

Older adults living with cognitive and mobility-related limitations: social isolation and forms of care received

Nicolas Briant ⁽¹⁾, Roméo Fontaine ⁽²⁾, Maribel Pino ⁽³⁾, Marie-Eve Joël ⁽¹⁾

⁽¹⁾ Share France, Université Paris-Dauphine ; ⁽²⁾ Université de Bourgogne ; ⁽³⁾ Hôpital Broca

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1. Context / Aim of the paper

- Cognitive impairment is a major risk factor for disability among elderly people.
- In Europe, 9,95 millions of people aged 60 and over live with dementia (Alzheimer's Disease International, 2010)
- Cognitive limitations in old age is associated with several adverse outcomes :
 - At the individual level : depression (Tsuno et Homma, 2009) social exclusion (Jan Holwerda et al., 2012), increase in out-of-pocket (Delavande et al. 2013)
 - At the family level, adverse effects on labour supply among children (Heitmueller, 2007), on health among partners (Colombo et al., 2011)

1. Context / Aim of the paper

- In this paper, we propose to investigate the impact of cognitive limitations and mobility limitations on partner's social isolation and loneliness.
- Literature suggests that social isolation and loneliness are environmental risk factors affecting health, well-being and mortality (Holt-Lunstad et al., 2015 ; Jan Holwerda et al., 2012)
- Hypothesis 1: Partner's disability is a risk factor for social isolation and loneliness
- Hypothesis 2: Partner's risks of social isolation and loneliness are more associated with cognitive limitations than mobility limitations

2. Data / Method

Data : Share W5

Cognitive and Mobility Limitations:

- Cognitive limitations (CL) index : from 0 (best cognitive performance) to 10 (worst cognitive performance) based on 4 cognitive tests (with equal weight) :
 - verbal fluency
 - Immediate free-recall
 - Delayed free-recall
 - Serial 7's

2. Data / Method

Cognitive and Mobility Limitations:

- Mobility limitations (ML) index : from 0 (best mobility performance) to 10 (worst mobility performance) = number of activities in which the respondent encounter some difficulty.
 - *Walking 100 meters*
 - *Sitting for about two hours*
 - *Getting up from a chair after sitting for long periods*
 - *Climbing several flights of stairs without resting*
 - *Climbing one flight of stairs without resting*
 - *Stooping, kneeling, or crouching*
 - *Reaching or extending you arms above shoulder level*
 - *Pulling or pushing large object like a living room chair*
 - *Lifting or carrying weights over 5 kilos, like a heavy bag of groceries*
 - *Picking up a small coin from a table*

2. Data / Method

Dependent variables :

- Social participation (Sirven and Debrand, 2008) : binary variable is equal to 1 if the respondent is involved in at least one of these four social activities (0 otherwise): voluntary/charity work, training course, sport/social or other kind of club, and political/community organization.

[among 65+ living with a partner : $P(SP=1) = 39\%$]

- Loneliness : binary variable is equal to 1 if the individual responds “often” to at least one of these questions (0 otherwise) :
 - *How much of the time do you feel you lack companionship?*
 - *How much of the time do you feel left cut?*
 - *How much of the time do you feel isolated from others?*
 - *How much of the time do you feel lonely?*

[among 65+ living with a partner : $P(L=1) = 7\%$]

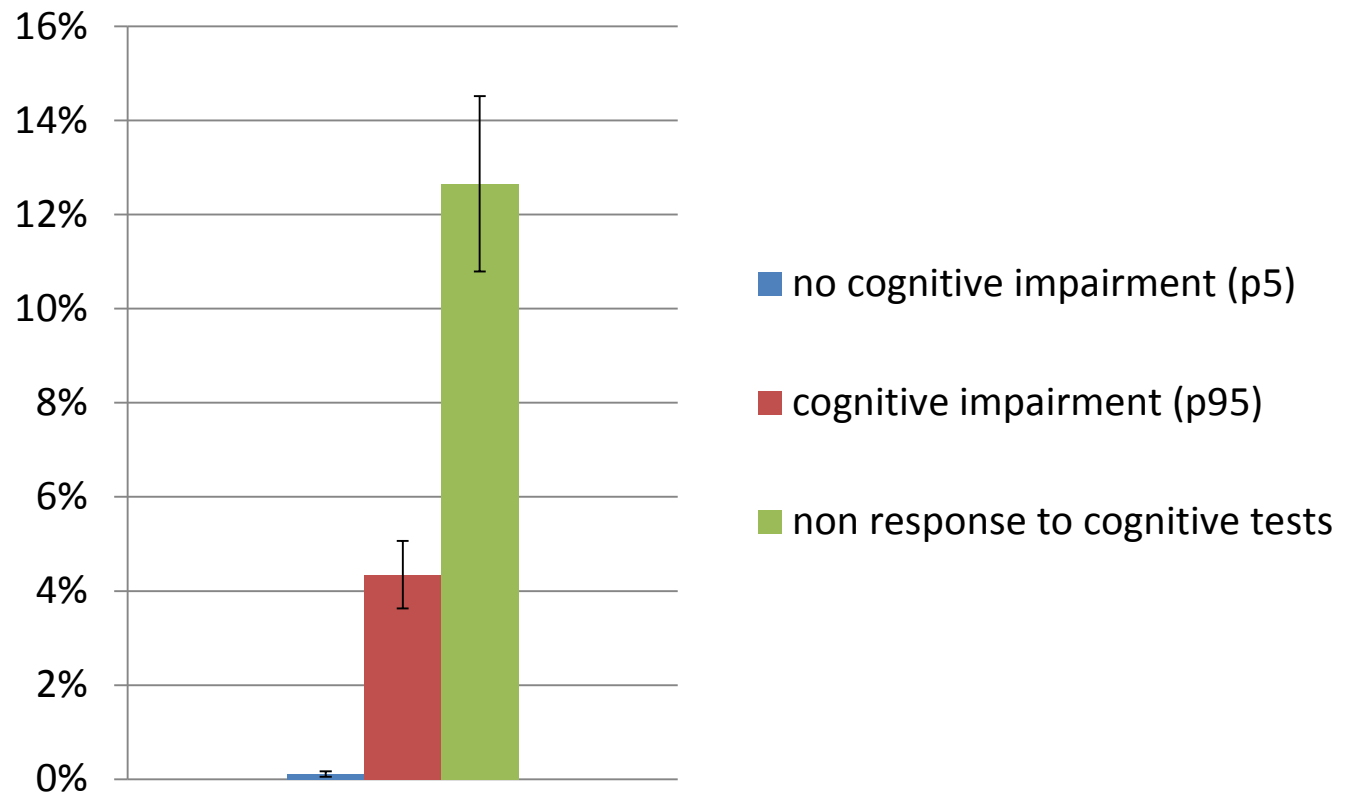
2. Data / Method

Empirical approach

- Preliminary analysis : Assessing the quality of the cognitive limitations index, by testing its association with Alzheimer's disease diagnosis and restrictions in ADL or IADL.
- Main objective : Assessing the association between cognitive/mobility limitations and partner's social participation/loneliness :
 - Sample restricted to couples where both partners have been surveyed (10.306 couples)
 - Social participation and loneliness are assumed to depend on individual CL and ML but also on partner's CL and ML.
 - Multivariate Probit model (4 equations) allowing us to jointly estimate the two outcomes for both partners
 - Estimation by maximum simulated likelihood

3. Descriptive statistics

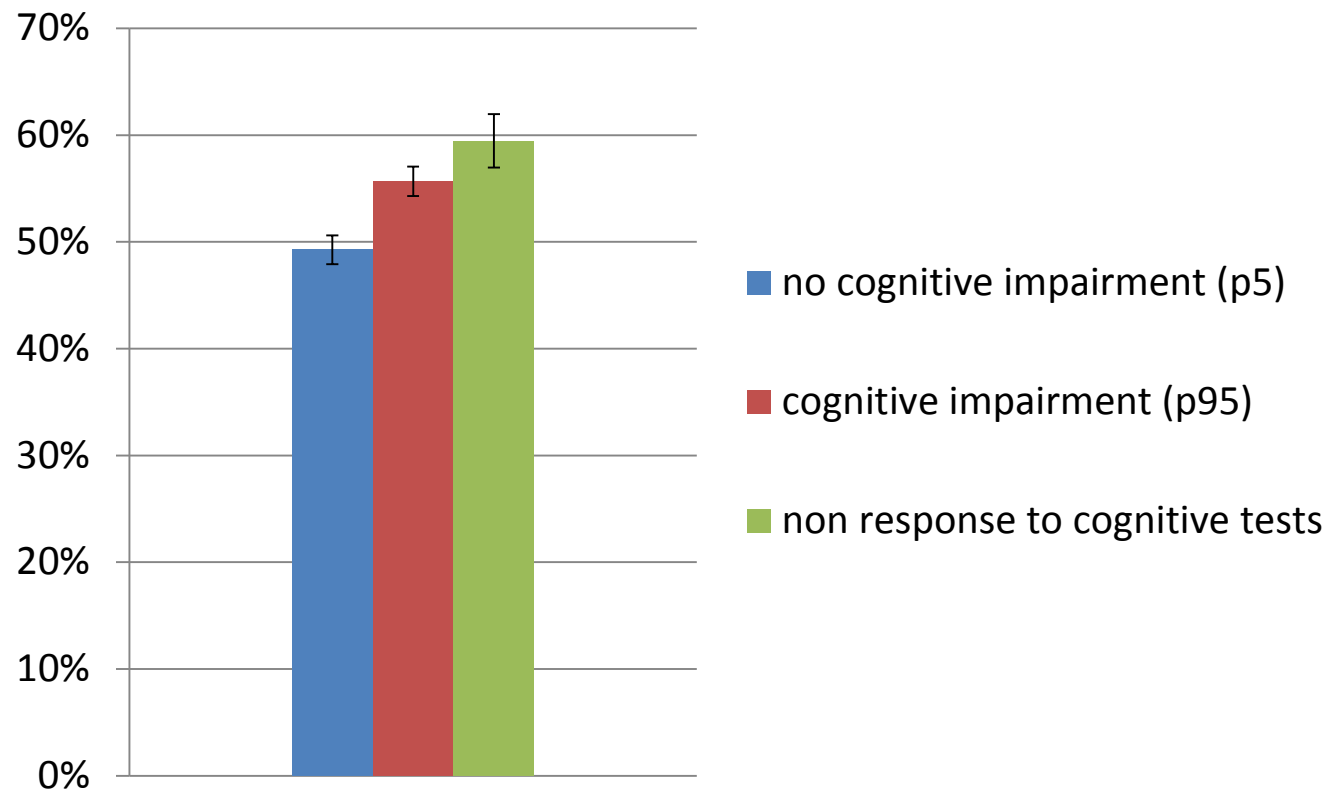
Probability of self-reported diagnosis of dementia, according to the CL index



Adjusted for country, gender, age, education level, living with partner, mobility limitations.

3. Descriptive statistics

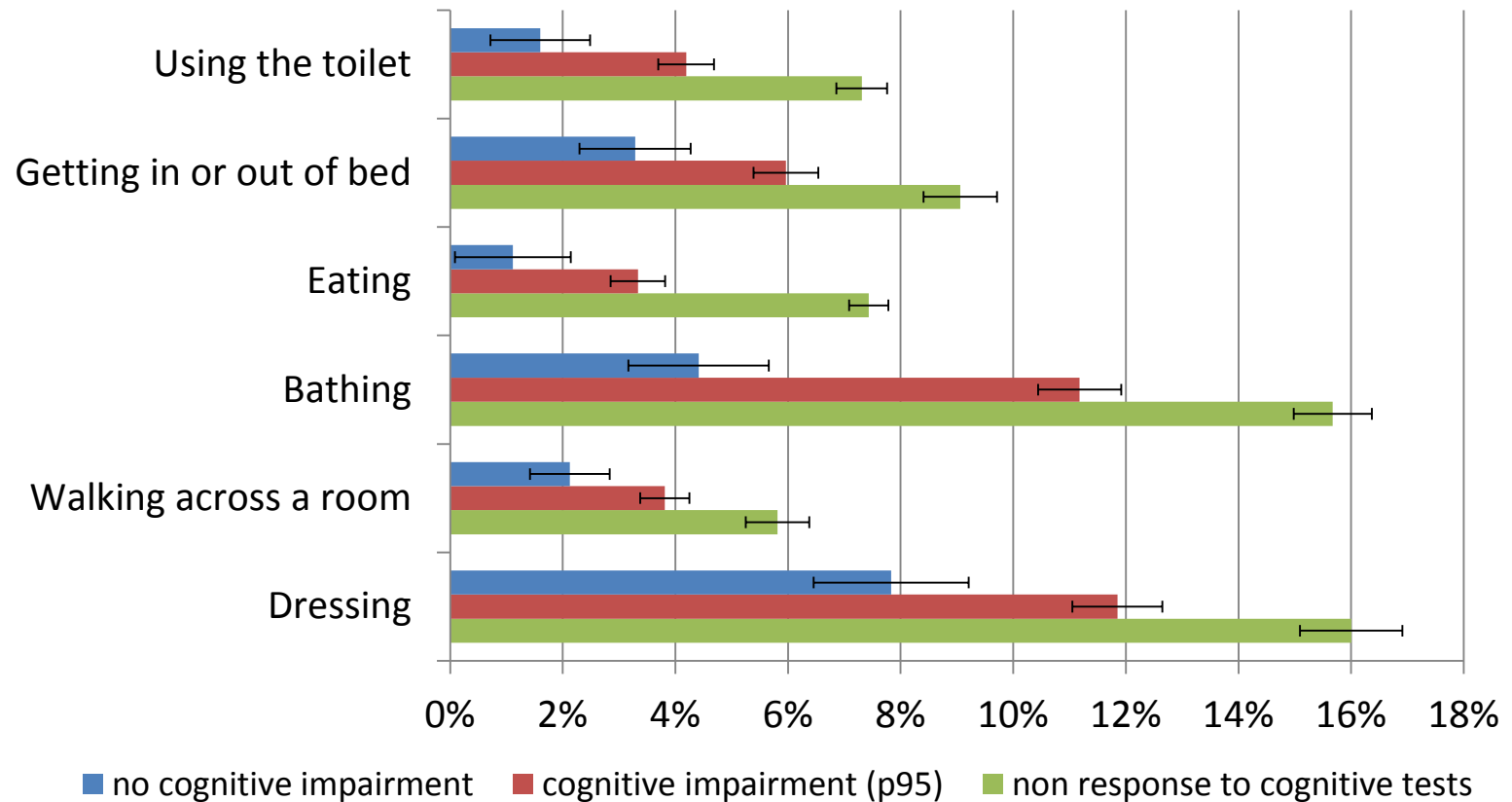
Probability of reporting limitations because of health problem in activities people usually do, according to the CL index



Adjusted for country, gender, age, education level, living with partner, mobility limitations.

3. Descriptive statistics

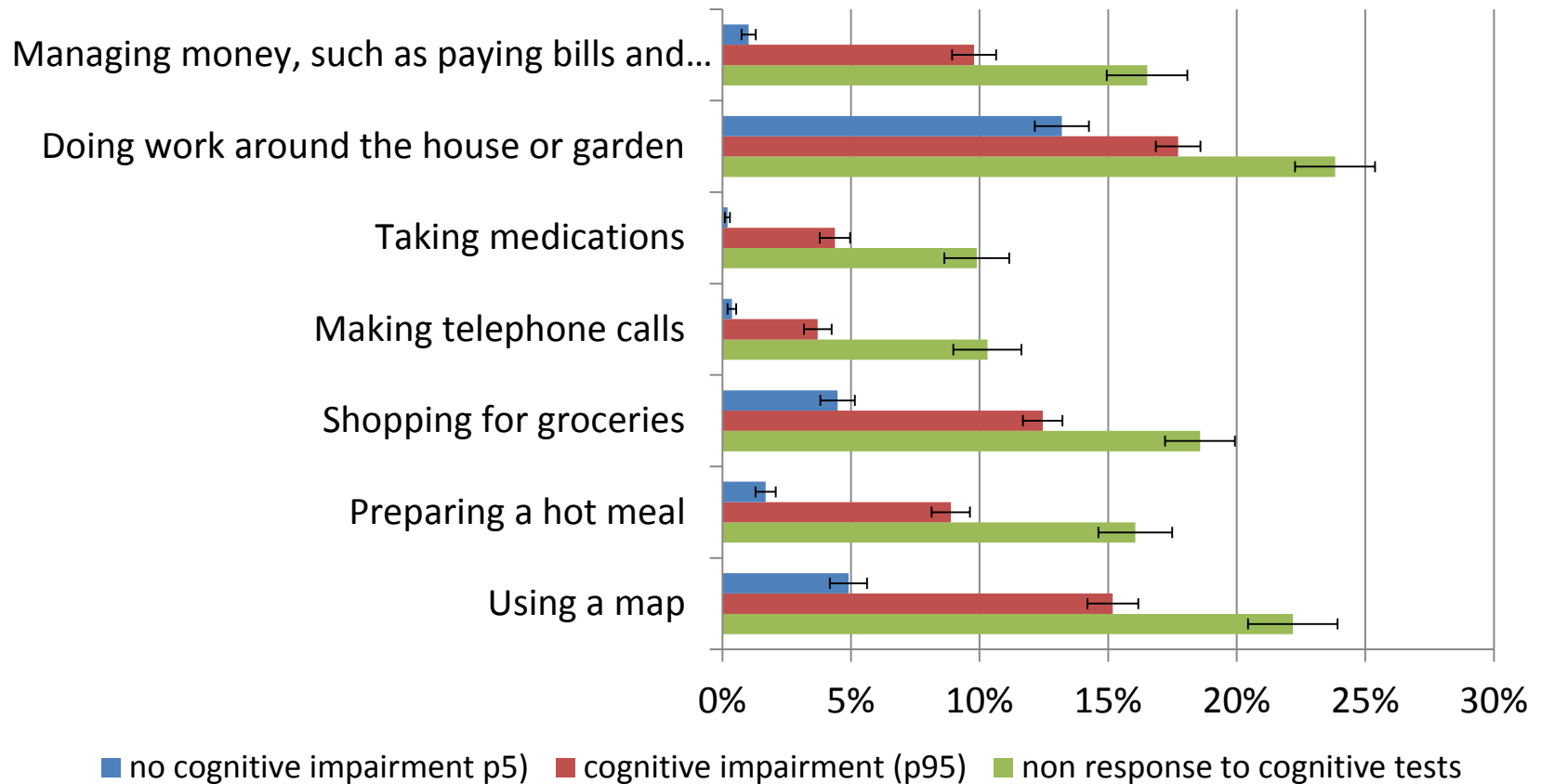
Probability of reporting difficulties in performing activities of daily living (ADLs), according to the CL index



Adjusted for country, gender, age, education level, living with partner, mobility limitations.

3. Descriptive statistics

Probability of reporting difficulties in performing instrumental activities of daily living (IADLs), according to the CL index



Adjusted for country, gender, age, education level, living with partner, mobility limitations.

4. Main estimation results

	Specification 1		Specification 2	
	Social participation	loneliness	Social participation	loneliness
Individual				
ADL/IADL Dummies	No	No	Yes*** ⁽¹⁾	Yes*** ⁽¹⁾
Cognitive Limitation Index (Log)	-0,82***	0,73***	-0,79***	0,65***
Mobility Limitation Index (Log)	-0,19***	0,33***	-0,16***	0,21***
Partner				
ADL/IADL Dummies	No	No	Yes*** ⁽¹⁾	Yes*** ⁽¹⁾
Cognitive Limitation Index (Log)	-0,27***	0,18***	-0,29***	0,17**
Mobility Limitation Index (Log)	-0,04***	0,07***	-0,05***	0,03 (ns)
<i>After controlling for country, gender, age, age², education level, material deprivation, number of sons, number of daughters, non response to cognitive tests, partner's age, partner's education level, partner's non-response to cognitive tests</i>				
	rho(SP1,SP2)=0,50***		rho(SP1,SP2)=0,49***	
	rho(Iso1,Iso2)=0,26***		rho(Iso1,Iso2)=0,25***	
	rho(SP1,iso1)=-0,06***		rho(SP1,iso1)=-0,06***	
	rho(SP2,iso2)=-0,06***		rho(SP2,iso2)=-0,06***	
	rho(SP1,iso2)=-0,02 (ns)		rho(SP1,iso2)=-0,03 (ns)	
	rho(SP2,iso1)=-0,02 (ns)		rho(SP2,iso1)=-0,03 (ns)	

(1) Significance of ADL and IADL dummies are jointly tested using a likelihood ratio

(2) Effect of non-response to CL index is no significantly different from the worst cognitive limitations index

5. Conclusion

Preliminary conclusion

- Cognitive limitations and mobility limitations are associated for partners with a higher risk of social isolation and loneliness
- The effect of cognitive limitations seems higher (must be confirmed by the estimation of average marginal effects)
- Next objectives :
 - Allowing heterogeneous associations between limitations and partner's social isolation or loneliness, according to gender/country/support from informal or formal caregivers.
 - Investigating the causality pathway : cognitive limitations are likely to be endogenous when we model social participation or loneliness.

Thank you for your attention

romeo.fontaine@u-bourgogne.fr

Annex

Probability of living alone, receiving IC from outside the HH and receiving formal care, according to the CL index

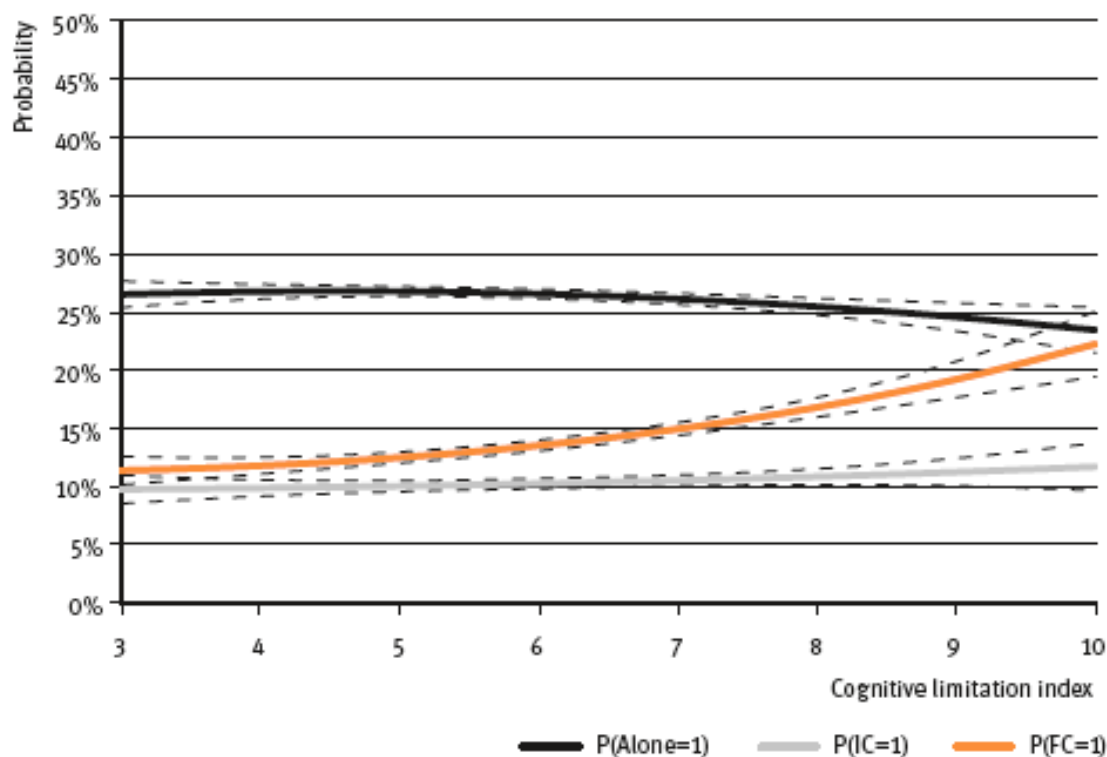


Figure 9.3: Average predicted probabilities of living alone, receiving informal care from outside the household and receiving formal care, according to the cognitive limitation index

Notes: N=29,036

Source: SHARE Wave 5 release 0

Annex

Econometric reduced model

$$\begin{cases} SP_{1j}^* = x'_{1j}\beta_{SP,I} + x'_{2j}\beta_{SP,P} + \alpha_{SP,I}CL_{1j} + \alpha_{SP,P}CL_{2j} + \delta_{SP,I}ML_{1j} + \delta_{SP,P}ML_{2j} + \varepsilon_{SP1j} \\ SP_{2j}^* = x'_{2j}\beta_{SP,I} + x'_{1j}\beta_{SP,P} + \alpha_{SP,I}CL_{2j} + \alpha_{SP,P}CL_{1j} + \delta_{SP,I}ML_{2j} + \delta_{SP,P}ML_{1j} + \varepsilon_{SP2j} \\ L_{1j}^* = x'_{1j}\beta_{L,I} + x'_{2j}\beta_{L,P} + \alpha_{L,I}CL_{1j} + \alpha_{L,P}CL_{2j} + \delta_{L,I}ML_{1j} + \delta_{L,P}ML_{2j} + \varepsilon_{L1j} \\ L_{2j}^* = x'_{2j}\beta_{L,I} + x'_{1j}\beta_{L,P} + \alpha_{L,I}CL_{2j} + \alpha_{L,P}CL_{1j} + \delta_{L,I}ML_{2j} + \delta_{L,P}ML_{1j} + \varepsilon_{L2j} \end{cases}$$