Describing and Predicting the Possession of Assistive Devices Among Persons With Multiple Sclerosis

Marcia Finlayson, Leslie Guglielmello, Kathryn Liefer

Key Words: chronic disease • health services research • self-help devices

Objective. This study describes the types of assistive devices in the possession of persons with multiple sclerosis (MS) and identifies factors that best predicted the probability of possessing these devices.

Method. A secondary analysis using frequency distributions and logistic regression of existing cross-sectional data was completed. Data were from an anonymous mail survey of members of the Multiple Sclerosis Society of Canada (Atlantic Division) (N = 906).

Results. Mobility aids and grab bars were the most commonly reported assistive devices. Seeing an occupational therapist, not working, having a progressive type of MS, having more activity limitations and more symptoms, and having MS for a longer period were found to increase the probability of possessing assistive devices.

Conclusion. The descriptive results of this study are similar to studies of assistive technology use by older adults and persons with other chronic conditions. Type of MS and seeing an occupational therapist were the two strongest predictors of possessing assistive devices among respondents.


Assistive devices such as canes, walkers, grab bars, bath seats, and dressing aids are widely believed to promote the independence of the persons who use them. Occupational therapists, physical therapists, and other health care professionals commonly are involved in prescribing and training persons with disabilities to use these devices. Current research on the use of assistive devices tends to focus on persons with chronic conditions other than multiple sclerosis (MS) and, typically, on older adults (e.g., Edwards & Jones, 1998; Gitlin, Luborsky, & Schemm, 1998; Mann, Ottenbacher, Fraas, Tomita, & Granger, 1999). MS is a disease typically diagnosed in young adulthood that results in progressive disability over time. As a result, the extent to which current knowledge about the use of assistive devices applies to persons with MS is unclear. This article presents the findings of a secondary analysis that described the types of assistive devices in the possession of persons with MS and that identified the group of factors that best predicted the probability of possessing these devices.

Literature Review

Assistive devices are generally understood to be pieces of equipment or product systems that are directly purchased, customized, or adapted to assist the user to maintain or enhance his or her ability to function in everyday life (Pedretti, 1996). Assistive devices include a range of mobil-
ity, activities of daily living, work, and environmental aids. Assistive devices, assistive technology, and adaptive equipment are terms often used interchangeably. For the purposes of this article, only the term assistive devices will be used.

Occupational therapists focus on enabling occupational functioning and promoting the independence of their clients. To achieve these goals, it is sometimes necessary to adapt the task to be accomplished, the method of accomplishing the task, and the environment (Moyers, 1999). Using assistive devices can be considered an adaptation because these items change the method used to accomplish the task. This change is often required when a client wants to compensate for physical limitations, such as decreased range of motion, strength, endurance, and mobility, or when he or she wants to compensate for sensory processing (including visual), cognitive, or psychosocial deficits. Such limitations and deficits are common in MS.

MS is a chronic, debilitating neurological disease that typically is diagnosed between 20 and 40 years of age. Women are more likely to have MS than men (Rumrill, Battersby, & Kaleta, 1996). Current estimates suggest that 250,000 to 350,000 people in the United States have MS (Reingold, 1995) and that approximately 20.6 persons per 100,000 people live globally (Dean, 1994). In Canada, the prevalence has been estimated to be as high as 100 cases per 100,000 people (Aronson, Goldenberg, & Cleghorn, 1996).

Approximately 70% of persons with MS have a type of the disease known as relapsing–remitting in which symptoms occur and then remit in a cyclical pattern over time (Multiple Sclerosis Society of Canada, 2000). Progressive forms of the disease are less common, although they result in more severe disability. A benign form of MS has also been recognized; persons with this type of the disease have few attacks, long periods of remissions, and little disability after 15 years (Multiple Sclerosis Society of Canada, 2000). Regardless of the type of MS one has, research has shown that persons with MS experience limitations in their ability to do tasks for which assistive devices, such as bathing, dressing, and cooking aids, are available and may be beneficial (Aronson et al., 1996; Finlayson, Impey, Nicolle, & Edwards, 1998). Nevertheless, the existing literature has not explicitly explored the use of assistive devices among persons with MS; instead, it has focused primarily on persons with other chronic disabilities and, typically, on older adults (e.g., Edwards & Jones, 1998; Gitlin et al., 1998; Mann et al., 1999).

In a review of studies on the adaptive equipment use of older adults, Kraskowsky and Finlayson (2001) found that the most common assistive devices were walking and mobility aids, dressing and bathing devices, personal hygiene aids, and communication devices. The review also noted that ownership of assistive devices tends to increase with age and extent of disability, to be more common in women than men, and to be associated with living arrangements. In terms of living arrangements, Edwards and Jones (1998) found that persons who live alone were more likely to have bathroom rails and less likely to have a wheelchair than persons who lived with others.

None of the studies included in Kraskowsky and Finlayson’s (2001) review addressed the role of occupational therapists or physical therapists in a person’s likelihood of owning or using an assistive device. In a recent intervention study, Mann et al. (1999) found that older adults receiving therapy services acquired significantly more assistive devices than older adults in the control group ($p < .001$). These authors suggest that assistive devices may prevent or postpone morbidity in the treatment group but stated that further study is required.

No studies were found that focused partly or exclusively on the use of assistive devices among persons with MS, although three articles addressed the topic indirectly. Whetten-Goldstein, Sloan, Goldstein, and Kulas (1998) found that the annualized cost of assistive devices added approximately $1,100 to the cost of care for persons with MS. The article did not address specific items used by persons with MS but did define assistive devices as including home alterations and vehicle modifications. A review article by McLaughlin (1998) also did not address specific assistive devices used by persons with MS; instead, the article discussed the resources available for this population, including equipment loan services. Stolp-Smith, Carter, Rohe, and Knowland (1997) described a range of assistive devices that can be used in the medical management of persons with MS. They specifically referenced the value of assistive devices in the ability of persons with MS to maintain a paid work role. Together, these three articles provide only general insights into the use of assistive devices by persons with MS, but each article implies that assistive devices provide opportunities to maintain self-care, work, and leisure activities.

Given the incidence and prevalence of MS, the types of limitations experienced by this population, and the availability of assistive devices to compensate for these limitations, it is striking that so little is known about the nature of assistive device use among persons with MS. Developing an understanding of what assistive devices these persons possess and what factors predict this possession may assist occupational therapists to think critically about how they work with this population and what service gaps may exist. As a result, the following research questions were developed:

1. What types of assistive devices do persons with MS most commonly report as being in their possession?
2. What group of factors is best able to predict the probability of possessing assistive devices among persons with MS?
Two hypotheses were set for research question 2. First, persons with greater disability (i.e., more symptoms, more activity limitations, a progressive type of MS, use of occupational therapy) were hypothesized to be more likely to report the possession of some type of assistive device. Second, working for pay would be independently associated with the possession of assistive devices. This hypothesis was nondirectional because working could lead to the use of assistive devices to remain at work, or alternatively, not working could indicate severe disability and increased use of assistive devices.

Method

This study involved a secondary analysis of an existing data set developed from a mail survey of all members of the Multiple Sclerosis Society of Canada (Atlantic Division) in the fall of 1997 (Wiebe, Finlayson, & Payne, 1998). Access to this data set was provided to the first author through an agreement with the Multiple Sclerosis Society of Canada.

Sample

The analysis is based on 906 members who reported having MS through the anonymous mail survey, which was initiated, approved, and funded by the Board of Directors of the Multiple Sclerosis Society of Canada (Atlantic Division). These members represent 84% of the total number of responses received (N = 1,085), and 30% of the 3,015 surveys distributed. As a result, the overall response rate for the survey was 36% (i.e., 1,085/3,015). No reminder cards were used for this survey to increase response rate because of financial constraints. The 179 respondents (i.e., 1,085–906) excluded from this analysis reported that they did not have MS (i.e., were a family member or professional) or that they had not been confirmed as having MS.

Instrument

The survey was developed to meet the information needs of Multiple Sclerosis Society of Canada, as the original objective of the survey was to gather information for program planning and advocacy efforts (Wiebe et al., 1998). The survey was pretested with focus groups composed of members of the society and was reviewed for style, format, and content by colleagues of the first author, who was the primary consultant to the original study.

The survey gathered information on basic demographics, self-reported general health status, work and financial situation, and the Multiple Sclerosis Society programs and services the respondent was using or had used in the past. All survey questions were closed-ended, with response types including dichotomous, multiscategory, checklist, and fill in the blank. Questions regarding current symptoms and activity limitations were in checklist format. Within the general health status section, respondents completed a chart indicating the assistive devices currently in their possession, whether the items were owned or rented, and the length of time he or she has had them. Respondents were asked to list all devices in their possession.

Data Entry and Analysis

Upon return of the surveys, trained data-entry staff from Dalhousie University in Halifax, Canada, entered all of the data except the itemized equipment information that respondents recorded on the chart. The first and second authors reviewed the equipment information and developed categories that were based on the purpose of the device. Some categories represent only a single type of assistive device because many respondents identified having the item or because having that level of specificity would be valuable to the Multiple Sclerosis Society of Canada (Atlantic Division) Equipment Loan Program. Variables and data for the equipment categories were entered into the data set by the second author. The first two columns of Table 1 identify the assistive device categories and give examples of the types of devices included in these categories. It is important to note that terms for some devices may be different in Canada and in the United States. In addition, the authors used the exact terms provided by the respondents for a particular device rather than trying to interpret or translate the term into one that may be used more commonly by an occupational therapist or other health professional.

For all the data, univariate analyses were conducted to identify possible data entry errors. Possible errors were checked against the raw data and corrected as necessary. For all variables in the survey, missing data were given unique codes, and individual survey questions with missing data exceeding 15% were not used in the analysis. Skipped questions that were not applicable to the respondent were given a unique code and not included as missing data. Frequency distributions were used to address research question 1, and logistic regression was used to address research question 2 and its associated hypotheses. A backward logistic regression model was devised, with the outcome of possessing assistive devices coded as 1 and not possessing assistive devices coded as 0.

Logistic regression analysis is commonly used when the outcome is binary (e.g., possessing assistive devices vs. not possessing assistive devices). This direct probability model determines the effect of each independent variable (e.g., age, gender, type of MS) while simultaneously controlling for the effects of all other independent variables (Katz, 1999). The results of a logistic regression analysis enable the researcher to determine which individual variables from a set of potential predictor variables have an independent influence on the probability of the outcome variable as well as the extent of that influence, if it exists. The p values, odds ratios, and confidence limits for each
Table 1
Categories, Examples, and Distribution of Assistive Devices in the Possession of Respondents

<table>
<thead>
<tr>
<th>Category</th>
<th>Assistive Devices in Category</th>
<th>Respondents in Possession of Device</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>n</td>
</tr>
<tr>
<td>Manual wheelchair</td>
<td>(Self-explanatory)</td>
<td>261</td>
</tr>
<tr>
<td>Grab bars</td>
<td>Grab bar, pole, handrail</td>
<td>214</td>
</tr>
<tr>
<td>Other mobility aids</td>
<td>Straight cane, quad cane, crutches</td>
<td>191</td>
</tr>
<tr>
<td>Any type of walker</td>
<td>Standard walker, rolling walker</td>
<td>167</td>
</tr>
<tr>
<td>Bathrub modifications</td>
<td>Bathseat, telephone shower</td>
<td>95</td>
</tr>
<tr>
<td>Scooter</td>
<td>(Self-explanatory)</td>
<td>64</td>
</tr>
<tr>
<td>Lifts</td>
<td>In-home elevator, hoyer lift</td>
<td>61</td>
</tr>
<tr>
<td>Toilet modifications</td>
<td>Commode, raised toilet, raised toilet seat, toilet arms</td>
<td>60</td>
</tr>
<tr>
<td>Miscellaneous self-care</td>
<td>Reacher, feeding aids, push cart</td>
<td>47</td>
</tr>
<tr>
<td>Electric wheelchair</td>
<td>(Self-explanatory)</td>
<td>35</td>
</tr>
<tr>
<td>Orthotics</td>
<td>Leg, foot, or back brace; footwear; wrist, hand, or toe splint</td>
<td>31</td>
</tr>
<tr>
<td>Bedroom modifications</td>
<td>Electric bed, hospital bed, bed slings, air mattress</td>
<td>31</td>
</tr>
<tr>
<td>Vehicle modifications</td>
<td>Lifts for vehicle, hand controls, car seat, handicap parking pass</td>
<td>21</td>
</tr>
<tr>
<td>Visual aids</td>
<td>Magnifying glasses, prism glasses, sunglasses</td>
<td>20</td>
</tr>
<tr>
<td>Cushion</td>
<td>Back cushion, pressure reduction cushion, obus back form</td>
<td>16</td>
</tr>
<tr>
<td>Stair ramp</td>
<td>(Self-explanatory)</td>
<td>16</td>
</tr>
<tr>
<td>Communication aids</td>
<td>Telephone intercom, life line, monitor</td>
<td>14</td>
</tr>
<tr>
<td>Air conditioner</td>
<td>(Self-explanatory)</td>
<td>13</td>
</tr>
</tbody>
</table>

Note. n = 427.

variable in the model provide this information (Katz, 1999). Odds ratios greater than 1.00 indicate a greater probability of the outcome, whereas odds ratios less than 1.00 indicate a lesser probability (Katz, 1999). Logistic regression analysis can also predict the probability of the outcome given a set of specific values for each independent variable by requesting predicted values in programs such as the Statistical Package for the Social Sciences (SPSS) (Katz, 1999; SPSS, Inc., 1998).

Selection of potential predictors for this study was based on the existing literature about assistive device use in other populations and knowledge of MS. Potential predictors included in the model were age, gender, marital status, type of housing, employment status, type of MS, years since diagnosis, total number of activity limitations, total number of symptoms, any hospitalizations in the past 12 months, current work status, and whether an occupational therapist had ever been seen. All analyses were conducted using SPSS for Windows, Version 9.0.0. Sample size tables from Hsieh (1989) were used to determine the power of the logistic regression analysis, taking into account the number and type of independent variables in the model. According to these tables, the analysis had 80% power to detect odds ratios of 1.2 or greater or .8 or less (Hsieh, 1989). This means that a 20% risk of a Type II error exists for those variables identified as being significant within a range of .81 to .99 and 1.01 to 1.19 (Trochim, 1999).

Results
Survey respondents were primarily women (72.2%), married (75.6%), and living in a single-family house (80.0%). Average age was 36.5 years ($SD = 9.9$), and average years of education was 13.0 ($SD = 3.0$). Forms of MS reported by the respondents were progressive (38.3%), relapsing–remitting (27.6%), benign (7.6%), and unknown (26.6%). The majority of respondents reported that their health was fair or poor compared with other people their age (57.6%). The median number of years since diagnosis was 10.

The most common symptoms respondents experienced were fatigue (84.3%), loss of balance (75.7%), and weakness (69.8%). Only 4.4% of respondents reported that they were symptom-free at the time they were completing the survey. Overall, the average number of symptoms reported was 5.7 ($SD = 2.9$, median = 6.0).

The most common activities for which respondents required assistance included going up and down stairs (39.2%), doing heavy housework (70.9%), doing yard work (79.0%), and doing laundry (39.5%). Seventy-eight percent were not working at the time they completed the survey. Of those respondents who continued to work, only 12.3% had ever seen an occupational therapist ($Q^2 = 60.94$, $df = 1$, $p < .001$).

Overall, the distribution for the number of activity limitations reported was highly skewed, ranging from 0 limitations to 12 limitations. The average was 6 activity limitations ($SD = 5.7$, median = 4.0, mode = 0.0). More than 13% of respondents had experienced at least one hospitalization related to MS in the year before the survey. Thirty-six percent of the respondents had seen an occupational therapist at some time since their diagnosis.

Twenty-four (2.6%) respondents provided incomplete information on the chart regarding their possession of assistive devices and, therefore, were excluded from the analysis of the research question 1 (i.e., the types of assistive devices most commonly reported as being in their possession). Of the remaining 882 respondents, 50% reported that they did not possess any assistive devices, either owned or rented, including mobility equipment. Another 14 (1.6%) respondents reported that they had rented assistive devices in the past but currently did not have any in their possession.

The average number of devices in the possession of the remaining 427 respondents was 3.4 ($SD = 2.1$, median = 3.0, mode = 1.0). The maximum number of devices in the
Results of the logistic regression analysis are shown in Table 2. Overall, this model is able to correctly classify 82.89% of the respondents as possessing or not possessing assistive devices (model $\chi^2 = 484.34$, $df = 9$, $p < .001$). Variables that were removed during the model-building process due to a lack of statistical significance were marital status, housing, hospitalizations in the past year, and age.

The results indicate that the variables associated with greater disability (i.e., more symptoms, more activity limitations, a progressive type of MS, use of occupational therapy) were all independently associated with possessing assistive devices (see Table 2). Therefore, the first hypothesis for research question 2 (i.e., greater disability will increase the probability of possessing assistive devices) was accepted. Each additional activity limitation increased the odds of possessing assistive devices by a factor of 1.26 (CL = 1.17–1.36), whereas each additional symptom increased the probability 1.19 times (CL = 1.09–1.29). Respondents who reported that they did not know the type of MS they had were not any more or less likely to possess assistive devices than respondents with relapsing–remitting MS. Respondents who reported having progressive MS were 4.62 times more likely to have assistive devices than respondents with relapsing–remitting MS (CL = 2.49–8.57).

Results indicate that for each additional year since diagnosis, the probability of possessing assistive devices increased by a factor of 1.05 (CL = 1.03–1.08). Seeing an occupational therapist increases the odds of possessing assistive devices 3.40 times (CL = 1.99–5.81).

Working for pay also showed an independent association with possessing assistive devices such that working actually decreases the probability of having devices (OR = .57, CL = .36–.91). As a result, the second hypothesis for research question 2 was accepted.

As noted in the Method section, a logistic regression analysis enables the researcher to predict the probability of the outcome given a set of specific independent variable values by using the predicted values feature of SPSS for Windows Version 9.0.0. This feature was used to show the probability of possessing assistive devices for two male respondents who have the same independent variable profile except for one seeing an occupational therapist (see Figure 1). The respondent who saw an occupational therapist has a 90% probability of possessing assistive devices. The respondent who has the same characteristics but did not see an occupational therapist has a 73% probability of possessing assistive devices. This difference is significant at $p < .001$.

Discussion

The results of this study show that persons with MS are similar to persons with other chronic diseases and conditions in terms of the types of devices they have in their possession. For older adults who have been discharged from rehabilitation (Gitlin, Schemm, Landsberg, & Burgh, 1996) and for older adults living in the community (Parker & Thorslund, 1991), mobility equipment and bathing devices have been found to be the most commonly owned assistive devices. These findings are consistent with those reported in this article perhaps because of the relative acceptability and availability of these devices within society or because persons with MS have symptoms and activity limitations similar to older adults who have been in rehabilitation or who live in the community.

Findings that both the number of activity limitations and the number of symptoms have an independent influence on the probability of possessing assistive devices is consistent with the overall purpose of assistive devices and the intent that these items will compensate for occupational limitations (Moyers, 1999; Pedretti, 1996). Previous literature has shown that device ownership increases with the extent of disability (Edwards & Jones, 1998; Haworth & Hopkins, 1980), which is consistent with the finding in this study that persons with progressive MS are 4.6 times more likely to be in the possession of assistive devices than persons with less severe types of the disease (i.e., relapsing–remitting, benign). Demographic factors found to be related to assistive device ownership in previous studies

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>$p$</th>
<th>OR</th>
<th>Lower CL</th>
<th>Upper CL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ever seen an OT since diagnosis (yes)</td>
<td>1.235</td>
<td>.2734</td>
<td>&lt; .001</td>
<td>3.40</td>
<td>1.99</td>
<td>5.81</td>
</tr>
<tr>
<td>Number of activity limitations</td>
<td>0.2337</td>
<td>.0384</td>
<td>&lt; .001</td>
<td>1.26</td>
<td>1.17</td>
<td>1.36</td>
</tr>
<tr>
<td>Number of current symptoms</td>
<td>0.1701</td>
<td>.0430</td>
<td>&lt; .001</td>
<td>1.19</td>
<td>1.09</td>
<td>1.29</td>
</tr>
<tr>
<td>Type of MS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relapsing–remitting</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Progressive</td>
<td>1.5310</td>
<td>.3151</td>
<td>1.00</td>
<td>4.62</td>
<td>2.49</td>
<td>8.57</td>
</tr>
<tr>
<td>Benign</td>
<td>-0.7595</td>
<td>.3829</td>
<td>0.47</td>
<td>0.47</td>
<td>0.22</td>
<td>0.99</td>
</tr>
<tr>
<td>Unknown</td>
<td>0.1586</td>
<td>.2526</td>
<td>1.15</td>
<td>0.73</td>
<td>1.81</td>
<td></td>
</tr>
<tr>
<td>Years since diagnosis</td>
<td>0.519</td>
<td>.032</td>
<td>&lt; .001</td>
<td>1.05</td>
<td>1.03</td>
<td>1.08</td>
</tr>
<tr>
<td>Working for pay (yes)</td>
<td>-0.5550</td>
<td>.2349</td>
<td>.018</td>
<td>0.57</td>
<td>0.36</td>
<td>0.91</td>
</tr>
<tr>
<td>Female</td>
<td>0.3569</td>
<td>.2403</td>
<td>.134</td>
<td>1.43</td>
<td>0.89</td>
<td>2.29</td>
</tr>
</tbody>
</table>

Note. OT = occupational therapist. All variables were stepped into the model using backward regression, except the gender of the respondents. This variable was entered into the model to ensure that potential confounding relationships were not being missed.
were not predictive in this study (e.g., gender). The inconsistency may be due to the fact that backward logistic regression analysis identifies the factors that retain their independent influence on the outcome while taking into account the influences of other variables (Katz, 1999). Previous studies have not used this analytic strategy.

With the exception of the work by Mann et al. (1999), previous studies on assistive device use have not considered seeing an occupational therapist as an independent predictor of possessing an assistive device but rather have selected samples from occupational therapy or rehabilitation clinics (e.g., Finlayson & Havixbeck, 1992; Gitlin et al., 1996). By using a community sample that is not directly linked to the health care system, this study was able to consider the role of seeing an occupational therapist on the probability of possessing assistive devices. Results showed that seeing an occupational therapist increased the odds of possessing assistive devices by 3.4 times, which raises questions that require further investigation. First, what is the temporal pattern of the receipt of occupational therapy services among persons with MS, and at what time in this pattern does the occupational therapist introduce assistive devices? Second, what is the temporal relationship among symptoms, activity limitations, and referral to an occupational therapist? Finally, what is the temporal pattern of change over time and the relationship between these changes and particular outcomes of rehabilitation could provide valuable insights into rehabilitation efforts for persons with MS.

The findings of the logistic regression model also showed that working for pay reduces the probability of possessing assistive devices and raised some interesting discussion among the members of the research team. On one hand, the use of assistive devices could be perceived as increasing a person’s chance to maintain a work role. From this perspective, working would increase the probability of possessing assistive devices. On the other hand, persons who work are less disabled and, therefore, less likely to possess assistive devices. This alternative view is supported by the results of the logistic regression model.

Recently, occupational therapy has paid a great deal of attention paid to work-site evaluations and assisting persons to retain or regain work roles (e.g., Hammel, 1999; Hammel & Symons, 1993; Kielhofner et al., 1999). If members of the profession believe that assistive devices have the potential to assist a person to maintain a work role, then the findings of this study raise questions about if and when occupational therapy workplace evaluations are being done with persons with MS. In this study, working reduced the probability of possessing assistive devices, and respondents who were working were significantly less likely to have seen an occupational therapist. It is possible that persons with MS are not receiving workplace evaluations at a time that adaptations would enable them to maintain a work role but, instead, are being seen by occupational therapists after they have left the workplace. Although this study cannot test this temporality, this issue clearly requires further investigation.

Although the issues raised in the study provide direction for further research, it is important to consider the findings within the framework of the study's limitations. Although the sample size for the study was large, overall the response rate was low. The respondents were very similar to the participants in other samples of members of the Multiple Sclerosis Society of Canada (Aronson et al., 1996; Finlayson et al., 1998), but the extent to which these individuals represent persons with MS in general is not known. This study is also limited by its cross-sectional design. Many of the questions the study raises relate to temporality, and cross-sectional designs cannot address this issue. A remaining limitation is that the study was completed in a single geographical region in a country that has universal health insurance. It is unclear the extent to which persons with MS have greater or lesser access to assistive devices because of the health system in Canada and how the predictors of assistive device possession would vary in the United States or in countries with other health coverage systems.

**Conclusion**

This study describes the most common assistive devices in the possession of community-dwelling persons with MS in one geographical region of Canada and a list of factors that increase the probability of having these devices. The findings are consistent with previous findings of the commonly used assistive devices among persons with other chronic conditions. Persons with MS are most likely to possess mobility equipment and grab bars of some type.

Seeing an occupational therapist, not working, having a progressive type of MS, having more activity limitations.
and more symptoms, and having MS for a longer period were found to increase the probability of possessing assistive devices. The first two of these factors raise numerous questions that require additional investigation. Of particular importance is understanding the sequencing of events (e.g., symptoms, activity limitations, relapses, rehabilitation) that leads a person with MS to have and use assistive devices. Understanding sequencing and temporal patterns would provide opportunities for occupational therapists to time their interventions to have maximum effectiveness and efficiency.

Future studies also need to consider whether items that a person has in his or her possession are actually used and the relative value these devices have in compensating for the limitations imposed by the impairments. Research addressing these questions could enable occupational therapists and other health care professionals to work effectively with persons with MS and assist them to perform the activities and tasks that are valued and positively influence quality of life. ▲

Acknowledgments
We thank Lori Payne, BScOT, OT(C), Executive Director of the Multiple Sclerosis Society of Canada (Atlantic Division), and the members of the Board of Directors for their roles in this survey.

This article was initially prepared when the authors were associated with Nova Southeastern University in Ft. Lauderdale, Florida, where Dr. Finlayson was a faculty member, and Ms. Guglielmello and Ms. Liefer were student occupational therapists. A version of this article was presented at the Florida Occupational Therapy Association Conference in April 2000.

References


