



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

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| Name(s) Alexandra N. Vredenburgh | Project Number 33363 |
| Project Title Adolescent Mental Health: What Sleep Related Factors Contribute to Depression and Anxiety? | |
| <p align="center">Abstract</p> <p>Objectives/Goals People's perceptions can affect their health. For example, perceptions about pain can affect how much pain someone feels. Only 7.6% of teens get the needed 9 to 10 hours of sleep, according to Centers for Disease control and Prevention. The average high school starts at 7:30. The goal of this study evaluates whether perceptions and self-reported measures of sleep can help explain the variance in levels of adolescent depression and anxiety.</p> <p>Methods/Materials There were 160 participants: 62 (39%) males, and 98 (61%) females. They ranged in age from 14-17, and 9th through 12th grade. Participants were all students at a public High School in Vista, California that starts at 7:30 a.m. Participants completed a 3-part questionnaire. The first part included 22-items developed for this study that assessed their sleep habits and perceptions. Participants also completed an Anxiety scale (AFARS) and a Depression scale (CES-DC; both used with permission). Multiple regression analyses were used to determine whether different aspects of sleep predict depression and anxiety.</p> <p>Results The overall depression model was significant ($F(10,132)=7.581, p < .01, R^2=.365, \text{adjusted } R^2=.317$). The overall anxiety model was also significant ($F(7,138)=9.892, p < .01, R^2=.334, \text{adjusted } R^2=.300$). Preferred school start time was a significant predictor of depression, and often being tired at school predicted anxiety ($B = .182, p < .05$). Additional sleep-related factors were also significant predictors of depression: staying up worrying ($B = .242, p < .05$), remembering your dreams ($B = .161, p < .04$) and taking sleeping medications ($B = .246, p < .01$). While the school start time predicted depression ($B = .156, p < .05$), it was not a significant predictor of anxiety ($p > .05$).</p> <p>Conclusions/Discussion While an early school start time has been found to have many negative consequences, the average high school starts at 7:30. Why does society generally refuse to offer a later start time to protect this vulnerable age group? Based on my results, I am advocating for the option to start school at 9:00, when the student's bodies are physiologically ready. We are the future. With such high levels of depression and anxiety, what does that say about our societies values? The benefits of starting school later far outweigh potential inconveniences.</p> | |
| Summary Statement This study evaluated how sleep-related perceptions explain the variance in depression and anxiety scores. | |
| Help Received Michael Kalsher, Rensselaer Polytechnic Institute, helped me with statistics. My father let me collect data at his school where he teaches. My mom edited my report and poster. | |