



National Institutes of Health
Clinical Center

Measuring use of health services among working age adults with disabilities with the ACS-6

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Presenter Disclosures

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The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose

Background and purpose of study

- The six question disability measure developed for use in the American Community Survey (ACS-6) is currently being adopted as a new standard for disability measurement.
 - Section 4302 of the Affordable Care Act further extended the adoption of the ACS-6 and HHS has called for its inclusion in all national surveys of population health accordingly.
- ACS-6 was not composed with an explicit focus on health care needs or service use, though it will drive how health services researchers measure disability for many years to come.

Background and purpose of study

- Part of an ongoing expert measurement panel project being conducted at the NIH clinical center to develop measures and methods of identifying working age Adults with Chronic Health Care Needs (ACHCN) in national health surveys.
 - Disability plays a key part in our work as both an important subgroup of ACHCN and as a potential means of stratifying healthcare needs and use at the population level.
- Using the recent test of the ACS-6 disability measure in the 2011 NHIS, we analyzed its performance in relation to health, mental health, chronic conditions and particularly service utilization.

Methods

- **Data:**

- **2011 National Health Interview Survey:** Adult sample file, person level file and disability test questions file were merged to yield the analytic file, n: 13043, representing 192 million community dwelling, working aged adults.

- **Measures:**

- **ACS-6 disability measure** covering hearing, seeing, cognition, walking, bathing/dressing (ADLs) and doing errands alone (IADLs).
 - **Two summary variables:** Any / No ACS-6 difficulty, and
A) No ACS-6 limitation, B) ACS-6 difficulty without ADL/IADL impact, C) ACS-6 difficulty including ADL or IADL limitation(s).
- **Health / mental health:** Overall health (fair/poor, 0/1); health worse than 1 year ago (0/1); K6 measure of serious mental illness (scale 0-24 and dichotomous at cutpoint of 13+); Count of 10 possible chronic conditions and 0/1 summary indicator of any chronic condition.

Methods

- **Measures, cont:**

- **Sociodemographic controls:** age, gender, race/ethnicity, low income (<200% FPL), education (< high school diploma / GED) and health insurance status (private only, any public, uninsured at time of survey)
- **Health service utilization:**
 - **Past 12 months, 0/1:** Any GP MD visit, any specialty MD visit, any hospitalization, any therapy (PT,OT,etc.) visit, any mental health visit
 - **Past 12 months, mean:** Emergency department visits, ambulatory healthcare visits any provider (excludes ED).

Methods

- **Statistical approach:**

- **Variance estimation:** all analyses conducted in SUDAAN with Taylor series linearization to accommodate the complex sampling plan in NHIS. All results weighted to represent working age (18-64) population.
- **Univariate and bivariate analyses:**
 - Sociodemographics, health & mental health, service utilization, ACS-6 items and summary variables: chi-square and t-tests of significance as appropriate.
- **Multivariate analyses:**
 - A) LHS: Service utilization measures (one at a time). RHS: All individual ACS-6 items, sociodemographic controls (age, gender, race/ethnicity, education, income, health insurance status).
 - B) Same as above, but substituting ACS-6 summary measure for the specific ACS-6 items.
 - Logistic regression models used for all 0/1 service utilization variables
 - Loglink procedure used to estimate mean visit rates

Results...

NHIS 2011: ACS-6 questions, sample and population sizes

	Sample size	Weighted population size (millions)	Weighted % of U.S. working age population
1. Are you deaf or do you have serious difficulty hearing?	390	5.9m	3.1%
2. Are you blind or do you have serious difficulty seeing, even when wearing glasses?	474	6.1m	3.2%
3. Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions?	717	10.0m	5.3%
4. Do you have serious difficulty walking or climbing stairs?	983	12.2m	6.5%
5. Do you have difficulty dressing or bathing?	271	3.6m	1.9%
6. Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone such as visiting a doctor's office or shopping?	537	7.0m	3.7%
ANY ACS-6 difficulty	1853	25.1m	13.3%
Any ACS-6 item not impacting ADLs or IADLs	1249	17.2m	9.1%
ACS-6 ADL/IADL difficulty	604	7.8m	4.2%
TOTAL ANALYTIC SAMPLE	13043	191.8m	(100%)

ACS-6 measures:

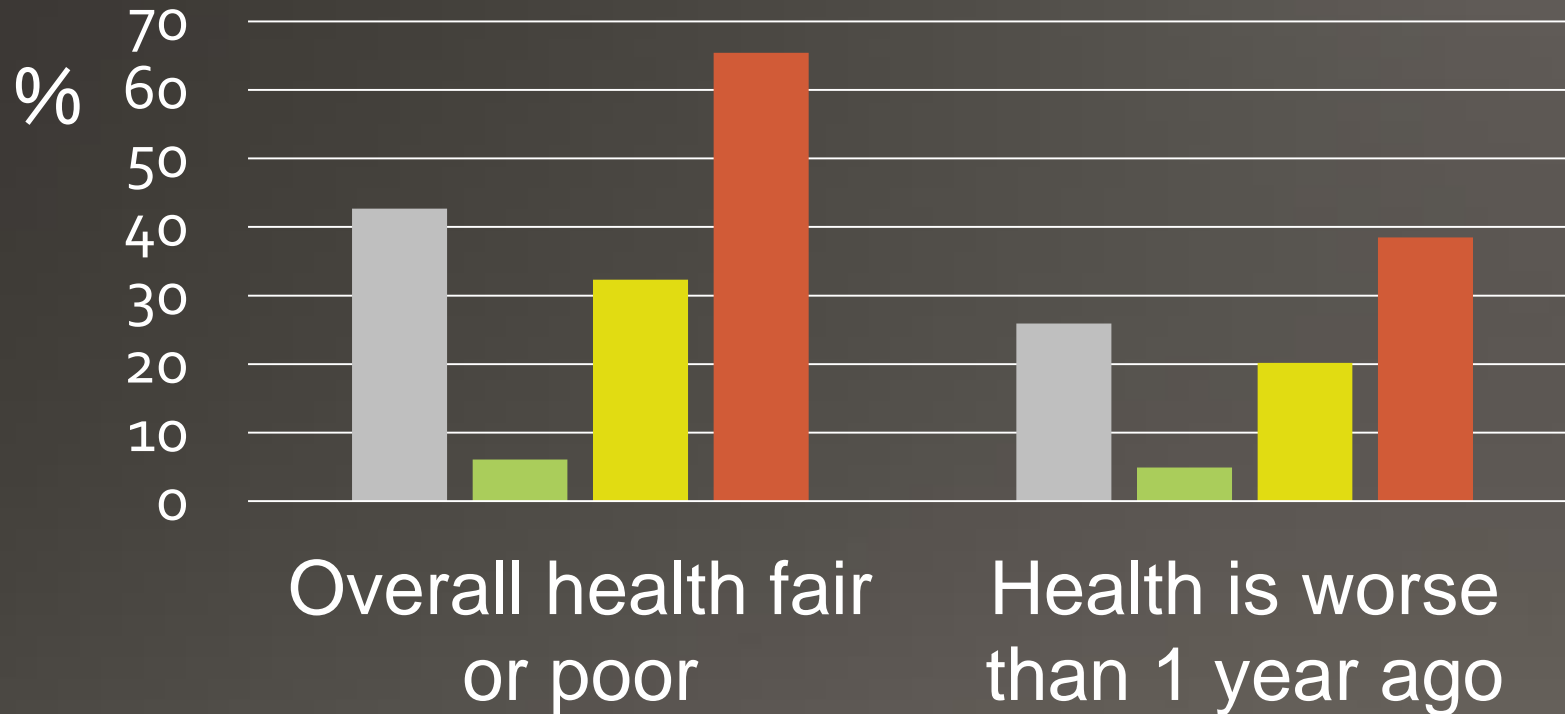
Sociodemographics among persons with each difficulty

	Hearing	Seeing	Cognitive	Walking	Bathe/ Dress	Errands
Older age (mean)	49.0 +	46.3 +	43.0 +	49.6 +	48.2 +	47.4 +
Female	37.4% -	54.1%	53.4%	56.5% +	50.82%	56.4% +
NH black	7.2% -	15.0%	14.0%	17.4% +	13.2%	15.6%
Hispanic	12.2%	18.7%	12.9%	15.4%	15.8%	12.7%
< HS educ.	17.8% +	26.8% +	25.1% +	27.0% +	27.8% +	29.8% +
< 200% FPL	39.9% +	49.2% +	55.0% +	57.0% +	54.9% +	58.5% +

+ : Significantly higher ($p < .05$) than among persons without difficulty in column

- : Significantly lower ($p < .05$) than among persons without difficulty in column¹⁰

ACS-6 summary measures and health status



Working age people with any ACS-6 difficulty include 52% of all persons reporting fair-poor health, and 45% of all persons reporting that their health is worse now than a year ago.

- Any ACS-6 difficulty
- No ACS-6 difficulty
- ACS-6 difficulty not impacting ADLs/IADLs
- ACS-6 ADL/IADL difficulty

All differences significant at the $p < .05$ level.

ACS-6 summary measures and mental health

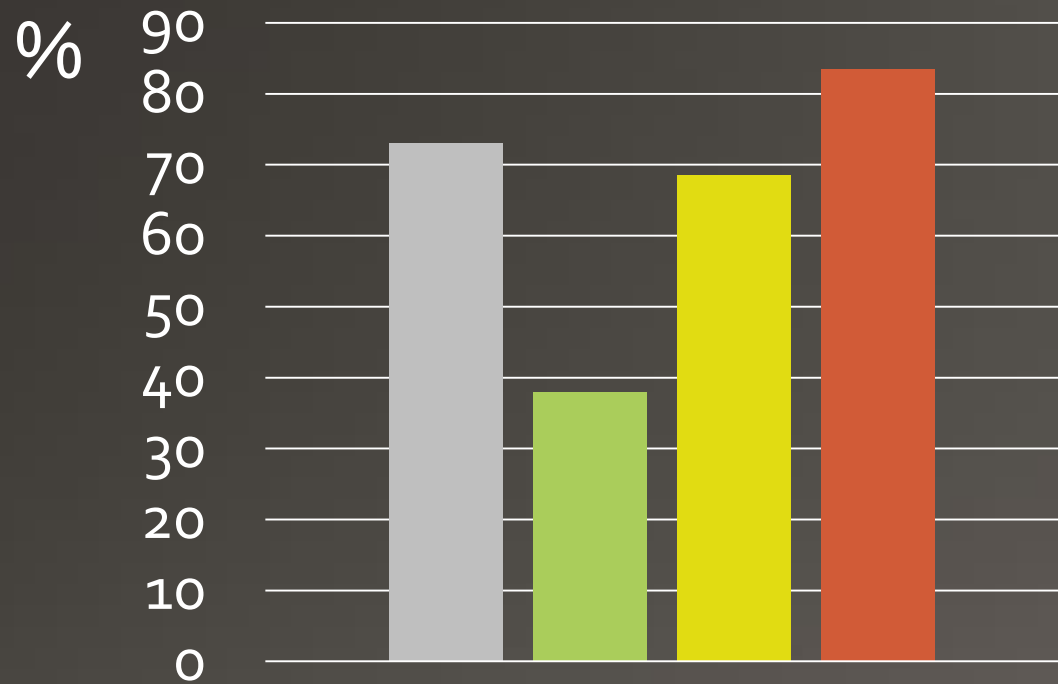
Working age people with any ACS-6 difficulty include 66% of all persons reporting a k-6 score at or above 13, the cutoff for a serious mental illness.



- Any ACS-6 difficulty
- No ACS-6 difficulty
- ACS-6 difficulty not impacting ADLs/IADLs
- ACS-6 ADL/IADL difficulty

All differences significant at the $p < .05$ level.

ACS-6 summary measures and chronic condition status.



1+ chronic conditions

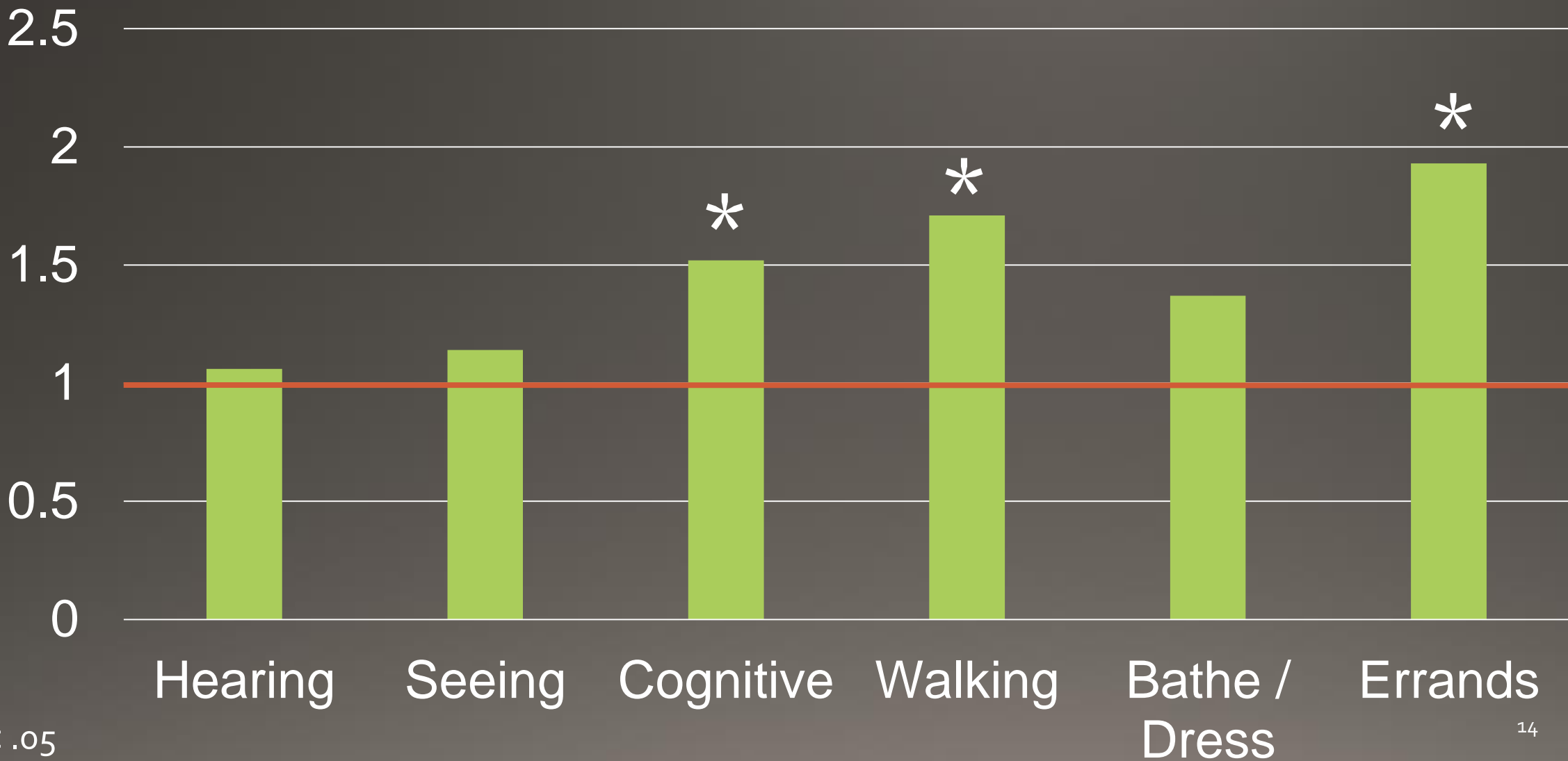
- Any ACS-6 difficulty
- No ACS-6 difficulty
- ACS-6 difficulty not impacting ADLs/IADLs
- ACS-6 ADL/IADL difficulty

- Working age people with any ACS-6 difficulty include 23% of all persons reporting one or more of 10 highly prevalent chronic conditions.
- Persons with no ACS-6 difficulty had an average of .5 of these 10 chronic conditions.
- Persons with ACS-6 difficulties not affecting ADLs or IADLs averaged 1.5 chronic conditions
- Persons with ADL/IADL difficulties averaged 2.2 chronic conditions

All differences significant at the $p < .05$ level.

Odds of 1+ GP MD visits, past year:

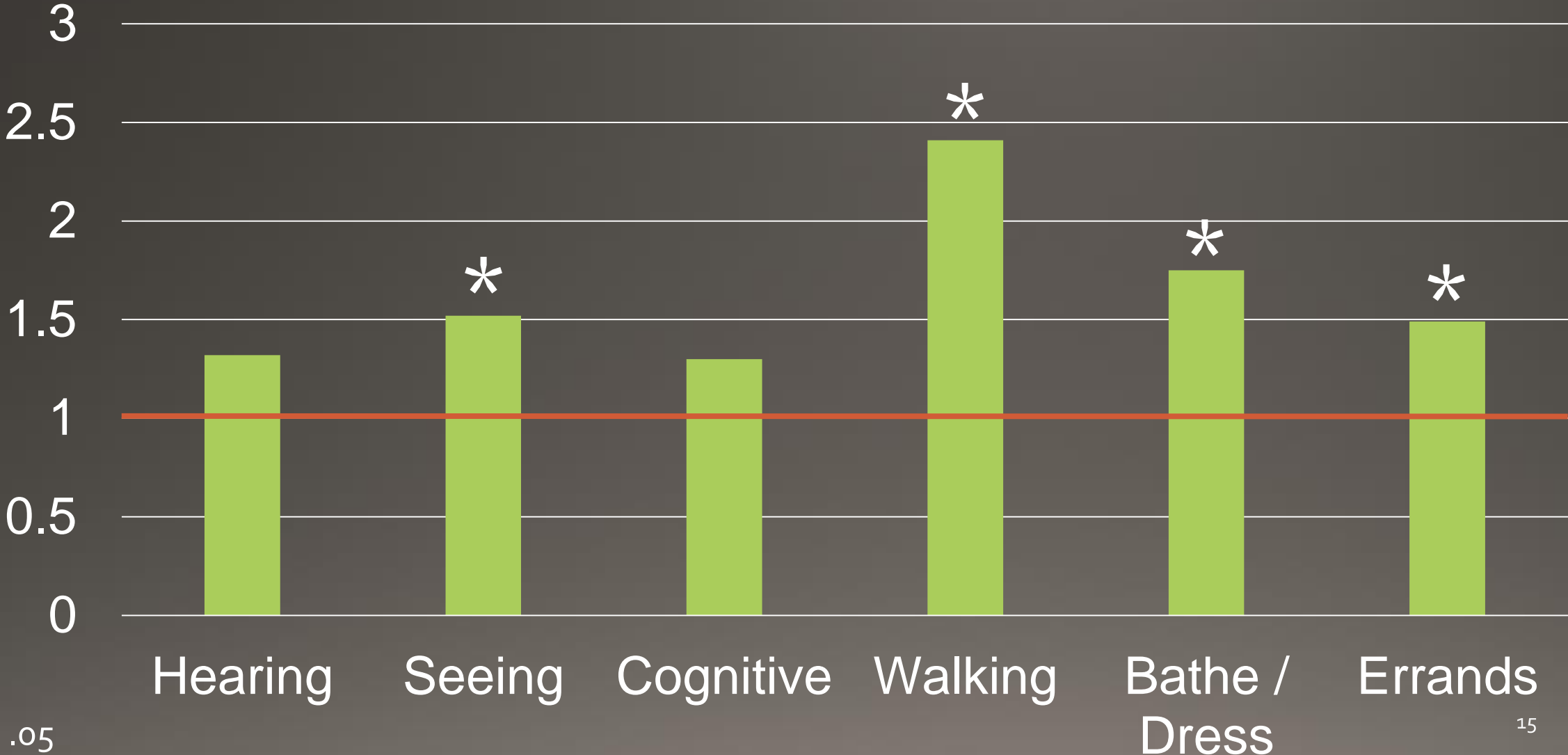
Covariate controlled odds ratios on the basis of ACS-6 difficulties



*: p < .05

Odds of 1+ specialist MD visits, past year:

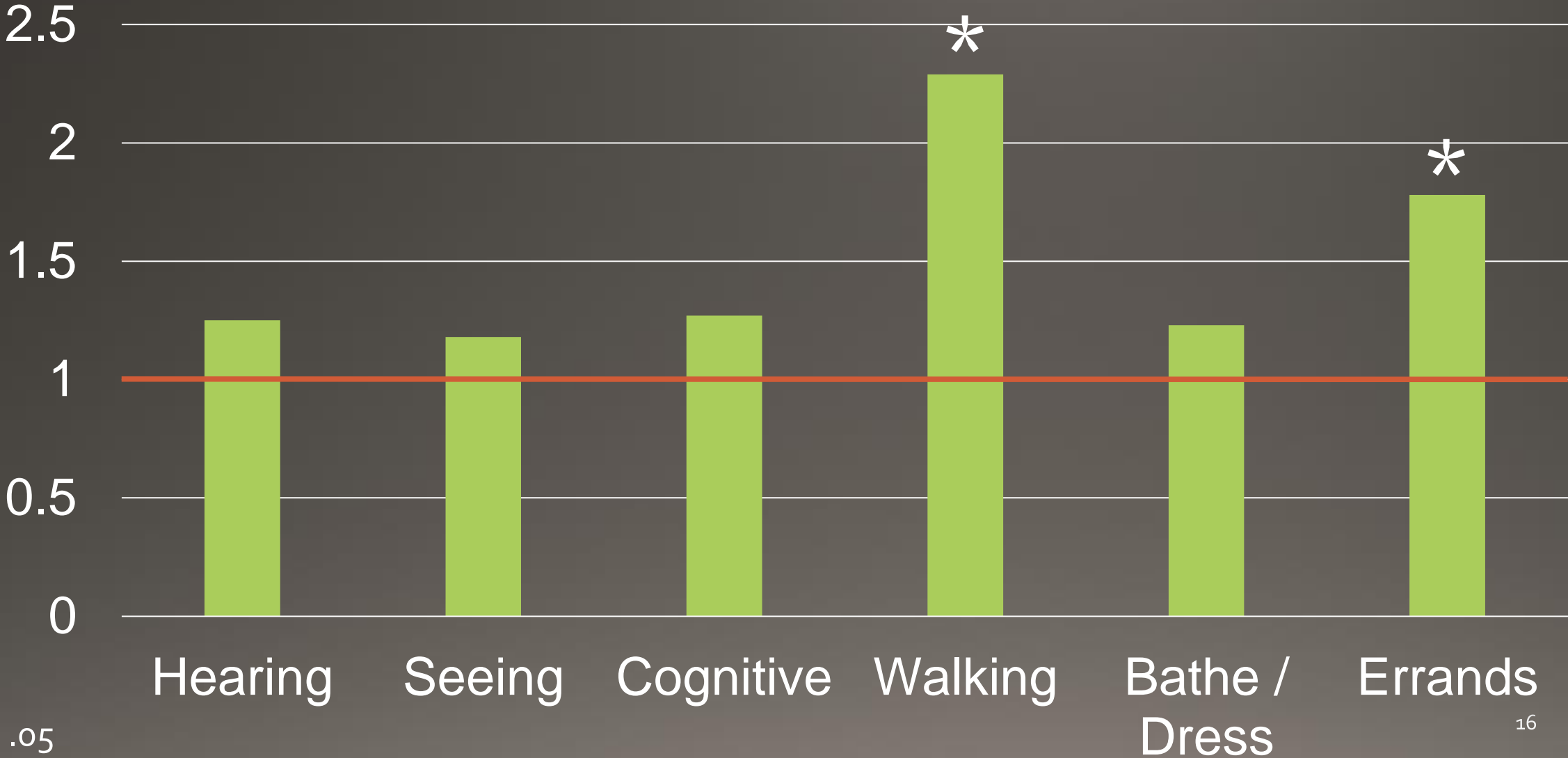
Covariate controlled odds ratios on the basis of ACS-6 difficulties



*: p < .05

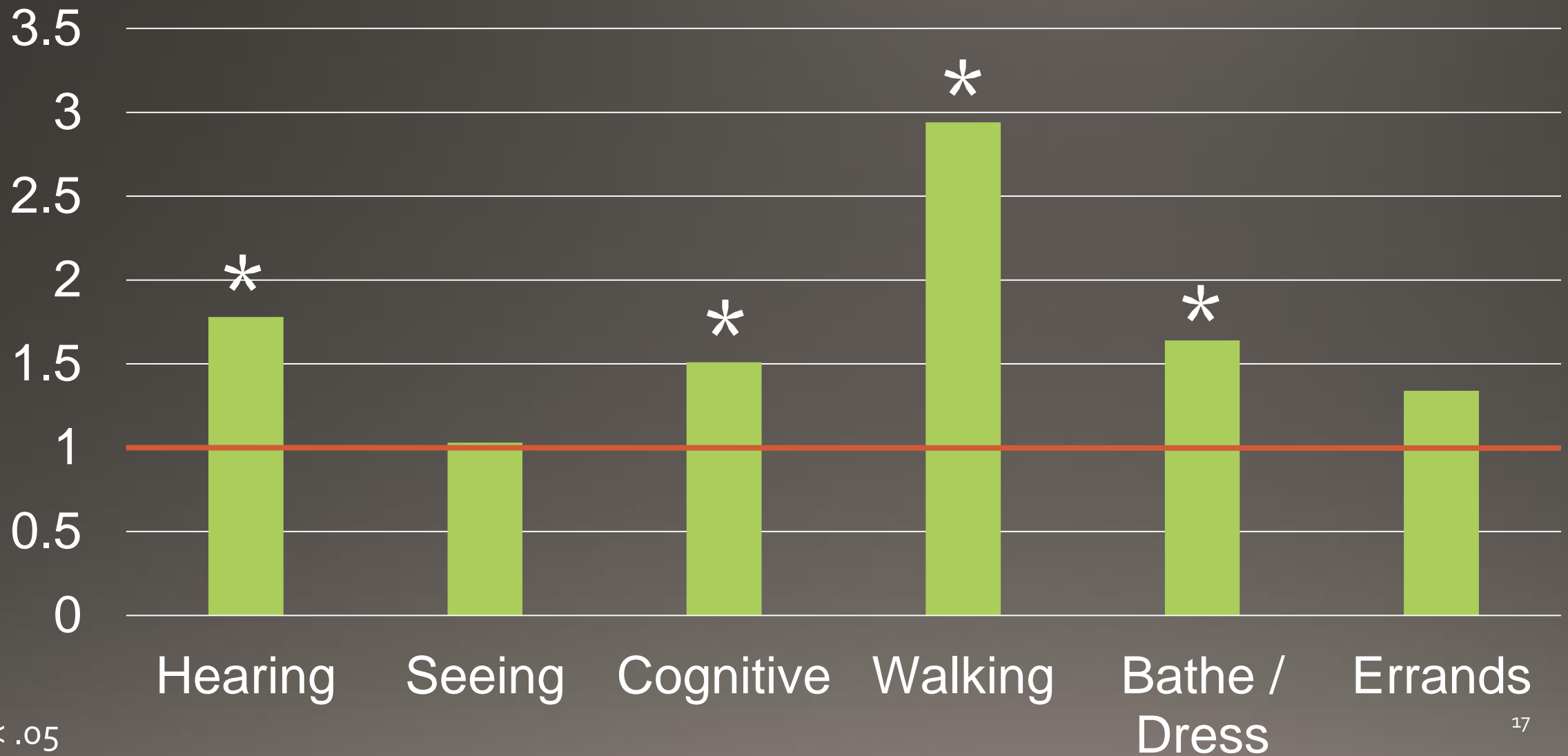
Odds of 1+ hospitalizations, past year:

Covariate controlled odds ratios on the basis of ACS-6 difficulties



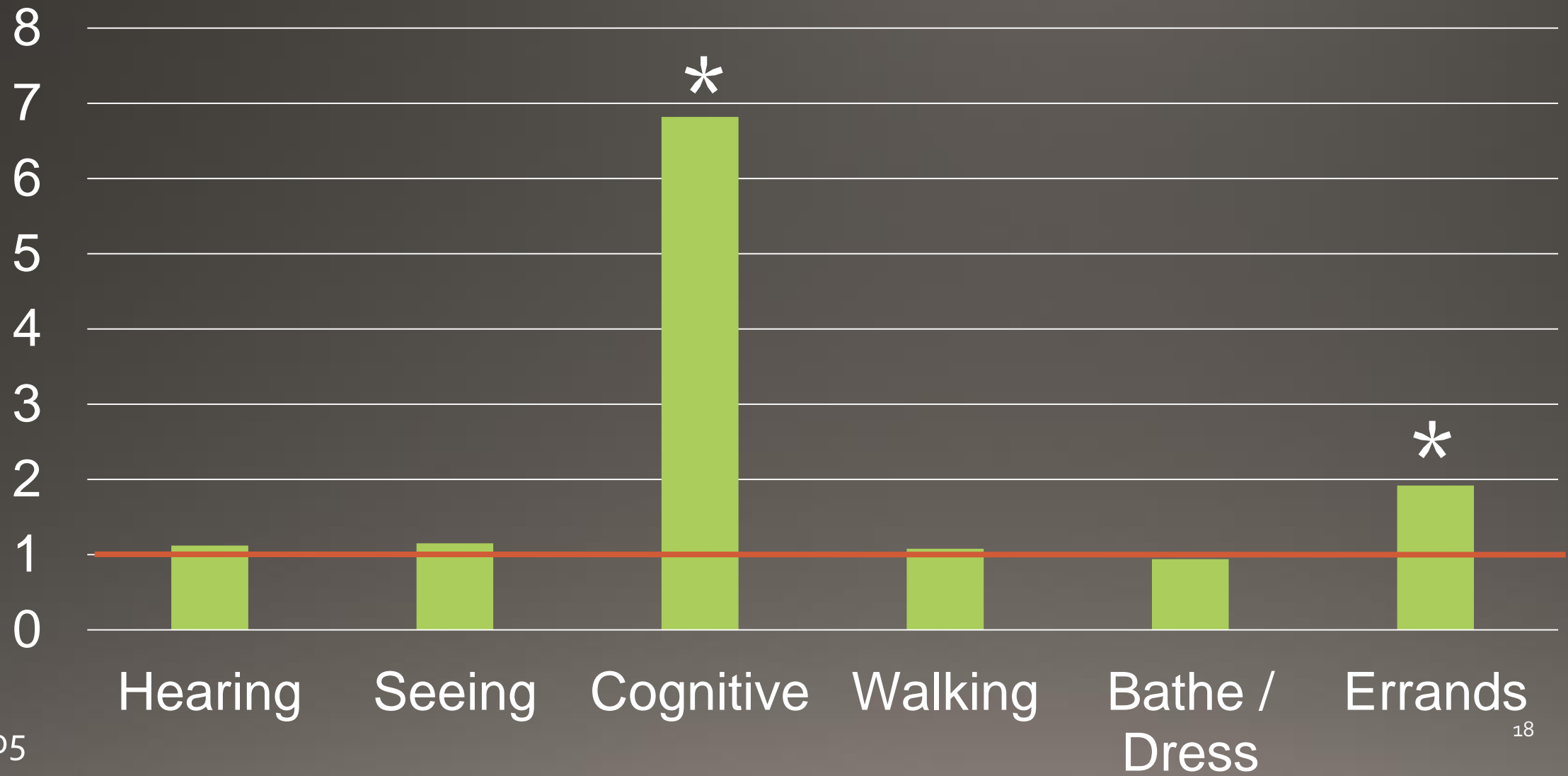
*: $p < .05$

Odds of 1+ therapy visits (PT, OT, etc.) in past year: Covariate controlled odds ratios on the basis of ACS-6 difficulties



*: $p < .05$

Odds of 1+ mental health visits in past year: Covariate controlled odds ratios on the basis of ACS-6 difficulties



*: $p < .05$

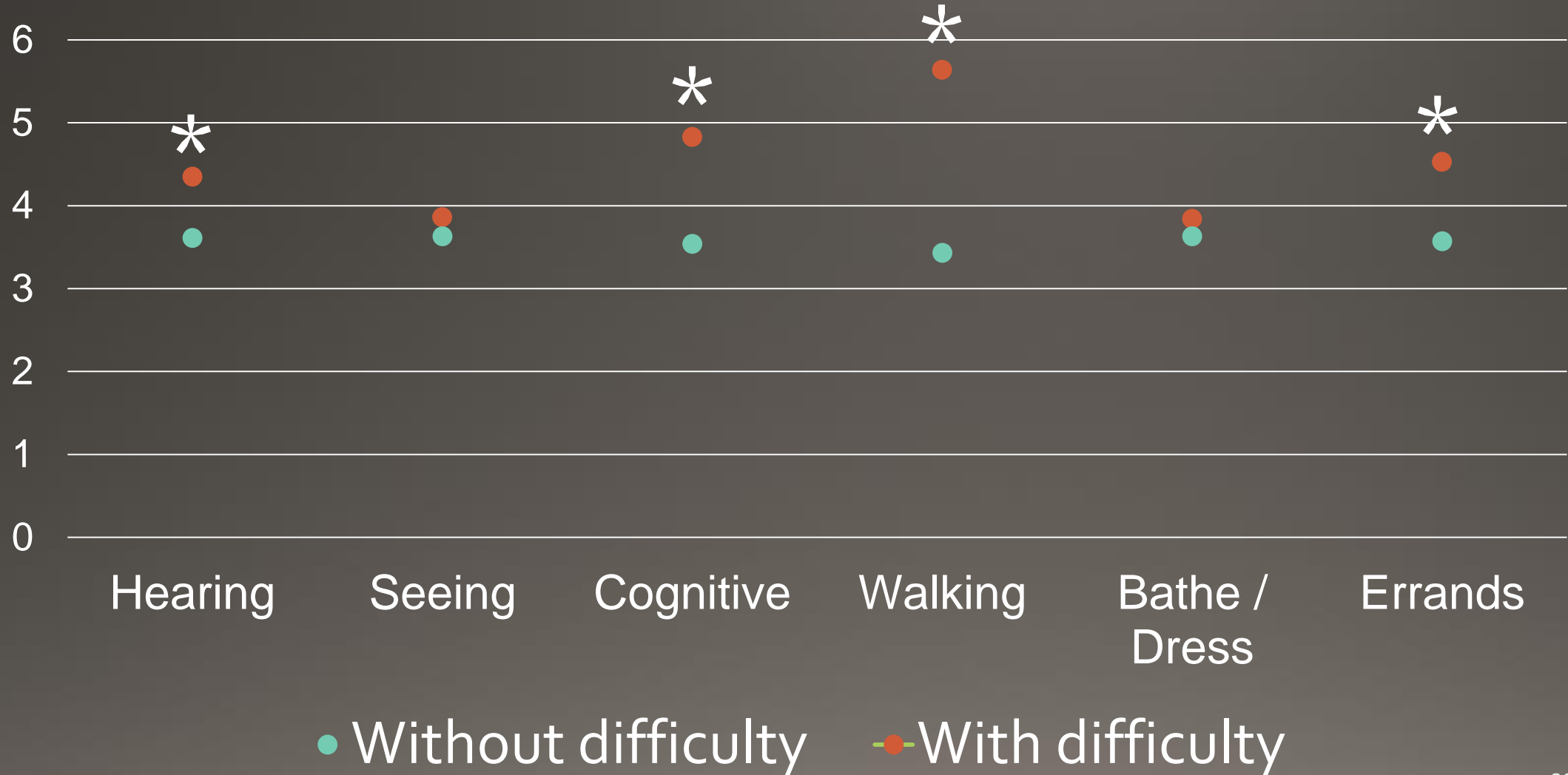
Predicted mean emergency department visits: Covariate-controlled predicted marginals, past year



*: p < .05

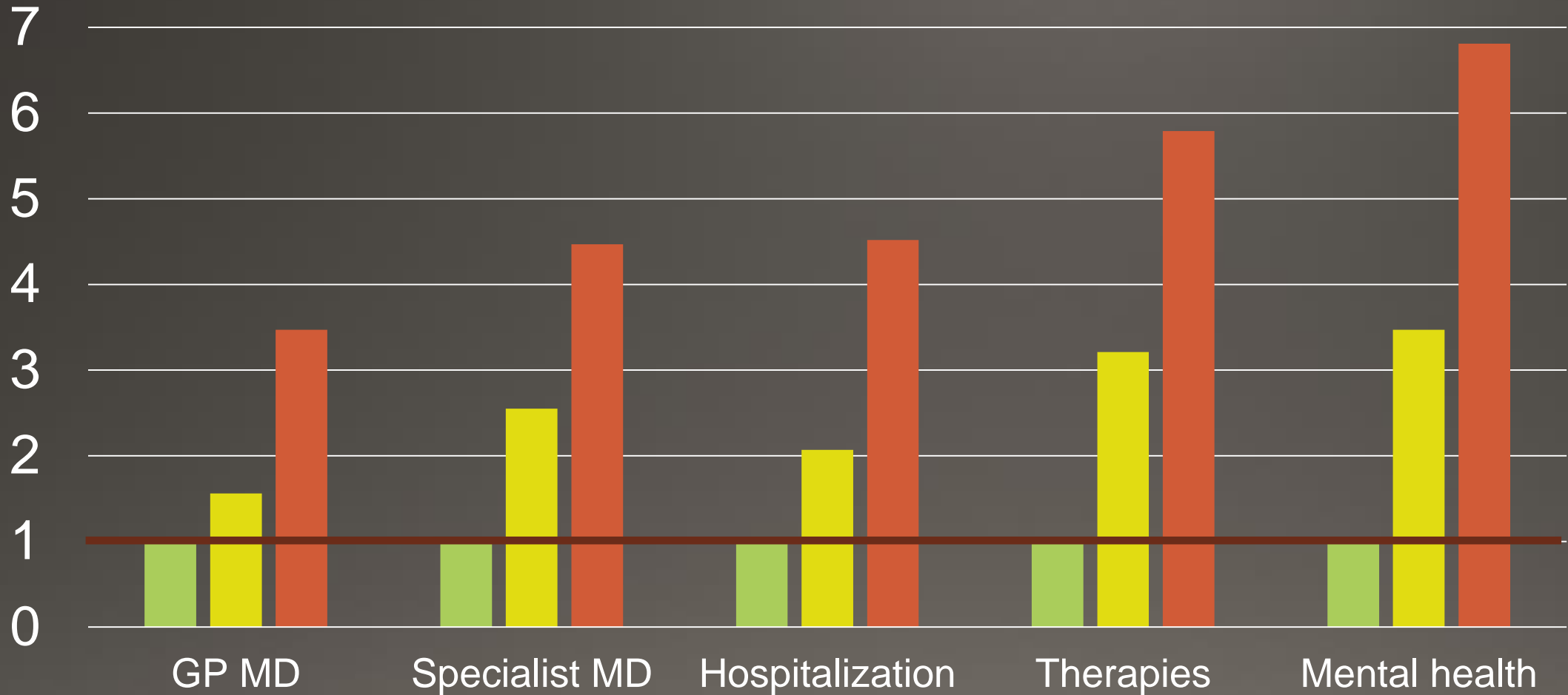
Predicted mean ambulatory office visits:

Covariate-controlled predicted marginals, past year



*: $p < .05$

ACS-6 summary variable over five types of healthcare: Covariate controlled odds ratios



All differences significant at $p < .05$ level

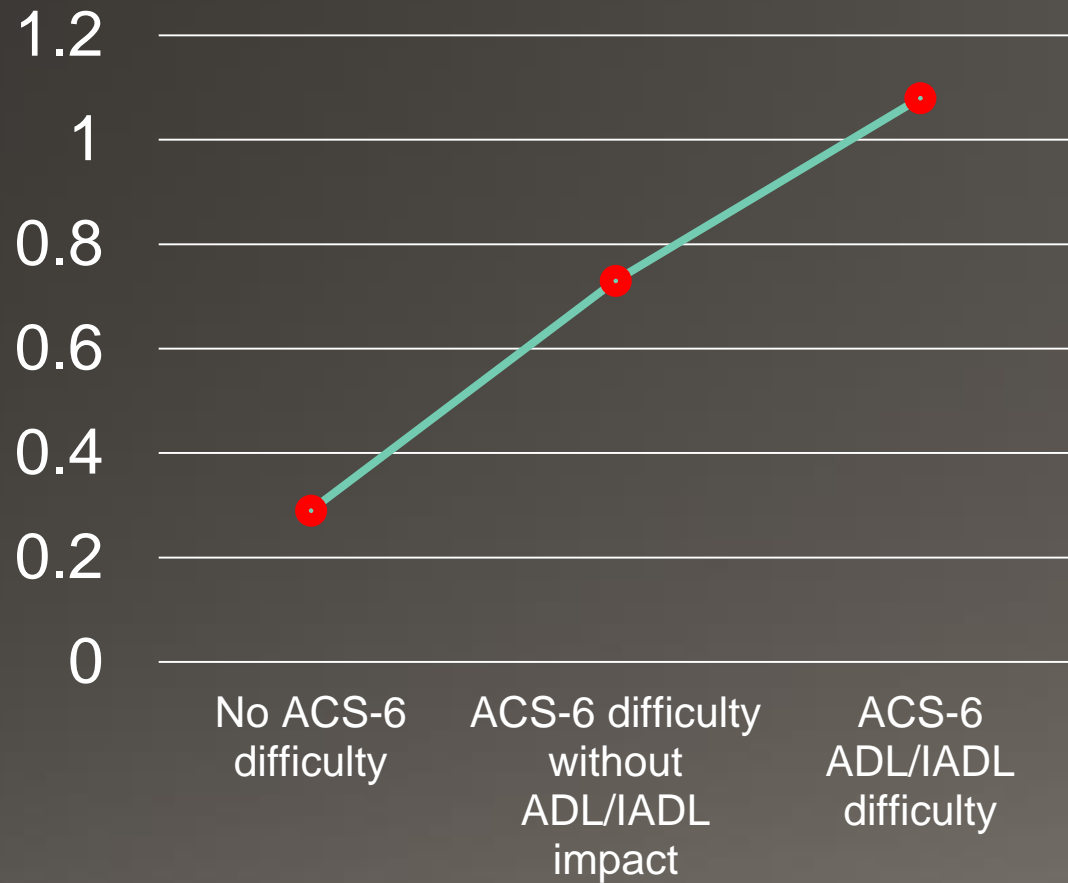
■ No ACS-6 difficulty

■ ACS-6 difficulty without ADL/IADL impact

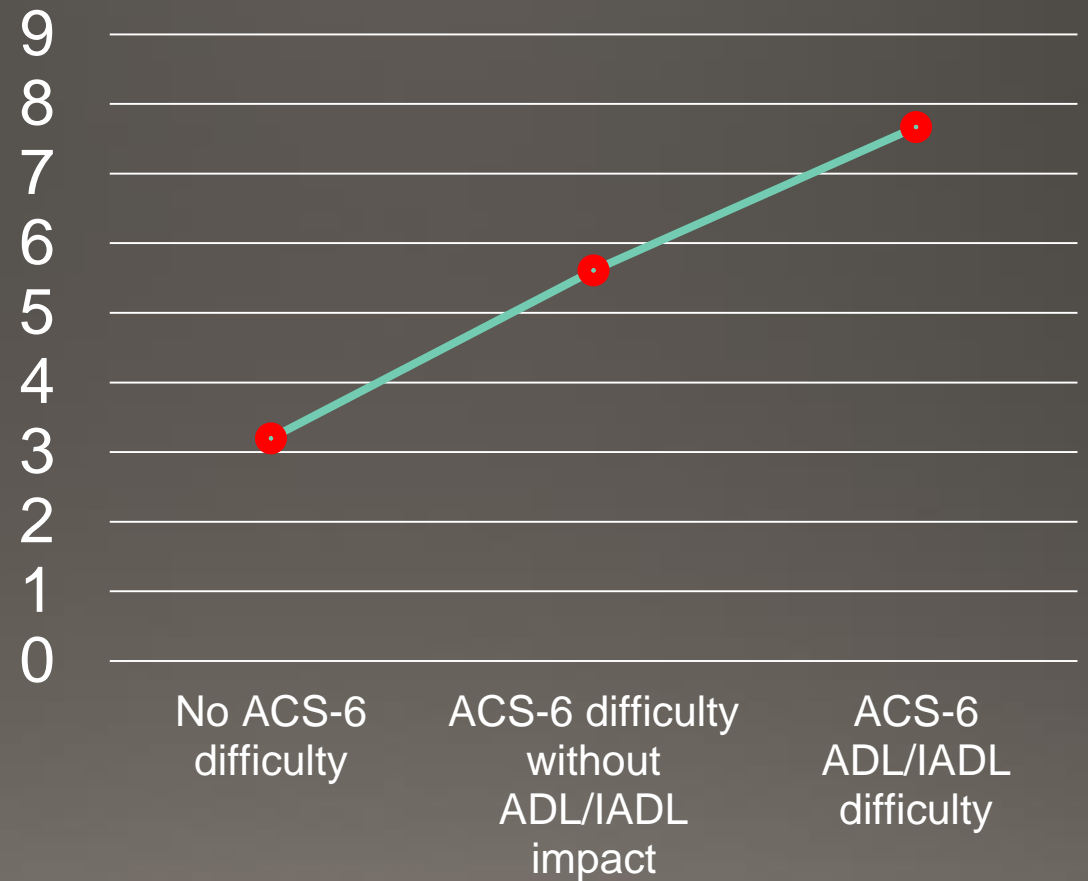
■ ACS-6 ADL/IADL difficulty ²¹

ACS-6 summary measure over annual ED visits and ambulatory healthcare visits: Covariate controlled predicted marginals

Emergency Department visit(s)



Ambulatory healthcare visit(s)



All differences significant at $p < .05$ level

In Review: Specific ACS-6 predictors of healthcare utilization

	Hearing	Seeing	Cognitive	Walking	Bathe/Dress	Errands
GP MD			✓	✓		✓
Specialty MD		✓		✓	✓	✓
Hospitalization				✓		✓
Therapies	✓		✓	✓	✓	
Mental Health			✓			✓
Emergency Department			✓	✓		✓
Ambulatory healthcare	✓		✓	✓		✓

In Review: ACS-6 summary measure

Moving from:

No ACS-6 difficulties → Non-ADL/IADL difficulties → ADL/IADL difficulties

We see:

- Increasing percentages with low income and low education
- Decreasing overall health ratings and worse health than last year
- Higher rates of multiple chronic conditions
- Worse K-6 scores and substantial increases in SMI
- *Higher utilization of all services studied, even after controlling covariates*

Discussion

- The ACS-6 was originally designed as a short set of questions that would capture the most serious limitations in order to identify persons at risk of participation restriction. It was not authored explicitly for healthcare survey measurement, nor health services research.
- However, each of the items in this instrument remain “close to the skin”; They reference actions and abilities that are directly intertwined with health, functioning and the immediate needs of the person.
- These 6 items appear to capture a disability population that is very appropriate for health services research, whether from the standpoint of demographics, health status, mental health or service need/use.

Discussion

- The items on hearing and seeing were less directly related to healthcare utilization. However, they are strongly correlated with overall health and mental health status and may also capture subgroups with specific needs for accommodation when receiving healthcare services.
- IADLs (e.g “errands”) and ADLs (bathing, dressing) serve well as cross-disability stratifying measures that indicate a higher degree of functional impairment, more compromised health and higher end service utilization.
- The cognitive, walking and IADL were the strongest outright predictors of service utilization in this study. Studies focusing directly on service utilization could attempt to array these three measures.

Discussion

- Last, one important gap to note concerns persons with chronic conditions that are not disabling at present.
- The ACS-6 only captured about 1 in 5 of the persons with chronic conditions included in this study.
- For health services research, we need clear and actionable definitions and measures of disability, but we also need a broader way of capturing adults with ongoing healthcare needs, even if not disabled.