Similarity and Dissimilarity among Measures of Functioning

Longitudinal Study of Aging and Health in the Philippines

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Background

- Disability is difficulty in performing daily task/role due to long term physical, sensory, emotional or cognitive health problems.

- Most measures of functioning focus on physical conditions.

- Recent measures of functioning additionally considered sensory and mental conditions.

Verbrugge LM. Disability Experience and Measurement. *J Aging Health*. 2016;28(7):1124-1158. doi:10.1177/0898264316656519

Global Activity Limitation Indicator (GALI)

- A single-item survey instrument.

- *"For at least the past six months, to what extent have you (subject) been limited because of a health problem in activities people usually do?"*

- Capture both physical and mental health conditions with good reliability and validity.

Berger N, Van Oyen H, Cambois E, et al. Assessing the validity of the Global Activity Limitation Indicator in fourteen European countries. *BMC Med Res Methodol*. 2015;15:1. doi:10.1186/1471-2288-15-1

Jagger C, Gillies C, Cambois E, Van Oyen H, Nusselder W, Robine J-M. The Global Activity Limitation Index measured function and disability similarly across European countries. *J Clin Epidemiol*. 2010;63(8):892-899. doi:10.1016/j.jclinepi.2009.11.002

van Oyen H, Van der Heyden J, Perenboom R, Jagger C. Monitoring population disability: evaluation of a new Global Activity Limitation Indicator (GALI). *Soz Praventivmed*. 2006;51(3):153-161.

Van Oyen H, Bogaert P, Yokota RTC, Berger N. Measuring disability: a systematic review of the validity and reliability of the Global Activity Limitations Indicator (GALI). *Arch Public Health*. 2018;76:25. doi:10.1186/s13690-018-0270-8

Washington Group Short Set (WGSS)

- Six items capturing vision, hearing, mobility, communication, cognition and self care.

- *"Do you have problem... seeing / hearing/ walking / communicating/remembering/with self-care?"*

- Used in national censuses

Madans JH, Loeb ME, Altman BM. Measuring disability and monitoring the UN Convention on the Rights of Persons with Disabilities: the work of the Washington Group on Disability Statistics. *BMC Public Health*. 2011;11 Suppl 4:S4. doi:10.1186/1471-2458-11-S4-S4

Background

- GALI was developed and validated largely in European countries.
- Validated in Taiwan and Singapore, findings are comparable with European countries.
- Cross-cultural differences in expectations and norms for health status.
- Little is known whether GALI and WGSS are comparable with other measures of functioning in Asian populations.

Objectives

- To access the associations of GALI and WGSS with other measures of functioning in a national representative sample of elderly in the Philippines

Methods

- Baseline data of Longitudinal Study of Aging and Health in the Philippines (LSAHP).

- Analytic sample
  - 5191 elderly, aged 60 years and older
  - Excluded :
    - proxy responded to self-reported health
    - *'not sure'* to self-reported health
  - Mean age 68.3 ± 6.8 years
  - 1904 men, 3287 women

Measures of functioning

Measures of functioning	Limited/difficulty/unhealthy
Global activity limitation indicator (GALI)	Reported *severely limited* or *limited but not severely*
Washington Group Short Set (WGSS)	At least one of the 6 questions is reported *a lot of difficulty* or *cannot do at all*
Activities of daily living (ADL)	At least one ADL limitation
Instrumental of activities of daily living (IADL)	At least one IADL limitation
Nagi's index of physical performance	At least one mobility difficulty
Self-reported health	Reported *somewhat unhealthy* or *very unhealthy*

Analysis

- Logistic regression models
  - To estimate the probability of being classed as limited or not limited on GALI and WGSS for each category or value of other measures of functioning.
  - Adjusted for the effect of age (years) and sex.
- All estimates were weighted
- SAS 9.4 (Statistical Analysis System Inc., Cary, NC)

Table 1. Comparison of characteristics of participants in LSAHP (Philippines), PHASE III (Singapore) and TLSA (Taiwan)

	Philippines[a,b]	Singapore [a]	Taiwan [a]
Data collection year	2018	2015	2015
Sample size (N)	5191	1572	4,961
% Male	43.6	44.8	47.2
Mean age (years)	68.3 ± 6.6	74.4 ± 6.9	62.4 ± 9.4
GALI, % limited	56.9	29.4	21.7
GALI, % limited (severely limited only)	14.1	8.5	
WGSS, % having difficulty with ≥ 1action/activity	19.2		
ADL, % having difficulty with ≥ 1 activity	16.6	13.3	3.5
IADL, % having difficulty with ≥ 1 activity	21.6	18.5	14.5
Mobility difficulty, % having difficulty with ≥ 1 physical disability	50.5	50.9	
Self-reported health , % unhealthy,	34.8	20.3	

[a] Weighted column % or mean ± SD
[b] Respondents level weights (normalized)

Table 2. Predicted probability of the GALI by other measures of functioning, LSAHP

		GALI [a,b,c]	
		Not limited (n=2270)	Limited (n=2921)
ADL limitations*	**No ADL limitations (n= 4210)**	**0.44**	0.56
	At least one limitation (n= 981)	0.15	**0.85**
IADL limitations*	**No IADL limitations (n = 3724)**	**0.47**	0.53
	At least one limitation (n= 1467)	0.16	**0.84**
Mobility difficulties*	**No mobility limitations (n= 2214)**	**0.52**	0.48
	At least one limitation (n= 2977)	0.28	**0.72**
Self-reported health*	**Healthy (n= 3286)**	**0.49**	0.51
	Unhealthy (n= 1905)	0.22	**0.78**
WGSS*	**No difficulty (n= 4059)**	**0.42**	0.58
	At least one difficulty (n= 1132)	0.25	**0.75**

[a] Weighted predicted probability; [b] Respondents level weights (normalized); [c] Adjusted for age and sex
* p<0.0001

Table 3. Predicted probability of the GALI (severely limited only) by other measures of functioning, LSAHP

		GALI (severely limited only)[a,b,c]	
		Not limited (n=4581)	Limited (n=610)
ADL limitations*	No ADL limitations (n= 4210)	0.88	0.12
	At least one limitation (n= 981)	0.72	0.28
IADL limitations*	No IADL limitations (n = 3724)	0.90	0.10
	At least one limitation (n= 1467)	0.73	0.27
Mobility difficulties*	No mobility limitations (n= 2214)	0.89	0.11
	At least one limitation (n= 2977)	0.82	0.18
Self-reported health*	Healthy (n= 3286)	0.95	0.05
	Unhealthy (n= 1905)	0.70	0.30
WGSS*	No difficulty (n= 4059)	0.89	0.11
	At least one difficulty (n= 1132)	0.70	0.30

[a] Weighted predicted probability; [b] Respondents level weights (normalized); [c] Adjusted for age and sex
* p<0.0001

Table 4. Predicted probability of WGSS by other measures of functioning, LSAHP

		WGSS [a,b,c]	
		Not difficult (n=4059)	Difficult (n=1132)
ADL limitations*	No ADL limitations (n= 4210)	0.84	0.16
	At least one limitation (n= 981)	0.54	0.46
IADL limitations*	No IADL limitations (n = 3724)	0.85	0.15
	At least one limitation (n= 1467)	0.59	0.41
Mobility difficulties*	No mobility limitations (n= 2214)	0.90	0.10
	At least one limitation (n= 2977)	0.69	0.31
Self-reported health*	Healthy (n= 3286)	0.83	0.17
	Unhealthy (n= 1905)	0.70	0.30
GALI*	No limited (n= 2270)	0.86	0.14
	Limited (n= 2921)	0.73	0.27
GALI *(severely limited only)**	No limited (n= 4581)	0.82	0.18
	Limited (n= 610)	0.56	0.44

[a] Weighted predicted probability; [b] Respondents level weights (normalized); [c] Adjusted for age and sex
* $p < 0.0001$

Discussion

- GALI and WGSS are associated with other measures of disability, but the strength of predicted probability is not as expected.

- Social and cultural variations in reporting disability.

- Participants tend to report more often being disabled and being in the middle of response categories.

Next step

- Make comparison with other ASEAN countries which have similar social and cultural background.

- Compare health expectancies defined by GALI, WGSS and other measures of disability.

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Table 5. Predicted probability of WGSS by other measures of disability, LSAHP

		WGSS (any difficulty) [a,b,c]	
		Not difficult (n=1515)	Difficult (n=3676)
ADL limitations	No ADL limitations (n= 4210)	0.29	0.71
	At least one limitation (n= 981)	0.03	0.97
IADL limitations	No IADL limitations (n = 3724)	0.31	0.69
	At least one limitation (n= 1467)	0.04	0.96
Mobility difficulties*	No mobility limitations (n= 2214)	0.41	0.59
	At least one limitation (n= 2977)	0.11	0.89
Self-reported health*	Healthy (n= 3286)	0.31	0.69
	Unhealthy (n= 1905)	0.13	0.87
GALI*	No limited (n= 2270)	0.39	0.61
	Limited (n= 2921)	0.14	0.86
GALI *(severely limited only)**	No limited (n= 4581)	0.27	0.73
	Limited (n= 610)	0.04	0.96

[a] Weighted predicted probability; [b] Respondents level weights (normalized); [c] Adjusted for age and sex
*p<0.0001