



Sex Differences in Relationships Between Inflammation and Symptoms in Persons with Heart Failure

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This work was assisted in part by a developmental grant from the NIH Center for AIDS Research at Emory University (U54AG062334) and P30NR018090.

While physical symptoms were associated with similar inflammatory pathways, fatigue and mood symptoms were associated with inflammation among females only.

INTRODUCTION



Heart failure is a complex syndrome involving the interplay of pathophysiologic processes, such as inflammation and myocardial remodeling.

Sex differences in:

- Heart failure clinical course and outcomes
- Cardiac remodeling and function → linked to differences in inflammation



Inflammatory shift and increased cytokines in aging in female hearts.

Sex may moderate the relationship between inflammation and symptoms in heart failure.



METHODS

- Black adults (N=33) living with heart failure
- Physical symptoms: dyspnea, fatigue (MFI), somatic perception
- Mood symptoms: depressive (CESD), anxiety (STAI), stress (PSS)
- Xanthine oxidase and T-cell associated cytokines were analyzed

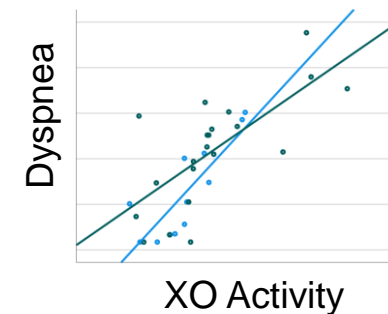
RESULTS

The mean age was 57 ± 11 years, and 66% were female.

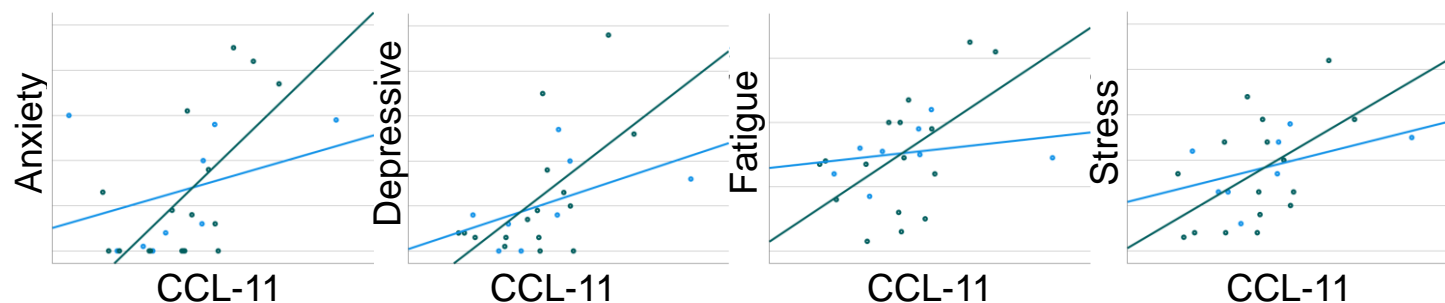
Physical Symptoms

- Dyspnea was positively associated with xanthine oxidase activity in both groups.
- Somatic symptoms were positively associated with cytokines associated with T-cell activation, differentiation, and recruitment in both groups.

Male Female



Mood Symptoms



- CCL-11 was associated with mood symptoms among females but not males.
[MFI: $r=0.616$, $p=.008$, PSS: $p=.0537$, $r=.032$, STAI: $r=.714$, $p=.001$, CESD: $r=0.635$, $p=.008$]