

# Worried Sick: The Relationship Among Social Support, Stress, and Inflammatory Markers in College Undergraduates

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## Purpose of the Study

- The purpose of this study will be to explore the relationship among social support, stress, and inflammatory markers in college undergraduates. This research study could benefit college students, especially those who struggle with stress management. This study could also benefit future researchers who are interested in this topic.

## Introduction

- As reported in the 2018 Center for Disease Control and Prevention (CDC) annual mortality report, chronic diseases relating to inflammation are the leading cause of death in the United States, making up about 57.3% of annual deaths.
- This trend has been predicted to steadily increase over the course of the next 30 years.
- It has been indicated by a multitude of past studies that inflammation, chronic or otherwise, is often linked to abnormal levels of stress.
- The relationship between inflammation and stress may aid in the early detection and intervention of inflammatory diseases through analysis of stress and subsequent inflammatory marker assessment.
- The susceptibility for inflammation as it relates to stress may also correlate with an individual's social support due to the body's response in increasing or decreasing inflammatory activity in response to one's perceived social support.



## Hypotheses

- There will be a significant positive relationship between stress and inflammatory markers.
- There will be a significant negative relationship between social support and inflammatory markers.
- There will be a significant negative relationship between social support and stress in students.

## Research Questions

- Are there stress, social support, and inflammatory marker differences as a function of gender?
- Are there stress, social support, and inflammatory marker differences as a function of class standing?
- Are there stress, social support, and inflammatory marker differences as a function of race?

## Methods

### Participants

36 college students (58% female), mean age = 21 (1.20 SD)

All participants were treated in accordance with the ethical principles and Code of Conduct of the American Psychological Association.

### Materials

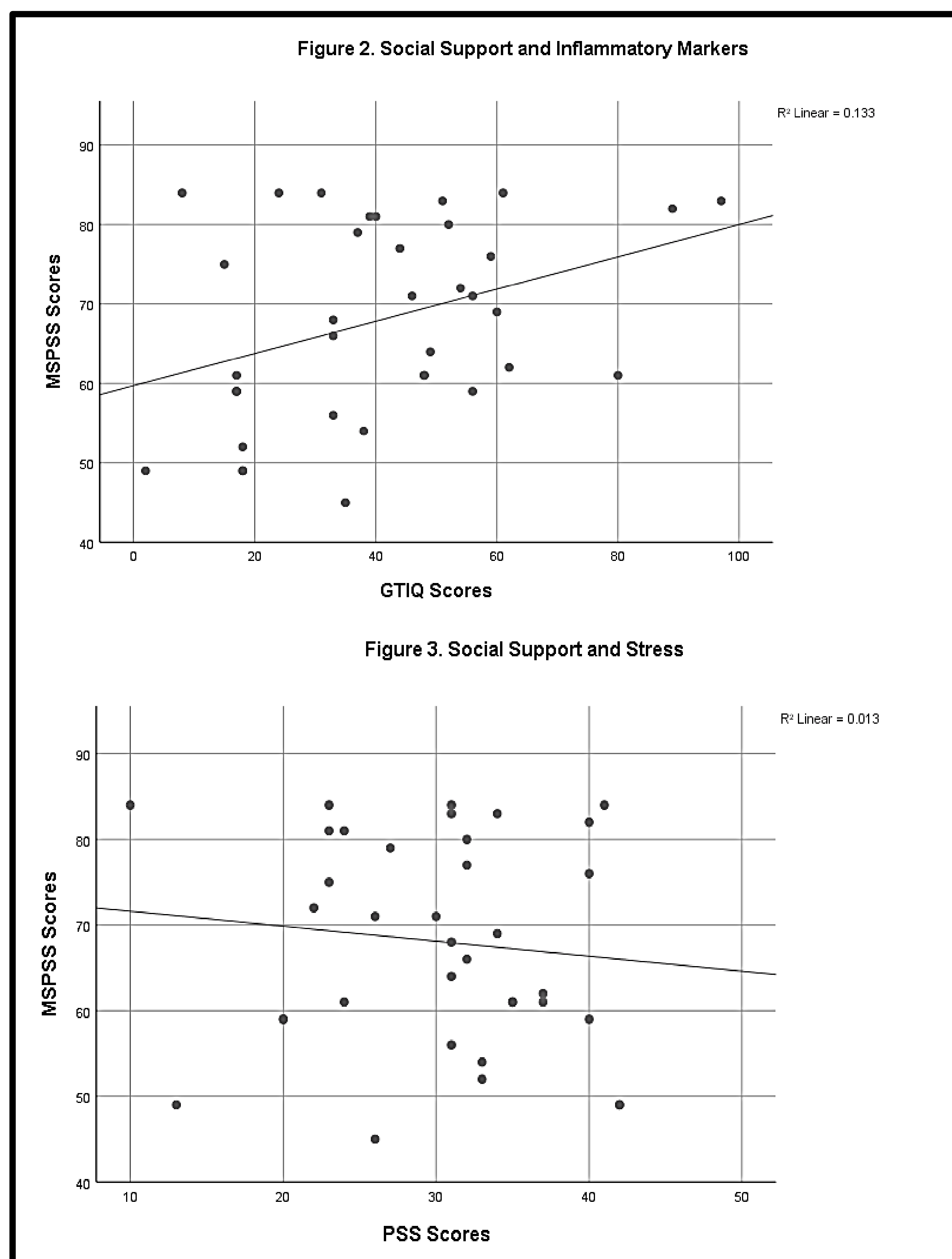
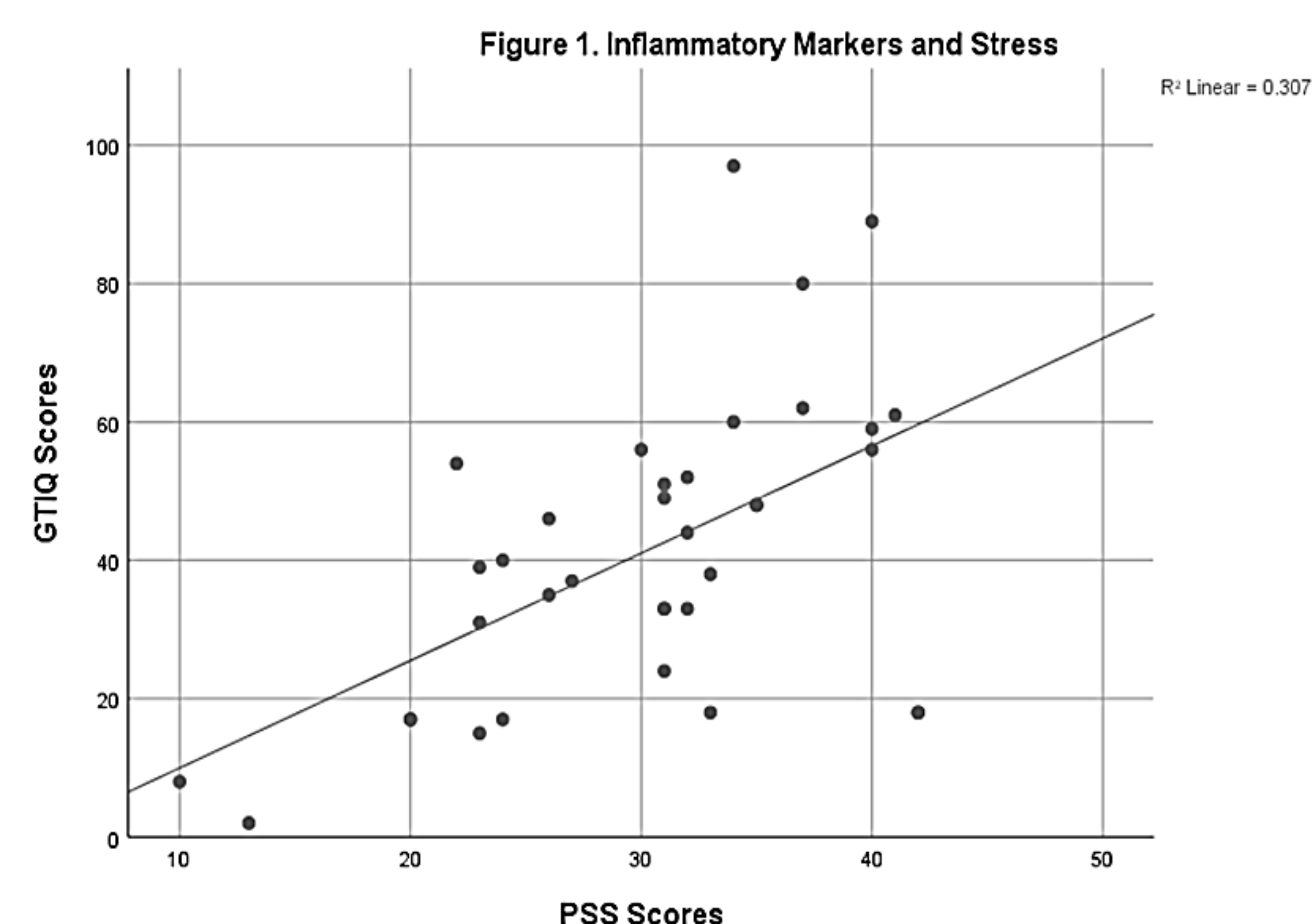
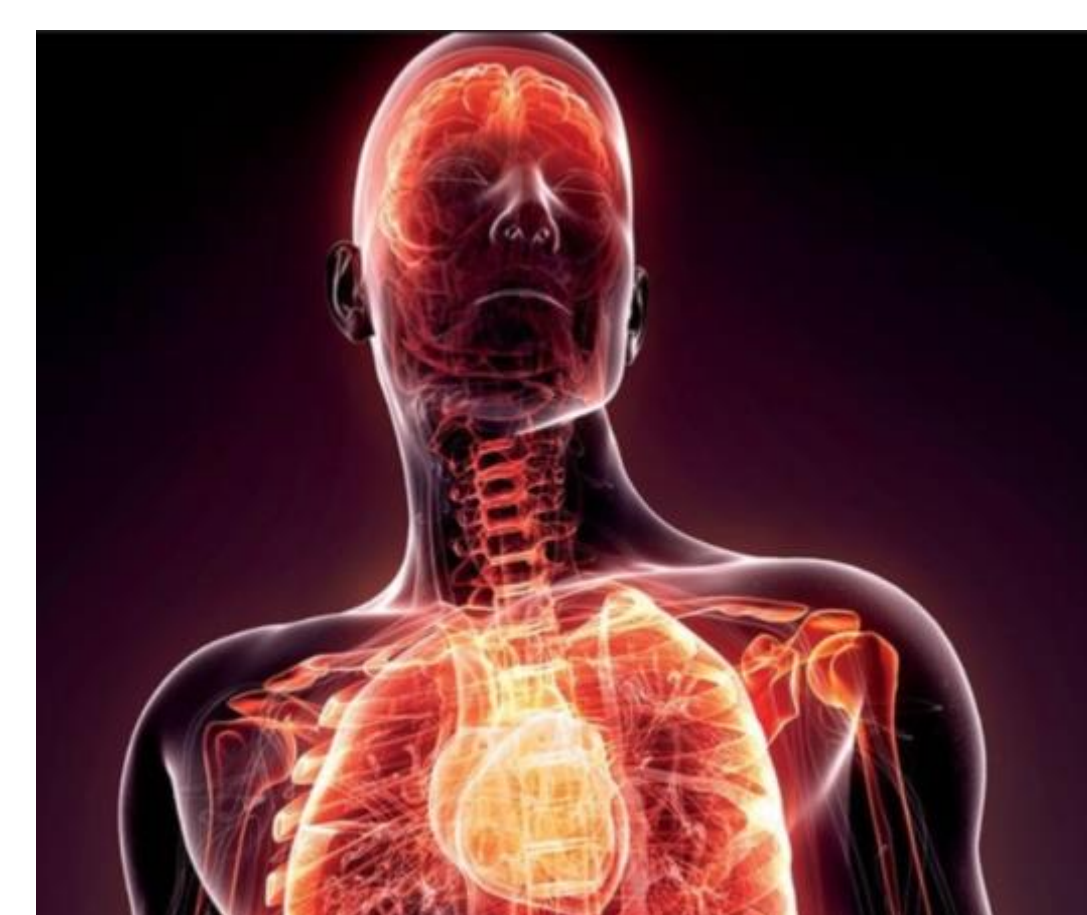
- Multidimensional Scale of Perceived Social Support (MSPSS) 12 items; Range 12-84; Total score of 12-28 = low social support; Total score of 29-56 = moderate social support; Total score of 57-84 = high social support
- Perceived Stress Scale (PSS) 14 items; Range 0-56; Total score of 0-18 = low stress; Total score of 19-37 = moderate stress; Total score of 38-56 = high stress
- General Toxicity and Inflammation Questionnaire (GTIQ) 43 items; Range 0-172; Higher numbers = greater risk and more indicators for inflammation = more inflammatory markers

### Procedure

Sample of convenience, undergraduate students, completion of three surveys, MSPSS, PSS, and GTIQ.

## Results

- As predicted, a moderate, significant positive relationship was found between stress and inflammatory markers [ $r(36) = .554, p = .000$ ].
- Contrary to the hypothesis, a weak, significant positive relationship was found between social support and inflammatory markers [ $r(36) = .364, p = .015$ ].
- No significant relationship was found between stress and social support.
- Both genders reported high average levels of social support. However, females reported significantly higher levels (mean = 73.05, 10.68 SD) compared to males (mean = 61.13, 10.96 SD).
- There were no significant findings relating to stress or inflammatory markers as functions of gender.
- Neither class standing nor ethnicity were reported to influence either social support, stress, or inflammatory markers.
- Students reported an average level of stress (30.14, 7.81 SD), indicating moderate stress as the normative level.
- Students reported an average GTIQ score (41.25, 21.89 SD), indicating relatively infrequent cases and mild experiences of symptoms indicative of inflammation and, therefore, inflammatory markers.



## Implications and Future Research

- More participants representative of the various ethnic groups and religious affiliations
- Other measures of stress and/or social support
- More random, larger sample size
- Better measures of inflammatory markers
- Sampling from multiple college campuses

## References

- Xu, J., Murphy, S. L., Kochanek, K. D., & Arias, E. (2020). Mortality in the United States, 2018. Centers for Disease Control and Prevention. <https://www.cdc.gov/nchs/products/databriefs/db355.htm>
- Pahwa, R., Goyal, A., Bansal, P., & Jialal, I. (2020). Chronic inflammation. StatPearls. <https://www.ncbi.nlm.nih.gov/books/NBK493173/>
- Copertaro, A., Bracci, M., Manzella, N., Barbaresi, M., Copertaro, B., & Santarelli, L. (2014). Low perceived social support is associated with CD8+CD57+lymphocyte expansion and increased TNF- $\alpha$  levels. *BioMed Research International*, 2014, 635784. <http://dx.doi.org/10.1155/2014/635784>