, respectively. The majority (53 percent) were single while the remainder was married. Forty percent of the respondents were graduates while 27 percent and 13 percent of respondents studied up to A/Ls and O/Ls, respectively. Amongst the respondents, 65 percent were totally blind, and 35 percent were severely blind. However, this study considered both categories as blind. Almost one third of the respondent mostly engage in informal sector irregular work while others employed in formal sector (42 percent in public sector and 25 percent in private sector).

**Deficient infrastructure**

The research team observed that to facilitate the mobility of people with visual impairment and blindness, the government has installed tactiles on the pavement and pedestrian crossings in the high traffic area between Bambalapitiya and Kollupitiya in Colombo. The respondents of in-depth interview made the following statements about these:

"The government must ensure that these are constructed from a blind person's point of view. They need to consider the places that need tactiles. These are not placed in the places that need to have them." (a self-employed person)

"The tactiles at the pedestrian crossing provides some assistance, but the guide tactiles on the pavement do not help. I depend on tapping the pavement provides better guidance" stated by a teacher.

These views were further reinforced by both focus group discussions, highlighting some barriers prevent from accessing roads. Light posts were erected on the path of laid tactiles. Bars erected for the safety of pedestrians also pose challenges to people with visual impairment and blindness. Sign boards erected at head-level can prove hazardous to people finding their way by tapping a cane on the ground. In some places, there were electrical cables (whether live or not was not evident) protruding from light posts.

FG1 further raised that the lack of adequate vehicle parking facilities coupled with the prevailing lack of discipline amongst road users also posed problems. In certain areas, vehicles are parked on the pavement or sidewalks, obstructing pedestrians. People with visual impairment and blindness are compelled to walk on to the road to get by, facing the danger of oncoming vehicles.

Overhead bridges for pedestrians were another source of discontent.

"These are not in a state for us to use. On the one hand, it is too high, and on the other, there are no handrails in some places. Moreover, these are dirty and not easy to hold on to," said a disgruntled individual of FG2.

Where railway stations are concerned, a similar situation prevails. A teacher who used the train regularly had this to say.

"The gap between the platform and the train is too wide. When the train comes, we might fall. Finding the steps are difficult without the assistance of someone."

In fact, a blind individual has fallen into such a gap only to lose his life as the train ran over him. The research team experienced other issues related to build environment. According to prevailing law, there should be guide tactiles placed from the entrance to at least one ticket counter. These were absent. The only tactiles that were available in the station were the warning tactile placed one (1) meter ahead of the platform edge. Relevant information was not provided in braille. In one main railway station, sanitary facilities for the disabled, among which are people with visual impairment and blindness, were only available on certain platforms (the 5th and 6th platforms). Another major station had no sanitary facilities available for the disabled.

The central and inter-provincial bus stands showed the same lack of concern for people with visual impairment and blindness. There were no provisions for them, and braille signs boards were not available. On the other hand, at the multi-modal centre at Makumbura, most requirements as needed by people with visual impairment and blindness were fulfilled, albeit with some deficiencies. For instance, finding the entrance to the centre is difficult for people with visual impairment and blindness. Things became much easier once inside, but some issues persisted. A blind public sector employee had this to say:

"But for a blind person he has a question as to from where he is to enter. But somehow after entering the premises the tracks have been divided, but that too there is no proper plan."

He also had doubts about the motives of the government:

"In order to go to the international level, they have constructed the Makumbura Multi-modal Transport Centre for the sake of constructing it."

In general, observations revealed infrastructure that support independent travel of people with visual impairment and blindness persons in many public places are not present. These findings are in conformity with past studies (OECD, 2006; Tokuda, 2001).

**Access to Information**

For people with visual impairment and blindness obtaining timely and relevant information for mobility and travel is a difficult task. It is an aspect that needs considerable improvement in Sri Lanka. For instance, when crossing a road, they depend on their auditory sense.

"Before crossing a road, I must listen carefully to the noise coming from both sides. On occasion, I collided with a cyclist. Most times, I must get someone's assistance," said a respondent who was a self-employer.

As per the respondents of FG1, "It is not only bicycles, but vehicles with electric engines and on occasion hybrids also pose another hazard, as these emanate little or no sound when moving". A similar study by Emersona et al. (2011) found that hybrid and electric vehicles were often not audible, thus these vehicles especially at slow speed pose pedestrians with visual impairment at greater risk of detection than sighted people. A respondent of interview stated that "finding a pedestrian crossing is a challenge, especially if the environment is unfamiliar. There were tactiles present along with sound emitting traffic lights at pedestrian crossings in some urban areas in the capital city of Colombo. Not all such traffic lights, however, function as intended on a regular basis".

It was evident that mobile phones with map-based applications and vocal instructions are used by some, but it is not always helpful.

"If I am in a rural area, most likely it is not included in the app," said a blind interviewee who was a teacher at a public school.

A retired teacher of FG1 noted that". people with visual impairment and blindness depends a lot on other senses like 'feel' and 'smell.' It helps them when using public transport. When travelling in an area which they are not familiar with, problems arise. That is when they must depend on assistance from sighted passengers".

Most respondents of in-depth interviews and focus group discussions emphasized that they are not keen on travelling by train. If they do, it

is usually in the company of another sighted person. The reasons stated are:

When there are multiple platforms in the station, even though the platform number is announced over the public address system, locating the platform becomes a problem as there is no proper means of accessing this information.
Sometimes, due to track changes, there is a danger of getting off the train from the wrong side, on to the parallel railway track.

The studies by Matthews et. al., (2015), OECD (2006), and Mackett (2008) revealed that absence of visual impairment friendly information system excludes people with vision difficulties; thus, authors urged the establishment of necessary provision for such facilitations by the authorities.

**Improper Attitudes of Sighted Persons**
The white cane that is carried by people with visual impairment and blindness is a globally recognized symbol. It speaks of a community of people who need the support of the sighted during their lives. The unfortunate reality, however, is that some who either do not respect it, or interpret it in a wrong manner.

A graduate employee in a public sector shared his views on use of while cane; "…some are sceptical of the bona fides of the person using a white cane who asks for some assistance. Then again, some are quick to the conclusion that the person is asking for charity and making monetary offerings. It becomes an embarrassment for us. Due to such experiences, I have stopped using white care for traveling".

"We have enough evidence to say about carelessness of drivers and passengers" said by a respondent who was a mobile carpets seller. He further stated that there are those who drive vehicles without a semblance of discipline and without a care for this disadvantaged group. There are other pedestrians who move around carelessly and knock on to people with visual impairment and blindness, sometimes, breaking the white cane in the process. After doing so, some have the audacity to ask whether people with visual impairment and blindness is blind.

A respondent of in-depth interview raised that "not all but some people are good hearted souls who provide directions with hand gesticulations, forgetting for the moment that they are speaking to a person without sight. I have very often experienced this when I started traveling to town for my job. Also, I have heard similar stories from my peer friends during university studies." (A teacher at a public school)

There were some unpleasant incidents that occurred due to bad attitudes of some people. A public sector teacher elaborates her experience during the in-depth interview with her.

"When I was travelling to Colombo university from Matara alone, I faced few bad incidents. Since it was a long journey, many males sat very close to me knowing that I am blind. In such instances, some female passengers around me helped me to sit in a comfortable place".

A teacher at a School for Blind further reinforced this at the FG2: "some of my friends with visual impairment and blindness told me that they do experience harassment, mostly of a sexual kind. Not only that, but some also become the victims of theft while travelling by public transport". A study by Tennakoon et al., (2020) was evident that people with visual disabilities reported many discomfort incidents while travelling by public transport.

**Service Provider Issues**

Respondents of FG1 and FG2 brought out some issues related to public transport: some bus operators deliberately avoid boarding people with visual impairment and blindness for fear that they are looking for free travel. Some do not stop for them when the bus is crowded. Moreover, it takes more time for people with visual impairment and blindness to board the bus. The conductors are generally in a hurry to obtain the fare, putting them into difficulty as they take time to count out the amount. These statements are conformity with the findings of Park, J., et al. (2017) and Tennakoon et al., (2020).

A few respondents of in-depth interviews who do frequently travel for their job revealed that some of conductors of public transport facilities are kind enough to let them travel free of charge. Moreover, there are

also those who stop for people with visual impairment and blindness even when they are not at a proper bus halt.

Such mixed receptions are experienced with taxi drivers as well. Most three-wheeler operators fear boarding people with visual impairment and blindness person.

"Most of the three-wheeler guys are scared. They don't want to go to the exact place. This person cannot see how is he going to tell the correct place, so I tell, you go I will tell you the place" was said by a private sector employee. However, the same person said that,
"Most of the tuk-tuk guys in Colombo know me very well. It's like a rotation."

This implies that when a taxi driver is familiar with the visually impaired or blind person, they do not hesitate to board them.

A self-employed respondent stated a justifiable conclusion on the behavior of service providers: "Perhaps, it is not the lack of care but more due to economic circumstances that some service providers behave in such a manner". Similarly, almost all the respondents of in-depth interviews and FGDs carried a similar perception that would be a positive trend for living with greater satisfaction.

**Personal Attributes**

To face the world boldly, people with visual impairment and blindness need to possess self-esteem, self-confidence, and a sense of independence. For most, however, these qualities need to be developed. An important requirement is mobility training. The significance of this is revealed by what an employee in the private sector said.

"I just picked up the basics within a week. I was told what the white cane is and how it is to be used and the techniques involved. How we are to use public transport was also imparted. The white cane is an asset for my mobility."

Participants of FG1 also emphasized that once the ability to move around and travel is gained, their confidence and thereby their self-esteem improves considerably.

Current improvements in technology, especially where mobile phones are concerned, also helps people with visual impairment and blindness to enhance their mobility. For instance, a blind teacher said:

"I use an application called cash reader. I heard about it very recently. Now it has become easier for me to identify money. Before that when I used to deal with money, I could not identify money immediately. When I give money to the bus in a hurry, the conductor does not give me time to identify money, he wants the money quickly."

Not all, however, appreciate such developments as for some, it tends to complicate issues rather than assist. They prefer to use traditional aids. The following was stated by a blind businessman.

"No, I really cannot get used to a smartphone. My children use them, but I necessarily have no interest in using one."

People with visual impairment and blindness rely on their other senses to acquire information about their environment. Infrastructure, or the built environment can be constructed to make it more navigable by this group of people, but as described, little has been done in this regard. On the other hand, the natural environment is a given. It can pose both advantages and disadvantages to the sightless. Consider what was said by a blind businessman:

"Often around here the place to alight can be recognized by the bus taking bends or climbing uphill."

Inclement weather can pose problems. Muddy roads and slippery surfaces are known to have caused several incidents and accidents for people with visual impairment and blindness. Moreover, apart from other difficulties, it can serve to disorient them as well. A retired teacher who was involved in weather related accidents had this to say:

"When raindrops fall there is a sound. With that we get confused. Just think when it rains with one hand, we must hold an umbrella, on the other hand, the white cane."

Clearly, there are instances when they need assistance from sighted people.

**Support**

Findings of the FGS revealed that family and friends are those who most frequently offer support to people with visual impairment and blindness in general, and when it comes to mobility and travel. The roles such people play are critical. In surroundings that are familiar, not much help is needed. But they do solicit help when in strange surroundings. Such support can take many forms, from physical guidance to vocalized directions.

The reality, however, is that most of the time sighted people are reluctant to help them when they require assistance both while walking on the road and using public transport. This was the majority opinion of the respondents of FDGs and in-depth interviews.

A teacher at a School for the Blind emphasized that mobility training as a form of support for people with visual impairment and blindness is essential, but in some instances it is not adequate specially a country like Sri Lanka as blind-friendly access to mobility and transport is rarely seen. As such, support from sighted people coupled with mobility training is essentially required to people with visual difficulties for moving around to acquire daily needs. This is therefore highly considered. This idea is well-established by a study of Bambara et al., (2009)

In terms of legal provision in Sri Lanka related to mobility of this community, a senior public sector employee precisely noted that regulations aimed at creating a blind friendly environment exist. Specifications for infrastructure construction too are laid down. For instance, access terms for any person to enter, approach, or pass any public place or building where common services are available without the assistance of another person were published in 2006 in the

Government Gazette Extraordinary No. 1467/15. This law also states that a minimum of 10% of public transportation must be accessible to people with disabilities along with the required design standards. The regulation further states that no certificate of conformity may be given by the associated authority unless the related authority is satisfied with the plan established under the applicable regulations. The National Policy on Disability in Sri Lanka published in 2003 enquired into the possibility of altering the existing railway and bus stations to see that there is greater access for people with disabilities. Though these policies have clearly been stated and made law, the actions needed to implement them is lacking. The majority of the interviewees and FGDs raised that lack of literacy about people with visual disabilities and their needs is one key determinant of keeping this community excluded from society. As they believe, the general apathy displayed by society and by the authorities concerned only serves to prolong their misery.

**Conclusion**

The study found that people with visual impairment and blindness encounter persistent challenges and obstacles related to building environment and access to transport. The country, however, has been committed to providing barrier free access to road and transport by imposing certain provisions, but effective operations and sustainability of such provisions is still problematic. Further, construction of built environment particularly roads, sidewalks, and signal lights must be coordinated with other service providers namely electricity board, water board and telecommunication services who also dig the roads time to time. That can create uneven surfaces and damage to tactiles, and such situations can pose this community a greater risk. Further, public bus stops, train stations and in/outdoors of vehicles (e.g., food-boards of buses) should also be built in line with the required accessible specifications. Mobility and transport exist within a diverse ecological system; thus, the study urged the importance of multisectoral involvement for implanting existing provision while urgent actions for initiating the relevant policy measures where absence, is vital.

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