Multiple Sclerosis (MS) is one of the most prevalent neurologic diseases in the world and most often (90% of cases) manifests in people between the ages of 15-50 years (LaRocca, Kalb, Scheinberg, & Kendall, 1985; Rumrill, Tabor, Hennessey, & Minton, 2000). The prevalence of MS in women is two to three times that of men (National MS Society, 2005). Common symptoms of MS include fatigue, weakness, mobility disorders, bowel and bladder dysfunction, visual impairments, depression, and cognitive dysfunction (Rumrill, 1996). The physical and psychological stressors of MS can seriously disrupt personal and social functioning for the person with MS because these young adult and middle age years are associated with individual progress in education, career development, and family life (LaRocca et al., 1985). Loss of the ability to work has been associated with decreased quality of life in persons with MS (Aronson, 1997). Understanding the factors that influence job retention in persons with MS could be beneficial for those persons and society.

Research in the United States, Norway, Canada, and Spain has shown unemployment rates among persons with MS to vary between 51% to 80% (Gronning, Hannisdal, & Mellgren, 1990; Jackson, Quaal, & Reeves, 1991; Kornblith, LaRocca, & Baum, 1986; Morales-Gonzalez, Benito-Leon, Rivera-Navarro, & Mitchell, 2004). These same reports mention that greater than 95% of participants in their studies had held jobs at some time in their lives. Other studies indicate that 13% to 50% of people unemployed secondary to MS would be willing to work (Kornblith et al., 1986; Gordon, Feldman, Shipley, & Weiss, 1997). Due to the symptoms and stressors of living with a chronic, often disabling disease, factors related to employment are likely to be very different for individuals with MS than for the general population.

In general, people with a disability are less likely than others to be working, according to the 2001 National Health Interview Survey (Freedman, Martin, & Schoeni, 2004). Thirty-four percent of adults ages 21 to 64 with a limitation or a disability reported working in the previous week versus 74% of all adults surveyed. Yet persons with MS are generally thought to be healthier, more financially secure, more socially active, and report a higher perceived quality of life when employed rather than unemployed (Johnson, Amtmann, Yorkston, Klasner, & Kuehn, 2004). This paradox may be explained less by individual factors and more by societal or policy barriers, such as the decreased supply of jobs offering full benefits, employer recruitment and accommodation, the availability of vocational rehabilitation programs and community-based employment services, and disincentives in social and health insurance policies (National Center for the Dissemination of Disability Research, 2001).

A number of cross-sectional studies have examined factors related to current employment status specifically in persons with MS. Among working-age persons with MS (less than 65 years of age), older age has been repeatedly associated with unemployment (Beatty, Blanco, Wilbanks, Paul, & Hames, 1995; Edgley, 1998; LaRocca et al., 1985; Rumrill et al., 2000).

This study examined predictors of continued employment among persons with multiple sclerosis (MS) participating in a 7-year longitudinal study of health promotion and quality of life in MS. Participants for the present study were a subset (n=176) of a larger sample of persons with MS (N=621) who participated in the longitudinal study between the years 1996 to 2003, were employed at Time 1, and were younger than age 55. At Time 1 (1996), all participants were employed, and 75% of the sample reported full-time employment. At Time 7 (2003), only 55% reported continued employment. Forward stepwise multiple logistic regression analysis revealed that years of education, functional limitations related to MS, and health-promoting behaviors explained approximately 10.2% of the variance in employment status over time (R² = .102). The article discusses the importance of considering work-environmental factors in addition to disease and demographic factors in the prediction of employment outcomes for persons with MS.

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Predicting Continued Employment in Persons with Multiple Sclerosis

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Although the capacity of persons with MS to be employed is associated with age, education, and disease-specific factors, attending to energy conservation strategies (e.g., the use of adaptive aids, intermittent rest, adjusted work schedule, and conveniently arrange equipment etc.) was also considered beneficial by employed persons with MS (Gulick, Yam, & Touw, 1989). The adoption of coping strategies, (e.g., use of mnemonic strategies, activity pacing, and job restructuring) was found to facilitate ongoing employment for some persons with MS who already had significant cognitive impairments (Beatty et al., 1995). Also, participation in a wellness intervention for women as part of a randomized clinical trial significantly increased the likelihood that individuals in the experimental group were employed compared to individuals in the control group (Stuifbergen, Becker, Blozis, Timmerman, & Kullberg, 2003).

While the phenomenon of employment in MS has been examined in numerous cross-sectional studies, research among persons with MS has been hampered by the lack of prospective studies examining transitions in employment status over time (Busche, et al., 2003). The longitudinal research which does exist has been limited by small sample size, the use of existing data, and short period of follow-up (Busche et al., 2003). The purpose of this study is to examine the predictors of continued employment among persons with MS participating in an ongoing longitudinal study of health promotion and quality of life in MS (Stuifbergen & Becker, 2001). This study is unique in its focus on employment trends among a cohort of employed persons with MS over a 7-year time period. Identification of factors associated with a transition to unemployment could be useful to vocational counselors and rehabilitation specialists in planning practical and effective interventions aimed at reducing the risk of unemployment.

The following research questions were addressed:
1. What changes in employment did a group of persons with MS who were employed in 1996 experience over a 7-year time period?
2. What demographic (age, gender, education, economic adequacy), disease-related (functional limitations related to MS, years of MS, and secondary conditions), and behavioral (job satisfaction, job importance, practice of health-promoting behaviors) variables best predict employment status at Time 7 in 2003 for those persons employed at baseline in 1996?

Methods

Participants

The sample for the present study was a subset (n=176) of a larger sample of persons with MS (N=621) who are enrolled in an ongoing longitudinal study (1996-2003) of health promotion and quality of life in chronic disabling conditions. The sample selected for this secondary analysis met the following criteria: 1) reported full- or part-time paid employment in 1996 (Time 1 survey); 2) were under 55 years of age at Time 1 and therefore would not be of retirement age (62 years) prior to 2003 (Time 7 survey); and 3) had completed survey instruments at both Time 1 and Time 7. These criteria resulted in a sample of 176 employed individuals with an average age of 42.5 years (SD 7.13) at Time 1. The majority of the sample was female (82%), White (93%), married (70%), and had completed high school (90%). (See Table 1). At the time of the first survey, 133 people (75.5%) worked full-time, 14 (8.0%) worked part-time, 20 (11.4%) were full-time homemakers and worked part-time for pay, and 9 (5.1%) were students and worked part-time for pay. The average amount of time spent working each week for the entire sample was 38.5 hours.

Instruments and Variables

The participants in the overall longitudinal study completed a battery of questionnaires each year. The measures selected for this analysis reflected the variables identified in earlier cross-sectional research as associated with employment. A Background Information Sheet was used to obtain demographic data and disease-related information. The employment status variable offered 13 response choices including employed full-time or part-time, full-time homemaker, retired, fired, student, and combinations of the above choices. Disease-related variables included self-reported MS type (benign sensory, relapsing remitting, chronic progressive, or severe progressive), the year of symptom onset, and the year of physician-diagnosed MS.

Functional limitations related to MS. The Incapacity Status Scale was used to measure the extent of limitation attributed to MS (Kurtzke, 1981). The International Federation of Multiple Sclerosis Societies developed and validated this instrument for research in persons with MS. (Wingerchuk, Noseworthy, & Weishenker, 1997). The structured interview form of this scale was adapted to a self-administered questionnaire to ascertain the effect of physical limitations on the performance of usual daily roles and activities. Sixteen aspects of personal functioning (e.g., ambulation, vision, bowel, bladder, cognition) are rated on a 5-point scale, with “0” indicating normal functioning and “4” indicating complete inability to perform the activity. The score range is from 0 to 64. Internal consistency reliability in this study was 0.80.
Health-promoting behaviors. The 52-item 4-point Health Promoting Lifestyle Profile II (HPLP II) (Walker, Sechrist, & Pender, 1995) assesses the frequency with which persons report engaging in activities aimed at increasing their level of health and well-being. Responses are scaled from 1 (never) to 4 (routinely), with higher scores indicating more regular practice of the health behavior. Total scores may range from 52 to 208, although individual subscale scores (physical activity, spiritual growth, health responsibility, interpersonal relations, nutrition, and stress management) may be computed as well. Internal consistency reliability of the HPLP-II total score in this study was α = 0.91.

Secondary conditions. Conditions or problems occurring as a result of a primary condition (in this case MS) are considered to be secondary conditions. Those specific to MS assessed in this study are urinary tract infection, contractures, pressure sores, osteoporosis, and muscle atrophy (Schapiro, 1991). Because these conditions may also limit a person’s functional independence, a rating was obtained from each respondent to gauge the extent they were affected by them. Each of the five conditions were rated on a 4-point scale; 0 represented not experienced during the past year/insignificant problem and 3 represented significant/chronic problem. Ratings for individual items are summed to obtain a total score. Cronbach’s α in this study was 0.44. This low value may reflect the brevity of the scale, and the fact that the various secondary conditions and their relative severity may exist independently of each other.

Economic adequacy. This concept was operationalized by an 8-item 4-point scale that asked general questions related to the adequacy of economic resources. Respondents are not asked about specific financial resources (e.g., income) but rather whether or not their existing economic resources were adequate to meet their needs (e.g., meeting rent/mortgage payments, food bills, health care needs, special MS needs, child care costs, etc.). Lower scores represent fewer financial resources, with 1 indicating Not at all adequate and 4 indicating More than adequately. The score for this scale is an average of the item score of all items answered by each participant. The internal consistency reliability coefficient was α = .94. Scores for participants with missing data were computed by averaging the summed score of the answered questions.

Job satisfaction and importance. The responses to two questions from the Quality of Life Index (QLI)-MS Version (Ferrans & Powers, 1985) were of interest to this study. Specifically these questions ask how satisfied an individual is with their job and how important their job is to them, if they are employed. The respondents rate their satisfaction on a 6-point scale, from 1 (very dissatisfied) to 6 (very satisfied) and the associated importance from 1 (very unimportant) to 6 (very important). For the total index, quality of life scores are computed by weighing the individual’s satisfaction response with its paired importance response. Internal consistency reliability for this instrument has been reported to be 0.94 (Stuifbergen, Seraphine, & Roberts, 2000). While the total QLI score was available for analysis, only responses to the items concerning employment satisfaction and importance of employment were analyzed because these judgments could be most relevant in predicting continued employment.

Procedure

The original sample was recruited with the assistance of two chapters of the National Multiple Sclerosis Society in the southwestern United States in 1996. Following institutional review board approval, potential participants received information about the study from the above MS societies, and if interested, returned their contact information to the investigator. In turn, all interested respondents (N = 936) were sent a coded packet that included a participant’s rights information letter, a battery of study instruments, and a postage-paid return envelope. Participants were sent a thank you note with a $10 money order when their completed questionnaires were received. Of the 834 persons who returned questionnaires, 774 agreed to subsequent contact. In 1998 (Time 2), this latter group was sent a follow-up questionnaire, and in 1999 (Time 3), was invited to participate in a 5-year longitudinal study. Six-hundred and twenty-one of those 774 individuals chose to participate in the longitudinal study. At Time 7, 565 people in the original 621-person cohort remained enrolled in the study. This analysis examined responses on the variables previously described of 176 individuals at Time 1, and for the same respondents at Time 7, re-examined their employment status.

Data Analysis

Analysis was conducted using SPSS 12.0 statistical software for Windows and all tests used the .05 level of significance. Frequency distributions, means, and standard deviations were computed for the demographic, disease-related, and behavioral variables. Pearson correlation coefficients were calculated to determine the strength of the relationship of the independent variables (demographic, disease-related, and behavioral) to employment status at Time 7. Employment status was re-defined as a dichotomous dependent variable to meet that particular assumption of logistic regression. Any category that included paid employment, either full- or part-time, was considered “employed” and all other categories (i.e., retired, disabled, fired, laid off, homemaker, student, etc.) were considered “unemployed” in this analysis. Case summaries were analyzed for Time 1 through Time 7 on the dependent variable, employment status, to determine the constancy of employment over the seven year period.

A forward, stepwise multiple logistic regression analysis was performed to determine the variables which best predicted employment status. Logistic regression analysis is used when the one, and only one, dependent variable is dichotomous in nature (Huck, 2004). For this study, the dependent variable was dichotomized as employed (coded as 1) and unemployed (coded as 0). The independent variables, which may be and were categorical and continuous, were analyzed as predictors of continued employment. Regression coefficients are reported as odds ratios (i.e., Exp B in logistic regression analysis), which indicate the strength of the association between an independent variable and the study’s dependent variable. A coefficient of 1.00 represents no change in the odds of being in one or the other category of the outcome variable for a unit change on a predictor variable under consideration, whereas a coefficient less than 1.00 indicates a
were employed full-time. Only 55% reported continued employment, and of these, only 46% represent all possible employment status categories for the total sample and for men and women individually, in 2003. At Time 1, percentages of employed persons at Time 1 and employment status at Time 7. The baseline variables most strongly correlated with continued employment in 2003 were functional limitations (r = -.23 for both men and women in the sample. More men reported movement to the categories of “unemployed due to disability” (31.3%) and “retired” (15.6%) than did women, (23.6% and 6.9%, respectively). At Time 7, the average age of retired women was 55.7 years, of retired men 56.2 years. Women consistently reported more part-time employment than did men, for both data collection times and across all of the part-time employment categories. Interestingly, men never reported student or homemaker status.

Table 3 presents the means and standard deviations of the independent variables (demographic, disease-related, and behavioral) measured at Time 1 and their correlations to employment status at Time 7. The baseline variables most strongly correlated (p < .01) with continued employment in 2003 were functional limitations related to MS and secondary conditions (r = -.23 for both variables). The other variable with a significant (p < .05), but decreased odds, and a coefficient greater than 1.00 indicates an increased odds, of being in one or the other category of the outcome variable for a unit change in a particular predictor variable. Determining that the sample odds ratio differs from 1 more than that which could be expected by chance can be accomplished by either using a Wald test to see if the odds ratio was statistically significant or by using confidence intervals for the Exp ß (Huck, 2004). The Wald statistic is a test of significance of the b coefficient, and when a variable has 1 df, is the square of the result of dividing the b value by its standard error. This test is similar to the t-test in multiple regression that tests if the b coefficients in the regression formula are statistically significant.

Results

Respondents had a diagnosis of MS for an average of 7.75 years, with over half (52.8%) reporting relapsing-remitting type of MS (i.e., symptoms wax and wane over time without significant progression or limitations) (See Table 1). A majority of the sample reported at least some difficulty in the following areas: bowel function (56.8%), bladder function (77.3%), climbing stairs (69.3%), fatigue (94.9%), vision (87.5%), mood (62.5%), and cognition (67%). Additionally, about one-third or more respondents reported problems with speech and hearing (38.1%) and walking 50 meters without assistance (43.2%).

Examination of case summaries of the 98 persons who remained employed at Time 7 revealed the following responses to report of employment status between, but not including, Time 1 and Time 7: twenty-two respondents either had missing data and/or definitive gaps in employment; of those 22, 9 persons had missing data for just one year and 2 persons missed more than one year, 2 persons had both missing data and reported a lapse in employment, and 9 persons reported only lapses in employment. Five of the 11 respondents with lapses in employment reported a lapse only once between Time 1 and Time 7; the remaining 6 respondents of the 11 reporting employment lapses more than once reported reasons such as full-time student, full-time homemaker, unemployed due to disability, or unable to find work where I live. Considering that all of the 22 persons discussed above were employed at Time 7, and 14 of these 22 respondents reported only one year of lapsing employment or for one year missed data collection, the determination was made by the authors to keep these participants in the sample for the purpose of this analysis.

Table 2 presents descriptive statistics with the frequencies and percentages of employed persons at Time 1 and employment status at Time 7. The values in the Time 1 columns represent the various employment categories of the total sample and for men and women individually, at baseline. (Note that all persons were employed at baseline, so there are no values at Time 1 for “Unemployed due to Disability,” “Fired or Laid-off,” “Homemaker,” and “Retired”). The values in the Time 7 columns represent all possible employment status categories for the total sample and for men and women individually, in 2003. At Time 1, 75% of the sample reported full-time employment. At Time 7, only 55% reported continued employment, and of these, only 46% were employed full-time.
weaker, correlation to employment status was years of education ($r = .17$).

A forward, stepwise multiple logistic regression analysis was used to determine the best set of variables predictive of continued employment. The following demographic, psychological, and physical independent variables were considered for entry into the model: age, gender, education, job satisfaction, job importance, economic adequacy, functional limitations related to MS, years of MS, secondary conditions, and practice of health-promoting behaviors. The selection of the variables in the model proceeded by steps, and variables were added to the model that resulted in the largest increase in $R^2$. Any predictor variables that did not add to the explanatory power of the model were systematically excluded. This process revealed that years of education, functional limitations related to MS, and health-promoting behaviors significantly contributed to the explanatory power of the model, $\chi^2 = 19.287, p<.001, df = 3$. These three variables explained approximately 10.8% of the variance in employment status over time ($R^2 = .108$).

However, the final number of cases included in the model decreased from 176 to 168 due to missing data on one or more of the independent variables entered. Therefore, in an effort to include as many cases as possible in the final model, another regression analysis was run using simultaneous entry of only the significant predictor variables found in the forward stepwise analysis. This model ($N = 175, \chi^2 = 18.768, p<.001, df = 3$) included the variables of years of education, functional limitations related to MS, and health-promoting behaviors and explained 10.2% of the variance in employment status over time ($R^2 = .102$) (See Table 4). Lastly, the potential for interactions between the main effect variables was considered; further regression analysis of the main effect variables and their respective interaction terms was found to be nonsignificant.

The results of the final model for this analysis are presented in Table 4. The column headed with $\hat{\beta}$ presents the estimated regression coefficients that predicted employment status for each variable included in the final model. The Wald statistic provides a significance test for each of these coefficients, and the Exp $\hat{\beta}$ coefficients explain the change in the odds of staying employed that would be associated with a one-unit change in the predictor variable. The last column presents the 95% confidence interval for the Exp $\hat{\beta}$ coefficients (odds ratios) produced from the model.

**Discussion**

The results of this longitudinal study are in general agreement with findings from previous cross-sectional studies regarding employment patterns of persons with MS (Busche et al., 2003; Gulick et al., 1989). However, in comparison to the prevailing
contemporary studies that investigated employment status of persons with MS at a set point in time, this study is unique because we were able to follow a cohort of employed participants and report on their employment status 7 years later. The examination of longitudinal data can reveal patterns of behavior, in this case employment trends that may not be evident from the analysis of cross-sectional data. For instance, women in this study were more likely to stay employed, in some capacity, when compared to men. Dyck and Jongbloed (2000) suggested that women may need to retain employment because disability pensions are commonly based on years of full-time employment, and women frequently have gaps in work history due to child-rearing responsibilities. Additionally, Dyck and Jongbloed found 57.4% of the women in their study to be employed in positions traditionally considered to be female occupations (clerical and sales jobs), which are usually non-unionized and paid by the hour. Thus, some women may not have the same retirement and disability packages as men. Conversely, men in this study did not adopt the status of homemaker, possibly because men may perceive this role as culturally unacceptable (Gulick et al., 1989). Though a more detailed examination of men’s actual day-to-day activities is beyond the scope of this study, such a study may have revealed that men were indeed engaged in homemaking tasks but did not identify them as such.

The selection of variables that were included in the model was based on established research that was largely cross-sectional in nature. In the current study, 10% of the variance in continued employment was explained by self-reported level of education, functional limitations due to MS, and health promoting behaviors. This suggests that over many years rather than at one specific point in time, disease and demographic factors may be of minimal use in predicting employment. The person-level variables examined in this study, by definition alone, do not encompass certain environmental factors that may exert substantial influence on an individual’s capacity to stay in the workforce. Including responses to questions about job satisfaction and job importance as possible predictors in the model was intended to indirectly capture the influence of environmental factors on continued employment, but these variables were not significant predictors in the final model.

Table 3.

<table>
<thead>
<tr>
<th>Variable (Measure)</th>
<th>Range</th>
<th>Mean (SD)</th>
<th>Pearson Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (Years)</td>
<td>18-55</td>
<td>42.54 (7.131)</td>
<td>.01</td>
</tr>
<tr>
<td>Health-Promoting Behaviors (Health Promoting Lifestyle Profile)</td>
<td>52 - 208</td>
<td>138.50 (20.80)</td>
<td>-.09</td>
</tr>
<tr>
<td>Importance of Job (Quality of Life Index)</td>
<td>1 - 6</td>
<td>5.36 (.91)</td>
<td>.01</td>
</tr>
<tr>
<td>Functional Limitations (Incapacity Status Scale)</td>
<td>0 - 64</td>
<td>11.85 (6.31)</td>
<td>-.23**</td>
</tr>
<tr>
<td>Job Satisfaction (Quality of Life Index)</td>
<td>1 - 6</td>
<td>4.77 (1.40)</td>
<td>.09</td>
</tr>
<tr>
<td>MS-Related Health Problems (Secondary Conditions Scale)</td>
<td>0 - 20</td>
<td>1.67 (1.90)</td>
<td>-.23**</td>
</tr>
<tr>
<td>Resources (Economic Adequacy Scale)</td>
<td>1 - 4</td>
<td>3.17 (0.61)</td>
<td>-.02</td>
</tr>
<tr>
<td>Years of Education (Education)</td>
<td>1 - 25</td>
<td>15.36 (2.93)</td>
<td>.17*</td>
</tr>
<tr>
<td>Years of MS Diagnosis (Disease Duration)</td>
<td>0 - 28</td>
<td>7.75 (5.01)</td>
<td>-.08</td>
</tr>
<tr>
<td>Gender †</td>
<td></td>
<td></td>
<td>0.0984</td>
</tr>
</tbody>
</table>

SD = standard deviation
Unemployed = 0; Employed = 1

* Correlations significant at p<.05; ** Correlations significant at p<.01, † Tetrachoric Correlation for nominal variable.
Variables in the work environment not measured in this study, such as the type of work, the flexibility of the work schedule, the availability of job accommodations, and the level of co-worker and employer support are important factors to be considered in future research and might well explain additional variance in maintaining employment status (Dyck & Jongbloed, 2000).

In the present study, functional limitations and MS-related health problems had an identical correlation (Pearson correlation: $r = -.23$, $p < .01$) with employment at Time 7. In addition, the variable of functional limitations was retained in the model whereas MS-related health problems were not, suggesting quantitatively shared variance between qualitatively related constructs. Specifically, the items contained within the Incapacity Status Scale, as compared with the items included in the Secondary Conditions Scale, survey a broader array of limitations related to MS that have the potential to affect employment. So while the influence of MS-related health problems may have been subsumed within functional limitations, much of the variance in employment is left to be explained by variables evidently not included in the final model.

In contrast to the judgments of Johnson et al. (2004), employed persons in this study reported fewer health-promoting behaviors than did unemployed persons (Pearson correlation: $r = -.09$). Aside from acknowledging the low degree of correlation observed, a possible explanation to this apparent contradiction could be that persons with MS who remain employed simply have less disposable time available for activities associated with promoting health (e.g., exercise, socialization with friends, meal preparation, etc.). Also, contrary to the above perspective of Johnson et al. (2004), LaRocca (1995) suggested that many persons with MS, with adequate financial security, make the choice to stop working and are not interested in resuming their careers. Thus, the benefits of employment for persons with MS may not offset the costs for some individuals, particularly for those that must sacrifice health-promoting behaviors. The relationship between the dynamics surrounding employment and participation in health promotion activities should be explored in future research so that accurate information is available to those professionals offering rehabilitation counseling to persons with MS.

An earlier survey of employment concerns of persons with MS, 44% of whom were employed at the time of the study, revealed their dissatisfaction with job-accommodation and job-retraining, access to information about Social Security benefits, and the fairness of employers in the hiring process (Rumrill, Roessler, & Koch, 1999). Rumrill et al.’s study did not examine the relationship of these stated concerns with employment status. Considering that other researchers have observed a pattern of downward movement (from a more to a less demanding job, then to retirement or disability) over time in persons with MS, one might consider that this career trajectory is spurred by these experiences (Jackson et al., 1991). Both men and women in the present study exited the workforce via retirement at a younger age than the national average, which current estimates give as 62.6 years for men and 62.5 years for women (Gendell, 2002). Given the relatively high level of educational preparation of the people in our sample, it is possible that at least some had early retirement options available to them. In light of the numbers of so-called “baby boomers” who are expected to retire in the next two decades, and the subsequent economic impact on the Social Security system in the United States (U. S.), keeping persons in the U. S. labor force longer would be financially favorable (Gendell, 2002).

Two limitations related to sampling in this study deserve mention. First, the original sample was obtained by non-probability sampling of persons with MS in the southwestern United States with the assistance of two chapters of the National MS Society. One chapter served several large metropolitan areas and the other served mainly rural areas. Therefore, results of the present study pertaining to persons with MS living in the southwestern U. S. may not be generalizable to persons with MS living in other geographic regions of the country.

### Table 4.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>$\beta$</th>
<th>SE</th>
<th>Wald</th>
<th>$df$</th>
<th>$p$</th>
<th>Exp($\beta$)</th>
<th>95% C. I. for Exp($\beta$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional limitations related to MS</td>
<td>-0.085</td>
<td>0.026</td>
<td>10.242</td>
<td>1</td>
<td>.001</td>
<td>.919</td>
<td>.872-968</td>
</tr>
<tr>
<td>Years of education</td>
<td>0.146</td>
<td>0.060</td>
<td>5.958</td>
<td>1</td>
<td>.015</td>
<td>1.157</td>
<td>1.029-1.302</td>
</tr>
<tr>
<td>Health Promoting Behavior</td>
<td>-0.017</td>
<td>0.008</td>
<td>4.448</td>
<td>1</td>
<td>.035</td>
<td>.983</td>
<td>.968-999</td>
</tr>
<tr>
<td>Constant</td>
<td>1.387</td>
<td>1.355</td>
<td>1.048</td>
<td>1</td>
<td>.306</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
employed persons with disabling conditions as they experience changes in function and adjust to workplace demands.

In conclusion, an improved understanding of relevant personal and workplace dynamics is needed in order to design interventions that support continued employment for persons with MS. Research that investigates workplace and employer issues for persons with disabilities, especially disability management practices and work-place accommodations that assist workers to remain employed or transfer employment, is in keeping with the research goals of the National Center for the Dissemination of Disability Research. It may also help maintain stability in the nation’s workforce (National Center for the Dissemination of Disability Research, 2001).

Acknowledgement
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