



Taking stress to bed: Stress predicts pre-sleep cognitive and physical arousal

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Introduction

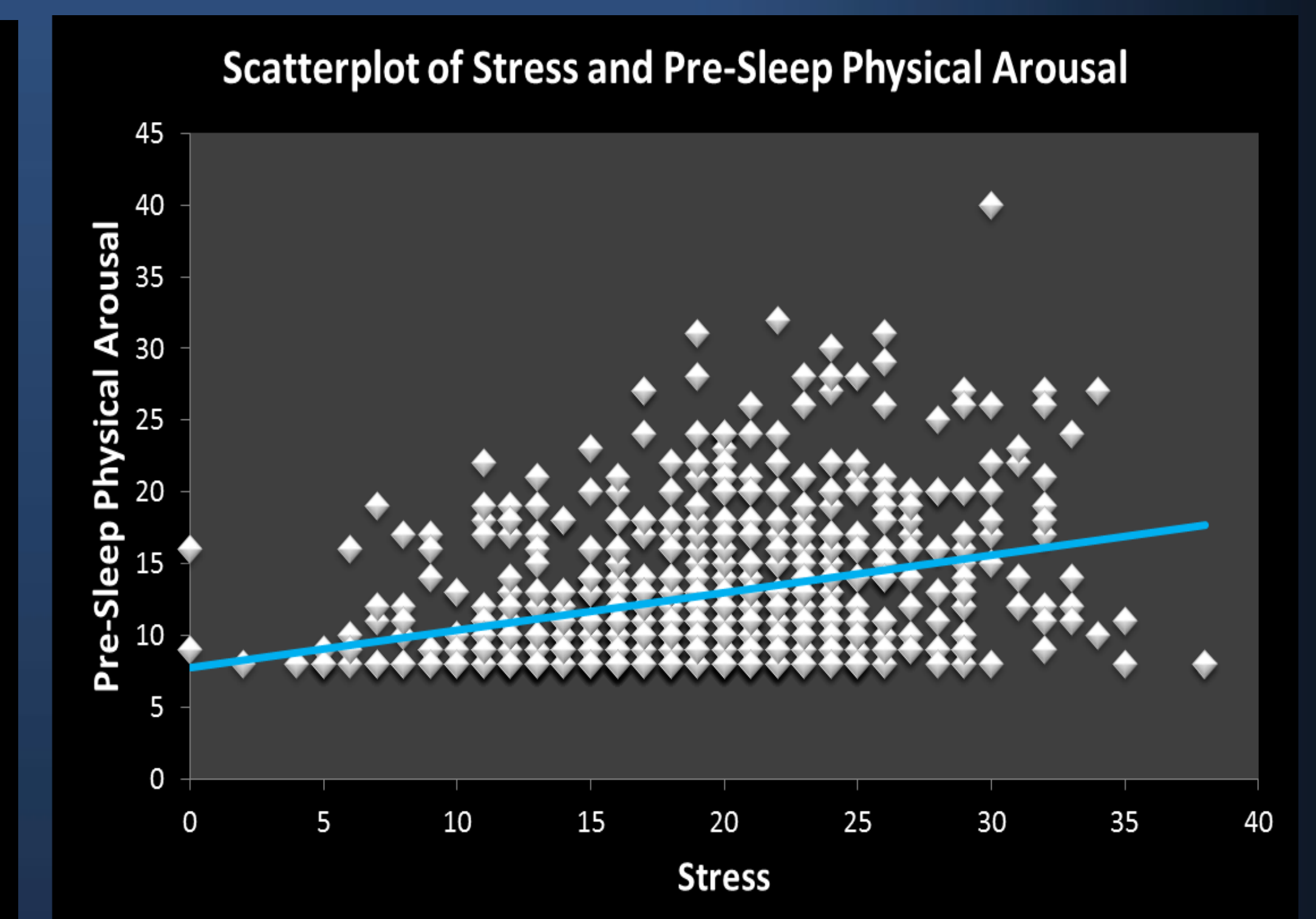
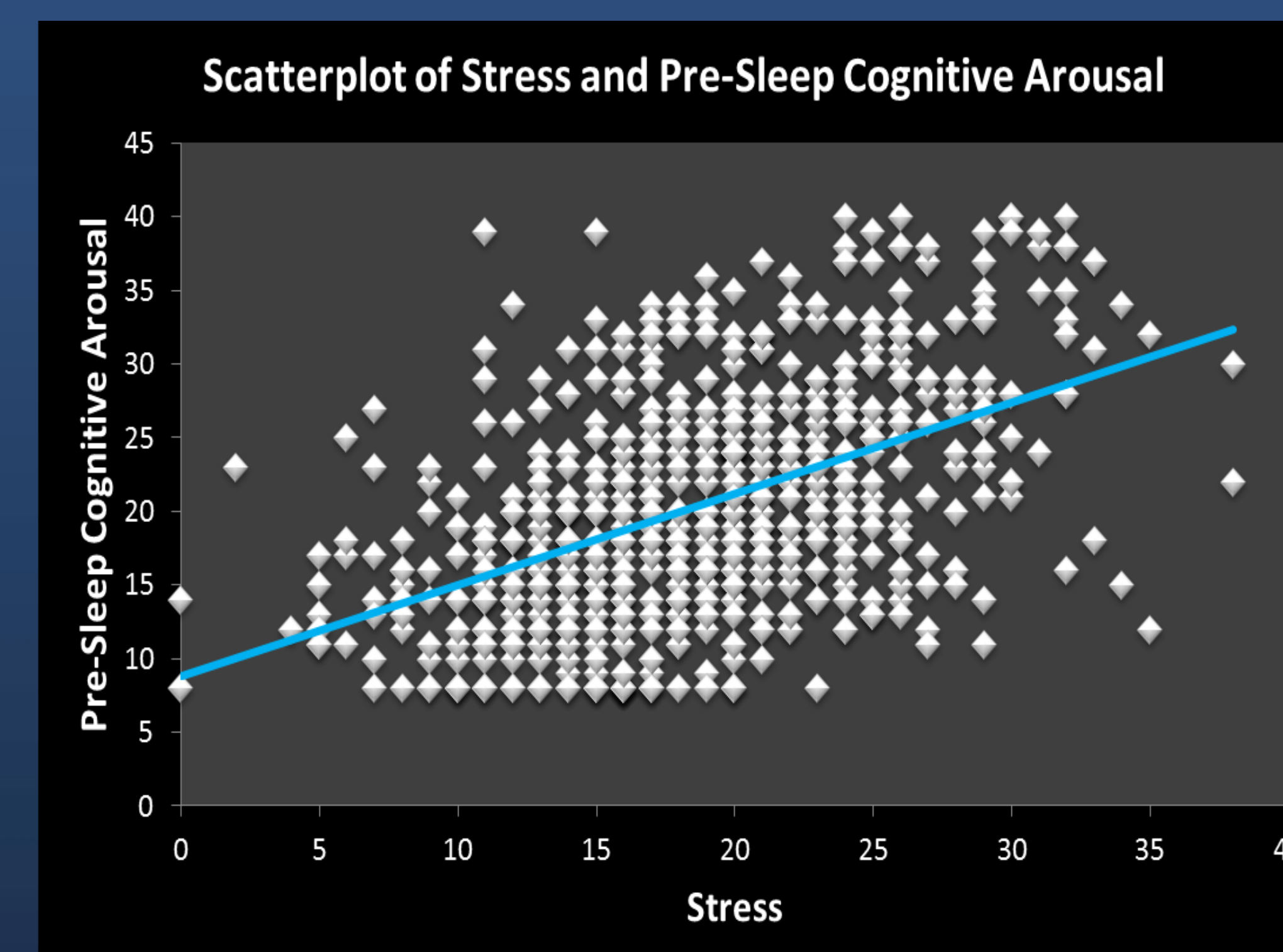
More than 20% of American adults experience stress-related thoughts (i.e. problems with work, finances, and family/personal life) almost every night before going to sleep. Research indicates that poor sleep can increase a person's susceptibility to a variety of cognitive and health-related problems. Insomnia patients who experience stress either during the day or right before attempting to fall asleep have heightened pre-sleep arousal and later sleep onset and research demonstrates that pre-sleep arousal is a significant mediator in the relationship between daytime stress and nighttime sleep in those with insomnia. As a whole, the literature on pre-sleep arousal suggests that cognitive arousal may play a greater role in sleep disorders than somatic (physical) arousal. Given that stress involves both cognitive and physiological arousal, we examined whether self-perceived stress was more strongly associated with cognitive or physical pre-sleep arousal. We predicted that stress would be correlated with both types of pre-sleep arousal, but that the association would be stronger for the cognitive component.

Methods

Seven hundred and forty-seven undergraduates completed an online survey that included demographic questions as well as pre-sleep arousal (both cognitive and physical) and self-perceived stress measures. The participants were recruited on a voluntary basis through class announcements and social media. Pre-sleep arousal was assessed using the sixteen-item Pre-Sleep Arousal Scale (PSAS), which is made up of two eight-item subscales that measure cognitive and somatic (physical) pre-sleep arousal. Self-perceived stress was measured using the ten-item Perceived Stress Scale (PSS), which asks participants to report any stress they have felt in the past month. The majority of participants classified themselves as Hispanic (92%) and seventy-five percent of the participants were female. The age range of the undergraduates that participated was 18-56 ($M=23.2$).

Results

Pre-sleep cognitive arousal was significantly correlated with pre-sleep physical arousal ($r(732) = .52, p < .001$). We used a one-tailed analysis for our first two hypotheses, predicting that both pre-sleep cognitive arousal and pre-sleep physical arousal would be positively correlated with self-perceived stress. Our results demonstrated statistically significant positive correlations between stress and both cognitive ($r(719) = .49, p < .001$) and physical ($r(719) = .32, p < .001$) pre-sleep arousal. A two-tailed Williams T2 test was used to examine whether these correlations differed significantly. The correlation between cognitive arousal and stress was shown to be significantly greater than the correlation between physical arousal and stress ($t(716) = 5.30, p < .001$).



Discussion

Our data indicate that both physical and cognitive pre-sleep arousal can be predicted by self-rated psychological stress. Stress seems to be more closely associated with cognitive arousal, however, contributing to 24% of the variance in cognitive arousal scores. Though cognitive and physical arousal are highly correlated, our results suggest that stress may exert a greater effect on racing thoughts at bedtime than on any associated physiological symptoms.



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