Psychometrics of the Epworth Sleepiness Scale for Use with Spanish-speaking Mexican Americans and Mexicans

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BACKGROUND

Few studies have compared the psychometric properties of a Spanish language Epworth Sleepiness Scale (ESS) (Johns, 1992) for use with Mexican Americans and Mexicans in bi-national studies of excessive daytime sleepiness (EDS)

- This work examines the psychometrics of the Spanish-translated ESS for use with these populations in clinical sleep and sleep research milieus

METHODS

- Mexican Americans (N=204; 56% women) residing in the southwestern United States and Mexicans (N=202; 53% women) residing in central Mexico provided demographic and sleep data derived from the rigorously Spanish-translated ESS and the Sleep Heart Health Study Sleep Habits Questionnaire (SHHS SHQ) (Baldwin et al., 2012).
- Psychometric properties included internal and convergent validity and confirmatory factor analysis
- Data were examined using PASW (Version 18) software with significance set at $p<0.05$)

REFERENCES

Baldwin CM, et al. Spanish translation and cross-language validation of a Sleep Habits Questionnaire for use in clinical and research settings. *J Clin Sleep Med* 2012;8(2):137-146.

Johns M. A new method for measuring daytime sleepiness: The Epworth Sleepiness Scale. *Sleep* 1991;14:540-545.

RESULTS

- The ESS showed Cronbach's alphas of 0.84 indicating robust internal reliability (Table 1)
- Bivariate correlation for ESS & SHQ sleep items suggest convergent validity (Table 2)
- Independent samples t-test results suggested that Mexican Americans reported significantly higher levels of sleepiness while watching television and more afternoon 'siestas' compared to Mexicans; On a separate item, Mexican Americans reported significantly higher rates of drowsy driving compared to Mexicans
- Multiple group confirmatory factor analysis models indicated that by dropping only 2 items, a strict level of measurement equivalence across Mexican American and Mexican samples was achieved

Table 1. Cronbach's α, ESS means and standard deviations and ESS scores >10 by group.

	N=204	N=202
Cronbach's α for Mexican Americans and Mexicans = 0.84		
•Epworth Sleepiness Scale (Mean ± SD)	7.1 ± 5.0	6.4 ± 5.2
•ESS > 10 = daytime somnolence; n(%)	50 (25)	36 (18)

Table 2. Correlations for ESS and SHQ items.

Items	ESS Score	SHQ Daytime Sleepiness	SHQ Feeling Unrested	SHQ Insufficient Sleep
ESS Score	--			
SHHS Daytime Sleepiness	.42*	--		
SHHS Feeling Unrested	.34*	.71*	--	
SHHS Insufficient Sleep	.19*	.28*	.33*	--

Items	ESS Score	SHQ Daytime Sleepiness	SHQ Feeling Unrested	SHQ Insufficient Sleep
ESS Score	--			
SHHS Daytime Sleepiness	.27*	--		
SHHS Feeling Unrested	.26*	.70*	--	
SHHS Insufficient Sleep	.19*	.43*	.37*	--

CONCLUSIONS

- The Spanish-language ESS demonstrates appropriate measurement properties and should be useful for assessing daytime somnolence in clinical and research settings among Mexican Americans and Mexicans
- Significant differences in ESS scores across Mexican American and Mexican cultures were not due to differences in the meaning of the measure for the different cultures, but to true differences in daytime sleepiness

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