Aug 19, 2019

# Achievement status of lifestyle disorders

# ～Utility of health literacy～

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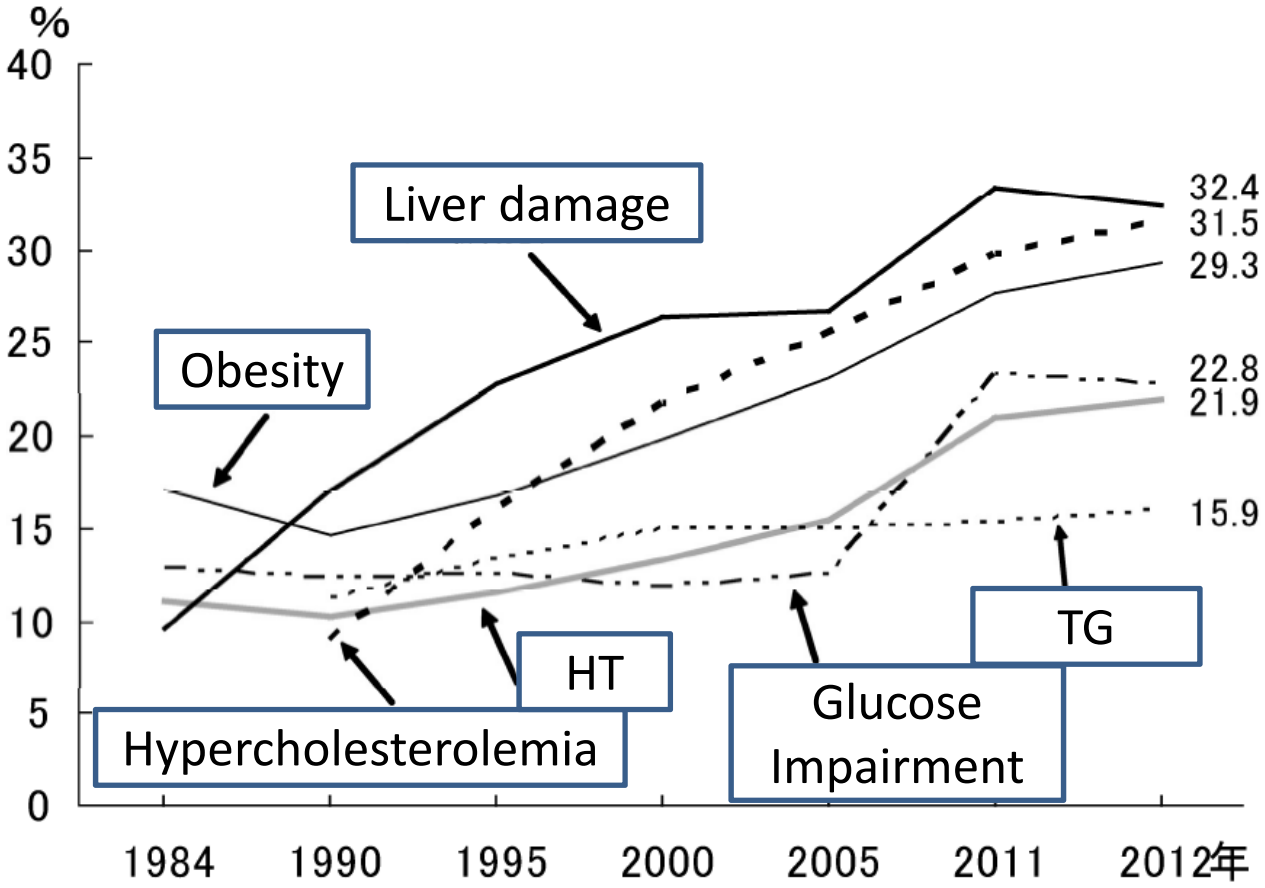
# Today's Topics

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

# 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


https://www.irasutoya.com/2015/11/blog-post_942.html

# How is the achievement status of hypertension？

https://www.irasutoya.com/2014/09/blog-post_173.html

# A Survey among Japanese workers
# （Tokyo Health Service Association）

PLOS ONE | Publish | About | Brows

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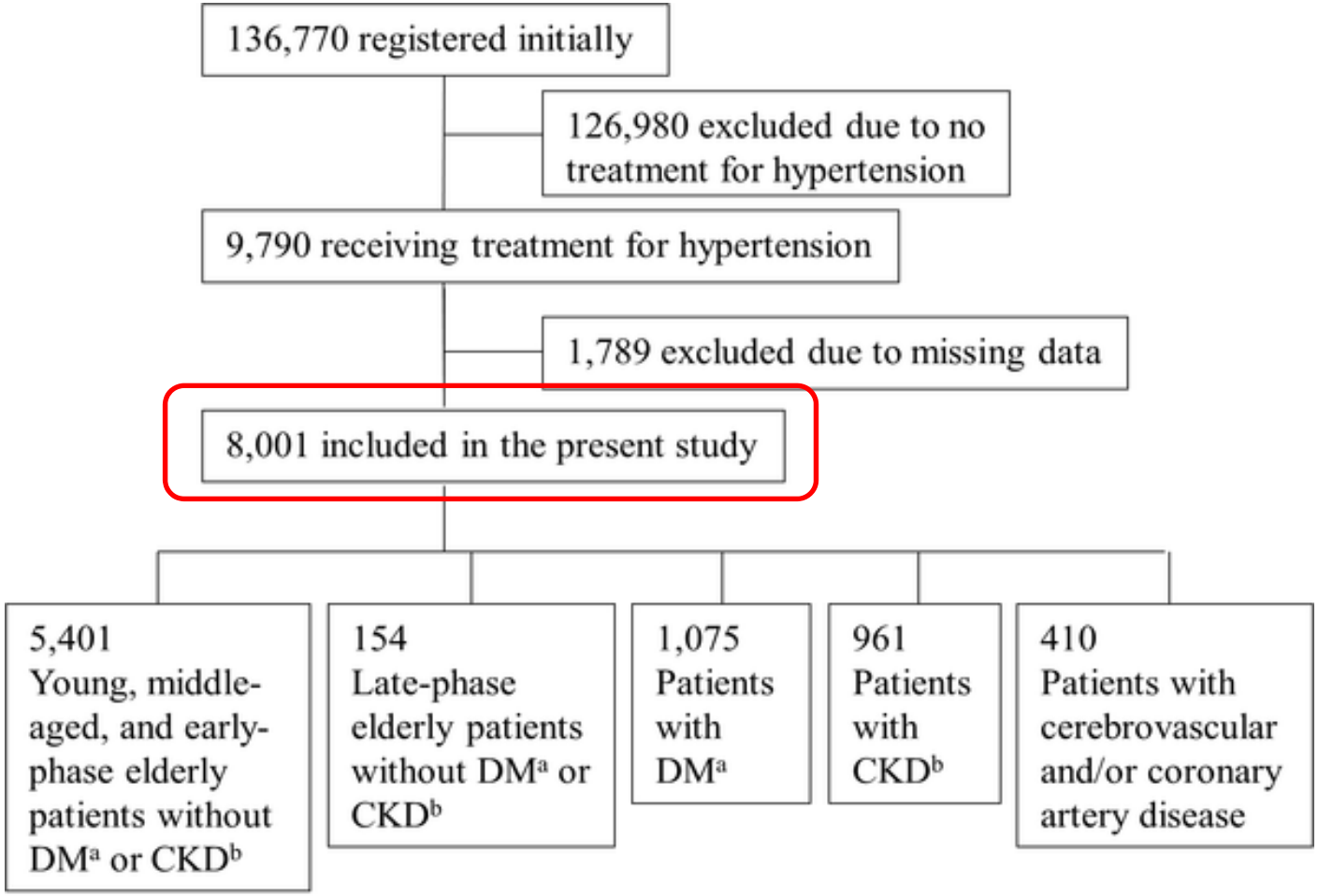
RESEARCH ARTICLE

## 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)] | *P* | OR[a)] | 95% CI[b)] | *P* |
| 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 ？

https://www.irasutoya.com/2016/04/blog-post_125.html

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

< Previous Article Next Article >

Research Letter | June 7, 2016

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

Sian Yik Lim, MD[1]; Na Lu, MPH[1]; Amar Oza, MD[1]; Mark Fisher, MD, MPH[1]; Sharan K. Rai, BSc[2]; Mariano E. Menendez, MD[3]; Hyon K. Choi, MD, DrPH[1]

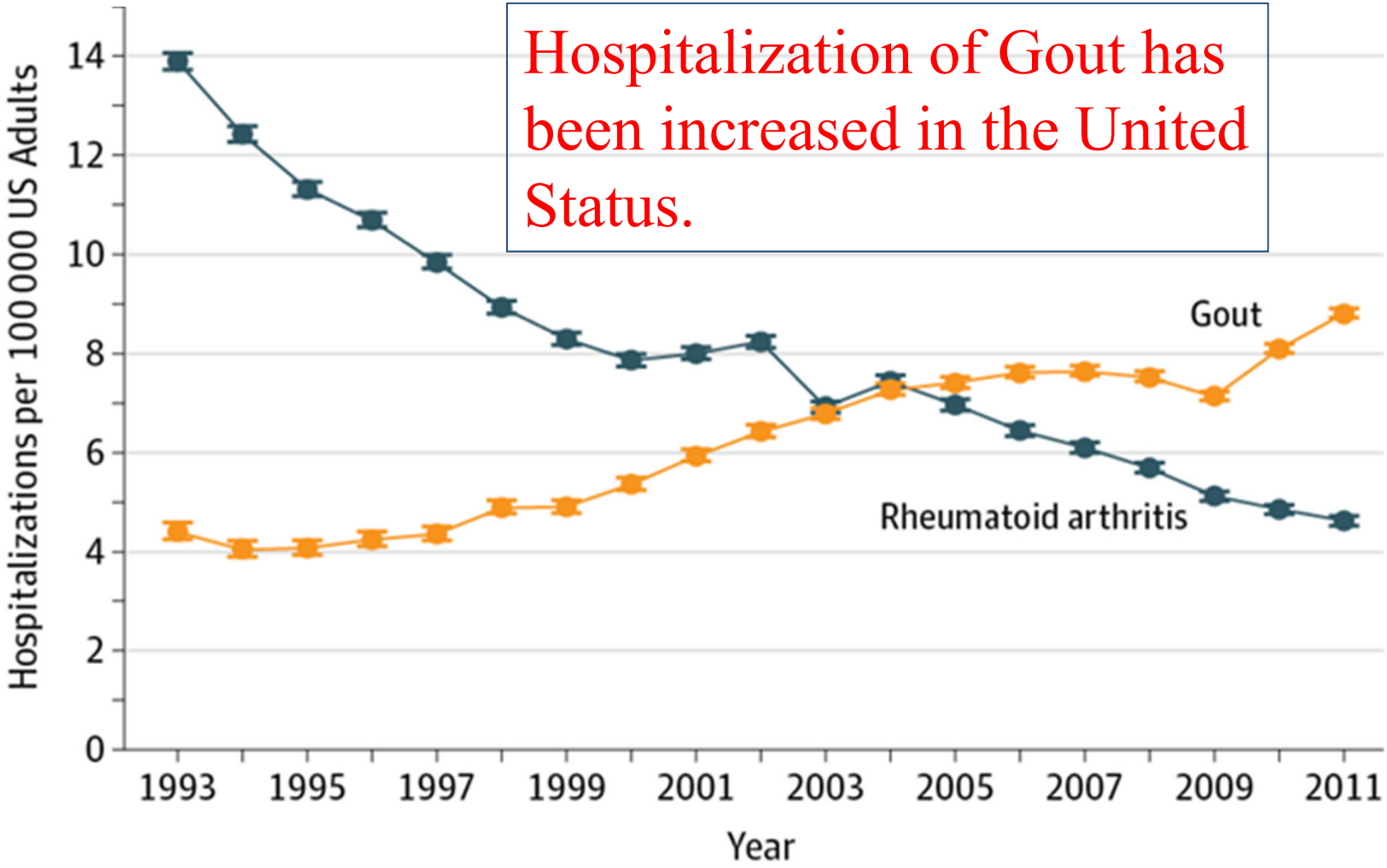
[+] Author Affiliations

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



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.



Internal Medicine
The Japanese Society of Internal Medicine
doi: 10.2169/internalmedicine.1899-18
Intern Med Advance Publication
http://internmed.jp

【 ORIGINAL ARTICLE 】

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

Akiko Katayama[1], Hirohide Yokokawa[1], Hiroshi Fukuda[1], Yoshiki Ono[2], Hiroshi Isonuma[1], Teruhiko Hisaoka[1] and Toshio Naito[1]

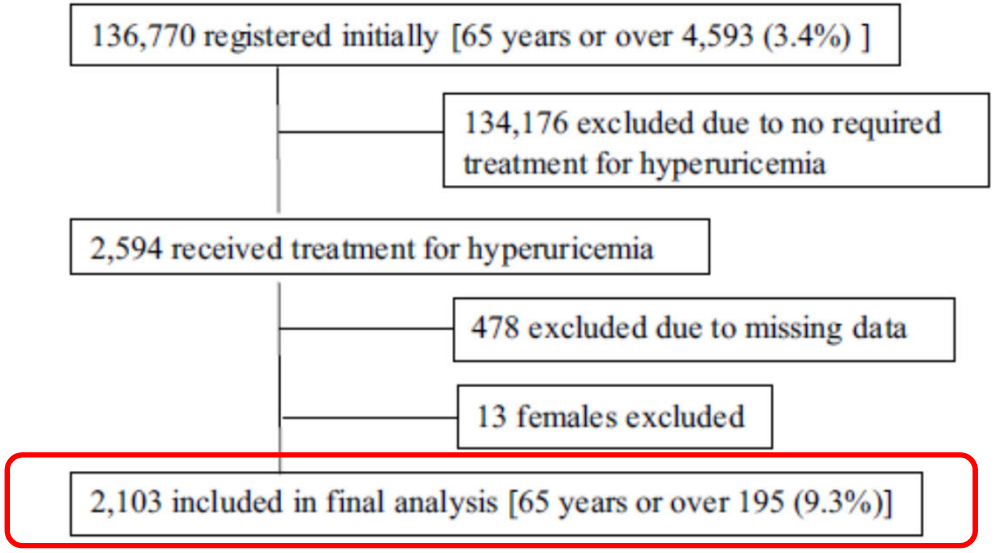



**Figure 1.** Patient registration and flowchart of the study.

**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/m²) | 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 (≤6mg/dl) was 37.5%(788).
BMI and waist circumference were significantly higher in therapeutic failure than in therapeutic success.

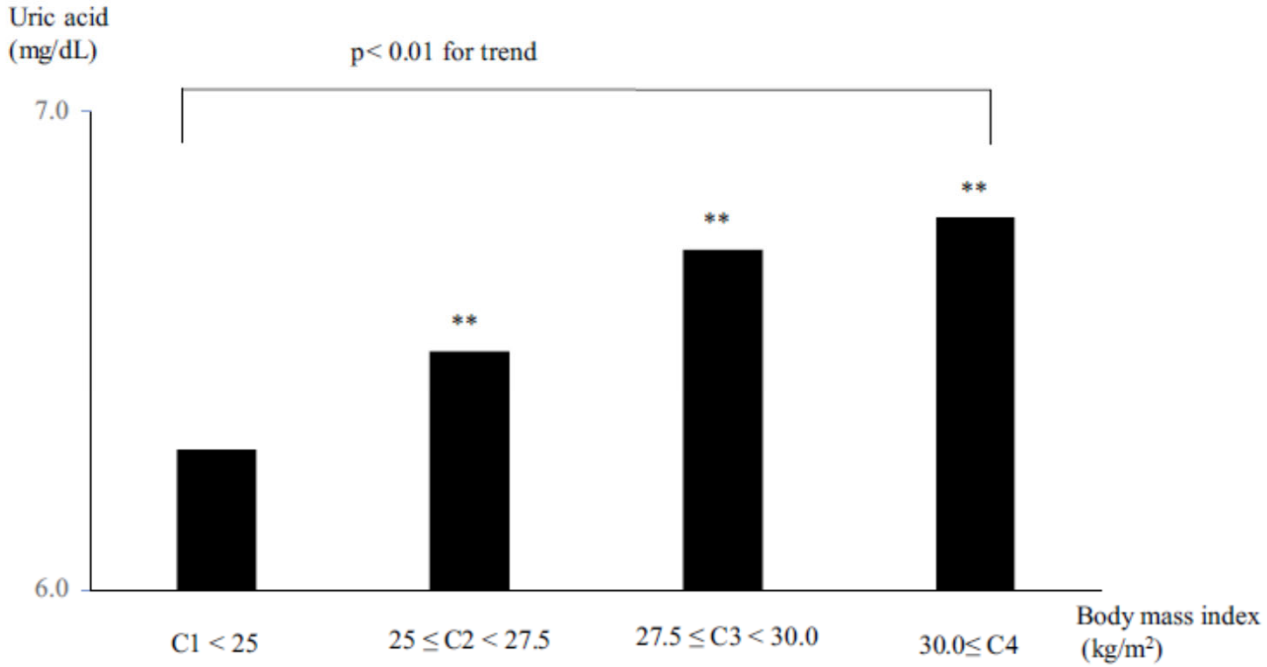



**Figure 2. Relationship between the body mass index categories and the serum uric acid levels among men with hyperuricemia/gout.**

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

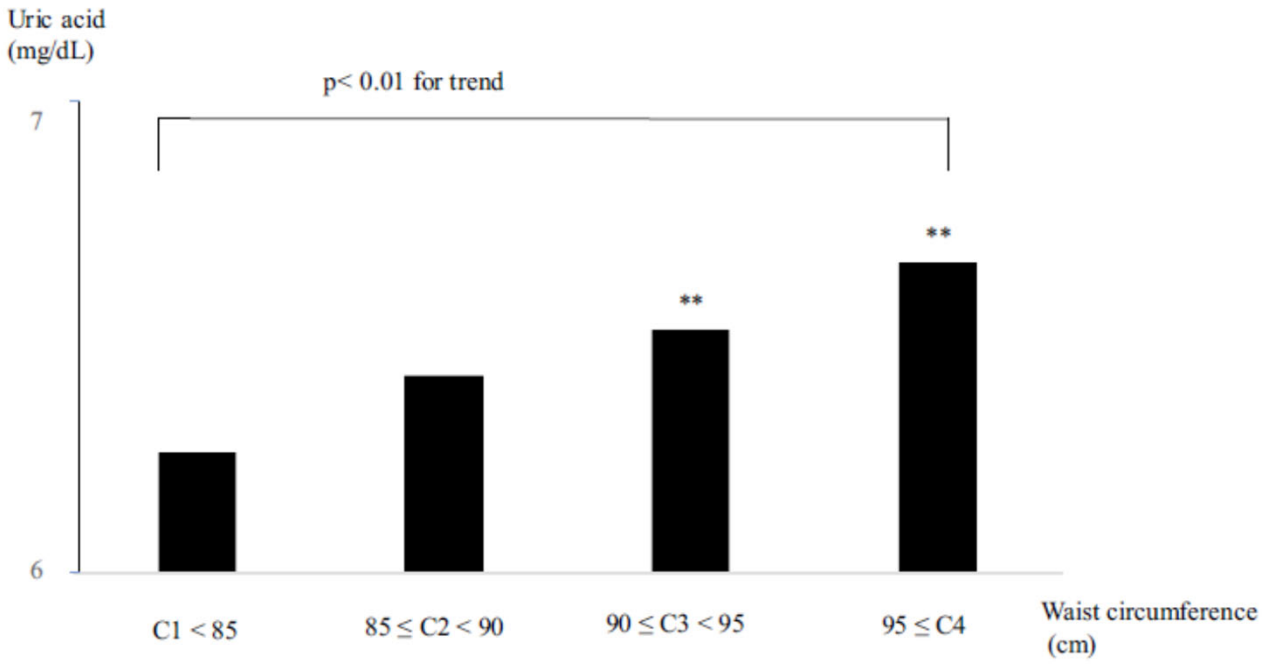



**Figure 3. Relationship between the waist circumference categories and serum uric acid levels among men with hyperuricemia/gout.**

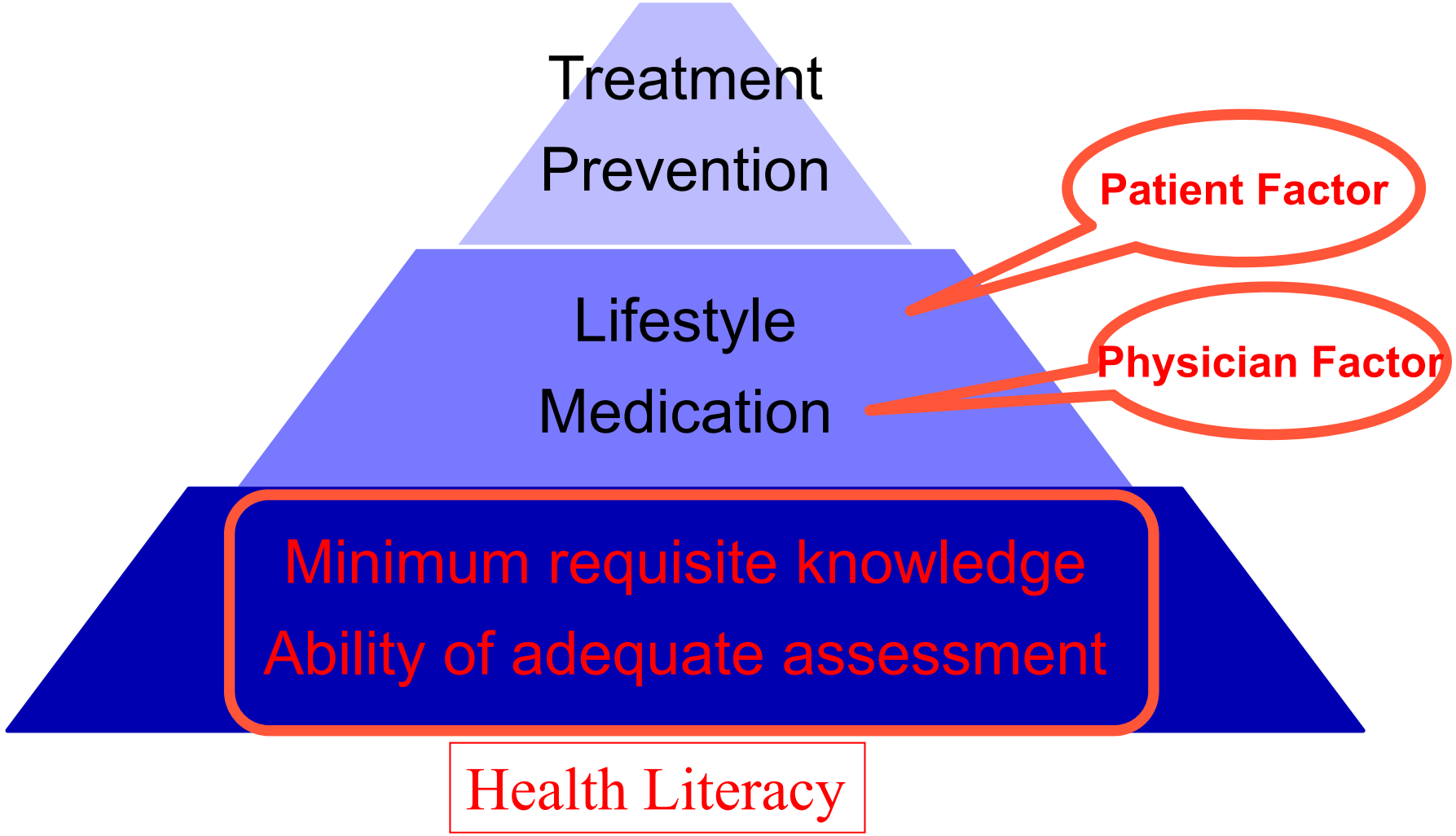
Serum uric acid concentration was significantly associated with Waist Circumference categories among Hyperuricemia/Gout patients.

# Recommendation to treat or prevent lifestyle related disorders

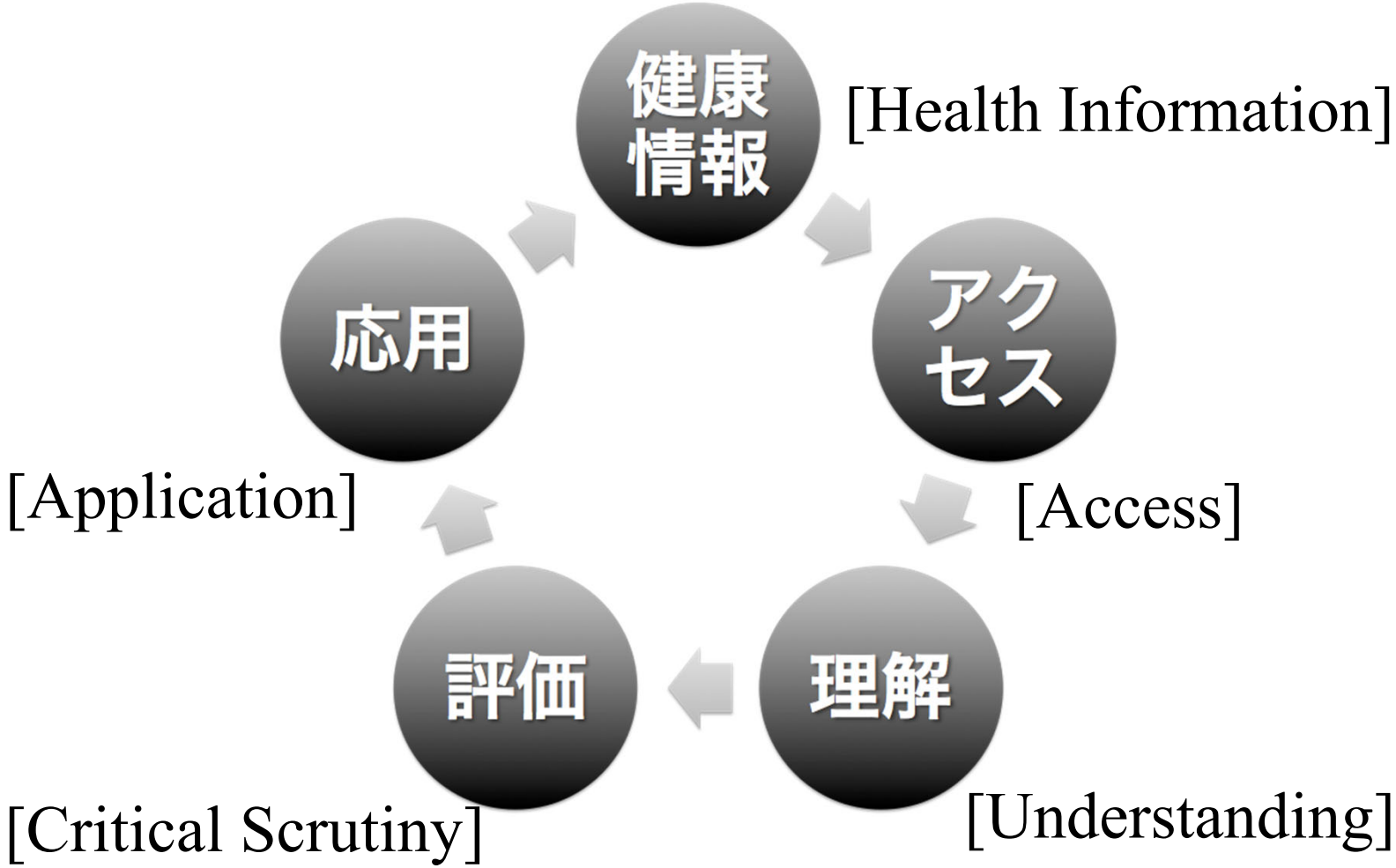
## ～Health Literacy～

https://www.irasutoya.com/2013/03/blog-post_3412.html

# Hierarchy to treat or prevent lifestyle related disorders



# ヘルスリテラシー(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

# Concept of Health Literacy

①Functional Literacy

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

②Interactive Literacy

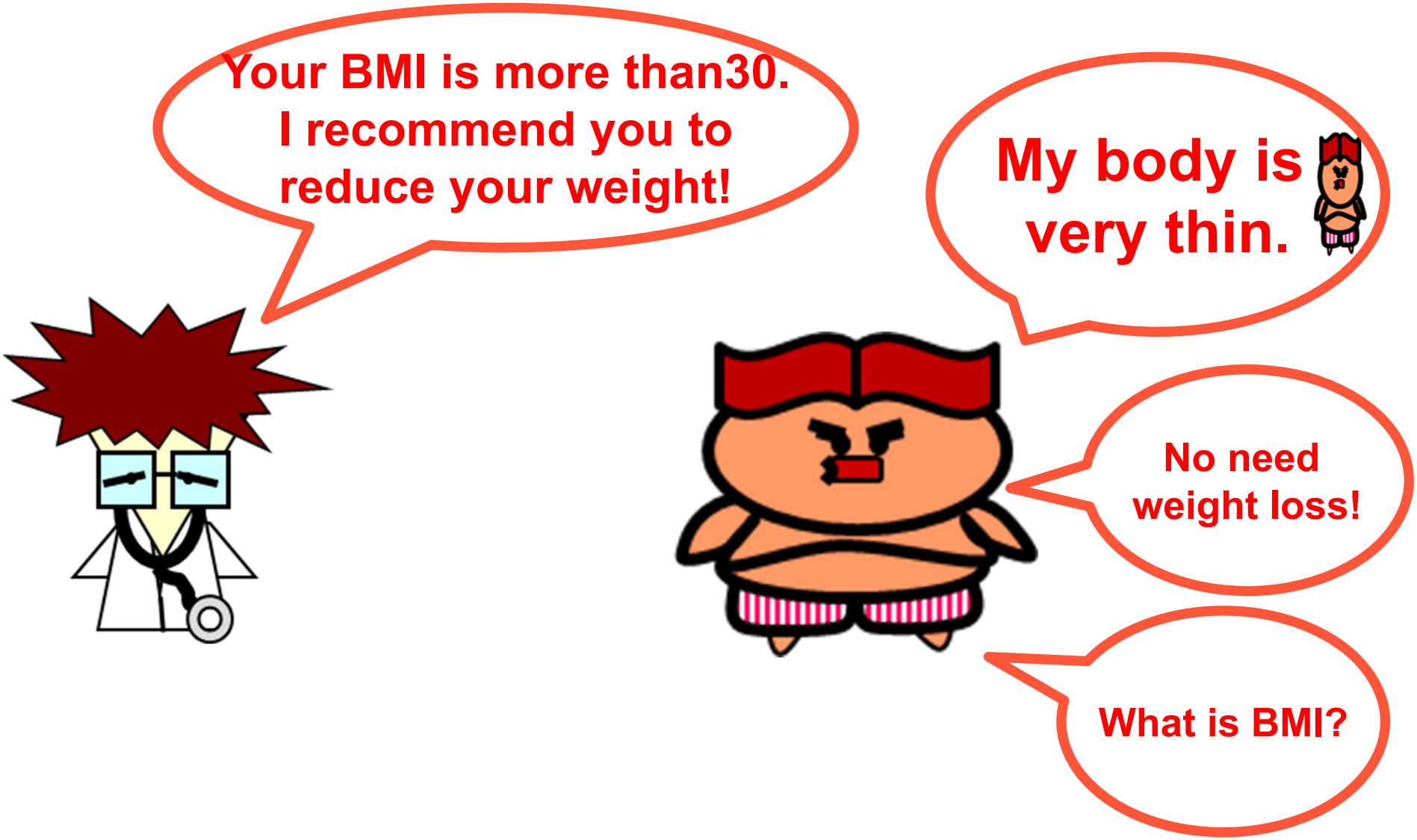
More advanced literacy skills that enable individuals to extract information and derive meaning from different forms of communication, and to apply new information to changing circumstances.

③Critical 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 than30.
I recommend you to
reduce your weight!
My body is
very thin.
No need
weight loss!
What is BMI?

# 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 |

Ishikawa H, et al. Health Promot Int. 2008;23:269-74.

Diabetology & Metabolic Syndrome

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# 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 | 

# 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)

Belloc NB, Breslow L. Prev Med 1:409-421, 1972.

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

| | Univariate analysis | | | Multivariate analysis | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Model 1 | | | Model 2 | | |
| | 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*[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) | 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 1.99 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 0.69 times higher than low health literacy among Japanese men.

⇨ A protective factor against metabolic syndrome