

eTable 1. Candidate indicators of community-level social capital in the JAGES 2013 cross-sectional study (53 indicators, n=702)

Indicators	Mean (SD)	Partial correlation ^a	
		SRH (fair/poor)	GDS (≥5)
How often do you attend activities for the following groups.			
Volunteer groups (% ≥ once a week)	6.1 (3.2)	-0.069	-0.146***
Volunteer groups (% ≥ once a month) ^b	12.6 (4.7)	-0.093*	-0.194***
Sports groups/clubs (% ≥ once a week)	20.1 (7.1)	-0.210***	-0.314***
Sports groups/clubs (% ≥ once a month) ^b	25.9 (8.3)	-0.233***	-0.355***
Hobby activity group (% ≥ once a week)	19.4 (5.7)	-0.175***	-0.217***
Hobby activity group (% ≥ once a month) ^b	34.3 (8.4)	-0.256***	-0.332***
Senior citizen club (% ≥ once a week)	3.3 (2.8)	0.040	-0.058
Senior citizen club (% ≥ once a month)	8.5 (5.6)	0.083*	-0.095*
Community association (% ≥ once a week)	2.9 (2.5)	-0.054	0.029
Community association (% ≥ once a month)	10.8 (5.8)	-0.027	0.024
Study or cultural group (% ≥ once a week)	4.4 (2.8)	-0.143***	-0.133***
Study or cultural group (% ≥ once a month) ^b	9.9 (4.6)	-0.144***	-0.205***
Nursing care prevention activities (% ≥ once a week)	5.1 (2.7)	-0.007	-0.063
Nursing care prevention activities (% ≥ once a month)	8.0 (4.0)	0.010	-0.115**
Activities to teach skills or pass on experiences to others (% ≥ once a week)	3.6 (2.3)	-0.098**	-0.120**
Activities to teach skills or pass on experiences to others (% ≥ once a month) ^b	6.2 (3.0)	-0.106**	-0.200***
Local events; e.g. festivals, Bon festival dance (% ≥ once a week)	0.6 (0.9)	-0.033	-0.059
Local events; e.g. festivals, Bon festival dance (% ≥ once a month)	2.0 (1.8)	0.001	-0.038
Activities to support older people requiring protection (% ≥ once a week)	2.3 (1.8)	0.021	0.001
Activities to support older people requiring protection (% ≥ once a month)	4.2 (2.7)	-0.018	-0.024
Activities to support older people requiring nursing care (% ≥ once a week)	2.1 (1.6)	0.006	0.018
Activities to support older people requiring nursing care (% ≥ once a month)	3.5 (2.3)	-0.006	0.009
Activities to support parents raising children (% ≥ once a week)	2.2 (1.6)	-0.045	-0.131***
Activities to support parents raising children (% ≥ once a month)	3.5 (2.1)	0.013	0.057
Local living arrangement improvement (beautification) activities (% ≥ once a week)	2.0 (1.8)	0.054	0.002
Local living arrangement improvement (beautification) activities (% ≥ once a month)	5.5 (3.6)	-0.072	0.002
Another group or organization (% ≥ once a week)	3.7 (2.5)	-0.072	0.006
Another group or organization (% ≥ once a month)	8.5 (3.7)	-0.098*	-0.069

How often do you see your friends?			
(% ≥ once a week)	48.7 (7.2)	-0.023	-0.050
(% ≥ one to three times a month)	71.3 (6.3)	-0.096*	-0.148**
(% rarely) ^b	9.1 (3.8)	0.272***	0.372***
How many friends/acquaintances have you seen over the past month?			
(% zero)	9.4 (4.1)	0.102**	0.149***
(% ≥ 10 persons) ^b	34.3 (5.7)	-0.140***	-0.255***
Do you have someone who listens to your concerns and complaints?			
(% any one or more) ^b	94.3 (2.7)	-0.049	-0.189***
(% neighbor or friend)	49.5 (5.8)	-0.089*	-0.098**
Do you listen to someone's concerns and complaints?			
(% any one or more) ^b	92.5 (2.9)	-0.154***	-0.265***
(% neighbor or friend)	49.8 (5.5)	-0.093*	-0.143***
Do you have someone who looks after you when you are sick for a few days?			
(% any one or more) ^b	94.7 (3.1)	-0.186***	-0.292***
(% neighbor or friend)	7.4 (3.1)	-0.028	0.005
Do you look after someone when he/she is sick for a few days?			
(% any one or more)	80.2 (5.0)	-0.053	-0.081*
(% neighbor or friend)	8.5 (3.7)	-0.002	-0.027
What kind of close partnerships in daily life do you have with people in your neighborhood?			
(% mutual consultation)	15.4 (9.4)	0.066	0.019
(% mutual consultation & standing and chatting frequently)	70.5 (10.2)	-0.045	-0.108**
(% none, not even greetings)	2.3 (2.0)	0.097*	0.148***
Do you think most people in your community offer assistance to others?			
(% agree strongly)	5.9 (3.3)	0.006	-0.130**
(% agree strongly & agree) ^b	52.1 (8.5)	-0.144***	-0.331***
Houses or facilities you feel free to drop in within walking distance of your home (% many & some) ^b	35.7 (9.1)	-0.102**	-0.206***
Generally speaking, would you say that most people can be trusted? (% yes)	29.4 (11.6)	-0.133***	-0.189***
I can trust people I meet for the first time. (% very & moderately trust)	12.4 (7.8)	-0.082*	-0.104**
Do you think people living in your area can be trusted in general?			
(% strongly trusted)	11.6 (4.4)	-0.029	-0.189***
(% strongly & moderately trusted) ^b	68.6 (7.6)	-0.204***	-0.373***
How degree is your residential place attachment?			
(% strongly attached)	25 (7.5)	-0.004	-0.177***

(% strongly & moderately attached)^b

79.1 (6.0) -0.136*** -0.315***

GDS, geriatric depression scale; SD, standard deviation; SRH, self-rated health.

*** p<0.001, ** p<0.01, * p<0.05

^a Population density and elderly proportion at municipality level were controlled.

^b Indicators adopted in first model (14 indicators)

eTable 2. Estimated prevalence ratios from multilevel Poisson regression analysis (indicator method using dummy variables)

	Self-rated health (fair/poor)			Depressive symptoms (GDS ≥ 5)		
	model 1 <i>PR</i> (95% CI)	model 2 <i>PR</i> (95% CI)	model 3 <i>PR</i> (95% CI)	model 1 <i>PR</i> (95% CI)	model 2 <i>PR</i> (95% CI)	model 3 <i>PR</i> (95% CI)
<i>Fixed parameters</i>						
Community level variables						
Civic participation (factor score)	0.94*** (0.92-0.96)	0.96*** (0.94-0.98)	0.97* (0.95-1.00)	<u>0.94</u> *** (0.92-0.95)	0.95*** (0.93-0.96)	0.95*** (0.93-0.97)
Social cohesion (factor score)	0.99 (0.97-1.01)	1.03* (1.01-1.05)	1.03 (0.99-1.06)	0.97*** (0.95-0.98)	1.02* (1.00-1.04)	1.02 (0.98-1.05)
<u>Reciprocity</u> (factor score)	<u>0.99</u> (0.97-1.01)	1.00 (0.97-1.02)	0.98 (0.91-1.07)	0.96*** (0.95-0.98)	0.98* (0.96-1.00)	0.97 (0.91-1.04)
Individual-level variables						
Civic participation (ref.=None)						
One		0.69*** (0.66-0.72)	0.68*** (0.65-0.71)		0.73*** (0.70-0.75)	0.73*** (0.70-0.75)
Two		0.54*** (0.51-0.58)	0.54*** (0.51-0.57)		0.60*** (0.57-0.63)	0.60*** (0.57-0.63)
\geq Three		0.44*** (0.41-0.48)	0.44*** (0.41-0.48)		0.46*** (0.43-0.49)	0.46*** (0.43-0.49)
Social cohesion (ref.=None)						
One		0.82*** (0.79-0.86)	0.82*** (0.79-0.86)		0.78*** (0.75-0.81)	0.78*** (0.76-0.81)
Two		0.72*** (0.69-0.76)	0.72*** (0.69-0.75)		0.64*** (0.62-0.67)	0.64*** (0.62-0.67)
Three		0.57*** (0.55-0.59)	0.57*** (0.55-0.60)		0.44*** (0.42-0.46)	0.44*** (0.43-0.46)
<u>Reciprocity</u> (ref.=None)						
One		0.82*** (0.74-0.91)	0.83** (0.75-0.93)		0.91* (0.84-0.99)	0.92 (0.84-1.00)
Two		0.84*** (0.77-0.93)	0.85** (0.77-0.94)		0.93* (0.86-1.00)	0.93 (0.86-1.01)
Three		0.65*** (0.59-0.71)	0.65*** (0.59-0.71)		0.61*** (0.57-0.66)	0.62*** (0.57-0.66)
Cross-level interactions						
Community level civic participation × Individual level civic participation (one)			0.98 (0.92-1.03)			1.01 (0.96-1.05)

Community level civic participation			0.93			1.03
× Individual level civic participation (two)			(0.87-1.01)			(0.96-1.09)
Community level civic participation			0.92			0.98
× Individual level civic participation (≥ three)			(0.83-1.01)			(0.90-1.07)
Community level social cohesion			1.00			1.02
× Individual level social cohesion (one)			(0.95-1.04)			(0.98-1.06)
Community level social cohesion			1.04			1.01
× Individual level social cohesion (two)			(0.99-1.09)			(0.97-1.06)
Community level social cohesion			1.00			1.00
× Individual level social cohesion (three)			(0.95-1.04)			(0.96-1.04)
Community level reciprocity			1.03			1.06
× Individual level reciprocity (one)			(0.92-1.17)			(0.95-1.16)
Community level reciprocity			1.02			1.03
× Individual level reciprocity (two)			(0.92-1.15)			(0.95-1.11)
Community level reciprocity			1.01			1.00
× Individual level reciprocity (three)			(0.93-1.10)			(0.93-1.07)
<i>Random parameters</i>						
Community level intercept variance	0.004	0.005	0.005	0.001	0.001	0.001
(standard error)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
Community level civic participation slope variance	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
(standard error)						
Community level social cohesion slope variance	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
(standard error)						
Community level reciprocity slope variance	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
(standard error)						

CI, confidence interval; GDS, geriatric depression scale; PR, prevalence ratio.

*** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$

All models are also adjusted for individual-level age, gender, marital status, education, and annual house income. Coefficients of unknown category in social capital variables were omitted in this table. Sample sizes of each model were as follows: SRH; individual=119,458, community=702, GDS; individual=101,348, community=702.