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Coronary artery calcification in patients diagnosed with severe mental illness

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Background

- Patients diagnosed with severe mental illness (SMI) have an excess mortality, primarily caused by cardiovascular disease.
- The majority of deaths are related to an increased incidence of coronary artery disease, but efforts to predict and manage cardiovascular risk in patients with SMI have been ineffective.
- Coronary artery calcification (CAC) is a clinical predictor for coronary artery disease, which can be measured by cardiac CT.
- CAC is widely used in the general population to predict future cardiovascular events, but no others have compared any outcomes between patients with SMI and the general population to date.

Aim

- To investigate the effect of coronary artery calcification on mortality in patients diagnosed with SMI compared to the effect in the general population.

Methods

- Design
  - A Danish population based cohort study
- Study period
  - 1 January 2008 to 31 December 2016
- Study population
  - Patients diagnosed with SMI
    - Schizophrenia (ICD-10; F20)
    - Bipolar disorder (ICD-10; F30+F31)

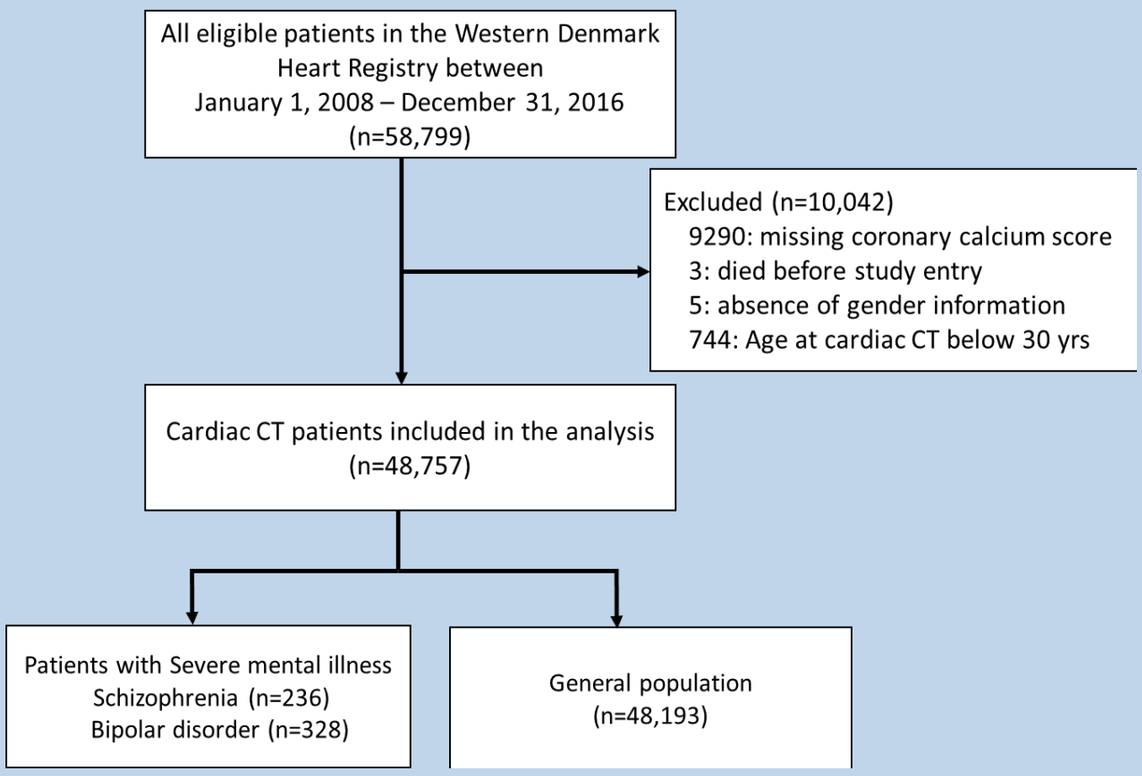

Figure 1. Study flowchart for patient selection and eligibility.

Results

	General population (n=48,193)	Severe mental Illness (n=564)	*P*
Coronary calcium score, n (%)			<0.01
0-100	36,049 (74.80)	452 (80.14)	
>100	12,144 (25.20)	112 (19.86)	
Number of deaths, n (%)	1009 (2.10)	21 (3.72)	
Causes of death, n (%)			<0.001
Cardiovascular death	343 (33.99)	6 (28.57)	
Other natural death	628 (62.24)	10 (47.62)	
Unnatural death	38 (3.77)	5 (23.81)	

Table 1. Follow-up characteristics of the individuals included. The variables are further divided into low coronary calcium score (0-100) and high coronary calcium score (>100).

Coronary calcium score	Crude HR	95% CI	Adjusted HR*	95% CI
General population				
0-100	1.0	Reference	1.0	Reference
>100	3.33	2.95-3.77	1.58	1.38-1.80
Severe mental Illness				
0-100	2.53	1.51-4.22	3.86	2.31-6.46
>100	4.43	1.98-9.90	3.07	1.37-6.87

Table 2. Cox proportional hazards model of mortality rates in the general population and patients with SMI. *Adjusted for age, gender, and calendar period.

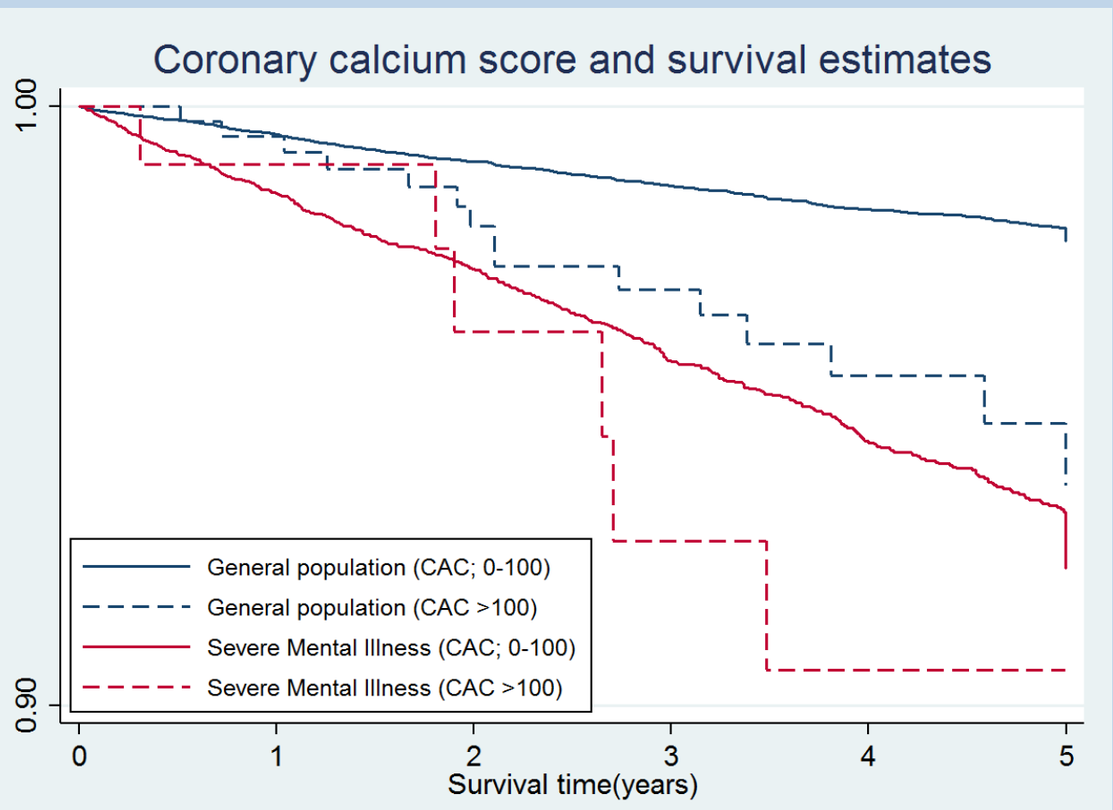

Figure 2. Kaplan-Meier estimates on survival following cardiac CT in low score- versus high score agatston groups for individuals in the general population and patients with SMI.

Conclusion

- Patients with SMI are not demonstrating signs of early coronary artery calcification.
- Mortality rates were still markedly higher in patients with SMI compared to the general population, suggesting a more rapid progression of ischemic heart disease in SMI patients.

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