

# Occupational Exposures and Ischaemic Heart Disease: Results from The Entire New Zealand Population

## Main Article Content

**Amanda Eng**

Centre for Public Health Research, Massey University, Wellington, New Zealand

**Marine Corbin**

Centre for Public Health Research, Massey University, Wellington, New Zealand

**Hayley Denison**

**Lucy Barnes**

**Andrea 't Mannetje**

Centre for Public Health Research, Massey University, Wellington, New Zealand

**Dave McLean**

Centre for Public Health Research, Massey University, Wellington, New Zealand

**Ian Laird**

Centre for Public Health Research, Massey University, Wellington, New Zealand

**Jeroen Douwes**

School of Health Sciences, College of Health, Massey University, Palmerston North, New Zealand

## Abstract

### Introduction

Ischaemic Heart Disease (IHD) is a leading cause of death in Western countries. Common occupational exposures such as loud noise, long working hours, and sedentary work have been associated with increased IHD risks, but inconsistently.

### Objectives and Approach

This study examines associations between incident IHD and exposure to long working hours, sedentary work, and loud noise. Individual-level microdata from Statistics New Zealand Integrated Data Infrastructure (IDI) were extracted for adults (age 20-64 years) with occupation recorded on the 2013 Census. The number of working hours was extracted from the Census, and exposure to sedentary work and loud noise was assessed through job exposure matrices (JEMs). IHD events (from 2013 to end of 2018) were identified using hospitalisations, prescriptions and deaths. Hazard ratios (HRs) were calculated using cox regression adjusted for age, socioeconomic status, and smoking. Results were stratified by sex and ethnicity.

### Results

A total of 20,610 IHD cases were identified from 1,594,680 individuals employed at time of Census. Both short (<35) and long (55+) working hours were associated with an increased IHD risk in crude analyses, but effects disappeared after adjustment for age and socioeconomic status. For females, sedentary work (>90% of the time compared to <50%) was associated with a reduced risk (HR(Non-Māori)=0.86, 95%CI=0.75-0.99;

HR(Māori)=0.71, 95%CI=0.44-1.14). For males, exposure to the highest noise category (>90dBA) compared to no exposure (<80dBA) was associated with elevated HRs without reaching statistical significance (HR(Non-Māori)=1.12, 95%CI=0.96-1.29; HR(Māori)=1.25, 95%CI=0.89-1.75). For females exposure to the 80-85dBA category compared to no exposure also showed elevated HRs (HR(Non-Māori)=1.14; 95%CI=1.04-1.26; HR(Māori)=1.16; 95%CI=0.93-1.46), but too few females were employed in jobs with the highest noise exposure.

### Conclusion

These preliminary analyses do not support sedentary work or long working hours as IHD risk factors, but do suggest a modest increase in IHD risk associated with occupational exposure to noise.

## Article Details

### How to Cite

Eng, A., Corbin, M., Denison, H., Barnes, L., Mannetje, A. 't, McLean, D., Laird, I. and Douwes, J. (2020) "Occupational Exposures and Ischaemic Heart Disease: Results from The Entire New Zealand Population", *International Journal of Population Data Science*, 5(5). doi: 10.23889/ijpds.v5i5.1554.

<https://ijpds.org/article/view/1554>

