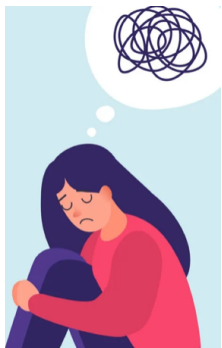


PREVENZIONE CARDIOVASCOLARE

Stress e depressione come fattori di rischio cardiovascolare

Gallina Sabina
Università «G. D'Annunzio» Chieti-Pescara



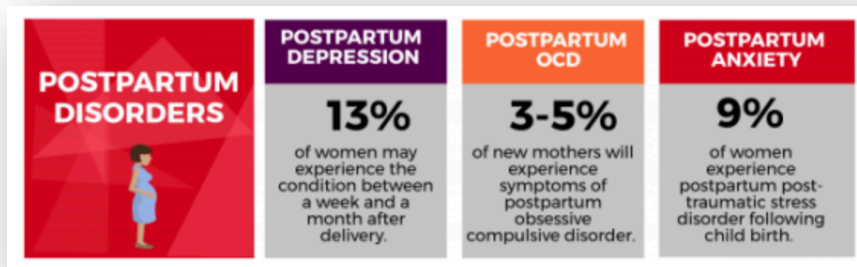
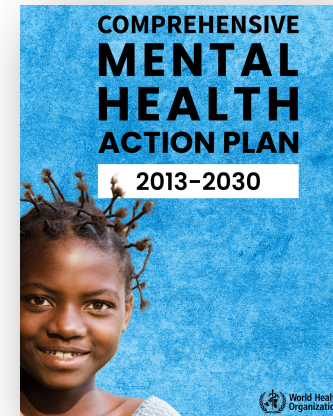


Depressive disorder, or depression, is a common mental health condition characterized by a **low mood or loss of pleasure or interest in activities for long periods of time**. Depressive episodes last most of the day, nearly every day, for at least two weeks.

Prevention programmes, psychological treatments and medications have been shown to reduce depression. However, these are often absent or inaccessible, especially in **low- and middle-income countries**, where **> 75% of people experiencing mental health issues receive no treatment**.

Globally, an estimated 5.7% of adults suffer from depression.

Over a billion people living with mental health conditions – services require urgent scale-up

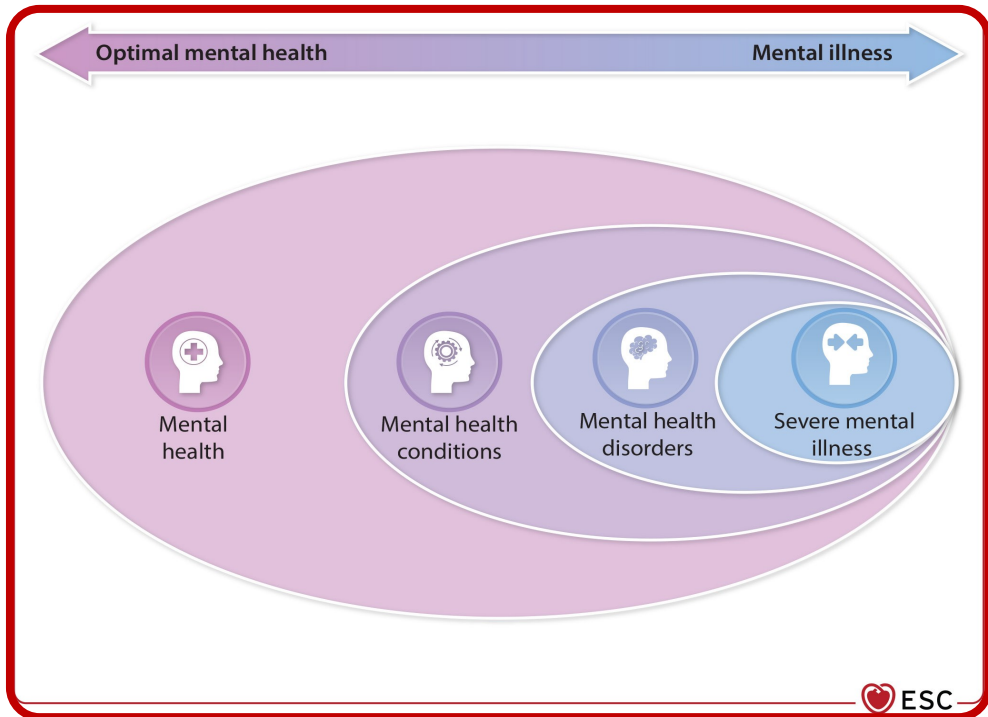


2025 ESC Clinical Consensus Statement on mental health and cardiovascular disease: developed under the auspices of the ESC Clinical Practice Guidelines Committee

Developed by the task force on mental health and cardiovascular disease of the European Society of Cardiology (ESC)

Developed by the task force on mental health and cardiovascular disease of the European Society of Cardiology (ESC)

Clinical Practice Guidelines Committee



What is Stress?

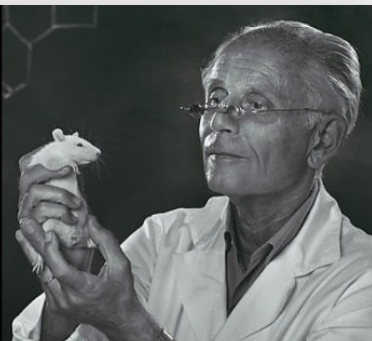


The American
Institute of Stress

The technical definition of stress is the body's nonspecific response to any demand – pleasant or unpleasant.

"It's not
stress that
kills us;
it is our
reaction to it."

- Hans Selye
Hungarian Endocrinologist
(1907 - 1982)



Chronic Distress

«a persistent negative emotional state rather than a transient state; involving multiple psychosocial domains; that challenges a person's capacity to cope with living with their heart condition, the treatment of the condition, and the resultant changes to daily living; and challenges the person's sense of self and future orientation

Acute Stress

Fight or flight. The body prepares to defend itself. It takes about 90 minutes for your metabolism to return to normal when the response is over.

Chronic Stress

The cost of daily living: bills, kids, jobs, etc. This is the stress we tend to ignore or push down. Left uncontrolled this stress affects your physical health.

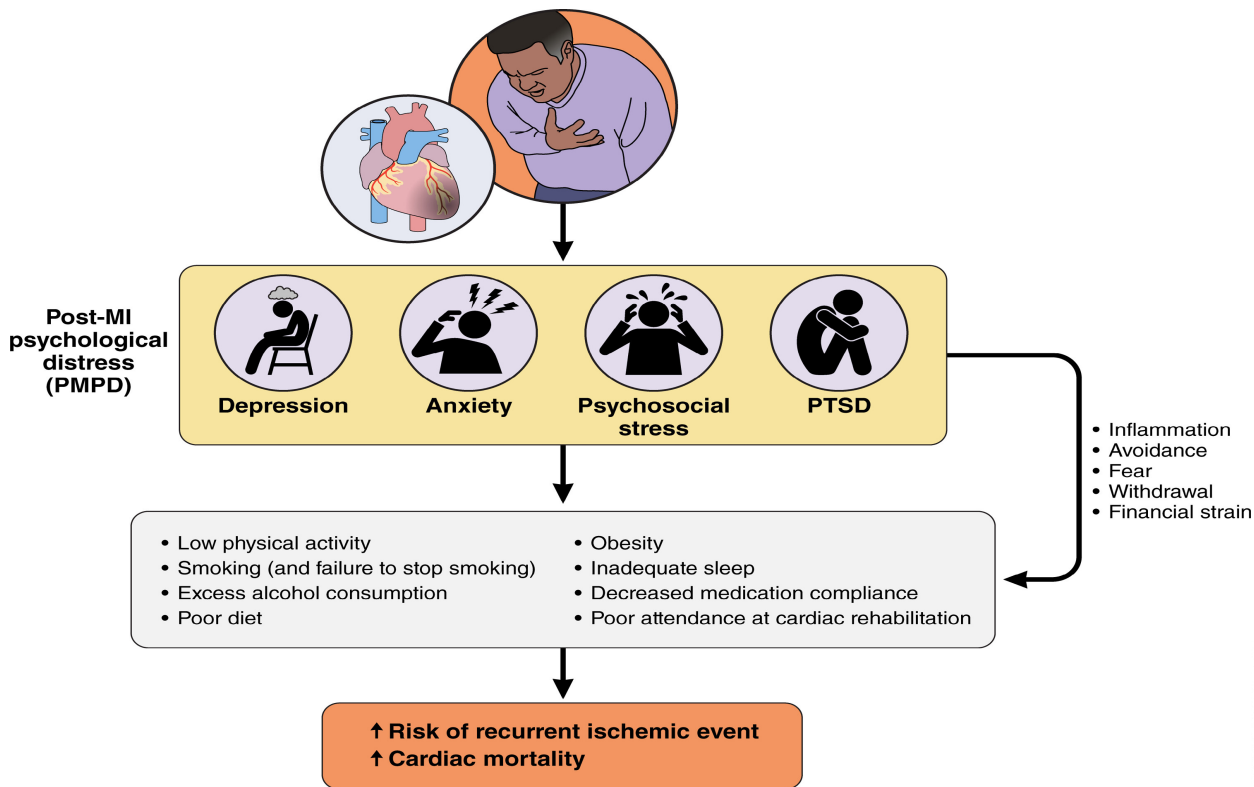
Eustress

Stress in life, such as getting married, having a baby, winning money, getting promoted, making new friends, or graduating, that has positive connotations.

Distress

Stress in life, such as experiencing divorce, punishment, injury, negative feelings, financial problems, or work difficulties, that has negative connotations.

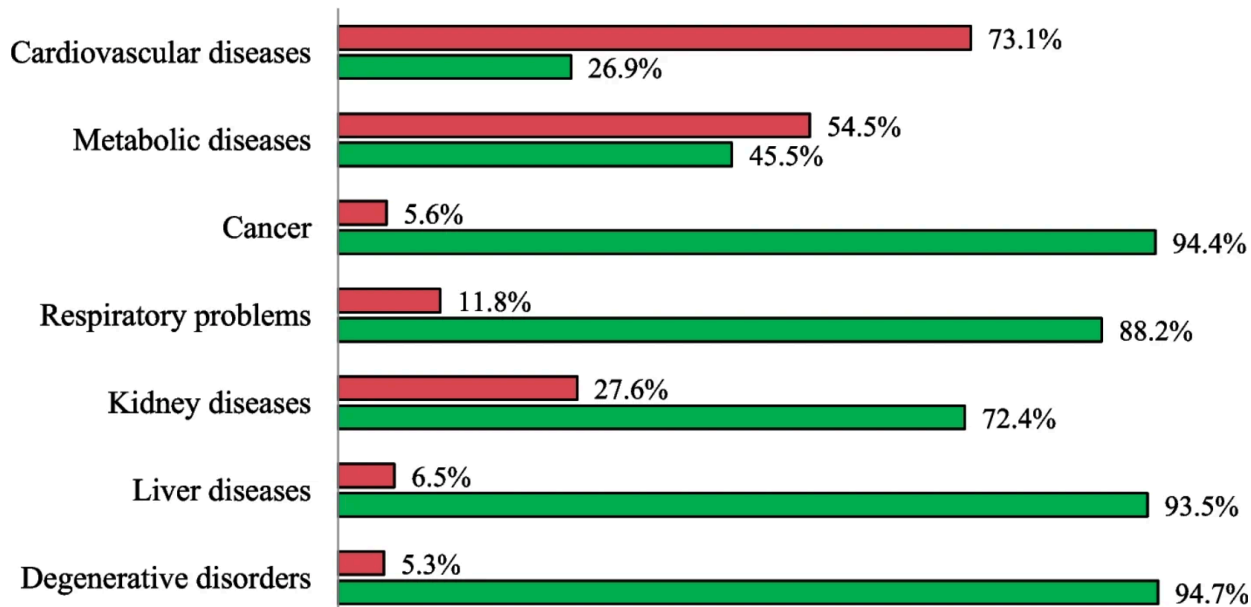




From: Prevalence and correlates of stress, anxiety, and depression in patients with chronic diseases: a cross-sectional study

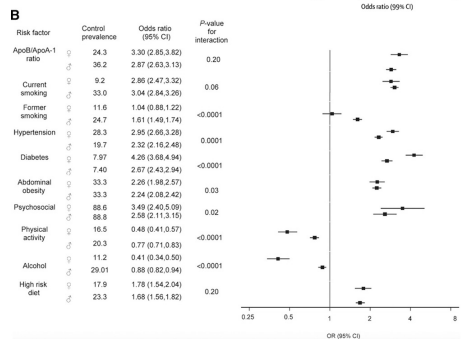
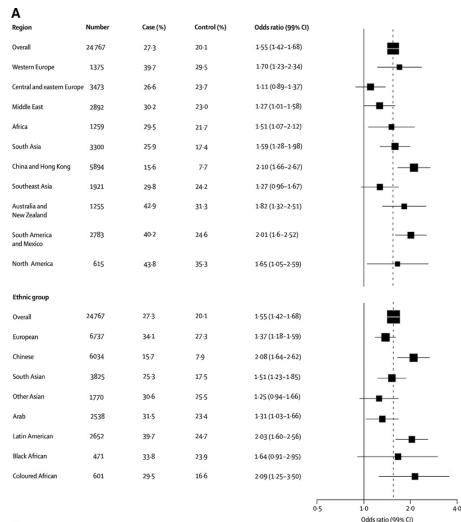
Chronic diseases

■ Present ■ Absent



Degenerative disorders

2.3%



Association of psychosocial risk factors with risk of acute myocardial infarction in 11 119 cases and 13 648 controls from 52 countries (the INTERHEART study): case-control study

Prof Annika Rosengren, MD • Steven Hawken, MSc • Stephanie Öunpuu, PhD • Prof Karen Sliwa, MD •

Mohammad Zubaid, MD • Wael A Almahmeed, MD • et al. [Show all authors](#)

Published: September 11, 2004 • DOI: [https://doi.org/10.1016/S0140-6736\(04\)17019-0](https://doi.org/10.1016/S0140-6736(04)17019-0)

Mean age of cases 58.2 yrs

Mean age of controls 57.1 yrs

24.2% of cases and 26.5% of controls were women

✓ Psychosocial stress associates with a heightened CVD risk across ethnic groups

✓ The attributable risk is similar to that of major CVD risk factors



2021 ESC Guidelines on cardiovascular disease prevention in clinical practice

3.3 Potential risk modifiers

3.3.1 Psychosocial factors

Supplementary Table 2 Examples of common stress symptoms and psychosocial stressors associated with conventional cardiovascular risk factors or cardiovascular disease endpoints

Psychosocial risk modifier ^a	Population	Endpoint	Adjusted risk estimates ^b (95% CI)
Insomnia ³	Population free of CVD	CV events	1.45 (1.29–1.62)
Vital exhaustion ⁴	CHD patients	Recurrent CHD events	2.03 (1.54–2.68)
Vital exhaustion ⁴	Healthy persons from the general population	CHD events	1.50 (1.22–1.85)
Depression ⁵	CVD patients	All-cause mortality/fatal CHD	1.53 (1.11–2.10)
Depression ⁵	Participants free of CVD	Incident myocardial infarction	1.90 (1.49–2.42)
Anxiety ⁶	General population	CV mortality	1.41 (1.13–1.76)
Anger/hostility ⁷	Participants free of CVD	CHD events	1.19 (1.05–1.35)
Anger/hostility ⁷	CHD population	CHD events	1.24 (1.08–1.42)
Social isolation/loneliness ⁸	General population	Incident CHD	1.29 (1.04–1.59)
Optimism ⁹	General population and ambulatory patients	CV events	0.65 (0.51–0.78)
Psychological distress ¹⁰	Participants free of CVD and cancer	CV death	1.22 (1.14–1.31)
Adverse childhood experiences ¹¹	General population	CV events	2.07 (1.66–2.59)
Adverse childhood experiences ¹¹	General population	Smoking	2.70 (2.34–3.11)
Adverse childhood experiences ¹¹	General population	Incidence of diabetes	1.38 (1.20–1.60)

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CHD = coronary heart disease; CI = confidence interval; CV = cardiovascular; CVD = cardiovascular disease.

^aDefinitions:

- Insomnia: difficulty initiating or maintaining sleep or the presence of restless, disturbed nights. Sleep disturbances are the most common stress symptoms reflecting hyperarousal.
- Vital exhaustion: pervasive fatigue, irritability, and demoralization.
- Depression: subthreshold depressive symptoms (feeling down, tired, joyless) and depressive disorders.
- Anxiety: symptoms of anxiety and phobic avoidance.
- Anger and hostility: dysregulated anger such as rage outbursts, yelling, intimidation, and a negative attitude toward others represent common symptoms of personality disorders.
- Social isolation and loneliness: lack of interactions with significant others and the feeling of the absence of an intimate companion.
- Optimism: tendency to think good things will happen in the future.
- Psychological distress: symptoms of anxiety, depression, social dysfunction, and loss of confidence as measured by questionnaires.
- Adverse childhood experiences: none versus four or more of the following stressors: physical abuse; emotional abuse; sexual abuse; neglect; separation, loss, or divorce of parents; exposure to domestic violence, household substance abuse, criminality; serious childhood illness; financial problems.

^bThe risk estimates range from temporally adjusted hazard ratios to specific odds and/or relative risks.

Supplementary Table 3 Screening for psychological stress in patients with cardiovascular disease

Over the last 2 weeks, how often have you been bothered by the following problems? (Use “✓” to indicate your answer)	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Little interest or pleasure in doing things	0	1	2	3
4. Feeling down, depressed, or hopeless	0	1	2	3
5. Trouble falling or staying asleep, or sleeping too much	0	1	2	3

GAD-2 = Generalized Anxiety Disorder 2-item; PHQ-2 = Patient Health Questionnaire-2. Anxiety (GAD-2) = sum of items 1 and 2, scores of 3 and above are clinically significant. Depression (PHQ-2) = sum of items 3 and 4, scores of 3 and above are clinically significant. Sleep disturbances = item 5, scores of 1 or above indicate clinically significant sleep disturbances.

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Examples of psychosocial stressors



Work stress



Impaired social relations



Socioeconomic stress



Loneliness/social isolation

Types of CVD consequences



Increased risk of:

- Hypertension
- Coronary artery disease
- Cerebrovascular disease
- Peripheral vascular disease
- Atrial fibrillation
- Ventricular arrhythmias
- Myocardial infarction
- Sudden cardiac death
- Heart failure

Potential interventions required



Individual



Community



Policy

Economic

- Worry about financial stability, housing, basic needs
- Reduced access to healthcare and support



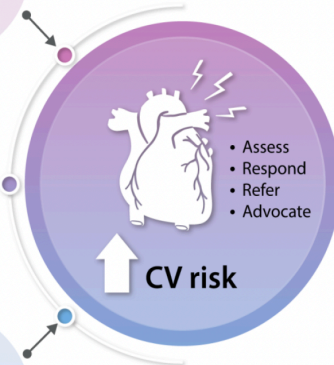
Environmental

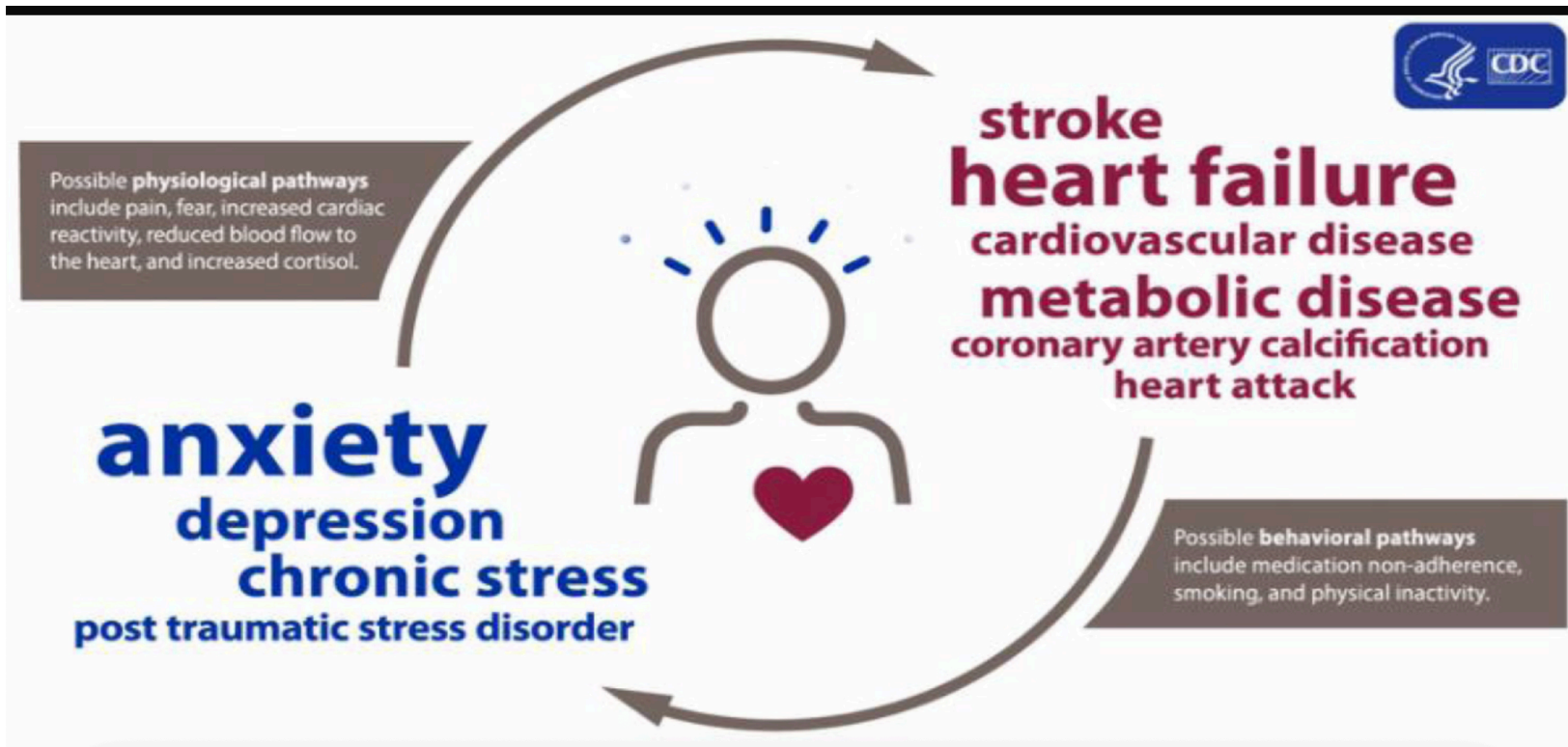
- More air and noise pollution
- Less access to green spaces and safe places
- Lower access to healthy foods, more fast-food outlets



Socio-educational

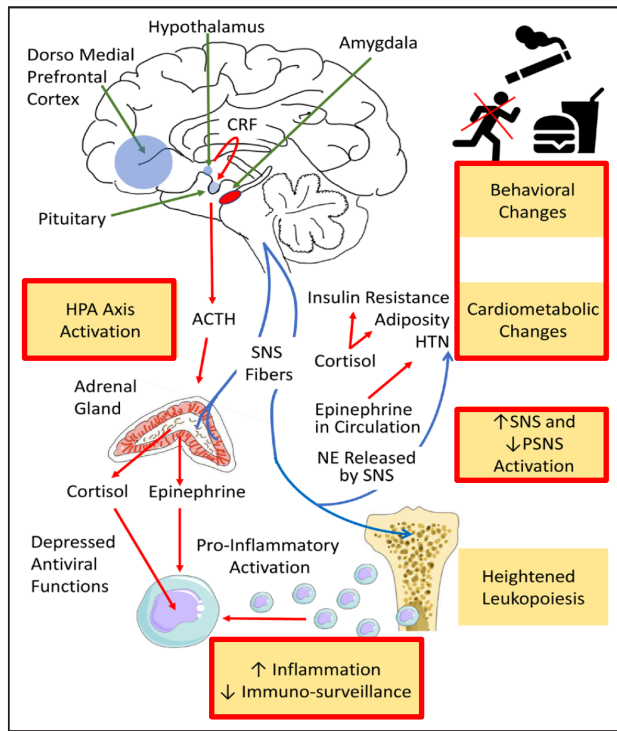
- Poor health literacy
- Lower perceived risk
- Unhealthy behaviours



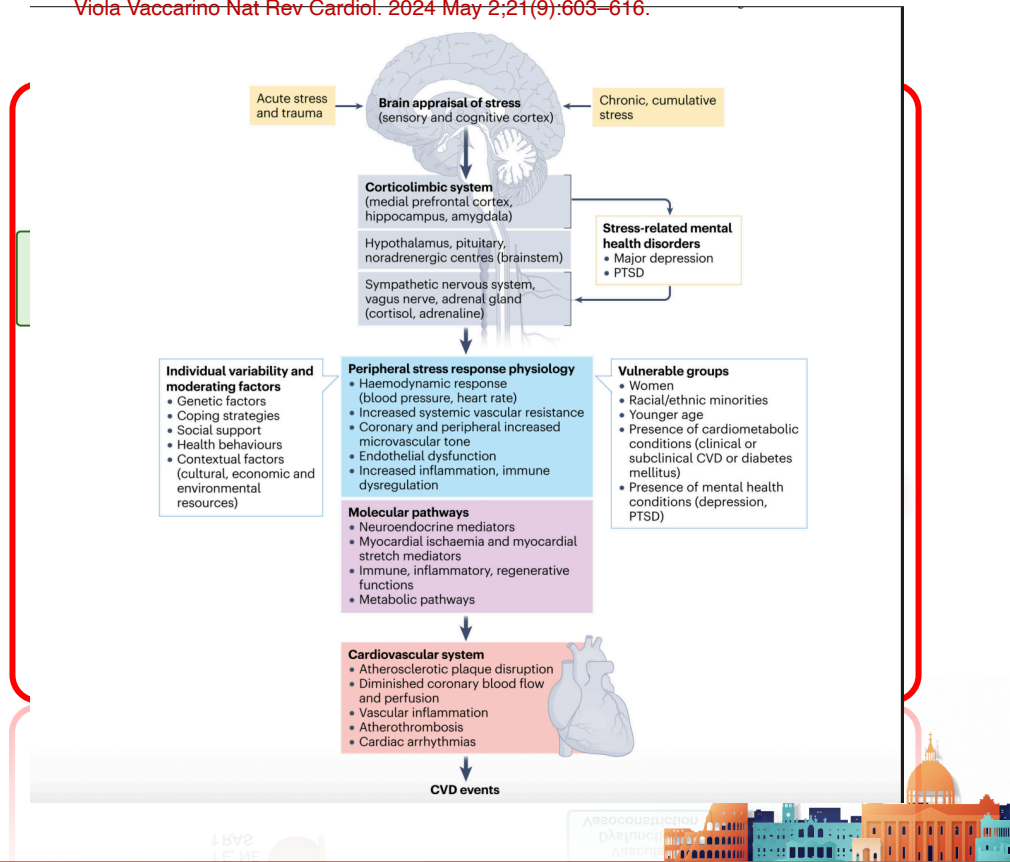




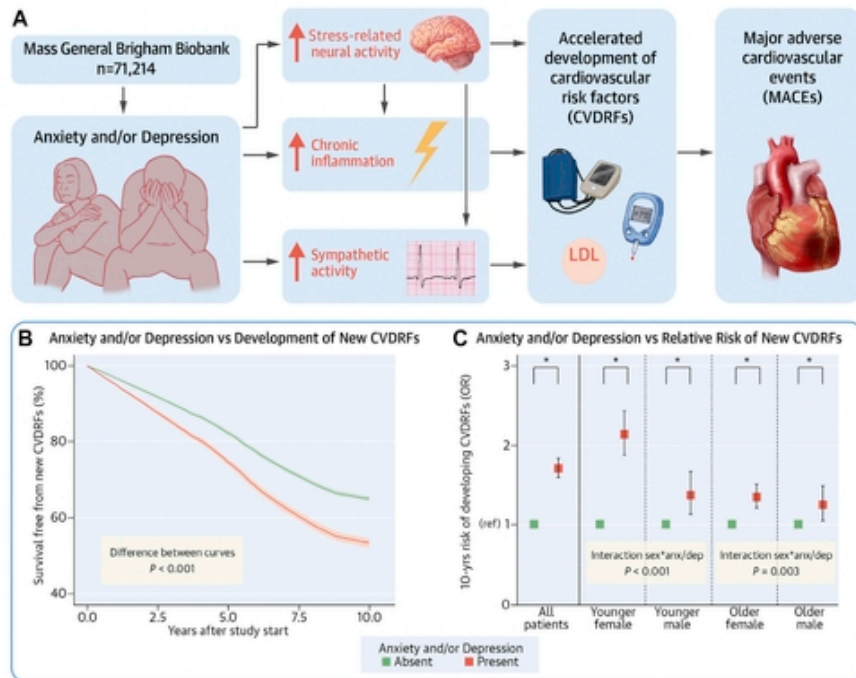
Disentangling the Links Between Psychosocial Stress and Cardiovascular Disease



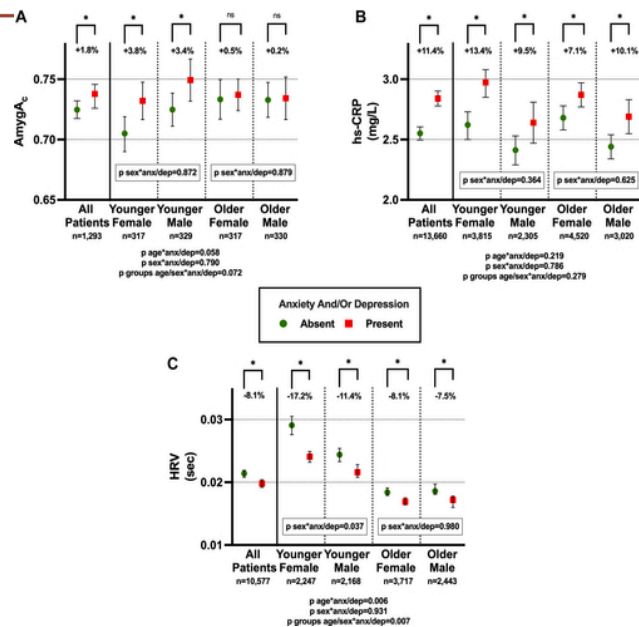
Viola Vaccarino Nat Rev Cardiol. 2024 May 2;21(9):603–616.



CENTRAL ILLUSTRATION: Anxiety and Depression are Associated With Accelerated Development of Cardiovascular Disease Risk Factors



Civieri G, et al. JACC Adv. 2024;3(9):101208.



»The study demonstrates that anxiety/depression are significantly associated with an accelerated development of new CVDRFs, independently of potential confounders such as health behaviors and medications prescribed for anxiety/depression.»

CENTRAL ILLUSTRATION: Psychological Distress Is Associated With Adverse Cardiovascular Outcomes in Patients With Coronary Heart Disease

Pooled analyses of 2 prospective cohort studies of patients with stable coronary heart disease (N = 891)



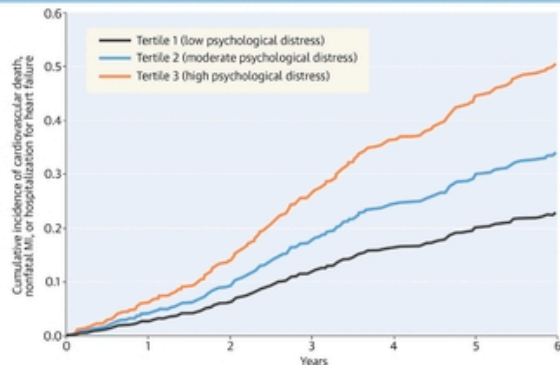
Psychological distress score constructed using measures of depression, anxiety, anger, perceived stress, and PTSD



Composite endpoint including cardiovascular death or first or recurrent nonfatal myocardial infarction or hospitalization for heart failure
Follow-up 5.9 years

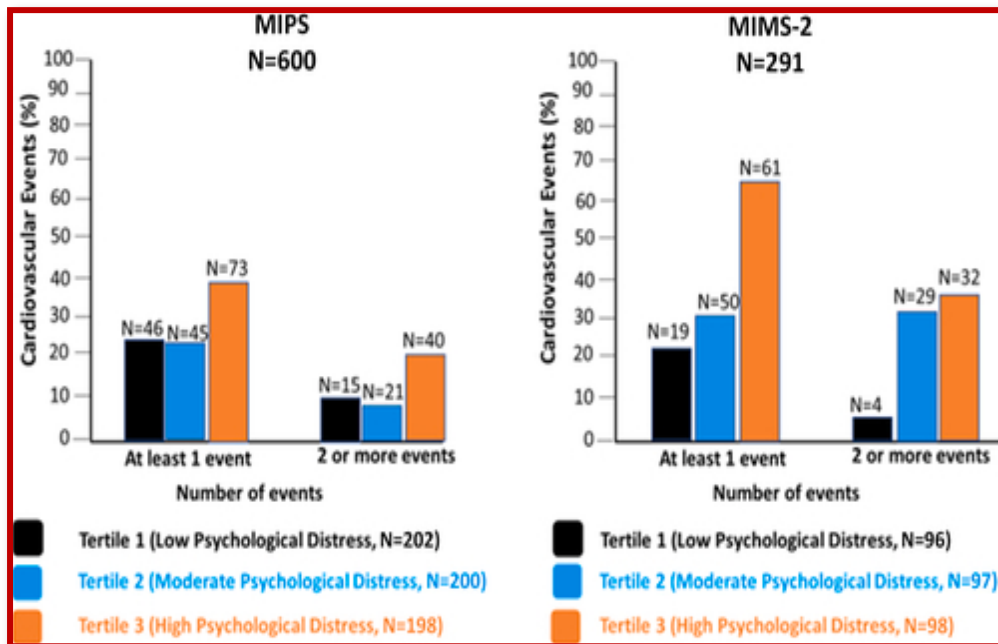


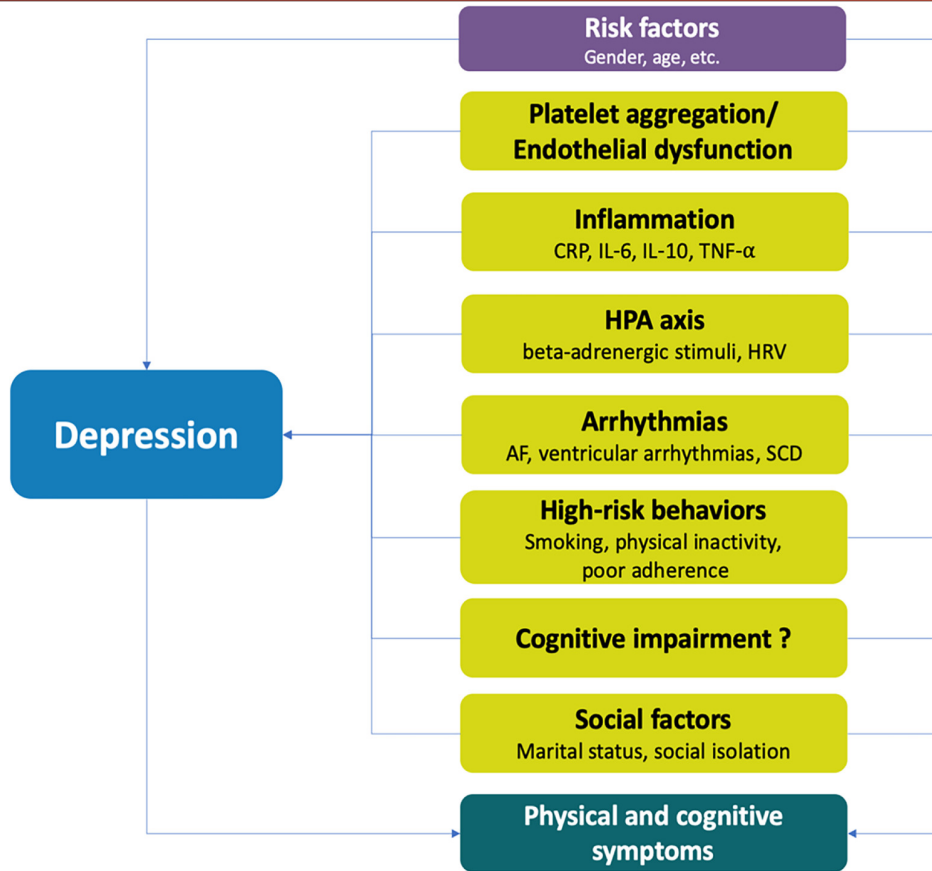
Cumulative Incidence of Adverse Cardiovascular Events by Tertiles of the Psychological Distress Score



No. at risk:	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Tertile 1	298	287	277	260	234	201	190
Tertile 2	297	282	267	248	217	182	172
Tertile 3	296	276	256	230	204	169	155

Garcia M, et al. JACC Adv. 2024;3(2):100794.





European Journal of Heart Failure (2020) 22, 2007–2017
doi:10.1002/ehfj.1865

R

Depression and heart failure: the lonely comorbidity

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Received 30 August 2019; revised 3 May 2020; accepted 3 May 2020; online publish-ahead-of-print 29 May 2020



Journal of Psychosomatic Research 94 (2017) 82–89



Contents lists available at ScienceDirect

Journal of Psychosomatic Research



Depression increases the risk of mortality in patients with heart failure: A meta-analysis

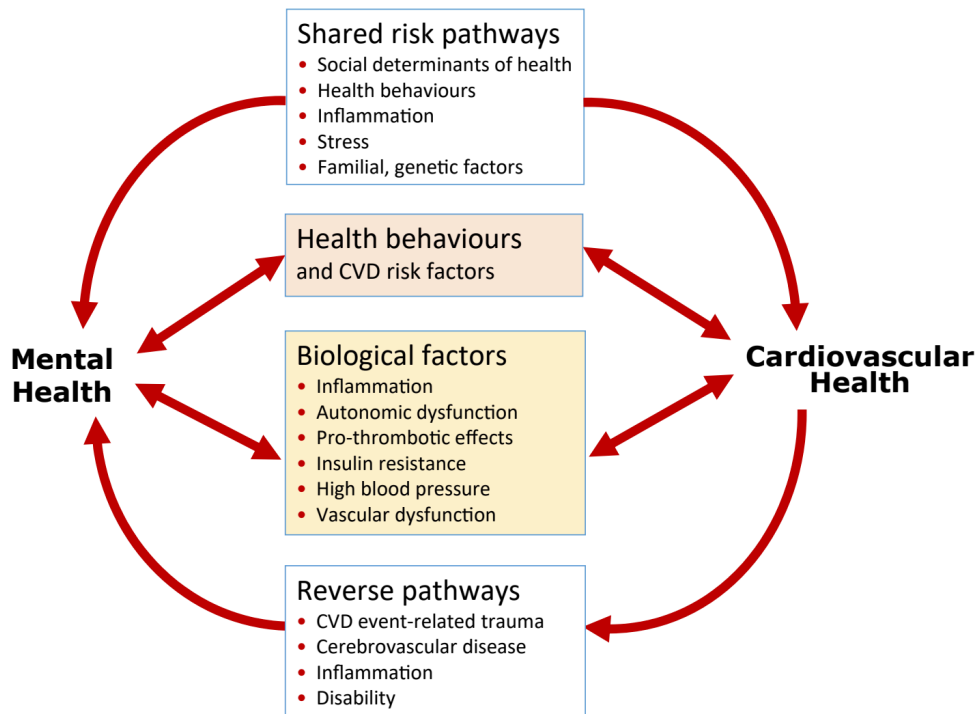
Emily C. Gathright^{a,b,*}, Carly M. Goldstein^b, Richard A. Josephson^{c,d}, Joel W. Hughes^a



Inequalities and Disparities in Cardiovascular Health

Mental health disorders and their impact on cardiovascular health disparities

Olivia Dobiliene,^g Chris P. Gale,^h and Raffaele Bugiardiniⁱ



Prevalence of depression/depressive symptoms in people with ESC cardiovascular disease

CVD	Prevalence estimates	Specific population
ACS/Post-MI	40% women, 22% men	< 60 yrs old at hospitalisation
	21% women, 15% men	> 60 yrs old at hospitalisation
	32% women, 21% men	> 6 m post-hospitalisation
Chronic HF	33% women, 26% men	Unspecified HF
Adv HF/HTx	25%–35%	Post heart transplant
	15%–39%	Ventricular assist devices
ICD	15.4%	All timepoints post ICD
ACHD	24%	ACHD
PAH	9%–70%	PAH

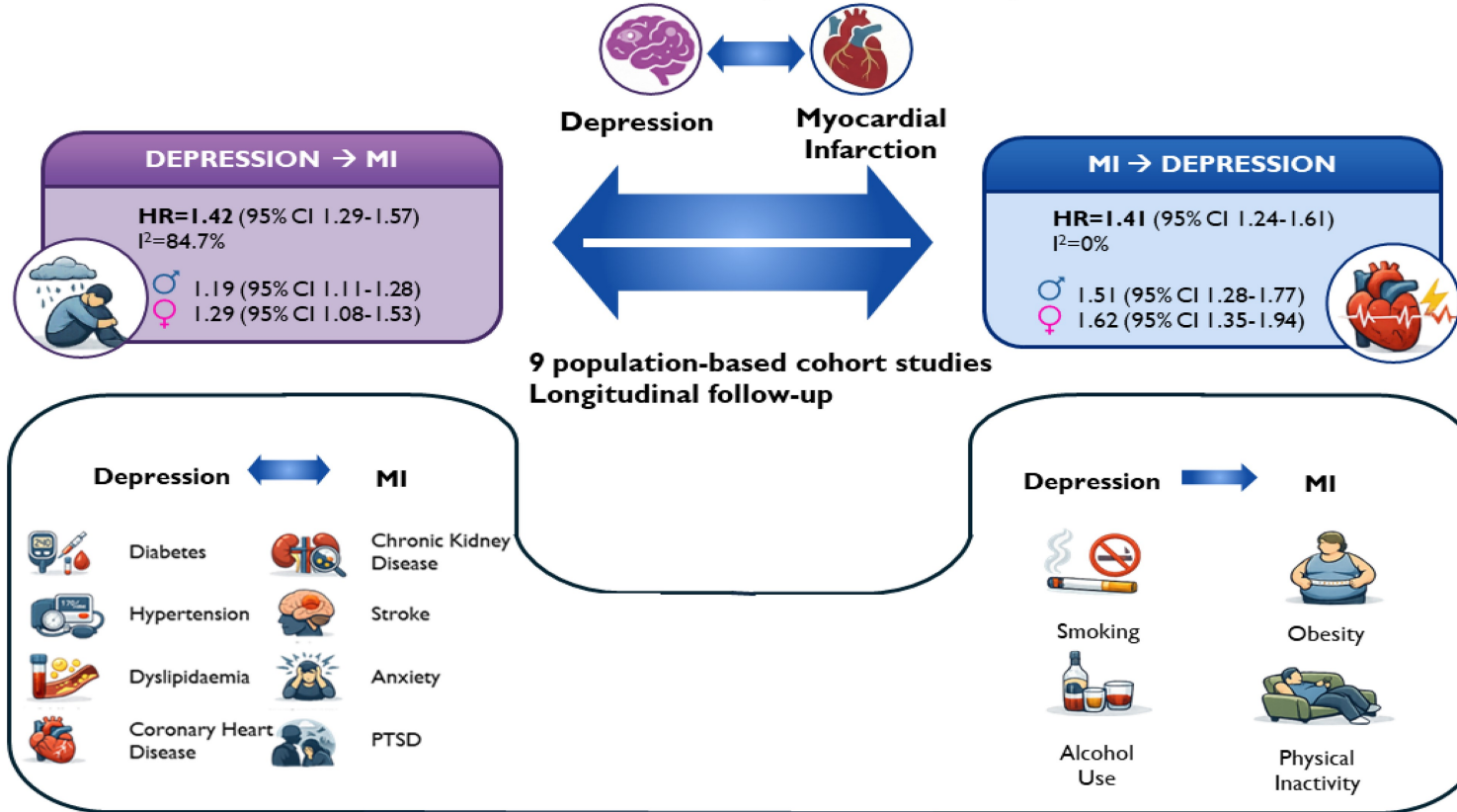
ESC Congress
2025 Madrid

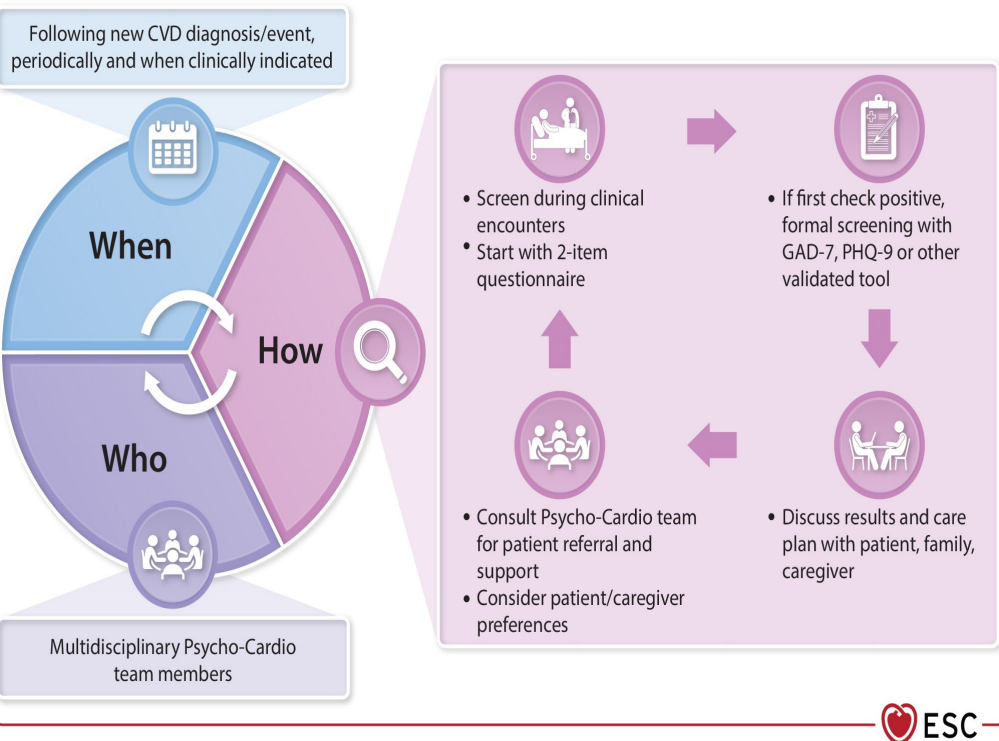
TOGETHER WITH
World Congress
of Cardiology

From the section on mental health and mental health conditions in patients with CVD



Bidirectional association between depression and myocardial infarction





Simple screening tools for anxiety and depression symptoms: Psychometric properties and timing for use

Psychometric property	Whooley questions	GAD-2	PHQ-2 ≥ 2 points
Sensitivity	95%	91%	97%
Specificity	65%	37%	48%

The Whooley questions:

- During the past month, have you often been bothered by feeling down, depressed, or hopeless?
- During the past month, have you often been bothered by having little interest or pleasure in doing things?

Timing and tools for screening anxiety and depression symptoms

Timing of screening	Measurement	
	Anxiety symptoms	Depressive symptoms
1. Following a new diagnosis of CVD, a CV event or procedure. May be during hospitalization	GAD-2 followed by GAD-7 if positive	PHQ-2 followed by PHQ-9 if positive
2. At follow-up (e.g. annually) to determine change from baseline or previous measurement		
3. Anytime based on clinical judgement		

Psychological interventions for depression and anxiety in patients with coronary heart disease (CHD), heart failure (HF) or atrial fibrillation (AF): Cochrane systematic review and meta-analysis



Aim

To assess the effects of psychological interventions compared to no psychological intervention controls in adults with a diagnosis of CHD, HF or AF on psychological and clinical outcomes

Methods

- P** CHD, HF, AF
- I** Psychological interventions
- C** Usual care
- O** Depression, anxiety, quality of life, all-cause mortality, hospitalizations, major adverse cardiovascular events
- S** Randomized controlled trials

Results

21 RCTs (n = 2591)

Follow-up 6–12 months

No studies reported AF

High heterogeneity across outcomes

No differences: physical HRQoL, all-cause mortality, major adverse cardiac events

Anxiety



SMD -0.57; 95% CI -0.96 to -0.18; P = 0.004

Depression



SMD -0.36; 95% CI -0.65 to -0.06; P = 0.02

Mental HRQoL

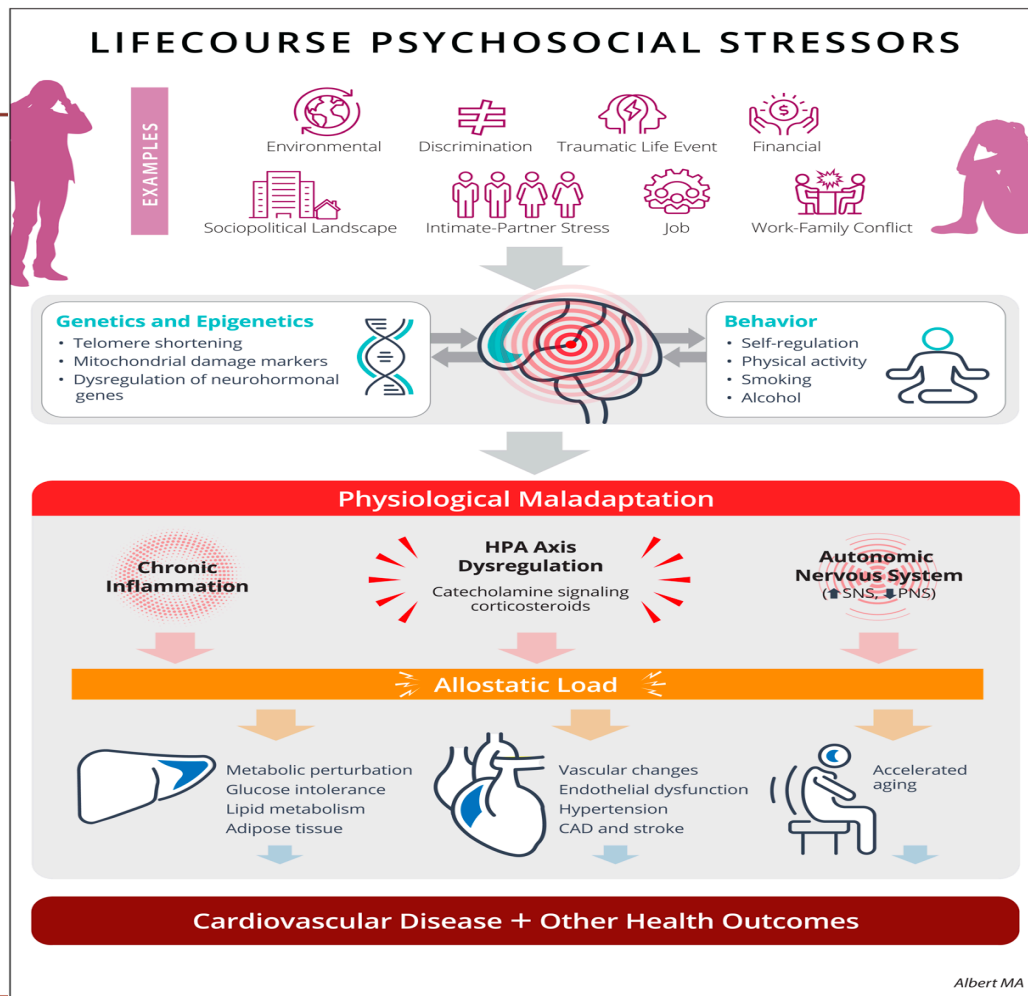


SMD 0.63, 95% CI 0.01 to 1.26; P = 0.05



- Psychological interventions improved depression, anxiety and mental health-related quality of life (HRQoL)
- Interventions designed to target anxiety were more effective than non-targeted interventions at reducing anxiety
- Multifactorial psychological interventions show promise for inclusion of patient needs and preferences







Computing Components of Everyday Stress Responses: Exploring Conceptual Challenges and New Opportunities

Joshua M. Smyth¹, Matthew J. Zawadzki²,
David Marcusson-Clavertz³, Stacey B. Scott⁴, Jillian A. Johnson¹,
Jinhyuk Kim⁵, Meynard J. Toledo¹, Robert S. Stawski⁶,
Martin J. Sliwinski⁷, and David M. Almeida⁷

¹Department of Biobehavioral Health, The Pennsylvania State University; ²Department of Psychological Sciences,

JMIR FORMATIVE RESEARCH

Franco et al

[Original Paper](#)

Developing a Guided Web App for Postpartum Depression Symptoms: User-Centered Design Approach

Pamela Franco^{1,2}, PhD; Marcia Olshaberry^{1,2}, PhD; Antonia Muzard^{1,2,3}, PhD; Ángeles Harismendy, BS; Saskia Kelders^{4,5}, PhD

- Mobile health technologies and wearable devices might be helpful in the prospective assessment of stressful exposures and stress responses in everyday life.
- Psychological assessment should be integrated with clinical care and prevention.
- Stress-reduction interventions might mitigate perceived stress levels and potentially reduce cardiovascular risk, although more data from large, randomized trials are needed.

SPRINGER NATURE Link

Log in

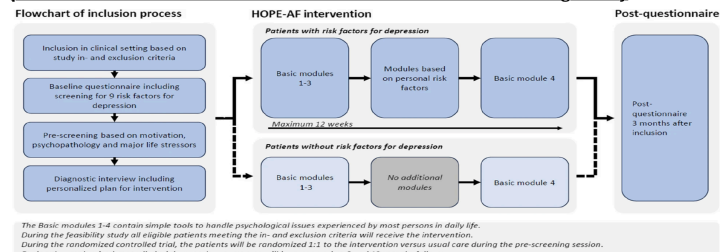
Find a journal Publish with us Track your research Search

Saved research Cart

Home > Pilot and Feasibility Studies > Article > Figure 2

Fig. 2

From: Development of an online psychological intervention to prevent depression in patients with atrial fibrillation: lessons learned in a user-centered design study



The HOPE-AF intervention

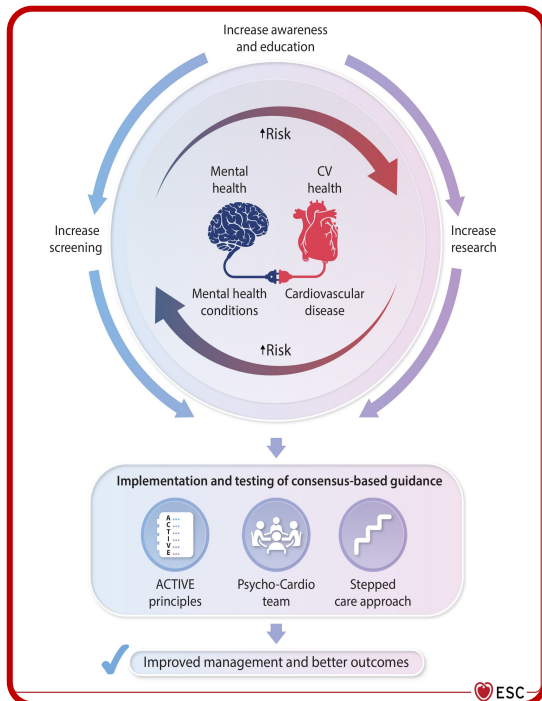


Grey Areas

- Evidence base sufficient for guidelines?
- Timing, frequency, and methods, for MH conditions in people with CVD, and how these might vary by condition
- Effective and cost-effective treatment for people with MH conditions and CVD that can improve both MH and CVD outcomes
- Interventions for special populations including older adults and those with multi-morbidity and frailty

Héctor Bueno, MD, PhD, FESC





Pop quiz



Per...
Person!

**Cardiologists don't
treat hearts — they
treat persons.**

Noa Vilkinsky 2025

