A·H·L·A

Asian Health Literacy Association

科 技 部 Ministry of Science and Technology

Measuring health literacy by the HLS-EU-Q47 in six Asian countries

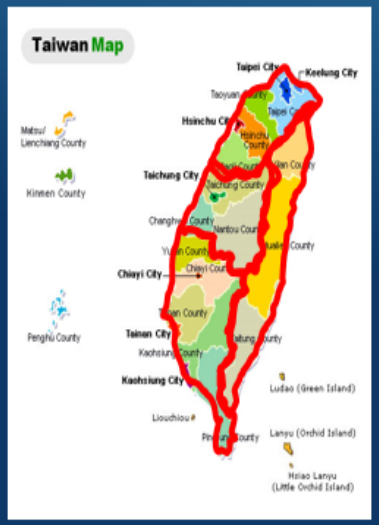
Tuyen V. Duong, Altyn Aringazina, Gaukhar Baisunova, Nurjanah Nj, Thuc V. Pham, Khue M. Pham, Tien Q. Truong, Kien T. Nguyen, Win Myint Oo, Emma Mohamad, Tin Tin Su, Hsiao-Ling Huang, Kristine Sørensen, Jürgen M. Pelikan, Stephan Van den Brouke, Prof. Yuwen Chang, Prof. I-Feng Lin, Peter Wushou Chang

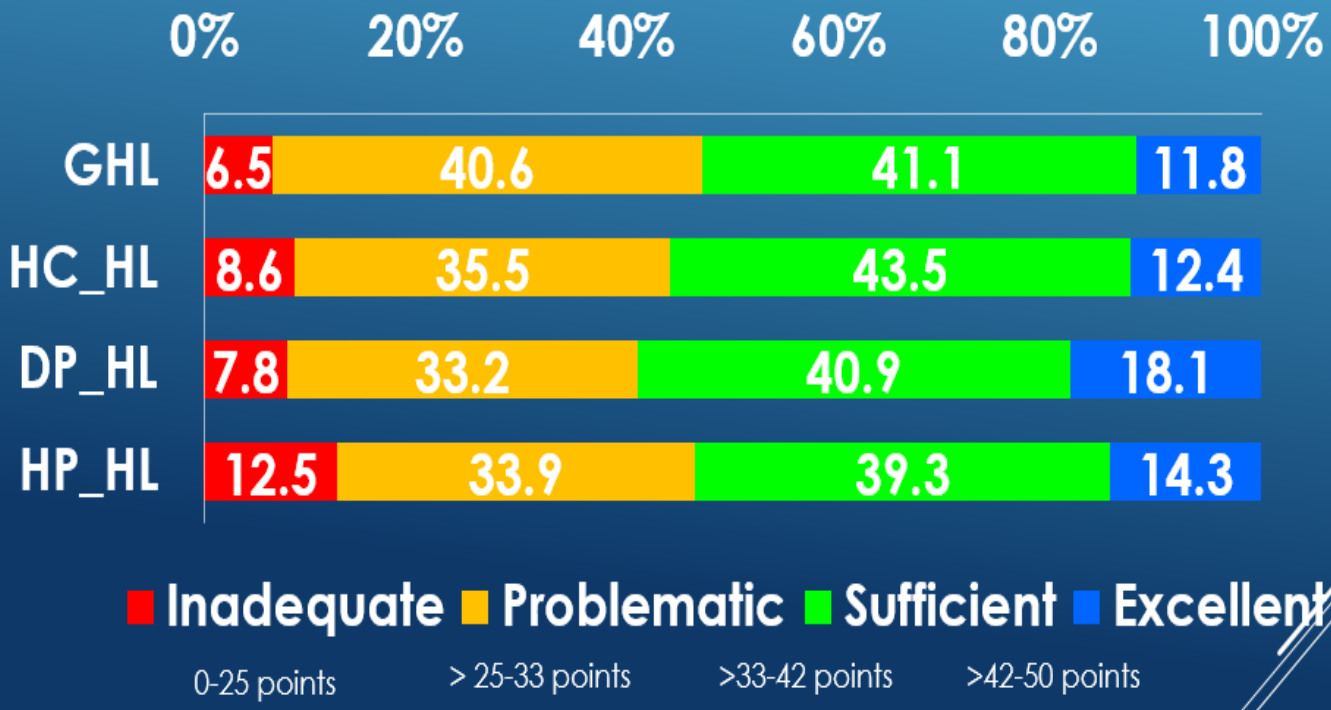
Health literacy matrix

Health literacy	Finding information on health(FHI)	Understanding information on health(UHI)	Appraising/Judging information on health(JHI)	Applying information on health(AHI)
Health care (HC)	Ability to access information on medical or clinical issues	Ability to understand medical information and derive meaning	Ability to interpret and evaluate medical information	Ability to make informed decisions on medical issues
Disease prevention (DP)	Ability to access information on risk factors	Ability to understand information on risk factors and derive meaning	Ability to interpret and evaluate information on risk factors	Ability to make informed decisions on risk factors
Health promotion (HP)	Ability to update oneself on health issues	Ability to understand health related information and derive meaning	Ability to interpret and evaluate information on health related issues	Ability to form a reflected opinion on health issues

Matrix of Sub-dimensions of Health Literacy Based on the HLS-EU Conceptual Model (Sorensen et al. 2012), Used for Questionnaire Construction

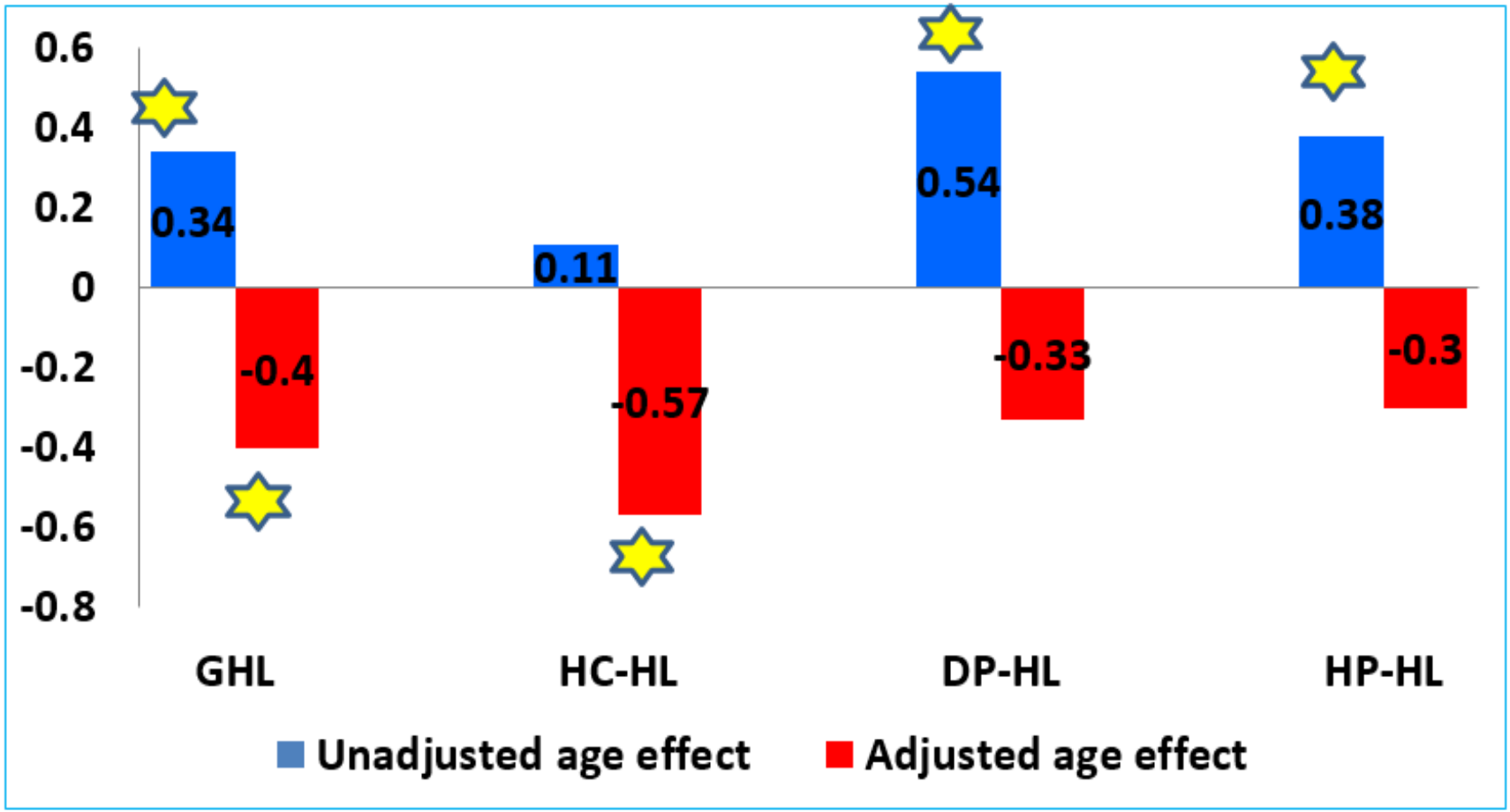
HEALTH LITERACY AMONG 1664 TAIWANESE WOMEN, HLS-EUQ



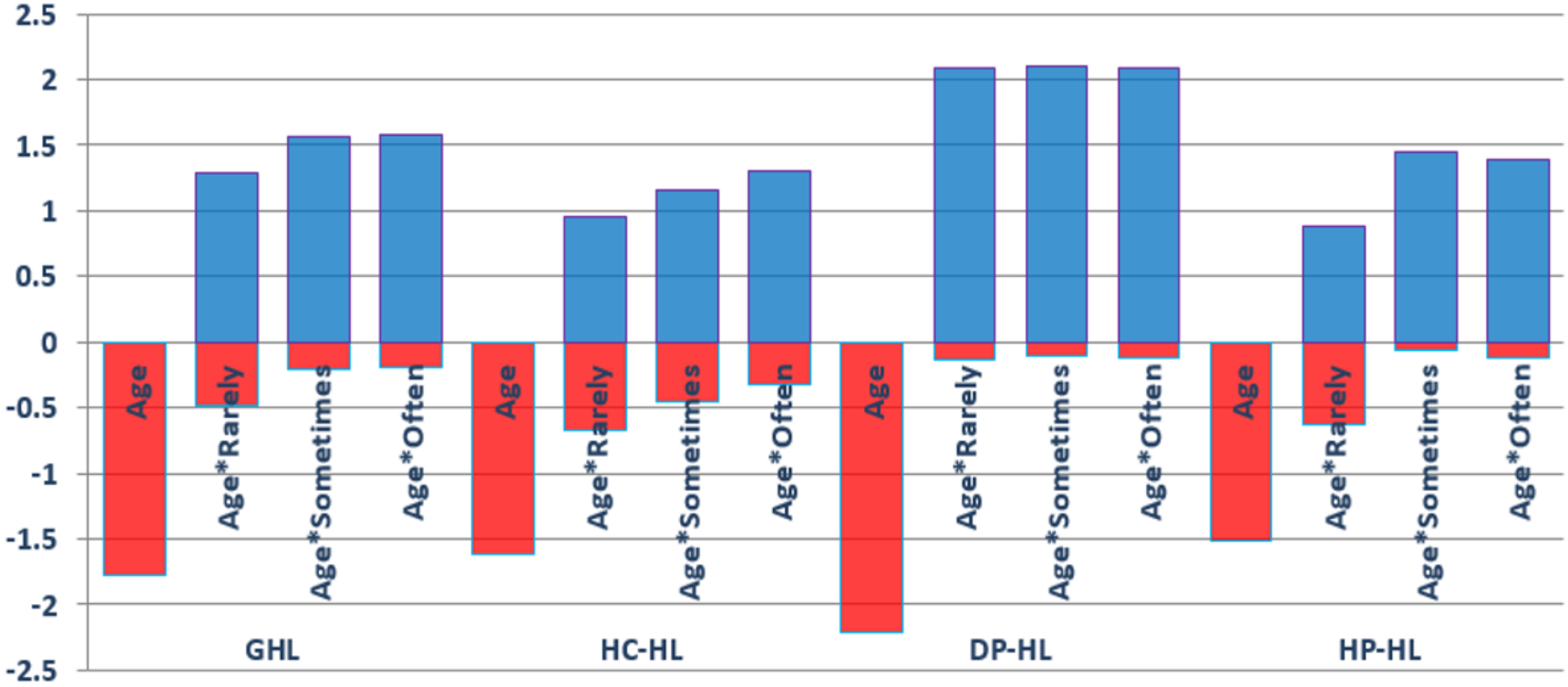


Percentages of different levels of General HL-index and its domains

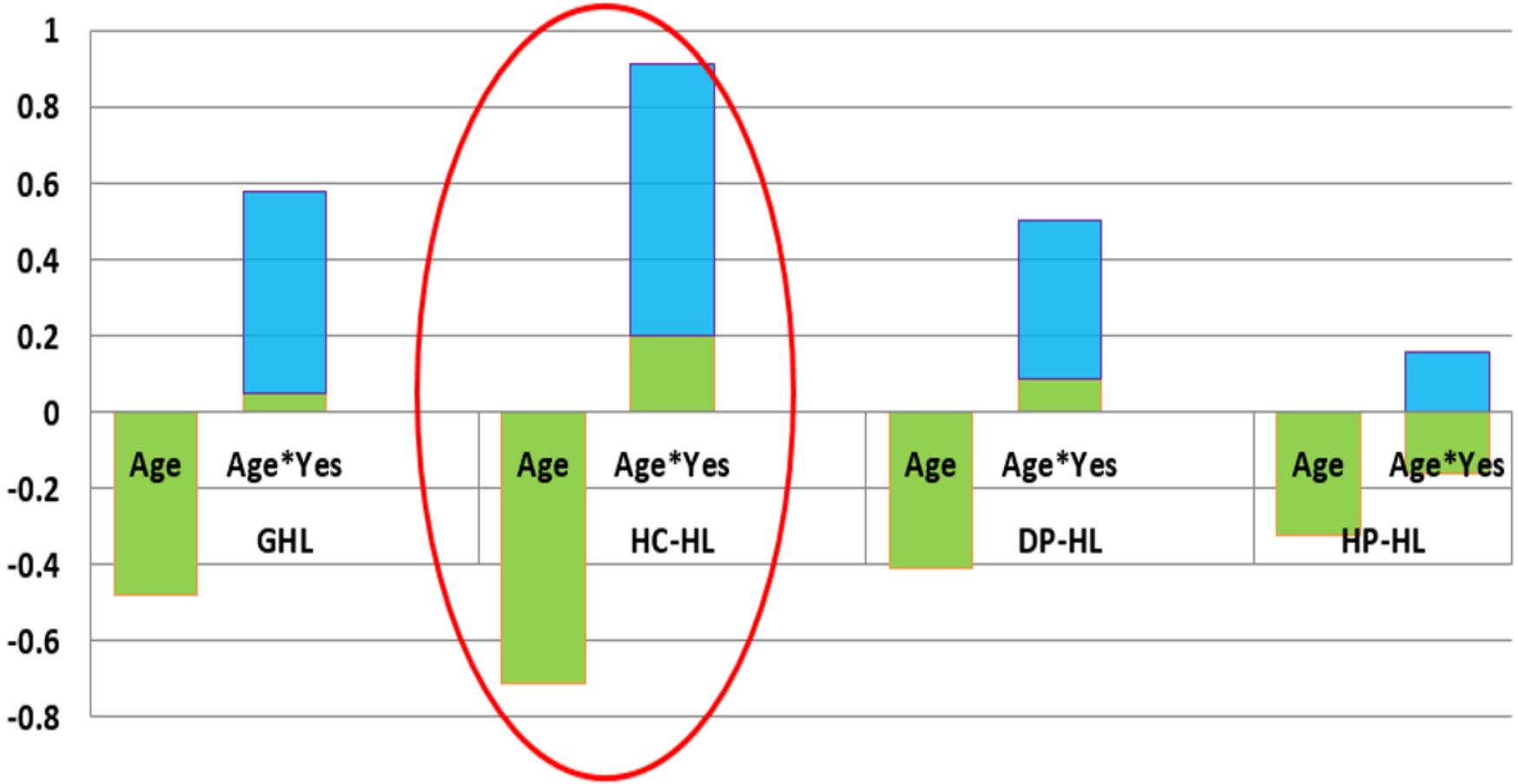
Age effects on general health literacy and three domains

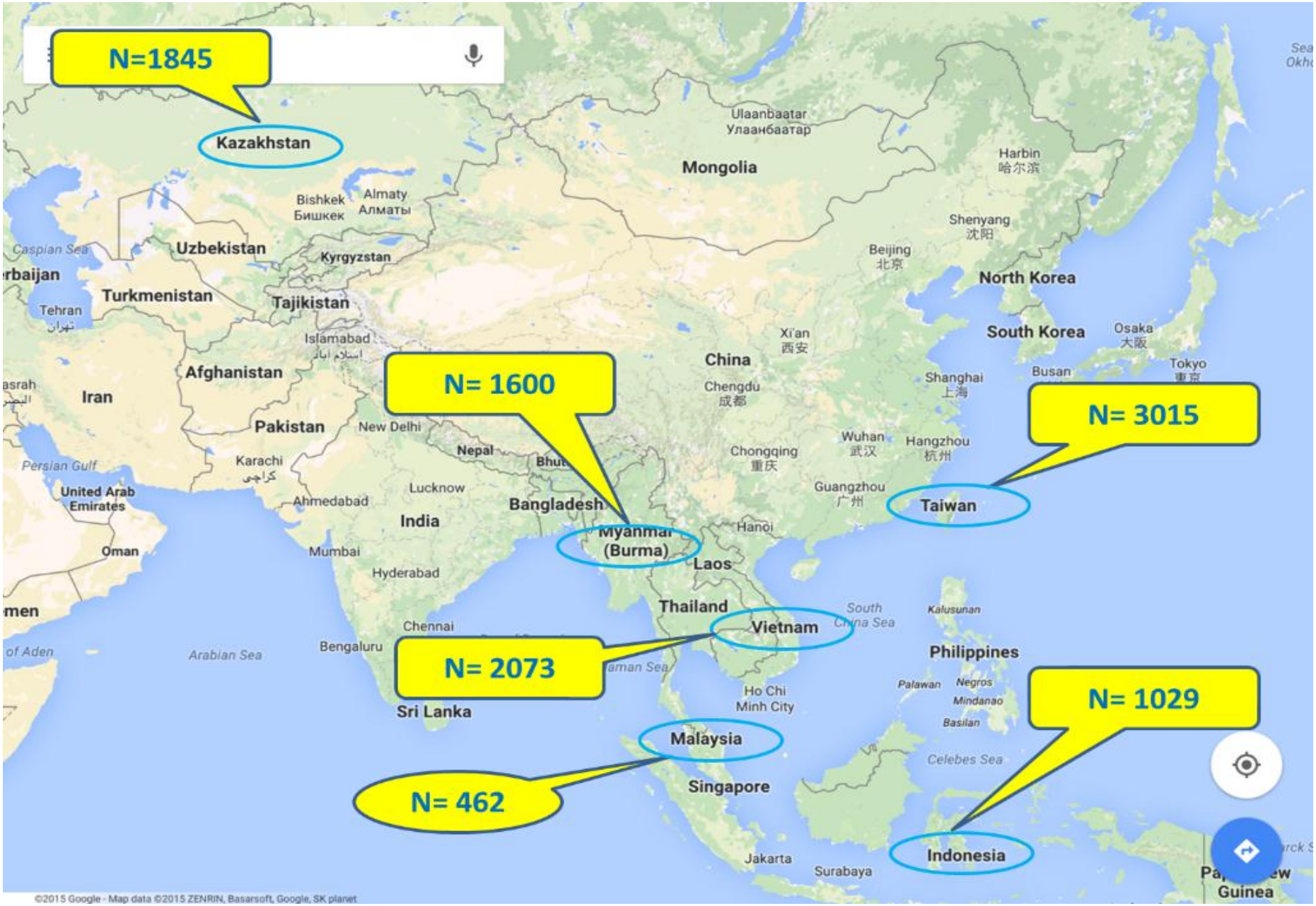


Watching health related TV moderated age effect on HL



Health related trainings moderated age effect on HL




N=1845
Kazakhstan
N= 1600
Myanmar (Burma)
N= 3015
Taiwan
N= 2073
Vietnam
N= 1029
Indonesia
N= 462
Malaysia
Mongolia
China
India
Bangladesh
Pakistan
Afghanistan
Iran
Thailand
Laos
Philippines
Sri Lanka
Singapore
North Korea
South Korea
Uzbekistan
Turkmenistan
Tajikistan
Kyrgyzstan
Nepal
Oman
United Arab Emirates
Ulaanbaatar
Улаанбаатар
Harbin
哈尔滨
Shenyang
沈阳
Beijing
北京
Osaka
大阪
Tokyo
Shanghai
上海
Busan
Xi'an
西安
Chengdu
成都
Chongqing
重庆
Wuhan
武汉
Hangzhou
杭州
Guangzhou
广州
Hanoi
Ho Chi Minh City
Kalusunan
Palawan
Negros
Mindanao
Basilan
Celebes Sea
South China Sea
Arabian Sea
Jakarta
Surabaya
Bishkek
Бишкек
Almaty
Алматы
Tehran
Islamabad
New Delhi
Karachi
Lucknow
Ahmedabad
Mumbai
Hyderabad
Chennai
Bengaluru
Persian Gulf
Caspian Sea
©2015 Google - Map data ©2015 ZENRIN, Basarsoft, Google, SK planet

- Cross-sectional design in Indonesia, Kazakhstan, Malaysia, Myanmar, Taiwan, and Vietnam
- Multistage stratification random sampling
- The HLS-EU-Q47, 47 items to measure health literacy, 4-point Likert scales (1= very difficult, 2= difficult, 3= easy, and 4= very easy)
- Overall 10,024 participants aged 15 years and above
- Confirmatory factor analysis (CFA) to test construct validity
- good fit of the data to the hypothetical model for the three domains

The study was approved from the Institutional Review Board in all partner countries

臺北醫學大學 TAIPEI MEDICAL UNIVERSITY	TRƯỜNG ĐẠI HỌC Y DƯỢC HẢI PHÒNG Hai Phong University Of Medicine And Pharmacy	TRƯỜNG ĐẠI HỌC Y TẾ CÔNG CỘNG HANOI SCHOOL OF PUBLIC HEALTH
Kazakhstan School of Public Health	Asfendiyarov Kazakh National Medical University	UNIVERSITY OF MEDICINE (1) YANGON Established - 1927
Dian Nuswantoro University for a better future	UNIVERSITY OF MALAYA The Leader in Research & Innovation	

	Indonesia (n=1,029)		Kazakhstan (n=1,845)		Malaysia (n=462)		Myanmar (n=1,600)		Taiwan (n=3,015)		Vietnam (n= 2,073)	
	n	%	n	%	n	%	n	%	n	%	n	%
Age, mean (SD)	30.6 (12.5)		35.1 (15.8)		47.1 (6.6)		39.6 (14.3)		34.2 (16.8)		41.1 (17.1)	
15-24	468	45.5	623	34.9			295	18.4	1387	46.4	443	21.6
25-44	371	36.1	650	36.4	161	37.0	741	46.3	744	24.9	763	37.2
45-59	176	17.1	350	19.6	258	59.3	389	24.3	564	18.9	515	25.1
60+	14	1.4	161	9.0	16	3.7	175	10.9	292	9.8	331	16.1
Gender												
Female	570	55.4	1052	57.5	258	55.8	1015	63.5	1,654	54.9	1182	57.3
Male	459	44.6	776	42.5	204	44.2	584	36.5	1,361	45.1	880	42.7
Marital status												
Never married	491	47.7	779	43.4	59	13.1	491	30.7	1694	56.3	494	23.9
Ever married	538	52.3	1015	56.6	391	86.9	1109	69.3	1313	43.7	1577	76.1
Education attainments												
Elementary school	90	8.7	66	3.9	40	9.5	219	14.2	132	4.4	219	10.7
Junior high school	190	18.5	373	21.8	142	33.5	529	34.2	316	10.5	745	36.3
Senior high school	510	49.6	261	15.3	183	43.3	411	26.6	1,263	41.9	656	31.9
University and above	239	23.2	1009	59.0	58	13.7	387	25.0	1,301	43.2	434	21.1
Received medical training												
No	750	85.2	1341	78.0	435	94.2	1436	90.0	2597	86.8	1887	91.4
Yes	130	14.8	378	22.0	27	5.8	159	10.0	395	13.2	177	8.6
Family received medical training												
No	835	81.1	1162	67.5	382	87.8	1391	88.0	818	27.7	1861	89.8
Yes	194	18.9	559	32.5	53	12.2	189	12.0	2130	72.3	212	10.2
Employment status												
Own business	78	7.6	92	6.0	111	24.0	543	34.1	229	7.8	841	40.7
Full-time	266	25.9	646	41.8	173	37.4	252	15.8	1062	36.2	366	17.7
Part-time	186	18.1	184	11.9	23	5.0	178	11.2	141	4.8	117	5.7
Unemployed	104	10.1	196	12.7	11	2.4	339	21.3	283	9.6	382	18.5
Student and other	394	38.1	426	27.6	144	31.2	281	17.6	1221	41.6	361	17.5
Ability to pay for medication												
Very difficulty	13	1.3	124	7.3	31	6.9	19	1.2	160	5.3	221	10.8
Fairly difficulty	150	14.6	255	15.1	195	43.4	245	15.4	784	26.2	715	34.9
Fairly easy	696	67.6	913	53.8	180	40.1	755	47.3	1,603	53.5	950	46.3
Very easy	169	16.4	404	23.8	43	9.6	576	36.1	450	15.0	163	8.0

	Indonesia (n=1,029)		Kazakhstan (n=1,845)		Malaysia (n=462)		Myanmar (n=1,600)		Taiwan (n=3,015)		Vietnam (n= 2,073)	
	n	%	n	%	n	%	n	%	n	%	n	%
Insurance												
Uninsured	584	56.8	897	48.6	267	57.8	1292	80.8	219	7.3	472	22.8
Insured	445	43.2	948	51.4	195	42.2	308	19.3	2796	92.7	1601	77.2
Social status												
Low	168	16.6	609	41.5	117	29.8	455	30.0	1,181	40.1	877	43.2
Middle	744	73.7	603	41.1	208	52.9	866	57.1	1,651	56.0	1056	52.0
High	98	9.7	255	17.4	68	17.3	195	12.9	114	3.9	98	4.8
Family history of disease												
None	79	7.7	372	27.7					360	21.6	56	8.5
One	710	69.0	545	40.6					545	32.7	358	54.7
Two	159	15.5	247	18.4					457	27.4	146	22.3
Three and more	81	7.9	177	13.2					303	18.2	95	14.5
Viewing health related TV												
Never	54	5.2	339	19.7	30	6.5	239	15.0	342	11.5	378	18.3
Rarely	289	28.1	562	32.6	144	31.3	230	14.4	916	30.7	381	18.4
Sometimes	479	46.6	621	36.0	235	51.1	756	47.5	1423	47.7	1032	49.9
Often	207	20.1	202	11.7	51	11.1	368	23.1	303	10.2	277	13.4
Getting health information from internet												
Never	205	19.9	422	25.2	90	20.3	1368	86.3	390	26.5	925	45.0
Rarely	241	23.4	451	26.9	173	39.0	61	3.8	431	29.3	285	13.9
Sometimes	403	39.2	465	27.7	145	32.7	124	7.8	456	31.0	691	33.6
Often	180	17.5	338	20.2	36	8.1	33	2.1	194	13.2	154	7.5
Community involvement												
Not at all	398	38.9	991	59.9	139	31.4	160	10.1	1488	50.4	729	35.4
Rarely	260	25.4	207	12.5	172	38.9	205	12.9	783	26.5	822	39.9
Sometimes	248	24.2	159	9.6	97	21.9	497	31.2	343	11.6	310	15.0
Often	118	11.5	297	18.0	34	7.7	730	45.9	337	11.4	201	9.7
Gen-HL index, (Mean ± SD)	31.4 ± 5.8		31.6 ± 9.3		32.9 ± 7.2		31.3 ± 8.7		34.4 ± 6.6		29.6 ± 9.1	

Construct validity in six Asian countries with goodness-of-fit indices

	Absolute model fit		Incremental fit				Parsimonious fit
Model[a]	RMSEA	GFI	AGFI	CFI	IFI	NFI	χ^2/df
Indonesia							
HC-HL	0.07	0.93	0.90	0.89	0.89	0.87	5.79
DP-HL	0.09	0.91	0.87	0.88	0.88	0.87	8.41
HP-HL	0.06	0.95	0.93	0.94	0.94	0.92	4.16
Kazakhstan							
HC-HL	0.05	0.96	0.95	0.97	0.97	0.96	6.10
DP-HL	0.06	0.95	0.93	0.96	0.96	0.96	8.53
HP-HL	0.06	0.96	0.94	0.97	0.97	0.96	7.32
Malaysia							
HC-HL	0.08	0.90	0.86	0.90	0.90	0.87	3.95
DP-HL	0.09	0.90	0.86	0.91	0.91	0.88	4.53
HP-HL	0.06	0.94	0.91	0.96	0.96	0.93	2.55
Myanmar							
HC-HL	0.09	0.92	0.87	0.90	0.90	0.89	12.51
DP-HL	0.07	0.94	0.91	0.94	0.94	0.93	9.11
HP-HL	0.06	0.94	0.92	0.94	0.94	0.93	7.55
Taiwan							
HC-HL	0.07	0.94	0.91	0.93	0.93	0.93	15.10
DP-HL	0.08	0.94	0.91	0.94	0.94	0.93	17.74
HP-HL	0.07	0.95	0.92	0.95	0.95	0.95	14.26
Vietnam							
HC-HL	0.07	0.94	0.91	0.94	0.94	0.94	11.60
DP-HL	0.10	0.89	0.82	0.90	0.90	0.89	22.90
HP-HL	0.07	0.94	0.92	0.95	0.95	0.94	10.69

[a] Four-factor model of each domain included finding, understanding, judging, and applying health information. RMSEA= root mean square error of approximation; GFI= goodness-of-fit index; AGFI= adjusted goodness-of-fit index; CFI= comparative fit index; IFI= incremental fit index; NFI= normal fit index; χ^2/df= relative chi-square.

Item-scale convergent validity, internal consistency reliability, floor and ceiling effects

		Indonesia (n=1,029)	Kazakhstan (n=1,845)	Malaysia (n= 462)	Myanmar (n=1,600)	Taiwan (n=3,015)	Vietnam (n= 2,073)
Item-scale convergent validity (Range of correlations)							
	Gen-HL	.42 - .58	.62 - .73	.49 - .68	.31 - .66	.46 - .68	.56 - .67
	HC-HL	.49 - .60	.65 - .74	.51 - .69	.51 - .71	.53 - .70	.61 - .73
	DP-HL	.52 - .68	.67 - .75	.60 - .72	.57 - .72	.59 - .74	.64 - .75
	HP-HL	.52 - .65	.70 - .76	.55 - .74	.41 - .69	.61 - .74	.62 - .73
Reliability							
Cronbach's alpha	Gen-HL	.94	.97	.96	.96	.96	.97
	HC-HL	.85	.93	.88	.88	.89	.92
	DP-HL	.88	.94	.91	.91	.91	.92
	HP-HL	.88	.94	.91	.90	.92	.92
Split-half Spearman-Brown coefficient	Gen-HL	.87	.92	.90	.88	.87	.89
	HC-HL	.78	.90	.84	.80	.77	.87
	DP-HL	.79	.87	.81	.85	.80	.87
	HP-HL	.80	.90	.87	.83	.87	.85
Floor effects (%)							
	Gen-HL	0.00	0.40	0.00	0.00	0.10	0.60
	HC-HL	0.00	0.50	0.00	0.00	0.10	1.40
	DP-HL	0.00	0.50	0.20	0.10	0.20	1.20
	HP-HL	0.00	0.80	0.40	0.10	0.30	1.00
Ceiling effect (%)							
	Gen-HL	0.30	5.20	0.60	0.30	1.10	2.10
	HC-HL	0.50	6.70	1.70	1.60	1.90	2.80
	DP-HL	1.60	8.20	2.60	3.30	3.40	3.90
	HP-HL	1.00	8.20	1.50	2.40	3.60	4.60

Simple linear regression analysis for known-group validity

	b (95%CI)					
	Indonesia (n=1,029)	Kazakhstan (n=1,845)	Malaysia (n= 462)	Myanmar (n=1,600)	Taiwan (n=3,015)	Vietnam (n=2,073)
Education attainment						
Junior high and below	*Reference*	*Reference*	*Reference*	*Reference*	*Reference*	*Reference*
Senior high	0.41 (-0.43 to 1.24)	0.97 (-0.46 to 2.39)	2.33 (0.87 to 3.80)**	2.22 (1.19 to 3.25)***	1.12 (0.42 to 1.83)**	1.86 (0.97 to 2.75)***
University and above	2.95 (1.96 to 3.93)***	3.08 (2.04 to 4.12)***	2.75 (0.64 to 4.86)*	2.72 (1.66 to 3.77)***	1.36 (.66 to 2.06)***	3.70 (2.69 to 4.71)***
Self-assessed social status						
Low	*Reference*	*Reference*	*Reference*	*Reference*	*Reference*	*Reference*
Middle	0.78 (-0.19 to 1.76)	1.76 (0.73 to 2.80)**	1.99 (0.37 to 3.62)*	1.79 (0.81 to 2.77)***	1.59 (1.10 to 2.07)***	1.09 (0.30 to 1.89)**
High	2.45 (1.00 to 3.90)**	5.18 (3.83 to 6.52)***	2.80 (.66 to 4.95)*	2.61 (1.16 to 4.06)***	3.59 (2.35 to 4.83)***	8.76 (6.90 to 10.61)***

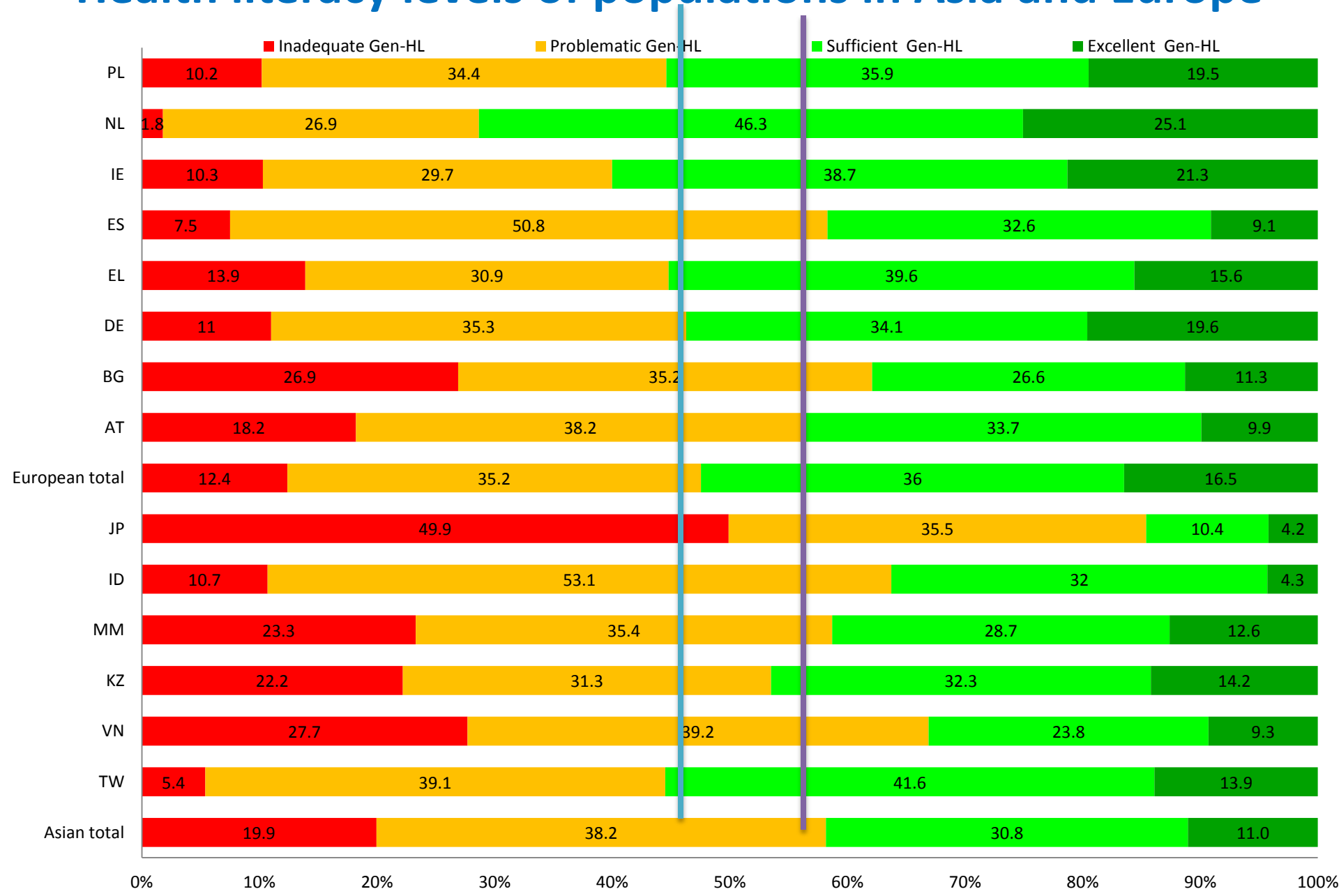
p values * 0.01 < P <0.05, ** 0.001 < P < 0.01, *** P < 0.001

B= non-standardized coefficient; CI= confident interval; HLS-EU-Q47= European Health Literacy Survey Questionnaire with 47 items.

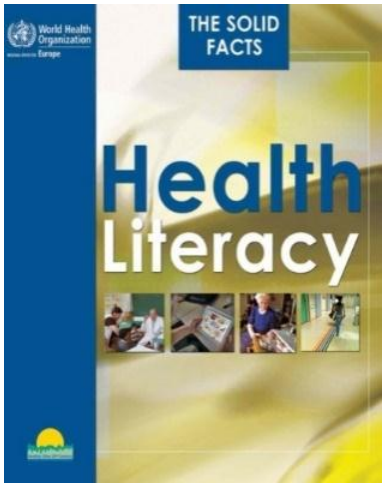
Summary of validation

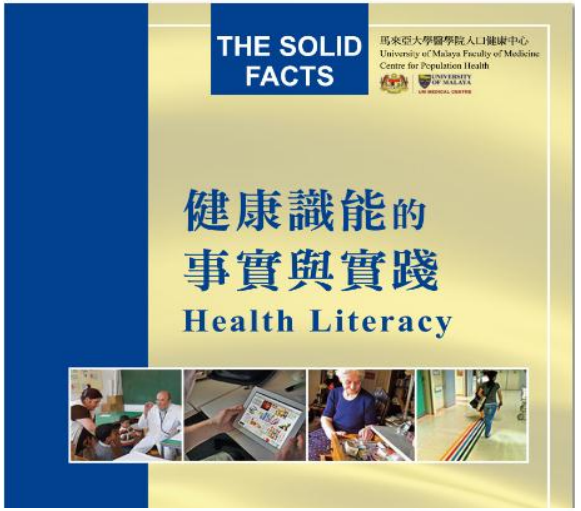
- **The HLS-EU-Q47 validated in six Asian countries with satisfactory goodness of fit indices. All 47 items were useful and kept for measuring HL.**
- **In Myanmar, the item 45 with a weak to moderate correlation with whole scale, but with satisfactory correlation level with health promotion scale. Therefore, this item is suggested with cautious use, and need clearly explained while interviewing people. On the other hand, the system is suggested to offer adequate conditions that people can achieve "the ability to join a sports club or exercise class if you wished".**

Health literacy levels of populations in Asia and Europe



Developing and strengthening health literacy





HLS EU

The European Health Literacy Project 2009-2012

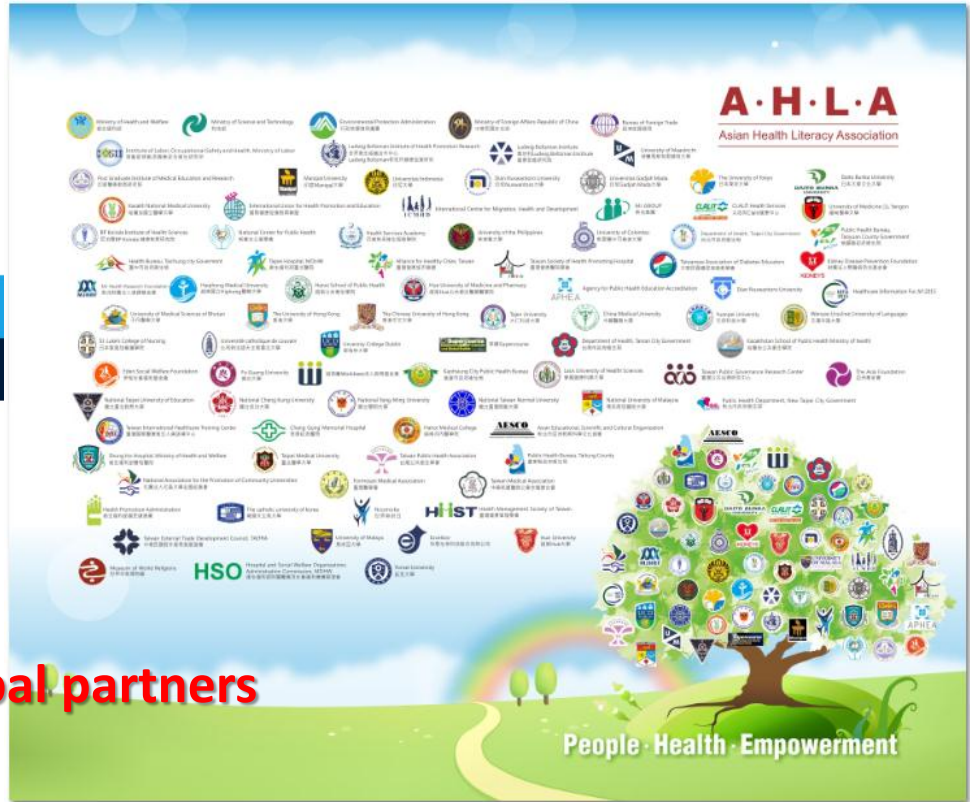
Maastricht University

rivm

Ludwig Boltzmann Gesellschaft

Landesinstitut für Gesundheit und Arbeit des Landes Nordrhein-Westfalen

Executive Agency for Health and Consumers



30+ countries 40+ institutions 80+ global partners

THE 4TH AHLA INTERNATIONAL HEALTH LITERACY CONFERENCE

HEALTH LITERACY AND QUALITY OF HEALTHCARE SERVICES

November 7-9th, 2016 | Haiphong City, Vietnam

THEMES

- Health literacy and medication safety
- Patients' satisfaction, quality of life, and health literate services
- Health literacy and effectiveness of medical services
- Health finance, universal health coverage and health literacy
- Health literacy and health policy
- Health literacy and community health services
- Health literacy in the aging populations
- Psychological health and health literacy
- Non-communicable diseases and health literacy
- Health literacy emerging infectious diseases
- Health literacy, health promotion, and social determinants for health
- Health literate organization
- Health literacy and nutrition safety
- Health literacy and marine lives
- Sexual and reproductive health literacy
- "One Health Literacy"

ORGANIZERS
CO-ORGANIZERS

Ministry of Health, Vietnam
Haiphong University of Medicine and Pharmacy
Asian Health Literacy Association
International Union for Health Promotion and Education (IUHPE)
Global Health Literacy Academy
Hanoi Medical University
Hanoi School of Public Health
Hue University of Medicine and Pharmacy
Ho Chi Minh City University of Medicine and Pharmacy
Taiwan Health Evaluation and Promotion Association
Kaohsiung Medical University
Chung Shan Medical University Medical Center
Tufts University of School of Medicine
RCICFDH-AT, Taiwan

SPONSORS

INSTITUTE FOR HEALTHCARE ADVANCEMENT (IHA)
ASIAN EDUCATIONAL, SCIENTIFIC, AND CULTURAL ORGANIZATION (AESCO)
THU DUC DISTRICT HOSPITAL
MJ HEALTH GROUP
ASIA ADVANCED TECHNOLOGY CONSULTANCY (AATC)
OTHERS

ABSTRACT SUBMISSION

ABSTRACT DEADLINE: Monday, August 15th, 2016
Announcement of abstract acceptance: Aug 31st, 2016
For abstract submission, visit:
http://hpmu.edu.vn/ahla2016

A·H·L·A
Asian Health Literacy Association

SPEAKERS
INCLUDING

CONTACTS

Haiphong University of Medicine and Pharmacy
72A Nguyen Binh Khiem St,
Ngo Quyen District, Haiphong City

Tel: (+84)313.731.907
Fax: (+84)313.733.315
Email: hpmu.ahla2016@gmail.com

REGISTRATION

Early Bird Registration Fees (by Aug 31st, 2016)
Register on website: hpmu.edu.vn/ahla2016

Developed Country	$200 USD
Developing Country	$150 USD
Low Income Country	$100 USD
International Student	$20 USD
Vietnam	1.000.000 VND
Vietnamese Student	300.000 VND