

Jan 8, 2021

Utility of health literacy

~Basic skill of self management~

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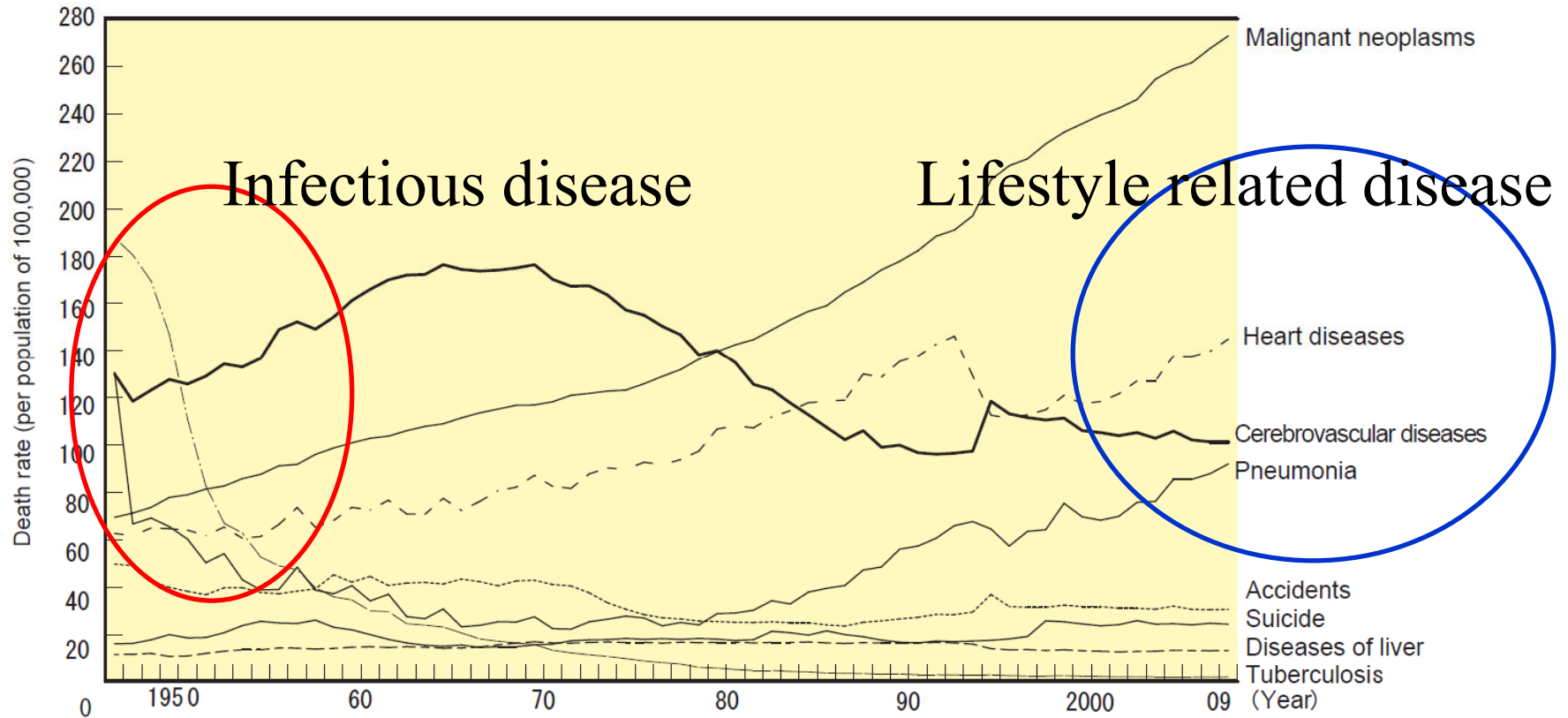


Today's Topics

1. Achievement status of major lifestyle disorders in Japan
2. Impact of health literacy as factor of patients



Trends in death rates for leading causes of death



Source: "Vital Statistics," Statistics and Information Department, Minister's Secretariat, MHLW

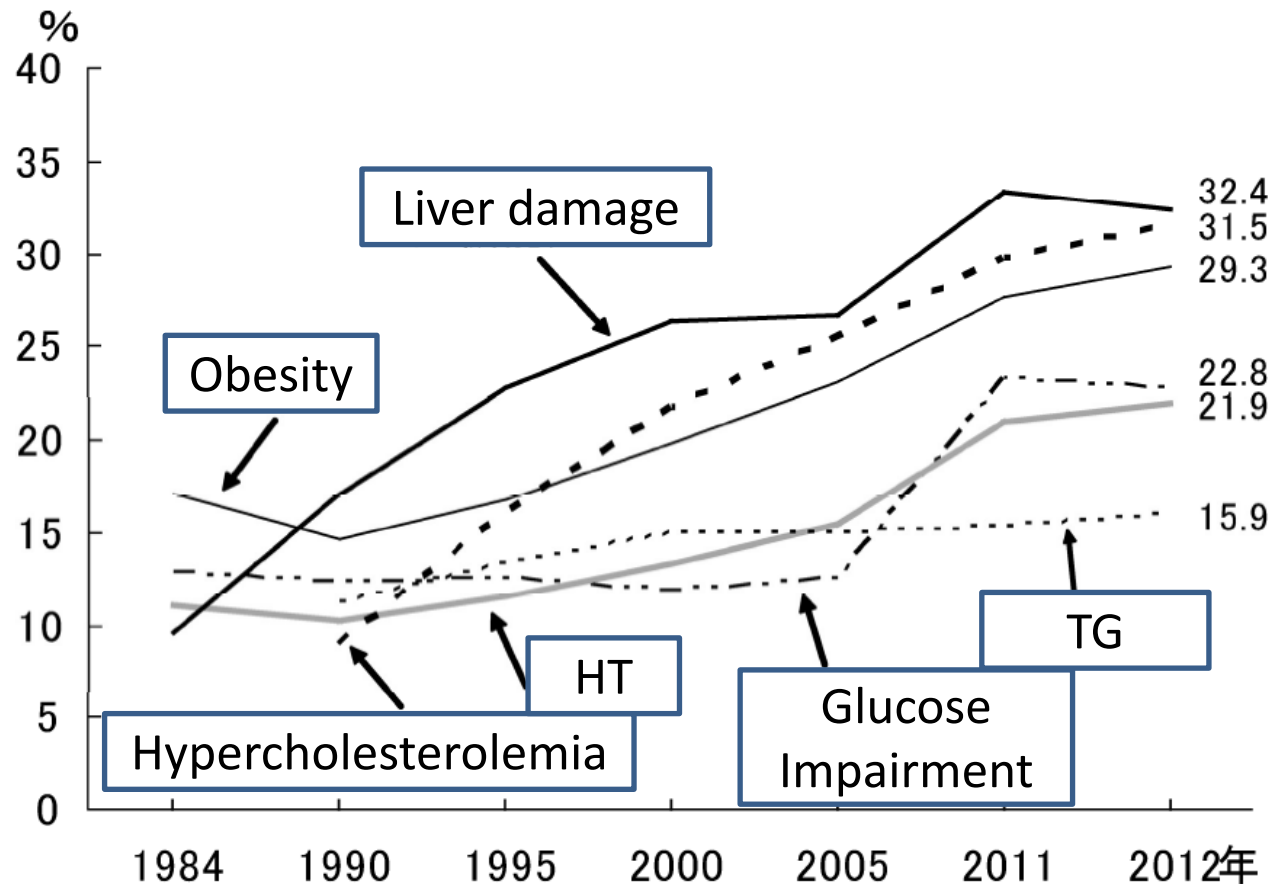
Note: 1. The categories of causes of death are not completely consistent because of the revision of the classification of causes of death.

2. The figures for 2009 are estimates.

https://www.mhlw.go.jp/english/wp/wp-hw4/dl/general_welfare_and_labour/P10.pdf



Prevalence of lifestyle related disorders among participants of health check up



Annual report of Japan Health check up Association in 2012

http://www.ningen-dock.jp/wp/common/data/other/release/dock-genkyou_h24.pdf

Achievement status of major lifestyle related disorders in Japan



How is the achievement status of hypertension ?



A Survey among Japanese workers (Tokyo Health Service Association)



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RESEARCH ARTICLE

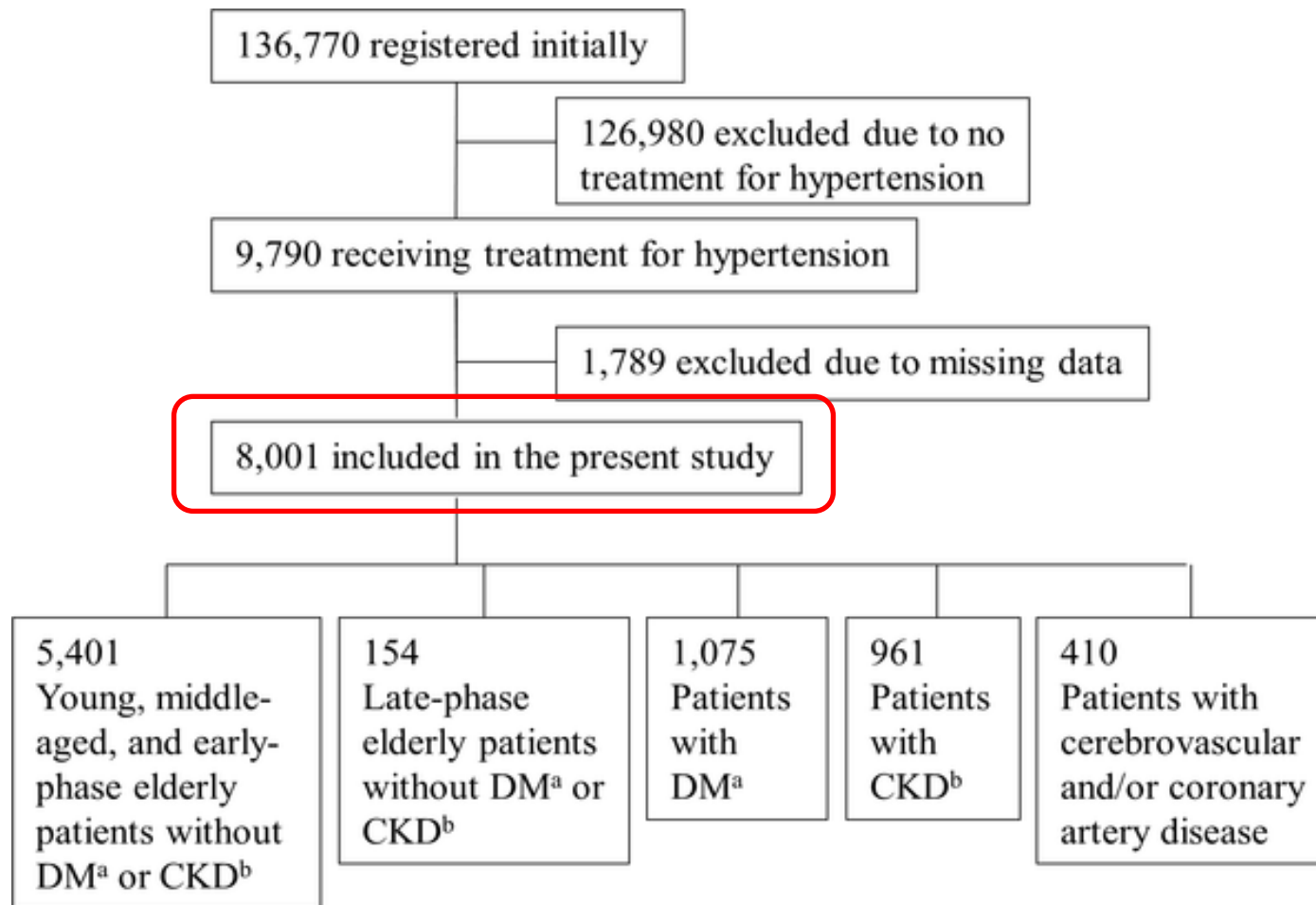
Achievement of Target Blood Pressure Levels among Japanese Workers with Hypertension and Healthy Lifestyle Characteristics Associated with Therapeutic Failure

Nagako Kudo , Hirohide Yokokawa  , Hiroshi Fukuda, Hironobu Sanada, Yuichi Miwa, Teruhiko Hisaoka, Hiroshi Isonuma

Published: July 30, 2015 • <http://dx.doi.org/10.1371/journal.pone.0133641>



Fig 1. Patients' registration and flow.



a) Diabetes mellitus, b) Chronic kidney disease

Kudo N, Yokokawa H, Fukuda H, Sanada H, Miwa Y, et al. (2015) Achievement of Target Blood Pressure Levels among Japanese Workers with Hypertension and Healthy Lifestyle Characteristics Associated with Therapeutic Failure. PLoS ONE 10(7): e0133641.

doi:10.1371/journal.pone.0133641

<http://journals.plos.org/plosone/article?id=info:doi/10.1371/journal.pone.0133641>

Table 2. Mean blood pressures and achievement rates for target blood pressure levels.

	JSH2014 Target blood pressure level (mmHg)	Mean (SD ^a) systolic and diastolic blood pressures (mmHg)	Achievement rates [N (%)]
Young, middle-aged, and early-phase elderly patients without diabetes mellitus or chronic kidney disease (n = 5,401)	<140/90	133.2 (17.7) / 83.0 (10.8)	3250 (60.2)
Late-phase elderly patients without diabetes mellitus or chronic kidney disease (n = 154)	<150/90	138.2 (20.8) / 77.2 (10.3)	110 (71.4)
Diabetic patients (n = 1,074)	<130/80	134.8 (18.0) / 80.6 (10.9)	328 (30.5)
Patients with chronic kidney disease (n = 961)	<130/80	132.2 (19.6) / 80.3 (12.3)	321 (33.4)
Patients with cerebrovascular and/or coronary artery disease (n = 410)	<140/90	130.0 (18.6) / 80.2 (11.3)	270 (66.0)

a) Standard deviation.

doi:10.1371/journal.pone.0133641.t002

Young, Middle –aged, early-phase elderly (65~74y) → 60%
 Patients with diabetes/CKD → 30%

Kudo N, Yokokawa H, Fukuda H, Sanada H, Miwa Y, et al. (2015) Achievement of Target Blood Pressure Levels among Japanese Workers with Hypertension and Healthy Lifestyle Characteristics Associated with Therapeutic Failure. PLoS ONE 10(7): e0133641.

doi:10.1371/journal.pone.0133641

<http://journals.plos.org/plosone/article?id=info:doi/10.1371/journal.pone.0133641>

Table 3. Factors associated with therapeutic failure in young, middle-aged, and early-phase elderly patients without diabetes mellitus or chronic kidney disease (n = 5397) (logistic regression analysis).

	Univariate			Multivariate		
	OR ^{a)}	95% CI ^{b)}	<i>P</i>	OR ^{a)}	95% CI ^{b)}	<i>P</i>
Adequate sleep duration (yes)	1.20	1.10–1.35	**	1.21	1.08–1.36	**
Body mass index (18.5–24.9)	0.79	0.71–0.89	**	0.78	0.69–0.87	**

Among Young, Middle –aged, early-phase elderly, **keeping adequate body weight (BMI 18.5-24.9)** was a **protective factor** against therapeutic failure.

Odds Ratio was 0.78



How is the achievement status of Hyperuricemia/Gout ?



June 7, 2016, Vol 315, No. 21 >



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Research Letter | June 7, 2016

Trends in Gout and Rheumatoid Arthritis Hospitalizations in the United States, 1993-2011

Sian Yik Lim, MD¹; Na Lu, MPH¹; Amar Oza, MD¹; Mark Fisher, MD, MPH¹; Sharan K. Rai, BSc²; Mariano E. Menendez, MD³; Hyon K. Choi, MD, DrPH¹

[\[+\] Author Affiliations](#)

JAMA. 2016;315(21):2345-2347. doi:10.1001/jama.2016.3517.

Text Size: [A](#) [A](#) [A](#)

Article

Figures

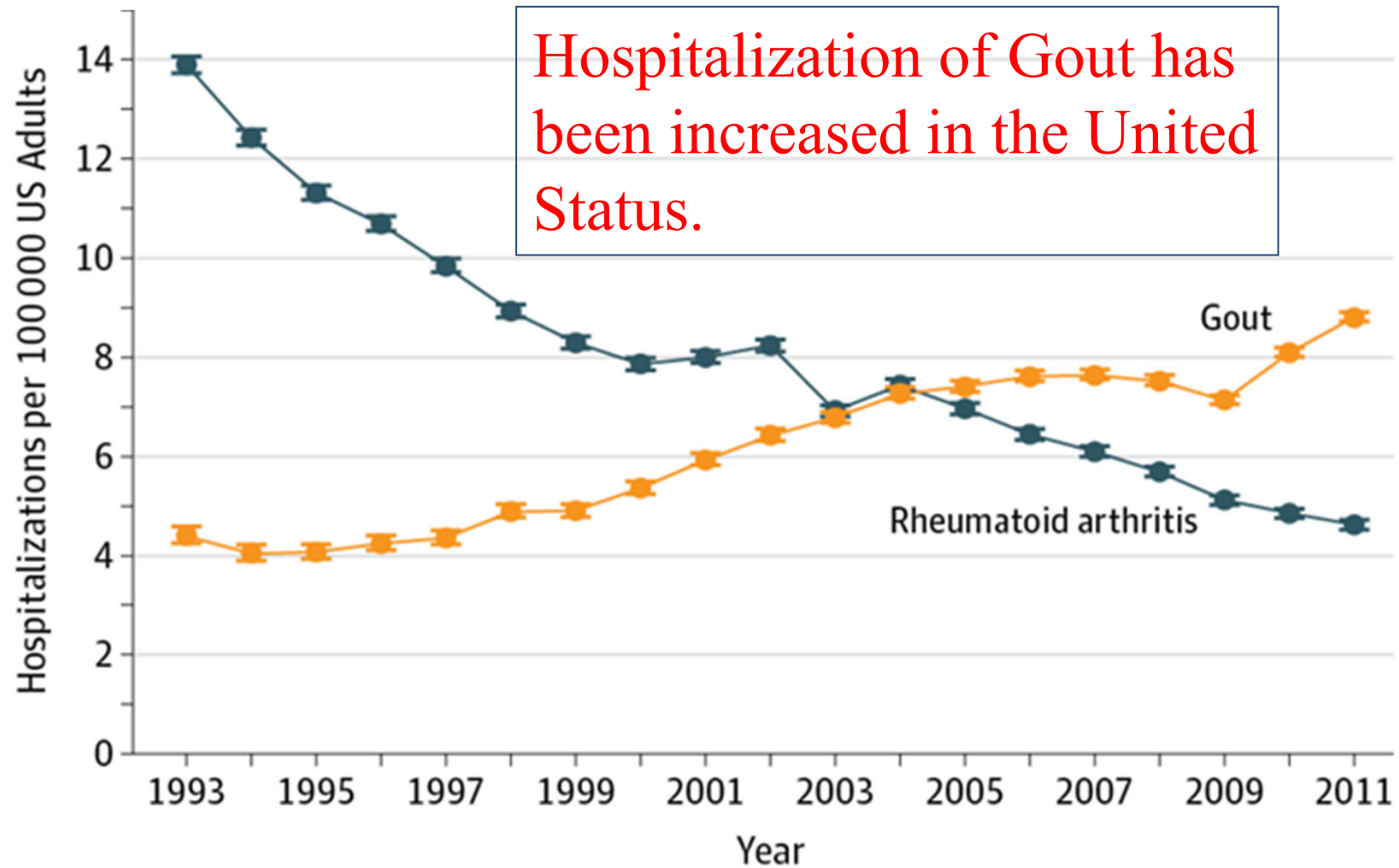
Tables

References

Gout and rheumatoid arthritis are the 2 most common inflammatory arthritides. As hospitalizations for



Annual Rate of Hospitalization for Patients With a Principal Diagnosis of Gout and Rheumatoid Arthritis.



[ORIGINAL ARTICLE]

Achievement of Target Serum Uric Acid Levels and Factors Associated with Therapeutic Failure among Japanese Men Treated for Hyperuricemia/Gout

Akiko Katayama¹, Hirohide Yokokawa¹, Hiroshi Fukuda¹, Yoshiki Ono², Hiroshi Isonuma¹, Teruhiko Hisaoka¹ and Toshio Naito¹

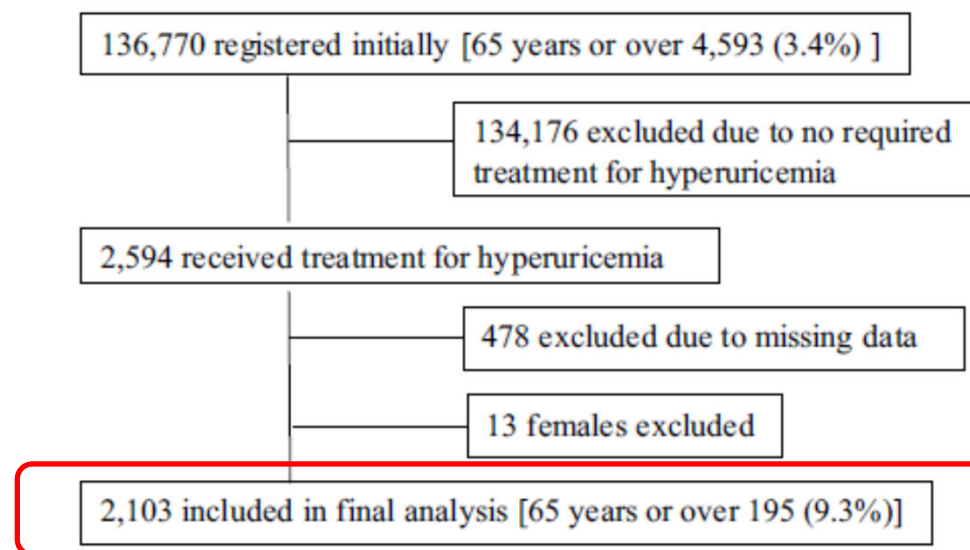


Figure 1. Patient registration and flowchart of the study.



Table 1. Participant Characteristics (n=2,103).

	Mean (SD) or N (%)		
	Uric acid (mg/dL)		
	≤ 6.0 (n=788)	>6.0 (n=1,315)	
Age (years)	54.2 (9.5)	53.1 (9.5)	**
Anthropometric measurements			
Body mass index (kg/m ²)	25.1 (3.3)	25.8 (3.7)	**
Waist circumference (cm)	88.5 (8.4)	90.3 (9.4)	**

Among 2103 participants, achievement rate toward treatment goal (≤ 6 mg/dl) was 37.5%(788). BMI and waist circumference were significantly higher in therapeutic failure than in therapeutic success.



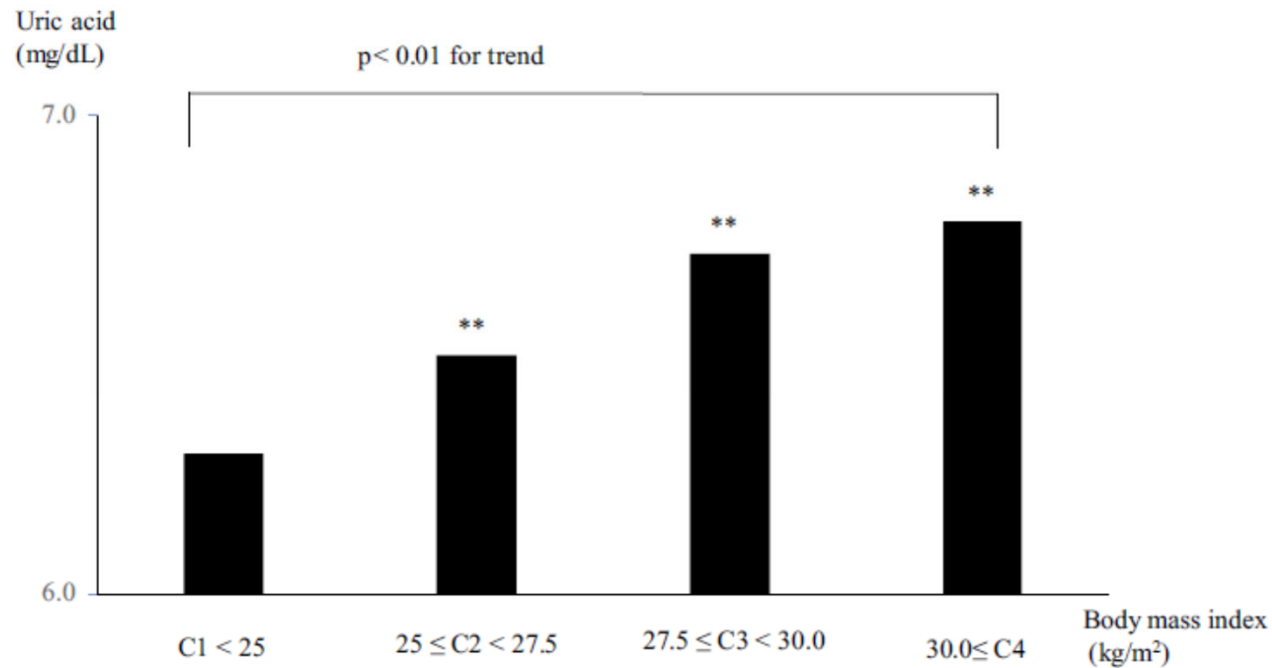


Figure 2. Relationship between the body mass index categories and the serum uric acid levels among men with hyperuricemia/gout.

Serum uric acid concentration was significantly associated with BMI categories among Hyperuricemia/Gout patients.



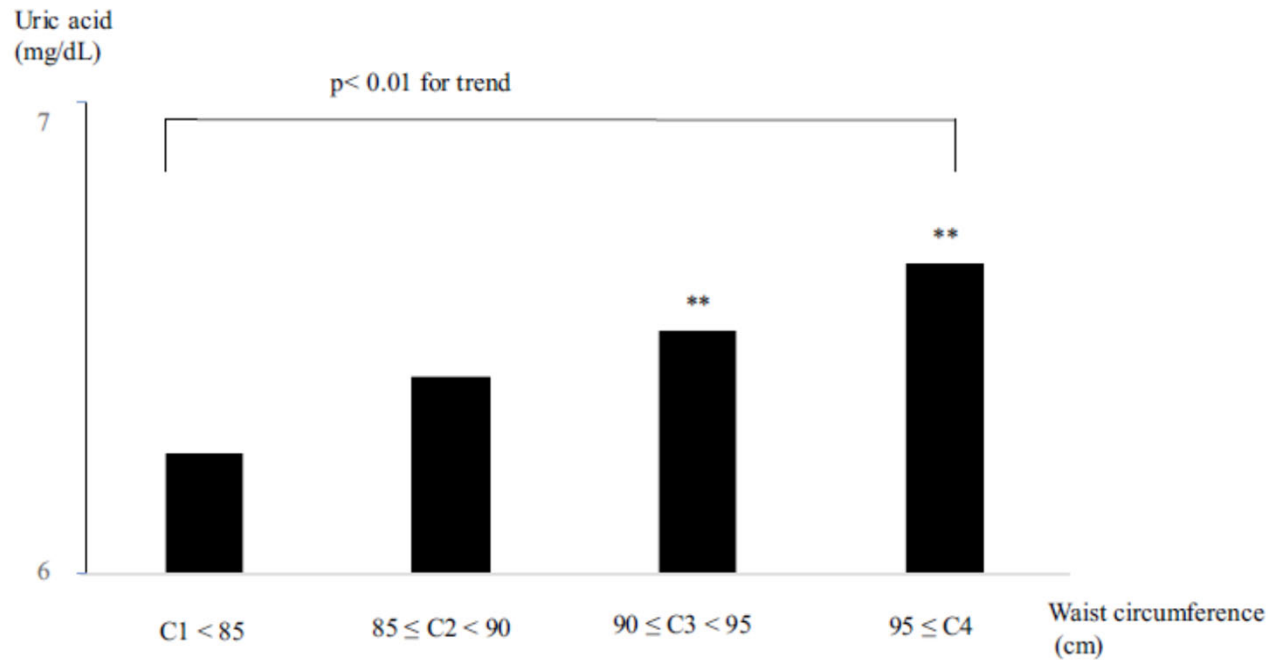


Figure 3. Relationship between the waist circumference categories and serum uric acid levels among men with hyperuricemia/gout.

Serum uric acid concentration was significantly associated with Waist Circumference categories among Hyperuricemia/Gout patients.

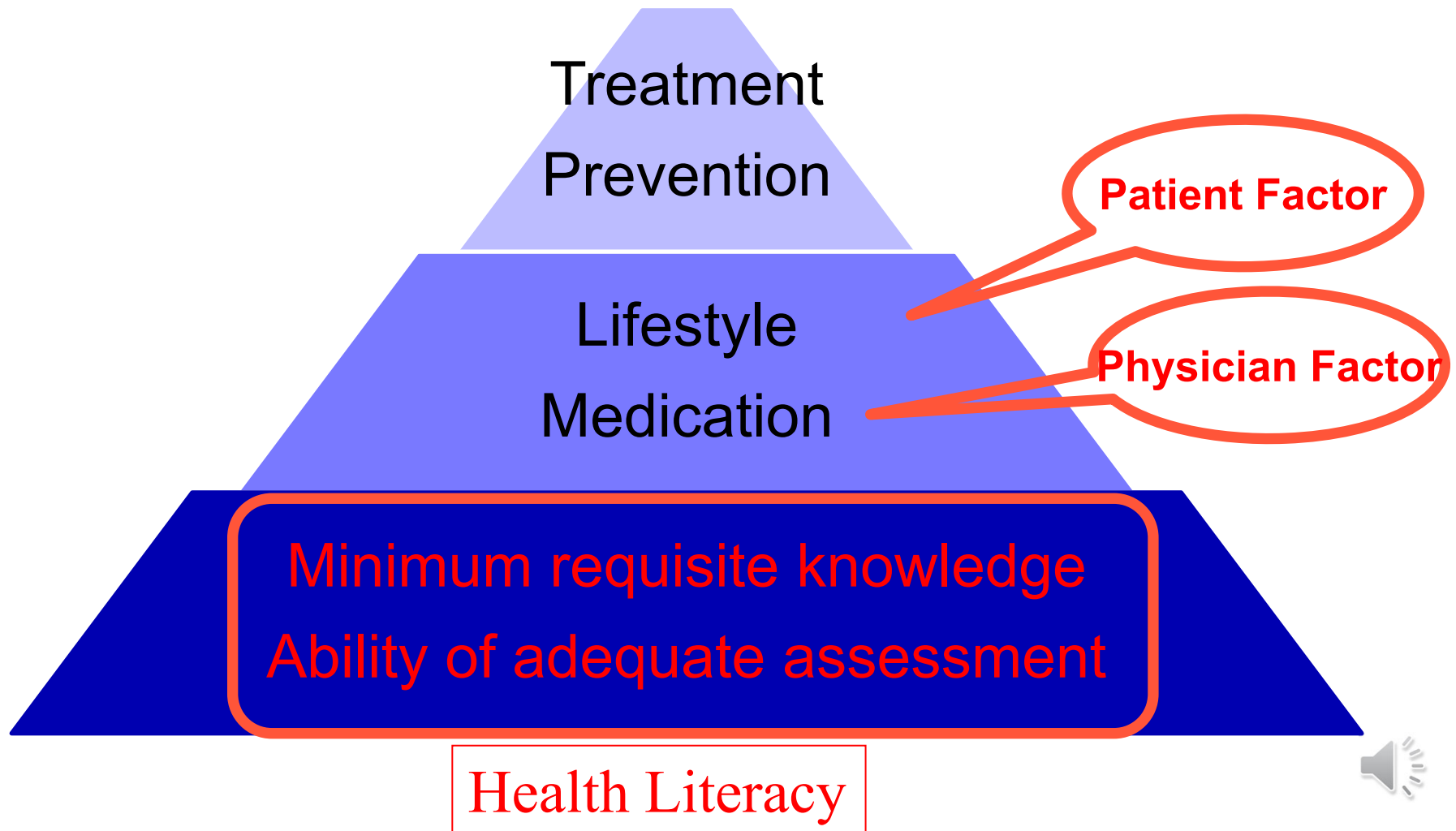


Recommendation to treat or
prevent lifestyle related
disorders

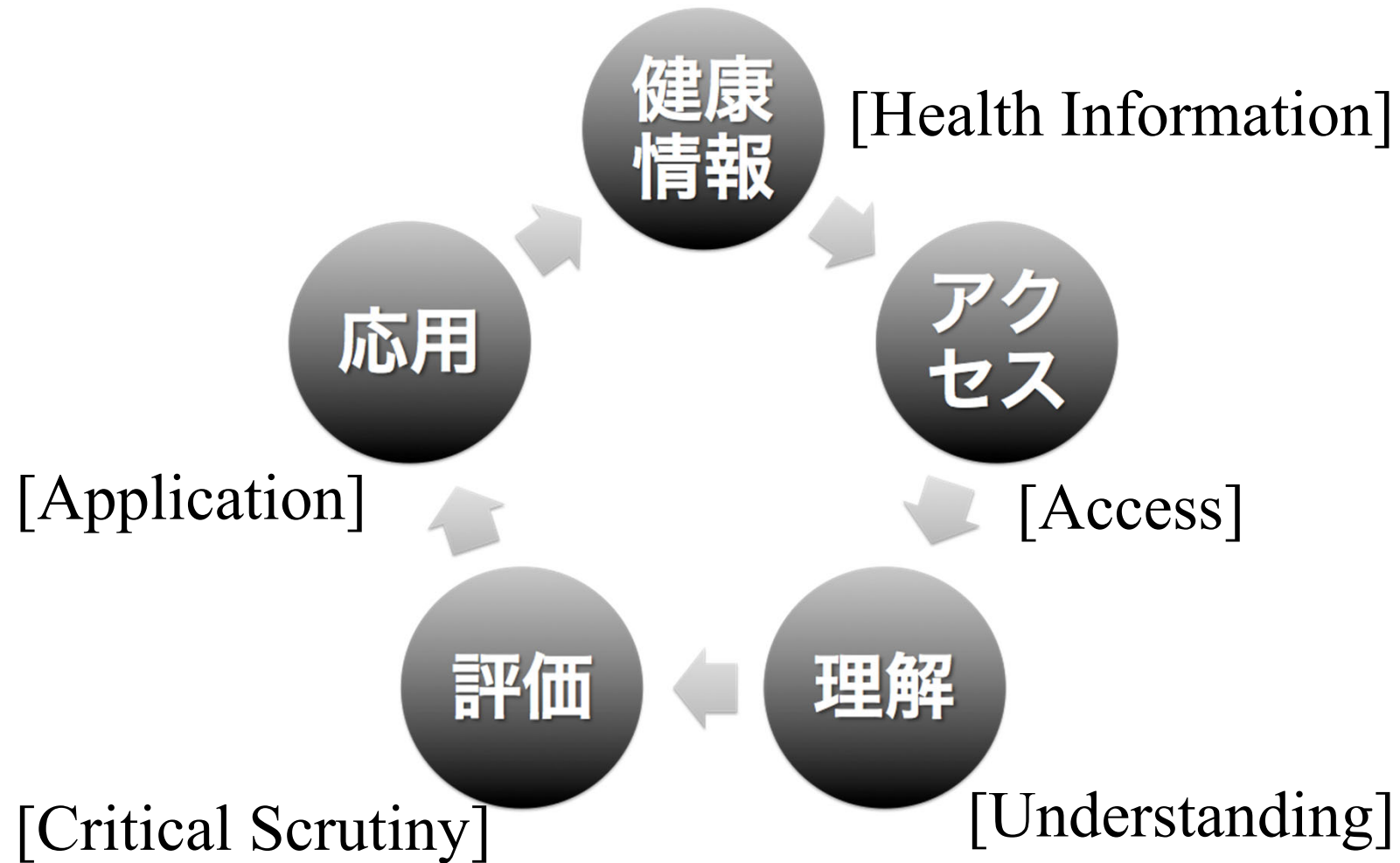
~ Health Literacy ~



Hierarchy to treat or prevent lifestyle related disorders



Cycle of Health Literacy





Health promotion

Health promotion

Publications

▸ Conferences

Health Literacy

“Health literacy implies the achievement of a level of knowledge, personal skills and confidence to take action to improve personal and community health by changing personal lifestyles and living conditions. Thus, health literacy means more than being able to read pamphlets and make appointments. By improving people’s access to health information, and their capacity to use it effectively, health literacy is critical to empowerment.”

– Health Promotion Glossary, 1998



Related links:

[WHO Framework for Country Action Across Sectors for Health and Health Equity](#)

[The 9th Global Conference on Health Promotion](#)

Health literacy implies **the achievement of a level of knowledge, personal skills and confidence to take action to improve personal and community health by changing personal lifestyles and living conditions.** Thus, health literacy means more than being able to read pamphlets and make appointments. By improving people’s access to health information, and their capacity to use it effectively, health literacy is critical to empowerment



Concept of Health Literacy

① Functional Literacy

Basic health literacy skills that are sufficient for individuals to obtain relevant health information(Ex. Reading Writing).

② Interactive Literacy

More advanced literacy skills that enable individuals **to extract information and derive meaning from different forms of communication**, and to apply new information to changing circumstances.

③ Critical Literacy

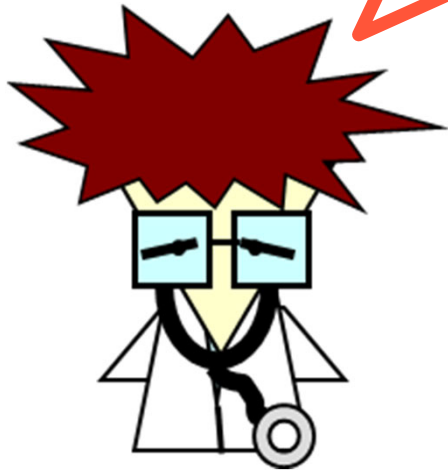
More advanced literacy cognitive skills which, together with social skills, can be **applied to critically analyze information**, and to **use this information to extract greater control over life events and situations**.

Nutbeam D. HEP. 2015; 42: 450-455

https://www.jstage.jst.go.jp/article/jhep/42/4/42_450/_pdf



**Your BMI is more than 30.
I recommend you to
reduce your weight!**



**My body is
very thin.**



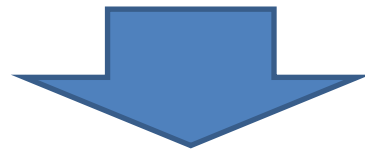
**No need
weight loss!**

What is BMI?



How is to assess Health Literacy ?

Are there any assessment tools for Health Literacy?



There are several concise self-administrated questionnaires!



Whether the participant would be able to do below items?

		strongly disagree				strongly agree
1	collect health-related information from various sources	1	2	3	4	5
2	extract the relevant information	1	2	3	4	5
3	understand and communicate the obtained information	1	2	3	4	5
4	consider the credibility of the information	1	2	3	4	5
5	make decisions based on the information	1	2	3	4	5



Association between health literacy and metabolic syndrome or healthy lifestyle characteristics among community-dwelling Japanese people

[Hirohide Yokokawa](#) ✉, [Hiroshi Fukuda](#), [Motoyuki Yuasa](#), [Hironobu Sanada](#), [Teruhiko Hisaoka](#) and [Toshio Naito](#)

Diabetology & Metabolic Syndrome 2016 8:30 | DOI: 10.1186/s13098-016-0142-8 | © Yokokawa et al. 2016



Healthy Lifestyle Characteristics

(Breslow, L. health habit)

1. Smoking behavior (non-current smoker)
2. Exercise frequency (2 times or more per week)
3. Adequate alcohol consumption
4. Sleep hours (6-9 hours)
5. Ideal body weight (BMI 18.5-24.9)
6. Breakfast (every morning)
7. Snack between meals (no)

Logistic regression analysis of health literacy for men with 6-7 healthy lifestyle characteristics (N=781)

	Univariate analysis			Multivariate analysis					
	OR ^a	95% CI ^b	P ^e	OR ^a	95% CI ^b	P ^e	OR ^a	95% CI ^b	P ^e
Health literacy									
Seeking information from various sources (≥4 vs. <4)	1.26	0.78-2.02	-	-	-	-	1.44	0.89-2.34	-
Extracting relevant information (≥4 vs. <4)	1.31	0.85-2.01	-	-	-	-	1.50	0.97-2.32	-
Understanding and communicating the information (≥4 vs. <4)	1.59	1.06-2.39	**	-	-	-	1.63	1.08-2.47	*
Considering the credibility of the information (≥4 vs. <4)	1.49	0.99-2.23	-	-	-	-	1.39	0.92-2.10	-
Making decisions based on the information (≥4 vs. <4))	2.16	1.42-3.27	**	-	-	-	2.04	1.34-3.10	**
Total score (≥14 vs. <14)	1.99	1.29-3.06	**	2.08	1.33-3.23	**	-	-	-



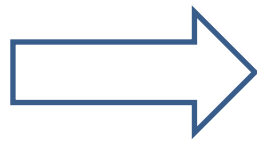
Logistic regression analysis of health literacy for men with metabolic syndrome (N=742)

	Univariate analysis			Multivariate analysis					
				Model 1			Model 2		
	OR ^a	95% CI ^b	P ^c	OR ^a	95% CI ^b	P ^c	OR ^a	95% CI ^b	P ^c
Health literacy									
Seeking information from various sources (≥ 4 vs. < 4)	0.83	0.56-1.21	-	-	-	-	0.75	0.52-1.09	-
Extracting relevant information (≥ 4 vs. < 4)	0.82	0.58-1.18	-	-	-	-	0.80	0.55-1.11	-
Understanding and communicating the information (≥ 4 vs. < 4)	0.80	0.57-1.14	-	-	-	-	0.80	0.57-1.13	-
Considering the credibility of the information (≥ 4 vs. < 4)	0.82	0.58-1.16	-	-	-	-	0.80	0.55-1.10	-
Making decisions based on the information (≥ 4 vs. < 4)	0.64	0.45-0.91	*	-	-	-	0.62	0.44-0.88	**
Total score (≥ 14 vs. < 14)	0.69	0.49-0.97	*	0.67	0.48-0.95	**	-	-	-



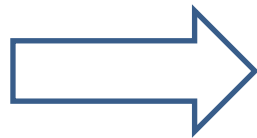
Summary of the results

High health literacy is likely to have **healthy lifestyle characteristics 2.08 times** higher than low health literacy among Japanese men.



A factor positively associated with healthy lifestyle

High health literacy is likely to have **metabolic syndrome 0.67 times** higher than low health literacy among Japanese men.



A protective factor against metabolic syndrome



Original Articles

Analysis of Associations between Health Literacy and Healthy Lifestyle Characteristics among Japanese Outpatients with Lifestyle-related Disorders

**Nagako Kudo, MD,^{1,2,*} Hirohide Yokokawa, MD, PhD,^{2,*}
Hiroshi Fukuda, MD, PhD,² Teruhiko Hisaoka, MD, PhD,²
Hiroshi Isonuma, MD, PhD,² and Toshio Naito, MD, PhD²**

¹ Tokorozawa Medical Clinic, Tokorozawa, Japan

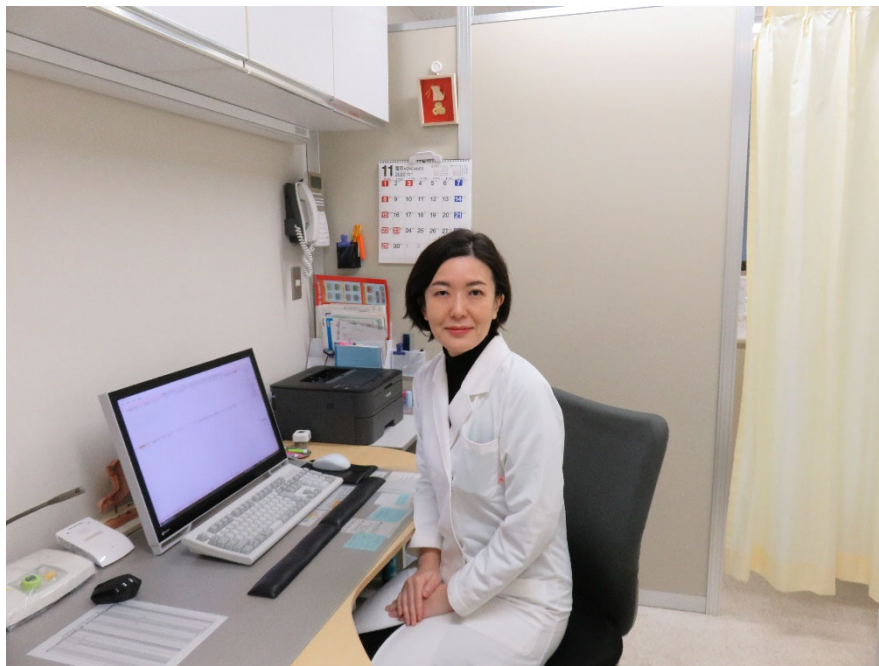
² Department of General Medicine, Juntendo University Faculty of Medicine, Tokyo, Japan



Tokorozawa Medical Clinic (Tokorozawa City, Saitama)

Dr. Nagako Kudo

Part-time lecture of
Juntendo University



Appendix. 14 items of Health literacy scale (HLS14)

1. When you read instructions or leaflets from hospitals or pharmacies, how do you agree or disagree about the following?

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
Q1. I find characters that I cannot read.	5	4	3	2	1
Q2. The print is too small for me (even though I wear glasses)	5	4	3	2	1
Q3. The content is too difficult for me.	5	4	3	2	1
Q4. It takes a long time to read them.	5	4	3	2	1
Q5. I need someone to help me read them.	5	4	3	2	1

2. If you are diagnosed as having a disease and you have information about the disease and its treatment, how do you agree or disagree about the following?

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
Q6. I collect information from various sources.	1	2	3	4	5
Q7. I extract the information I want.	1	2	3	4	5
Q8. I understand the obtained information.	1	2	3	4	5
Q9. I tell my opinion about my illness to my doctor, family, or friends.	1	2	3	4	5
Q10. I apply the obtained information to my daily life.	1	2	3	4	5

3. If you are diagnosed as having a disease and you can obtain information about the disease and its treatment, how do you agree or disagree about the following?

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
Q11. I consider whether the information is applicable to me.	1	2	3	4	5
Q12. I consider whether the information is credible.	1	2	3	4	5
Q13. I check whether the information is valid and reliable.	1	2	3	4	5
Q14. I collect information to make my healthcare decisions.	1	2	3	4	5



Table 2. Logistic regression analysis of health literacy with 6–7 healthy lifestyle characteristics among men (N = 207)

	Univariate analysis			Multivariate analysis					
	OR ^a	95% CI ^b	P ^e	Model 1 ^c			Model 2 ^d		
	OR ^a	95% CI ^b	P ^e	OR ^a	95% CI ^b	P ^e	OR ^a	95% CI ^b	P ^e
Health literacy									
Functional health literacy (≥18 vs. <18)	2.21	1.06–4.57	*	-	-		2.34	1.09–5.02	*
Communicative health literacy (≥18 vs. <18)	2.00	1.01–4.00	*	-	-		2.37	1.15–4.88	*
Critical health literacy (≥14 vs. <14)	2.69	1.34–5.37	**	-	-		2.78	1.36–5.70	**
Total score (≥51 vs. <51)	2.03	1.04–3.97	*	2.19	1.09–4.41	*	-	-	

^aOdds ratio, ^b95% confidence interval, ^cModel 1 was adjusted for total HL score (≥51 vs. <51), age (years) and comorbidities (cardiovascular, cerebrovascular diseases, chronic kidney disease, and malignant neoplasms); ^dModel 2 was adjusted for three health literacy items (≥18 vs. <18 or ≥14 vs. <14), age (years) and complications (cardiovascular disease, cerebrovascular diseases, chronic kidney disease, and malignant neoplasms); ^e***P* < 0.01, **P* < 0.05, NS: non-significant.

High health literacy is likely to have **healthy lifestyle characteristics 2.19 times** higher than low health literacy among Japanese men.



A factor positively associated with healthy lifestyle



Table 3. Logistic regression analysis of health literacy with 6–7 healthy lifestyle characteristics among women (N = 254)

	Univariate analysis			Multivariate analysis					
	OR ^a	95% CI ^b	<i>P</i> ^e	Model 1 ^{c)}			Model 2 ^{d)}		
				OR ^a	95% CI ^b	<i>P</i> ^e	OR ^a	95% CI ^b	<i>P</i> ^e
Health literacy									
Functional health literacy (≥18 vs. <18)	0.83	0.48–1.15	NS	-	-		0.90	0.50–1.61	NS
Communicative health literacy (≥18 vs. <18)	1.35	0.77–2.35	NS	-	-		1.35	0.76–2.41	NS
Critical health literacy (≥14 vs. <14)	1.08	0.62–1.88	NS	-	-		1.07	0.61–1.87	NS
Total score (≥51 vs. <51)	1.01	0.58–1.76	NS	1.10	0.61–1.96	NS	-	-	

^aOdds ratio, ^b95% confidence interval, ^cModel 1 was adjusted for total HL score (≥51 vs. <51), age (years) and comorbidities (cardiovascular, cerebrovascular diseases, chronic kidney disease, and malignant neoplasms); ^dModel 2 was adjusted for three health literacy items (≥18 vs. <18 or ≥14 vs. <14), age (years) and complications (cardiovascular disease, cerebrovascular diseases, chronic kidney disease, and malignant neoplasms); ^e****P* < 0.01, **P* < 0.05, NS: non-significant.

There was no association between health literacy levels and healthy lifestyle characteristics among Japanese women.



Discussion

How do you use the health literacy in the actual clinical setting?

