

ANALYSIS OF RAIL TRANSPORTATION SERVICES FROM THE ASPECT OF PERSONS WITH DISABILITIES: SECTION BELGRADE-NOVI SAD

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Abstract – Pointing out and emphasizing the necessity of supporting persons with disabilities when using rail transport to increase the level of service provided, accessibility, and mobility for this demographic group in the Republic of Serbia is considered another necessary step for a better society. With the questionnaire related to services in passenger rail transport, it is possible to receive the feedback from passengers on various aspects of train journeys and railway station utilization. The goal of the questionnaire is to provide railway operators with insight into the attitudes and needs of passengers so the service quality and travel experience could be improved. The presentation of such results is very important not only for persons with disabilities but also for wider professional audiences and decision-makers to identify deficiencies with the performed works on the railway infrastructure, thereby enabling improved problem-solving strategies and preventing the recurrence of similar issues at other locations.

Keywords – Persons with disabilities, service, railway, satisfaction

1. INTRODUCTION

People with disabilities mainly use road transport services to fulfill their daily or periodic needs. They use rail transport services far less, primarily due to the inadequacy of the quality of the service provided, although rail transport has known comparative advantages.

In the Republic of Serbia, there are certain activities aimed at improving the social inclusion of persons with disabilities by looking at possible steps in solving the problem of accessibility to all public railway facilities.

Travels made and services provided directly affect mobility limitations, which can be psychological, social and psychophysical. It is for these reasons that issues of overcoming possible limitations and ensuring the greatest possible mobility and access to all desired destinations are being raised [1].

Realization of the rights of persons with disabilities in the areas of social, health, family - legal protection, employment, traffic, etc. it is regulated by laws and other regulations. These documents can be of international or national character.

Knowledge about persons with disabilities and public transport is imposed as a need for their better understanding. As a result of the research, it was determined that it is not easy to get to the bottom of the needs of people with disabilities because some of them have no idea what kind of environment there is, while on the other hand, there is a larger number of them who have personally experienced inaccessible transport [2].

This research aims to understand the experiences of PWDs (people with disabilities), including those who do not use rail transport. Data were collected from PWDs with various disabilities, focusing on the satisfactory services offered in stations and trains.

2. LITERATURE OVERVIEW

Understanding the activities and dynamics of the behavior of certain populations and better identifying the satisfaction of their needs for future planning of the system is put as a postulate to which attention should be paid [3]. The needs and requirements of PWDs differ depending on the type of disability and the needs of these people for public transportation,

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due to the collection of the highest quality data in the paper [4], the information is viewed according to availability and reliability in real time.

In order to obtain complete information, it is necessary to collect travel patterns and attitudes of people with disabilities and consider the problems they face in different modes of transport [4], [5]. The availability of transport service and the possibility for people to be mobile is not equally distributed among all social groups, it was stated in [6].

As one of the examples of individual research, the study of blind and partially sighted people is presented in paper [7]. The main characteristic of this research is that it is not necessary to improve physically, but rather the way and type of information that would be available to them.

At the end of the 20th and the beginning of the 21st century, a number of documents were adopted in the EU that looked at the improvement of the development of transport. Accordingly, and the possible unification of the observation of both problems by the introduction of standards [8], the approach to the operation of public transport was promoted with a focus on the needs of users and their expectations.

From 2021 to 2023, the accessibility of facilities for persons with disabilities in wheelchairs is being analyzed on parts of the reconstructed railway network of the Railway Infrastructure of Serbia. In the papers [9], [10], [11], conducted only on the main corridors of the Rakovica-Resnik and Belgrade center – (Novi Sad station - excluded) line indicates that individual measures have been implemented, but access to all facilities and independent access to the platform for people in wheelchairs is not fully provided.

3. STUDY AREA AND METHODOLOGY

3.1. Methodology

The regular surveys on population mobility conducted in the Republic of Serbia do not adequately address traffic needs for PWD population. This study represent ongoing support for better understanding problems that PWD face in railway traffic. All questionnaires were submitted to associations, which were later sent by e-mail or personally handed over to the respondents. The study participants had various disabilities.

The surveyed population covered urban and rural areas within the Republic of Serbia over railway section Belgrade-Novı Sad. The questionnaire was divided into three parts: Demographic characteristics of the respondents, including municipality of residence, gender, age, and work status (employed, dependent, pensioner), Satisfaction with the services in the stations, Satisfaction with train services.

Due to the importance of this research and the comparability of the obtained results with other European countries, adapted questions from the Eurobarometer, the SRPS EN 13816:2012 standard and positive practices in the field were used as the basis for this questionnaire.

3.2. Study Area

To assess passenger perception, data was collected through a questionnaire survey about Serbian Railway Network, section Belgrade center – Novi Sad, shown in fig. 1.

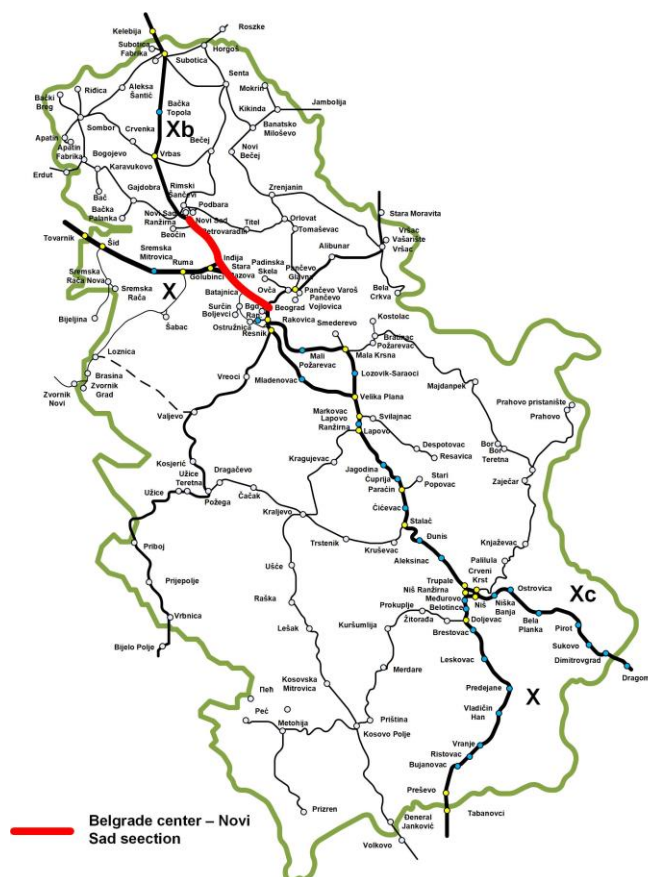


Fig.1. Observed railway section

4. RESULTS

This study involves 25 respondents from the PWD population, and the data was collected through a questionnaire survey conducted from April 1st, to June 25th, 2024. Despite the best efforts of individuals and associations, reaching the PWD population was a challenge, and the maximum possible number of respondents was collected.

4.1. Socio-demographic characteristics

The classification of the PWD population was based on the collected databases.

Tab. 1. Socio-demographic characteristics

No.	Characteristics	Frequency	Percent
1.	Gender		
1.1.	Man	11	44
1.2.	Women	14	56
	Total	25	100
2.	Age		
2.1.	15-20	4	16
2.2.	21-25	1	4
2.3.	26-30	2	8
2.4.	31-35	2	8
2.5.	36-40	3	12
2.6.	41-45	5	20
2.7.	46-50	2	8
2.8.	51-55	3	12
2.9.	56+	3	12
	Total	25	100
3.	Mobility	Frequency	Percent
3.1.	He uses a wheelchair, another person drives	2	8
3.2.	He walks with the help of aids	4	16
3.3.	He walks with the help of another person	4	16
3.4.	Uses a wheelchair, drives independently	5	20
3.5.	Walks independently	10	40
	Total	25	100
4.	Speech	Frequency	Percent
4.1.	Doesn't speak, but he communicates	1	4
4.2.	Normal	23	92
4.3.	Not very difficult, understandable	1	4
	Total	25	100
5.	Education_level	Frequency	Percent
5.1.	Faculty or higher school (academy)	17	68
5.2.	High school	6	24
5.3.	Primary school	2	8
	Total	25	100
6.	Working status	Frequency	Percent
6.1.	Dependent	5	20
6.2.	Employed	15	60
6.3.	Pensioner	5	20
	Total	25	100

4.2. Railway users

This question is very important because previous research has shown that, unfortunately, a considerable number of PWD population, i.e. 40% do not use the railway. The main reasons given by respondents are lack of information regarding accessibility and general service, lack of specific staff.

4.3. Satisfaction with the services

In order to view the satisfaction responses from the survey, an overview is presented based on the most significant responses, as follows: Very dissatisfied (VD), Dissatisfied (D), Neither satisfied nor dissatisfied (NSD), Satisfied (S), Very satisfied (VS).

The main and sub-groups present all the answers related to station area and trains.

Satisfaction with the services in the stations

ARRIVAL - STATION SQUARE: Connection with public transport (S), Parking spaces (NSD).

SERVICES: Quality of service in the facility (toilets, shops, cafes) (NSD) and (S), Availability of free Wi-Fi (NSD) and (S), Mechanism for dealing with complaints (NSD), Customized care for users who need medical assistance (NSD).

INFORMATION AND MOVEMENT: Information on timetables and reservations (S), Easy orientation and movement through the station (S) and (VS), Simple notice boards with information and instructions (D) and (VS), Accurate and clear information about the tracks on which the train is located (S), Information in case of train delays or cancellations (VS).

TICKETS: Ticket price (VS), Ease of purchase (S) and (VS), Ticket purchases according to different tariffs (S), Different payment options (S), Format and information on the ticket (VS).

COMFORT: Comfort of benches in waiting rooms and on platforms (S), Comfort and adaptability of rooms for mother and child (NSD) and (S), Air conditioning in the facility (S).

SECURITY: Personal security (S), Additional security personnel (S), Installed video surveillance (NSD).

STAFF: Existing Station Staff (S), Additional Support (S), Staff Positive Staff Attitude (S).

CLEANLINESS: keeping the pedestrian corridors and platforms clean (S), keeping the toilets clean (NSD).

Satisfaction with train services

TRAINS: Number of train departures (S), Travel time and speed (S), Punctuality and reliability (S).

SERVICES: Quality of service on the train (S) and (VS), Availability of free Wi-Fi (NSD) and (S), Availability of mobile signal (S), Serving coffee, drinks and food (S).

INFORMATION: Provision of information during

the journey (S), Clear and accurate information during the journey (S).

COMFORT: Sufficient number of seats for passengers (VS), Comfort seats or places for wheelchairs (S), Air conditioning in the train (S), Luggage space (VS).

SECURITY: Personal security (VS), Additional security personnel (VS), Installed video surveillance (VS).

STAFF: Availability of staff on the trains (S) and (VS), Help and information provided (S), Positive attitude of the staff on the train (S).

CLEANLINESS: Maintenance and cleanliness of trains (S) and (VS), Maintenance and cleanliness of toilets on the train (NSD).

5. CONCLUSIONS

The main reason for respondents not using the railway is a lack of prior information about accessible services, which is 55%.

In the area of the station in the main group Services - and subgroup Mechanism for handling complaints according to 60% of respondents, it is considered that improvement can be made. Furthermore, in the open answers, the most significant items that can be improved include the impossibility of booking a ticket with privileges, more information for the blind and partially sighted in the station and improving accessibility from public transport stops to the train station.

In the trains in the main group Maintenance and cleanliness - and the subgroup Cleanliness in toilets according to 40% of respondents, it is considered that it can be improved. Furthermore, in the open answers, the most significant items that can be improved are for the blind and partially sighted direct communication with the service to provide support in relation to everything needed on the train.

Although there is a lot of progress in improving the position of PWDs, it can still be said that these people "suffer" a certain degree of discrimination because they are not provided with full mobility, which can be limited even with the services provided.

As the next step of this research, it is necessary to animate a larger number of respondents in associations of PWDs due to a larger sample, and mandatory education and presentation of the reconstructed section of the railway lines.

In parallel with the collection of data, it is necessary to carry out additional education for both students and engineers who plan, design and perform works, as well as executive authorities and traffic service providers.

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