

## COMPLETION REPORT

### A Cross-Cultural Comparison on Functional Decline in Community-dwelling Older Adults between Thailand and Japan

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**Background:** Functional dependence is associated with increased reliance on supportive community services, hospital admissions, medical costs, and lower quality of life. Older adults in developed countries are more likely to be disability-free than those in developing countries. Preventing or delaying the onset of disability in older adults would yield positive impacts on an individual's quality of life, as well as economic benefits for society as a whole. This is particularly the case in developing countries where institutional welfare is somewhat unreliable and has a relatively short period of time to prepare for an aging society.

**Objectives:** The objective of this study was to examine functional decline over a 2-year follow-up period and factors associated with functional decline among older adults in two countries at vastly different stages of demographic transitions and economic development, Thailand and Japan.

**Methods:** The research involved a two-year longitudinal study of Thai and Japanese community-dwelling adults aged 65 and older. A questionnaire with standardized measurement of basic activities of daily living (ADL), sociodemographic information, chronic diseases, body mass index, depression, and social activities was used to assess Thai elderly in Nakhon Pathom (Thailand) and Japanese elderly in Tosa Town (Kochi Prefecture, Japan) annually on three occasions. From 338 Thai and 869 Japanese participants who had no functional limitations at baseline, a total of 216 Thai and 480 Japanese participants completed the study. Function loss was defined as a below full score of 21 on basic ADL. Bivariate and multivariate analyses using logistic regression models were conducted to identify factors associated with functional loss.

**Results:** In the 2 years of follow-up, the Thai participants reported a higher percentage of functional decline than the Japanese participants (22.2% vs 13.5%;  $P < .05$ ). Risk factors associated with functional decline in the elderly Thais included increased age (odds ratio (OR) = 1.16, 95% CI 1.06-1.25), female gender (OR = 0.32, 95% CI 0.13-0.79), low economic satisfaction (OR = 2.45, 95% CI 1.13-5.30), and low social activity (OR = 3.69, 95% CI 1.45-9.39). Functional decline in the Japanese elderly was associated with increased age (OR = 1.10, 95% CI 1.02-1.18), low social activity (OR = 3.39, 95% CI 1.30-8.30), and arthropathy (OR = 2.45, 95% CI 1.07-5.64).

**Conclusion:** During the study period, the Thai elderly were more likely to increase the number of function limitation than their Japanese counterparts. This study underlines that no chronic diseases were associated with an increased risk of functional decline in either groups. Only arthropathy was associated with functional decline in Japanese elderly. Social activity, on the other hand, was a very strong predictor of functional decline for both Thai and Japanese elderly. Our results support the promotion of social activities for older persons in order to preserve their healthy functional status.

Publication of the Results of Research Project:

Verbal Presentation (Date, Venue, Name of Conference, Title of Presentation, Presenter, etc.)

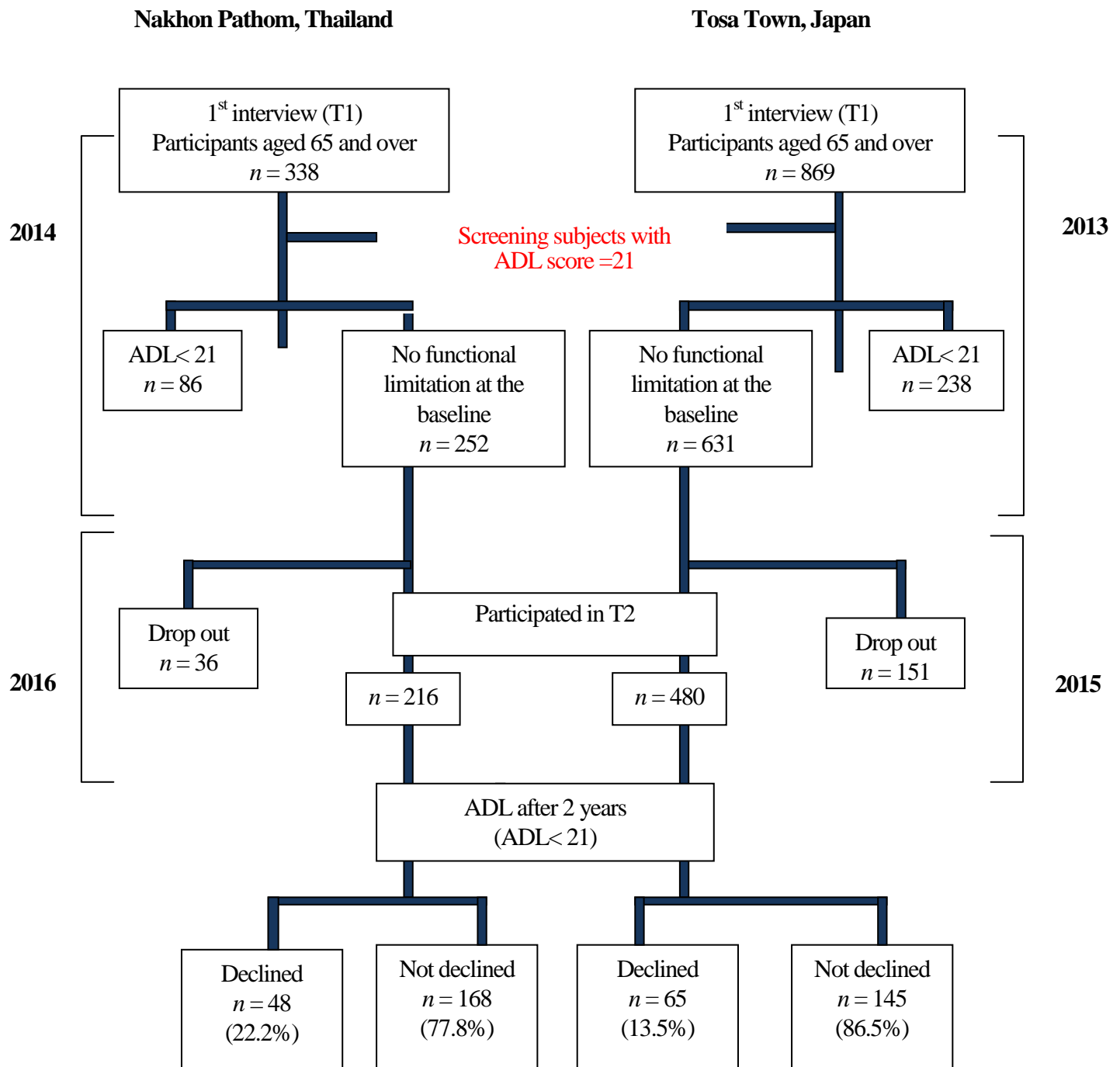
I plan to present my research results next year (2017) and will report to Sumitomo Foundation.

Thesis (Name of Journal and its Date, Title and Author of Thesis, etc.)

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Book (Publisher and Date of the Book, Title and Author of the Book, etc.)

## Appendix



**Table 1** Baseline characteristics (2014) of community- dwelling elderly aged 65 years who were healthy at the baseline (ADL =21) in Thailand (2014) and Japan (2013)

	Nakhon Pathom city Thailand ( <i>n</i> = 216)	Tosa town Japan ( <i>n</i> = 480)	<i>p</i> - value
Age (mean ± SD)	72.29 (5.64)	74.64 (6.72)	<0.001
Female gender (%)	67.10	56.50	0.008
Year of education (mean ± SD)	8.64 (3.59)	10.00 (2.04)	<0.001
Living alone (%)	7.40	17.30	0.001
Subjective economic satisfaction (100)	67.27 (18.70)	59.21 (23.69)	<0.001
Low economic satisfaction (below mean score) (%)	53.3	48.8	0.280
Chronic disease (%)			
Diabetes	22.70	11.80	<0.001
Hypertension	50.90	56.00	0.031
Heart disease	8.80	13.90	0.014
Cerebrovascular disease	1.90	5.40	0.009
Arthropathy	14.90	33.70	<0.001
Obesity (BMI ≥ 25 Kg/m <sup>2</sup> )	35.3	25.7	0.012
GDS (15)	2.70 (2.09)	3.20 (3.12)	0.020
GDS ≥ 6 (%)	9.70	21.50	<0.001
Low social activity (below full score of 4) (%)	39.8	48.0	0.046

SD, standard deviation; BMI, Body Mass Index; GDS, Geriatric Depression Scale-15 items

**Table 2** Association between hypothesized covariates and BADL decline: Univariate analysis

Predictors	NP, Thailand ( <i>n</i> = 216)		Tosa, Japan Japan ( <i>n</i> = 480)	
	OR (95% CI)	<i>p</i> - value	OR (95% CI)	<i>p</i> - value
Age	1.13 (1.06- 1.20)	0.000	1.11 (1.07-1.16)	<0.001
Female gender	0.46 (0.22- 0.99)	0.047	0.79 (0.46-1.34)	0.375
Year of education	0.90 (0.82- 0.99)	0.035	0.76 (0.65-0.89)	0.001
Living alone	1.66 (0.55- 5.03)	0.371	1.87 (0.99-3.50)	0.452
Low economic satisfaction	2.56 (1.25- 5.02)	0.010	1.42 (0.83- 2.44)	0.199
Chronic disease				
Diabetes	1.02 (0.47 - 2.18)	0.965	1.31 (0.62-2.83)	0.490
Hypertension	1.32 (0.69- 2.51)	0.404	1.72 (0.98- 2.98)	0.059
Heart disease	1.08 (0.34 - 3.42)	0.898	1.89 (0.97- 3.65)	0.060
Cerebrovascular disease	1.17 (0.12- 1.51)	0.893	1.53 (0.56- 4.22)	0.408
Arthropathy	1.19 (0.50- 2.86)	0.694	2.67 (1.56- 4.58)	<0.001
Obesity	1.43 (0.71- 2.88)	0.311	1.84 (0.83- 4.08)	0.132
GDS $\geq$ 6	1.24 (0.40- 3.81)	0.713	3.80 (1.94- 7.44)	<0.001
Low social activity	2.75 (0.125- 6.05)	0.012	3.011 (1.67- 5.46)	<0.001

GDS, Geriatric Depression Scale-15 items

**Table 4** Predictors of ADL decline: Multiple Logistic Regression

Variables	NP, Thailand (n= 216)	Tosa, Japan (n= 480)
	OR (95% CI)	OR (95% CI)
<u>Model 1</u>		
age	1.16 (1.09- 1.24)***	1.11 (1.06- 1.16)***
Female gender	0.25 (0.11- 0.62)**	0.69 (0.39- 1.23)
Low social daily activity	3.77 (1.56- 9.07)**	3.13 (1.67- 5.86)***
<u>Model 2</u>		
age	1.16 (1.07- 1.24)***	1.10 (1.04- 1.16)**
Female gender	0.30 (0.12- 0.76)*	0.82 (0.42- 1.59)
Year of education	0.96 (0.87- 1.07)	0.89 (0.76- 1.06)
Low economic satisfaction	2.37 (1.10- 5.10)*	1.70 (0.87- 3.32)
Low social daily activity	3.56 (1.43- 8.90)**	2.97 (1.41- 6.26)**
<u>Model 3</u>		
age	1.16 (1.06- 1.25)***	1.10 (1.02- 1.18)*
Female gender	0.32 (0.13- 0.79)*	0.86 (0.37- 2.01)
Year of education	0.96 (0.86- 1.08)	0.93 (0.75- 1.15)
Low economic satisfaction	2.45 (1.13- 5.30)*	1.42 (0.59- 3.45)
Low social activity	3.69 (1.45- 9.39)**	3.39 (1.30- 8.30)**
Arthropathy	1.64 (0.59- 4.57)	2.45 (1.07- 5.64)*
GDS $\geq$ 6	1.50 (0.41- 5.57)	2.18 (0.88- 5.39)

GDS, Geriatric Depression Scale-15 items