



Diastolic blood pressure is associated with anxiety in college males but not females.

INTRODUCTION

- Ojibwa et al. (2016) found that **hypertension is associated with higher psychological distress** in middle-aged men and women. This effect holds true while controlling for other physical health markers such as smoking, sleeping patterns, and education.
- In a recent meta-analysis by Yu et al. (2015), there was a **correlation between blood pressure and anxiety in both sexes**.
- The purpose of this study is to examine correlations between physiological health markers (e.g., blood pressure and body fat) and psychological distress (e.g., anxiety, stress, and depression).
 - Furthermore, this study will examine gender differences in these associations.

HYPOTHESES

There will be positive correlations between blood pressure, and psychological distress in college students.

METHODS

- Participants:** 92 college students (Females $N = 52$, Males $N = 38$; mean age = 19.72 years) participated in the study.
- Materials:**
 - Sphygmomanometer** measured blood pressure.
 - DASS-21 Survey (Henry & Crawford, 2005)** measured participant stress, anxiety, and depressive symptoms.
- Procedures:**
 - Participants were recruited on a university campus and completed a survey on an iPad using the Qualtrics survey platform.
 - Trained research assistants then measured participant blood pressure and body fat, among other variables not used in this study.
 - Participants were then debriefed on the purpose of the study and given educational materials to learn about their heart health.

Table 1. Descriptive Statistics for Females ($N = 52$) and Males ($N = 38$)

| | Systolic BP | | Diastolic BP | | Depression | | Anxiety | | Stress | |
|------|-------------|--------|--------------|-------|------------|------|---------|------|--------|------|
| | F | M | F | M | F | M | F | M | F | M |
| Mean | 115.89 | 129.71 | 75.85 | 80.95 | 1.72 | 1.84 | 1.90 | 1.96 | 2.10 | 2.33 |
| SD | 15.51 | 19.37 | 12.87 | 13.04 | 0.84 | 0.89 | 0.79 | 0.84 | 0.76 | 1.01 |

Table 2. Correlations Among Measures

| Measures | 1 | 2 | 3 | 4 | 5 |
|-----------------|--------|--------|--------|--------|--------|
| 1. Systolic BP | -- | .70*** | -.05 | -.02 | -.08 |
| 2. Diastolic BP | .67*** | -- | .04 | .02 | .01 |
| 3. Depression | .18 | .12 | -- | .65*** | .67*** |
| 4. Anxiety | .13 | .34* | .52*** | -- | .65*** |
| 5. Stress | .13 | .05 | .57*** | .61 | -- |

Note. Correlations for females are above the diagonal whereas correlations for males are below the diagonal. * $p < .05$. ** $p < .01$. *** $p < .001$

RESULTS

- Blood Pressure**
 - Table 1 shows that males in this sample have a higher blood pressure (129.71/80.95) than the normal value for their age category (120.5/78.5).
 - Females have slightly higher blood pressure (115.89/75.85), especially for the diastolic (115.5/70.5).
- Correlations between blood pressure and psychological distress**
 - There are no sex differences in males and females in depression, anxiety, or stress.
 - For males only, there is a moderate positive correlation between Diastolic BP and anxiety ($r = .34, p = .04$).
 - This is not seen in females, ($r = .02, ns$). (See red circles on Table 2.)

DISCUSSION

- Diastolic values for both are slightly higher than the normal**, while the systolic for the female is normal (115.89) the systolic for the males (129.71) is higher.
- Males with high diastolic blood pressure, have higher anxiety.**
 - This is surprising, as some research suggests that females experience higher anxiety with elevated blood pressure (Yakovenko et al. 2019).
 - There has been some research that corroborate this finding. James et al. (1986) found a positive correlation between diastolic blood pressure and anxiety for both sexes.
- Blood pressure is not associated with stress or depression for either sex.**
 - This might be due to a small sample size ($N = 92$) or because the negative psychological effects demonstrated in other studies of older adults are not yet seen in this young adult sample.
- Future research should examine associations between physical and psychological health in a young adult population.**
 - Early diagnosis and treatment of cardiovascular issues at this age could save valuable resources.