

AAN 68th ANNUAL MEETING ABSTRACT

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Abstract Title: Sleep Deprivation/Insomnia and Exposure to Street Lights in the American General Population

Press Release Title: Can't Sleep? Street Lights May Be Keeping You Awake *How Light Pollution May Interfere with Your Sleep*

Objective: We explore the association between the intensity in outdoor nighttime light and the sleep habits of the American population.

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Background: Artificial light at night extends outdoor activities beyond dusk and increases security and safety of the population. In cities, the use of outdoor lights has reduced the exposure to darkness in the 24-hour period.

Design/Methods: A representative sample of 15,863 individuals was interviewed by telephone using the Sleep-EVAL expert system between the years 2002 and 2009 and geolocated by latitude and longitude. Data collected during the interviews included sleep habits, sleep, medical and psychiatric disorders. Outdoor nighttime light radiance (NLR) for the locations of the interviews was obtained for the years corresponding to the interviews from the Defense Meteorological Satellite Program's Operational Linescan System (DMSP/OLS) nighttime imagery.

Results: NLR to be associated with a shift in the sleep habits of the general population, resulting in delayed bedtime ($p<0.0001$) and wake up time ($p<0.0001$). Overall, NLR is associated with a shortening of the sleep duration ($p<0.01$) and increased daytime sleepiness ($p<0.0001$). Exposure to greater NLR also increases the dissatisfaction with sleep quantity and quality ($p<0.0001$) and the likelihood of having a circadian rhythm disorder ($p<0.0001$).

Conclusion: Outdoor nighttime light exposure is strongly associated with changes in sleep habits and impact our daytime functioning increasing the risks of excessive sleepiness.

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