

Predictors of Quality of Life in Multiple Sclerosis: Relationships between Cognitive, Physical, and Subjective Measures of Disease Burden

Kyle Richard Noll, Ph.D.

The University of Texas Southwestern Medical Center at Dallas, 2011

Graduate School of Biomedical Sciences

Supervising Professor: Laura H. Lacritz, Ph.D., ABPP-CN

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The varied constellation of symptoms characteristic of multiple sclerosis (MS) are often functionally impairing, affecting the health-related quality of life (QoL) of many of those afflicted. However, it remains unclear to what extent subjective, cognitive, and physical measures differentially predict overall health-related QoL in MS, and which (combination of) factors are most useful when making clinical inferences regarding patient well-being. Stepwise linear regression analyses were used to investigate predictors of QoL in 55 consecutive MS patients, recruited as part of the Cognition and Demyelinating Disease project at the UTSW MS Clinic. Out of all cognitive, physical, and self-report predictors of overall health-related QoL, only the Modified Fatigue Impact Scale (MFIS) was significant, accounting for 31% of the variance in Overall scores on the MSQOL-54 ($p < .001$). Significant predictors of mental health-related QoL included the Quick Inventory of Depressive Symptoms (QIDS) and the Modified Fatigue Impact Scale (MFIS) ($p < .001$). The QIDS alone accounted for 64% of the variance in MSQOL-54 Mental Composite scores, which increased to 71% with the inclusion of the MFIS. Significant predictors of physical health-related QoL included the MFIS, Timed 25-Foot Walk (T25FW), and Multiple Sclerosis Neuropsychological Questionnaire (MSNQ) ($p < .001$). The MFIS alone accounted for 72% of the variance in MSQOL-54 Physical Composite scores, which increased to 76% with the inclusion of the T25FW, and 78% when the MSNQ was also added. These results suggested that measures of self-reported fatigue and depression were the best predictors of health-related QoL in the domains of overall, physical, and mental functioning. In light of these findings, screening for fatigue and mood dysregulation should be incorporated into routine clinical evaluations of MS patients. Results of ROC analyses revealed that the QIDS and MFIS were both significant discriminators of level of QoL (high vs. low) for each of the three MSQOL-54 summary measures (AUCs = .79 to .92). Examining rates of correct classification, specificity, and sensitivity, indicated that cut-scores of greater than nine on the QIDS and greater than 37 on the MFIS were optimal for discriminating between low and high QoL.