

Initial Diagnosis of Alzheimer’s Dementia and Mild Cognitive Impairment Varies by Care Setting in Large Health System

Ivana A. Vaughn, PhD, MPH¹, Hwasoo Shin, PhD¹, Angelos Katramados, MD, MMM, MSc^{2,3}, Laila Poisson, PhD^{1,2}, Kelly Tundo, RN, BSN, CCRP²,Marina Novikova, DO^{2,3}, Brien Smith, MD, MBA², Lonnie Wen, RPh, PhD⁴, Raymond Zhang, MSc⁴, Quanwu Zhang, PhD⁴, Amir Abbas Tahami Monfared, MD, PhD^{4,5}

¹Henry Ford Health Department of Public Health Sciences, Detroit, MI, USA; ²Henry Ford Health Department of Neurology, Detroit, MI, USA; ³Wayne State University, Detroit, MI, USA; ⁴Eisai Inc., Nutley, NJ, USA; ⁵McGill University, Montreal, QC, Canada.

Key Takeaways

Nonspecified cognitive symptoms and MCI had highest proportion of diagnosis in Primary Care compared to Neurology

Neurology provided more granular staging for AD compared to Primary Care

Stage-appropriate assessment and decision supports in Primary Care might help improve diagnosis of AD

Early Diagnosis of Dementia

- Timely diagnosis and staging of Alzheimer’s disease (AD) are essential for appropriate evaluation, care planning, and referral.
- Primary care (PC) is often the first point of contact for patients and families reporting cognitive concerns.
- We described how frequently MCI/AD diagnoses and AD severity stages are documented at the initial outpatient visit in PC versus neurology.

Leveraging Electronic Health Records

- Data Source: Henry Ford Health outpatient encounters January 2016 – June 2024
- Study Design: Retrospective analysis
- Eligibility: Age ≥ 40 years with ICD-10 cognitive symptoms, MCI or AD diagnosis
- Index encounter: First ICD-10 diagnosis of cognitive symptoms, MCI or AD diagnosis within study period

Table1: Classification of Alzheimer's Disease Severity

Groups	ICD-10 Codes	Description
Cognitive symptoms w/o diagnosis	R41.81, R41.840–R41.844, R41.3, R41.85, R41.89, R41.9	Age-related cognitive decline; deficits in attention, concentration, visuospatial, executive, or psychomotor functions; amnesia; anosognosia; other/unspecified cognitive symptoms.
Mild neurocognitive disorder	G31.84, F06.70, F06.71	Mild cognitive impairment (unspecified/uncertain etiology); mild neurocognitive disorder due to known physiological condition (without/with behavioral disturbance).
Mild AD	G30.0–G30.9 + F02.A0–F02.A4	Alzheimer’s disease etiology (early-onset, late-onset, other, or unspecified) plus mild dementia with or without agitation, behavioral, psychotic, mood, or anxiety disturbances.
Moderate AD	G30.0–G30.9 + F02.B0–F02.B4	AD etiology plus moderate dementia , with specifiers (none, agitation, behavioral, psychotic, mood, anxiety).
Severe AD	G30.0–G30.9 + F02.C0–F02.C4	AD etiology plus severe dementia , with specifiers (none, agitation, behavioral, psychotic, mood, anxiety).
Unstaged AD	G30.0–G30.9 ± F02.80–F02.84	AD etiology documented, but severity not staged (unspecified dementia with or without behavioral/psychotic/mood/anxiety disturbance).

Limitations

- Index encounters based on first visit to Henry Ford Health with ICD-10 diagnosis of AD symptoms; therefore, some patients may have been referred into the health system by external providers
- Comprehensive identification of AD symptoms may require additional manual chart review of clinic notes for symptoms not captured with coding
- Longitudinal data exploration should further define the evaluation and diagnostic journey

Clinical Impact

- Interventions designed to enhance clinical decision support, education and training will improve staging and diagnosis
- Multidisciplinary care coordination could have important implications for AD care pathway
- Standard clinical practice guidelines should be further defined for AD system of care that includes both primary and specialty care
- Future studies should explore diagnostic assessments used by neurologist compared to other specialties

Baseline Characteristics of Index Encounters N=35,649

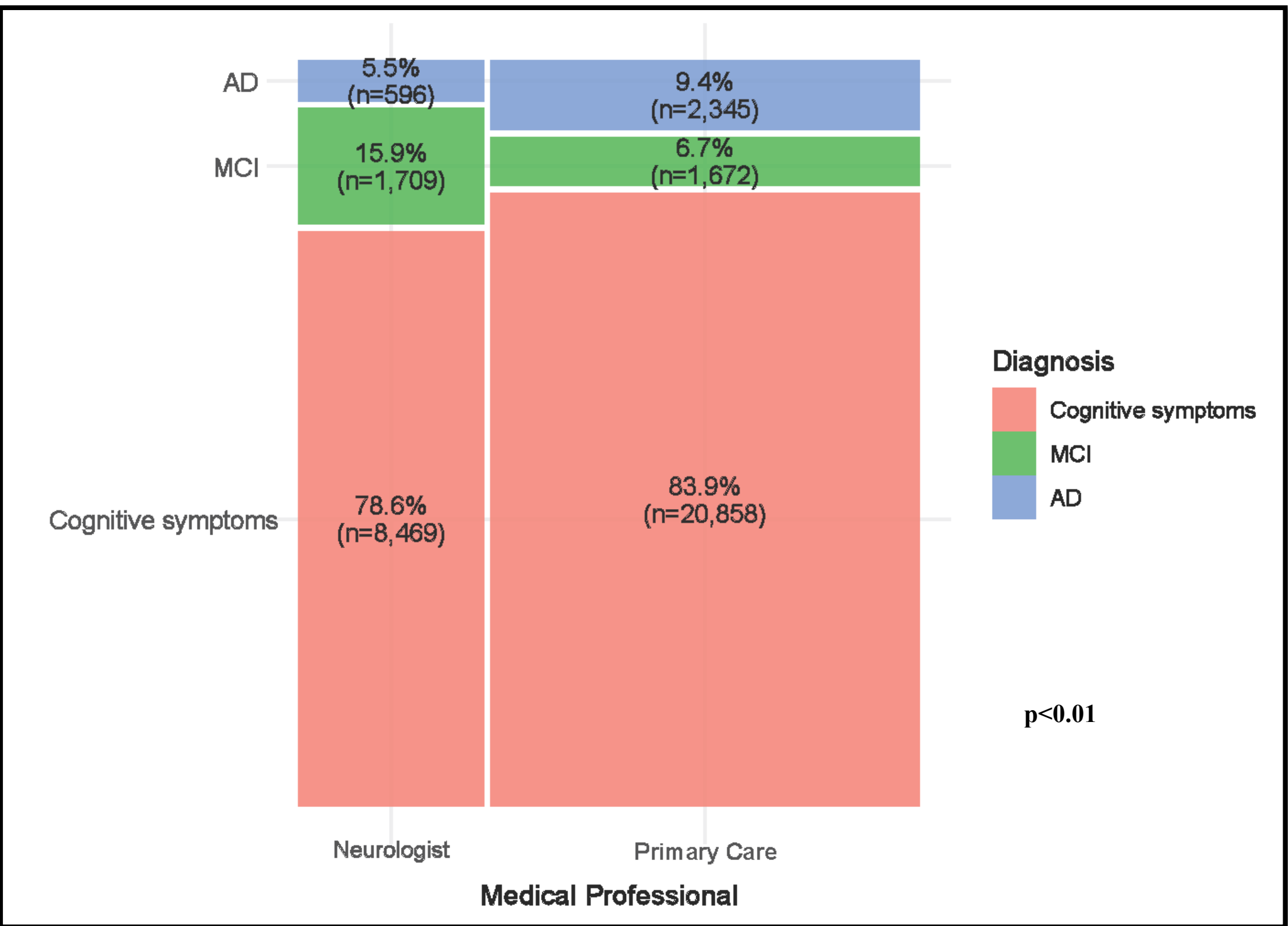


Figure 1: Mosaic Plot of Index Encounters Neurology vs Primary Care by AD Severity

Table 2:Sociodemographic by Medical Specialty

Characteristic	Neurology N=10,774	Primary Care N=24,875	P-value
Age	67.3(13.2)	71.9(13.6)	<0.01
Sex			<0.01
Male	4,651 (43.2%)	9,586 (38.5%)	
Female	6,123 (56.8%)	15,289 (61.5%)	
Race			<0.01
White	7,907 (77.6%)	17,966 (74.9%)	
Black	1,771 (17.4%)	5,083 (21.2%)	
Asian	155 (1.5%)	478 (2.0%)	
Native American	32 (0.3%)	63 (0.3%)	
Other	325 (3.2%)	404 (1.7%)	
Ethnicity			
Hispanic	232 (2.4%)	546 (2.3%)	>0.90
Middle Eastern/ North African	381 (4.0%)	387 (1.7%)	<0.01
Insurance			
Commercial	5,372 (49.9%)	12,582 (50.6%)	0.20
Medicare	8,190 (76.0%)	20,346 (81.8%)	<0.01
Medicaid	2,202 (20.4%)	3,202 (12.9%)	<0.01
Dual Eligible	79 (0.7%)	123 (0.5%)	0.01

N (%) or mean(Std dev). P-value < 0.05 using Chi-square or Welch’s t-test.

Acknowledgements

- Funding provided by Eisai Inc and HFH Neurology.
- Eisai had no role in study design, data collection, analysis, decision to publish, or preparation of the poster
- Special thanks to HFH Public Health Sciences Research Analytics

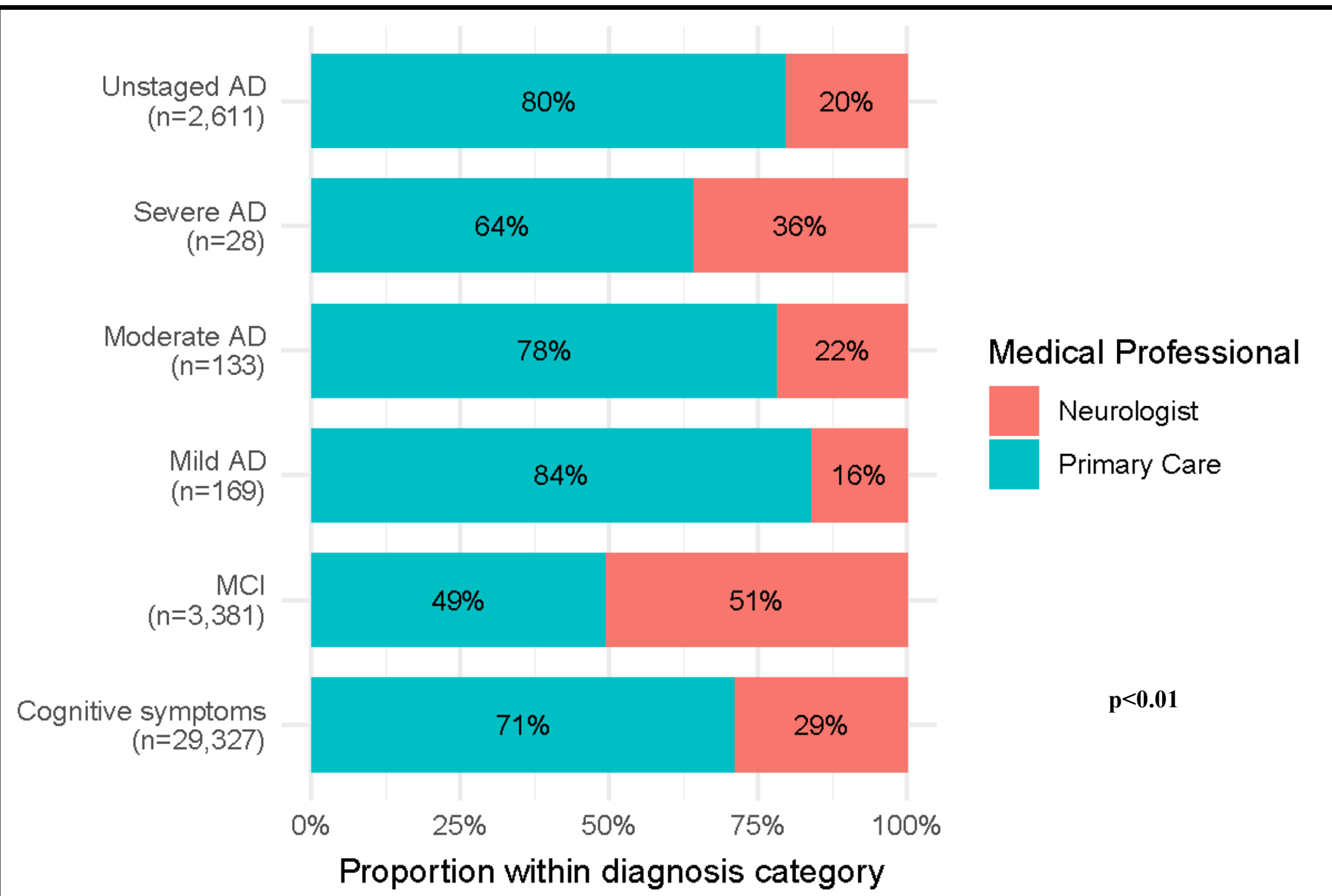


Figure 2: Bar Graph of Index Encounter Neurology vs Primary Care by AD Stage

Table 3: Comorbidities by Medical Specialty

Characteristic	Neurology N=10,774	Primary Care N=24,875	P-value
Comorbidities			
Myocardial infraction	229 (2.1%)	691 (2.8%)	<0.01
Congestive heart failure	564 (5.2%)	2,163 (8.7%)	<0.01
Peripheral vascular disease	607 (5.6%)	2,153 (8.7%)	<0.01
Cerebrovascular disease	1,335 (12.4%)	2,063 (8.3%)	<0.01
Chronic pulmonary disease	956 (8.9%)	3,674 (14.8%)	<0.01
Connective ulcer disease	202 (1.9%)	534 (2.1%)	0.10
Peptic ulcer disease	77 (0.7%)	209 (0.8%)	0.20
Hemiplegia or paraplegia	62 (0.6%)	94 (0.4%)	0.01
Renal disease	719 (6.7%)	3,113 (12.5%)	<0.01
Any malignancy	575 (5.3%)	1,553 (6.2%)	<0.01
Metastatic solid tumor	109 (1.0%)	211 (0.8%)	0.13
Diabetes	1,707 (15.8%)	6,288 (25.3%)	<0.01
Liver disease	97 (0.9%)	250 (1.0%)	0.40
Charlson Comorbidity Index	1.0(1.6)	1.3(1.8)	<0.01
CCI > 0			<0.01
0	6,290 (58.4%)	11,387 (45.8%)	
1	1,912 (17.7%)	5,355 (21.5%)	
>1	2,572 (23.9%)	8,133 (32.7%)	

N (%). P-value < 0.05 using Chi-square or Welch’s t-test

Contact Information

Dr. Marina Novikova
mnoviko1@hfhs.org

