

# National Swedish MS Register Based Study: the Symbol Digit Modalities Test as a predictor of work disability

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**Conclusions:** SDMT — a simple and time effective screening instrument for cognitive impairment could be a potential tool to identify MS patients at high risk for sickness absence (SA) and disability pension (DP) several years later. This group of patients would be in focus for pharmacological interventions, rehabilitation and paramedical inputs in order to delay or reduce the risk of permanent work incapacity. This will not only be gainful for the patients per se, but also limit the financial burden of the disease on a societal level

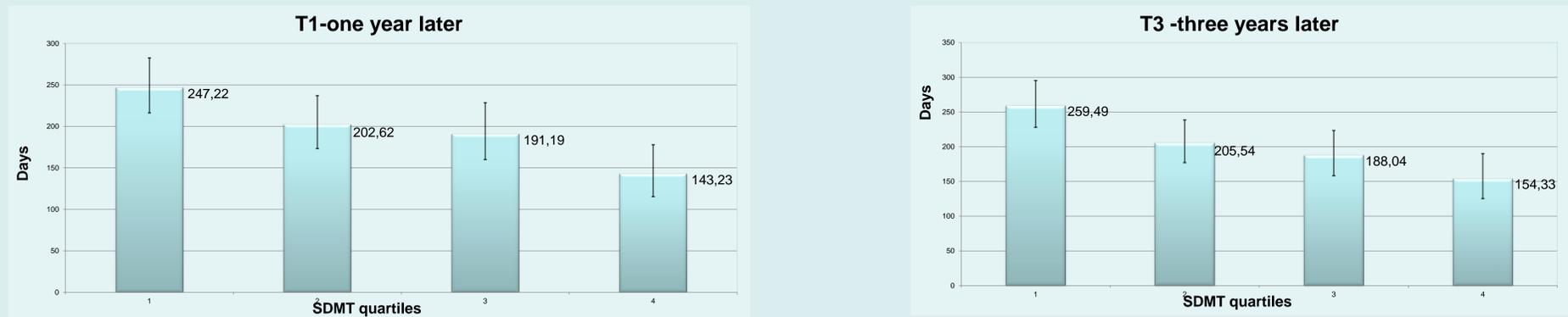


Figure 1. Adjusted mean annual SA/DP net days among MS patients 1 year (T1) and 3 years (T3) after SDMT test (T0). Patients are stratified depending on SDMT performance quartiles.

**Background:** Cognitive impairment is found in approximately half of the MS population, causes invisible handicaps and significantly impacts employment and social functioning, independently of physical disability.

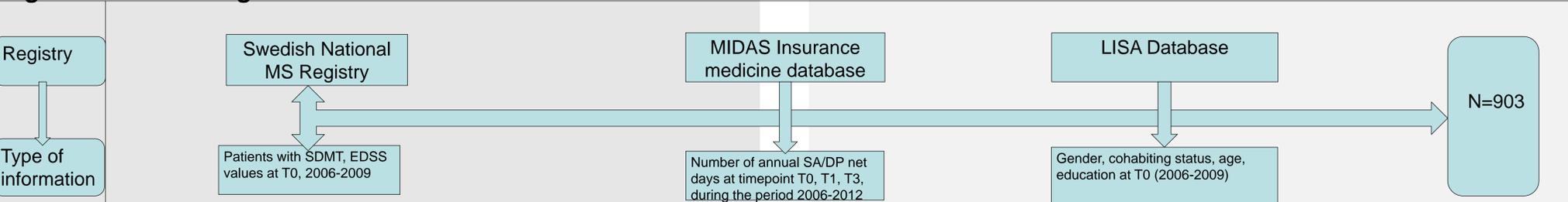
**Objectives.** To determine if the Symbol Digit Modalities Test (SDMT) predicts work disability among Swedish MS patients.

**Design/methods.** This is a prospective study, with a three year follow-up based on a sample of the 903 MS patients in the National Swedish MS Register (SMSreg) for which clinico-demographic data on the Expanded Disability Status Scale (EDSS) and SDMT was available at baseline, i.e. 2006-2009. Individual data on work disability (operationalized as annual net days of SA/DP) and sociodemographics has been retrieved from the Swedish Social Insurance Agency's database MIDAS and Statistics Sweden's database LISA. Repeated measurement models are adjusted for (gender, EDSS, education, size of municipality, calendar year for baseline assessment, age and

Table 1. Demographic and clinical variables

	Total sample (N=903)
Mean age, years (range)	37.4 (20-62)
Gender, % female	71.5%
Mean SDMT (range)	46 (0-86)
Mean EDSS (range)	3.3 (0-9)

Figure 2. Data management flow chart



cohabiting status) have been used to assess whether SDMT predicts work disability after one, three years. Adjusted incident rate ratios (IRRs) and means with 95% confidence intervals (CIs) were calculated with General Estimating Equations (GEE) using a negative binominal distribution with a autoregressive covariance matrix.

**Results.** MS patients, have been divided in to SDMT performance quartiles. SDMT performance at T0 predicted 247 SA/SD days/year one year later (T1) and 259 days 3 years later (T3) if patient belonged to the lowest SDMT quartile (0-39 symbols, -poor performers). SDMT performance in highest quartile (57-100, -best performers) predicted 143 SA/SD days/year one year later (T1) and 154 days 3 years later (T3). Older patients at SDTM testing, non-university educated, patients with high EDSS and women had elevated levels of SA/DP.

Table 2. Adjusted incident rate ratios

SDMT Quartiles	Timepoint T1		Timepoint T3	
	IRR	95% CI	IRR	95% CI
0-39	1,73	[1,34-2.17]	1,68	[1,34-2.11]
40-48	1,42	[1,13-1,77]	1,33	[1,08-1,65]
49-56	1,34	[1,06-1,69]	1,22	[0,97-1,53]
57-100	1		1	