



Alma Mater Europaea University – ECM
Journal of Health and Rehabilitation Sciences, 2025 Dec 20; 4(2), 47-55
Rehabilitation Research

Experiences of People with Motor Disabilities and Visual Impairments with Assistive Technology in Croatia

Renata PINJATELA¹,

Sonja ALIMOVIĆ²

¹University of Zagreb, Faculty of Education and Rehabilitation Sciences, Department of Motor Disorders, Chronic Diseases and Art Therapies; Assistive Technology Lab, Zagreb, Croatia

²University of Zagreb, Faculty of Education and Rehabilitation Sciences, Department of Visual Impairments, Zagreb, Croatia

Email: renata.pinjatela@erf.unizg.hr

Original Article

Abstract

Introduction: Assistive technology (AT) is a term that encompasses assistive products, and the systems and services associated with them. Despite existing legislation and the fact that AT is an important part of this process, there are many barriers to access AT. The purpose of this study is to explore the differences in the evaluation of the assistive technology (AT) availability and the AT services quality in Croatia between people with visual impairments (IwVI) and people with motor disabilities (IwMD).

Methods: We created an online questionnaire about knowledge of AT, previous training and the need for further training, and the benefits and challenges regarding AT. In addition to the online questionnaire, we obtained qualitative data on AT use.

Results: The results show that most participants were not aware of AT before they started using it but also did not know about their rights to benefits or the purchase of AT. Participants reported financial problems in purchasing assistive devices and were forced to fund AT from their own resources or through donations. Many of the participants, regardless of the type of disability, had and still have problems with AT that are not adapted to their personal abilities and needs.

Conclusion: To improve access to AT and the quality of services, it is necessary to bring together professionals and experienced AT users who will disseminate accurate and trustworthy information to ensure the best cost-benefit ratio of AT for individuals with different disabilities. Experiences of people with disabilities are also important for decision-makers, as it highlights the enhanced rights of persons with disabilities to have appropriate assistive technology through financial accessibility, collaborative assessment, training provision, and reduced delivery times. Access to assistive technology is a human right.

Keywords: Quality of assistive technology services, people with visual impairments, people with motor disabilities

Citation: Pinjatela, R., Alimović, S. (2025). Experiences of People with Motor Disabilities and Visual Impairments with Assistive Technology in Croatia. *Journal of Health and Rehabilitation Sciences*, 2025 Dec 20; 4(1), 47-55. <https://doi.org/10.33700/jhrs.4.2.181>

Copyright ©2025 Pinjatela, R., Alimović, S. This is an open-access article distributed under the terms of the Creative Commons 4.0 International License (CC BY 4.0)

Corresponding address:

Renata PINJATELA

University of Zagreb, Faculty of Education and Rehabilitation Sciences, Department of Motor Disorders, Chronic Diseases and Art Therapies; Assistive Technology Lab, Zagreb, Croatia

Email: renata.pinjatela@erf.unizg.hr

1. Introduction

Assistive technology (AT) is a term that encompasses assistive products, and the systems and services associated with them. AT helps to maintain or improve a person's functioning in the areas of cognition, communication, hearing, mobility, self-care and vision, thus enabling their health, well-being, inclusion and participation (World Health Organisation, 2024). AT is intended for children and adults with chronic diseases and disabilities, as well as older people.

Globally, 2.5 billion people need assistive technology to live their lives and realise their full potential. Given the ageing population and the increasing number of people affected by chronic diseases, this number is expected to rise to around 3.5 billion people by 2050 (World Health Organisation & United Nations Children's Fund, 2022). Access to assistive technologies is a human right and a prerequisite for equal opportunities and participation for all, including people with disabilities. The Convention on the Rights of Persons with Disabilities (CRPD) (United Nations, 2006), the 2030 Agenda (2015) and the United Nations Disability Inclusion Strategy (United Nations, 2019) provide the foundation for transformative progress on disability inclusion and ensure that we leave no one behind. Smith et al. (2024) uses examples from existing AT research to show how AT can contribute to the realisation of each of the core human rights in Articles 5–32 of the CRPD.

Despite existing legislation and the fact that AT is an important part of this process, there are many barriers to access AT. These include lack of awareness and accessibility, lack of services, inadequate quality, choice and quantity of products, and procurement and supply chain issues. There are also gaps in the capacity of the AT workforce and a low political profile of the sector. In addition, people may face barriers related to age, gender, type and degree of functional impairment, living environment and socio-economic status. Therefore, it is important that strategies to improve access to safe, effective and affordable assistive devices take a people-centred and rights-based approach and actively involve users in all aspects of AT (World Health Organisation & United Nations Children's Fund, 2022).

People with disabilities make up 17.5% of the total population of the Republic of Croatia. Out of that number, 32.1% are people with multiple disabilities, 29.4% people with damage to the musculoskeletal system and 3.4% of people with visual impairments (Croatian Institute of Public Health, 2025).

Based on the WHO initiatives and the Government of the Republic of Croatia the National Strategies for Equalisation of Opportunities for Persons with Disabilities (Official gazette 63/2007, 42/2017, 143/2021), several interdisciplinary projects dealing with the development and implementation of

innovative AT services for people with disabilities and strengthening the competences of professionals (educational rehabilitators, speech and language therapists, teachers, occupational therapists, etc.) have been implemented in the Republic of Croatia over the past fifteen years. Until 2016, there was no research in the Republic of Croatia dealing with the availability, difficulties and problems in the acquisition and use of AT. Research conducted at the University of Zagreb Faculty of Education and Rehabilitation, identified numerous problems in the process of assessment, access, implementation and utilisation of AT (Stanić & Pinjatela, 2023).

Our research focuses on people with visual impairments (IwVI) and people with motor disabilities (IwMD), considering their limitations and challenges in daily living skills. IwVI encounter challenges in everyday activities such as shopping, cooking, and mobility (Jones et al., 2018). IwMD face significant challenges in accessing various public areas and therefore experience similar difficulties in daily living activities as IwVI (shopping, mobility, physical access) (Kapsalis et al, 2022). Both groups increase their independence in daily activities by using assistive technology (AT).

2. Objective

The aim of this paper is to examine similarities and differences in the evaluation of the AT availability and the AT service quality in Croatia between people with visual impairments and people with motor disabilities.

3. Methods

3.1 Study design

This survey was part of a larger research project investigating the AT needs of people with disabilities and professionals working with them as part of the Platforma 50+ project. The study was developed in cooperation with the Croatian Union of Associations of People with Disabilities and it was conducted in four counties: Osijek-Baranja, Split-Dalmatia, Primorje-Gorski Kotar and the City of Zagreb.

We developed an online questionnaire for people with different disabilities. The questionnaire contained twenty-five multiple-choice questions with the possibility to choose multiple answers, about where they learnt about AT, about previous training and the need for further training, and about the benefits and challenges associated with assistive devices. Participants also indicated on a five-point Likert scale (from "strongly agree" to "strongly disagree") the extent to which they agree with the purchase and use of assistive devices. The entire questionnaire was reviewed and edited by persons with and without disabilities working in the Croatian Union of Associations of Persons with Disabilities. Cronbach's alpha ($\alpha = 0.82$; $k = 68$) indicates strong internal consistency for the questionnaire. The questionnaire

was uploaded to the LimeSurvey platform (<https://www.srce.unizg.hr/limesurvey>). For participants who were unable to complete the questionnaires online, data collection was organised using the paper/pencil method at the premises of the partner associations. The questionnaire was distributed with the help of the Croatian Association of the Blind to IwVI, and with the help of the Croatian Federation of Associations of Persons with Physical Disabilities, the Croatian Association of Paraplegics and Quadriplegics, and the Croatian Alliance for Muscular Dystrophy to IwMD among their members.

3.2 Ethical Approval and Consent Statement

The research strictly adhered to the ethical principles of scientific practice, the principles of protecting the dignity and other rights of all participants in accordance with the Code of ethics of the Committee for Ethics in Science and Higher Education (2006) and the Code of ethics of the University of Zagreb (2009). All written and verbally presented research results are anonymous and do not contain any private or confidential information about the research participants. We asked participants for informed consent at the beginning of the questionnaire and explained the aims of the study to them. We also informed participants of the people they could contact if they had any questions or needed help completing the questionnaire. The request for informed consent was written in simple language so that people with a lower level of understanding could also understand and give their consent.

3.3 Participants

In this paper we have analysed the surveys of 28 IwVI and 28 IwMD. The most common cause of motor disability was damage to the musculoskeletal system (n=15), followed by damage to the central nervous system (n=8) and chronic diseases (n=5).

Most of the IwVI (n=19) and IwMD (n=22) who participated in the study were in the age group of 19 to 64 years, and nine IwVI and six IwMD were 65 years and older, and there was no significant difference between IwVI and IwMD ($Z=-0.897$; $p=0.370$). We found no significant difference in the duration of AT use between the groups ($Z=-1.692$; $p=0.091$). Participants from both groups together usually used AT for more than ten years (n=37).

Participants live in different parts of Croatia, with most of them living in the capital city of Croatia and surrounding area (n=20), followed by participants from Split, the next biggest city in Croatia (n=12) and Osijek, the fourth biggest city (n=10). A smaller number of participants live in other towns in Croatia.

In addition to the online questionnaire, we obtained qualitative data on the use of AT from eight IwVI and twelve IwMD who were interviewed in four focus groups. The participants were selected based on a purposive sample. As the study was designed in co-operation with the Croatian Union of Associations of People with Disabilities, the president of the Union

invited participants based on the inclusion criteria explained and defined by Miles & Huberman (1994): Participants should have a variety of perspectives, practical experience, and be well informed about the research topic. The focus group participants came from different cities in Croatia to capture a wide range of experiences with the use of assistive devices, reflecting the different contexts of the settlements. The focus groups were moderated by two associate professors from the field of educational rehabilitation. Each focus group lasted 90 minutes and took place in the rooms of the Association for Individuals with Visual Impairments or the Association for Individuals with Motor Disability. The rooms were well known to the participants and there were no other people in the vicinity.

The participants were all aged between 20 and 64 years, 12 male and 7 female. All IwVI were legally blind and had no other impairments, and all IwMD were wheelchair users. Most of the participants, IwVI (n=7) and IwMD (n=4), were employed in the public sector and worked in their unions for people with visual or mobility impairments. Some of them were students, one IwVI and two IwMD. Of these, only IwMD were unemployed (n=4), and two IwMD were retired. The students (n=3) lived in halls of residence, two IwVI lived alone and the others lived with their families.

The protocol for the focus group included questions on the benefits and challenges of acquiring and using AT in independent living associated with the fundamental human rights of dignity, autonomy, equality, participation and inclusion (World Health Organisation, 2023).

3.4 Data processing methods

The results of the questionnaire were analysed with the Statistical Package for the Social Sciences (IBM SPSS v.29) using descriptive statistics (frequencies and percentages) and nonparametric tests (Wilcoxon Singed Rank Test) to calculate the differences between the groups and Spearman's rho to calculate the correlation between the variables. We used a nonparametric test because, according to the results of the Kolmogorov-Smirnov test, the data were not normally distributed ($p<0.001$).

The data from the focus groups were analysed using qualitative data analysis. The authors conducted three thematic analyses: a) realist (participants' "meanings and experiences of reality"); b) theoretical (moving from theory to data); and c) semantic (not looking for meanings beyond what participants said, but trying to understand what people said) (Braun & Clarke 2006, 9; 12 & 13).

The focus groups were recorded and transcribed. Participants did not make any comments or corrections to the transcripts. Subsequently, two coders used the coding method in the analysis to summarise and structure the data: Initial themes and subthemes were created. The themes were based on

the theoretical concept of AT use to improve independent living. Sub-themes include some variety within a main theme (Braun & Clarke, 2006). Focus group participants received feedback on the results at a meeting organised by their association.

4. Results

Our results show no difference between IwVI and IwMD in previous knowledge about the AT. We find it disturbing that most participants (n=32) knew nothing about AT before they started using it. Some

of them (n=20) knew only basics, meaning that they had heard about the existence of AT. Only one IwVI and three IwMD knew a lot about AT, meaning they knew about various AT and how it can be used in specific situations. Even though IwVI were mostly referred to apply for AT by their association (n=12) and rehabilitation specialist / therapist (n=7), and many IwMD were referred by doctors (n=8) or they applied on their own (n=5) there is no significant difference between groups ($Z=-1.510$; $p=0.131$) (Table 1).

Table 1: Professionals who referred participants to apply for assistive technology

	Association	Specialist/therapist	Doctor	Them-selves	Work-shop	Friends	Newspaper	Other
IwVI	12	8	1	1	2	1	0	3
IwMD	8	2	8	5	1	1	2	1
Total	20	10	9	6	3	2	2	4

Both groups of participants believe that information about AT is best disseminated via the internet: via social networks (n=18) and websites (n=7), but also via organised face-to-face workshops and public tribunes (n=15).

Focus group participants also complained about a general lack of information, not only about AT, but also about their rights to benefits and the purchase of assistive devices (Table 4).

They therefore recommend some kind of counselling centre. All respondents to the questionnaire reported using assistive devices, and many of them use more than one device.

However, IwVI reported many more AT that they use in different activities (n=117) than IwMD (n=29).

They differ not only in the number of AT devices they reported, but also in the purpose of the device ($Z=2.788$; $p=0.005$), even though some IwMD use screen readers like IwVI (Table 2).

IwVI use the devices mainly to access information (59.8%), then for orientation and mobility (17.9%). On the other hand, as expected, IwMD use the most devices for mobility (44.8%) and then for accessing information (34.5%).

It was surprising that less than half of the IwMD reported using AT for mobility purposes, and all of them had problems walking. Similarly, in the visually impaired group, participants using a reader and Braille display indicated severe visual impairment. They did not report using the white cane.

It could be that IwMD do not use assistive devices for mobility if they can walk themselves, or that they do not even consider a wheelchair or walker as an assistive device. Some IwVI also do not consider the white cane to be an assistive device (Table 2).

The participants consider independence to be a major advantage of AT, regardless of the purpose of AT ($Z=-0.956$; $p=0.339$) or which age group the participants

belong to ($Z=-1.156$; $p=0.248$). In both groups, most participants achieve complete independence with the help of assistive devices (IwVI=39.9%; IwMD=35.7%), many of them only need the help of another person for some very difficult activities (IwVI=32.1%; IwMD=21.4%).

We found a slight difference in independence according to duration of use of assistive devices ($\chi^2=7.819$; $N = 3$; $p = 0.050$) when we compared all participants regardless of their disability.

The pairwise comparison using Dunn's method revealed that there was a significant difference between the groups using AT for two to five years compared to the groups using AT for less than two ($p=0.032$) and more than ten years ($p=0.042$).

However, when we compare the groups independently of each other, neither IwVI nor IwMD differ significantly in terms of the duration of AT use. The statement of one focus group participant also contributes to this result: "If we have a good wheelchair, we don't need personal assistance.

And we don't need many other things... we need that for a normal life" (MD_3_R).

When using AT, both groups equally emphasise important features of the device ($Z=-0.237$; $p=0.813$). These are: efficiency (IwVI N=34; IwMD N=29); independent use (IwVI=29; IwMD=20); ease of use (IwVI=17; IwMD=13); reliability (IwVI=12; IwMD=8); adaptability (IwVI=9; IwMD=8).

The focus group participants stated that similar characteristics are important.

However, they expressed problems in relation to these characteristics.

Many of them, regardless of the type of disability, had and still have problems with AT that are not adapted to their personal abilities and needs (Table 3).

Table 2: List of assistive technology used by participants

Functioning area	Assistive technology	IwVI	IwMD
Access to information	1. Screen readers	20	4
	2. Talking book players or recorders	11	-
	3. Pocket electronic magnifier	9	-
	4. Accessibility software	8	2
	5. e-Notebooks	6	-
	6. Braille display	5	-
	7. Braille machine	4	-
	8. Digital recorder and player	4	-
	9. Optical character reader	2	-
	10. Desktop electronic magnifier	1	-
	11. Adapted computer hardware (mouse and keyboard)	-	4
Orientation and mobility	12. A white cane	14	-
	13. Navigation applications	7	-
	14. Wheelchair	-	7
	15. Walker	-	3
	16. Transfer aids	-	3
	17. Talking thermometer	4	-
Daily living – health	18. Talking watch	4	-
	19. Talking personal scale	2	-
	20. Talking blood pressure gauge	2	-
	21. Talking blood sugar meter	1	-
	22. Talking kitchen scale	3	-
Household activities	23. Labelling device	3	-
	24. Talking colour recogniser	1	-
	25. Voice controlled devices	-	4
	26. Different mobile applications	3	-
Communication and interaction	27. Tablet communicator	-	2
	28. Tactile playing cards	1	-
Leisure time	29. Tricycle	1	-
	30. Sound play ball	1	-

Table 3: Focus groups participants' statements on different topics

Topic	Statement
Incongruous budget distribution (not related to needs) with no possibility to chose	MD_3_R "Mask for breathing costs around 100 €. I have the right to one mask a year. When it breaks, I have to buy a new one. And they give me too many filters, three times more than I need. According to regulation... so, I asked them to return the filters and get one mask. But no replacements are possible." MD_1_S "When I started regular school, they wanted to give me a laptop... I do not need it. I can write on my own." VI_1_R "There are only some of us using a white cane, and everyone gets it." MD_3_R "no possibility to choose. A person goes to the doctor who writes a recommendation. And on another day they called him to bring the wheelchair. Which wheelchair?... and when the wheelchair came, not custom made, it did not fit in size or colour or anything." MD_1_R "The system should be more flexible in terms of individual approach." VI_2_Z "I am against the system that we get everything. We need some support... Rather provide us with the opportunity to achieve our standard of life on our own." MD_0_Z "...my parents learned about the benefit by accident when I was eight years old. No one tells you what rights you have. There should be some counselling centres on a country level, not on each association of ours." MD_2_Z "when you ask, they do not know about the laws." VI_2_O "We in association do what we can on our own."
Need for counselling services	MD_3_R "when having a good wheelchair, a person does not need personal assistance. And many other things they do not need... we need this for normal life." VI_1_O "Good thing about the Corona pandemic, that it showed great importance of voice technologies for blind. Therefore, many colleagues showed interest to learn the skills of using computer (to be independent, A/N)" VI_2_Z "...we will be happy to achieve it on our own. There is no greater joy than that. When you do something on your own."
Independence is the greatest benefit of AT	MD_1_R "I have a narrow elevator in the building, so I can't use those standard electromotor wheelchairs that are too wide." MD_3_R "... they say that their wheelchair is modifiable, that they can adapt it to anyone... That's what they say, if someone can raise or lower the pedals a little, it's an adapted wheelchair. Well, it's not!" VI_1_Z "A magnifier was made for me that I can't see because there's no voice option, i.e. it never occurred to anyone... So, it's useless... I don't care about it, if it's not tailored to me." VI_2_Z "...you have a mobile app for recognising banknotes that works great. But then in a situation where you're not prepared, when you need to recognise a banknote, you often have your hands full. I'm holding a cane in one hand, I have banknotes in the other, and where am I going to hold my phone to recognise the banknote?... there is a lack of understanding from designers and developers, and finally producers of AT... There is no 100% accessibility. This is impossible because there will always be some person who has some specific combination of something, and you cannot predict that. But there is reasonable accommodation... I as a user can help (in adaptation of AT to personal needs, A/N) but the industry must adjust to that. There should be norms and standards."
Compliance of AT with users' needs	

Although the IwVI reported more different obstacles (n=110) to acquiring AT than the IwMD (n=93) in the multiple-choice question with the possibility of multiple answers (Table 4), there is no significant difference between these two groups (Z=-0.312; p=0.755). Most of them reported financial problems in acquiring the AT, such as high prices and lack of government subsidies, as well as a lack of a team approach to assessment. Only one IwVI and four IwMDs had no problems. Financial problems, lack of government and community support in acquiring AT are the most common concerns expressed by the focus

group participants (Table 3). For example, one of the participants said: "The lifter costs 5000€. I can't afford it "(MD_1_O). It is a device that can significantly improve the quality of life of people with disabilities and their families, but in Croatia it is not available through health insurance. Another participant explained: "A blind student at school has the right to a watch, a cane, a screen reader and maybe a Braille machine... But they can get a Braille notebook or a magnifying glass, not both. And all this costs several thousand euros. And if you have a visual impairment, you have no advantages.

Table 4: Challenges in acquiring assistive technology

Challenge	IwVI	IwMD
High price	22	15
Lack of subvention	13	12
Lack of support in acquiring AT	8	10
Lack of local community support	11	6
Lack of team approach in assessment	9	6
Long time waiting for approval of subvention	7	8
Lack of training	9	5
Long time waiting for delivery	7	5
Lack of instructions for use of AT	5	5
Beginners' frustrations	5	5
Professional needed too much time for choosing	5	3
Professional did not think of other peoples' attitudes	4	3
Incorrect assessment	2	4
Inappropriate AT acquired	2	3
AT user was not involved in the process of acquiring	1	3
Total	110	93

If you're lucky, the ophthalmologist will tell you that you have a visual acuity of 0.05 and then you can exercise your right." (VI_2_Z). These examples show that it is necessary to create regulations at state level that enable the availability of aids in accordance with the needs of individual users.

5. Discussion

The aim of this article is to analyse the differences in the evaluation of the availability of assistive devices and the quality of AT services in Croatia between people with visual impairments and people with motor disabilities.

Most of the participants did not know about AT before using them. The participants in the focus groups also complained about a general lack of information, not only about AT, but also about their rights to benefits and the purchase of AT. They therefore recommend a kind of advice centre for all people with disabilities, where they can obtain information not only about AT, but also about their rights in the various systems (social, educational and health care). D'Cunha et al. (2022) point out the importance of adequate access to information, which is more important if it comes from reliable sources. In this sense, counselling centres should gather professionals working with AT but also peers with experience in the use of AT.

Most IwVI were referred to apply for AT by their association and a rehabilitation professional/therapist, and many IwMD were referred by doctors or applied for them themselves. Both groups of participants believe that information about AT is best disseminated via the internet (social networks and websites), but also via organised face-to-face workshops and public stands. When using AT, both groups emphasise the same important characteristics: efficiency, independent use, ease of use, reliability and adaptability. Less than half of the IwMD participants stated that they used AT for mobility, yet all of them had problems with walking. Also, in the

group of participants with IwVI, those who used a reader and Braille display, indicating severe visual impairment, did not report using a white cane. Similarly, the study by Brunes et al. (2024) collected information on the access, use, non-use and training of five types of mobility aids (white cane, guide dog, GPS, door-to-door transport and guide for the blind). The results show that many people with visual impairments do not use mobility aids. Due to the high level of non-use and the possible link to quality of life, promoting the regular use of mobility aids should be prioritised.

Participants reported financial problems in purchasing assistive devices, such as high prices and lack of government subsidies and community support and are forced to fund assistive devices from their own resources or through donations. The high prices of assistive devices are a problem in many countries (Global report on assistive technology, 2022).

For this reason, many experts and people with disabilities suggest applying various measures. In addition to creating an assistive technology list and guidelines for funding mechanisms, there are suggestions for improving coordinated ordering and value-based negotiation, as well as developing a market report to help share information (Savage et al., 2021).

Many of the participants, regardless of the type of disability, had and still have problems with AT that are not adapted to their personal abilities and needs. People with disabilities in Croatia receive some AT devices based on the List of orthopedic and other aids of the Croatian Health Insurance Institute (Croatian Health Insurance Institute, 2022), but these devices and aids are not always adapted to the specific needs of the person.

As one participant said: „...no possibility to choose. A person goes to the doctor who writes a recommendation. And the next day you call him to get the wheelchair. Which wheelchair?... and when the

wheelchair came, it wasn't custom-made, it didn't fit in size, colour or anything else" (MD_3_R). These include a lack of awareness and accessibility, a lack of services, inadequate quality, choice and quantity of products, and procurement and supply chain issues. There are also gaps in the capacity of the AT workforce and a low political profile of the sector. In addition, people may face barriers related to age, gender, type and degree of functional impairment, living environment and socio-economic status. These experiences in accessing assistive technology services are very similar to those of people with disabilities globally. Therefore, it is important that strategies to improve access to safe, effective and affordable assistive devices take a people-centred and rights-based approach and actively involve users in all aspects of AT (World Health Organisation & United Nations Children's Fund, 2022). Organisations of people with disabilities in Croatia are trying to influence the List of orthopedic and other aids of the Croatian Health Insurance Institute and their supplementation through their activities, so that the list of available assistive devices also includes AT that are currently not represented. The WHO conducted a global survey in July 2025 to update the Assistive Products List (APL). This survey will help shape the final version of the updated APL, which was first introduced in 2016, to ensure that the list includes technologies that are relevant to real-world priorities and needs. The APL helps countries identify and prioritise assistive devices and serves as a guide for planning services, developing strategies and improving access. As needs change around the world, particularly regarding the ageing population, updating the APL is more important than ever (World Health Organisation, 2025).

5.1 Limitations of the Study

The small number of participants in the study means that the results cannot be generalised. Two groups of people with disabilities were considered; therefore, it would be advisable to assess satisfaction with AT services among other groups of people with disabilities. The sample of respondents was convenient and consisted mainly of members of disability associations, so it would be useful to examine satisfaction with AT services among a random sample of respondents.

5.2 Future Directions

Future research on satisfaction with AT services should include the opinions of AT users' family members, as well as professionals who are in contact with people with disabilities. Although the challenges faced by AT users are very similar worldwide, it is necessary to determine which specific aspects of legislation in Croatia affect AT availability and what steps should be taken to improve the quality of AT services.

6. Conclusion

Independence is the most important benefit of AT, regardless of the purpose of AT. As one participant said: "...we are happy when we can do it ourselves. There is no greater joy than that. When you do something yourself." To improve access to AT and the quality of services, it is necessary to bring together professionals and experienced users of assistive technology to disseminate accurate and trustworthy information about assistive technology. They would thus be an advisory body for stakeholders to ensure the best value for money of assistive devices for people with different disabilities. Through the experiences of people with disabilities, the public can become familiar with their needs and the obstacles they face regarding service availability and the use of assistive technology. This information is also important for decision-makers, as it highlights the enhanced rights of persons with disabilities to appropriate assistive technology through financial accessibility, collaborative assessment, training provision, and reduced delivery times.

Funding information

This research is part of the project UP.02.2.1.06.0032 Platforma 50+, supported by the European Social Fund (ESF) and the State Budget of the Republic of Croatia under the Operational Programme "Effective Human Resources 2014-2020". The coordinator is the Croatian Union of Associations of People with Disabilities, with the University of Zagreb, Faculty of Education and Rehabilitation Sciences, as a partner.

Conflict of interests

The authors have no conflicts of interest to declare.

References

- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Brunes, A., Falkenberg, H. K., Berndtsson, I. C., & Heir, T. (2024). Use and underuse of mobility aids in individuals with visual impairment: A cross-sectional study of a Norwegian sample. *Disability and Rehabilitation: Assistive Technology*, 19(2), 266–272. <https://doi.org/10.1080/17483107.2022.2081735>
- Committee for Ethics in Science and Higher Education. (2006). Code of ethics of the Committee for Ethics in Science and Higher Education. <https://mzom.gov.hr/UserDocsImages/dokumenti/StrucnaTijela/Eti%C4%8Dki%20kodeks%20odbora%20za%20etiku%20u%20znanosti%20i%20visokom%20obrazovanju.pdf>

Croatian Health Insurance Institute. (2022). Decision on establishing the basic list of orthopedic and other aids of the Croatian Health Insurance Institute. Official gazette 153/2022. https://narodne-novine.nn.hr/clanci/sluzbeni/2022_12_15_3_2405.html

Croatian Institute of Public Health (2025). Report on persons with disabilities in the Republic of Croatia. https://www.hzjz.hr/wp-content/uploads/2025/10/Bilten_-_ROI_2025..pdf

D'Cunha, N. M., Isbel, S., Goss, J., Pezzullo, L., Naumovski, N., & Gibson, D. (2022). Assistive technology, information asymmetry and the role of brokerage services: A scoping review. *BMJ Open*, 12(12), e063938. <https://doi.org/10.1136/bmjopen-2022-063938>

Government of the Republic of Croatia. (2007). National strategy for equalization of opportunities for people with disabilities from 2007 to 2015. Official gazette 63/2007. https://narodne-novine.nn.hr/clanci/sluzbeni/2007_06_63_1962.html

Government of the Republic of Croatia. (2017). National strategy for equalization of opportunities for people with disabilities from 2017 to 2020. Official gazette 42/2017. https://narodne-novine.nn.hr/clanci/sluzbeni/2017_04_42_967.html

Government of the Republic of Croatia. (2021). The national plan for equalization of opportunities for people with disabilities for the period 2021-2027. Official gazette 143/2021. https://narodne-novine.nn.hr/clanci/sluzbeni/2021_12_143_2_440.html

Jones, N., Bartlett, H. E., & Cooke, R. (2018). An analysis of the impact of visual impairment on activities of daily living and vision-related quality of life in a visually impaired adult population. *British Journal of Visual Impairment*, 37(1), 50-63. <https://doi.org/10.1177/0264619618814071>

Kapsalis, E., Jaeger, N., & Hale, J. (2024). Disabled-by-design: effects of inaccessible urban public spaces on users of mobility assistive devices - a systematic review. *Disability and rehabilitation. Assistive technology*, 19(3), 604-622. <https://doi.org/10.1080/17483107.2022.2111723>

Miles, M. B., & Huberman, A. M. (1994). Qualitative data analysis: An expanded sourcebook (2nd ed.). Sage Publications, Inc. <https://vivauniversity.wordpress.com/wp-content/uploads/2013/11/milesandhuberman1994.pdf>

Savage, M., Albala, S., Seghers, F., Kattel, R., Liao, C., Chaudron, M., & Afghila, N. (2021). Applying market shaping approaches to increase access to assistive technology in low- and middle-income countries. *Assistive Technology*, 33(sup1), 124-135. <https://doi.org/10.1080/10400435.2021.1991050>

Smith, E. M., Huff, S., Wescott, H., Daniel, R., Ebuenyi, I. D., O'Donnell, J., Maalim, M., Zhang, W., Khasnabis, C., & MacLachlan, M. (2024). Assistive technologies are central to the realization of the Convention on the rights of persons with disabilities. *Disability and Rehabilitation: Assistive Technology*, 19(2), 486-491. <https://doi.org/10.1080/17483107.2022.2099987>

Stančić, Z., & Pinjatela, R. (2023). Asistivna tehnologija iz perspektive stručnjaka (Assistive Technology from experts' perspective). In M. Mirić & D. Miholić (Eds.), *Asistivna tehnologija u 21. stoljeću - stanje i perspektive* (Assistive technology in the 21st century: State and perspectives) pp. 45-70. Zagreb: University of Zagreb Faculty of Education and Rehabilitation Sciences https://www.erf.unizg.hr/_download/repository/erfunizg_platforma50plus_asistivna_tehnologija_u_21_stoljeću-primjena-i-perspektive_2023.pdf

United Nations. (2006). Convention on the rights of persons with disabilities. <https://www.ohchr.org/en/instruments-mechanisms/instruments/convnvention-rights-persons-disabilities>

United Nations. (2015). Transforming our world: The 2030 agenda for sustainable development. Resolution adopted by the general assembly on 25 September 2015. [https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1\(open in a new window\)](https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1(open in a new window))

United Nations. (2019). Disability inclusion strategy. https://www.un.org/en/content/disabilitystrategy/assets/documentation/UN_Disability_Inclusion_Strategy_english.pdf

University of Zagreb. (2009). Code of ethics. https://www.unizg.hr/fileadmin/rektorat/O_Sveucilistu/Dokumenti_javnost/Propisi/Pravilnici/Eticky_kodeks.pdf

World Health Organization & United Nations Children's Fund. (2022). Global report on assistive technology. <https://iris.who.int/bitstream/handle/10665/354357/9789240049451- eng.pdf?sequence=1>

World Health Organization. (2024). Assistive technology. <https://www.who.int/news-room/fact-sheets/detail/assistive-technology>

World Health Organization. (2025). WHO assistive products priority list. [https://www.who.int/news-room/events/detail/2025/06/09/default-calendar/assistive-products-priority-list-\(apl\)-open-consultations](https://www.who.int/news-room/events/detail/2025/06/09/default-calendar/assistive-products-priority-list-(apl)-open-consultations)