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Assistive Devices for People with Disabilities: A Descriptive Analysis

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Abstract

People with disabilities can engage in education, the job market, and civic life with the help of assistive technology, leading healthy, successful, independent lives. The demand for formal health and support services, long-term care, and the effort of carers is decreased by assistive technology. Without assistive technology, individuals frequently experience exclusion, isolation, and poverty, which worsens the effects of illness and disability on an individual, their families, and society as a whole. The phrase "assistive technology" is used to refer to a wide range of products, services, and delivery mechanisms for assistive devices and goods in need. A person's functioning and independence are maintained or enhanced by assistive products, which is good for them. Assistive devices include but are not limited to, memory aids, wheelchairs, communication aids, spectacles, prostheses, hearing aids, and wheelchairs. More than 1 billion people require at least one assistive product on a global scale.

Keywords: Assistive Technology, Assistive devices, Differently abled Persons, People with Disabilities

Introduction

The phrase "assistive technology" (AT) refers to assistive, adaptive, and rehabilitative tools for

the elderly and individuals with disabilities.⁶⁸ Activities of daily living (ADLs) are tasks that disabled persons frequently struggle to complete without assistance. Toileting, mobility (ambulation), eating, drinking, bathing, dressing, grooming, and personal device maintenance are all considered ADLs. With assistive technology, limitations that restrict ADL performance can be lessened.⁶⁹ Assistive technology encourages greater independence by enabling people to carry out tasks that they were previously unable to carry out or had a great deal of difficulty carrying out.⁷⁰ This is done by improving the technology required to carry out these tasks or by altering the way in which people interact with it.⁷¹

The fundamental goal of assistive devices and technologies is to maintain or improve an individual's functionality and independence in order to promote participation and improve general well-being. Wheelchairs, prosthetic limbs, hearing aids, visual aids, and specialised computer hardware and software are a few examples of assistive technologies and

⁶⁸ Chapal Khasnabis and others, *Assistive Devices* (World Health Organization 2010) <<https://www.ncbi.nlm.nih.gov/books/NBK310951/>> accessed 26 March 2023.

⁶⁹ Sayed Qudrat Hashimy, 'Mapping the Paradigm of Disabilities in Afghanistan from the Lens of Law and Policy' (2023) 6 *Asian Journal of Humanities and Social Studies* 51.

⁷⁰ Asifullah Samim, 'Analysis of Artificial Intelligence in Traffic Congestion and Management System' (2023) 12 *International Journal of Science and Research (IJSR)* 679.

⁷¹ Sayed Qudrat Hashimy, 'Emerging Paradigm of Disability Laws and Protecting Differently Abled Person: Flying Kites in the Indian Sky' (2023) 1 *Trinity Law Review* <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4383911> accessed 26 March 2023.

gadgets. These aids augment a person's mobility, hearing, vision, or communication abilities.

Assistive devices can be expensive to buy and maintain, especially for youngsters and patients undergoing rehabilitation who are anticipated to develop and whose abilities will change over time, outgrowing their assistive gadgets.⁷² Certain assistive devices may be paid for by your government's healthcare system or by private insurers, depending on the healthcare system in your nation. The Basic Guidelines on the Equalization of Opportunities for People with Disabilities also require States to provide funding for the creation, manufacturing, distribution, and maintenance of assistive technology and equipment as well as the spread of information about it.⁷³

A. Medical Service Equipment (HSC)

An approved list of medications might be prescribed by your doctor. The district nurse may be able to help you with some things, but they will typically need to assess you and make a recommendation, following are the devices:⁷⁴

- elastic stockings
- appliances for colostomies
- some types of trusses or wound dressings
- urinary catheters
- pressure relieving cushions and mattresses
- continence pads
- wheelchairs and walking aids
- hearing and vision aids
- artificial limbs and surgical appliances
- communication aids

B. Equipment from social services

Equipment can be used to manage personal care or to prepare food. Kettle tippers and tap turners, for instance, might be helpful in the kitchen. To make it simpler to get out of a chair

or bed, furniture raisers can be used to adjust the height.⁷⁵ In the bathroom, hoists, raised toilet seats, and bath seats can be useful.

C. Assistance from Community Services Using Technology

Equipment or items that can help you manage at home are referred to as assistive technology. Following an evaluation by a qualified practitioner, such as an occupational therapist, district nurse, or physiotherapist, you can typically obtain this equipment through your local Health and Social Care Trust. A variety of daily living activities, including managing your personal care, assistance with movement, and transfers, can be made easier with the aid of assistive technology. Examples comprise:

- bathing aids
- walking frames
- bed levers
- toilet frames
- stair lifts
- hospital beds
- hoists

D. Assistance dogs

Not everyone should have an assistance dog. Your unique situation must be taken into consideration when determining whether an assistance dog might be beneficial for you. Similar to other dogs, assistance dogs require care, feeding, exercise, grooming, and veterinary visits. Assistance dogs have significantly increased the freedom, self-assurance, and companionship of many people. The Guide Dogs for the Blind Association provides training and support for persons with sight loss who are interested in getting a guide dog, as well as assistance dogs for people with disabilities.⁷⁶ Some dogs have special training that makes them useful for particular jobs.

Various Assistance Canines

Some nonprofit organisations train canines to help and support persons who have a specific condition. Dogs taught to provide disability

⁷² Samim (n 3).

⁷³ Sayed Qudrat Hashimy, 'Mapping the Paradigm of Disabilities in Afghanistan from the Lens of Law and Policy' (6 March 2023) <<https://papers.ssrn.com/abstract=4383888>> accessed 26 March 2023.

⁷⁴ Asifullah Samim, 'A New Paradigm of Artificial Intelligence to Disabilities' (2023) 12 International Journal of Science and Research (IJSR) 478.

⁷⁵ *ibid.*

⁷⁶ Hashimy, 'Mapping the Paradigm of Disabilities in Afghanistan from the Lens of Law and Policy' (n 2).

assistance can learn a variety of skills.⁷⁷ Examples comprise:

- ❖ fetching items
- ❖ operating control buttons
- ❖ switching lights on and off
- ❖ opening and closing doors
- ❖ loading and unloading the washing machine
- ❖ helping with shopping
- ❖ assisting with dressing and undressing
- ❖ summoning help if necessary

Surgical appliances

If you need a surgical appliance, your doctor will refer you to a healthcare professional who can supply or prescribe an appliance to meet your needs. Some examples of surgical appliances are:

- elastic hosiery
- trusses
- leg appliances and surgical footwear
- abdominal and spinal supports
- surgical brassieres
- artificial breasts
- arm, neck and head appliances
- wigs
- Advice for blind

Who May Benefit from Adapted Equipment & Assistive Devices?

Incorporating adaptive technology and assistive gadgets into daily life can be beneficial for many people. This comprises:

- i. People with disabilities
- ii. Seniors
- iii. People with gradual functional decline/debilitative illnesses
- iv. People with noncommunicable diseases (e.g. diabetes and stroke)
- v. People with mental health conditions (including dementia and autism)

Cognitive Devices

These products are especially made to assist those who have intellectual disability,⁷⁸

dementia, brain traumas, or other types of mental disease. Diaries, calendars, lists, schedules, and personal organisers are examples of adaptive cognitive tools.⁷⁹ Additionally, there are numerous assistive technologies created especially for dementia sufferers, such as:

- “Talking” wristwatches
- Voice-activated phone dialers
- Automated pill dispensers
- Beeping devices on small items
- Warning signs on dangerous appliances
- Mobility monitors/tracking systems
- Medical ID bracelets

Daily-Life Equipment

These products, which make up the majority of assistive devices for persons with impairments, let you live as safely as possible at home. You can execute your activities of daily living (ADLs) and instrumental activities of daily living with their assistance (IADLs). The following are some of the most popular assistive and adapted daily life equipment:⁸⁰

1. Clothing: Dressing sticks, long-handled shoe horns, button hooks, sock aids, elastic shoelaces
2. Bathing: Tub/shower chairs, handheld shower heads, grab bars, commodes, toilet risers, tub mats
3. Hygiene: Protective undergarments, mattress/floor protectors, catheters
4. Mobility: Transfer boards, mechanical lifts, bed bars, hip pads
5. Eating & Food Preparation: Adaptive utensils, non-skid bowls, plate guards, scoop dishes, long straws, smart appliances
6. Organization: Reach extenders, specialized handles and grips, self-opening scissors, bedside organizers

⁷⁸ Hashimy, ‘Mapping the Paradigm of Disabilities in Afghanistan from the Lens of Law and Policy’ (n 6).

⁷⁹ Samim (n 7).

⁸⁰ *ibid.*

⁷⁷ *ibid.*

7. Reading & Learning: Automatic page turners, book holders, adapted pen/pencil grips
8. Medication: Medication organizers, dosage timers, pill crushers/splitters
9. Safety: Personal emergency response systems (pendant, bracelet, or belt)

Mobility Devices

Several objects that facilitate navigating your physical environment are included in this category of assistive aids for people with disabilities.⁸¹ These goods can save healthcare expenditures while also enhancing your access to job and educational prospects. You can play sports and maintain your physical activity by using ultra-lightweight mobility aids.

1. Hearing aids and loops
2. Cochlear implants
3. Coupling accessories
4. Frequency modulation (FM) systems
5. Headphones for listening to audiovisual content
6. Closed captioning
7. Visual alert systems
8. Real-time transcription
9. Teletype phones (TTYs)
10. Telecommunications devices for the deaf (TDDs)

Vision Devices

Products created for those who are blind or visually impaired make up the last category of assistive technology for people with impairments.⁸² The following list of adapted devices is available for your selection:

- ❖ Large-print books
- ❖ Braille systems
- ❖ Audiobooks
- ❖ Screen readers
- ❖ Screen enlargement applications

- ❖ Voice recognition programs
- ❖ Traditional phones with large buttons or visual keyboard displays
- ❖ Smart devices with voice-to-text and voice-operated commands

Obstacles for Adaptive and Assistive Technologies

The acquisition of adapted and assistive technology for people with disabilities is, however, fraught with difficulties.⁸³ The following are only a few of the difficulties that exist:⁸⁴

1. Lack of awareness
2. Inaccessible physical environments
3. Lack of government legislation and policies
4. Lack of programs and services
5. Lack of state/federal funding
6. Lack of products and trained personnel

Conclusion

Through the use of technology, assistive devices enable people with disabilities to live more independently, thereby enhancing accessibility for everyone.⁸⁵ These gadgets may be kept in good working order and provide their users with a safe and beneficial tool with the support of a strong preventative maintenance programme. A variety of technological advancements have been made in the 21st century, including ones that make it easier for people to work around their limitations. One of these improvements for persons with disabilities is assistive technology, which has made a positive difference in thousands of people's lives. Since its invention in the 19th century, assistive technologies have advanced significantly. Continue reading to see how assistive technology has changed over the past 200 years and how this technology's impact on individuals has continued to make ground-breaking strides. Any tool or system that enables people to carry out tasks that might otherwise be challenging or impossible is considered assistive technology (AT). AT can be

⁸¹ Hashimy, 'Mapping the Paradigm of Disabilities in Afghanistan from the Lens of Law and Policy' (n 6).

⁸² Sayed Qudrat Hashimy, 'EMERGING PARADIGM OF DISABILITY LAWS AND PROTECTING DIFFERENTLY ABLED PERSON: FLYING KITES IN THE INDIAN SKY' (2023) 3 Trinity Law Review 1.

⁸³ Hashimy, 'Mapping the Paradigm of Disabilities in Afghanistan from the Lens of Law and Policy' (n 2).

⁸⁴ Hashimy, 'EMERGING PARADIGM OF DISABILITY LAWS AND PROTECTING DIFFERENTLY ABLED PERSON' (n 15).

⁸⁵ *ibid.*

as basic as a jar opener or as sophisticated as a pressure care mattress that minimises pressure sores. In a nutshell, assistive technology is anything that helps people execute everyday tasks.

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