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
  - to locate and use information in documents such as maps, forms, instructions
  - to 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

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)
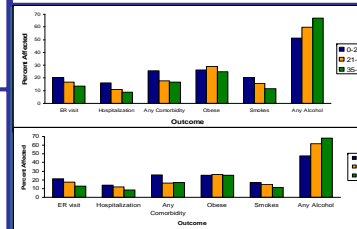

Figure 1. Association of health literacy with ER visits, hospitalizations, comorbidity, health behaviours
Top: METER
Bottom: NVS

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