



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) Sharona A. Silverstein	Project Number S0428
Project Title Sleep Patterns and Psychological Health in Pre-Dental and Dental Students	
Abstract Objectives/Goals This study examines the association of sleep patterns with psychological health in pre-dental and dental students. It is hypothesized that short sleep duration, high sleep debt, and later bedtime will be associated with poorer psychological health as shown by higher scores on negative moods and lower scores on positive moods. Methods/Materials 137 pre-dental and dental students were surveyed for sleep patterns, negative moods (negative affect, hostility, sadness, fatigue, stress), and positive moods (positive affect, joviality, attentiveness, life satisfaction, optimism, happiness, empathy). Results Average sleep duration was 6.7 hours on school nights and 8.2 hours on weekends ($t = -13.63, p < .0001$); 57.6% reported napping. Average sleep debt ($= [\text{hrs slept on weekends} - \text{hrs slept on school nights}] \times 5$) was 5.5 hrs/wk. Short sleep duration, higher sleep debt and later bedtime were each associated with significantly higher scores on negative moods and lower scores on positive moods, with sleep debt having the strongest associations (range $r^2 = .02 - .23, p = .05 - < .0001$). ANOVAs showed students who slept 6 hours or less, had >7 hours sleep debt/week, or went to bed at 2 am or later had significantly higher scores on most negative moods and lower scores on most positive moods. There were no differences between early birds and night owls on mood. Conclusions/Discussion Sleep patterns resulting in a deficit of sleep (short duration, high debt, or late bedtime) are associated with poorer psychological health as evidenced by a variety of moods. Students with 6 or fewer hours of sleep per night, >7 hours of sleep debt/week, or bedtime at 2 am or later may be particularly vulnerable. Dental schools and pre-dental programs at undergraduate colleges should counsel students about the importance of sufficient sleep.	
Summary Statement This project examines the association of sleep patterns (sleep duration, sleep debt, and bedtime) with psychological health as shown by moods in pre-dental and dental students.	
Help Received Parents gave helpful comments and paid for the supplies used; Father allowed me access to pre-dental students; Student Directors of the Pre-Dental Society and two former pre-dental students now in dental school helped distribute my surveys.	