

# Chapter 5

## Functional Health of Older Persons

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December 2020

**This chapter should be cited as**

Chen, T.Y. and Y. Saito (2020), 'Functional Health of Older Persons', in Vu, N.C., M.T. Tran, L.T. Dang, C.L. Chei, and Y. Saito (eds.), *Ageing and Health in Viet Nam*, Jakarta: ERIA, pp.59-70.

## Functional Health of Older Persons

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The world population is ageing rapidly. The population aged 60 years and over is expected to increase by about 2.5 times (0.8 billion to 2 billion) from 2013 to 2050; 80% will reside in low- and middle-income countries by 2050 (Chatterji, Byles, Cutler, Seeman, and Verdes, 2015; UNDESA–Population Divisions, 2013). Advanced medicine lowers the mortality rates from lethal diseases, however, and leaves individuals living with a wide range of non-fatal health conditions and likely disability at the same time (James et al., 2018). As a consequence, scholars have advocated revisiting and modifying the definition of health by the World Health Organization (‘a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity’) because it suggests that health is the absence of disease or infirmity (Huber et al., 2011; World Health Organization, 1946).

Functional health can be operationalised as individuals’ abilities to perform day-to-day activities regardless of diseases (Chatterji et al., 2015). It is a far better predictor of survival than the presence of single or multiple diseases (Lordos et al., 2008). Researchers have, therefore, suggested considering good health as individuals’ ability to perform day-to-day activities without much difficulty despite existing health conditions (Chatterji et al., 2015). Several measures have been developing to assess functional health. Depending on which conceptual model of disability a measure was based on, the scope and terminology would be slightly different (Janke, Chen, and Young, 2015; Verbrugge, 2016). For instance, ‘functional limitations’ in the Nagi model of disablement, ‘disability’ in the International Classification of Impairment, Disability, and Handicaps, and ‘activity limitations’ in the International Classification of Functioning, Disability, and Health describe a similar concept because they all refer to loss of ability to execute activities at a personal level (Janke et al., 2015).

In this chapter, we describe functional health at a personal level amongst older adults in Viet Nam using six measures included in the Longitudinal Study of Ageing and Health in Viet Nam (LSAHV). These measures include difficulty with activities of daily living (ADLs), difficulty with instrumental activities of daily living (IADLs), the Washington Group Short Set on Functioning (WG-SS), the Global Activity Limitation Index (GALI), bedridden in the past 2 weeks, and the Nagi functional measures. Descriptive analyses, stratified by sex and age group (i.e. 60–69 years old vs. 70–79 years old vs. 80+ years old), were used to investigate the prevalence of functional status amongst older adults in Viet Nam.

## Prevalence of Disability

**Difficulty with ADLs.** We asked the older persons (OPs) about their health or physical state, whether they found it difficult to perform the following activities independently without assistance from a person or assistive device: (i) taking a bath or shower, (ii) dressing, (iii) eating, (iv) standing up from a bed or chair or sitting down on a chair, (v) walking around the house, (vi) going outside (leaving the house), and (vii) using the toilet.

Table 5.1 displays functional health assessed by difficulty with ADLs. The most common ADL difficulty was going outside (leaving the house) for both sexes (males: 9.7%; females: 13.1%), and least common was eating (males: 3.0%; females: 4.0%). For all seven ADLs, more females reported difficulty than males, no significant differences were observed. The percentage of respondents with at least one ADL difficulty and the average number of ADL difficulties were higher amongst females than males, but no significant differences existed between sexes.

The most common ADL difficulty was going outside (leaving the house) for all age groups (60–69: 5.4%; 70–79: 12.2%; 80+: 32.8%) and least common ADL difficulty was eating (60–69: 0.9%; 70–79: 3.3%; 80+: 13.2%). Significant differences were found in all seven daily activities across age cohorts. More individuals in the oldest cohort experienced ADL difficulty, followed by the 70–79-year-old group and then the youngest group. The percentage of respondents with at least one ADL difficulty and the average number of ADL difficulties significantly increased with advanced age.

**Table 5.1. Activities of Daily Living (ADLs) by Sex and Age**

Activities of Daily Living	SEX			AGE GROUP				TOTAL
	Male	Female	Sig	60-69	70-79	80+	Sig	
<u>% who experience difficulty with the following activities</u>								
Take a bath/shower by oneself	5.9	8.8	n.s.	2.7	6.2	26.2	***	7.5
Dress	5.1	7.8	n.s.	2.6	5.5	22.3	***	6.6
Eat	3.0	4.0	n.s.	0.9	3.3	13.2	***	3.6
Stand up from a bed/chair; sit down on a chair	6.9	9.4	n.s.	3.9	7.7	24.5	**	8.3
Walk around the house	6.4	8.0	n.s.	3.5	6.9	21.4	**	7.3
Go outside (leave the house)	9.7	13.1	n.s.	5.4	12.2	32.8	***	11.7
Using the toilet	4.4	6.4	n.s.	1.9	5.2	18.7	***	5.6
% who experienced at least one ADL difficulty	12.6	16.8	n.s.	7.2	15.9	40.6	***	15.0
<i>N</i>	2,570	3,480		2,638	2,004	1,408		6,050
Mean number of ADLs with difficulty	3.55	3.59	n.s.	3.16	3.24	3.90	***	3.57
<i>N</i>	342	576		161	273	484		918

Sig = Statistical significance, \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ , n.s. = not significant.

Source: Calculated by PHAD using original LSAHV data.

**Difficulty with IADL.** We asked the OPs if they had difficulty performing the following activities because of their health or physical state: (i) preparing own meals; (ii) leaving home to purchase necessary items or medication; (iii) taking care of financial matters such as paying utilities (e.g. electricity, water); (iv) using a telephone; (v) dusting, cleaning up, or other light housework; (vi) taking a bus, motorcycle taxi, or public transportation; and (vii) taking medication as prescribed (Table 5.2).

For males, using the telephone (12.8%) and taking a bus, motorcycle taxi, or public transportation (12.2%) were the most common IADL difficulties, and the least taking medication as prescribed (5.8%). The most common IADL difficulty for females was using the telephone (20.1%), and the least common taking medication as prescribed (8.6%). For all seven IADLs, more females experienced difficulty than males.

There were significant differences in leaving home to purchase necessary items or medication (13.9% vs. 10.3%), taking care of financial matters such as paying utilities (13.6% vs. 9.4%), and using a telephone (20.1% vs 12.8%). More females significantly had at least one IADL difficulty than males (33.7% vs 23.9%). The average number of IADL difficulties between the sexes was about the same.

**Table 5.2. Instrumental Activities of Daily Living (IADLs) by Sex and Age**

Instrumental Activities of Daily Living	SEX			AGE GROUP				TOTAL
	Male	Female	Sig	60-69	70-79	80+	Sig	
% who experience difficulty with the following activities								
Prepare own meals	9.8	11.0	n.s.	3.6	11.1	33.5	**	10.5
Leave home to purchase necessary items/medication	10.3	13.9	*	4.9	12.6	37.8	**	12.3
Take care of financial matters such as paying utilities	9.4	13.6	*	5.2	12.5	33.7	**	11.8
Use the telephone	12.8	20.1	*	9.5	20.7	37.8	**	17.0
Dust, clean up, other light housework	7.7	10.4	n.s.	4.2	8.9	27.4	***	9.2
Take bus/motorcycle taxi/public transport to leave home	12.2	18.5	n.s.	7.4	17.8	42.2	***	15.8
Take medication as prescribed	5.8	8.6	n.s.	2.4	7.4	24.8	***	7.4
N	2,570	3,480		2,638	2,004	1,408		6,050
% who experienced at least one IADL difficulty								
	23.9	33.7	*	18.2	34.4	61.7	***	29.5
N	2,570	3,480		2,638	2,004	1,408		6,050
Mean number of IADLs with difficulty								
	3.20	3.11	n.s.	2.19	2.76	4.07	***	3.14
N	538	990		368	555	605		1528

Sig = Statistical significance, \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ , n.s. = not significant.

Source: Calculated by PHAD using original LSAHV data.

The most common IADL difficulty was using the telephone for those 60–69 years old and those 70–79 years old (9.5% vs. 20.7%), and the least common IADL difficulty was taking medication as prescribed (2.4% vs. 7.4%). As expected, for the oldest cohort, the most common IADL difficulty was taking a bus, jeepney, or public transportation (42.2%), and the least common taking medication as prescribed (24.8%). The differences in difficulty performing all seven IADLs increased significantly with age, as did the percentage of OPs having at least one IADL difficulty. This percentage changed more than three times, from 18.2% for the youngest cohort to 61.7% amongst those 80+ years.

**Washington Group Short Set on Functioning (WG-SS).** The WG-SS includes a generic set of questions on functioning that are necessary to lead an independent life (Madans et al., 2004; Verbrugge, 2016; Washington Group on Disability Statistics, 2017). We asked the OPs to rate whether they had difficulty with (i) seeing (even if wearing glasses); (ii) hearing (even if using a hearing aid); (iii) walking or climbing steps; (iv) remembering or concentrating; (v) self-care (e.g. washing all over or dressing); and (vi) communicating (e.g. understanding or being understood by others) (Table 5.3).

Table 5.3. Washington Group Short Set on Functioning by Sex and Age

Washington Group Short Set on Functioning	SEX			AGE GROUP				TOTAL
	Male	Female	Sig	60-69	70-79	80+	Sig	
Seeing, even if wearing glasses								
No difficulty	67.4	58.6		71.8	59.7	33.6		62.4
Some difficulty	29.1	36.0	n.s.	26.7	37.0	49.5	n.s.	33.1
A lot of difficulty	2.6	4.2		1.2	2.3	13.6		3.5
Cannot do it at all	0.8	1.2		3.2	1.1	3.4		1.0
Hearing, even if using a hearing aid								
No difficulty	75.8	75.6		85.1	71.6	48.7		75.7
Some difficulty	20.7	19.1	n.s.	13.5	24.8	34.7	n.s.	19.8
A lot of difficulty	3.1	4.7		1.3	3.2	14.6		4.0
Cannot do it at all	0.4	0.6		0.1	0.4	2.0		0.5
Walking or climbing steps								
No difficulty	64.4	49.4		68.8	49.5	19.9		55.8
Some difficulty	27.2	36.0	n.s.	25.7	38.2	46.3	n.s.	32.2
A lot of difficulty	5.1	10.7		4.3	8.5	21.8		8.3
Cannot do it at all	3.3	4.0		1.2	3.9	12.0		3.7
Remembering or concentrating								
No difficulty	59.4	47.9		63.8	45.3	25.2		52.8
Some difficulty	35.4	42.9	*	33.6	46.3	51.3	**	39.7
A lot of difficulty	4.1	7.7		2.1	7.4	18.7		6.2
Cannot do it at all	1.1	1.5		0.5	1.0	4.8		1.4
Self-care (washing all over or dressing)								
No difficulty	87.0	81.8		92.2	83.0	56.8		84.0
Some difficulty	9.3	13.5	n.s.	6.3	13.8	27.7	**	11.7
A lot of difficulty	2.1	2.7		1.1	1.7	8.2		2.4
Cannot do it at all	1.7	2.0		0.4	1.5	7.4		1.9
Communicating								
No difficulty	87.1	82.8		91.7	83.9	61.1		84.7
Some difficulty	10.4	13.1	n.s.	7.1	13.5	26.7	***	11.9
A lot of difficulty	1.6	3.1		0.9	1.9	8.7		2.5
Cannot do it at all	0.9	1.0		0.4	0.7	3.4		1.0
% with at least one difficulty	59.1	68.3	n.s.	54.1	71.8	89.0	***	64.4
% with at least one with 'some difficulty'	56.5	64.6	n.s.	52.1	69.2	80.7	**	61.1
% with at least one with 'a lot of difficulty'	11.5	17.3	n.s.	7.2	15.9	39.9	***	14.8
% with at least one with 'cannot do it at all'	4.0	5.4	n.s.	1.9	5.0	14.8	**	4.8
N	2,570	3,480		2,638	2,004	1,408		6,050

Sig = Statistical significance, \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ , n.s. = not significant.

Source: Calculated by PHAD using original LSAHV data.

For males, the most common difficulty (including some difficulty, a lot of difficulties, and cannot at all) was remembering or concentrating (40.6%); the least common were self-care (13%) and communicating (12.9%). About half the females said they had at least some difficulty with walking or climbing steps (51.6%) and remembering or concentrating (52.1%). Females experienced less difficulty than men with self-care (18.2%) and communicating (17.2%). Amongst the six activities, the difference between males and females is significant in remembering or concentrating. More females reported difficulty remembering or concentrating than males. More females than males consistently reported more difficulty than males in at least one activity with difficulty, some difficulty, a lot of difficulties, and cannot all, but the differences are not significant.

The most common difficulty (including some difficulty, a lot of difficulties, and cannot at all) for those 60–69 years old and 70–79 was remembering or concentrating (36.2% vs. 54.7%). The least common were self-care (7.8% vs. 17%) and communicating (8.3% vs. 16.1%). For those aged 80+ years, the most common difficulty was walking or climbing steps (80.1%) and the least common was communicating (38.9%). The proportion of OPs who had difficulty in all activities increased significantly with advanced age. A similar trend was observed regarding age, based on four levels of difficulty (i.e. at least one activity with difficulty, some difficulty, a lot of difficulties, and cannot at all) amongst the six activities.

**Global Activity Limitation Index (GALI).** GALI is a one-item global measure of functional status (Hsiao, Wu, Hsu, Saito, and Lin, 2019; Van Oyen, Bogaert, Yokota, and Berger, 2018). We asked the OPs, ‘For the past 6 months or more, have you been limited because of a health problem in activities people usually do?’

Table 5.4 shows functional health assessed by GALI. Although more females reported having a least some limitations (i.e. limited but not severely and severely limited) than males, no significant differences were found between sexes. A significant difference was observed regarding age. The proportion of those who reported not limited at all decreased with advanced age (60–69 years: 50.2%; 70–79: 33.6%; 80+: 16.1%). The proportion of those aged 60–69 years who reported limited but not severely is 43.0%, but the proportions of those aged 70–79 and 80 were about the same (53.7% vs. 50.1%). The proportion of those who are severely limited increased with (60–69 years old: 6.9%; 70–79: 12.7%; 80+: 33.7%).

**Table 5.4. Global Activity Limitation Index (GALI) by Sex and Age**

Global Activity Limitation Index	SEX			AGE GROUP				TOTAL
	Male	Female	Sig	60-69	70-79	80+	Sig	
Yes, severely limited	11.3	14.0		6.9	12.7	33.7		12.8
Yes, limited but not severely	42.8	49.8	n.s.	43.0	53.7	50.1	**	46.8
Not limited at all	45.9	36.3		50.2	33.6	16.1		40.4
<i>N</i>	2,548	3,430		2,614	1,978	1,386		5,978

Sig = Statistical significance, \*\*  $p < 0.01$ , n.s. = not significant.

Source: Calculated by PHAD using original LSAHV data.

**Bedridden in the past 2 weeks.** This measure was used to assess short-term immobility, which proximately captures acute functional decline (Sullivan, 1971). We asked the respondents whether they had been bedridden for any reason in the past two weeks. If yes, we asked how many days they stayed in bed in the past 2 weeks (Table 5.5).

Almost 2% of males and females were bedridden in the previous 2 weeks. The proportion of respondents who were bedridden increased from 1.2% amongst those aged 60–69 years to 2.7% amongst those aged 70–79 years, and 7.1% amongst those aged 80+ years. No significant differences existed between sexes and age groups.

**Table 5.5. Experience of being Bedridden by Sex and Age**

Experience being Bedridden	SEX			AGE GROUP				TOTAL
	Male	Female	Sig	60-69	70-79	80+	Sig	
% who have been bedridden during the past two weeks	2.1	2.8	n.s.	1.2	2.7	7.1	n.s.	2.5
<i>N</i>	2,562	3,465		2,632	1,998	1,397		6,027
Mean number of days in bed	11.95	11.26	n.s.	10.4	11.5	11.9	n.s.	11.5
<i>N</i>	66	118		33	56	95		184

Sig = Statistical significance, n.s. = not significant.

Source: Calculated by PHAD using original LSAHV data.

**Nagi functional measures.** We asked the OPs if they had difficulty performing the following independently without assistance from a person or assistive device: (i) walking 200–300 meters, (ii) climbing 10 steps without resting, (iii) standing (without sitting) for 2 hours, (iv) sitting for 2 hours continuously, (v) stooping or bending knees, (vi) raising hands above the head,



(vii) extending arms out in front as if to shake hands, (viii) grasping with fingers or moving fingers easily, (ix) lifting an object of about 10 kilograms (kg), and (x) lifting an of about 5 kg (Table 5.6).

**Table 5.6. Nagi Functioning Measures by Sex and Age**

Nagi Functioning Measures	SEX			AGE GROUP				TOTAL
	Male	Female	Sig	60-69	70-79	80+	Sig	
% who experience difficulty with the following activities								
Walk 200 to 300 meters	16.2	23.1	**	12.1	21.3	46.4	***	20.1
Climb 10 steps without resting	23.3	34.3	*	19.2	33.1	60.5	**	29.6
Stand (go without sitting) for 2 hours	41.1	57.0	***	40.6	56.9	73.8	***	50.2
Continue to sit for 2 hours	28.8	36.9	*	26.8	35.4	53.9	**	33.5
Stoop or bend your knees	26.8	38.3	*	25.4	33.6	60.6	**	33.4
Raise your hands above your head	9.7	12.3	n.s.	7.1	9.7	27.7	***	11.2
Extend arms out in front of you as if to shake hands	7.2	7.5	n.s.	4.4	6.3	19.5	*	7.4
Grasp your fingers or move your fingers easily	5.0	7.0	n.s.	3.5	6.2	15.3	**	6.2
Lift an object weighing approximately 10 kg	27.3	45.7	**	26.5	43.1	69.3	**	37.8
N	2,570	3,480		2,638	2,004	1,408		6,050
Lift an object weighing approximately 5 kg	42.4	47.7	n.s.	32.1	45.4	65.3	*	46.1
N	785	1,671		650	854	952		2,456
% who experienced difficulty in performing any of the 10 activities								
	54.1	70.6	*	54.2	69.8	86.8	***	63.6
N	2,570	3,480		2,638	2,004	1,408		6,050
Mean number of Nagi activities with difficulty								
	2.39	3.48	***	1.85	3.06	5.18	***	2.79
N	1,781	2,307		1,828	1,321	939		4,088

Sig = Statistical significance, \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ , n.s. = not significant.

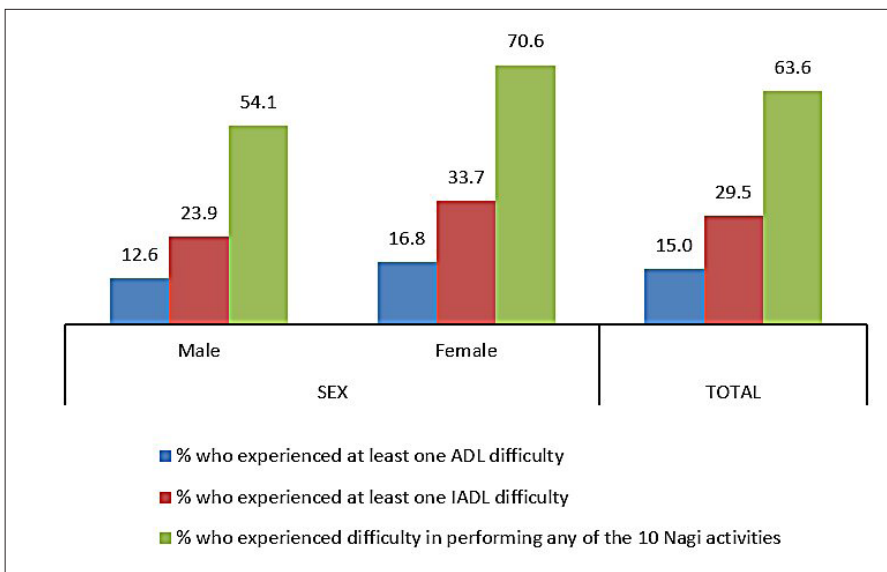
Source: Calculated by PHAD using original LSAHV data.

The most difficult was standing (without sitting) for 2 hours for males (41.1%) and females (57.0%). The least difficult was grasping with fingers or moving fingers easily for males (5.0%) and females (7.0%). Many more females than males reported having difficulty with all 10 activities: walking 200–300 meters (23.1% vs. 16.2%), climbing 10 steps without resting (34.3% vs. 23.3%), standing (without sitting) for 2 hours (57.0% vs. 41.1%), sitting for 2 hours continuously (36.9% vs. 28.8%), stooping or bending the knees (38.3% vs. 26.8%), and lifting an object of about 10 kg (45.7% vs. 27.3%). Significantly more females than males had difficulty with at least one activity (70.6% vs. 54.1%). Females had more difficulty than males with significantly more activities.

OPs in all age groups had the most difficulty standing (without sitting) for 2 hours (60–69 years: 40.6%; 70–79: 56.9%; 80+: 73.8%), and the least difficulty grasping with fingers or moving fingers easily (60–69: 3.5%; 70–79: 6.2%; 80+: 15.2%). Significant differences in all 10 activities were found across age groups, with difficulty becoming more prevalent with advanced age. The percentage of having at least one difficulty increased to 86.8% amongst those aged 80+ years, 54.2% amongst those aged 60–69 years, and 69.8% amongst those aged 70–79 years. The average number of activities with difficulty differs significantly amongst age groups.

**ADL vs IADL vs Nagi.** Figure 5.1 displays functional health assessed by ADL and IADL difficulty and Nagi functional measures between sexes. The largest number of OPs – males and females – reported limitations assessed by Nagi functional measures, followed by OPs whose disabilities were assessed using IADL and ADL difficulty. OPs in all age groups have more Nagi functional limitations measures than IADL and ADL difficulties (Figure 5.2), which suggests that assessing functional health by using difficulty with ADL and IADL may underestimate poor functional health amongst older OPs.

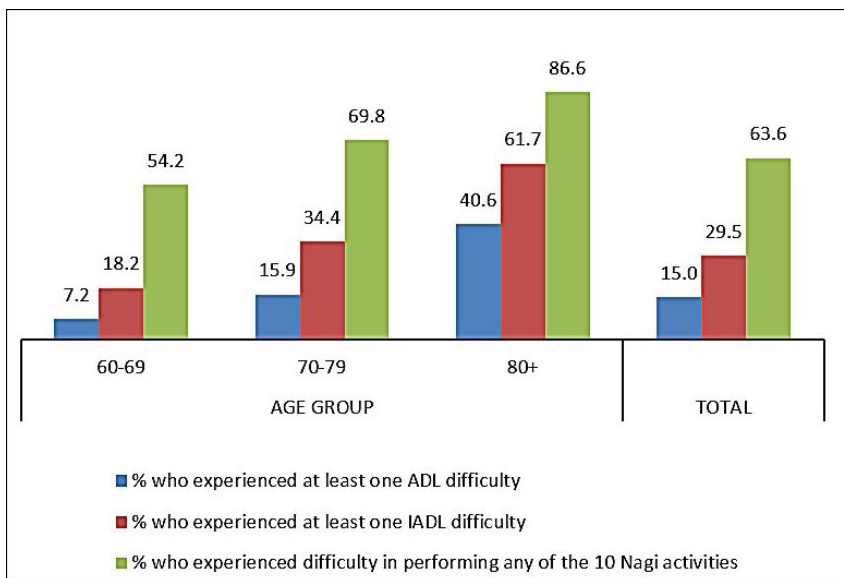
**Figure 5.1. Functional Difficulty of Older Persons by Sex**



ADL = activity of daily living, IADL = instrumental activity of daily living.

Source: Calculated by PHAD using original LSAHV data.

**Figure 5.2. Functional Difficulty of Older Persons by Age**



ADL = activity of daily living, IADL = instrumental activity of daily living.

Source: Calculated by PHAD using original LSAHV data.

## Summary, Conclusions, and Recommendations

This chapter investigates functional health amongst OPs in Viet Nam. Females, in general, reported poorer functional health than males. Significant differences between sexes were found in difficulty with IADL (leaving home to purchase necessary items or medication, taking care of financial matters such as paying utilities, and using a telephone); WG-SS (remembering or concentrating); and Nagi functional measures (walking 200–300 meters, climbing 10 steps without resting, standing (without sitting) for 2 hours, sitting for 2 hours continuously, stooping or bending the knees, and lifting an object of about 10 kg). However, no obvious patterns in activities reached significant levels. ADL, IADL, WG-SS, GALI, and Nagi functional measures all indicated a clear upward trend in poorer functional health in all age groups. No significant differences in acute disability were observed amongst those bedridden in the previous 2 weeks by sex or age.

Functional health improves (Schoeni, Freedman, and Wallace, 2001) with concurrent increases in chronic conditions amongst OPs in high-income countries (Crimmins and Saito, 2000; Freedman, Schoeni, Martin, and Cornman, 2007), suggesting that interventions to promote health in later life are likely to pay off. Policies and innovative interventions need to target not only current OPs but also younger people because of the link between health in later life and earlier life experiences (Hubert, Bloch, Oehlert, and Fries, 2002).

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