



# The Impact of Stress on Negative Sleeping Patterns

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## Research Question

Does an increased level of stress impair an individual's ability to sleep?

## Abstract

This research project focused on the effects of chronic stress and its effect on sleep. We hypothesized that increased levels of stress would directly correlate to negative sleeping patterns and disturbances that would be exacerbated in unhealthy compared to healthy adults. Sleeping plays an important role in everyone's life, but without the required amount of sleep needed, the more you are prone to stress [1][8]. Negative sleep can involve sleep disorders such as insomnia, sleep apnea, and parasomnias and could increase the level of stress. Therefore, chronic stress can cause a person to remain awake and alert, making it difficult to sleep and for sleep to be continuous. Continuous sleep is important because we conserve our energy for the upcoming morning, so this study will focus on the assessment of relationships between stress and associations with impaired sleeping in healthy and unhealthy adults [8].

## Introduction

Sleep plays a role in physical health, mental health and the quality of life. Sleeping helps our brains function, and is a factor of memory consolidation. Sleep and cortisol interact to support memory consolidation, but over secretion of the stress hormone frequently affects memory negatively. Getting enough sleep at night and being able to sleep without disruption allows normal body functions such as cortisol to be helpful and important in everyday activity for the human body's function [5] [7].

## Materials and Methods

Pre-collected data containing information about sleep disruption, stress levels and demographic information was obtained from Dr. Clarissa Gomez. Permission to use the data was obtained from the primary investigator and through the IRB of the University of Texas at El Paso. Data was sorted based on whether subjects were reported as being considered Healthy or Unhealthy based on self-report. Data regarding stress and sleeping was obtained from questionnaires analyzed by Dr. Gomez (Derived from the The Holmes-Rahe Life Stress Inventory, and the Psychological Stress Measure (PSM-9) scale; Differences in stress biomarkers in women with high and low stress appraisal, Dissertation, Clarissa Gomez) then further analyzed using statistical methods including Student's T testing, Chi Square analysis and categorical data analysis.

## Results

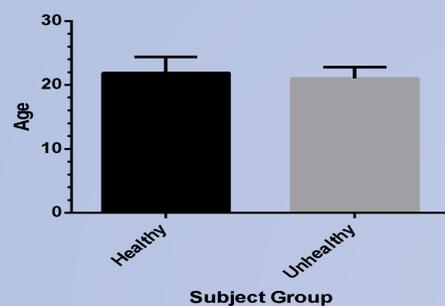


Figure 1. Average Age of the study participants. The average age of the study participants was not statistically different when compared with Student's T test ( $21.9 \pm 2.5$  versus  $21.0 \pm 1.8$  in healthy and unhealthy, respectively).  $P=0.337$

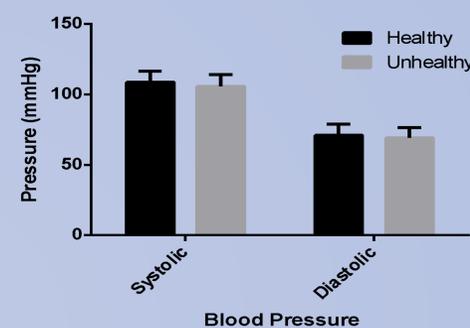


Figure 2. Average Systolic and Diastolic pressure of the study participants. The average systolic and diastolic pressures of the study participants were not statistically different when compared with Student's T test.  $P=0.377$  and  $p=0.527$ , respectively.

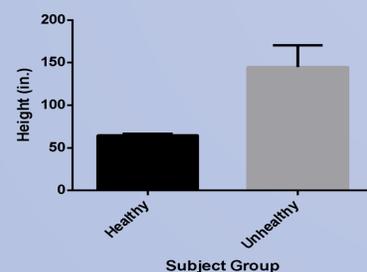


Figure 3. Average Height of the study participants. The average height of the study participants was statistically different between healthy and non-healthy subjects when compared with Student's T test.  $P=0.0439$ .

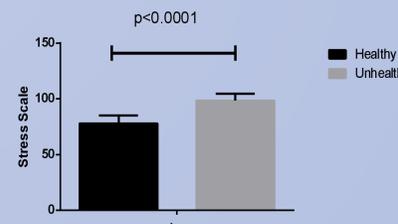


Figure 4. Average Stress scale score of the study participants. The average stress scale score of the study participants was statistically different between healthy and non-healthy subjects when compared with Student's T test.  $P<0.0001$ .

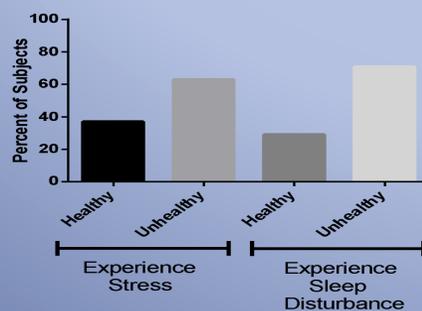


Figure 5. Percent of study participants that report experiencing stress or sleep disturbance. The percent of study participants was higher in subjects that reported being unhealthy (63% and 71% respectively) compared to those that reported being healthy (37% and 29%, respectively).

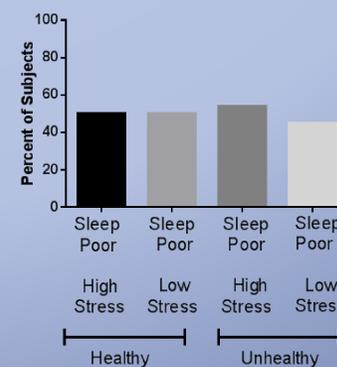


Figure 6. Percent of study participants that report experiencing stress and sleep disturbance. The percent of study participants reporting poor sleep and high stress were approximately the same (50% in the healthy group and 54% in the unhealthy group). Approximately the same percentage of individuals reported having sleep disturbances with lower or no stress (50% in the healthy group and 45% in the unhealthy group).

## Conclusion

Information found on this research can be applied to the way people handle stress. Maintaining stress is crucial to mental health, physical health and quality of life. Stress interferes with sleep regulation, which is why it is important to manage stress. Any type of stress is always ignored, and this study will show the importance of managing stress and getting more sleep, because it could lead to long-term detrimental effects on the mental and physical state. In addition, this data may be used to further explore our original hypothesis in regards to negative dreaming and severity of the disease.

## References

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