

# Depression is the Strongest Predictor of Angina and is Independent of Underlying Coronary Artery Disease Severity in Patients with Cardiovascular Disease

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Disclosures: None

## Background

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- Depression has been associated with increased risk of death and the development of coronary artery disease.
- Depression is common in patients with chest pain.
- It is unknown whether the association between chest pain and depression is dependent on the presence and severity of coronary artery disease.

# Purpose and key points about methods

## Purpose:

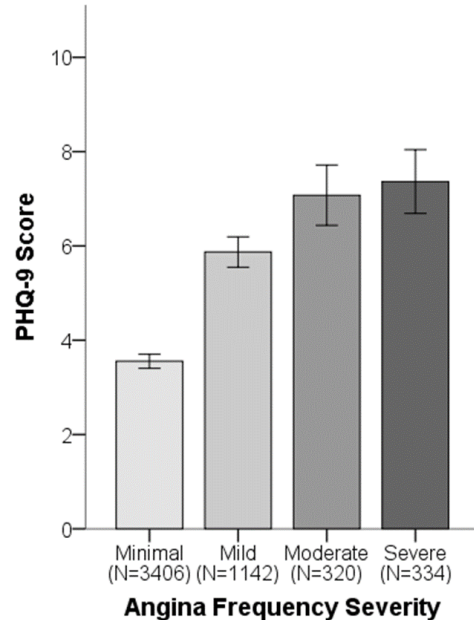
- Determine whether the association between depression and chest pain is dependent on the severity of coronary artery disease.

## Methods:

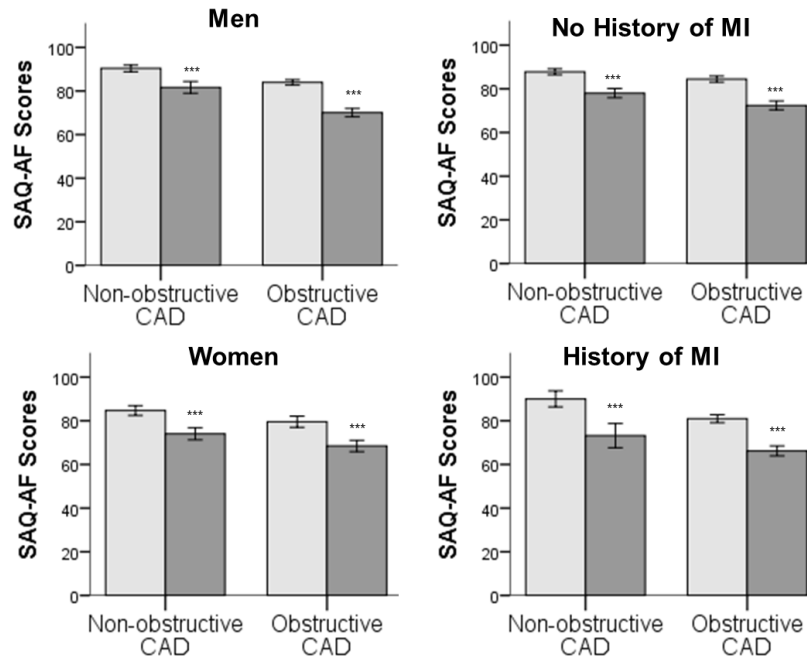
- 5202 patients who underwent left heart catheterization were enrolled in the Emory Cardiovascular Biobank.
- Patients filled questionnaires to estimate chest pain frequency (SAQ-AF) and depression (PHQ-9) at enrollment and follow-up.
- Coronary artery disease severity was quantified on angiogram at enrollment using the Gensini score.

# Results

- Enrolled patients (N=5202) were on average 63±12 years old and consisted of 65% men, 20% African Americans, with 44% having at least mild depression.
- Patients with ≥ mild chest pain frequency (N=1796) were more likely to have obstructive coronary artery disease, a history of myocardial infarction, and depressive symptoms (PHQ-9≥4).



Patients with frequent chest pain have more depressive symptoms (PHQ-9)



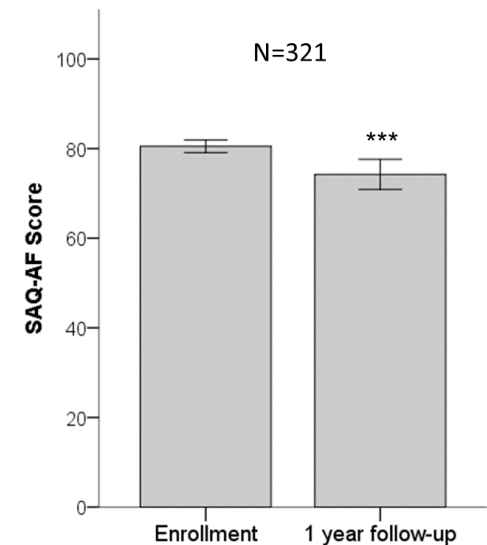
Chest pain was more frequent in patients with ≥ mild depression with and without coronary artery disease regardless of gender or history of myocardial infarction.

# Results

- After multivariable analysis, PHQ-9 was the most important independent predictor of chest pain frequency. Female gender, Gensini (CAD severity), history of heart attack, BMI and hyperlipidemia are also independently associated with chest pain frequency.
- **At follow-up** (1 and 5 years), a decrease in depressive symptoms (PHQ-9 score) was associated with improvement in chest pain frequency (SAQ-AF score) ( $\beta$  1.15 95%CI[-1.63,-0.67]) independently of whether patients were revascularized.

## Independent Predictors of Seattle Angina Frequency by Order of Importance

Predictors	$\beta$ (95% CI)	Predictor Importance	P-value
PHQ-9 Score	-1.50 (-1.71, -1.29)	0.72	<0.001
Gensini Score	-0.04 (-0.06, -0.03)	0.10	<0.001
Female	-3.64, (1.20, 6.07)	0.05	<0.001
History of Myocardial Infarction	-3.97 (-5.49, -2.46)	0.05	<0.001
Age	-0.065 (-0.18, 0.05)	0.04	<0.001
Hyperlipidemia	-2.40 (-4.63, -0.17)	0.03	<0.001
BMI	-0.23 (-0.41, -0.05)	0.02	0.003



Patients with depression who were revascularized (stent, angioplasty or CABG) within 30 days of enrollment had no improvement in chest pain frequency at follow-up.

## Conclusions

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1. The association between chest pain and depression is independent of underlying coronary artery disease.
2. At follow-up, a decrease in depressive symptoms was associated with improvement in chest pain.
3. Patients with depression who were revascularized did not have an improvement in chest pain.
4. Studies examining the effect of revascularization and angina relief on depression, and of anti-depressive medications on chest pain are needed.