




12:00-12:15

Santé cardiovasculaire et trajectoires de dépression.
La cohorte GAZEL

Jean-Philippe Empana

PARCC Inserm U970 Université Paris Cité



Research

JAMA Psychiatry | [Original Investigation](#)

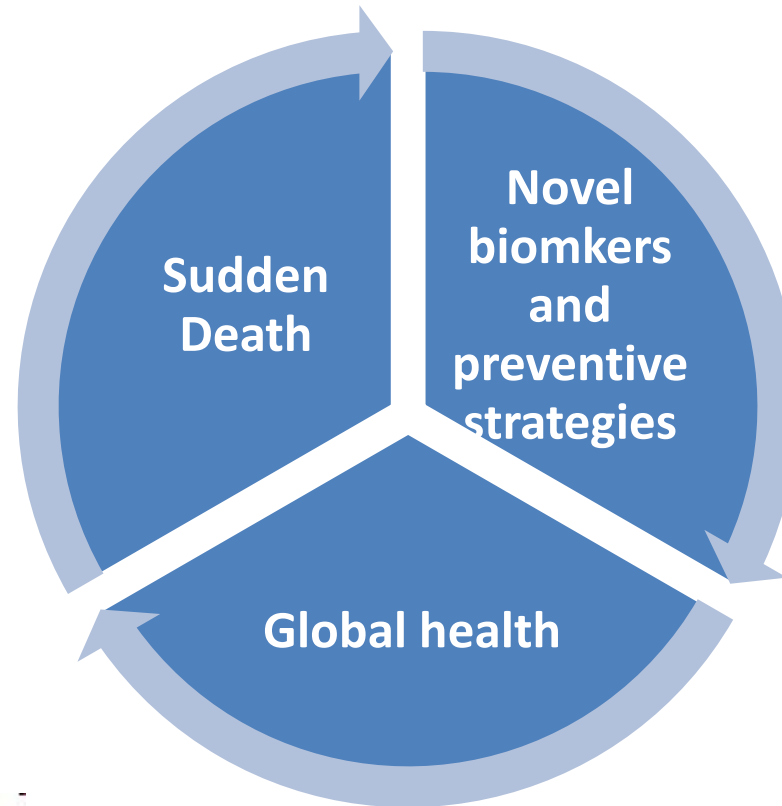
Association of Cardiovascular Health With Risk of Clinically Relevant Depressive Symptoms

Thomas T. van Sloten, MD; Eugénie Valentin, MSc; Rachel E. Climie, PhD; Xavier Jouven, MD; Cedric Lemogne, MD; Marcel Goldberg, MD; Marie Zins, MD; Jean-Philippe Empana, MD

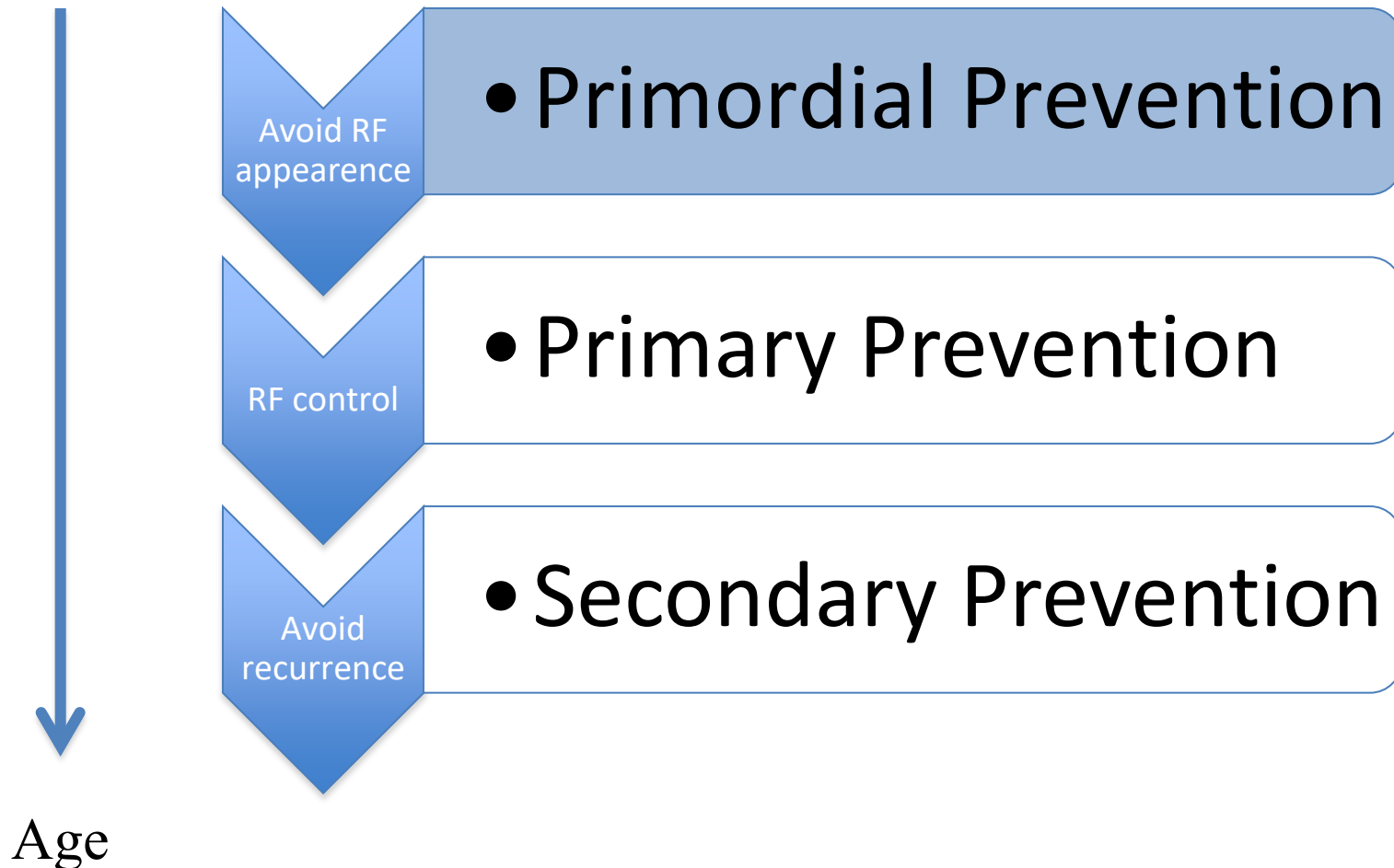
JAMA Psychiatry. doi:[10.1001/jamapsychiatry.2022.5056](https://doi.org/10.1001/jamapsychiatry.2022.5056)
Published online February 15, 2023.

Empana Jean-Philippe
DR Inserm

INTEGRATIVE EPIDEMIOLOGY OF CARDIOVASCULAR DISEASE



Prevention stage and populations



AHA Special Report

Defining and Setting National Goals for Cardiovascular Health Promotion and Disease Reduction

The American Heart Association's Strategic Impact Goal Through 2020 and Beyond

Donald M. Lloyd-Jones, MD, ScM, FAHA, Chair;

Yuling Hong, MD, MSc, PhD, FAHA*; Darwin Labarthe, MD, MPH, PhD, FAHA*;

Dariusz Mozaffarian, MD, DrPH, FAHA; Lawrence J. Appel, MD, MPH, FAHA;

Linda Van Horn, PhD, RD, FAHA; Kurt Greenlund, PhD*; Stephen Daniels, MD, PhD, FAHA;

Graham Nichol, MD, MPH, FAHA; Gordon F. Tomaselli, MD, PhD, FAHA; Donna K. Arnett, PhD, FAHA;

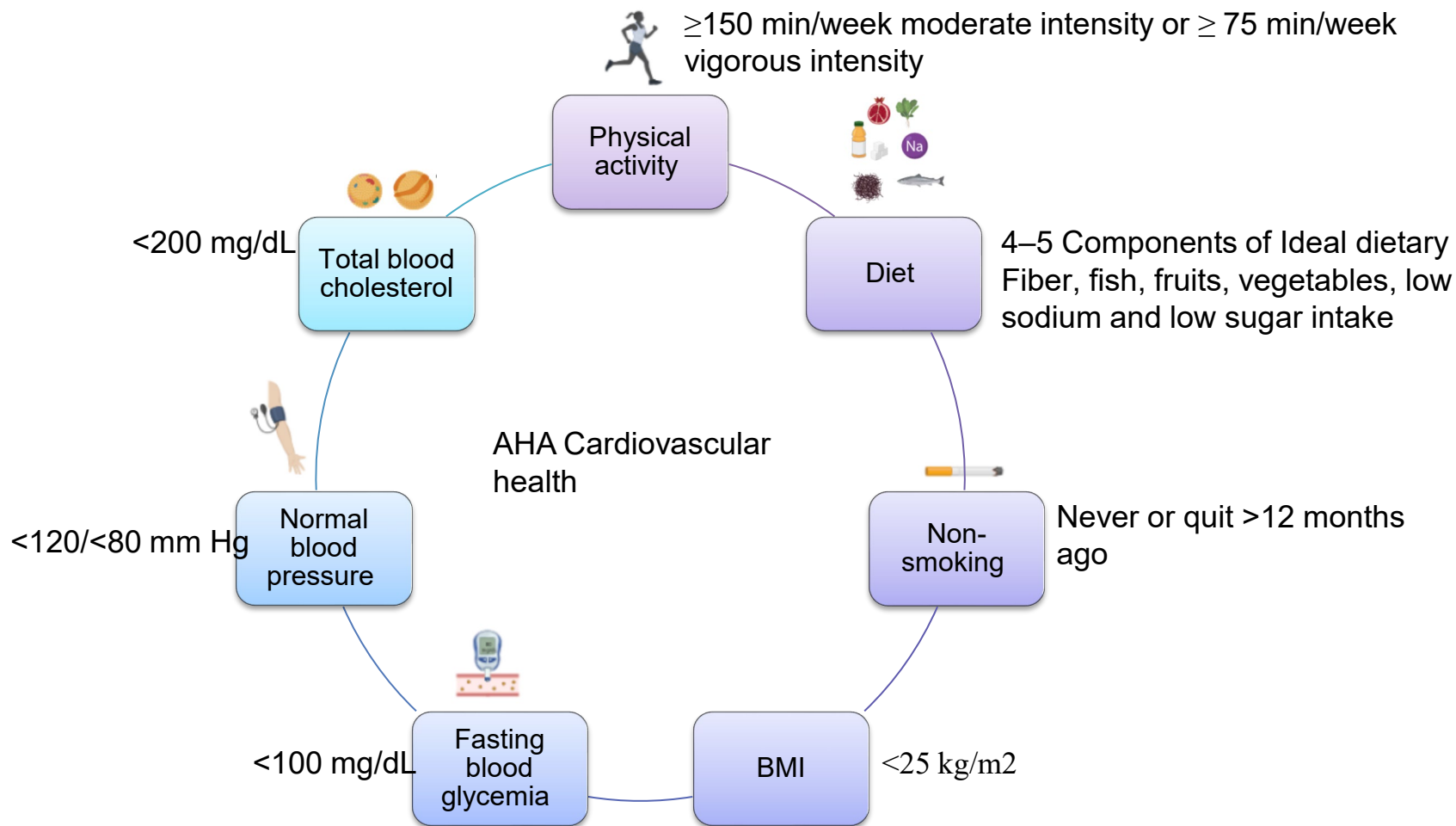
Gregg C. Fonarow, MD, FAHA; P. Michael Ho, MD, PhD; Michael S. Lauer, MD, FAHA;

Frederick A. Masoudi, MD, MPH; Rose Marie Robertson, MD, FAHA; Véronique Roger, MD, FAHA;

Lee H. Schwamm, MD, FAHA; Paul Sorlie, PhD; Clyde W. Yancy, MD, FAHA;

Wayne D. Rosamond, PhD, FAHA; on behalf of the American Heart Association Strategic Planning Task Force
and Statistics Committee

Ideal Cardiovascular health metrics



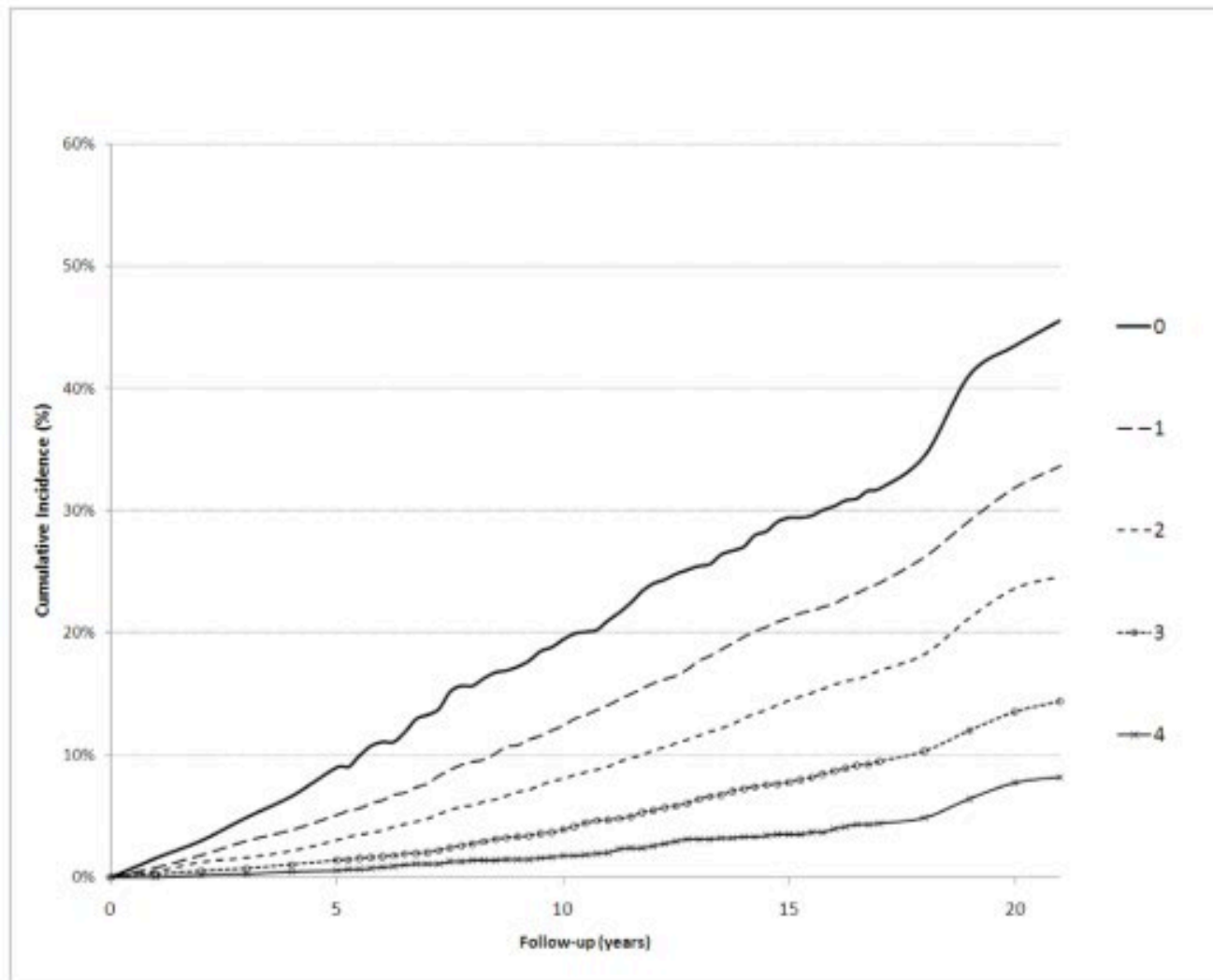
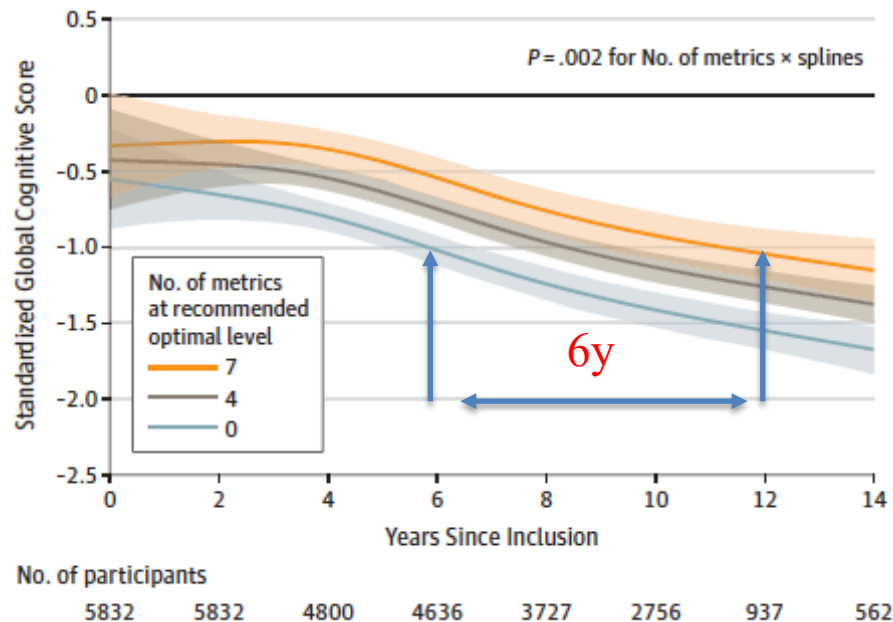


Figure 1. Cumulative incidence of cardiovascular disease according to number of ideal cardiovascular health metrics

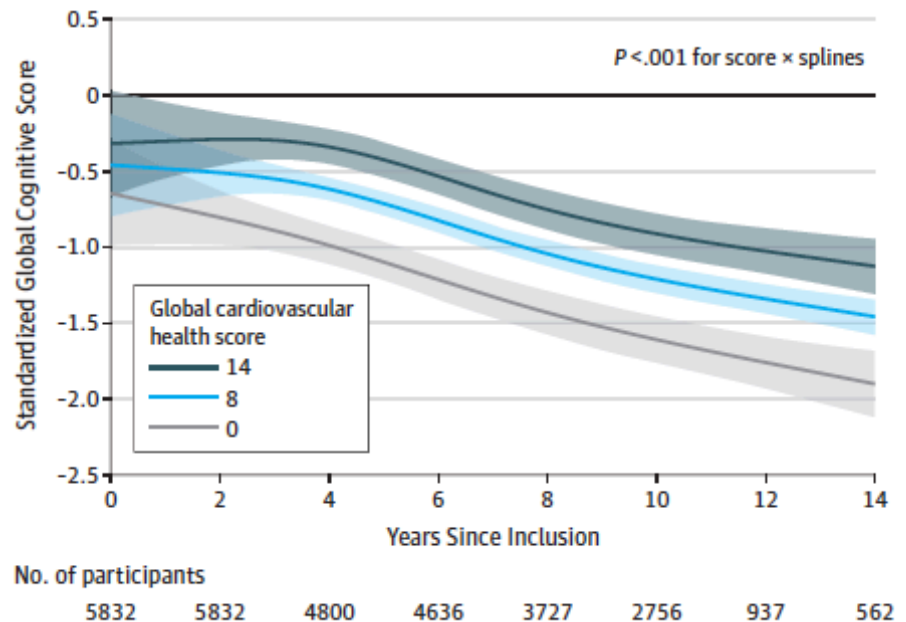
ARIC Study. Circulation 2011

Figure 2. Mean Trajectories of Change in Global Cognition and Memory Predicted by a Multivariable Linear Mixed Model for a Specific Profile of Covariates, by Increasing Number of Recommended Optimal Cardiovascular Health Metrics and by Higher Total Cardiovascular Health Score

A Global cognition by optimal cardiovascular health metrics



B Global cognition by total cardiovascular health score




Samieri et al. 3C study. JAMA 2018

AHA/ASA Presidential Advisory

Defining Optimal Brain Health in Adults

A Presidential Advisory From the American Heart Association/ American Stroke Association

Philip B. Gorelick, MD, MPH, FAHA, Chair*; Karen L. Furie, MD, MPH, FAHA, Co-Chair†; Costantino Iadecola, MD, FAHA, Co-Chair†; Eric E. Smith, MD, MPH, FAHA‡; Salina P. Waddy, MD§; Donald M. Lloyd-Jones, MD, ScM, FAHA||; Hee-Joon Bae, MD, PhD, FAHA; Mary Ann Bauman, MD; Martin Dichgans, MD; Pamela W. Duncan, PhD, PT, FAHA; Meighan Girgus; Virginia J. Howard, PhD, FAHA; Ronald M. Lazar, PhD, FAHA; Sudha Seshadri, MD, FAHA; Fernando D. Testai, MD, PhD, MS, FAHA; Stephen van Gaal, MD; Kristine Yaffe, MD, FAHA; Hank Wasiak, MBA; Charlotte Zerna, MD, MSc; on behalf of the American Heart Association/
American Stroke Association



Research

JAMA Psychiatry | [Original Investigation](#)

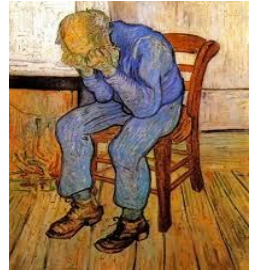
Association of Cardiovascular Health With Risk of Clinically Relevant Depressive Symptoms

Thomas T. van Sloten, MD; Eugénie Valentin, MSc; Rachel E. Climie, PhD; Xavier Jouven, MD; Cedric Lemogne, MD; Marcel Goldberg, MD; Marie Zins, MD; Jean-Philippe Empana, MD

JAMA Psychiatry. doi:[10.1001/jamapsychiatry.2022.5056](https://doi.org/10.1001/jamapsychiatry.2022.5056)
Published online February 15, 2023.

OBJECTIVE To evaluate whether better baseline cardiovascular health and improvement of cardiovascular health over time are associated with a lower risk of both incident depressive symptoms and unfavorable trajectories of depressive symptoms.

Burden of depression



- **2 to 15%** of the adult population with major depression and clinically relevant depressive symptoms
- Impact on **quality of life**
- **1.5 to 2.0** times higher risk of mortality
- Low **Adherence** to (antidepressant) treatment
- **Vascular depression hypothesis**

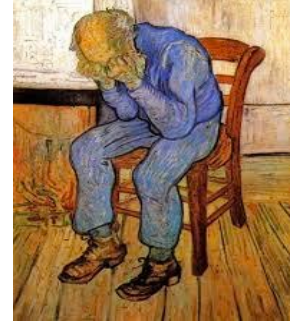
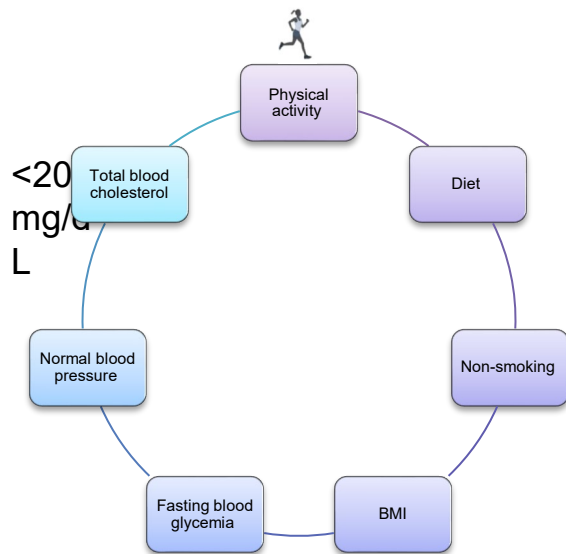
Kok RM, JAMA. 2017

Chachamovich E,. Gerontologist. 2008

Barefoot JC,. Circulation. 1996

Thomas A,. Lancet. 2015

*Alexopoulos Arch
Gen Psy 1997*



Cross-sectional studies

+++

Gaye. Sci Report 2016
Poirat et al. IJC 2018

3 prospective studies

Adams. Prev Med 2018
Brunoni. Acta Psychiatr Scand 2019
España-Romero. Psychosom Med 2013

Figure 1. Study Design and Flowchart of Selection Process

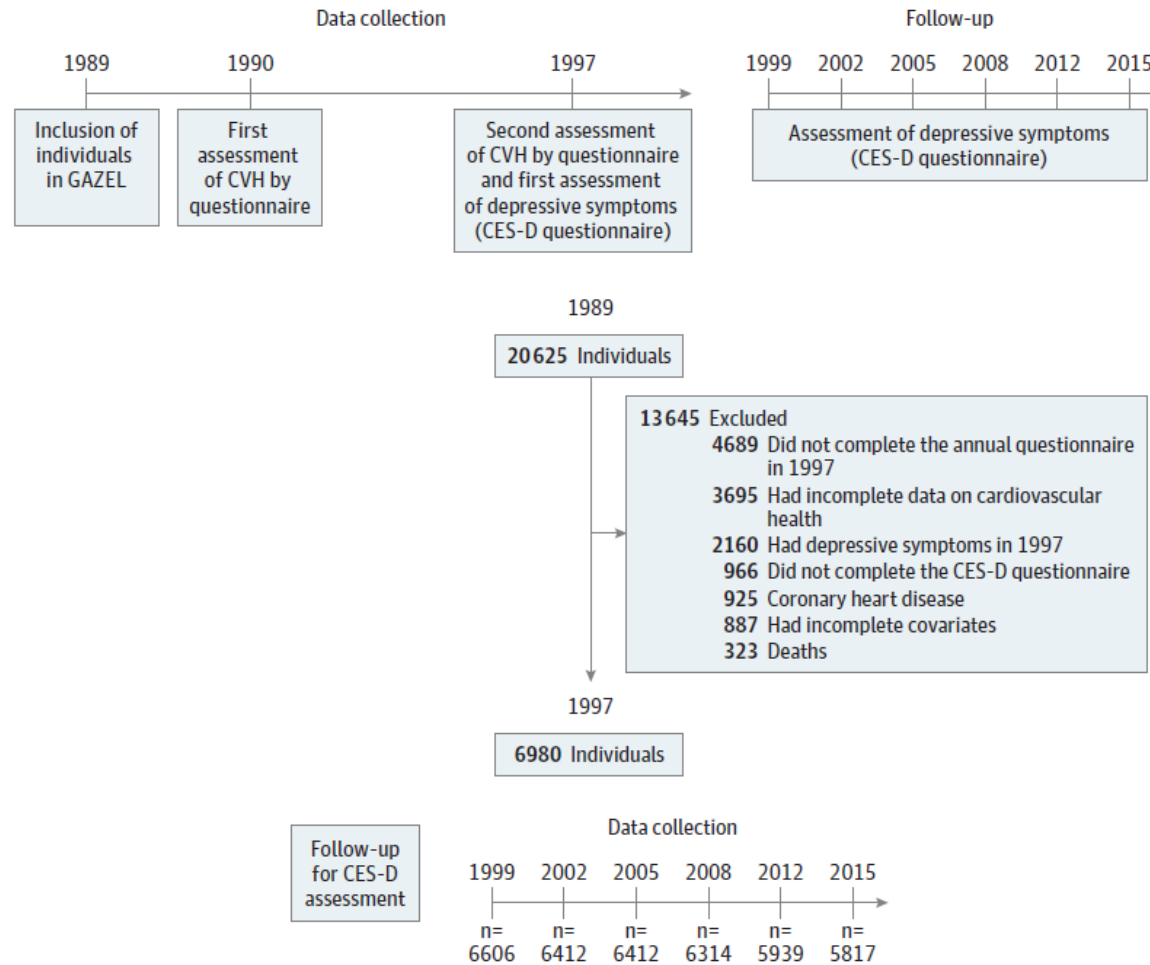


Table 2. Associations of Cardiovascular Health and 7-Year Change in Cardiovascular Health With Incident Depressive Symptoms^{a,b}

Measure	Participants, No.	Adjusted OR (95% CI) ^a
Cardiovascular health in 1997		
Per 1 additional intermediate or ideal metric	NA	0.87 (0.84-0.91)
Intermediate or ideal metrics, No.		
0-1	30	1 [Reference]
2	177	0.62 (0.32-1.19)
3	616	0.54 (0.29-1.00)
4	1540	0.50 (0.27-0.91)
5	2481	0.41 (0.22-0.74)
6-7	2136	0.36 (0.20-0.66)
Change in cardiovascular health between 1990 and 1997 ^b		
Per 1 higher intermediate or ideal metric over time	NA	0.91 (0.86-0.96)

Abbreviations: NA, not applicable; OR, odds ratio.

^a Odds ratios were adjusted for age, sex, education, and occupation.

^b Analyses on 7-year change in cardiovascular health between 1990 and 1997 were additionally adjusted for number of metrics at intermediate or ideal level in 1990.

Figure 2. Trajectories of Depressive Symptoms From 1997 to 2015

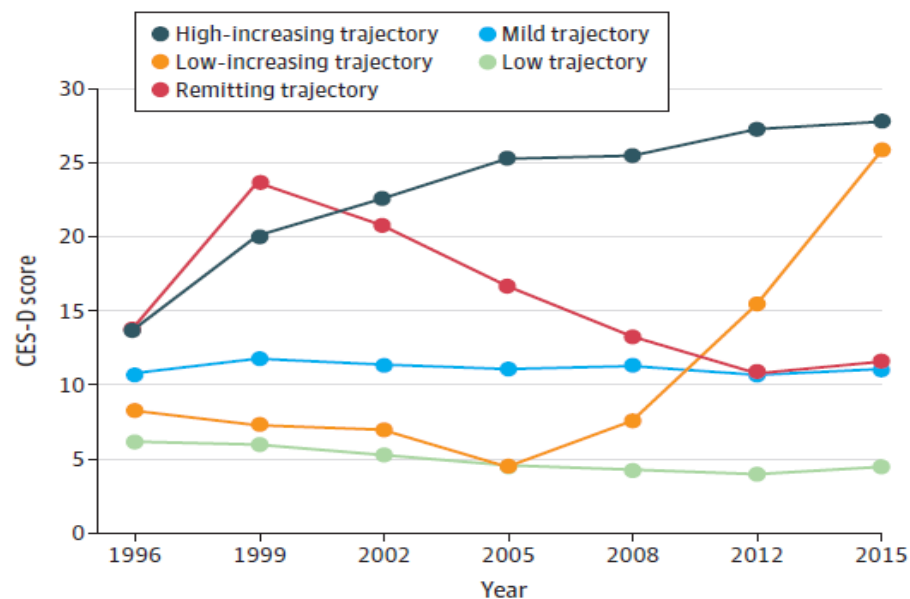
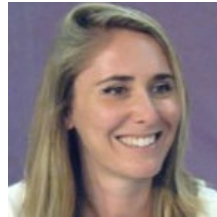


Table 3. Associations of Cardiovascular Health and 7-Year Change in Cardiovascular Health With Trajectories of Depressive Symptoms^{a,b}

Trajectory	Participants, No.	Adjusted odds ratio (95% CI) ^c	
		Cardiovascular health in 1997 (per additional intermediate or ideal metric)	Change in cardiovascular health between 1990 and 1997 (per 1 higher intermediate or ideal metric)
Low	2868	1 [Reference]	1 [Reference]
Mild	3379	0.89 (0.88-0.91)	0.93 (0.91-0.95)
Low-increasing	57	0.70 (0.64-0.76)	0.71 (0.64-0.79)
Remitting	585	0.91 (0.88-0.94)	0.96 (0.92-1.00)
High-increasing	91	0.73 (0.68-0.79)	0.71 (0.64-0.77)



Ideal Cardiovascular Health, Mortality, and Vascular Events in Elderly Subjects

The Three-City Study

Bamba Gaye, PhD,^a Marianne Canonico, PhD,^b Marie-Cécile Perier, MSc,^a Cecilia Samieri, PhD,^c Claudine Berr, MD, PhD,^d Jean-François Dartigues, MD, PhD,^c Christophe Tzourio, MD, PhD,^c Alexis Elbaz, MD, PhD,^b Jean-Philippe Empana, MD, PhD^a



JAMA | Original Investigation

Association of Change in Cardiovascular Risk Factors With Incident Cardiovascular Events

Thomas T. van Sloten, MD, PhD; Muriel Tafflet, MSc; Marie-Cécile Périer, MSc; Aline Dugravot, PhD; Rachel E. D. Climie, PhD; Archana Singh-Manoux, PhD; Jean-Philippe Empana, MD, PhD



Change in Cardiovascular Health and Incident Type 2 Diabetes and Impaired Fasting Glucose: The Whitehall II Study

Diabetes Care 2019;42:1981–1987 | <https://doi.org/10.2337/dc19-0379>



Rachel E. Climie,^{1,2,3}
Thomas T. van Sloten,^{1,4}
Marie-Cécile Périer,¹ Muriel Tafflet,¹
Aurore Fayosse,⁵ Aline Dugravot,⁵
Archana Singh-Manoux,^{5,6} and
Jean-Philippe Empana¹

Association of Midlife Cardiovascular Health and Subsequent Change in Cardiovascular Health With Incident Cancer

Thomas Van Sloten, MD, PhD,^{a,b} Eugénie Valentin, MSc,^a Rachel E. Climie, PhD,^{a,c} Omar Deraz, DMD, MPH,^a Elisabeth Weiderpass, MD, PhD,^d Xavier Jouven, MD, PhD,^a Marcel Goldberg, MD, PhD,^e Marie Zins, MD, PhD,^e Jean-Philippe Empana, MD, PhD^a

Research

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Association of Cardiovascular Health Level in Older Age With Cognitive Decline and Incident Dementia

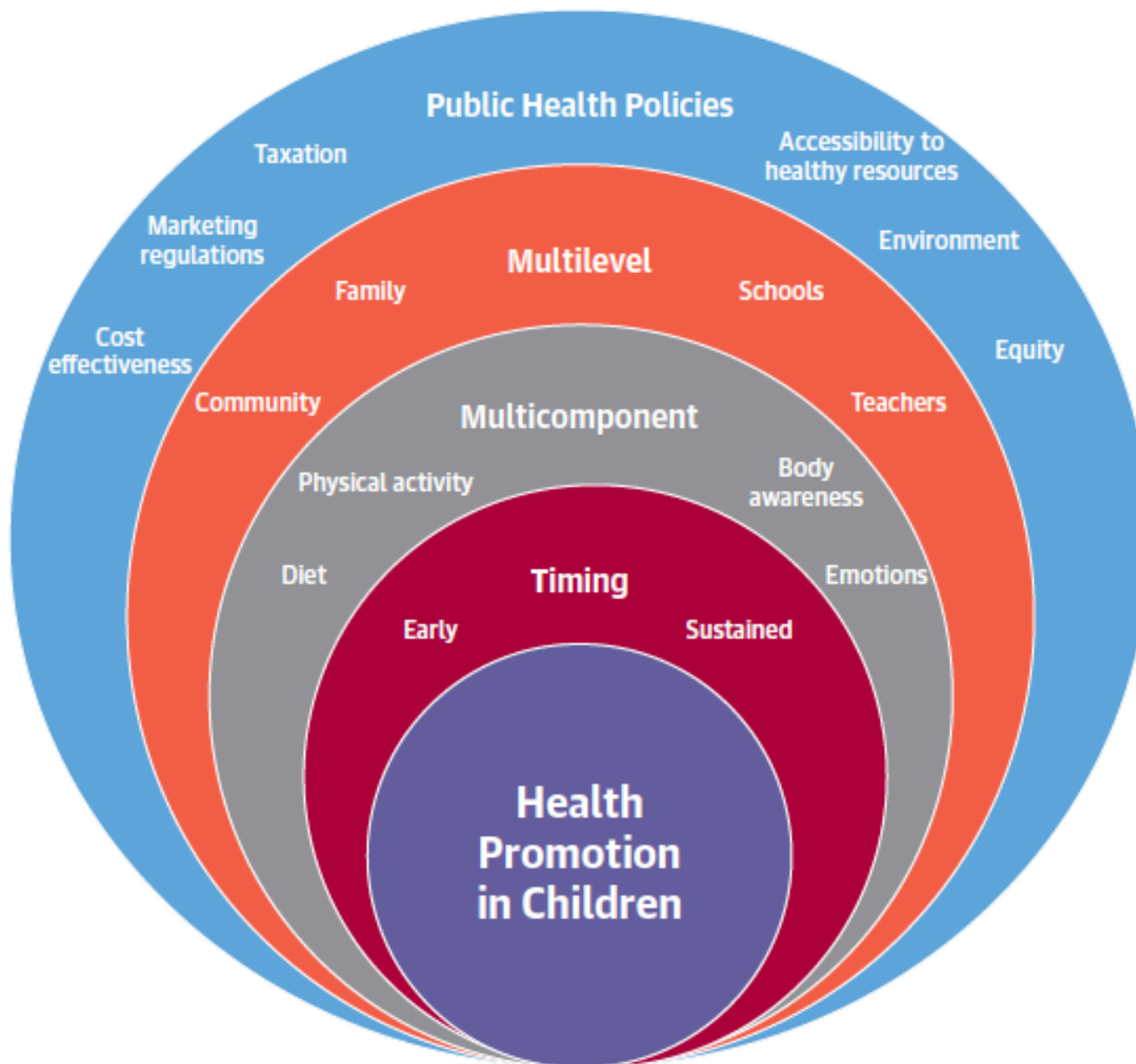
Cécilia Samieri, PhD; Marie-Cécile Perier, MSc; Bamba Gaye, PhD; Cécile Proust-Lima, PhD; Catherine Helmer, MD, PhD; Jean-François Dartigues, MD, PhD; Claudine Berr, MD, PhD; Christophe Tzourio, MD, PhD; Jean-Philippe Empana, MD, PhD

JAMA Psychiatry | Original Investigation

Association of Cardiovascular Health With Risk of Clinically Relevant Depressive Symptoms

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→ a unified preventive approach of chronic diseases





Pr M Zins



Pr M Goldberg



Pr C Lemogne



T Van Sloten



E Valentin



JP Empana
(coordination)

cohorte
Gazel

eTable 5. Associations of individual cardiovascular health metrics (measured in 1997) with incident clinically relevant depressive symptoms

Intermediate/ideal vs poor level of each cardiovascular health metric in 1997	Number of individuals with intermediate/ideal cardiovascular health of the individual metric	Adjusted odds ratio [95% confidence interval]^a
Smoking	5875	0.73 [0.64 - 0.83]
Body mass index	6398	0.86 [0.72 - 1.03]
Physical activity	2653	0.83 [0.75 - 0.93]
Healthy diet	1985	1.03 [0.91 - 1.15]
High blood pressure	5649	0.82 [0.72 - 0.93]
Hyperglycemia	6681	0.68 [0.54 - 0.86]
Dyslipidemia	4807	0.86 [0.77 - 0.97]

^a Odds ratios were adjusted for age, sex, education and occupation. For each metric, the poor level is used as the reference category.

eTable 6. Associations of 7-year change in each cardiovascular health metric (between 1990 and 1997) with incident clinically relevant depressive symptoms

Change in cardiovascular health between 1990 and 1997	n	Adjusted odds ratio [95% confidence interval]^a
Smoking		
Consistently poor	939	1 [reference]
Poor to intermediate/ideal	565	0.79 [0.63 - 0.99]
Intermediate/ideal to poor	166	1.33 [0.98 - 1.80]
Consistently intermediate/ideal	5310	0.76 [0.66 - 0.88]
Body mass index		
Consistently poor	258	1 [reference]
Poor to intermediate/ideal	39	1.55 [0.86 - 2.79]
Intermediate/ideal to poor	324	0.69 [0.49 - 0.97]
Consistently intermediate/ideal	6359	0.70 [0.55 - 0.90]
Physical activity		
Consistently poor	3651	1 [reference]
Poor to intermediate/ideal	673	0.97 [0.81 - 1.16]
Intermediate/ideal to poor	676	0.84 [0.70 - 1.02]
Consistently intermediate/ideal	1980	0.76 [0.67 - 0.86]
Healthy diet		
Consistently poor	4144	1 [reference]
Poor to intermediate/ideal	1139	0.99 [0.85 - 1.14]
Intermediate/ideal to poor	851	0.94 [0.79 - 1.11]
Consistently intermediate/ideal	846	0.89 [0.82 - 1.24]
High blood pressure		
Consistently poor	637	1 [reference]
Poor to intermediate/ideal	0 ^b	-
Intermediate/ideal to poor	694	0.97 [0.78 - 1.22]
Consistently intermediate/ideal	5649	0.80 [0.68 - 0.96]
Hyperglycemia		
Consistently poor	122	1 [reference]
Poor to intermediate/ideal	0 ^b	-
Intermediate/ideal to poor	177	1.28 [0.81 - 2.02]
Consistently intermediate/ideal	6681	0.79 [0.55 - 1.15]
Dyslipidemia		
Consistently poor	903	1 [reference]
Poor to intermediate/ideal	0 ^b	-
Intermediate/ideal to poor	1270	0.93 [0.77 - 1.11]
Consistently intermediate/ideal	4807	0.83 [0.71 - 0.97]



Donald M. Lloyd-Jones. Circulation. Life's Essential 8: Updating and Enhancing the American Heart Association's Construct of Cardiovascular Health: A Presidential Advisory From the American Heart Association, Volume: 146, Issue: 5, Pages: e18-e43, DOI: (10.1161/CIR.0000000000001078)

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