Wittgenstein Centre
FOR DEMOGRAPHY AND GLOBAL HUMAN CAPITAL

Health misperception and healthcare utilisation of older Europeans

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Image: Freepik.com

Belief and confidence

affect behaviour in different life domains

SAVINGS & INVESTMENT

Based on LinkedIn data, Andersen et al. (2015) find that savers and financial planners are those who believe they are financially literate, not necessarily those who are informed. Mistaken beliefs about financial literacy are as important as actual financial literacy itself in explaining savings and investment.

EDUCATION & LABOUR MARKET

Reuben et al. (2015) show that individuals who are overconfident and overly competitive earn significantly more. In addition, gender differences in overconfidence and competitiveness explain 18% of the gender gap in earnings expectations.

INJURIES & ACCIDENTS

Overrating health is associated with riskier health behaviour (Arni et al. 2019). Older individuals that overestimate their physical ability are more prone to suffer fall-induced injuries (Sakurai et al. 2013). Confidence further influences the risk of car accidents (Preston & Harris 1965).

POLITICAL DECISIONS

Ortoleva & Snowberg (2015) show that overconfidence is a substantively and statistically important predictor of ideological extremeness, voter turnout, and partisan identification. Also, overconfident persons are more likely to emerge as leaders (Moore 2017).

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Donald Trump And The Irresistibility Of Overconfidence

Forbes Leadership Forum Contributor
Leadership
News, Commentary, and Advice About Leadership

This article is by Don A. Moore, a professor of management at the University of California, Berkeley's Haas School of Business.

U.S. President Donald Trump speaks during a news conference. Photographer: Andrew Harrer/Bloomberg

"Confidence is an unreliable signal of competence"

Prof. Don Moore in Forbes (2017)

How does health perception affect healthcare utilisation?

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Spending on health increase faster than rest of global economy, UN health agency says

Business

Cabinet presents 'balanced' 2020 budget, warns of health spending

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Men risk health by failing to seek NHS help, survey finds

Men much less willing than women to consult health professionals, according to National Pharmacy Association

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Offer cancer screenings during lunch breaks, report urges

NHS could tailor appointments so people don't have to take time off work under proposals

The New York Times

Growth of Health Care Spending Slowed Last Year

Effect of health perception on healthcare utilisation

is a priori ambigious

Individuals that **underestimate** their health might buy more medication or visit the doctor more often for medical attention and screenings in the short term...

...but as a result might end up healthier and thus visit the doctor less often

Individuals that **overestimate** their health might exercise more, which is shown to decrease healthcare utilisation (Rocca et al. 2015)...

...but they are also prone to suffer fall-induced injuries (Sakurai et al. 2013)

Data

SHARE
waves 2, 4, 5 and 6

62,696
observations

15
European countries

Data & DEPENDENT VARIABLES

SHARE
waves 2, 4, 5 and 6

62,696
observations

15
European countries

Mean: 7.6
Median: 5.0

DOCTOR VISITS

"Now please think about the last 12 months. About how many times in total have you seen or talked to a medical doctor or qualified/registered nurse about your health? Please exclude dentist visits and hospital stays, but include emergency room or outpatient clinic visits."

Mean: €74
Median: 0

OUT-OF-POCKET PAYMENTS

"Did you pay anything yourself for your doctor visits (in the last twelve months)? Please also include expenses for diagnostic exams, such as imaging or laboratory diagnostics."

"Overall, how much did you pay yourself for your doctor visits (in the last twelve months), that is how much did you pay without getting reimbursed by (a health insurance/ your national health system/ a third party payer)?"

Data &
EXPLANATORY VARIABLES

SHARE
waves 2, 4, 5 and 6

62,696
observations

15
European countries

Self-reported vs. tested health

"Because of a health problem, do you have difficulty ...

... getting up from a chair after sitting for long periods?"

"The next test measures the strength and endurance in your legs. I would like you to fold your arms across your chest and sit so that your feet are on the floor; then stand up keeping your arms folded across your chest. Like this..."

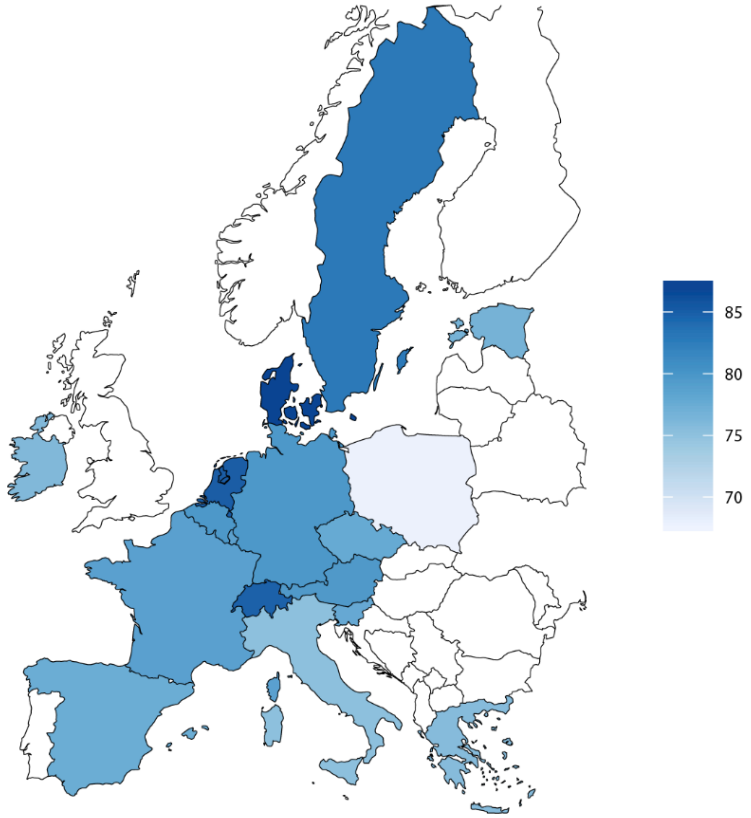
Three possible outcomes

Self-reported measure = tested measure:	**concordance**
Self-reported measure > tested measure:	**overestimating**
Self-reported measure < tested measure:	**underestimating**

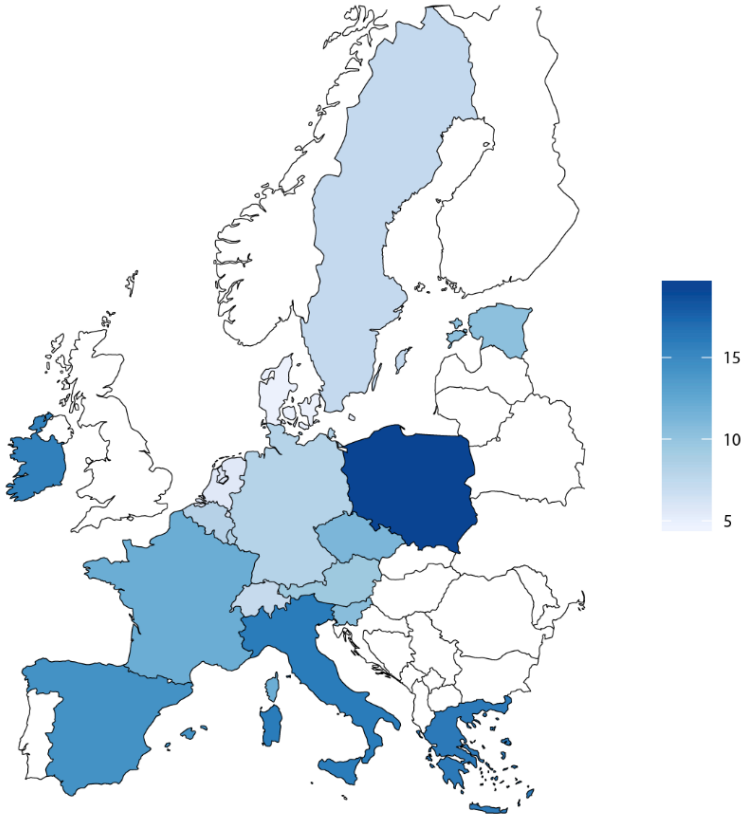
Health perception varies substantially in Europe

Predicted share of the population 50+ that reports health correctly, overestimates and underestimates health, after controlling for age, gender and education

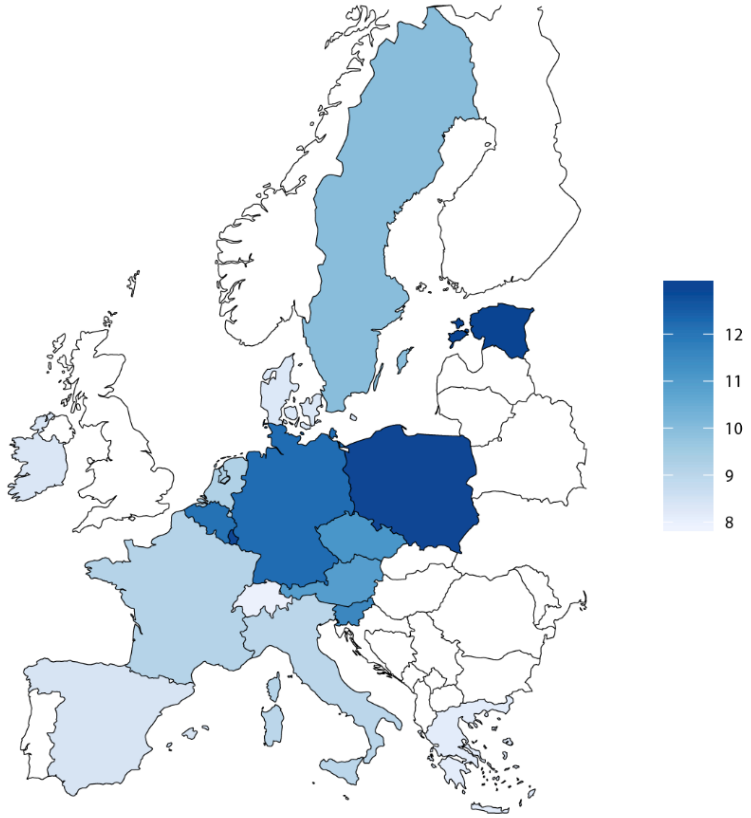
CONCORDANCE



OVERESTIMATING

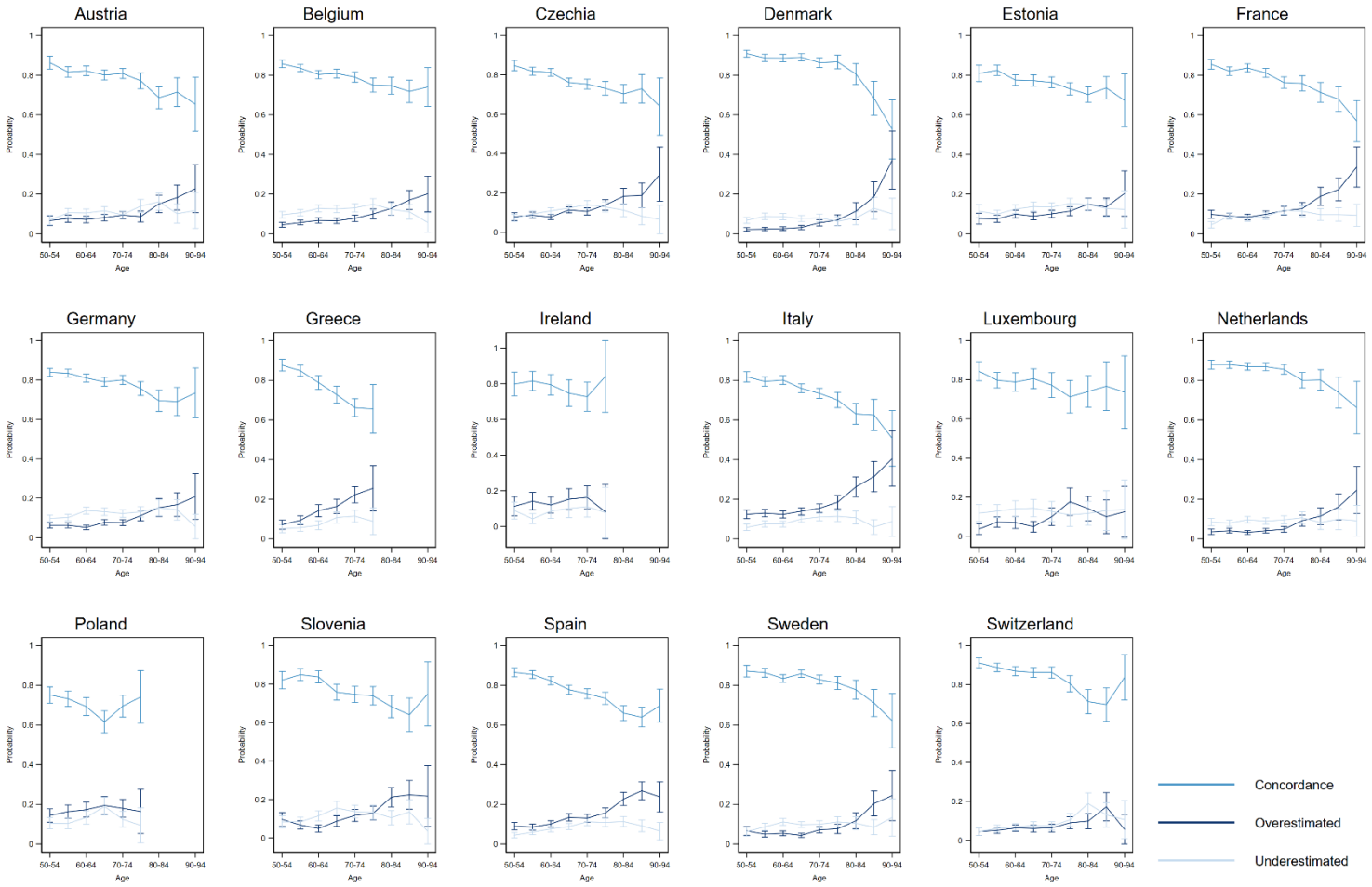


UNDERESTIMATING



Health misperception increases with age

Predicted shares of individuals that report health correctly, overestimate and underestimate health, after controlling for gender and education



Method I

Reverse causation

Regress health perception at wave w on healthcare use at wave w+1

Right-skewed data with point mass at zero

➡ Doctor visits (count data): Negative binomial model

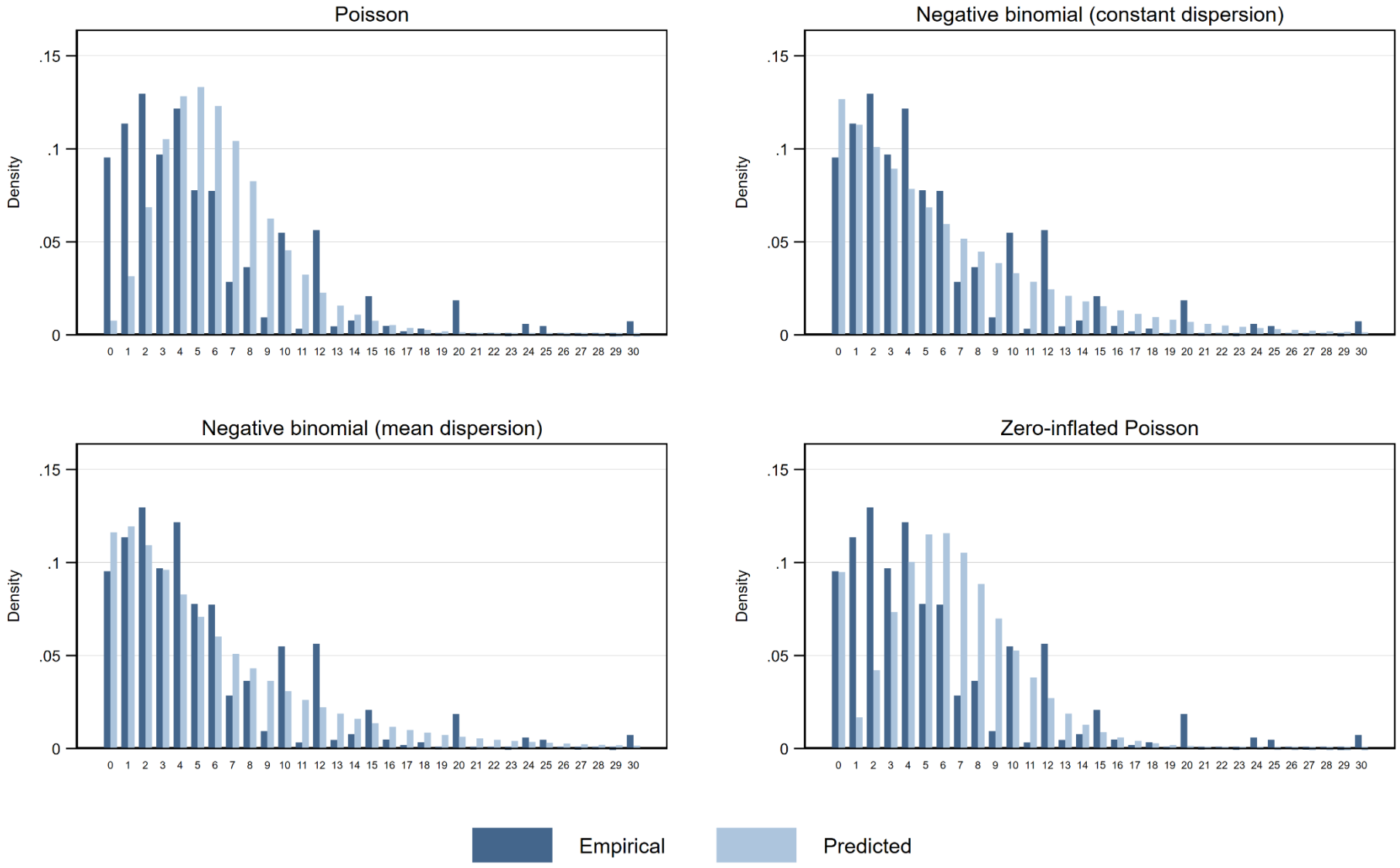
➡ Out-of-pocket expenditure: Log-Gamma model

$$\text{DOCTOR}_{i,w+1} \sim \text{Poisson}(\mu_{i,w+1}),$$

$$\mu_{i,w+1} = \exp(\beta \times \text{HEALTH PERCEPTION}_{i,w} + \gamma \times \text{HEALTH}_{i,w} + \delta \times \text{X}_{i,w} + \nu_i),$$

$$\exp(\nu_i) \sim \text{Gamma}(1/\alpha, \alpha)$$

Count model comparison for the annual number of doctor visits in the unimpaired sample, i.e. able to stand up from the chair



Method II

Split sample into impaired and unimpaired according to chair stand test

Control variables:

➡ **Health:** number of IADLs, number of chronic diseases

➡ **X:** age, age squared, gender, educational attainment, household income, risk aversion, control dummies for survey wave and country of residence

$$\text{DOCTOR}_{i,w+1} \sim \text{Poisson}(\mu_{i,w+1}),$$

$$\mu_{i,w+1} = \exp(\beta \times \text{HEALTH PERCEPTION}_{i,w} + \gamma \times \text{HEALTH}_{i,w} + \delta \times \text{X}_{i,w} + \nu_i),$$

$$\exp(\nu_i) \sim \text{Gamma}(1/\alpha, \alpha)$$

Table 3: Annual number of doctor visits and OOP expenditure for doctor visits at w+1

	(1) Unimpaired Doctor visits	(2) Unimpaired OOP	(3) Impaired Doctor visits	(4) Impaired OOP
Health perception (ref.: concordance)				
Underestimating	0.250***	0.193*		
	(0.018)	(0.077)		
Overestimating			-0.156***	-0.299*
			(0.027)	(0.144)
Chronic diseases	0.180***	0.127***	0.133***	0.174***
	(0.005)	(0.031)	(0.009)	(0.051)
Activity limitations	0.090***	0.064	0.032***	0.019
	(0.008)	(0.035)	(0.005)	(0.027)
Age	-0.002	0.058	0.023	0.196*
	(0.010)	(0.059)	(0.017)	(0.085)
Age squared	0.000	-0.000	-0.000	-0.002**
	(0.000)	(0.000)	(0.000)	(0.001)
Woman	0.036**	0.165**	0.003	0.413***
	(0.012)	(0.058)	(0.027)	(0.104)
Educ. group (ref.: medium)				
Low	-0.007	-0.409***	0.024	-0.107
	(0.016)	(0.071)	(0.032)	(0.120)
High	-0.008	0.479***	-0.078	0.448**
	(0.016)	(0.092)	(0.042)	(0.156)
Retired	0.031	-0.045	0.015	0.152
	(0.017)	(0.103)	(0.031)	(0.239)
Married	-0.025	0.020	0.014	0.084
	(0.015)	(0.071)	(0.028)	(0.148)
Equiv. hh income (cube root)	-0.001	0.011***	-0.001	0.011
	(0.001)	(0.003)	(0.001)	(0.007)
Risk aversion (ref.: no risk)				
Substantial	0.067	-0.164	-0.064	-0.164
	(0.063)	(0.134)	(0.130)	(0.277)
Above average	-0.134***	0.414*	-0.106	1.319
	(0.033)	(0.196)	(0.108)	(0.771)
Average	-0.009	0.172	-0.061	0.176
	(0.015)	(0.089)	(0.040)	(0.147)
Wave 5	-0.091***		-0.042	
	(0.015)		(0.037)	
Constant	1.525***	1.595	1.331*	-2.832
	(0.349)	(2.001)	(0.592)	(2.906)
Control variables country	Yes	Yes	Yes	Yes
N	47,377	33,575	8,780	6,413
Pseudo R2	0.024		0.019	
AIC	269,248	305,417	57,293	57,996
BIC	269,520	305,644	57,512	58,178
SE	cluster	cluster	cluster	cluster

Note: "Unimpaired" refers to the sample that is objectively unimpaired, i.e. able to stand up from the chair and "Impaired" refers to the sample that is objectively impaired, i.e. unable to stand up from the chair. The dependent variable "doctor visits" is based on the annual number of doctor visits, visits to emergency rooms and outpatient clinic visits at wave w+1, i.e. Wave 4 or Wave 6. All explanatory variables are taken from wave w, i.e. Wave 2 or Wave 5 respectively. The estimated coefficients are based on a negative binomial regression model with mean dispersion. The dependent variable "OOP" is based on annual out-of-pocket payments for doctor visits at wave w+1, i.e. Wave 6. All explanatory variables are taken from wave w, i.e. Wave 5. The coefficients are estimated based on a generalised linear model model with log link and a Gamma family. Standard errors are clustered at the household level and presented in parentheses. * p<0.05, ** p<0.01, *** p<0.001

+1.6

doctor visits when underestimating health (+28%)

+19.3%

Out-of-pocket payments when underestimating health

-1.4

doctor visits when overestimating health (-14.4%)

-30%

Out-of-pocket payments when overestimating health

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	(0.000)	(0.000)	(0.000)	(0.001)
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ROBUSTNESS CHECKS

- **Different health perception measures:** Walking ability, cognition, different specification of ability to stand up from a chair
- **Different model specifications:** different imputation method for income, different normalisation method for income
- **Heterogeneity analysis:** separate by wave, country, number of chronic diseases, gender
- **Different estimation methods:** Poisson, negative binomial with constant dispersion, zero-inflated Poisson

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"It Used to Be That if It Weren't Broken and Bleeding Profusely, I Would Never Go to the Doctor": Men, Masculinity, and Health

Julie Gast PhD, CHES, Terry Peak, MSW, PhD

First Published August 26, 2010 | Research Article | Check for updates

https://doi.org/10.1177/1557988310377926

"Why Won't He Go to the Doctor?": The Psychology of Men's Help Seeking

ABIGAIL K. MANSFIELD MICHAEL E. ADDIS

Clark University

JAMES R. MAHALIK

Boston College

News › UK News › Health

Three quarters of men don't visit the doctor when showing signs of illness, says study

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HEALTH | JOURNAL REPORTS: HEALTH CARE

Why Men Won't Go to the Doctor, and How to Change That

Many men view health complaints as a sign of weakness. So health-care providers are looking for ways around the

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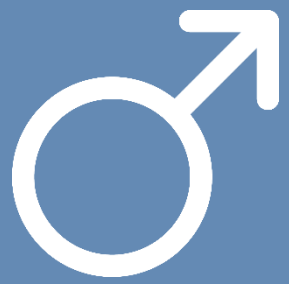
Here's Why Men Don't Like Going To The Doctor

Of course, the Patriarchy is at least partially to blame.

Table 7: Annual number of doctor visits at $w+1$ by gender

	(1) Unimpaired Men Doctor visits	(2) Impaired Men Doctor visits	(3) Unimpaired Women Doctor visits	(4) Impaired Women Doctor visits
Health perception (ref.: concordance)				
Underestimating	0.276***		0.232***	
	(0.035)		(0.020)	
Overestimating		-0.161***		-0.142***
		(0.044)		(0.033)
Chronic diseases	0.190***	0.162***	0.175***	0.118***
	(0.008)	(0.013)	(0.007)	(0.011)
Activity limitations	0.082***	0.027**	0.095***	0.035***
	(0.015)	(0.009)	(0.010)	(0.006)
Age	0.027	0.034	-0.019	0.024
	(0.017)	(0.028)	(0.013)	(0.020)
Age squared	-0.000	-0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Educ. group (ref.: medium)				
Low	-0.038	0.078	0.023	-0.013
	(0.025)	(0.049)	(0.020)	(0.039)
High	-0.028	-0.079	0.006	-0.094
	(0.024)	(0.056)	(0.022)	(0.060)
Retired	0.035	0.041	0.028	-0.022
	(0.031)	(0.066)	(0.021)	(0.037)
Married	-0.036	0.030	-0.037*	-0.012
	(0.025)	(0.051)	(0.018)	(0.033)
Equiv. hh income (cube root)	-0.000	-0.002	-0.001	0.000
	(0.001)	(0.002)	(0.001)	(0.002)
Risk aversion (ref.: no risk)				
Substantial	0.061	0.203	0.106	-0.500**
	(0.088)	(0.161)	(0.090)	(0.164)
Above average	-0.119**	0.025	-0.152**	-0.162
	(0.041)	(0.146)	(0.053)	(0.159)
Average	0.008	0.011	-0.022	-0.110*
	(0.022)	(0.059)	(0.020)	(0.049)
Wave 5	-0.113***	0.062	-0.072***	-0.104*
	(0.022)	(0.055)	(0.019)	(0.046)
Constant	0.414	0.681	2.288***	1.501*
	(0.562)	(0.986)	(0.435)	(0.719)
Control variables country	Yes	Yes	Yes	Yes
N	21,557	3,355	25,820	5,425
Pseudo R2	0.023	0.021	0.025	0.020
AIC	121,792	21,782	147,255	35,458
BIC	122,032	21,965	147,500	35,656
SE	cluster	cluster	cluster	cluster

Note: "Unimpaired" refers to the sample that is objectively unimpaired, i.e. able to stand up from the chair and "Impaired" refers to the sample that is objectively impaired, i.e. unable to stand up from the chair. The dependent variable "doctor visits" is based on the annual number of doctor visits, visits to emergency rooms and outpatient clinic visits at wave $w+1$, i.e. Wave 4 or Wave 6. All explanatory variables are taken from wave w, i.e. Wave 2 or Wave 5 respectively. The estimated coefficients are based on a negative binomial regression model with mean dispersion. Standard errors are clustered at the household level and presented in parentheses. * p<0.05, ** p<0.01, *** p<0.001



+1.8

doctor visits when underestimating health

+1.5

doctor visits when underestimating health

-1.5

doctor visits when overestimating health

-1.3

doctor visits when overestimating health

Policy implications

- Reaching out to individuals that overestimate their health to encourage them to take up screenings and preventive care
- Equipping individuals with tools and information to accurately assess own health

Main limitation

- Panel attrition: individuals that suffer from diseases are less likely to participate in consecutive survey waves and thus less likely to be included in the sample

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Hertie School of Governance

WIRTSCHAFTS UNIVERSITÄT WIEN VIENNA UNIVERSITY OF ECONOMICS AND BUSINESS

Questions?
Suggestions?

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Image: Freepik.com

Count model comparison for the annual number of doctor visits in the impaired sample, i.e. unable to stand up from the chair