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RESEARCH PAPER

Everyday life for users of electric wheelchairs – a qualitative interview study

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Purpose: The aim of this paper is to explore how users of electric wheelchairs experience their everyday life and how their electric wheelchairs influence their daily occupation. Occupation is defined as a personalized dynamic interaction between person, task and environment, and implies the value and meaning attached. **Method:** Nine semi-structured interviews were conducted with experienced electric wheelchair users. ValMo was used as the theoretical framework for both interviewing and the analysis. The transcribed interviews were analysed using thematic analysis. **Results:** Findings revealed key elements in electric wheelchair users' experience of how the use of a wheelchair influences everyday life and occupation. Four central themes emerged from the participants' experiences 1) The functionality of the wheelchair, 2) The wheelchair as an extension of the body, 3) The wheelchair and social life, and 4) The wheelchair and identity issues. The themes were interrelated and show how all levels of occupation were influenced both in a positive and negative way, and how it affected identity. **Conclusions:** It is essential that professionals working with electric wheelchair users are aware of how all levels of occupation and identity are influenced by using a wheelchair. This will assist professionals in supporting the users living an autonomous and meaningful life.

Keywords: Qualitative study, occupational therapy, electric wheelchair, everyday life, ValMO

Introduction

Some people with functional impairments need electric wheelchairs in their everyday life to increase their mobility. The use of electric wheelchairs influences everyday life and occupation. According to the UN Convention on the Rights of Persons with Disabilities, people with functional impairments should have the opportunity to experience personal

Implications for Rehabilitation

- All levels of occupation and identity are influenced by using a wheelchair.
- It is important that the electric wheelchair functions as an extension of the user's body and that surroundings are made as accessible as possible.
- When choosing an electric wheelchair it is important that professionals make assessments that embrace all levels of the user's occupation.

autonomy, live independent lives, and to participate fully in all aspects of life on an equal basis with others [1,2]. An aid can play an important role in reaching this goal in everyday life by compensating for the person's functional impairments [3] and thereby increasing the person's access to activities and participation in society by removing the discrepancy between the ability of the individual and the demands of the environment [4]. Research on how electric wheelchairs affect a user's everyday life indicates that an electric wheelchair in part compensates for functional impairments leading to an easier and more independent everyday life [4–7]. Moreover, using a wheelchair may improve social participation significantly [8]. Contrary to this, several studies indicate that impediments in the surrounding environment may hinder the desired daily activities [4,5,9–13] and the wheelchair itself can be a limiting factor in the participation of daily activities [14]. Therefore an electric wheelchair user may experience limitations in everyday occupation leading to social exclusion and isolation, which is pernicious to health and psychosocial wellbeing [15]. In addition, having a functional impairment and being dependent on a wheelchair may affect social status, identity [16–18], and lead to possible stigmatization [4,17]. Only a limited number of studies are carried out exclusively

on electric wheelchair users. Samples in most studies are a mixture of manual and electric wheelchair users, which is problematic because of the special conditions attached to the use of electric wheelchairs. There is limited knowledge about how electric wheelchair users living independently experience their daily occupation, such as work, socializing and managing housework and, moreover, how these activities shape everyday life. Such knowledge is important because a person's opportunity to take part in desired activities in interaction with their surroundings determines personal autonomy and the ability to live an independent life [19]. Autonomy is an interpersonal unique variable, which exists to different degrees and consists of both the ability to make decisions and the ability to act as one wish to [20]. The focus in this study is on the ability and possibility of achieving a desired occupation.

The aim of this paper is to explore how electric wheelchair users experience their everyday life and how their daily occupation is influenced by the use of the electric wheelchair. Four research questions guided the study: 1) Which activities are meaningful for the participants in the context of their everyday life? 2) Does the wheelchair assist in opening up new possibilities for occupation in everyday life? 3) Which difficulties did the participants experience when they started using an electric wheelchair? 4) What was decisive for the participants when they chose to use an electric wheelchair?

Methods

Theoretical perspective

Being a healthy human being you need to some degree to be occupied with valuable activities [21]. In this study, we want to understand how daily occupation is influenced by an electric wheelchair and how daily occupation influences the experience of everyday life. Persson et al.'s ValMO model (Value, Meaning and Occupation model) [19] is a relevant theoretical framework for this study, because it focuses on all aspects of occupation and the meaning and value of the individual person's single and life-long occupation. In order to keep a focus on these elements, we use the ValMo to structure the interview guide as well as a conceptual framework in the analysis.

In ValMO an occupation is defined as a personalized dynamic interaction between person, task and environment. A person's repertoire of occupation contributes to shaping the person's self-concept and identity. ValMO defines occupation in three different dimensions of value for the person involved; 1) Concrete and visible features: value is gained when an occupation leads to a concrete product that is of value to the person involved or to someone else. 2) Symbolic value is the meaning of the occupation as perceived by the person involved. The symbolic value is composed of three interacting levels; the personal, cultural and universal levels. The social environment gives the person involved feedback as to whether the occupation is socially acceptable or not, or whether the person involved is linked to a certain social group. Thereby, the symbolic value of an occupation leads to a sense of belonging to a certain culture or group. 3) Self-reward value is when

the person involved chooses an occupation because it gives immediate joy.

In ValMO, the three perspectives of occupation are interacting. The macro perspective is the personal and unique life course occupational repertoire and consists of maintenance, work, play and recreational occupation. The meso perspective is a smaller section of a person's occupational repertoire during an actual period of time e.g. having breakfast. The micro perspective is a single occupation e.g. lifting a cup.

A small change in the micro or the meso perspective caused by a functional capacity deficit may cause great changes in the system of occupation.

Design

The study was designed as a semi-structured interview study [22]. A purposeful sample of nine electric wheel chair users, five men and four women, was interviewed in 2010. Their average age was 52 years, and their average length of experience as an electric wheel chair user was 10 years (ranging from 1 to 29 years). All participants had functional impairments. Participants were recruited from The Centre of Multiple Sclerosis in Denmark, at The Multiple Sclerosis Society of Denmark, The Aid Depots and VISO (The National Science and Special Advice Organization) based on the following inclusion criteria:

1. A minimum of one year's experience as a user of an electric wheelchair.
2. Age between 25 and 70 years.
3. Cognitive and mental ability to understand and respond to interview questions.
4. Living in own home.

There were no criteria related to what kind of powered wheelchair the participant should use or which features the wheelchair had. As defined by the Danish Centre for Assistive Technology [23], the wheelchair the participant used could either be:

- A Class A: light weight powered wheelchair, which is fit for ground without irregularities. Suitable for indoor use
- A Class B: powered wheelchair suitable for both outdoor and indoor life
- A Class C: robust heavy powered wheelchair, which is fit for broken ground. Suitable for outdoor use

All wheelchairs were controlled by joystick and were used outdoors as well as indoors. All participants, except from one who choose a Class A, had chosen a Class B wheelchair which made it possible for them to drive indoor and outdoor.

See Table I for a description of the participants.

The first, second and third authors conducted the interviews. Two weeks before the interview, the interviewer visited the participants for the first time in their home to inform them about the study and to facilitate their reflections on issues pertaining to using their electric wheelchair. In order to stimulate reflective processes, the participants were asked to make notes or audio-recordings about their everyday

Table I. Description of the participants.

Respondent	Gender	Age	Years in wheelchair/ electric wheelchair	Cause of mobility deficit	Provision	Personal help	Partner	Type of wheelchair
1	M	49	24/10	Spinal cord injury	Part-time employee	No	Yes	Class B
2	M	42	19/19	Spinal cord injury	Retired	Full time	No	Class B
3	F	46	1/1	Sclerosis	Retired	Few hours a day	Yes	Class B
4	F	60	10/7	Sclerosis	Retired	Few hours a day	No	Class B
5	F	77	9/7	Transverse myelitis	Pension	Few hours a day	Yes	Class B
6	M	35	29/29	Spastic	Retired	At daytime	No	Class B
7	M	60	5/4	Sclerosis	Retired	Few hours a day	No	Class B
8	M	44	9/9	Spinal cord injury	Retired	Full time	Yes	Class C
9	F	56	25/7	Sclerosis	Retired	Full time	No	Class B

Table II. Basic outline.

ValMO	The overall questions
Macro level of occupation including the value attached and the accessibility	Which activities are meaningful to you? Have you changed your view on which occupations are meaningful to you? How do you experience being outside home in your electric wheelchair? Did the wheelchair open up new possibilities for occupation? How do you view yourself as an electric wheelchair user? How do you experience other people's view of you?
Meso level of occupation including the value attached and the accessibility	What is it like carrying out everyday occupations (asking for such things as going to the toilet, preparing a meal, getting around in your home or using your computer)? Does the wheelchair help you or make it harder for you to do such things?
Mikro level of occupation including the value attached and the accessibility	Examples of general questions on the concrete level: Do you have any difficulties sitting at a table? How do you manage negotiating kerbs?

life, inspired by the "Cultural Probes" method [24]. The participants' notes and/or recordings were used to initialise the interviews. Some participants had made notes and some audio recordings, which the interviewer listened to before the interview started. Our experience was that the method helped the participants to reflect on their life as an electric wheelchair user, which enriched the data. The participants were interviewed in their own home. During the visits, the interviewer observed the participants' apparent levels of occupation and how their homes were adapted to their needs as a wheelchair user. Reflections on the observations were actively drawn in to the interviews, and, furthermore, the observational data were integrated into the analysis.

An interview guide was designed with a theoretical outset in the ValMo model. The questions were thematically organised around the participants' occupation on a micro, meso and a macro level. The three interviewers continually discussed their experiences using interview guide, but no adaption were made (Table II).

On average, the interviews lasted 68 min (ranging from 50 to 107 min). A student assistant transcribed the interviews into written language. We chose to leave out false beginnings and extra linguistic expressions and by observing formal grammar in the transcriptions and consider that it have not affected the findings in negative way.

The transcriptions were analysed by following the stages of a thematic qualitative analysis [25]. The first step was an open, data-driven coding process [26]. All authors read the transcripts in full and began making a codebook. The aim was to develop an initial understanding of the whole dataset. The

first step led to the identification of 33 preliminary themes. The second step was to reduce the dataset by focusing on data concerning explanations of everyday life related to occupation and aids, using ValMO [19] to focus on relevant parts of the dataset. 20 codes were identified and subsequently used to code the entire dataset. The third step was a detailed examination of the thematic content of the codes [27]. The aim was to develop a balanced interpretation of the interviews. The analyses led to four central themes. The interdisciplinary group of authors discussed the analyses at each stage.

Ethics

The Danish Data Protection Agency's regulations regarding data storage were observed throughout the study. All participants were informed about the project and gave their informed consent to participation, based on written and spoken information. Interview responses were handled in full confidentiality, and anonymity was maintained throughout the research process.

Results

The results of this study were obtained by using the ValMO model for inspiration during the interpretation. By using ValMo, the focus was on the meaning and value of separate actions and repertoires of actions on both micro, meso and macro level for the electric wheelchair user.

In the interviews, the questions were primarily focused on the participants' experience of using the wheelchair. However, their responses indicated that the electric wheelchair was not

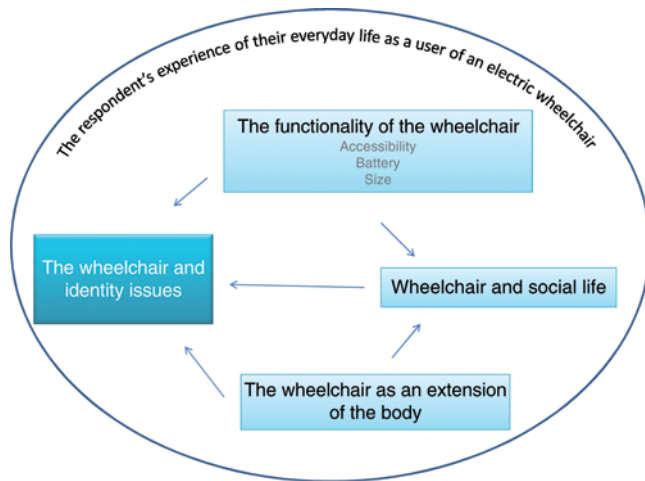


Figure 1. All the four themes are interrelated and represents how to be an electric wheelchair user influence every level of occupation in everyday life, social life and identity is influenced. The electric wheelchair can be both an inhibitor and a facilitator in relation to do desired occupation.

the only important aid in their everyday life. They also speak about the importance of personal help and the layout of their home. The life of the participants was to a considerable extent influenced by their aids, either by increasing or limiting their occupational possibilities in everyday life at micro or meso level. This influence also extended to their social life and identity at a macro level. All in all the participants expressed a wish to be independent and equal individuals and to have the opportunity to follow their individual wishes at all levels regarding occupation and life course. Also, they expressed having been able to adapt to the situation in different ways and to get the best out of life with a functional impairment. In this paper we will present four central themes in the participants' experiences of their everyday life as users of an electric wheelchair. The main themes were; 1) The functionality of the wheelchair, 2) The wheelchair as an extension of the body, 3) The wheelchair and social life and 4) The wheelchair and identity issues, see Figure 1.

The themes were all linked, but we present them separately here to obtain a deeper insight into the participants' experiences of everyday life.

1. Theme: The functionality of the wheelchair

The participants' electric wheelchairs functioned as a practical support in their everyday occupation. Their experience of the most important properties of their electric wheelchair varied but there were some central aspects of using an electric wheelchair, which all participants noted as extremely problematic or important. The theme was described through all three sub-themes described below.

Accessibility

All participants described limitations in life caused by limited access in public places. They experienced difficulties getting around in the electric wheelchair, because of restricted access,

to, for example, public toilets, or because of stairs and kerbs. A tendency seemed to emerge for these limitations to vary according to the part of the country in which, the participants lived. For some of the participants these restrictions prevented them from doing things of great value in their life.

Interviewer: So there are many public places that you can't get in?

Participant 5: Yes. You can say, that it is almost everywhere that's public. There is always a staircase. Maybe when you get inside, there appears to be nothing. But when you get further, then there is a staircase and then you can't get anywhere. For example if you decide that you want to visit an exhibition, we have previously done that a lot, you can't do that. There's stairs to most of it. Well, there is nothing to be done about it. So you are prevented from doing this, aren't you? (...) I must admit, that is something that can irritate me.

Interviewer: Yes, so many of the public activities that you would really like to participate in, you can't participate in anymore?

Participant 5: Yes, that's so

Battery

The dominating problem, which limited the users' occupation in relation to the wheelchair, was the wheelchair's battery. All participants mentioned that they had problems with the wheelchair's battery, in part because the battery was big and heavy, thereby influencing the weight of the wheelchair, and in part because the capacity of the battery was too small. This meant that the wheelchair had to recharge for several hours every day and the user of the wheelchair had to adapt to this and be immobile during these hours every day.

Interviewer: Does the wheelchair influence how much you are able to be alone?

Participant 2: Yes it does. From half past three to half past six every day I have to sit in front of the television because the wheelchair has to be connected to the recharger. And I have a 24 hour personal help every day, so I have to be together with the personal helper during this time. Because if I need something to drink, I can't get it, because the charger is connected to the wheelchair and I'm lost. I can't understand the companies advertising that the wheelchair can go 40 kilometres on full charge. I don't know where those 40 kilometres are? (...) I don't know if you have to crawl next to it, but I will say maximum 15.

Some of the participants were very active and needed a battery that could go as far as 40 km on a full charge depending on the weight of the user, the terrain, the age of the battery, etc. Some participants were less active, but for them battery capacity was still an issue, because the uncertainty about when the battery would run out, prevented them from going far alone.

All in all, as the battery only had a limited capacity, it limited the participants' aspirations and plans for daily occupation in accordance with their wishes and what gives value.

Too big or too small—choosing an electric wheelchair

The participants described being in a dilemma between the need of a wheelchair to do occupation outside, and one to manage occupation indoor. When acquiring an electric wheelchair they typically only got a licence for one wheelchair. Eight participants choose a Class B wheelchair, because

it made it possible for them to manage both indoor and outdoor. This could be a problem, since a Class B wheelchair often was not fit for such activities as sport, gardening or managing hindrances. Many participants enjoy being active, which contributed to a meaningful life, but outdoor activities made the wheelchair break down as a consequence of these activities. This caused limitations in two ways. First the user had to take into consideration that the wheelchair was not robust enough, which might put a limit on those activities that they were taking part in. Second, when the wheelchair was broken the user had to wait for a long time for the wheelchair to be repaired. If the wheelchair did not work the user was very limited in his/her occupation and often completely dependent on help from other people.

Theme 2: The wheelchair as an extension of the body

Overall, it was important that the wheelchair compensated for the impaired physical functions of the user. The electric wheelchair had to be individually adjusted to the user to be functional in all occupation. It thereby became an extension to the body and supported the user in being able to live a meaningful life. Participants found different functions of the wheelchair to be important.

Participant 1: (...) A wheelchair and especially an electric wheelchair. This is suddenly the person's legs. It is a new body.

At home it was important for the participants to have the opportunity to be occupied on their own as independently as possible, for example, a single action, such as taking plates out of the kitchen cupboard, or a series of occupation, such as cooking dinner. The wheelchair could contribute to this as it compensated for the user's lack of ability to move around. However, as the wheelchair had a size that makes it difficult to get around, adaptations to the home were also important.

The process of acquiring the most suitable electric wheelchair was important if it was to become an extension of the body. The participants were dependent on qualified help from professionals in this process. In Denmark, wheelchairs are licensed according to the Service Act § 112 [2], which describe that all people with permanent impaired physical functions have the right to be granted a wheelchair, if the wheelchair in an essential way can compensate for the impairment. There is no user's fee. § 3 describes [2] that the most inexpensive and best suited wheelchair should be chosen. Because there could be different views between the wheelchair user and the professionals about what "essential compensation" and the "best suited" wheelchair was, some participants' experiences were marked by a lack of cooperation with the healthcare professionals when a new wheelchair was needed. Especially in relation to purchase of the first wheelchair it was difficult to find out which functions were needed to support their occupation, and which functions the professionals would accept as necessary. Those participants that wanted to influence the choice of their wheelchair described how they used many resources on examining and arguing about, which functions would suit them best.

Also it is important to have a professional introduction to the functionalities of the wheelchair, as mastery of the

wheelchair contributes to the feeling of the wheelchair as being an extension of the body.

Participant 8: We need a place where they (the electric wheelchair users) can learn about the wheelchair and its functions. There isn't such a place... A kind of driving test... what can this wheelchair do? How steeply can it drive before it turns over? There are really many handicapped people who learn that the hard way.

Theme: The wheelchair and social life

Meeting other people was a valuable, meaningful activity for all the participants. The wheelchair improved social life as it made it possible to participate in important social activities, such as disabled sport, club activities and meetings with friends. However, access was often a problem at the places, where social activities took place. It was of great importance to socialise with equal minded people as they had a unique understanding of how life as a wheelchair user was.

Participant 6: I get a lot out of my sporting activities, social... physical and social, because I meet a lot of people that I keep in touch with. Some of them become my friends.

Interviewer: These people you meet, do they have some kind of functional impairment?

Participant 6: Yes. They are also wheelchair users, walking impaired or other functional impairments. People using a wheelchair like me, people in the same situation as me. Those sitting in a wheelchair, they talk the same language. They often understand the situation. Walking people like you and my personal helper don't always understand the situation.

Interviewer: So it's nice being with like minded?

Informant 6: Exactly - like-minded.

Some participants experienced that they are very closely tied to their home and need other people to visit them, as the size of the wheelchair hindered them from visiting other people in their private homes. Some users used a manual wheelchair, when they were outside their home, but for most participants it caused frustrations because they were dependant on other people's help. Being able to choose other people's company was important for the participants just as well as it was important to be able to choose being alone. Most participants described the importance of going for a ride on their own. The aids could contribute to this as they compensated for the physical deficits of the participants and thereby reduced their dependency on other people. The following data showed a great need for time in solitude, especially for those who were in need of substantial personal help.

Participant 6: I love driving on a trip by myself. I have to be myself sometimes, alone. Then I drive along on my own. I really need to be myself. I just have my mobile phone with me and then I call if anything happens.

A mobile phone was important giving a fundamental sense of security when wheelchair users were out on their own.

Theme: The wheelchair and identity issues

The previous themes were all indirectly concerned with the participants' feeling of identity (see Figure 1). When the participants started using an electric wheelchair it had great

influence on the way they saw themselves, and most participants had tried to postpone it as long as possible. Most participants described seeing electric wheelchair users as a group they could not identify with. Using an electric wheelchair was for the participants a symbol of being one of “those”.

Participant 3: I think those sitting in a wheelchair are much worse than me. Much worse than I thought I am. I thought: now it's bad for me if I'm in a wheelchair.

However, all participants described that when they had first overcome being in a wheelchair, and for some this process took years, the wheelchair was a great support for them. They had more energy and more options regarding what they wanted to do with their life. However, the participants described that the wheelchair had influenced the way they looked at themselves, that they were dependent on a wheelchair and maybe also personal helpers.

All participants described how they tried to realize themselves and did what they wished for their life. The life situation that had caused the need for aids in their everyday life was described as something that had changed their view on life. All participants tried to a great extent to compensate for what previously gave them a valuable life. By finding new occupation, they tried to try to get the best out of life, and to adjust to their dependence on the wheelchair and on other aids. The extent to which the electric wheelchair was adapted to the user and the environmental hindrances had significant influence on the users' opportunities to realize themselves. Some described it as a struggle every day others described it as a relatively good life, which the following data showed:

Participant 9: However, I'm not unhappy about sitting in a wheelchair. I would prefer walking, but as I can't, I think I'm sitting pretty.

It was important for users to have the feeling of independence and to understand themselves as being of valuable to other people. Therefore, participation in different social activities was important. One group of the participants, mainly men, had activities, such as sport, shooting or some kind of job, either paid or voluntary. This was important for these participants to feel accepted and to experience being a part of a valued social relationship. These participants had aids, which supported them in fulfilling these wishes for self-expression. They were predominantly active and satisfied. Another group, mainly women, described themselves as preoccupied with activities like shopping, e.g. buying clothes and taking care of their homes. These participants were negatively affected by their dependency on the wheelchair and by impediments in their surroundings. This made it difficult for them to realize themselves. They described a feeling of being burdensome, being isolated at home, looking terrible, gaining weight, and not being able to recognize themselves. It could be difficult to try clothes on in a shop's fitting room, because of the room's size, and therefore they were not able to try on the clothes on their own.

Participant 5: But the worst is... yesterday I had to go to town, I had to buy some new clothes. And the idiotic mirrors, when you take a look in them. I'll tell you, I was depressed, when I got home. That was really terrible.

Interviewer: You have a different picture of yourself in your head?

Participant 5: Yes, you can believe that. But that picture disappears when you look at this (she points at herself).

Being a wheelchair user also influenced how other people viewed them. All participants described to a greater or lesser degree that people saw them as different from others. Some participants described the feeling that other people thought they were less gifted because they sat in a wheelchair. Therefore, socialising sometimes caused frustrations and feelings of being unequal. Some participants were used to it and were apparently not affected by this anymore.

Interviewer: So you meet this (stigma) a lot when you are outside?

Participant 6: You do. People stare at you when you are driving a wheelchair. As if they think: “What's that”. And for some it is annoying, but I have learned to live with that. People can stand still and stare at me as much as they want to. It doesn't matter at all. Because I have learned that people always have done that and always will. This is the way it is.

In an effort to avoid negative attention from the surroundings, some participants wished for a small and discreet wheelchair, which would not be noticed. But data could not cast light on if a smaller electric wheelchair actually reduced the feeling of stigma.

Discussion

The four themes, which were a result of analysis and interpretation, showed that the electric wheelchair users wanted autonomy and to function as independent individuals who had the opportunity to realize themselves, in line with UN Convention on the Rights of Persons with Disabilities goals [1]. To be an electric wheelchair user influenced life on all levels, including the user's opportunity to gain autonomy. Verdonck et al. [5] find, in line with other studies, e.g. [28,29], that autonomy is an overriding need for people in western countries who are dependent on electric aids because of functional impairments. The present study showed that an electric wheelchair could have a positive influence on the feeling of autonomy if the interface between the body and the wheelchair is properly adjusted, cf. [30], and if it largely functioned as an extended body. This could increase the users' possibility of accomplishing desired and valuable occupation [20]. A wheelchair will at best function like a blind man's stick [31]: as an integrated part of the body. In such situations the user will not experience recurring limitations in the functions of the wheelchair in relation to executing single occupation and the desired repertoire of occupation. However, getting the sensation of an extension of the body means that both the person's world and body are transformed, creating possibilities and impossibilities in everyday life, cf. [32]. The needs for the functionality of the wheelchair will depend on individual

and changing demands, desires and the contexts in everyday life [30]. This was also found in the present study, for example when the participants described that their wheelchair worked well in their homes, but could cause problems when they were out visiting friends. Moreover, the wheelchair could function as a facilitator in relation to joining social activities in one context, but lead to stigma in another social context. According to the present study, we must as professionals, be aware of this to understand how to support new possibilities for the individual and find new options where the electric wheelchair user meets hindrances in everyday life.

The present study showed that two elements appeared to be important if the wheelchair was to function optimally as an extended body. First the wheelchair needed to be adjusted to the individual user and his or her needs and desires for occupation, to which this study drew attention, but this it was not always the case. Co-operation with healthcare professionals was described at times as being problematic, because the users did not encounter cooperativeness in relation to acquiring a wheelchair adjusted to their everyday life. This was mainly because health professionals were bound by regulations that make it impossible to monitor and assess all the occupation the individual user took part in and were therefore unable to match the functions of the wheelchair to the life that was lived [4,19]. In many cases the wheelchairs were only suitable for a small and limited context of a user's life. If the wheelchair was adjusted for home life it may function well as an extended body in that context and in relation to the habits [33] related to occupation at home but when the users left the home context and habits attached to living at home, they often met obstacles, which hindered them in desired occupation. This was partly caused by limitations in the wheelchair and partly caused by the surroundings. The functionality of wheelchairs was context-bound. This led to the problem, that eight out of nine participants had chosen a Class B wheelchair, which could cause limitations both outdoor and indoor. The problems outdoor could be that the Class B wheelchair was not fit for bigger hindrances as e.g. tall kerbs. Indoor problems could be connected with that this type of wheelchair could be slightly too big in an indoor context that was not adjusted for the wheelchair.

The same occupation might have different meanings for different persons [19], and what is important should be seen as the individual's preference [20]. This means that the professionals around the user of an electric wheelchair must be extremely alert when making assessments of the needs and desires of the user [34]. If assessments are successful, the user's desired occupation will be met by the technology [4] and the aids will function as an extension of the body.

Second the study shows that it was essential to have the opportunity to use the functions of the wheelchair in full, and therefore it must be an important job for health professionals to provide support, even for long-standing wheelchair users, so that they continually assess wheelchair skills and offer formal training, cf. [35]. As Winance points out, the process of integrating wheelchair and person is continuous [32].

Even though the user received a wheelchair, which was well adjusted and which supported the user's experience of

having an extended body, it cannot prevent feelings of stigma. Stigma will impede on the user's autonomy. It was a prominent finding that the participants experienced having another symbolic value [19], in their own as well as in others' evaluation, compared to before the accident/disease. Self-stigma [36] and stigma from the surroundings [37], have a negative influence on the wheelchair user's life. This was also found in Murphys anthropological research [17] about the disabled, which shows that wheelchair users have an undefined status, which will influence the feeling of identity. The wheelchair user reacted to this stigma in different ways. Some choose, more or less voluntarily, to join a group of equals, where the use of the wheelchair presumably was not marked by stigma. Others choose to some extent to stay isolated in their home. Similar observations were made in a study about stroke survivors and their everyday life in a wheelchair [18]. Others select a wheelchair, which visually seemed smaller so that the wheelchair would not be noticed before the user. However, the data did not indicate that the feeling of stigma actually decreased by using a smaller wheelchair.

Strengths and limitations

ValMO was chosen as a theoretical framework for the study, both for interviewing and in the analysis and interpretative process. It has contributed to maintaining a focus on all occupation in the electric wheelchair user's everyday life and the meaning and value attached to these occupation. Preserving a division of occupation on a micro and a macro level proved to be irrelevant in the process of interpretation. ValMo contributed by specifying, what influence a disturbance of occupation has on different levels of one's life and identity. However, ValMO does not explicitly focus on the technical aids, which could have led us to ignore the interface between the wheelchair and the body. By maintaining openness in the interpretation process, it was made possible to be aware of more aspects than the use of ValMO could contribute to, and we found that this interface appeared to be a dominant problem for the participants.

Reflective discussions of the study in the interdisciplinary group of authors at every stage of the process promoted reliability [25]. The participants were selected on the basis of well described inclusion and exclusion criteria, which increases credibility [25]. However the participants vary greatly in relation to type of mobility deficit, which may be seen as a weakness in this study. One group, overrepresented by men, had a spinal cord injury, which was characterized as a sudden injury, which made them dependent on a wheelchair from one day to the next. The second group, overrepresented by women, had a progressive disease, which developed gradually, whereby their dependence on a wheelchair evolved over time. Data showed a tendency to a gender difference in relation to how their life situation as a wheelchair user was managed, which other studies also support, e.g. [4,12]. But this difference might also be caused by the difference between suffering from a chronic progressive disease or sustaining a permanent injury [38]. In the analysis, the focus was on life with an electric wheelchair and not the limitations caused

by the participants' chronic disease. Moreover, the sample mostly consisted of highly active and involved people, who may have experienced other barriers and facilitators in their everyday occupation than a more representative group of electric wheelchair users. Last, we sampled participants who were electric wheelchair users, but we did not make selections based on what kind of electric wheelchair they used, because it did not appear to be important at the time. But the sample ended up consisting of Class B wheelchair users, except from one who had a Class C. Thereby the sample was comparable in relation to type of wheelchair.

Conclusion

This qualitative study gives insight into how electric wheelchair users experience their everyday life and how meaningful and valuable occupation is influenced by the use of an electric wheelchair. Four central themes emerged. Fundamental to the four themes is that it is important that the electric wheelchair functions as an extension of the user's body and that surroundings are made as accessible as possible. When choosing an electric wheelchair it is important that professionals make assessments that embrace all levels of the user's occupation and support the user in the first difficult time after the electric wheelchair has become a necessity in their life. Moreover it is important that professionals continually assess wheelchair skills and offer formal training. In that way the user has the possibility of engaging in desired occupation and as far as possible living an independent and autonomous life. However, the electric wheelchair user is constantly confronted with stigma, because of the status of the disabled in society, which, can isolate users and affect self-concepts and identity. Professionals have to be aware of this complex of problems if they want to live up to the UN Convention on the Rights of Persons with Disabilities.

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