

'Extremely easy to set up and use. I find the joystick system very intuitive'

Hand control user



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'Helps me as I cannot use a joy stick'

Switch control user



Aim

The study aim was to elicit the views of adult users (occupants) on the controls of their electrically powered wheelchair (EPW).

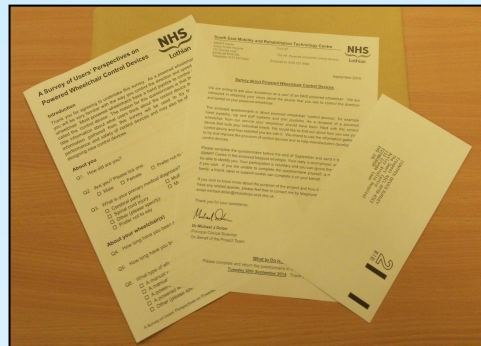


Figure 1: Questionnaire, covering letter and free-post return envelope ready for sending out.

Methodology

Using a purpose-designed, four-page questionnaire (Figure 1), a postal survey was conducted during September 2014 of individuals ≥ 18 years of age who had an NHS EPW in the south east of Scotland.

Respondents

262 (response rate 55.5%) questionnaires were returned. The average participant age was 54.4 ± 16.3 years ($N = 252$; range 18-89 years). The majority were female (56.8%). The largest diagnostic groups were Multiple Sclerosis (MS) 28.3%, Cerebral Palsy (CP) 13.8% and Spinal Cord Injury (SCI) 11.7% (Figure 2).

Usage

The mean durations of wheelchair and EPW use were 14.8 ± 11.8 years ($N = 229$) and 10.1 ± 9.1 years ($N = 249$) respectively. The mean number of days per week and hours per day of EPW use were 6.7 ± 1.1 days ($N = 249$) and 9.2 ± 4.3 hours ($N = 212$) respectively. The vast majority, 89.5% (221), were using their EPW everyday.

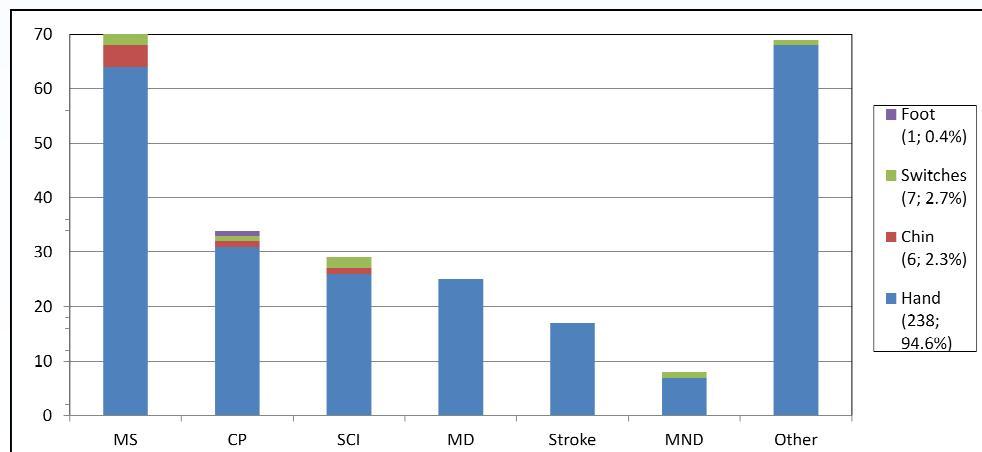


Figure 2: Number of respondents by diagnosis and type of control device.

Limiting Factors

Participants were asked if any of five listed issues limited their use of their EPW. 250 responded to this question:

- 42.4% (106) 'Fatigue or tiredness'
- 38.8% (97) 'Pain or discomfort'
- 26.0% (65) 'Hand or upper limb weakness'
- 12.4% (31) 'Hand or upper limb range of motion'
- 9.2% (23) 'Hand or upper limb tremor'

Control Device Types

Four different types of control device were reported as being used (Figure 2) with the vast majority using hand joysticks (94.6%). Only one was using a foot control.

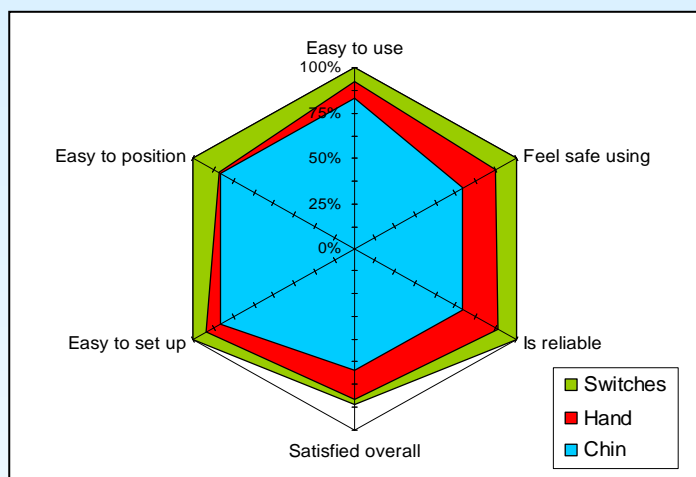


Figure 3: Percentage agreeing or strongly agreeing with each statement by type.

User Ratings

Participants were asked to rate aspects of their control device on a 5-point Likert scale based on six statements (Figure 3):

- My control device is easy to set up.
- My control device is easy to position where I need it to be.
- My control device is easy to use.
- I feel safe using my control device.
- My control device is reliable.
- Overall, I am satisfied with my control device.

Pros, Cons & Desired Changes

Participants were asked to list the pros, cons and desired changes to their control type. Responses were categorised and the top ones are reported here.

HAND - Pros: Easy and simple to use ($N = 43$); Facilitates independence (40); Good position (10). **Cons:** Knob detaches and/or loosens (17); Accidental activation (off/on, joystick, speed setting) (10); Difficulties due to fatigue, tremor, discomfort, numbness or weakness (8). **Changes:** Change in position and/or easier, more flexible position adjustment (16); Higher speed (10); Different size and/or shape and/or texture of knob (9).

CHIN - Pros: Facilitates independence (5); Easy and simple to use (2). **Cons:** Difficulties due to fatigue (1); Design limitations (1). **Changes:** Different size and/or shape and/or texture of knob (1); Different, more compact mount (1).

SWITCHES - Pros: Facilitates independence (3). **Cons:** Design limitations (1); Seating support (1). **Changes:** Quicker interface (1); Higher speed (1).

Acknowledgements

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Chin control user

'Does give me some freedom in some small way.'

Key Points

- The vast majority of users have a hand joystick; alternative control devices (such as switches) are far less prevalent.
- Most users have control devices that meet their needs, with high levels of satisfaction, but some would benefit from adjustments or modifications or a change of type.
- A high proportion reported fatigue or tiredness and pain or discomfort that limits their use of their EPW and prescribers need to be mindful of these issues when determining the most suitable type and where it should be positioned.
- This study did not report on control devices for children. It is thought that for children there would be more varied types of control devices to meet the needs of developing motor skills.