

Metabolic Syndrome And Related Metabolic Abnormalities And Incident Dementia: findings from Japan Public Health Center-based Prospective Study

Wed-1105

Yukai Lu¹ (✉ yriku@ncc.go.jp), Taiki Yamaji¹, Kazumasa Yamagishi^{2,3}, Nobufumi Yasuda⁴, Yoko Shimizu¹, Manami Inoue¹, Shoichiro Tsugane^{1,5}, Motoki Iwasaki¹, Norie Sawada¹

1 National Cancer Center Japan, Tokyo, Japan 2 Juntendo University, Tokyo, Japan 3 University of Tsukuba, Tsukuba, Japan;

4 Kochi University, Japan 5 International University of Health and Welfare, Tokyo, Japan

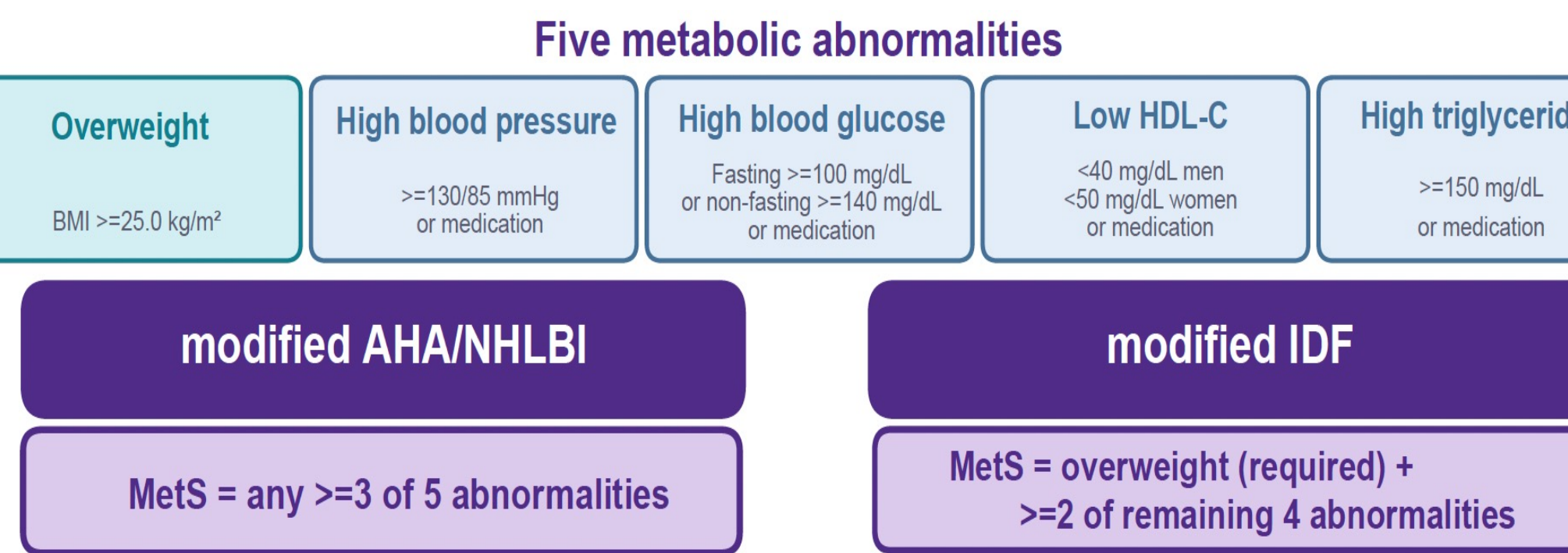
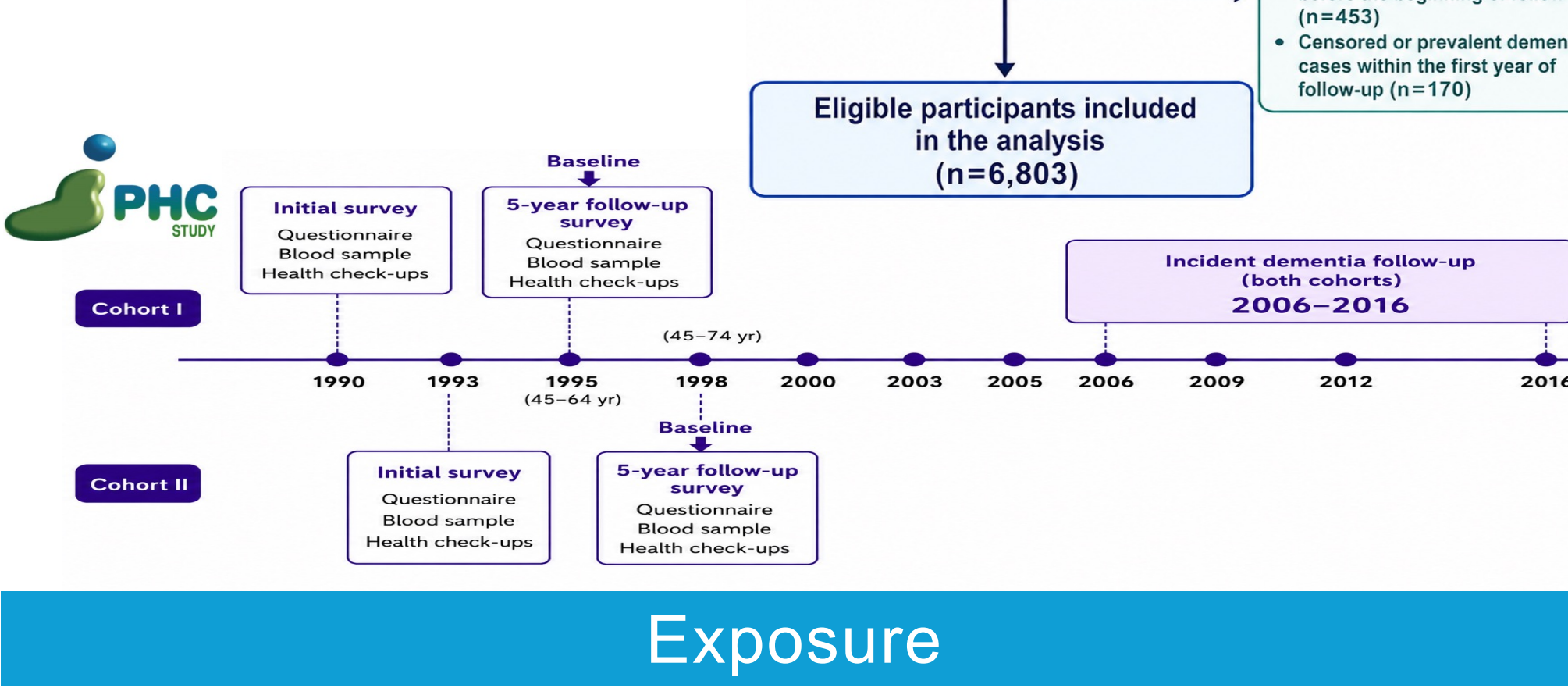
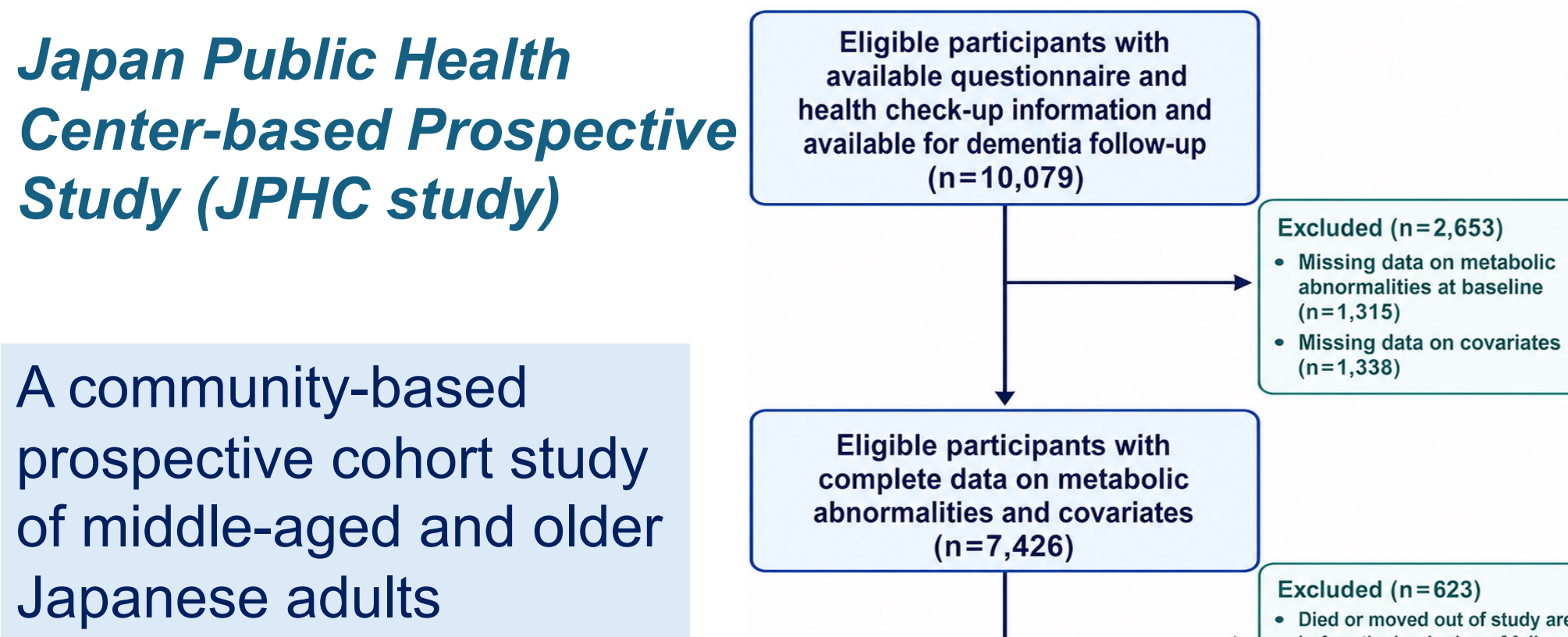
- ❖ MetS was not clearly associated with incident dementia in either middle-aged or older adults.
- ❖ A greater number of metabolic abnormalities was associated with higher dementia risk, particularly among middle-aged adults.
- ❖ Higher dementia risk was observed among adults with metabolic abnormalities even in non-overweight groups.

INTRODUCTION

- **Metabolic syndrome (MetS)** may increase the risk of incident dementia, but evidence remains inconsistent.
 - **Individual metabolic abnormalities** may have distinct associations with dementia risk.
 - These associations may **differ by age** because metabolic risk in midlife and later life may reflect different etiological processes.
 - Evidence from **Asian** populations remains limited, particularly where obesity is less prevalent.
- **Aim:** To examine associations of MetS and related metabolic abnormalities with incident dementia among middle-aged and older Japanese adults.

METHODS

Study design and population



AHA/NHLBI, American Heart Association/National Heart, Lung, and Blood Institute; BMI, body mass index; HDL-C, high-density lipoprotein cholesterol; IDF, International Diabetes Federation; MetS, metabolic syndrome; TG, triglycerides.

The authors declare no conflict of interest in relevant to this presentation.

Outcome and follow-up

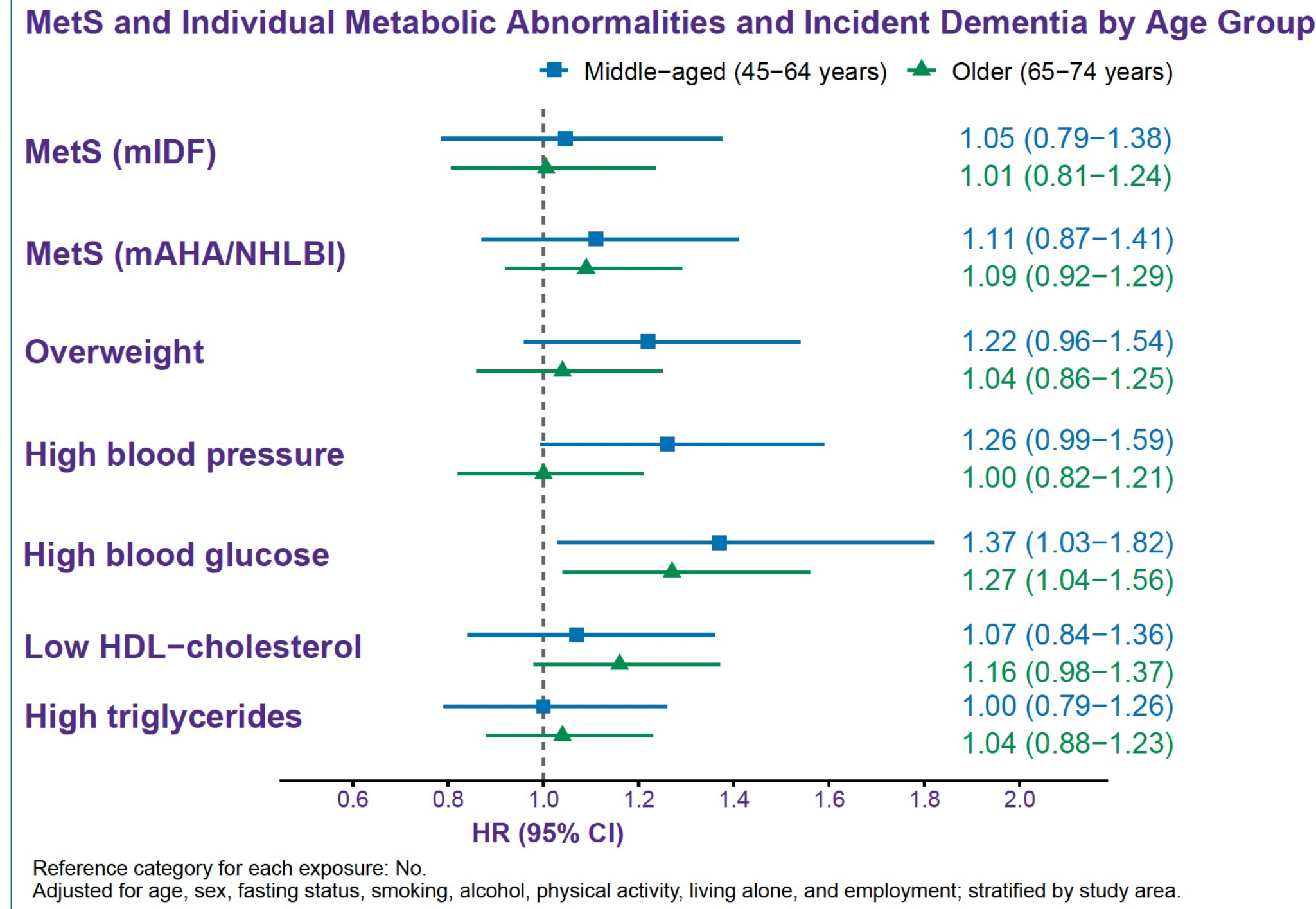
Incident dementia was identified using the long-term care insurance database, with follow-up from January 1, 2006 to December 31, 2016.

Statistical analysis

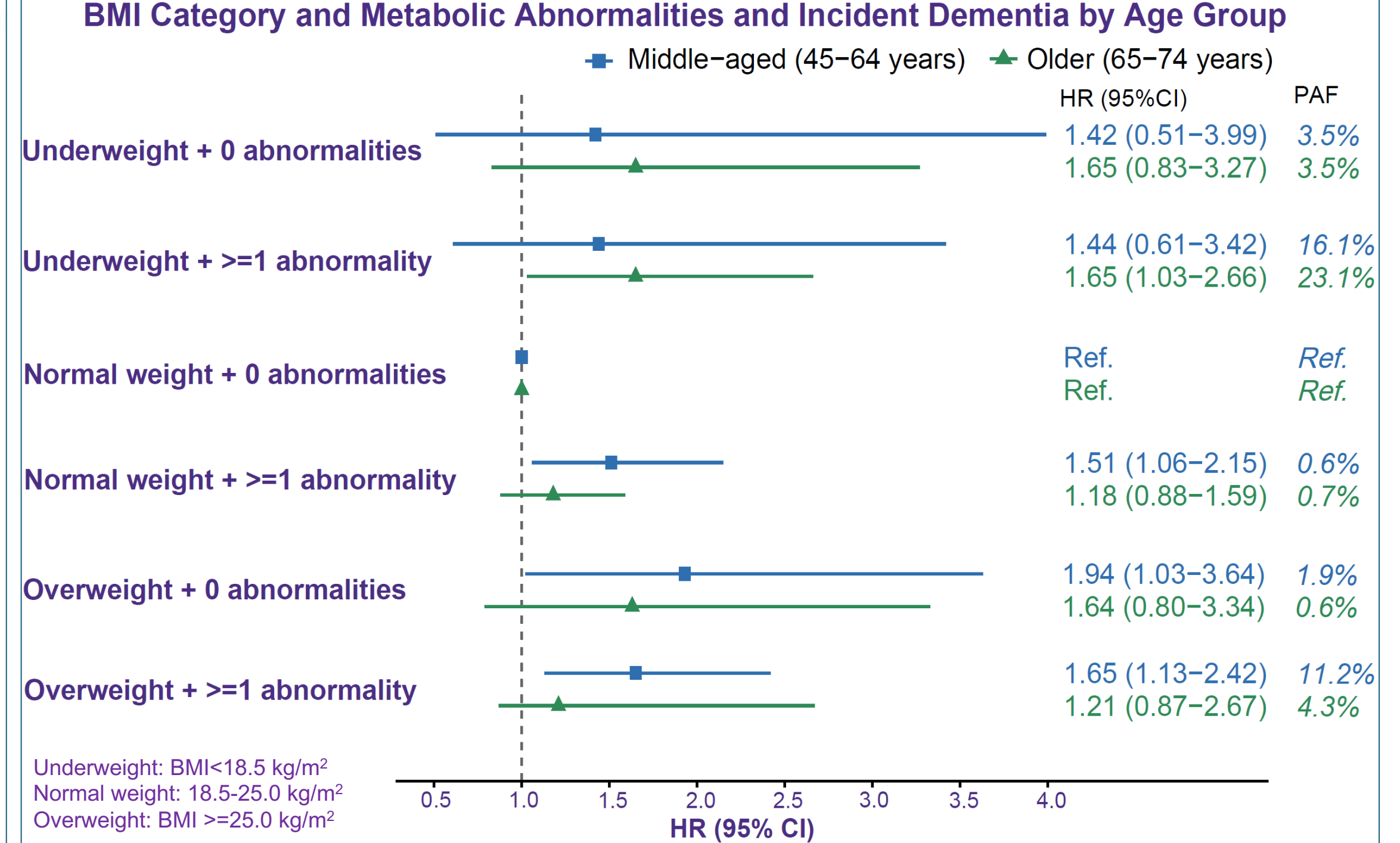
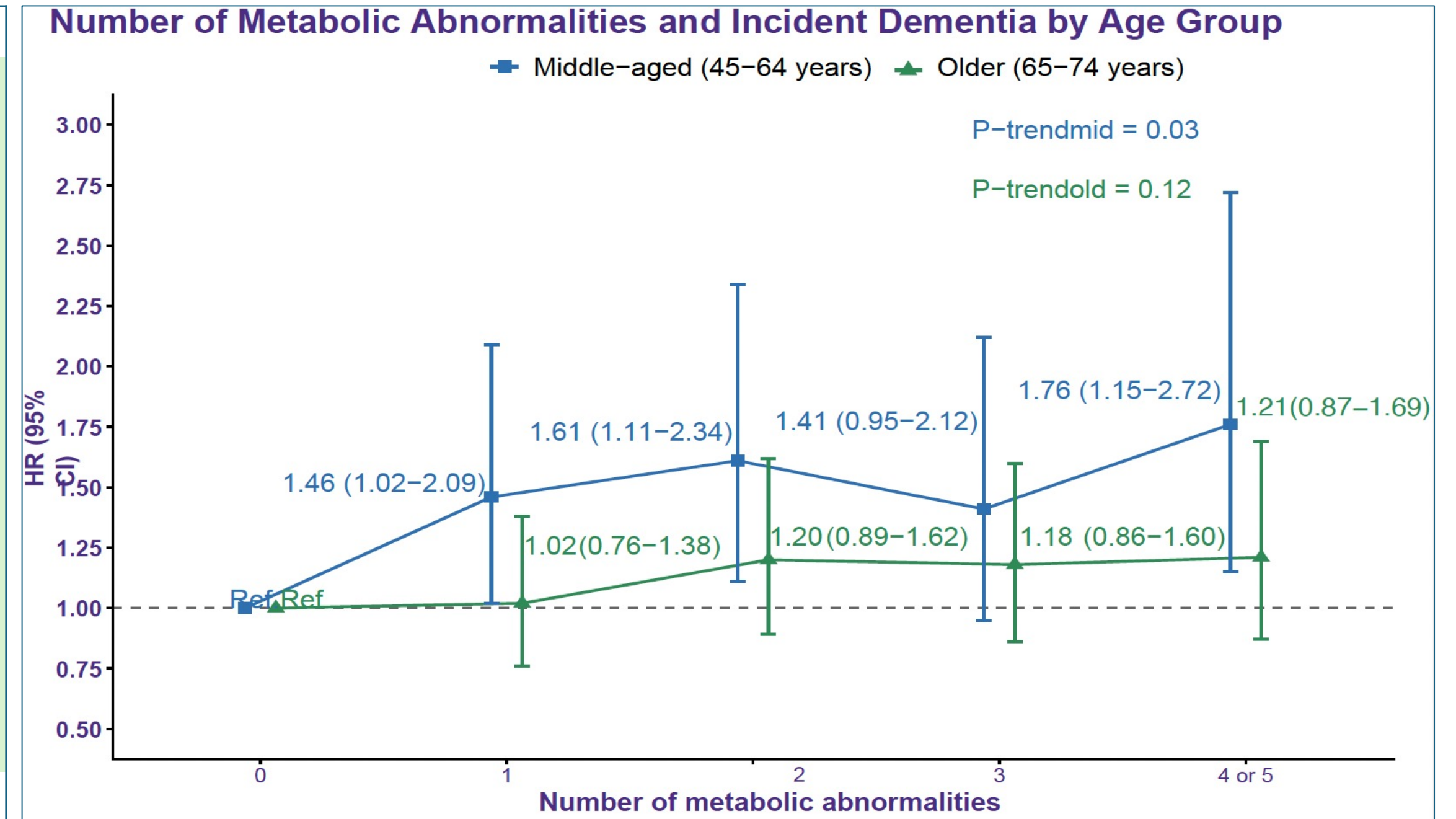
- Hazard ratios and 95% confidence intervals were estimated using Cox proportional hazards models, adjusted for age, sex, fasting status, smoking, alcohol drinking, physical activity, living alone, and employment, and stratified by study area.
- PAF was calculated as $Pd \times (HR-1) / HR$, where Pd is the proportion of dementia cases in each exposure category.

RESULTS

Characteristics of study participants			
	All participants n=6,803	Middle-aged (45-64y) n=5,011	Older (65-74y) n=1,792
Men, %	2,401 (35.3)	1,676 (33.5)	725 (40.5)
Age (years) *	58.8 (7.9)	55.3 (5.9)	68.8 (2.7)
MetS (mIDF), %	1,146 (16.9)	796 (15.9)	350 (19.5)
MetS (mAHA/NHLBI), %	1,869 (27.5)	1,226 (24.5)	643 (35.9)
Overweight, %	1,853 (27.2)	1,369 (27.3)	484 (27.0)
High blood pressure, %	4,054 (59.6)	2,698 (53.8)	1,356 (75.7)
High blood glucose, %	982 (14.4)	657 (13.1)	325 (18.1)
Low HDL-cholesterol, %	2,183 (32.1)	1,444 (28.8)	739 (41.2)
High Triglycerides, %	2,525 (37.1)	1,790 (35.7)	735 (41.0)
No. of dementia cases, %	904 (13.3)	325 (6.5)	579 (32.3)
Person-years	56,599	42,957	13,642
* Mean (Standard Definition)			



Reference category for each exposure: No. Adjusted for age, sex, fasting status, smoking, alcohol, physical activity, living alone, and employment, stratified by study area.



Underweight: BMI < 18.5 kg/m²
Normal weight: 18.5-25.0 kg/m²
Overweight: BMI ≥ 25.0 kg/m²

DISCUSSION

- ❖ MetS classification showed null associations in both age groups, suggesting that MetS may not fully capture dementia-relevant metabolic risk.
- ❖ Accumulated metabolic abnormalities were more clearly associated with dementia risk among middle-aged adults, supporting the importance of midlife metabolic burden.
- ❖ Metabolic abnormalities may be relevant to dementia risk even among non-overweight middle-aged adults, highlighting the importance of metabolic risk management from midlife for dementia prevention.