Older adults’ use of, and satisfaction with, electric powered indoor/outdoor wheelchairs

Subhadra Evans, Andrew O. Frank, Claudius Neophytou, Lorraine de Souza

1 School of Health and Social Care, Mary Seacole Building, Brunel University, Uxbridge, Middlesex, UB8 3PH
2 Consultant in Rehabilitation Medicine, Stanmore Specialist Wheelchair Service, RNOH, Brookley Hill, Stanmore, HA7 4LP, UK

Address correspondence to: A. O. Frank. Email: andrew.frank1@btinternet.com

Abstract

Background: research documenting the experiences of electric powered indoor/outdoor wheelchair (EPIOC) users has generally failed to take into account the specific needs and concerns of older adults. This study sought to qualitatively examine the older EPIOC users’ satisfaction with the chair and service providers.

Method: eight women and nine men aged between 60 and 81 (mean 69) years were recruited through a specialist wheelchair service database. All had severe mobility disabilities. Analysis was performed using a qualitative framework approach.

Results: participants reported a variety of EPIOC uses, including shopping and some social contact. Moderate satisfaction with the chair was reported. Use was compromised by indoor and outdoor environmental barriers; and the chair not meeting users’ needs. Accidents were rare, but many users still experienced insecurity in the chair. High levels of satisfaction with the service were reported, although concern was expressed over length of waiting times.

Conclusions: EPIOCs proved useful to most older people with disabilities. However, even those who were satisfied reported only moderate use of the chair outdoors. Limited use related to an infrequent need for outings, outdoor barriers, feelings of insecurity over chair safety and lengthy waiting times for chair delivery and required modifications. Service providers should be aware that older EPIOC users may require extra support and the provision of timely adjustments to increase chair use.

Keywords: powered wheelchairs, assistive technology, older adults, satisfaction, physical disability, elderly

Introduction

Limitation to locomotion is the commonest disability in the United Kingdom [1], making studies examining the efficacy of mobility assistance devices important. Electric Powered Indoor/Outdoor Chairs (EPIOCs) are prescribed in the United Kingdom for severe locomotion disabilities [2], and significantly enhance the physical and social lives of young and adult disabled individuals [3–6]. Older adults using powered mobility remain understudied [7] and the experiences of older EPIOC users in Britain are unreported.

The lifespan of the average person continues to grow [8], but not always with optimal functioning [9]. In Britain, 14% of people aged over 65 are unable to walk down a road unassisted [10] and it is estimated that over 400,000 people over the age of 60 use wheelchairs [6]. The key to successful ageing is selecting the activities that are worth investing in, working to optimise performance in these activities and using aids to compensate for losses [11]. EPIOCs assist with successful ageing by compensating the loss of physical functioning, and represent an important resource for older individuals. The main indication for receiving an EPIOC through the National Health Service (NHS) is an inability to walk effectively around one’s home [5]. Thus older people may receive an EPIOC due to a life-long disability, or to assist with age-related changes.

Elderly EPIOC users may have distinctive requirements. High rates of accidents have been reported in wheelchair users, but it is unknown whether this occurs in older adults. Assistive technology is often perceived as inconvenient and a reminder of the individual’s disability [12]. It is possible that many older people, due to a negative evaluation of age-related change and disability [13], focus on the chair’s disadvantages. Young adults have been found to use their chairs for a variety of social and sporting activities, e.g. playing wheelchair football [4]. Social activity is an important developmental need throughout life, but people typically refine their social networks as they age [14]. Older users may have different social needs. A ‘one chair fits all’ policy may underestimate the individual needs of the older user.

Stanmore Specialist Wheelchair Service supports a regional population of around 3 million. Of the 631 individuals assessed by this service for EPIOCs from 1997–2006, 130 were aged 65+, 47 were aged 75+ and
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8 were aged 85+ years. Thus, the aims of the present study were to document the experiences of older adults using NHS prescribed EPIOCs. Themes explored in interviews included satisfaction with EPIOCs use, safety and satisfaction with service provision.

Method

Procedure

All EPIOC users 60 years of age and older, identified through a specialist wheelchair service database seen between February and November 2002, were invited to participate in a telephone interview. Of 19 users identified, two declined participation. A total of 17 EPIOC users completed in depth tape-recorded interviews regarding satisfaction with their EPIOC. At the time of interviews, all participants received their chairs 9–19 (mean 14) months previously. Harrow Research Ethics Committee approved the study.

A researcher independent of the NHS wheelchair service carried out the interviews. A priori interview topics were formulated in consultation with users. Topics included frequency and quality of chair activity, safety and satisfaction with the service provided.

Participants

The participants included eight women and nine men ranging in age from 60 to 81 (mean 69) years (Table 1). A variety of ethnicities were represented although the majority were White British (n = 12; 71%). Disabilities included spinal cord injuries (n = 4), multiple sclerosis (n = 4), cerebrovascular disease (n = 3), rheumatoid arthritis (n = 2), polio (n = 1), co-morbid disabilities (n = 3). Many were living on their own with little or no support. Eight participants were so disabled they were unable to stand, five participants could stand but with little or no support. Eight participants were so disabled they were unable to walk, and four were just able to walk and with decreasing mobility.

Data analysis

Interviews were transcribed verbatim from tape-recordings. Analyses were conducted using a qualitative framework approach [15, 16]. The method differs from other qualitative methods, in that it is more structured as categories of interest are considered before interviews.

A researcher who was not involved in the interviews reviewed the data. Each transcript was read in detail twice. Data were first studied for familiarisation and then indexed and charted. Tables of responses reflecting key categories were used for interpretation and explanation of findings. All data fitted into the general categories of satisfaction with the chair (sub-categories of satisfaction with use and safety) and satisfaction with the EPIOC service. Closed-ended questions (such as frequency of use) were analysed using descriptive statistics.

Findings

Satisfaction with chair

Use

Satisfaction varied immensely. Many users associated their EPIOC with dramatic positive changes, but others did not feel their life had been significantly enhanced. Three participants never used the chair (Table 2). Reasons included agoraphobia (1 user), and the chair not suiting users’ needs (2 users). Fisher’s exact tests did not reveal any significant gender or age differences between those who did, or did not, use their chair frequently.

Participants who used their chairs reported difficulties with indoor and outdoor use. Limited indoor use generally varied in frequency and quality of chair activity, safety and satisfaction with use.

Table 1. Participant demographics

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age</th>
<th>Gender</th>
<th>Ethnicity</th>
<th>Disability</th>
<th>Marital status</th>
<th>Sources of help in the home</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>72</td>
<td>F</td>
<td>WB</td>
<td>Spinal cord injury</td>
<td>Married</td>
<td>Husband</td>
</tr>
<tr>
<td>2</td>
<td>70</td>
<td>M</td>
<td>Arabic</td>
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<td>Married</td>
<td>Husband</td>
</tr>
<tr>
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<td>WB</td>
<td>Multiple sclerosis</td>
<td>Widowed</td>
<td>External carer</td>
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<tr>
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<td>WB</td>
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<td>None</td>
</tr>
<tr>
<td>5</td>
<td>76</td>
<td>M</td>
<td>WB</td>
<td>Spinal cord injury</td>
<td>Married</td>
<td>Wife</td>
</tr>
<tr>
<td>6</td>
<td>74</td>
<td>F</td>
<td>WB</td>
<td>Multiple disabilities</td>
<td>Married</td>
<td>Husband</td>
</tr>
<tr>
<td>7</td>
<td>71</td>
<td>F</td>
<td>White Italian</td>
<td>Multiple sclerosis</td>
<td>Married</td>
<td>Husband and daughter</td>
</tr>
<tr>
<td>8</td>
<td>77</td>
<td>M</td>
<td>WB</td>
<td>Spinal cord injury</td>
<td>Married</td>
<td>Wife</td>
</tr>
<tr>
<td>9</td>
<td>81</td>
<td>M</td>
<td>WB</td>
<td>Cerebrovascular disease</td>
<td>Married</td>
<td>Wife</td>
</tr>
<tr>
<td>10</td>
<td>63</td>
<td>M</td>
<td>WB</td>
<td>Cerebrovascular disease</td>
<td>Married</td>
<td>Wife</td>
</tr>
<tr>
<td>11</td>
<td>64</td>
<td>F</td>
<td>WB</td>
<td>Cerebrovascular disease</td>
<td>Widowed</td>
<td>None</td>
</tr>
<tr>
<td>12</td>
<td>63</td>
<td>M</td>
<td>White Canadian</td>
<td>Multiple sclerosis</td>
<td>Married</td>
<td>Wife and son</td>
</tr>
<tr>
<td>13</td>
<td>60</td>
<td>M</td>
<td>WB</td>
<td>Rheumatoid arthritis</td>
<td>Divorced</td>
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</tr>
<tr>
<td>14</td>
<td>63</td>
<td>F</td>
<td>WB</td>
<td>Multiple sclerosis</td>
<td>Divorced</td>
<td>None</td>
</tr>
<tr>
<td>15</td>
<td>61</td>
<td>M</td>
<td>Asian Indian</td>
<td>Multiple disabilities</td>
<td>Married</td>
<td>Wife and children</td>
</tr>
<tr>
<td>16</td>
<td>64</td>
<td>M</td>
<td>WB</td>
<td>Polio</td>
<td>Married</td>
<td>Wife</td>
</tr>
<tr>
<td>17</td>
<td>64</td>
<td>F</td>
<td>Malaysian</td>
<td>Rheumatoid arthritis</td>
<td>Widowed</td>
<td>None</td>
</tr>
</tbody>
</table>

WB, White British.
Elders’ satisfaction in using electric wheelchairs

Participants waited on average 3 months to receive their wheelchairs after their clinical assessment. Most were satisfied, but felt that waiting times could be improved. One participant waited 2 years to receive her chair, although this was due in part to her house not fitting the chair’s dimensions. When users were warned about lengthy waiting times they were more accepting of delays. ‘We didn’t push it or anything because we were told that at the very beginning about funding’ (user 7). However, this lack of follow-up meant that some users waited out appointment times despite feeling stressed about needing adjustments or they continued to use an uncomfortable chair.

Users were concerned that they would not be assessed in time for changing needs. Many had illnesses associated with deterioration and increasing immobility. Waiting times were often too laborious, and there was a sense that users would prefer not to use the chair than deal with having their chair adjusted. ‘My house has deteriorated and my condition has got worse. Really I could really do with going back and being reassessed again’ (user 6). In contrast, at least one user waited half years’ (user 10).

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Users listed a range of minor problems, from needing the control box moved, to adding a mirror to compensate for the participant’s lack of neck movement. Reviews of the contracted repairer were mostly positive: ‘They’re very good. I phoned them, I said, “I’m stranded, I’m in the middle of the room. I can’t go one way or the other”, and they said, “alright, we’ll be there as soon as we can” and within half an hour they were here. They’ve been very good’ (user 6). In contrast, at least one user waited weeks for repairs, going the entire time without a chair. Some users were unhappy with the repair services’ response to modifications, and some EPIOCs went unused as a result: ‘At the moment I’m waiting for someone to come and look at the electric

Table 2. Profile of EPIOC use

<table>
<thead>
<tr>
<th>Uses</th>
<th>Everyday</th>
<th>Rarely</th>
<th>Few times/week</th>
<th>Indoor use</th>
<th>Less than once/week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoor use</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Outdoor use</td>
<td>6</td>
<td>4</td>
<td>8</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Uses</td>
<td>8</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Church</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Day centre</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Gardening</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>GP and hospital</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Park</td>
<td>6</td>
<td>4</td>
<td>8</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Visiting family and friends</td>
<td>4</td>
<td>2</td>
<td>8</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Pub</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Shopping</td>
<td>12</td>
<td>4</td>
<td>8</td>
<td>7</td>
<td>6</td>
</tr>
</tbody>
</table>

was an easier option for many: ‘I was trying to go round to one of the local shops the other day and the pavements were in a dreadful state and then you go onto the road, they’re an equally bad state. You’d have a hard job getting there’. An EPIOC was an easier option for many: ‘Christmas time is full of people and they all sort of looking up, and mums and dads are not careful with their children. I’m always very, very slow and my hand is always out, and I’m always sort of hawking children because parents don’t teach their children how to walk’. Users compensated by moving slowly through crowds, but stopping suddenly was associated with risks for users and pedestrians: ‘You’ve got some button to stop, and you do whack people’s ankles and it hurts. It’s like a car with stopping distance on it, it’s not that quick’ (user 13).

Satisfaction with service

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wheelchair and I’ve been waiting for months because it needs adjustment and I haven’t been using it. I only used it for about a week, 8 months ago’ (user 1).

The wheelchair service provided information about dealing with malfunctions and all users were very satisfied with this. They had access to booklets with problem-solving tips, and felt it was helpful to refer to this information rather than immediately calling the contractor. Despite their satisfaction with most aspects of the service, there was a feeling that information about the wheelchair service could be disseminated more effectively. Users wanted to assist others in a similar situation, and regretted being unable to access an EPIOC earlier: ‘I found it very hard that they don’t let people know about these sort of things. That these chairs are available for people, because it has made so much difference to us. I would have seen to this a lot earlier. I would have got an EPIOC a lot earlier if I’d known about it. I just think disabled people should know about that sort of thing. . . It does change people’s quality of life’ (user 7).

Discussion

This is the first study of an older population of British people using powered wheelchairs. The findings suggest benefits associated with EPIOCs, including increased independence and well-being. Although most users were satisfied, EPIOCs were not regarded by everyone as helpful. Those reporting limited use seemed to comprise two groups: (i) individuals with minimal socialising and mobility motivations, and (ii) people who desired mobility, but felt the EPIOC was inconvenient to use due to physical barriers and ill-fitting chairs.

Satisfaction with the service was usually high once users received their chair, but dissatisfaction with waiting times and concerns about the chair continuing to meet needs were also reported. Times for appointments and chair modifications were lengthy, and users were often not reassessed in time to accommodate changing needs. This is an unfortunate consequence of a well used but under-funded wheelchair service, and is not limited to this sample (4).

Older users found substantial benefit in their EPIOCs, shopping being reported by almost three-quarters of them. For many, EPIOCs assisted with the compensation of age-related decline, boding well for their future mental and physical health [11]. Participants in this study were rarely involved in accidents although many felt insecure in their chair.

Despite the advantages EPIOCs offer, some participants rarely used their chairs, usually due to the difficulties of a wheelchair-unfriendly environment. From small doorframes, to uneven outdoor terrain and pedestrians, wheelchair users were felt to be a difficult task. Future work needs to explore the characteristics that distinguish who gets maximum use and enjoyment from their chairs. Given the substantial costs of EPIOC prescription (about £2,163 or €3,300, $4260 excluding a cushion) it is important to understand who will benefit most.

As family, activities and other social contacts are the most important factors providing ‘quality’ to life and health in old age [17, 18], many older EPIOC users could benefit from increased chair use. Only four users reported visiting friends and family in the EPIOC. Service providers should ensure that the chair is comfortable and convenient to use. Improvements to the chair, such as a horn for safety may increase social use. Providers also need to be realistic about older adults’ mobility needs. Simply doing the weekly shopping may enhance quality of life and many participants reported increased life satisfaction attributed to their EPIOC.

EPIOCs were found to be an important resource for the severely disabled older adults in this study. However, it is questionable whether the findings can be extended to the mobility issues of a general elderly population. Further work is required addressing the efficacy of other powered devices for less severe mobility problems. For example, scooters (not available from the NHS) may greatly enhance quality of life for those needing minor assistance with mobility.

Key points

- Wheelchair use should be viewed from a developmental perspective; how do users’ needs and concerns change with age? Do health professionals consider wheelchairs often enough to compensate for age-related immobility?
- Not all disabled older adults use EPIOCs to full advantage; social use may be especially compromised.
- Barriers to use include environmental obstacles such as stairs and uneven terrain, perceptions of questionable chair safety for user and other pedestrians, battery concerns, and waiting times for provision of chair and modifications.
- Further resources are required to ensure older disabled persons receive EPIOCs that meet individual needs without lengthy delay; for example, warning horns may be needed for some, while others may require additional training around manoeuvring across difficult terrain.

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Conflict of Interest Statement

Andrew Frank is Medical Director of Kynixa—a rehabilitation case management company.

This company has no relationship to any wheelchair companies but is included for transparency and you may quote as you feel is appropriate.

References

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Q3. Please provide the place of publication for this reference.
Q4. Please provide the place of publication for this reference.
Q5. This reference has not been cited in text. Please provide the citation for the reference 19 and 20.
Q6. Please provide the place of publication for this reference.