

Psychosocial risk factors for coronary heart disease (CHD)

Psychosocial risk factors for CHD



**A consensus statement from the National Heart Foundation
of Australia**

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Med J Aust 2013; 199 (3):179–180.

Available at: www.mja.com.au

Psychosocial risk factors for CHD



- An update on evidence regarding psychosocial risk factors for CHD:
 - chronic stressors (in particular, work stress)
 - acute individual stressors
 - acute population stressors.¹
- Provides guidance for health professionals in acute and primary care.¹
- Complements a separate updated statement on depression and CHD (published May 2013).²

References

1. Glozier N, et al. Med J Aust 2013; 199 (3):179–180.
2. Colquhoun D, et al. Med J Aust 2013; 198 (9):483–484.

Chronic stressors



- Work stress:
 - job strain
 - effort–reward imbalance
 - organisational injustice
 - shift work
 - other types of work stress
 - work stress and prognosis of CHD.
- Social isolation and social support.

Work stress



- Perceived chronic job strain and shift work are associated with a small absolute increased risk of developing CHD, but there is limited evidence regarding their effect on the prognosis of CHD.

Job strain



- Job strain as a risk factor for CHD is much lower than that for standard CHD risks, such as smoking or hypertension.
- The Whitehall II study demonstrated that adding information on job strain does not improve 10-year risk prediction for CHD above the standard Framingham risk score.¹

Reference

1. Kivimäki M, et al. *Int J Epidemiol* 2011; 40:1577–1584.

Shift work



- Associated with a moderate increase in myocardial infarction (MI) (RR, 1.23; 95% CI, 1.15–1.31) and CHD events (RR, 1.24; 95% CI, 1.10–1.39), but not with increased rates of mortality.
- All shift work schedules studied, with the exception of evening shifts, were associated with a higher risk of CHD events, even after adjusting for unhealthy behaviour and other CHD risks.

Reference
1. Vyas MV, et al. BMJ 2012; 345:e4800.

Work stress



- Evidence regarding a relationship between CHD and job (in)security, job satisfaction, working hours, effort-reward imbalance and job loss is inconclusive.

Work stress



- Workplace programs aimed at weight loss, exercise and other standard cardiovascular risk factors may have positive outcomes for these risk factors, but no evidence is available regarding the effect of such programs on the development of CHD.

Social isolation



- Social isolation after MI is associated with an adverse prognosis.
- Although measures to reduce social isolation are likely to produce positive psychosocial effects, it is unclear whether this would also improve CHD outcomes.

Acute stressors



- Individual stressors include:
 - acute emotional responses
 - bereavement
 - acute work related stressors and job loss.
- Population stressors include:
 - natural and unnatural disasters
 - sporting events.
- Takotsubo cardiomyopathy

Acute emotional stress



- Acute emotional stress may trigger MI or takotsubo ('stress') cardiomyopathy, but the absolute increase in transient risk from an individual stressor is low.

Population stressors



- Awareness of the potential for increased cardiovascular risk among populations exposed to natural disasters and other conditions of extreme stress may be useful for emergency services response planning.

National Heart Foundation of Australia evidence statements regarding psychosocial stressors and CHD^{1,2}



Chronic stressors	Grade of evidence*	Level of evidence
Risk factors for onset of CHD (aetiology)		
1. High job strain increases the risk of CHD	C	I ⁺
2. Shift work increases the risk of CHD	C	I ⁺
3. There is limited evidence that social isolation is a risk factor for CHD	D	I ⁺
Outcome of CHD (prognosis)		
1. There is limited evidence that high job strain increases the risk of a poor CHD prognosis	D	II [‡]
2. Social isolation increases the risk of a poor CHD prognosis	B	I [‡]

*Clinical impact is unclear †Using NHMRC aetiology hierarchy ‡Using NHMRC prognostic hierarchy¹

Reference

1. National Health and Medical Research Council (NHMRC). Accessed December 2009. <https://www.nhmrc.gov.au>.
2. Glozier N, et al. Med J Aust 2013; 199 (3):179–180.

National Heart Foundation of Australia evidence statements regarding psychosocial stressors and CHD^{1,2}



Acute stressors	Grade of evidence	Level of evidence
1. Myocardial infarction can be precipitated by negative emotional states	B	III-3*
2. CHD events can be precipitated by bereavement	B	II*
3. There is no consistent evidence that involuntary job loss causes CHD	D	II*
4. Takotsubo cardiomyopathy can be precipitated by acute emotional stress	C	III-3*
5. Acute population stressors (such as earthquakes, missile attacks, and stressful sporting events) may transiently increase cardiovascular events	C	III-2*

*Using NHMRC aetiology hierarchy

Reference

1. National Health and Medical Research Council (NHMRC). Accessed December 2009. <https://www.nhmrc.gov.au>.
2. Glozier N, et al. Med J Aust 2013; 199 (3):179–180.

National Heart Foundation of Australia recommendation regarding psychosocial stressors and CHD^{1,2}



Recommendation	Grade of recommendation	Level of evidence
1. Wider public access to defibrillators should be available where large populations gather, such as sporting venues, airports, and as part of the response to natural and unnatural disasters	B	III-2*

*Using NHMRC intervention hierarchy

Reference

1. National Health and Medical Research Council (NHMRC). Accessed December 2009. <https://www.nhmrc.gov.au>.
2. Glozier N, et al. Med J Aust 2013; 199 (3):179–180.

NHMRC levels of evidence¹



NHMRC evidence hierarchy: designation of levels of evidence	
Level	Intervention
I	A systematic review of level II studies
II	A randomised controlled trial
III-1	A pseudorandomised controlled trial (i.e. alternate allocation or some other method)
III-2	A comparative study with concurrent controls: <ul style="list-style-type: none">•non-randomised, experimental trial•cohort study•case-control study•interrupted time series with a control group
III-3	A comparative study without concurrent controls: <ul style="list-style-type: none">•historical control study•two or more single arm study•interrupted time series without a parallel control group
IV	Case series with either post-test or pre-test/post-test outcomes

Reference

1. National Health and Medical Research Council (NHMRC). Accessed December 2009. <https://www.nhmrc.gov.au>

Definition of NHMRC grades of recommendations¹



Grade of recommendation	Description
A	Body of evidence can be trusted to guide practice
B	Body of evidence can be trusted to guide practice in most situations
C	Body of evidence provides some support for recommendation(s) but care should be taken in its application
D	Body of evidence is weak and recommendation must be applied with caution

Reference

1. National Health and Medical Research Council (NHMRC). Accessed December 2009. <https://www.nhmrc.gov.au>

Recommendation¹



- In recognition that acute stressors can trigger CHD events, wider public access to defibrillators should be available where large populations gather, such as sporting venues, and as part of the response to natural and other disasters.

Reference

1. Glozier N, et al. Med J Aust 2013; 199 (3):179–180.

Conclusion¹



- Psychosocial stressors have an impact on CHD, but clinical significance and prevention require further study.

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Reference

1. Glozier N, et al. Med J Aust 2013; 199 (3):179–180