

# Disabled People in Sakarya and the Problems With Public Transport: What has been done, What should be done.

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**Abstract:** Disability comes in many shapes and forms, but where it affects mobility there are problems. The use of taxis or a car seems to be most convenient way of travelling for the disabled people. It is a very demanding and difficult, even sometimes impossible, job to get to a bus route, then getting on the bus for those having disability problem. Once you manage this part of the journey, there comes another problem: Will you be able to go wherever you want without multiple changes? Most city buses in Sakarya do not have wheelchair lifts – and the ones that do- are not used effectively due to routine repair problems. This paper is based on a research among the disabled people from Sakarya, those with audial, visual or physical problems that prevent them from having freedom of movement. The outcome of this research is shared with the Transportation Department of Sakarya Municipality.

## Introduction

Disability is defined by the World Health Organisation as: “ Disability is an umbrella term, covering impairments, activity limitations, and participation restrictions. An impairment is a problem in body function or structure; an activity limitation is a difficulty encountered by an individual in executing a task or action; while a participation restriction is a problem experienced by an individual in involvement in life situations.”

As can be seen from this definition, the disability is a quite complex phenomenon reflecting different aspects of the real life situations for those having difficulty to live in a society according to a standard or norm. Disability may be in one's life since his/her birth or it may occur at any part of his/her life time. In transportation engineering context, disability may be regarded as any sort of impairment limiting the mobility. A person carrying a couple of bags after shopping, or a mother pushing a push-chair with a child in it could be seen as disabled person with this regard although he or she may not have any physical or mental problem what so ever.

Falkmer (2001) states that the children with disabilities are prone to a higher degree of accident risk compared with children in general. It has also been stated that the wheel-chair related injuries of disabled people are mainly due to tips and falls to get on or off the buses (Kirby et al., 1994 ). Shaw ( 2000 ) expresses that as long as abrupt maneuvers are prevented, the majority of wheel-chair users' injuries can be eliminated.

From another perspective, concessionary fares and policies designed to include older people in both public and private transport enhance the mobility of these people (Metz, 2003 ) .

The aim of this study is to analyse the perception of the disabled people regarding transportation infrastructure currently available in Sakarya. A questionnaire, for this purpose, has been prepared and completed by 207 respondents. The safety issues, such as the possibility of an injury risk in an accident as a passenger when travelling on a public bus or in a taxi just like other passengers do, have not been considered in this research simply because the main issues were uniquely regarded as those disabled people experienced while using transportation system in Sakarya. However, the safety issues directly related to being disabled are included in the paper.

## **The Structure of the Questionnaire and Scope of the Study**

The first part of the paper describes the general structure of the questionnaire. The second part uses and analyses the findings and data to see the whole picture in order to investigate the mobility problems of the people. The last section suggests the proper and necessary actions to be taken to make sure that Sakarya is a city of zero difficulty in performing daily travel activities for so-called disabled people.

The questionnaire consists of fourteen sections. The first one seeks the respondents' information about their name, age, sex, educational level and disability problem, i.e., visual, audial, orthopaedic, etc. The second section deals with the issues of the way that respondents travel. The questions have been prepared to collect the information about the public transportation modes and vehicles that they use along with the information about the average travel time and distance in a day both on weekdays and weekends. The third part asks questions regarding if any other way of travel is used apart from public transportation. The following sections are designed to get information about whether a private vehicle is used, the purpose of travel, Origin and Destination ( O-D ) points including links, if they can travel between O-D points within planned travel time. The coming two parts are basically about the traffic rules and fines to investigate the attitude of disabled people towards present law. The following part is related to the concerns of the people regarding the general transportation system of Sakarya. The sub-questions are about the planning system, enforcement level, paratransit systems and road users including pedestrians. The next one questions the least safe points and states that disabled people perceive in the road network, such as zebra crossings, intersection points or when getting off a public vehicle, etc. The effect of parked vehicles are investigated in the next section. The last question is about the general impression of the disabled people if they feel safe when travelling at any point in Sakarya.

The answers of these questionnaire were acquired through one-by-one interviews with the members of The Disabled People's Association of Turkey, Division of Sakarya.

A total of four sub-social authorities in Sakarya were contacted for investigation. The willingness of these authorities enabled us to get as broad a picture as possible. The participants are;

- Six Dots Foundation for the Blinds, Division of Sakarya
- Association for the Physically Disabled, Division of Sakarya
- Association of Audial Impairments, Division of Sakarya
- Autism Association of Sakarya

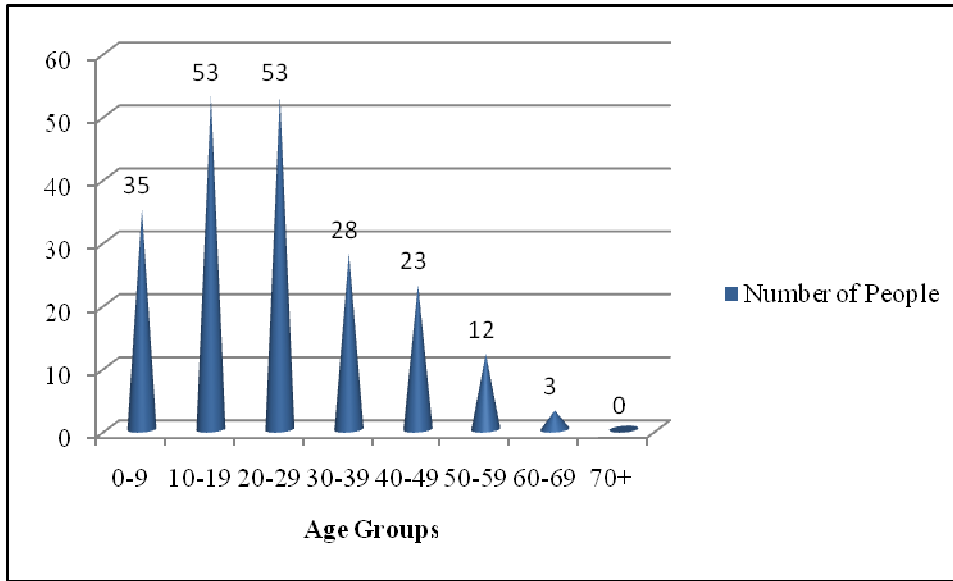
The selection of respondents ( interviewees ) was grounded on the ambition to obtain as broad a range of perception categories. As a result, the organisations above were contacted and the interviews were made at the centre of associations rather than the homes of the participants due to privacy concerns.

As the main motivation of this research is to reveal the transportation related perception of the disabled people in Sakarya, deep statistical analysis has not been done. It is believed that the presentation of the findings of this study would give a clear picture of the strong and weak points of the transportation system in Sakarya from the points of the disabled people.

## **Findings**

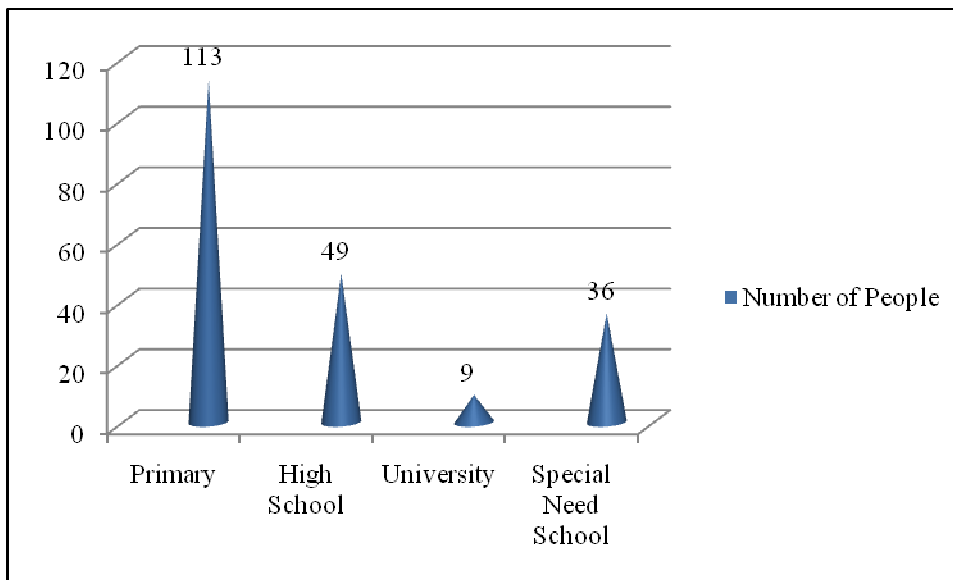
The quantitative data collected through the questionnaire were grouped to clarify the answers. In this way, the obtained information is believed to be useful to comprehend and highlight the respondents' perspective.

Figure1 below indicates the range of the age of the people in this study.



**Figure1:** The age groups of the study

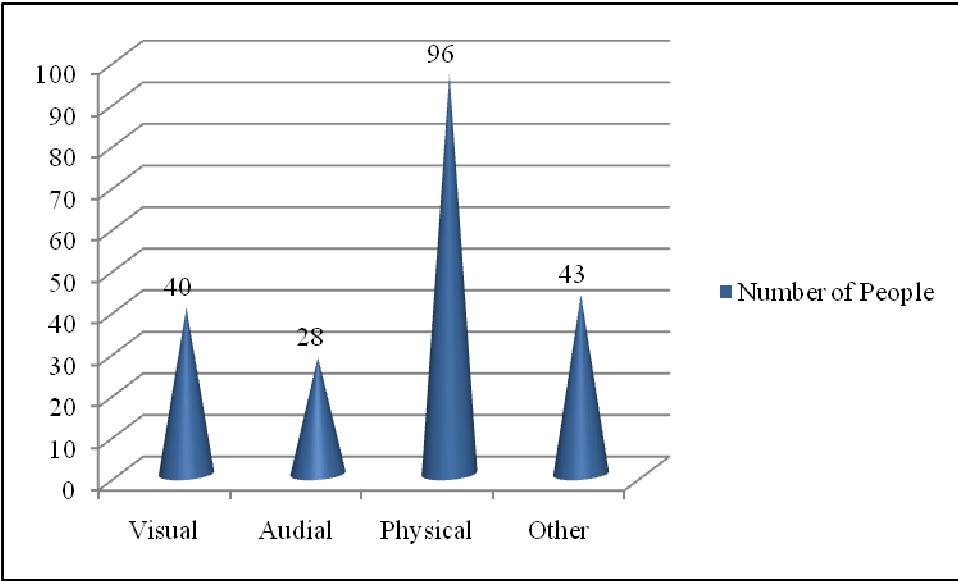
As can be seen from this figure, 68,11% of the respondents is quite young people, below 30 years old.. It is believed that this figure illustrates the fact that the obtained results should be seriously taken into account in order to plan the future as far as disabled people are concerned. The current situation could have been more precise for the middle age and elderly people if the number of people of this group had had a higher proportion. Nevertheless, it is still believed that the 31,89% can be seen a good proportion to see the general perspective of these people's perception.



**Figure2:** Educational levels of the study group

Figure 2 above clearly states that majority of the respondents, 54.59%, has only the basic educational level. This is another point to be mentioned for expressing the lack of opportunities for disabled people in terms of the quality of the education that they get. It should be mentioned here that 55,5% of those graduated from the university has visually disabled people. Those attending special schools are mainly autistic children constituting 17,39 per cent of all respondents.

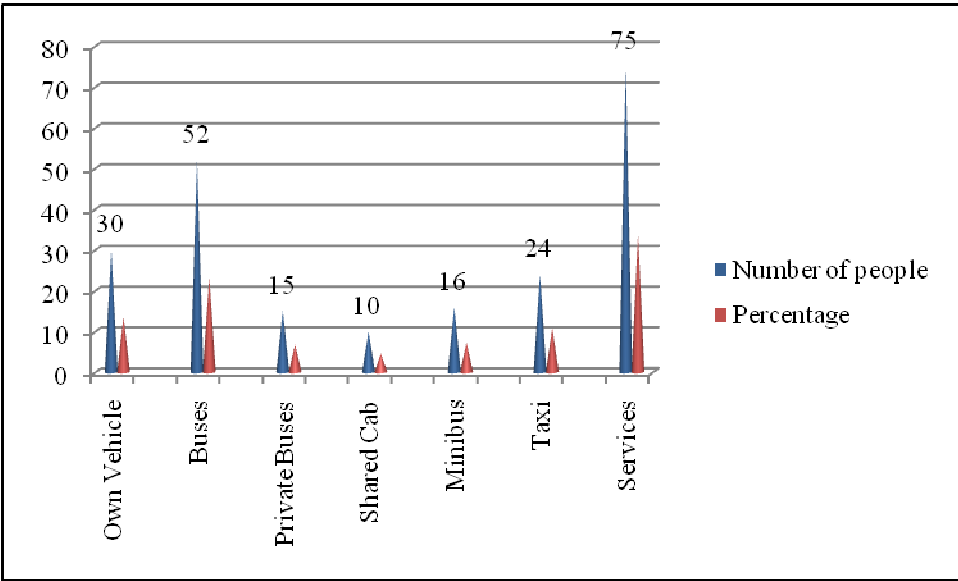
Figure 3 below illustrates the group of people according to the disability that they have.



**Figure 3:** Disability type of the respondents

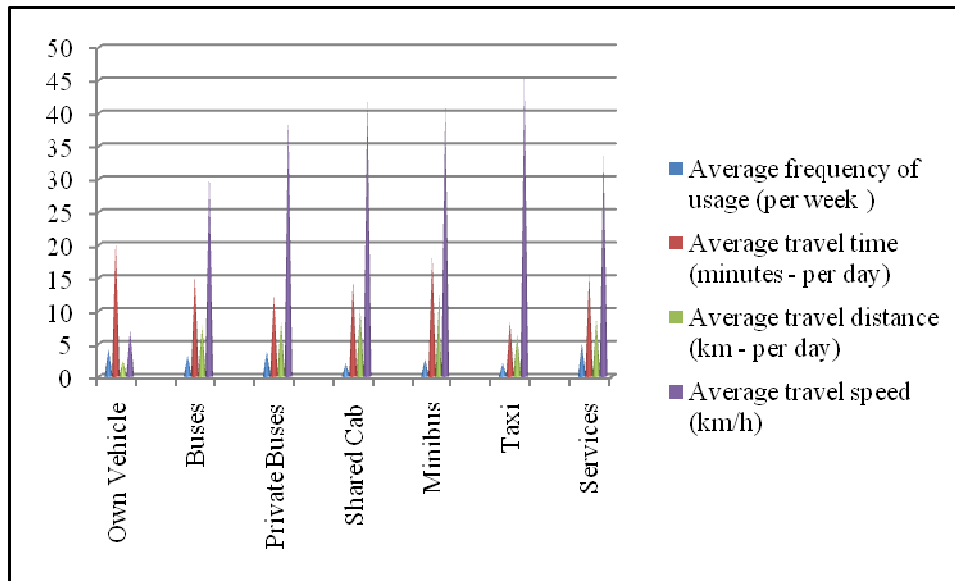
The proportion of the physically disabled people is the highest one, 46,37%. The classified other portion gives the number of those having autism problem. The interviewees of this type were the parents or gurdians of the disabled people.

The following figure, Figure 4, denotes the choice of the respondents interms of transportation mode.



**Figure 4:** The choice of transportation mode for mobility

As some respondents use more than one mode of travelling, total number of people seems to be higher than the total number of interviewees. The group of own-vehicle mainly consists of battery power-wheelchair owners. The disabled people travelling with their own cars is only 10 per cent of the group. Special services seems to perform a very important role for those having autism problem to have a reasonable mobility. There should not be a reason to mention that the autistic people normally travel with their parents or guardians. If we look at the usage, travel time, travel distance and travel speed of the related transportation modes, Figure 5 below is obtained.

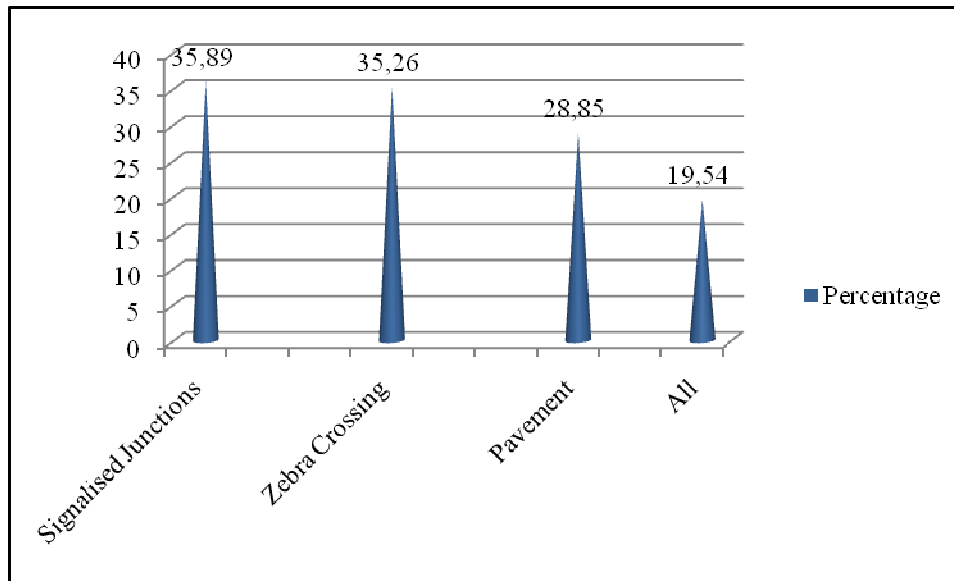


**Figure 5:** Travel characteristics of transportation modes

The numerical values from Figure 5 presents the fact that disabled people are essentially dependent on the public transportation vehicles. Buses operated privately or publicly play an important function for the mobility of the disabled people. Services, operating on scheduled time-tables, also seem to be very important transportation option. The average travel time with own-vehicle (mainly battery-power wheelchairs ) is 20.5 minutes per day along an average distance of 2.4km corresponding 7.02km/h average travelling speed. The highest travel speed is offered by taxis, 45,4km/h. The shared cap and minibus services travel more or less at the same average speed, 42,62km/h and 41,3km/h, respectively. The figures also indicate that considering all the modes, the avrage daily travel distance is 56,6 km. It is intrsting to note that the total distance travelled by disabled people travelling on the vehicles driven by other person rather than himself corresponds 95.75% of total daily average distance. This clearly means that disabled people heavily dependent on the other people for their mobility. The public service to respond this structure,hence, must be organised and operated very efficiently for giving a good transportation opportunity for those in need.

The average travel time for own-vehicle transportation corresponds to the 19.44% of the average total. This high proportion stems from the fact that the speed of this type of vehicle is quite low ( 7.02 km/h ) causing to spend more time to travel the unit distance.

The following figure categorizes the critical locations perceived as the least safe points by the respondents.



**Figure 6:** Perceived locations of least safe points

Figure 6 exhibits that 28.85% of the participants do not feel safe even on the pavements. In addition, 19.54% of the people perceive that all these three locations are not safe enough for them to perform their daily mobility activities. As expected, conflict points for road crossings, signalised junctions and zebra crossings, represent the most critical points of safety perception.

## Results and Discussion

The outcomes and related suggestions of this study may be summarised as below.

- The disabled people in Sakarya require a well established, regular, safe and frequent public transportation system for having a good opportunity whenever and wherever they want to travel, just like the other people do.
- They deserve more respect and recognition from the other road users.
- Signalised intersections, especially the city centre, must be designed and operated by considering the needs of the disabled people. This could be done by giving extra time for blind people, or presenting police officer to make sure that road users obey the traffic rules for giving a safe traffic environment for the others.
- Parking on the pavements is a very important problem. It becomes even more problematic when drivers park their vehicles on the ramps, access points for the disabled people to get on or off the pavements. Enforcement measures should be taken more seriously to lessen the danger for the disabled people. The unauthorised usage of allocated disabled parkings by drivers creates another significant problem for those wishing to travel with their own cars to central parts of the city.
- The main concerns of the participants are related to the planning and paratransit transportation system of the road networks in Sakarya. The roads are thought to be not wide enough to walk or use the wheelchair on them safely and there are not sufficient designated road sections for the people.
- The transfer opportunities for long journeys are neither sufficient in number nor frequent enough. There is also a demand that the long journey routes should be combined and a single route is obtained.
- The traffic fines could be categorized to increase the ones related violating disabled people's right.
- The usage of the seat-belt is reasonably acceptable, 87.75%, among the disabled people even for relatively short journeys. The violance of the traffic rules among disabled people in Sakarya resulting in fines is very low to mention. Just one person fined for improper parking.
- The reliability of bus services is not satisfactory enough. Some technical, such as bus-lanes, and operational measures should be taken.
- The main destination point seems to be the city centre, although there is a wide range of origin points.

- The purpose of the journeys can be classified as 35.6% for education, 27.5% for health, 28.17% for social activities, 4.2% for job and %4.53 for the others.
- The question of whether the participants feel safe in general when using the transportation network system ( including walking ) was answered as 71.45% no, 28.55% yes. This should urge all the authorities to take all the required and necessary measures to provide safe mobility environment for the disabled people.
- When the respondents asked to answer if they travel between their origin-destination points within the expected travel time, 84.52% of the people said, interestingly, yes and 15.48% said no. This means that although people do not feel safe when using the road network, their anticipation level of travel time reliability is quite high.

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