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Health Care-Seeking Behaviors of Medicare Beneficiaries with Functional Hearing Loss

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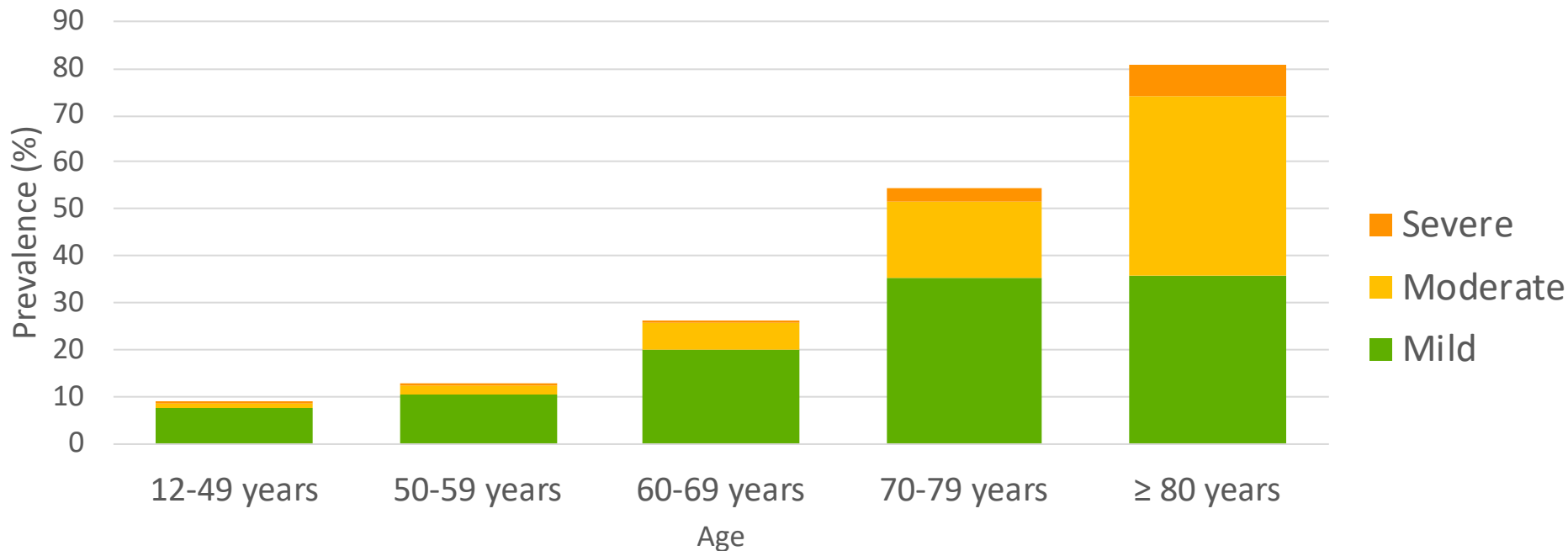
Hearing loss in the US

Prevalence of bilateral hearing loss by severity in the United States



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HL and health outcomes



- Hearing loss is independently associated with
 - Cognitive decline
 - Dementia
 - Falls
 - Increased hospitalization, 30-day readmission, health care costs
 - Lower perceived satisfaction with care

HL on patient-provider communication



- Hearing loss is associated with poorer and more limited patient-provider communication
 - Reduced treatment adherence
 - Poor health care outcomes
- Poor communication & experiences may manifest in avoidance of the health care system

Objective



- Investigate the relationship between self-reported functional **hearing loss** and **health care-seeking behaviors** of **older Medicare beneficiaries**

Methods – Data Source



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- **Medicare Current Beneficiary Survey (MCBS) 2015**
 - Participants (or their proxies) were interviewed in-person by a trained interviewer using computer-assisted personal interviewing software on laptop computers
 - Demographic, socioeconomic, health access, and satisfaction information
 - Nationally-representative sample of the Medicare population
 - 12,311 community-dwelling Medicare beneficiaries aged 65+ surveyed

Methods – HL variable



- Functional hearing loss
 - “Which statement best describes your hearing [with a hearing aid]?”
 - “No trouble”
 - “A little trouble”
 - “A lot of trouble”
- Hearing aid use

Methods – Delay variable



- Knowingly delaying health care
 - “During the [current year] did you have any health problem or condition about which you think you ***should have seen a doctor*** or medical person, ***but did not?***”
- Follow-up:
 - “Which [was] ***the main reason*** you did not see a doctor about [your] condition?”

Methods – Covariates



- Anderson-Aday model for health services use
 - Predisposing factors
 - Sociodemographic: age, gender, race
 - Enabling factors
 - Education, income, marital status, time to get to doctor's office
 - Need factors
 - Self-perceived general health status, ADLs, IADLs, depression, number of doctor office visits in the current year

Methods – Statistical Analysis

- Survey weighting
- Descriptive and univariate chi-square
- Multivariate logistic regression





RESULTS

Study Cohort



Variable	Functional Hearing Status		
	No trouble	A little Trouble	A lot of Trouble
Hearing status of total sample	54.16%	39.39%	6.45%
Delayed Care	8.48%	12.53% (P<0.001)	16.95% (P<0.001)
Hearing aid use	6.89%	15.21% (P<0.001)	28.73% (P<0.001)

Study Cohort



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Study Cohort



Variable	Functional Hearing Status		
	No trouble	A little Trouble	A lot of Trouble
Age (years)			
64 and younger	17.12%	13.26%	15.84%
65-74	53.45%	47.37%	36.12%
75 and older	29.43%	39.37% (P<0.001)	48.04% (P<0.001)

Hearing loss and delay in access

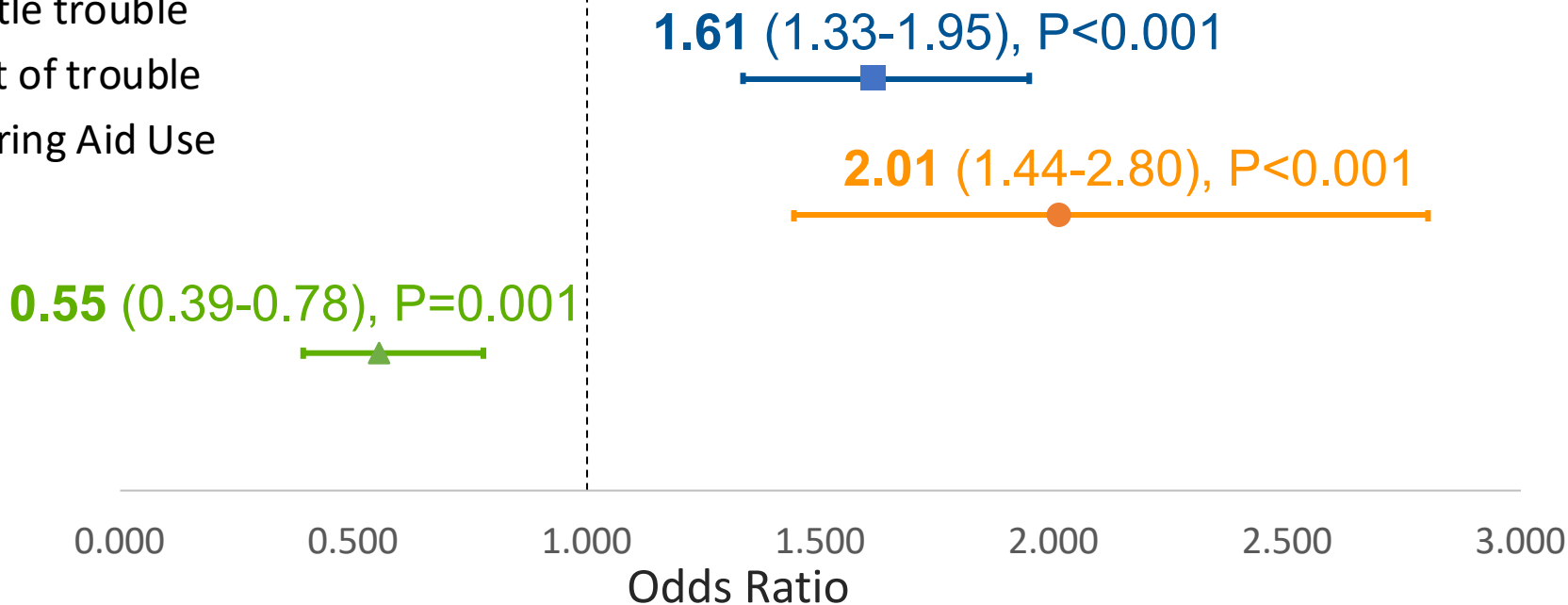


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Odds of delaying care by level of hearing loss

- A little trouble
- A lot of trouble
- ▲ Hearing Aid Use



HL and delay - Predisposing



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	Odds Ratio	95% CI	P
Age (years)			
64 and younger	REF		
65-74	0.80	0.65-0.98	0.03
75 and older	0.54	0.43-0.70	<0.001
Gender - Female	1.38	1.13-1.67	0.001
Race			
Non-Hispanic White	REF		
Non-Hispanic Black	1.15	0.87-1.52	0.32
Hispanic	1.08	0.79-1.48	0.62
Other	1.60	1.14-2.25	0.01

HL and delay - Enabling



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	Odds Ratio	95% CI	P
Educational attainment			
Less than 9th grade	REF		
High school or vocational, technical, business degree	1.21	0.93-1.58	0.16
More than high school	1.17	0.90-1.53	0.24
Income - ≥\$25,000	1.15	0.93-1.43	0.21
Married	0.78	0.70-0.91	0.003
Time of transportation to doctor's office			
0-15 minutes	REF		
16-20 minutes	1.01	0.84-1.22	0.90
31-59 minutes	1.03	0.71-1.49	0.87
60-119 minutes	0.99	0.66-1.50	0.97
2 hours or more	1.52	0.71-3.26	0.28

HL and delay - Need



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	Odds Ratio	95% CI	P
General health			
Excellent	REF		
Very good	1.16	0.83-1.62	0.39
Good	1.48	1.11-1.97	0.01
Fair	2.00	1.40-2.86	<0.001
Poor	2.03	1.36-3.04	0.001
Functional limitations			
No functional limitations	REF		
only IADLs	2.02	1.50-2.71	<0.001
1-2 ADLs	1.89	1.32-2.69	0.001
3-4 ADLs	2.64	1.86-3.75	<0.001
5-6 ADLs	2.01	1.30-3.10	0.002

HL and delay - Need



	Odds Ratio	95% CI	P
Depression	1.58	1.29-1.94	<0.001
Total office visits in current year			
No office visits	REF		
1-5 office visits	1.12	0.88-1.43	0.36
6-10 office visits	1.00	0.82-1.23	0.99
11-15 office visits	0.79	0.56-1.11	0.17
16-20 office visits	0.64	0.39-1.05	0.08
21 or more office visits	0.52	0.32-0.84	0.01

Reasons for Delaying Care

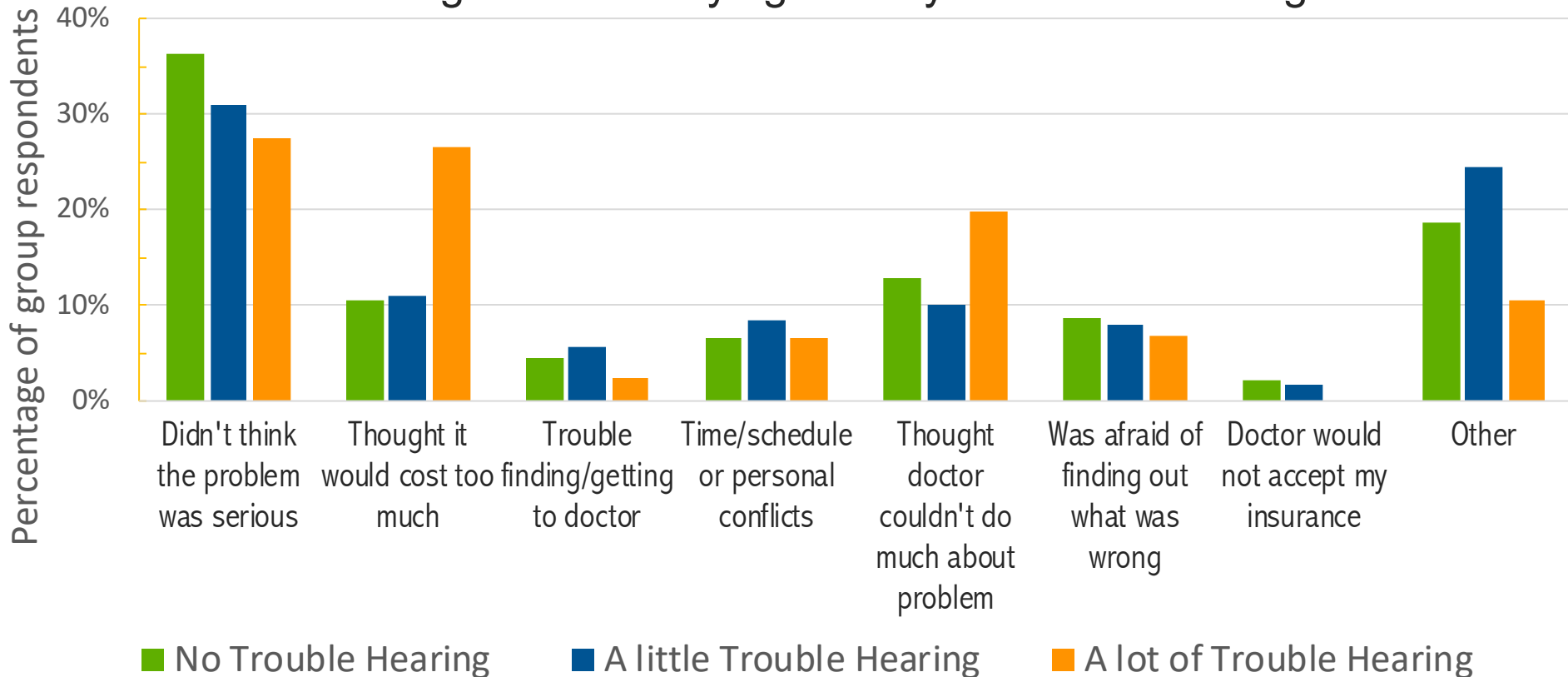
Reasons given for delaying care by functional hearing status



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Reasons for Delaying Care

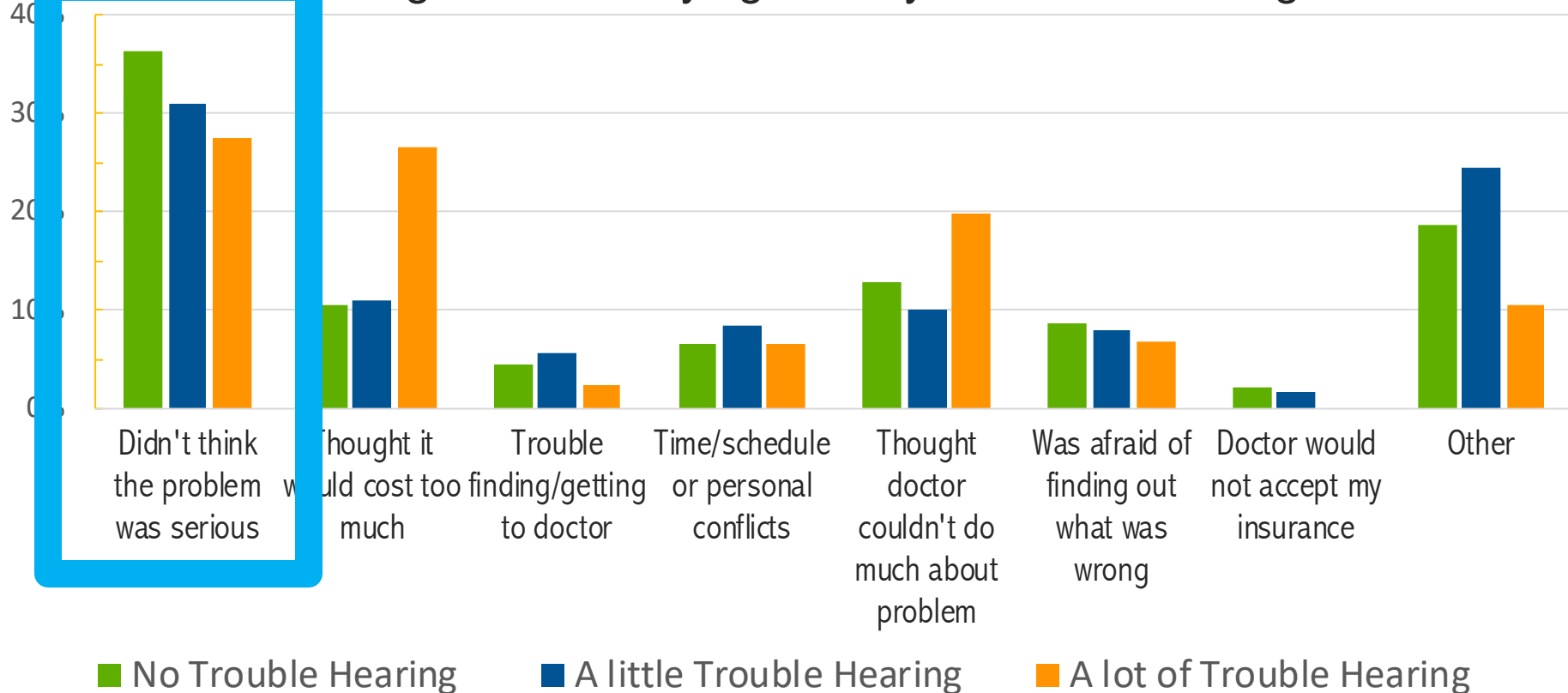


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Reasons given for delaying care by functional hearing status

Percentage of group respondents



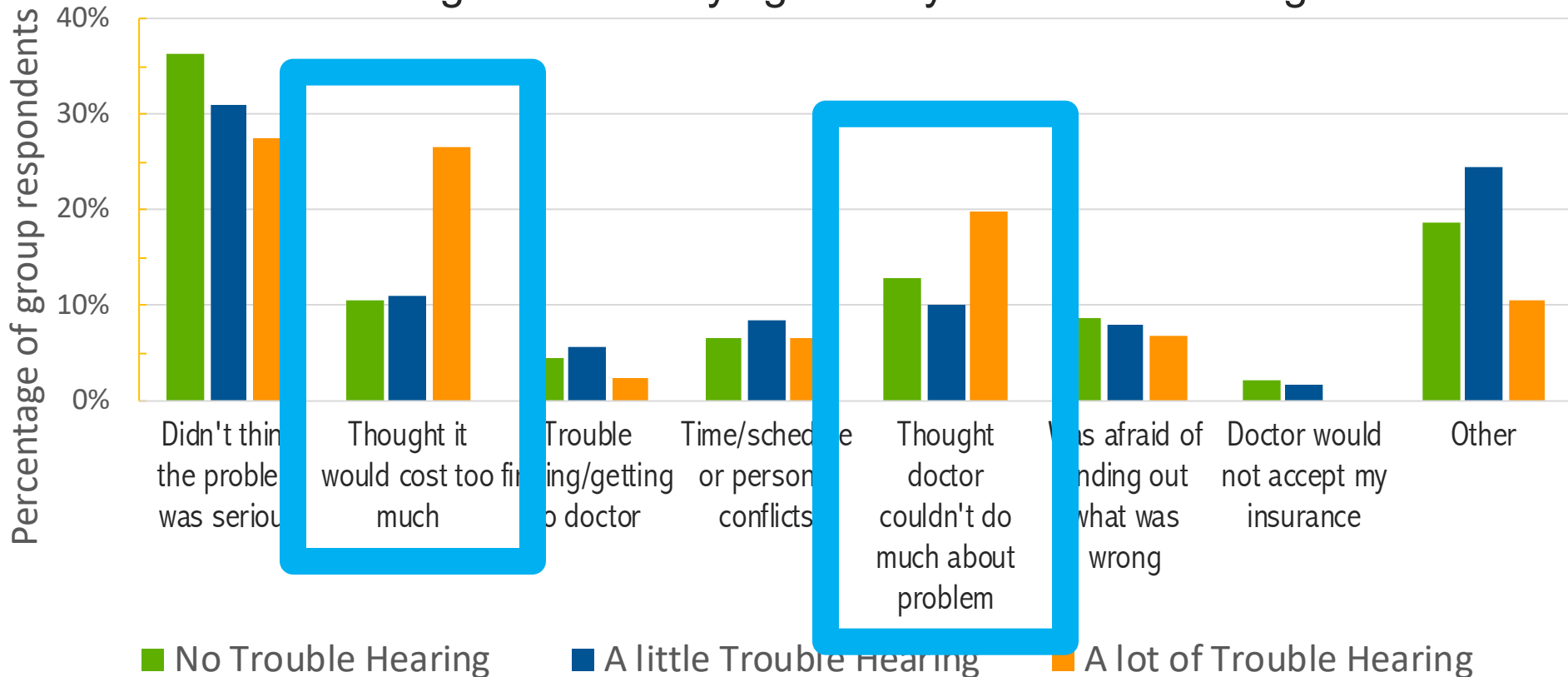
Reasons for Delaying Care



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Reasons given for delaying care by functional hearing status



Conclusions



- Persons with functional hearing loss had significantly higher odds of knowingly delaying health care independent of predisposing, enabling, and need factors.

Conclusions



- Reason for delay: participants believed the doctor couldn't do anything about their health care problem
 - Previous miscommunication experience
 - Poorer, inefficient care
 - Contribution to avoidance behavior
 - Hearing loss and psychosocial outcomes
 - Social isolation
 - Depression

Strengths and Limitations



Strengths

- This is the first analysis of a nationally representative Medicare population to associate functional hearing loss and general health care-seeking behaviors
 - Large study population

Limitations

- Cross-sectional, cannot assess temporality trends
- Self-report
 - Hearing aid use dependent on appropriate use and fit

Future Directions



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- Further study should utilize objective measures of hearing loss and longitudinal data
- Implications for health care service delivery and planning
 - Improving patient-provider experience for persons with hearing loss

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SUPPLEMENTAL FIGURES

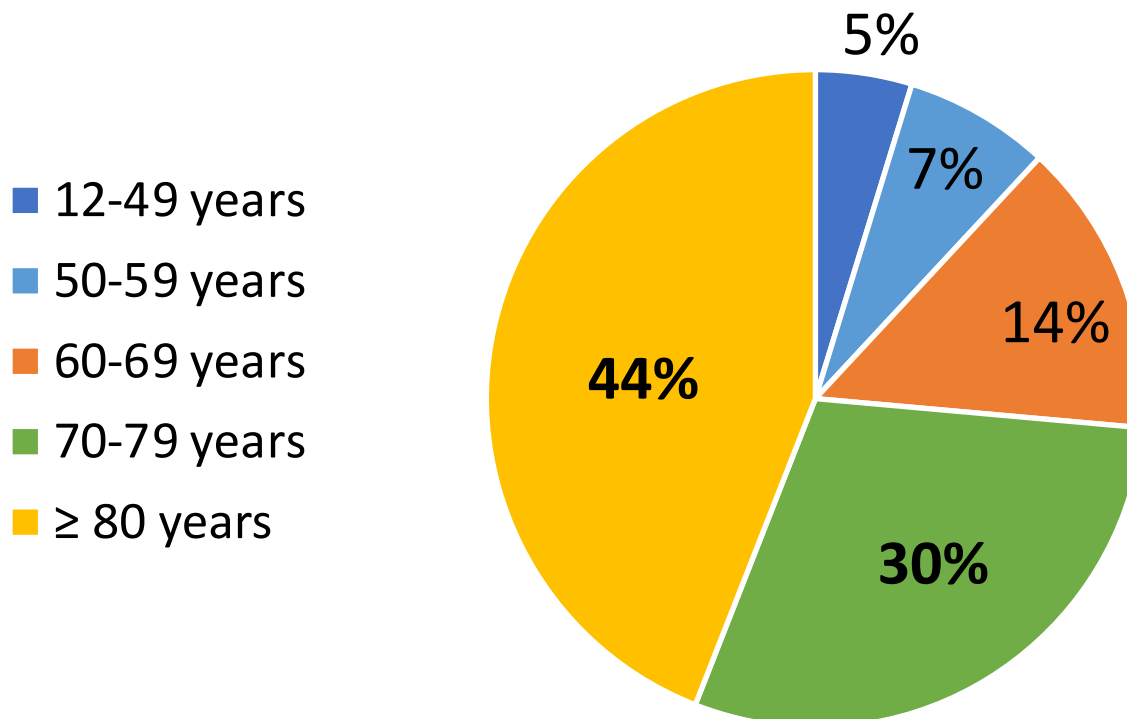
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Prevalence of bilateral hearing loss in the United States



Goman A, Lin F. Prevalence of Hearing Loss by Severity in the United States. AJPH (2016)

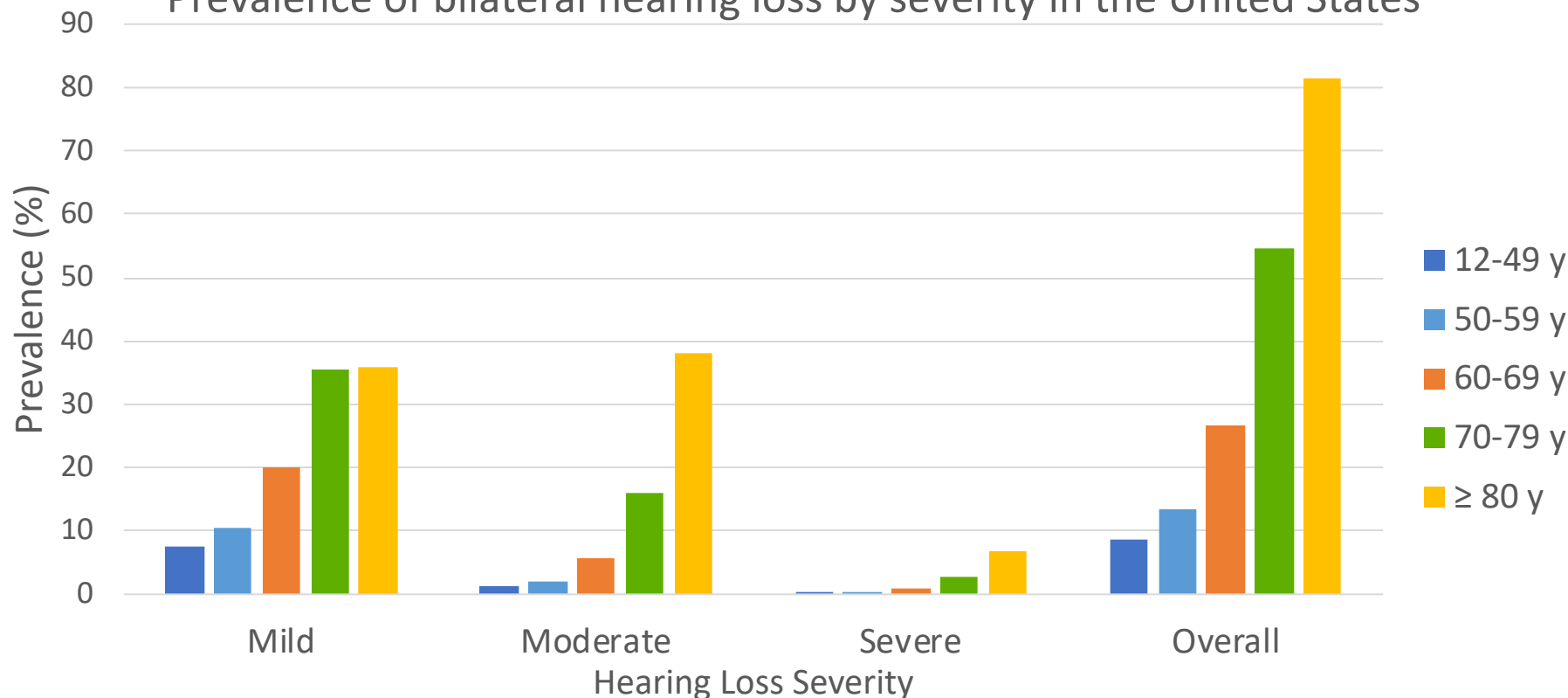
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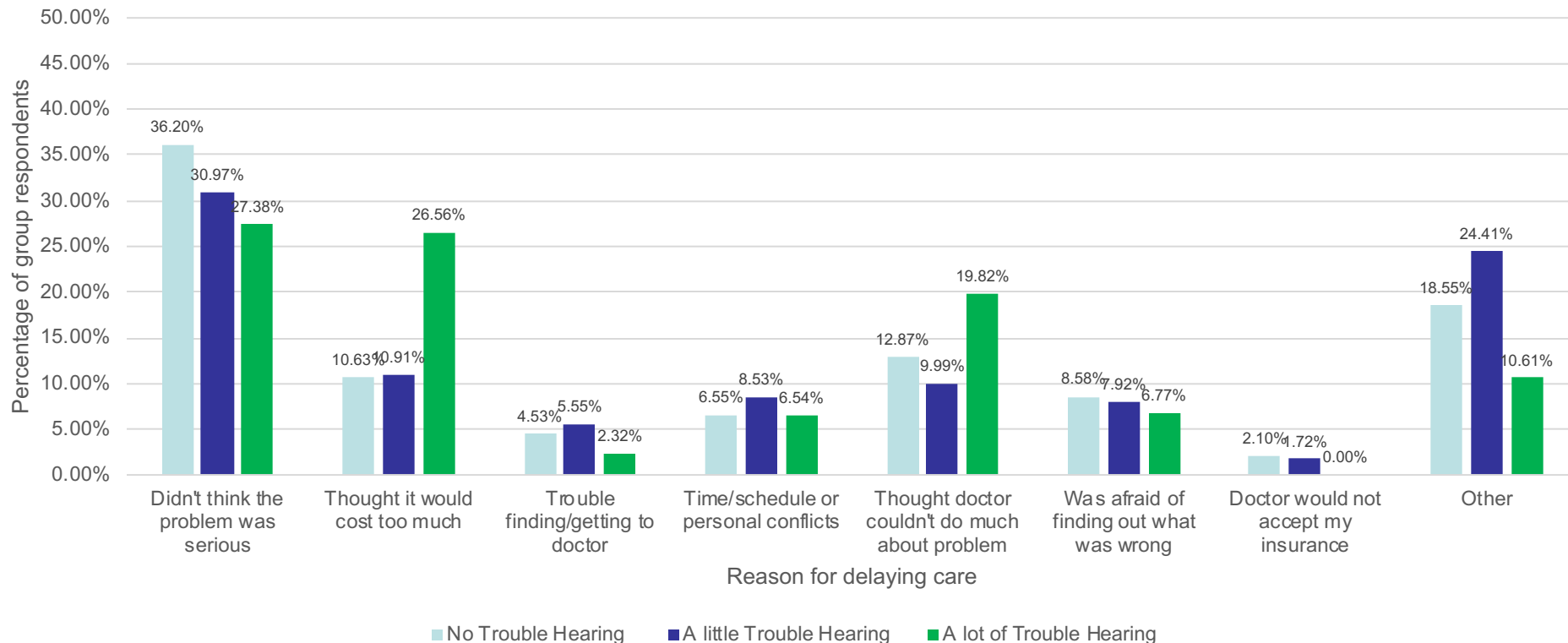


Reasons



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Reasons given for delaying care by functional hearing status



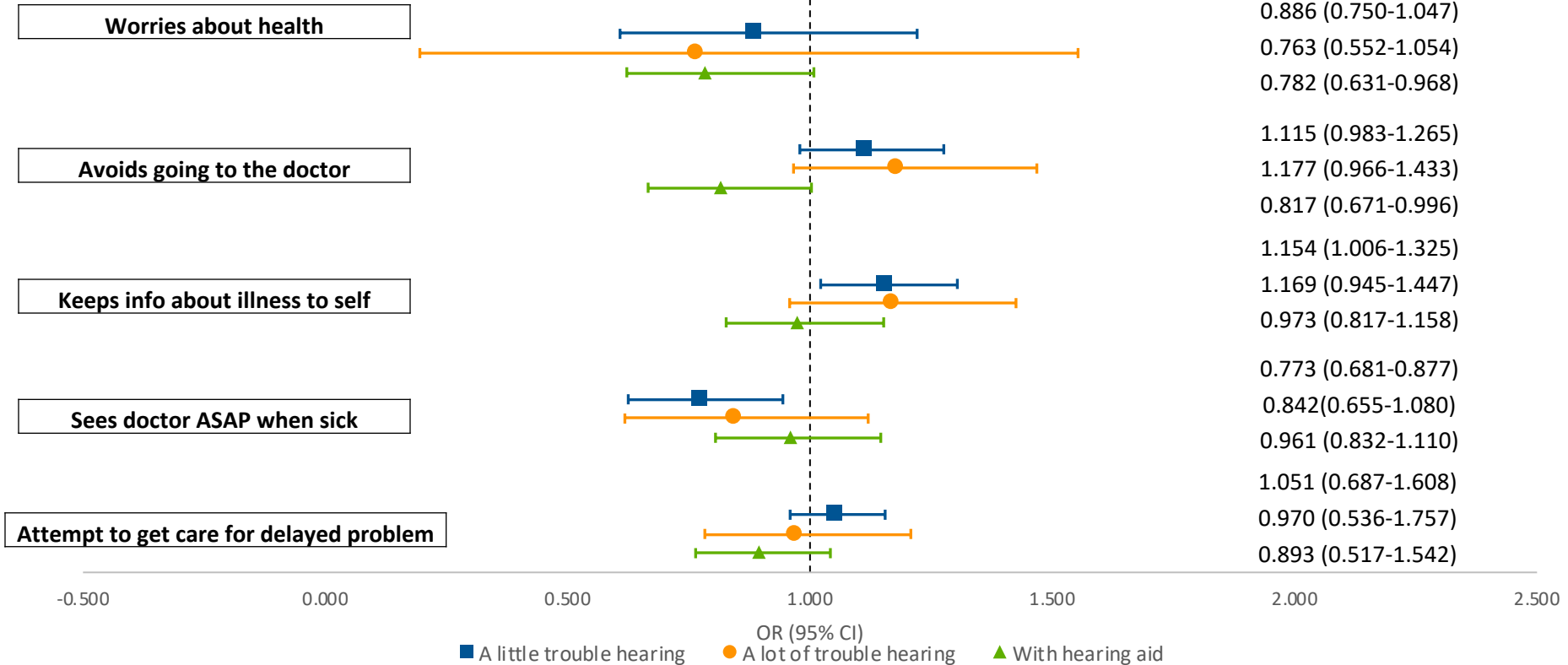
Methods – Secondary analysis



- Additional factors in seeking health care
 - Worrying about health
 - Seeking care right away
 - Avoiding care
 - Disclosing illness to others
 - Attempts to contact a physician for delayed problem

Secondary analyses

Odds by degree of functional hearing loss



Secondary analyses



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	Worries about health			Avoids going to the doctor			Keeps info about illness to self		
	OR (95% CI)	SE	P	OR (95% CI)	SE	P	OR (95% CI)	SE	P
Functional Hearing Loss									
No trouble	REF			REF			REF		
A little trouble	0.886 (0.750-1.047)	0.074	0.152	1.115 (0.983-1.265)	0.071	0.088	1.154 (1.006-1.325)	0.08	0.042
A lot of trouble	0.763 (0.552-1.054)	0.124	0.100	1.177 (0.966-1.433)	0.117	0.104	1.169 (0.945-1.447)	1.126	0.148
Hearing Aid Use	0.782 (0.631-0.968)	0.084	0.024	0.817 (0.671-0.996)	0.081	0.045	0.973 (0.817-1.158)	0.085	0.753

	Sees doctor ASAP when sick			Attempt to get care for delayed problem		
	OR (95% CI)	SE	P	OR (95% CI)	SE	P
Functional Hearing Loss						
No trouble	REF			REF		
A little trouble	0.773 (0.681-0.877)	0.049	0.000	1.051 (0.687-1.608)	0.225	0.816
A lot of trouble	0.842(0.655-1.080)	0.106	0.174	0.970 (0.536-1.757)	0.290	0.919
Hearing Aid Use	0.961 (0.832-1.110)	0.070	0.585	0.893 (0.517-1.542)	0.246	0.681