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BACKGROUND

- The effect of obesity & sedentary lifestyle on health has been thoroughly researched.
- College women tend to prioritize studying over healthy sleeping habits.
- Little is known regarding Body Mass Index (BMI) and activity level in relation to sleep quality among college women.
- Determining these relationships would be beneficial in educating college women about the implications of their behaviors.

PURPOSE

- To explore the relationship between:

1) BMI and sleep quality

2) Physical activity and sleep quality

METHODS

- This cross-sectional correlation study uses partial data from phase I of the Psychoneuroimmunological (PNI) Biomarkers and Health Outcomes in College Women study.
- A convenience sample of 68 Georgia State University female students (mean age=26.4, SD= 7.5) completed a 7-day sleep diary including questions about physical activity.
- Physical activity level was calculated by using an average of self-reported 7-day, 5-point physical activity scale.
- Average daily activity time was obtained from a single-item self-report.
- Sleep quality measured by the Pittsburgh Sleep Quality Index (PSQI).
- BMI was calculated based on self-reported height and weight.

RESULTS

- 67.6 % of the study participants are poor sleepers (PSQI > 5).
- 23.5 % of the study participants are overweight or obese (BMI ≥ 25).
- Most participants (91.2%) self-reported their overall health as good to excellent.
- Although not statistically significant, the mean activity level was negatively correlated with BMI (r = -.10).
- Participants with high mean activity level fall asleep quicker than lower mean activity level (r = -.28, p< .05).
- Participants with normal BMI had better sleep efficiency (r =.29, p< .05).
- The t-tests revealed that poor sleepers reported significantly lower physical activity levels and daily physical activity time than good sleepers but not a significant difference in BMI.

Table 1. Sample Characteristics (N=68)

Variables	Mean (SD)	Frequencies (%)
Age	26.4 (7.5)	
Ethnicity		
White		28 (41.2)
African American		15 (22.1)
Asian		12 (17.6)
Hispanic		8 (11.8)
Other		5 (7.4)
Health Condition		
Fair		6 (8.8)
Good		25 (36.8)
Very Good		29 (42.6)
Excellent		8 (11.8)
BMI*		
Underweight (<18.5)		1 (1.5)
Normal (18.5-24.9)		47 (69.1)
Overweight (25-29.9)		7 (10.3)
Obese (≥30)		9 (13.2)
Activity (min) (n=63)	44.50 (20.02)	
Activity level (n=58)		
Basic		27 (39.7)
Mild		34 (50)
Moderate		7 (10.3)
PSQI	7.2 (2.8)	
PSQI >5		58 (67.6)

* n = 64

Table 2. Correlations between Sleep, BMI, and Activity Level

	PSQI Global	PSQI SL	PSQI SE	BMI	Activity Level	Activity (min)
PSQI Global	--					
SL [a]	.64**	--				
SE [b]	-.66**	-.46**	--			
BMI	.07	-.02	.29*	--		
Activity Level	-.24*	-.28*	-.13	-.10	--	
Activity (min)	-.27*	-.05	-.25	-.14	.28*	--

[a] Sleep Latency, [b] Sleep Efficiency

** Correlation is significant at the 0.01 level

* Correlation is significant at the 0.05 level

Table 3. T-test for PSQI vs. Activity Level and BMI

	Poor Sleeper Mean (SD)	Good Sleeper Mean (SD)	T-test
Activity Level [a] (n = 68)	3.03 (.55)	3.36 (.71)	-2.028*
Activity (minutes) (n = 60)	41.09 (19.98)	51.84 (18.51)	1.98*
BMI (n = 64)	24.16 (4.3)	23.47 (6.2)	.445

*p < .05

[a] 1 = no activity; 2 = basic activity; 3 = mild activity (e.g. easy walking); 4 = moderate activity (e.g. easy aerobics); 5 = strenuous activity (e.g. running)

CONCLUSIONS

- The results indicated a high prevalence of sleep problems in college women.
- Our findings demonstrated that poor sleep was significantly associated with low physical activity but not associated with BMI.
- The disconnection between BMI and sleep quality could be explained by both metabolic resiliency and small sample size.
- Given the high percentage of students with poor sleep quality (67.6%), further investigation with larger sample size is necessary to examine possible factors influencing poor sleep quality in this population.