Wheelchairs and wheelchair accessories

A systematic review and assessment of medical, economic, social and ethical aspects

SBU ASSESSMENTS | ASSESSMENT OF METHODS IN HEALTH CARE AND SOCIAL SERVICES

MAY 2022 | WWW.SBU.SE/347E

Summary and conclusions

Background

For many people with reduced mobility, the wheelchair is a prerequisite for being able to participate and be active in society. The wheelchair's characteristics and design, how it can be run and used, as well as access to additional wheelchair equipment can affect the user's possibilities for participation and freedom of action. Fees can be particularly difficult for people who rely on a wheelchair, as people with disabilities have, in general, a lower socioeconomic status compared to their peers without disabilities.

Aim

The aim of this systematic review was to evaluate the effect of different variants, combinations, and individual adaptations of wheelchairs

- additional equipment for manual wheelchairs
- education and practical training for wheelchair users as well as
- freedom to be able to choose a wheelchair and additional equipment, exemption from fees

on the individual's activity, participation, freedom of action, quality of life and health, as well as on user's experiences of using a wheelchair.

To make informed decisions about resource distribution municipalities and regions need to understand not only how factors related to wheelchairs affect individuals, but also the impact of those factors affect resource consumption. Therefore, this report also highlights financial aspects.

The evaluation concerns people of all ages, with permanently reduced mobility, who use a wheelchair they operate themselves (self-propelled).

Conclusions

Experiences of evaluated interventions

Studies with a qualitative approach show that wheelchair users feel that the electric wheelchair contributes to participation and independence (high reliability) and that its usability contributes to activity (moderate reliability). For a wheelchair to function well users' experience is that practical training, knowledge, and information are needed (moderate reliability), as is access to service (low reliability) and that the wheelchair is adjusted based on individual needs (low reliability).

Effect of evaluated interventions

There is a need for more research in order to assess how activity, participation, freedom of action, quality of life, and health for adults, or young people and children are affected by:

- different variants, combinations, and individual adaptations of wheelchairs, additional equipment for manual wheelchairs, as well as freedom to be able to choose a wheelchair and additional equipment (freedom of choice) and exemption from fees.

It is possible that practically oriented educational and the wheelchair skills training programs (WSTP, WheelSeeYou, EpicWheels) can lead to better maneuverability for adult users (low reliability). For children and young people who use wheelchairs, there is a lack of scientific studies on the effect of such programs on activity and health.

Cost effectiveness

There is a lack of evidence to calculate the cost-effectiveness of having both electric and manual wheelchair instead of only manual wheelchair.

Method

This systematic review follows the international guidelines PRISMA and SBU's method book.

Results

Experiences of evaluated efforts

A meta-synthesis was made based on 20 studies that investigated user experiences. Most studies were carried out in Europe and North America. Data was primarily collected through interviews and focus groups. The result of the meta synthesis was that experiences were linked to five themes and 15 sub-themes.

Effect of evaluated efforts

The 17 primary studies that addressed efficacy recruited people between 18–89 years, most of whom were men. None of the primary studies applied to children and young people (<18 years). Primary studies were found which investigated the following three questions:

- Has the use of different variants of electric wheelchairs effect on wheelchair maneuverability and mobility?
- Do individualized wheelchair settings have an effect when it comes to wheelchair maneuverability?
- Has practical education and training in the use of a wheelchair and additional equipment for wheelchair effect in terms of wheelchair maneuverability and usefulness?

No studies were identified for thirteen of the study questions.

Cost effectiveness

When resources are limited, decisions must be made about how different needs are to be met and prioritized. A cost-effectiveness analysis compares two or more alternatives by identifying, quantifying and evaluate costs and effects for different efforts. The systematic review of economic literature aimed to investigate the cost-effectiveness of an electric wheelchair as a complement to a manual wheelchair compared to a manual wheelchair alone. The overview generated three studies with medium and high transferability, but these were excluded due to low quality. There is a lack of studies of good quality that examine the effect and resource consumption. The cost-effectiveness has not been able to be calculated for the combination of an electric and manual wheelchair compared to a manual wheelchair alone. Based on collected data from two regions and two municipalities, it appears that the cost of electric wheelchairs varies. Further, the cost of interventions that can be important supplements to a wheelchair varies, such as home care and transportation service, both within and between municipalities. This means that the opportunity cost in economic analyzes varies.

Discussion, ethical and societal aspects

The wheelchair in context

The purpose of the wheelchair is to compensate for reduced mobility. The wheelchair can, in some cases, compensate for deficiencies in society's physical design. However, to achieve freedom of action, equal opportunities for activity and full participation in society must be available to everyone. A person who uses a wheelchair may also need other interventions to be able to be active and participate in social life. Aids and interventions must be synchronized, across different stakeholders such as municipalities and regions, based on the individual's needs and conditions. The quantitative studies in this systematic review indicate that there is some support that wheelchair training programs influence wheelchair maneuverability, which is also supported by the results found in the qualitative the studies. This knowledge can be the starting point for developing guidelines for practical education and training for all wheelchair users in healthcare.

Equal care and equal living conditions

According to the Health Care Act, the healthcare authorities are obliged to offer aids for people with disabilities. Regions and municipalities decide for themselves which, and how many, assistive products are to be offered as one part of the public commitment. There are regional differences in terms of supply of wheelchairs, how the need for a wheelchair is assessed, how the choice of a specific wheelchair is done, as well as whether practical education and training is offered. In addition, some regions charge the individual a fee which may affect access. Restrictions to access can reduce the possibility of attaining good health and care on equal terms for the entire population and can influence the opportunities for individuals to be active and involved in society, achieve freedom of action, quality of life and good health.

When resources are limited, decisions must be made about how different needs are to be met and prioritized. When making public decisions, it is therefore important to have a structured approach to opportunity costs; systems and routines to help decision-makers deliberately weigh costs against benefits.

Option to choose

Ethical dilemmas can arise when the individual's perceived needs differ from the prescriber's assessment in relation to the regulations. A prescription should always be need-based according to current legislation and prescription process, but it is the health authority, not the individual, who assesses that the need meets the criteria for prescription of assistive devices. The person must also be given the opportunity to choose between different aids, but in practice there may be no alternatives to choose between. An actual lack of choice reduces the individual's ability to have freedom of action, as well as the ability of society to realize the disability policy goals of full participation in society and equal living conditions for everyone.

Scientific knowledge gaps

Most of the questions that SBU evaluated in this report could not be answered because there is a lack of scientific studies. Because so many research questions are unanswered, it is necessary to prioritize among these, preferably in consultation with those affected by the results (e.g., using the James Lind Alliance method). In the process, a selection of prioritized outcomes (Core Outcome Set) can be defined. The fact that there is a lack of research on children and young people should particularly be addressed. It is also important that future research includes both women and men.

Project group

Experts

- Katarina Baudin, Reg. Occupational therapist, PhD, Karolinska Institutet
- Emelie Butler Forslund, Reg. Physiotherapist, PhD, Karolinska Institutet/Spinalis, Aleris Rehab Station
- Åsa Larsson Ranada, Reg. Occupational therapist, PhD, Associate Professor, Linköping University
- Eva Månsson Lexell, Reg. Occupational therapist, PhD, senior lecturer, Associate professor, Lund University/Skåne University Hospital
- Cecilia Pettersson, Reg. Occupational therapist, PhD, Associate Professor, Örebro University
- Kerstin Wahman, Reg. Physiotherapist, PhD, Associate Professor, Karolinska Institutet/ Aleris Rehab Station

SBU

- Susanna Larsson Tholén (Project Manager)
- Marit Grönberg Eskel (Ass. Project Manager)
- Maria Ahlberg (Project Administrator)
- Magnus Börjesson (Digital strategist)
- Thérèse Eriksson (Health Economist)
- Klas Moberg (Information Specialist to January 2021)
- Carl Gornitzki (Information Specialist from January 2021)
- Hanna Olofsson (Information Specialist from January 2021)
- Johanna Wiss (Health Economist)

SBU Assessments no 347, 2022
www.sbu.se/en • registrator@sbu.se
Graphic Design: Anna Edling, SBU