

RISK FACTORS**MENTAL STRESS PUTS
WOMEN'S HEARTS AT RISK**

Young women with a recent myocardial infarction (MI) are more likely to develop myocardial ischaemia during psychological stress than men. This finding provides further evidence of sex differences in the pathophysiology of cardiovascular diseases.

Mental stress-induced myocardial ischaemia (MSIMI) in patients with coronary artery disease is associated with a worse prognosis. Previous reports suggested that women are at higher risk of MSIMI than men. However, these studies included a small number of patients and the biological mechanisms of MSIMI are not yet fully uncovered. In this new study, Vaccarino and colleagues enrolled a larger cohort: 306 patients with recent MI (aged ≤ 61 years) and 112 sex-matched and age-matched healthy individuals. Participants underwent mental stress (public speaking) and conventional stress (exercise and pharmacological) testing. The rate of MSIMI, as well as the rate of ischaemia during conventional stress, was twice as high in women with MI as in men, independently of psychosocial and clinical risk factors. Women in both groups had higher microvascular dysfunction after mental stress than men, with a lower reactive hyperaemia index after stress, and women who constricted their peripheral vessels during mental stress had a much higher probability of developing ischaemia than men. "A propensity towards constricting small vessels during stress might put women at risk of developing flow abnormalities in the heart," explains study investigator Viola Vaccarino, who adds that understanding the effects of stress on the risk of cardiovascular disease will inform strategies for primary and secondary prevention in women. "Currently, stress and mental health are not part of any prevention guidelines or public awareness campaign for heart disease in women in the USA," says Vaccarino. The investigators plan to continue the follow-up of the patients to examine the relationship between the observed haemodynamic abnormalities and clinical outcomes.

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ORIGINAL ARTICLE Vaccarino, V. *et al.* Mental stress-induced-myocardial ischemia in young patients with recent myocardial infarction: sex differences and mechanisms. *Circulation* **137**, 794–805 (2018)

FURTHER READING Vaccarino, V. *et al.* Presentation, management, and outcomes of ischaemic heart disease in women. *Nat. Rev. Cardiol.* **10**, 508–518 (2013)