

## Indicator of community-level social capital from JAGES

We developed and validated an instrument to measure **community level social capital** based on data derived from older community dwellers in Japan; 123,760 functionally independent older people nested within 702 communities, i.e., school districts. We aggregated individual responses into school districts to assess social capital at the community level.

From 53 candidate variables, 11 community-level variables were extracted: participation in volunteer groups, sports groups, hobby activities, study or cultural groups, and activities for teaching specific skills; trust, norms of reciprocity, and attachment to one's community; received emotional support, provided emotional support, and received instrumental support. Using factor analysis, these variables were determined to belong to three sub-scales: civic participation (eigenvalue=3.317,  $\alpha=.797$ ), social cohesion (eigenvalue=2.633,  $\alpha=.853$ ), and reciprocity (eigenvalue=1.424,  $\alpha=.732$ ).

This indicator has already been published in the Journal of Epidemiology. Please refer to the following article for details. The cross validity of the indicators is described in "Social capital and well-being (ed. Katsunori Kondo, Minerva Shobo, 2020)", Chapter 1 "Attempts to develop community-level indicators" (written by Japanese). It is not necessary to obtain permission from the author/developer as long as you cite it appropriately.

Masashige Saito, Naoki Kondo, Jun Aida, Ichiro Kawachi, Shihoko Koyama, Toshiyuki Ojima, Katsunori Kondo (2017) Development of an instrument for community-level health related social capital among Japanese older people: The JAGES Project. *Journal of Epidemiology*, 27(5): 221-227

### 1. Indicators Each variable is aggregated by community-level

Indicators <sup>a)</sup>	Variable name	Mean (SD)	Partial correlation <sup>b)</sup>		Communalities
			SRH (fair/poor)	GDS ( $\geq 5$ )	
How often do you attend activities for the following groups?					
Volunteer groups (% $\geq$ once a month)	Volunteer group	12.6 (4.7)	-.093**	-.193***	.315
Sports groups/clubs (% $\geq$ once a month)	Sport group	25.9 (8.3)	-.233***	-.355***	.640
Hobby activity group (% $\geq$ once a month)	Hobby activity	34.3 (8.4)	-.256***	-.332***	.752
Study or cultural group (% $\geq$ once a month)	Study or cultural group	9.9 (4.6)	-.144***	-.205***	.495
Activities to teach skills or pass on experiences to others (% $\geq$ once a month)	Skills teaching	6.2 (3.0)	-.106**	-.200***	.288
Do you think people living in your area can be trusted in general? (% very & moderately trusted)	Community trust	68.6 (7.6)	-.204***	-.373***	.883
Do you think most people in your community is assistance to others? (% very & moderately agree)	Norms of reciprocity	52.1 (8.5)	-.144***	-.331***	.650
How degree is your residential place attachment? (% very & moderately attached)	Community attachment	79.1 (6.0)	-.136***	-.315***	.529
Do you have someone who listens to your concerns and complaints? (% anyone)	Received emotional support	94.3 (2.7)	-.049	-.189***	.687
Do you listen to someone's concerns and complaints? (% anyone)	Provided emotional support	92.5 (2.9)	-.154**	-.265***	.533
Do you have someone who looks after you when you are sick for a few days? (% anyone)	Received instrumental support	94.7 (3.1)	-.186***	-.292***	.394

SRH: Self-rated health GDS: Geriatric depression scale \*\*\*  $p < .001$  \*\*  $p < .01$

a) Cronbach's alphas=.752

b) Population density and elderly proportion at municipality level were controlled.

### 2. Questionnaire

## How often do you attend activities for the following groups?

(1) Volunteer group

1. Four or more times a week 2. Two or three times a week 3. Once a week 4. One to three times a month  
5. A few times a year 6. Never

(2) Sports group or club

1. Four or more times a week 2. Two or three times a week 3. Once a week 4. One to three times a month  
5. A few times a year 6. Never

(3) Leisure activity group

1. Four or more times a week 2. Two or three times a week 3. Once a week 4. One to three times a month  
5. A few times a year 6. Never

(4) Study or cultural group

1. Four or more times a week 2. Two or three times a week 3. Once a week 4. One to three times a month  
5. A few times a year 6. Never

(5) Activities to teach skills or pass on experiences to others

1. Four or more times a week 2. Two or three times a week 3. Once a week 4. One to three times a month  
5. A few times a year 6. Never

## The following questions are about the area where you live.

(6) Do you think people living in your area can be trusted in general?

1. Very 2. Moderately 3. Neutral 4. Slightly 5. Not at all

(7) Do you think most people in your community is assistance to others?

1. Very 2. Moderately 3. Neutral 4. Slightly 5. Not at all

(8) How degree is your residential place attachment?

1. Very 2. Moderately 3. Neutral 4. Slightly 5. Not at all

## The following questions are about mutual assistance with the people around you.

(9) Do you have someone who listens to your concerns and complaints?

1. Spouse 2. Children living together 3. Children or relatives living apart  
4. Brother/sister, relative, parents, grandchildren 5. Neighbor 6. Friend 7. Other 8. None

(10) Do you listen to someone's concerns and complaints?

1. Spouse 2. Children living together 3. Children or relatives living apart  
4. Brother/sister, relative, parents, grandchildren 5. Neighbor 6. Friend 7. Other 8. None

(11) Do you have someone who looks after you when you are sick and confined to a bed for a few days?

1. Spouse 2. Children living together 3. Children or relatives living apart  
4. Brother/sister, relative, parents, grandchildren 5. Neighbor 6. Friend 7. Other 8. None

## 3. Factor loading

	Exploratory factor analysis <sup>a</sup>			Confirmatory factor analysis <sup>b</sup>		
	Civic participation (F1)	Social cohesion (F2)	Reciprocity (F3)	Civic participation (F1)	Social cohesion (F2)	Reciprocity (F3)
Volunteer group	0.536	0.119	-0.029	0.557	-	-

Saito et al. (2017) J Epidemiology, 27(5): 221-227

#### 4. Calculation method: Simple addition score vs Factor score

Our community-level health related social capital score did not largely change between factor scores and simple addition score.



