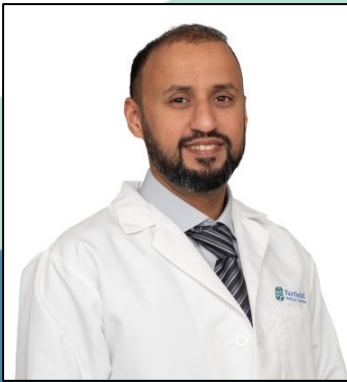




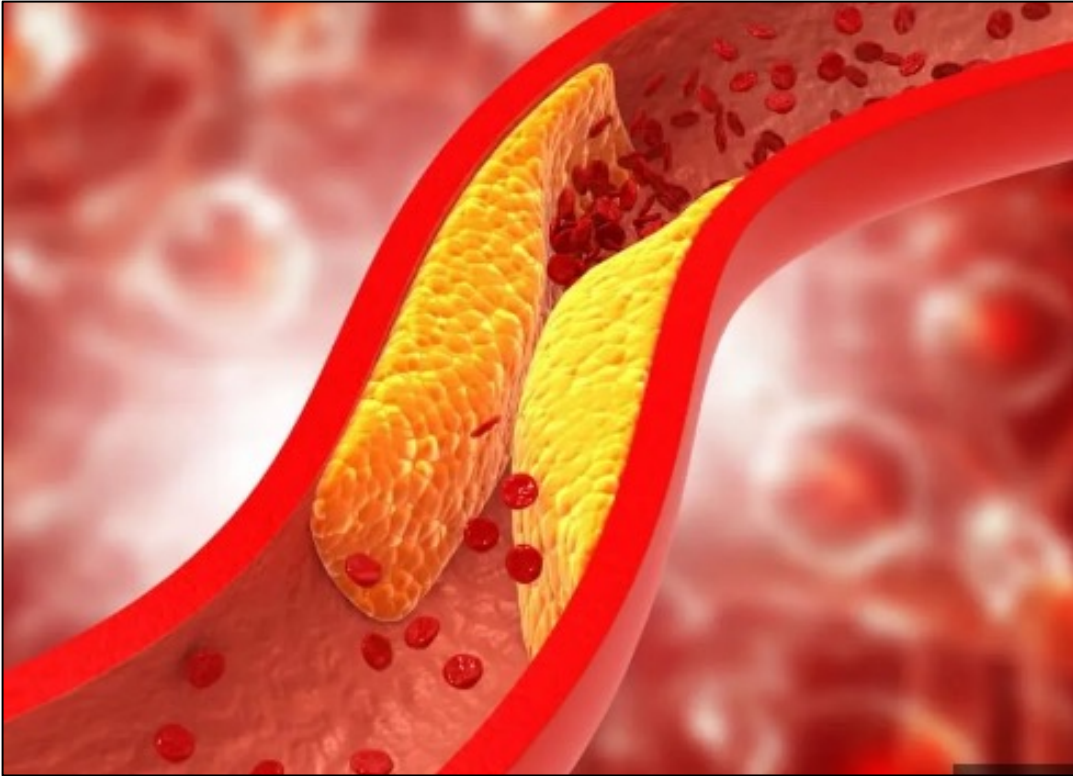
Fairfield
Medical Center



Novel Risk Factors For Cardiovascular Disease

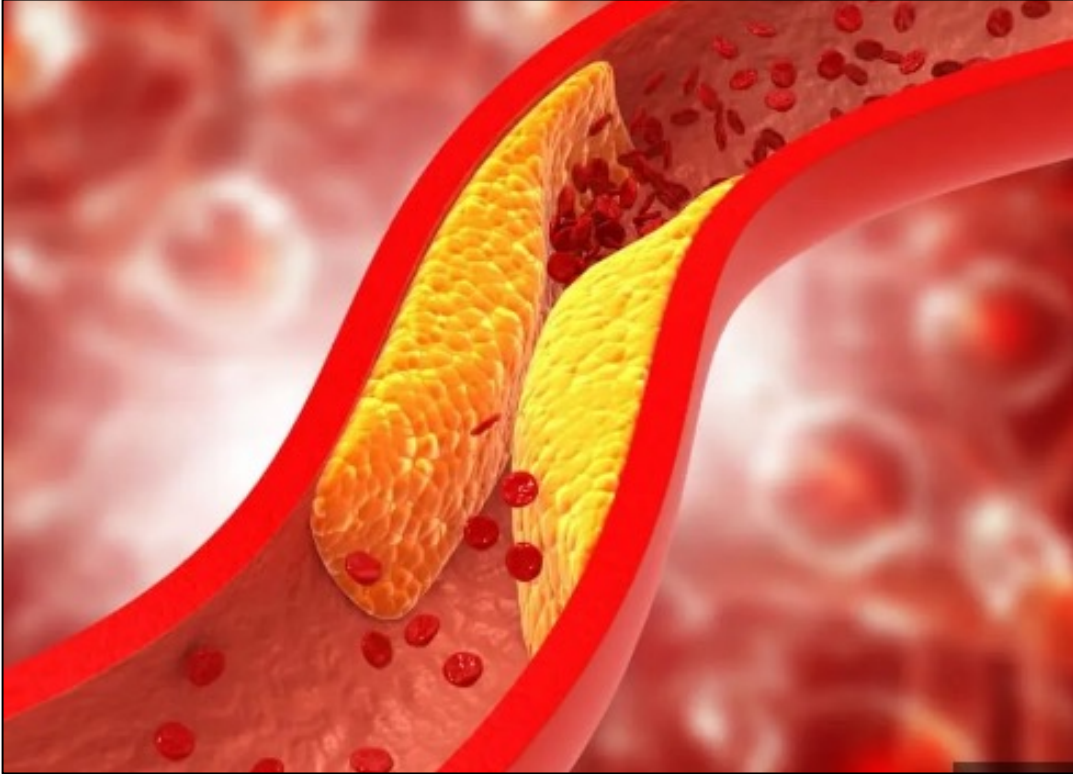
Ali O. Malik MD., MSc.

Prevention: *Traditional Risk Factors*



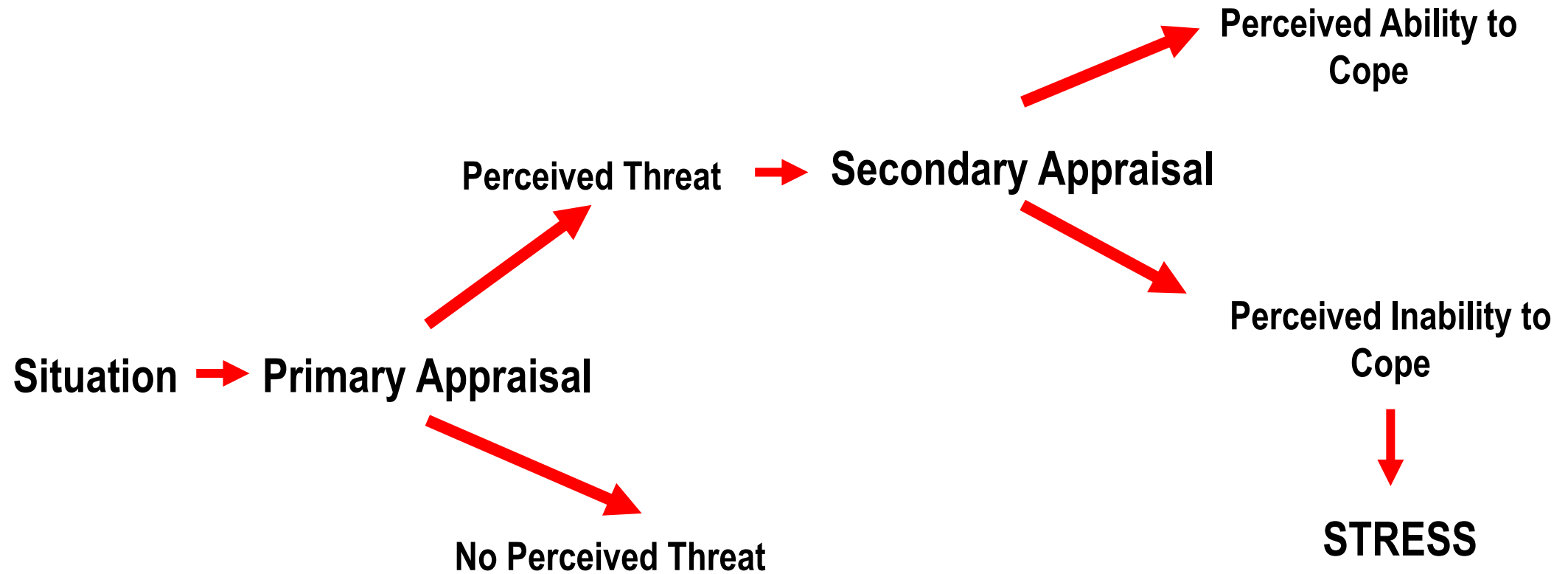
- Blood Pressure $<130/80$
- Lipids
- Glycemia
- Smoking

Prevention: *Novel Risk Factors*



- Psychosocial Stress
- Ambient Air Pollution

What is Stress?



Lazarus and Folkman Transactional Model of Stress. Stress Appraisal and Coping 1984

4-point Perceived Stress Scale

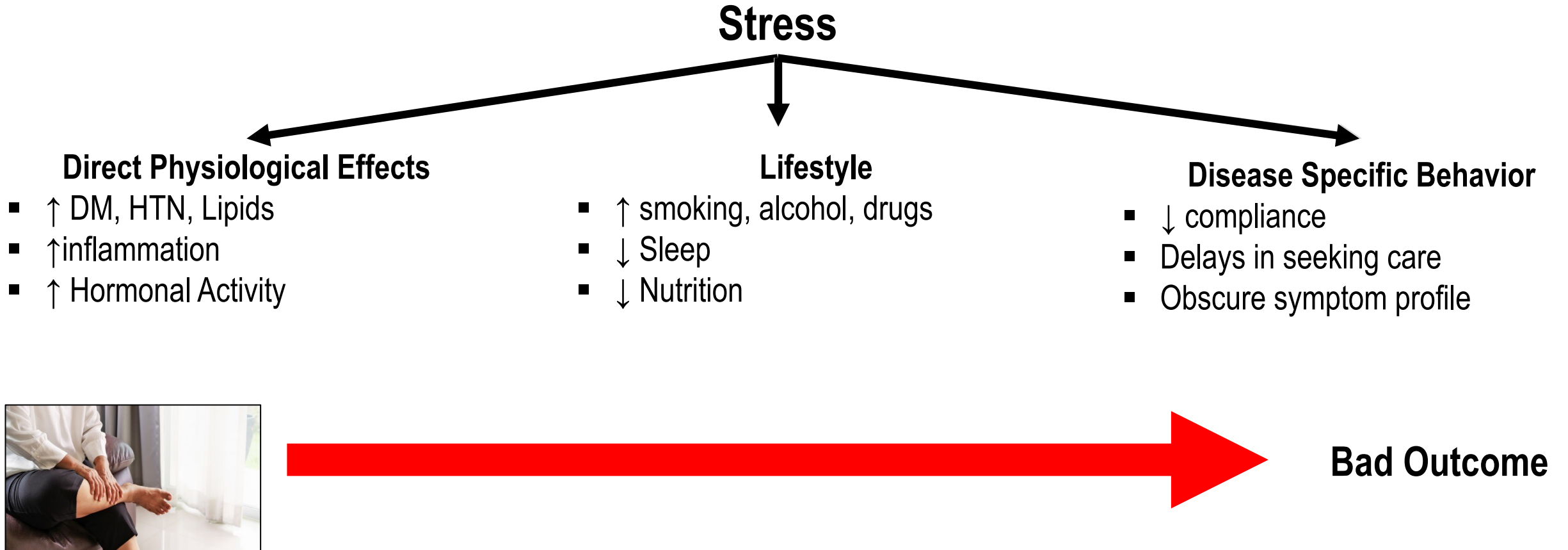
The questions in this scale ask you about your feelings and thoughts during the last month. In each case, please indicate with a check how often you felt or thought a certain way.					
	0	1	2	3	4
1. In the last month, how often have you felt that you were unable to control the important things in your life?					
2. In the last month, how often have you felt confident about your ability to handle your personal problems?					
3. In the last month, how often have you felt that things were going your way?					
4. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?					

Cohen S, 1983

- Scores 0 → 16
- ↑ score indicates higher stress
- No “cut-off”
- Patient scores compared to normative score from general population
- Normative score in English population was 6

Warttig SL, 2013

Stress in Cardiovascular Disease: Mechanisms



Hamer M., J Am Coll Cardiol. 2008

Stress and Cardiovascular Risk: Outcomes

- ↑ **Risk of MI**

Rosengren A. et al. Lancet 2004



2 X higher risk

- ↑ **Mortality in CAD**

Iso H et al. et al Circulation 2002



**2 X higher risk
(women)**

- ↑ **Mortality after MI**

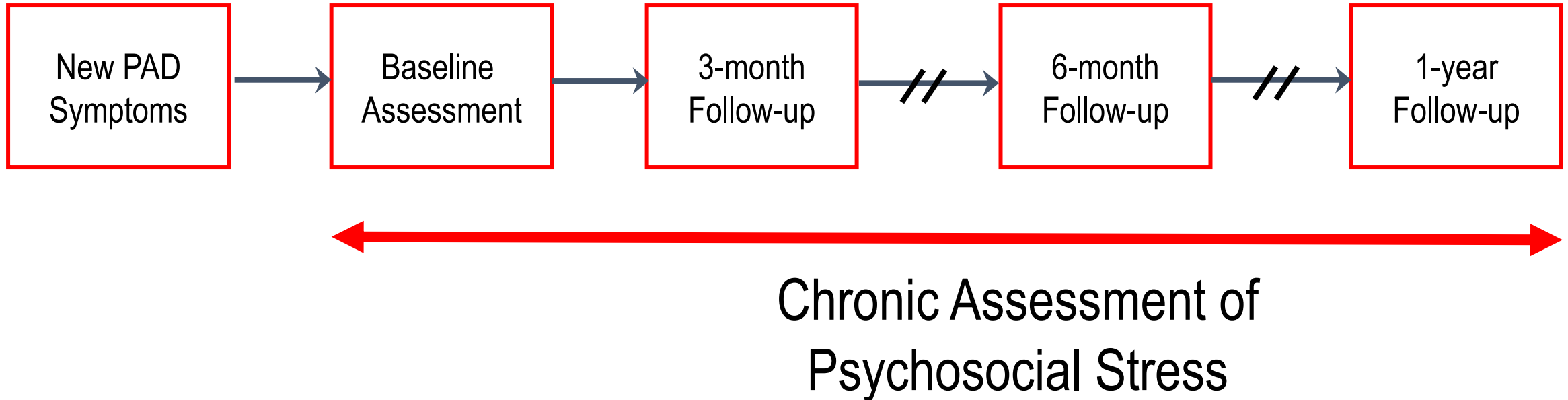
Arnold SV. et al. JACC 2012



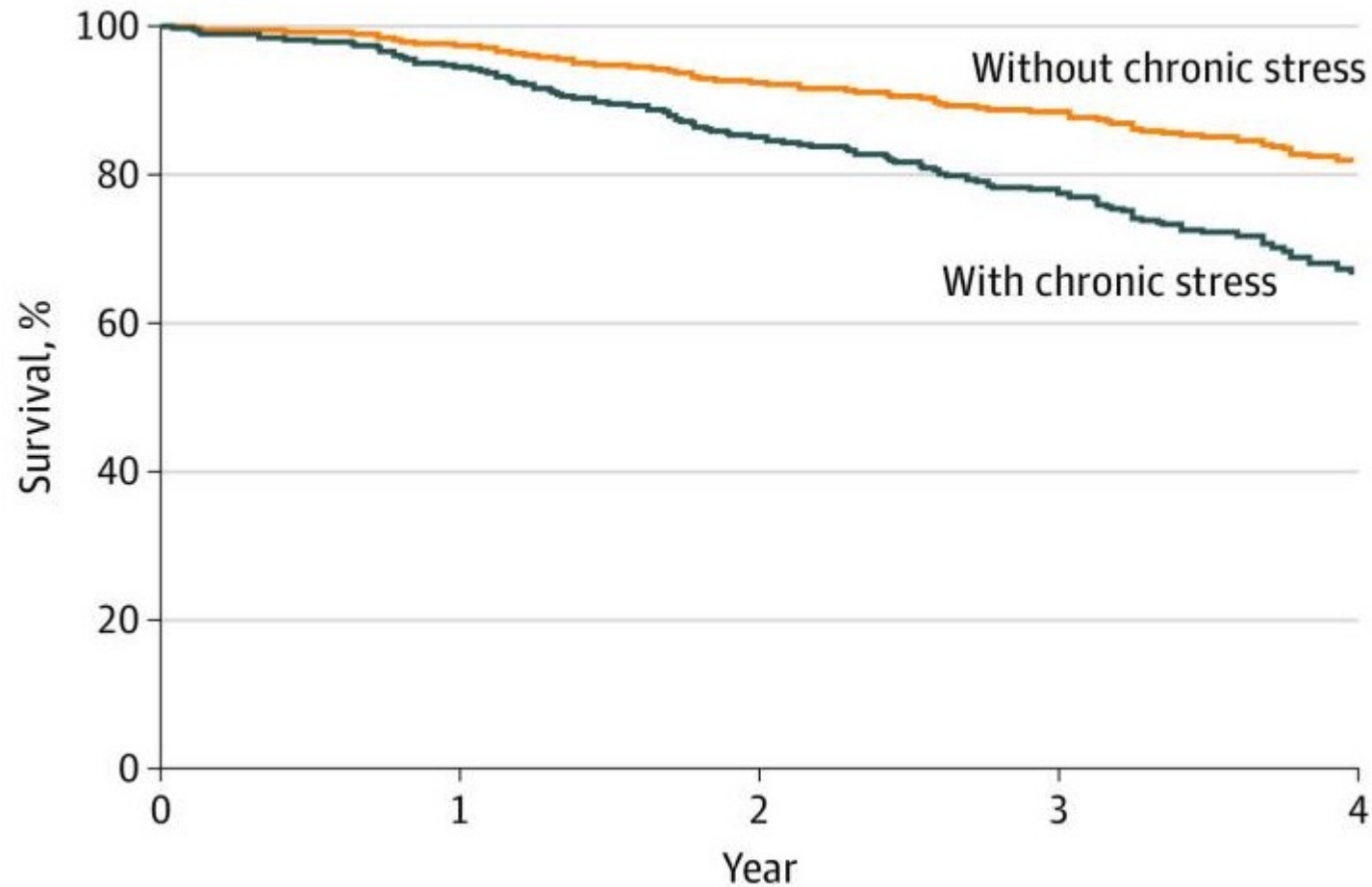
**Higher risk
(OR 1.4)**

Contemporary Outcome Data: PORTRAIT study

2015-19: Multiple Sites across USA

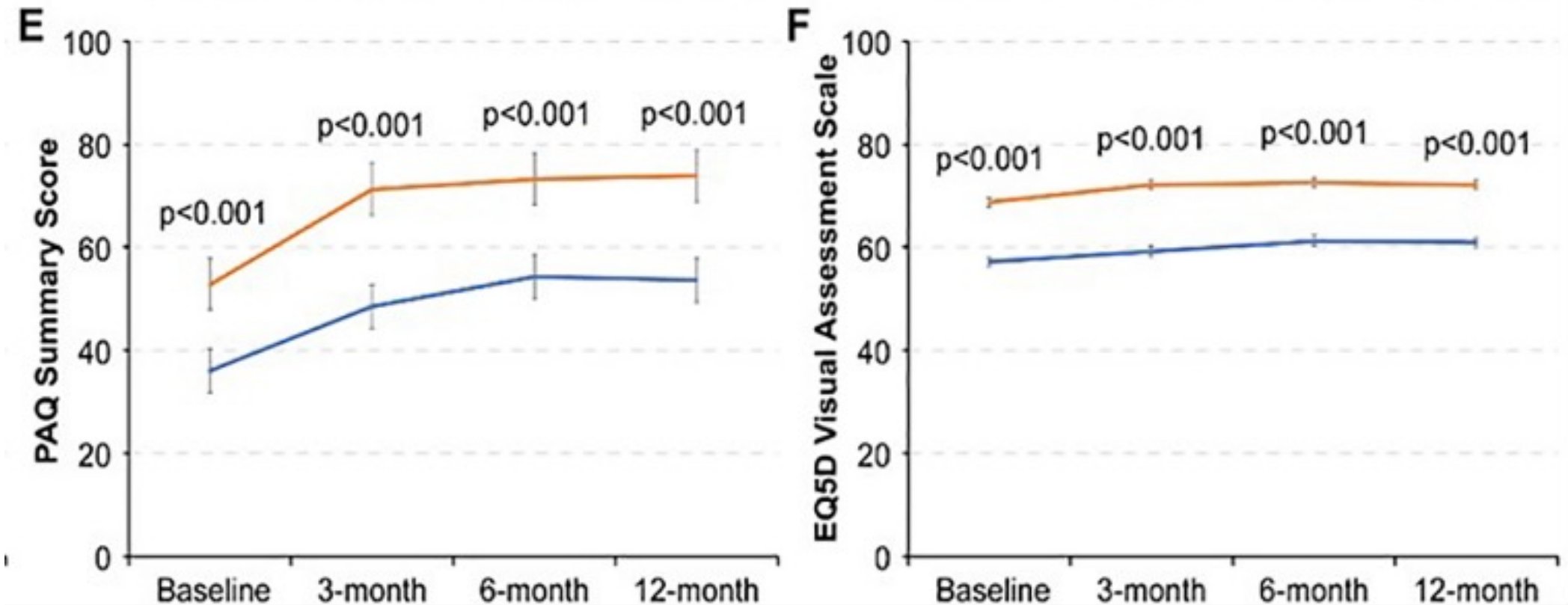


Mortality: Impact of Chronic Stress

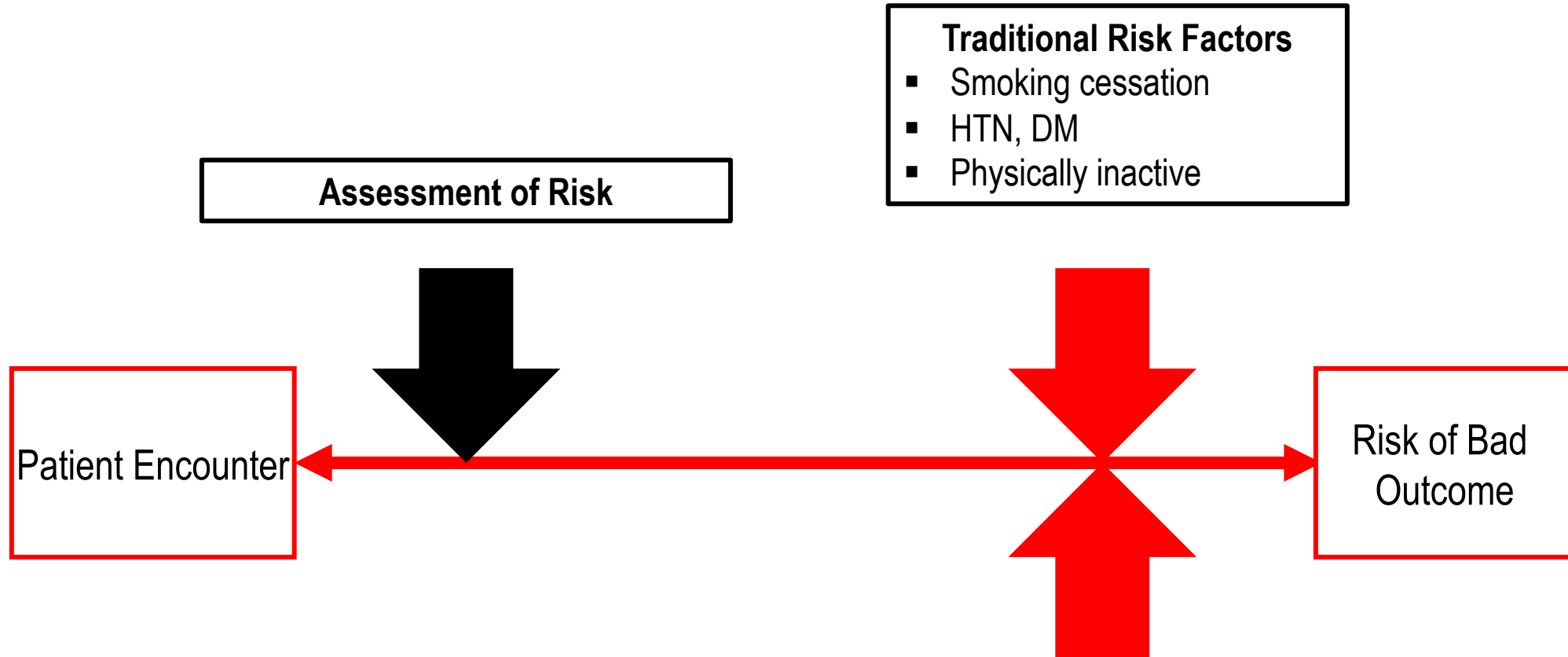


Malik AO. et al. JAMA Netw Open. 2020 Jun

Quality of Life: Impact of Chronic Stress



Psychosocial Stress: What can we do?



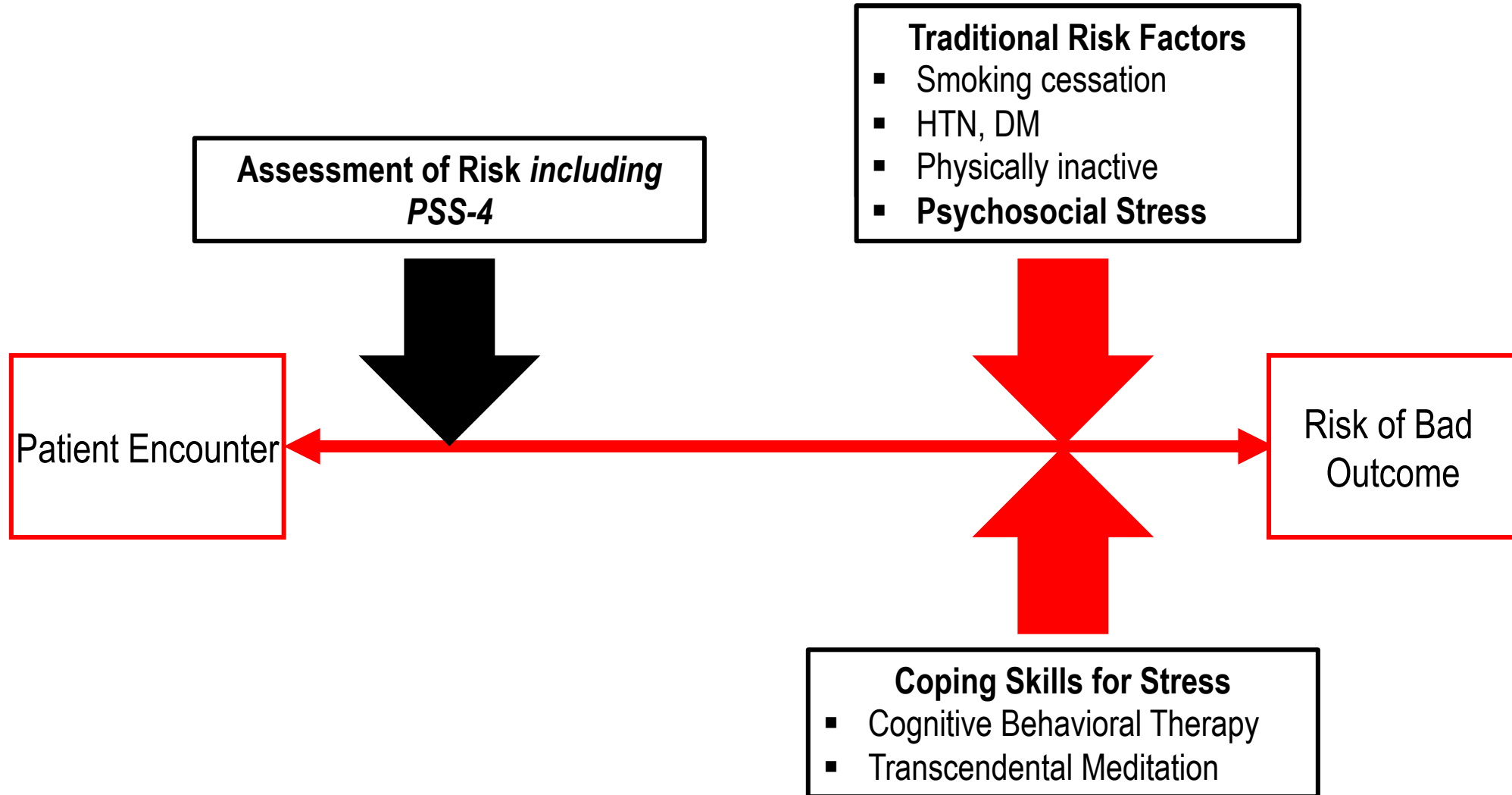
4-point Perceived Stress Scale

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, please indicate with a check how often you felt or thought a certain way.

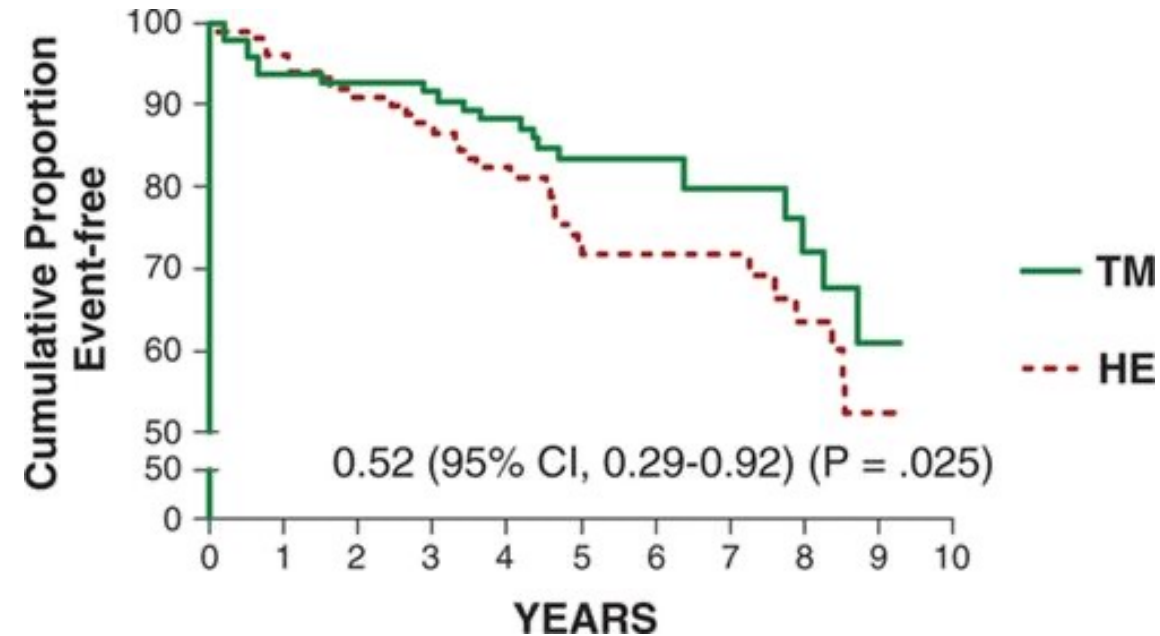
	0	1	2	3	4
1. In the last month, how often have you felt that you were unable to control the important things in your life?					
2. In the last month, how often have you felt confident about your ability to handle your personal problems?					
3. In the last month, how often have you felt that things were going your way?					
4. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?					

■ Scores >6

Psychosocial Stress: What can we do?

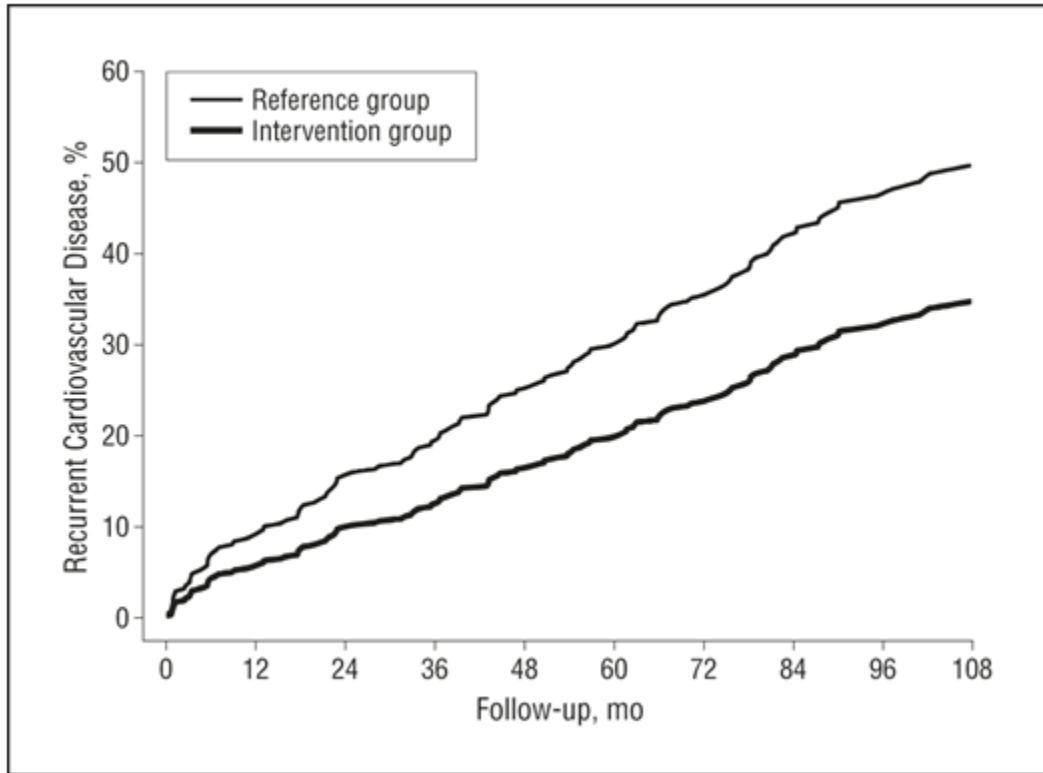


Coping Mechanisms: Transcendental Meditation



- Black patients with stable CAD
- **Transcendental Meditation** vs Health Education
 - Six 1-2 hour sessions
 - Then weekly, biweekly, monthly sessions
- Outcome: composite of all-cause death, non-fatal MI and non-fatal stroke

Coping Mechanisms: Cognitive Behavioral Therapy



CV events in patients discharged with diagnosis of CAD

- Patient discharged after MI, PCI or CABG
- **CBT** vs Standard Care
 - 20 two-hour sessions over 1-year
 - Behavioral Exercises on stress management, coping,
 - Highly structured and standardized
- Outcome: All cause death, non-fatal MI/stroke, revascularization,

Coping Mechanisms: Real Life

Supplementary Table 1. Model coefficients for all factors in the final model to predict chronic stress in patients with cardiovascular disease.

Covariate	Coefficients
Age	$-0.027 \times \text{age (in years)}$
Female Sex	+ 0.362
Not currently working for pay	+0.404
Just enough end of month finances	+0.684
Not enough end of month finances	+1.095
Avoiding care due to cost	+0.613
ENRICHD social support instrument score	-0.083
y-intercept	1.336

Local Resources

- **Kim Kohli PhD., MHA.**
- **Transcendental Meditation**

Mediate America: Free programs online: <https://live.meditateamerica.org/>

TM Columbus: <https://www.tm.org/en-us/contact-us>



Thank You