

Use of Mobile Arm Supports by People with Neuromuscular Conditions

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Background

Proximal upper limb weakness, with relative preservation of distal musculature, occurs in several neuromuscular conditions (NMC). Mobile arm supports (MAS) allow a person with such a pattern of weakness to move the limb against gravity, and use their hands for several different activities. This study aimed to explore the benefits, disadvantages, and effect on independence that MAS provide for those with NMC.

Results

170 users were invited to take part, 22 replied (13%), 13 were interviewed (12 males; 13-69yrs; mean 25yrs) Ten had Duchenne Muscular Dystrophy (DMD). Questionnaire results were statistically different ($P < 0.000$) for both ABILHAND (mean score 61.5 ± 9.8) and ULFI data ULFI (mean score 23.7 ± 12.9) thus representative of the significant range of mobility and strength in participants.

The following themes emerged:

1. Use of MAS had a positive impact on psychological factors, including greater feelings of independence, confidence, and improved social interactions, but also were associated with more negative factors such as being a sign of increasing disability and attitude of peers.
2. Using MAS greatly increased the range, independence in, ease and speed of performing everyday activities, thus having effects on both activity and participation.
3. The timing of obtaining and learning to use the MAS, and the severity of condition were important factors influencing the extent and range of MAS use.
4. Occupational Therapists played an important role in raising awareness and advocating for funding of MAS for the majority of participants.
5. There was significant variation across local authorities in funding and time taken to provide MAS.
6. A number of recommendations were made by participants to improve the service and development of MAS, consisting of factors that would improve reliability and factors that would enhance use.

Conclusion

This study demonstrates that use of MAS by those with NMC can improve independence and quality of life, and also reveals factors which prevent optimal use. Further benefit could be gained by using a multi-disciplinary approach to link equipment provision with rehabilitation by clearly identifying and clarifying goals of using MAS and then supporting achievement of such goals once equipment is provided, alongside technical developments.

Methods

A mixed-method study using questionnaires and semi-structured interviews. Sampling was purposive, based on ownership of MAS, a neuromuscular condition and aged 12 or over. Interviews were transcribed and analysed using thematic analysis. Descriptive statistics were derived from the questionnaire data which included basic epidemiological details, the ABILHAND and the Upper Limb Functional Index (ULFI) questionnaires

Table 1: Aspects of activity and participation that users cited as being assisted by MAS.

Activity	Participation
Feeding	Going out to restaurant
Reaching	Using stereo or DVD
Stretching	Using games console
Sitting	Controlling TV
Brushing teeth	Using a keyboard
Doing exercises	Picking up a phone.
Scratching an itch	Shaking hands
Adjusting glasses	Giving a hug
Preparing food	Playing the piano
Using wheelchair by switching it on	Turning over pages of books and magazines
Opening doors	

User's Mother: "I would bring his tea when it's hot and move it out of his way, away from his mouse and keyboard, and when he's ready he would sort of stretch his arm out with the help of the arm support and move his tea closer to him. So in that way he doesn't have to call me, I'll just leave the tea there where he can reach, so that gives him like independence of helping himself. And if it's worth anything he can hug me back when I hug him, that was the nicest part for me, that he can hug me back"

User: "I do like when I can hug back because I think it's just selfish just taking hugs."

