

Health Literacy is Associated with Health Care Utilization in MS

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BACKGROUND

- General literacy: knowledge and skills to
 - understand and use written information
 - locate and use information in documents such as maps, forms, instructions
 - understand numbers and number concepts = numeracy
 - Health literacy builds on these concepts
 - Health literacy: "capacity of individuals to obtain, process and understand the basic health information and services needed to make appropriate health decisions"
 - In general population, lower health literacy associated with more health care utilization, higher mortality, lower adherence to therapy
 - Health literacy is understudied in multiple sclerosis (MS)
- To evaluate the health literacy of persons with MS
 - To estimate the associations between health literacy, health behaviors and health care utilization

NARCOMS REGISTRY

- Self-report registry for persons with MS
- Study population: U.S. residents -- Enrolled 1996-2012
- Complete enrollment questionnaire
- Demographics, clinical data
- Disability status (Performance Scales [PS], Patient-Determined Disease Steps [PDDS])
- Spring 2012 semi-annual update questionnaire
- Disability status: PDDS, PS
- Health behaviors: Smoking status, alcohol intake, height, weight
- Comorbidities: diabetes, HTN, hyperlipidemia, heart disease, migraine, IBS, chronic lung disease, cancer, sleep apnea, thyroid disease, depression, anxiety

METHODS

- Assessment of Health Literacy**
 - eHealth Literacy Scale (eHEALS): 8 items to assess knowledge, comfort, perceived skills at using electronic health information
 - Medical Term Recognition Test (METER): 40 medical words, 30 non-medical words
 - Score = no. correctly identified words – no. incorrectly identified words
 - low literacy (0-20), marginal literacy (21-34), functional literacy (35-40)
 - Newest Vital Sign (NVS): nutrition label with 6 questions to test reading, interpretation, numeracy skills
 - Score = sum of correct answers, 1 point for each correct answer
 - high likelihood marginal or inadequate literacy (0-1), possible marginal or inadequate literacy (2-3), adequate literacy (4-6)
- Analysis**
 - Categorical variables: frequency (percent)
 - Continuous variables: mean (standard deviation [SD]) or median (interquartile range [IQR])
 - Binary logistic regression:
 - Dependent variables: any ER visits, any hospitalizations, current smoking (yes vs. no), any alcohol intake (yes vs. no), overweight/obese (yes vs. no)
 - Independent variables: health literacy level
 - Covariates: sex, race, education, annual income, insurance status, region of residence, age, PDDS (disability), Performance Scales cognition, disease duration

RESULTS:

- 13020 eligible participants → 9019 (69.3%) completed spring 2012 questionnaire
- Non-responders more likely to be non-white (p<0.0001), to have lower annual income (p = 0.0073), slightly lower age (p<0.0001)
- Among respondents, 8934 (99.1%) resident in US & included in analysis
 - 78.2% female, 95.4% white, 57 (sd 10.4) years old
 - 35.6% mild, 26.0% moderate, 38.4% severe disability

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RESULTS:

- Health Literacy**
- METER: 160 respondents (1.8%) had low literacy, 1493 (17.1%) had marginal literacy, and 7066 (81.0%) had functional literacy.
 - NVS: 966 respondents (10.8%) had a high likelihood of inadequate literacy, 1301 (14.6%) possibly had inadequate literacy, while 6666 (74.6%) had adequate literacy
 - 90 (1.0%) low literacy on METER and NVS
 - 5721 (65.5%) functional literacy on both METER and NVS
- Health Behaviours & Comorbidities (Figure 1)**
- current smokers: 1103 (12.5%) any alcohol intake: 5679 (65.5%)
 - overweight: 2592 (30%) obese: 2212 (25.6%)
 - any comorbidity: 7255 (82.9%)
 - smokers more likely to have inadequate literacy on METER & NVS (both p<0.0001)
 - any alcohol intake associated with higher literacy on METER & NVS (both p<0.0001)
- Health Care Utilization (Figure 1)**
- 1242 (14.3%) had ER visit 801 (9.26%) hospitalized
 - Inadequate literacy on either the METER or NVS associated with higher likelihood of ER visit (OR 1.28; 1.10-1.48) or hospitalization (OR 1.19; 0.98-1.44) adjusting for confounders
 - Findings similar for NVS: ER visit (OR 1.28; 1.10-1.48) Hospitalization: OR (1.17; 0.97-1.40)

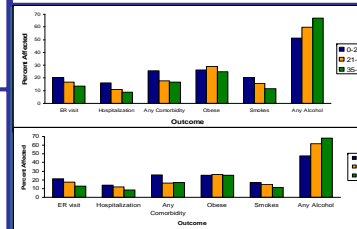


Figure 1. Association of health literacy with ER visits, hospitalizations, comorbidity, health behaviours

Top: METER
Bottom: NVS

CONCLUSIONS

- In the 2012 NARCOMS cohort, functional health literacy is high.
- Lower levels of health literacy are associated with adverse health behaviours such as smoking and greater health care utilization
- Future studies should explore whether improving health literacy in the MS population could improve outcomes