

# Are We Normal? Comparing Medical Student Stress to the Norms

Madisen Faulkner, Meagan Lauber, Julie Mobley MD, Matthew Tucker PhD, Lauren Fowler, PhD  
University of South Carolina School of Medicine Greenville

## Background

Stress is the body's response to physical and psychological pressure [1]. For medical students, stress is often triggered by:



academic demands,



excessive workload,



and personal life events [2].

Oftentimes, the weight of these responsibilities leave medical students with the inability to cope with stressful situations, increasing their overall stress and continuing the cycle [2]. Medical students' inadequate stress management foreshadows latent consequences for physicians, which in turn may unconstructively affect patient care [2].

## Research Question

How does physiological and perceived stress in medical students compare to the norms?

## Methods

### Participants

- 30 1st and 2nd year medical students recruited from the UofSC School of Medicine Greenville, ages 21-26
- Male(N) = 11, Female(N) = 17

### Procedure

- Participants completed the MSSQ and donated saliva between 9 and 10 AM.



Figure 1: Instructions depicting how to use the saliva collection kit.

## Methods

### Physiological Stress

Cortisol is a major glucocorticoid and increases in response to stress [3,4]. Studies consistently report high correlations between serum and salivary cortisol, suggesting that salivary cortisol is a valid measure of physiological stress as it relates to increased cortisol in the blood [5-7].

### Perceived Stress

The Medical Student Stressor Questionnaire (MSSQ) is a 40 question battery designed specifically for medical students to assess what aspects of their personal and professional lives contribute to their chronic stress [8].

## Results

### Normal vs. Medical Student Cortisol

	Norm	Medical Student
Male	0.315	1.16
Female	0.538	0.958

Figure 2: Salivary cortisol in micrograms/deciliter.

Results were analyzed using a 1-sample t-test. For male students  $t(11) = 7.925$  ( $p < 0.001$ ) and for female students  $t(17) = 4.431$  ( $p < 0.001$ ).

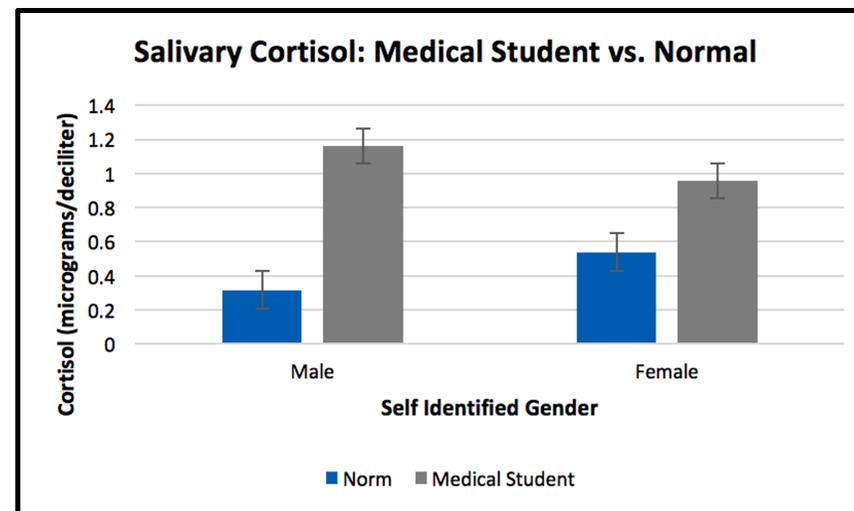


Figure 3: Normal versus medical student salivary cortisol.

## Results

### Medical Students' Perceived Stress

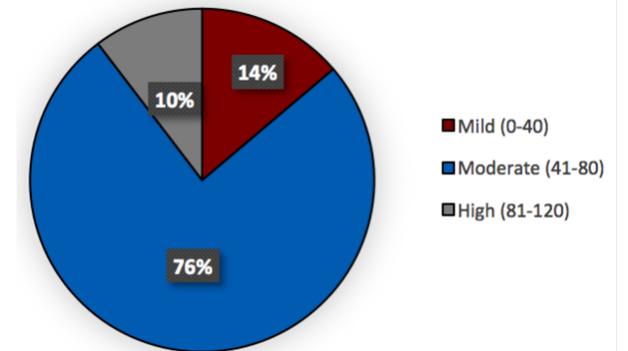


Figure 4: Percent breakdown of MSSQ scores.

## Conclusions

- Both male and female medical students produce significantly higher levels of salivary cortisol than normal, healthy subjects. This suggests that medical students are more likely to experience chronic stress than the general population.
- 10% of participants experience high stress that disturbs their emotions and mildly compromises their daily activities.
- The MSSQ may not accurately predict physiological stress.
- Our findings may help medical students better recognize their stress and develop countermeasures. Adequate stress management in medical school may help resolve problems for future physicians and improve their health care delivery.
- Future research is elaborating on the effects of chronic stress in medical students.

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## References

