

# Profiling the cardiometabolic risk of men in a long-stay prison in Wales

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## INTRODUCTION

The health of people in prisons is a public health issue. It is well known that those in prison experience poorer health outcomes than their age-matched peers in the general community. One such example is a greater burden of non-communicable diseases<sup>1</sup>, more specifically higher rates of cardiovascular disease (CVD), stroke and type 2 diabetes (T2DM) in the prison population<sup>2</sup>.

It has also been suggested that prolonged exposure to the prison environment can result in a greater prevalence of modifiable cardiometabolic risk factors<sup>3</sup>.

However, there is limited evidence on the extent of cardiometabolic risk factors in the prison environment within Wales and the wider UK. The aim of this study was to gain an understanding of the prevalence of cardiometabolic ill-health and risk factors in the prison population in Wales.

## METHODS

Risk assessments were performed on a representative sample of 299 men at HMP Parc, Bridgend in October 2019.

The risk assessments were 30 minutes in duration and all men aged 25-84 years old and free from pre-existing CVD and T2DM were eligible to participate.

During the risk assessment the following were obtained:

- demographic variables (age, gender, postcode)
- anthropometric measurements (BMI, waist circumference)
- clinical markers (blood pressure, lipid profiles, HbA1c)

The 10-year risk of CVD and T2DM was predicted using the QRISK2-2017 algorithm<sup>4</sup> and Diabetes UK Risk Score<sup>5</sup>, respectively.

## RESULTS

**Table 1. Prevalence of cardiometabolic risk factors in men (n=299)**

	n (%)
Overweight (BMI 25.0-29.9 km/m <sup>2</sup> )	130 (43.5%)
Obese (BMI ≥30.0 km/m <sup>2</sup> )	112 (37.5%)
Central Obesity (waist circumference >102cm)	120 (40.1%)
Systolic Hypertension (≥140 mmHg)	75 (25.1%)
Diastolic Hypertension (≥90 mmHg)	82 (27.4%)
High Total Cholesterol (≥5.00 mmol/l)	89 (29.8%)
Low HDL Cholesterol (≤1.00 mmol/l)	168 (56.2%)
Elevated Total Cholesterol:HDL Ratio (6 and above)	69 (23.1%)
High Non-HDL Cholesterol (≥4.00 mmol/l)	94 (31.4%)
'High Risk' HbA1c (42-47 mmol/mol)	11 (3.7%)
Potential Undiagnosed T2DM (48 mmol/mol and above)	3 (1.0%)

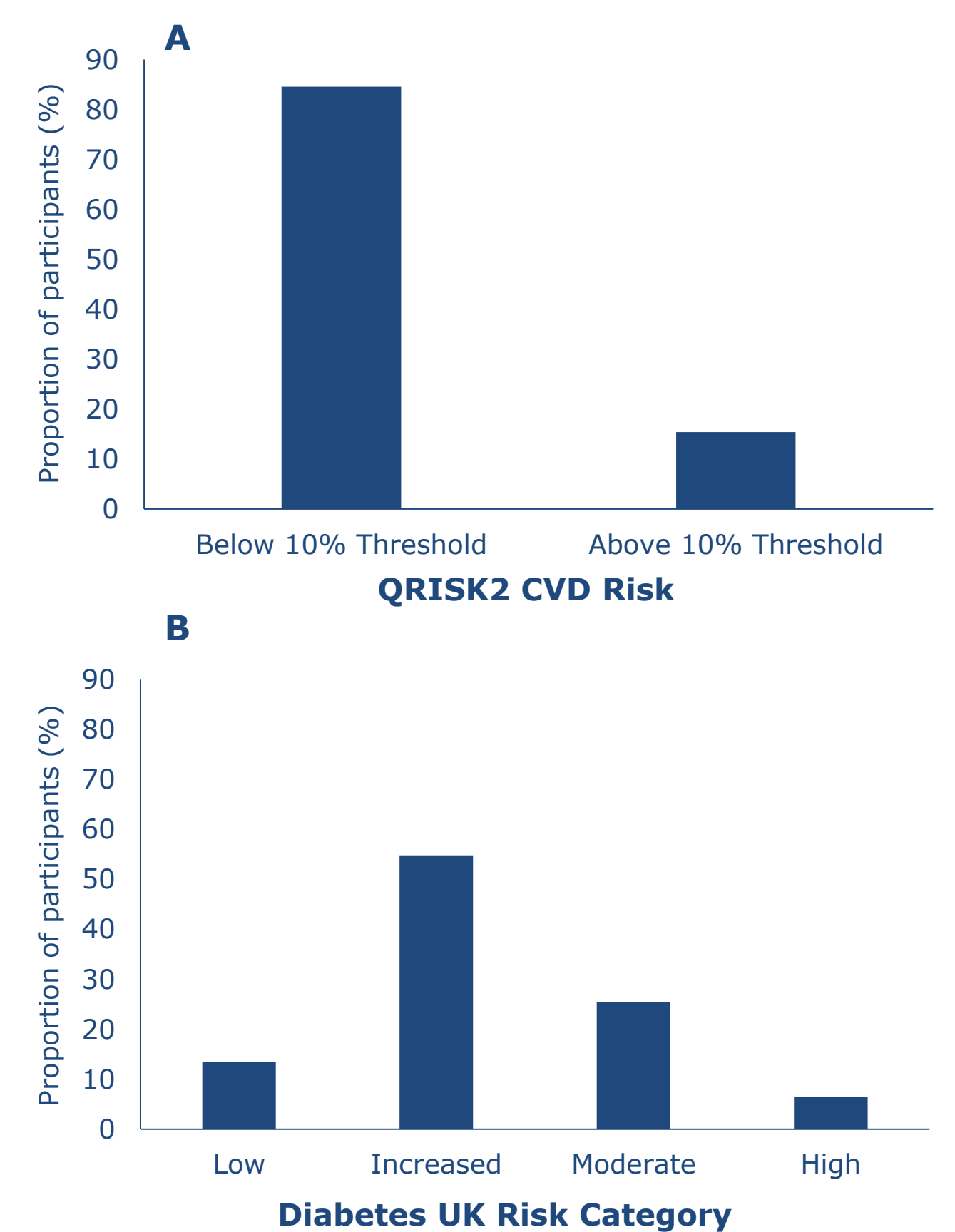
The average age of the men that underwent a risk assessment was 38±11 years.

The majority of the men were found to be either overweight (43.5%) or obese (37.5%), and/or demonstrated evidence of central obesity (40.1%; Table 1).

Cardiometabolic risk factors including systolic and diastolic hypertension, high total cholesterol and low high-density-lipoprotein (HDL) cholesterol were observed in a considerable number of men. The HbA1c results also indicated that there were three potential cases of undiagnosed T2DM (Table 1).

Ultimately, 15.4% of the men were calculated above the QRISK2 10% threshold (Figure 1A), and 31.8% predicted to be at moderate or high risk of developing T2DM (Figure 1B).

**Figure 1. Proportion of men within 10-year risk prediction categories for (A) CVD and (B) T2DM**



## DISCUSSION

- Overall, a substantial prevalence of previously undiagnosed cardiometabolic risk factors were observed in the prison environment.
- The men who participated were on average younger than the current recommended age for CVD and T2DM screening.
- These findings further highlight the importance of including this population in existing or future CVD and T2DM prevention programmes.

## REFERENCES

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