

Preliminary evidence for a new measure of Sleep Acceptance: a promising tool for clinicians and researchers.

Development of the Sleep Acceptance Scale (SAS)

Marwin M. I. B. Carmo¹

[@marwincarmo](#)

marwin@usp.br

Maria Laura Nogueira Pires²

laurapires@actigrafia.org

Leo Paulos-Guarnieri³

guarnieri.leo@gmail.com

Renatha El Rafihi Ferreira¹

rerafihi@usp.br

¹ Department of Psychiatry, University of São Paulo, Brazil

² Private practice in sleep psychology

³ Department of Psychology, Pontifícia Universidade Católica de São Paulo, Brazil

Introduction

Insomnia symptoms are associated with higher levels of **metacognitive control**. Controlled information processing interferes with a healthy sleep process by preventing cognitive deactivation, which involves diminished verbal regulation and control, and acceptance of spontaneous physiological and mental processes. Because general tools for measuring acceptance do not address sleep-related behaviors, the development of specific instruments is essential for studying acceptance of insomnia.

Objective

This study aimed to develop a new measure of sleep acceptance, titled Sleep Acceptance Scale (SAS), and examine its factorial structure, internal consistency, and construct validity.

Methods

The SAS was developed as a 6-item self-report questionnaire rated using a scale ranging from 1 (never) to 7 (always), such that high scores indicate lower sleep acceptance.

Data were collected from online surveys responded by 1419 participants, aged 18 to 59 years, with and without insomnia symptoms. Participants completed self-report questionnaires, including:

1. Hospital Anxiety and Depression Scale (HADS);
2. Insomnia Severity Index (ISI);
3. Dysfunctional Beliefs and Attitudes about Sleep Scale (DBAS-16);
4. Acceptance and Action Questionnaire (AAQ-II).

We conducted a parallel analysis and exploratory factor analysis (with oblimin rotation) to estimate the number of facets underlying the instrument items.

We ran a Confirmatory Factor Analysis to obtain fit statistics and parameter estimates, using the Diagonally Weighted Least Squares (DWLS) estimator, considering items to be ordered.

Reliability indices for each of the facets were obtained using Cronbach's α and McDonald's ω . We assessed construct validity by examining the relations with variables known to be linked with insomnia.

Results

The parallel analysis procedure indicated two latent factors: **Avoidance** (two items) and **Distress** (four items). The 2-factor model showed a good fit [$\chi^2(8) = 59.48$, RMSEA = 0.067 [0.05, 0.084]; CFI = 0.999; RNI = 0.999; TLI = 0.998].

Internal consistency was suboptimal for Avoidance ($\alpha = 0.53$ [0.48, 0.58], $\omega = 0.55$ [0.51, 0.6]) and excellent for Distress ($\alpha = 0.93$ [0.93, 0.94], $\omega = 0.93$ [0.93, 0.94]).

The SAS was positively correlated with ISI ($r = 0.8$), DBAS-16 ($r = 0.76$), AAQ-II ($r = 0.63$), HADS-A ($r = 0.64$), HADS-D ($r = 0.56$), and negatively correlated with SPAQ ($r = -0.63$).

Table 1: Study participants (N = 1419) descriptive statistics.

	N/Mean (%/SD)
Age (years)	38 (9.79)
Gender	
Female	1130 (80.9)
Male	267 (19.1)
Race/ethnicity	

	N/Mean (%/SD)
Asian	48 (3.44)
Black	331 (23.7)
Other/Not informed	13 (0.931)
White	1005 (71.9)
Group	
Good sleeper	335 (24)
Insomnia	1062 (76)
Education	
College degree or higher	1085 (77.7)
Primary School	17 (1.22)
Secondary School	295 (21.1)
Region of origin	
Central-West	54 (3.87)
Northeast	105 (7.52)
Northern	36 (2.58)
Southeast	1083 (77.5)
Southern	112 (8.02)
Not disclosed	7 (0.501)

Table 2: Descriptive statistics and item inter-correlations of the SAS.

Item	1	2	3	4	5	Mean	SD
1						3.59	1.86
2	0.37					3.43	1.8
3	0.34	0.44				3.7	2.16
4	0.34	0.46	0.86			3.86	2.19
5	0.35	0.54	0.72	0.76		3.6	1.97
6	0.38	0.46	0.79	0.79	0.72	4.22	2.26

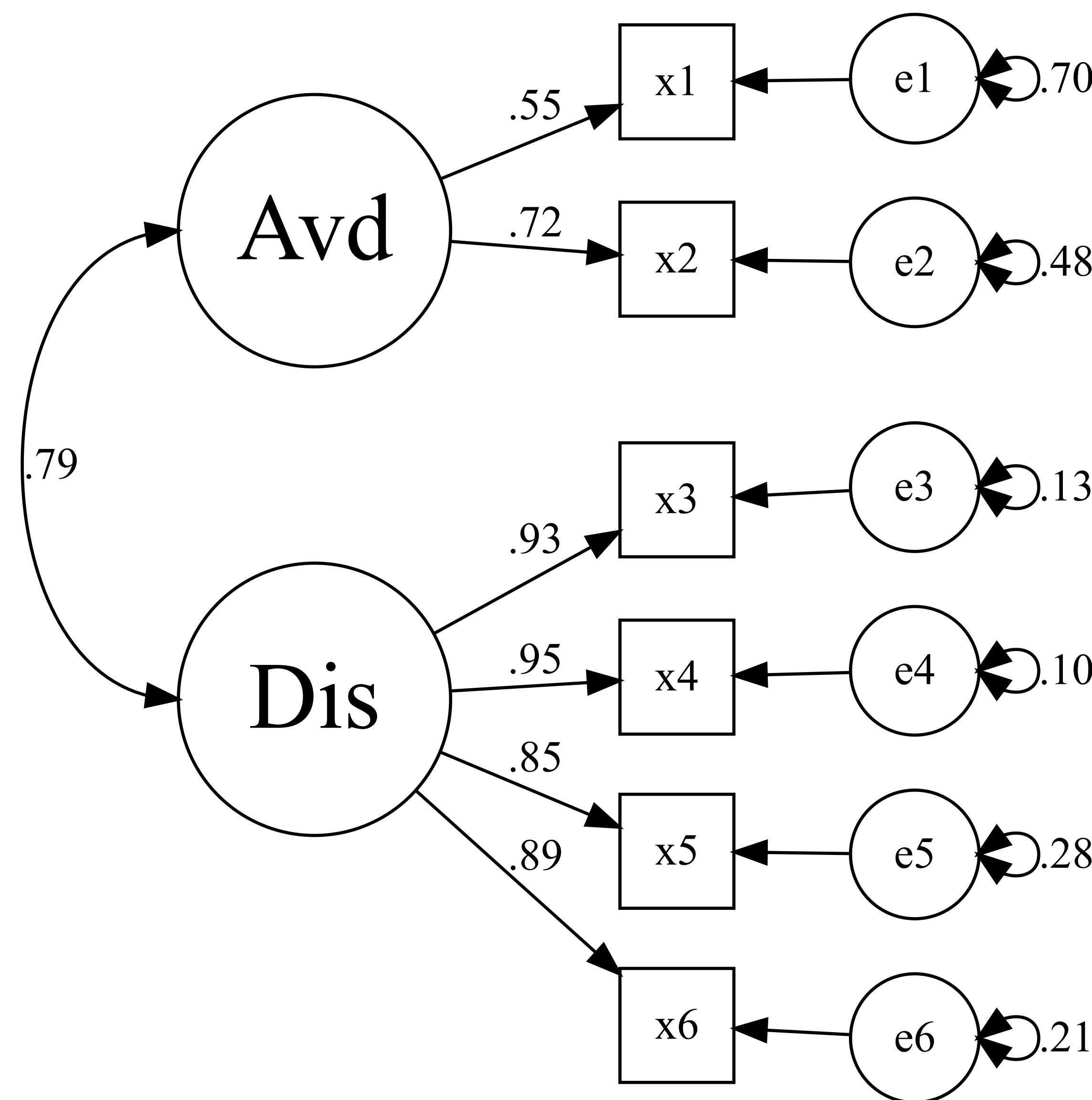


Figure 1: Structural equation model for the Confirmatory Factor Analysis for the final version of the Sleep Acceptance Scale. Avd = Avoidance, Dis = Distress.

Conclusion

Preliminary evidence suggest that the SAS might be a reliable and valid indicator of acceptance of sleep problems in people with and without sleep problems.

Items

1. Tento controlar meu sono forçando que ele aconteça, ou sendo muito rígido(a) em relação aos horários de dormir e acordar.
2. Evito compromissos ou deixo de fazer coisas que gosto ou preciso por causa do meu sono.
3. Sinto-me desconfortável ao pensar no momento de dormir.
4. Tenho sentimentos negativos em relação ao meu sono.
5. Minhas preocupações, pensamentos e sentimentos sobre o meu sono interferem na maneira como eu lido com o meu dia a dia.
6. Tenho medo de não dormir.

