

# Translation of the Vanderbilt Fatigue Scale (VFS - Peds) into Brazilian Portuguese

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## References

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## Introduction

Fatigue in children and adolescents with hearing loss is influenced by physical, cognitive, and emotional factors, especially in challenging listening environments. To address the need for effective measurement tools, the Pediatric Vanderbilt Fatigue Scale (VFS-Peds) was developed. It includes versions for the child (VFS-C), their guardian (VFS-P), and their teacher (VFS-T). The scale is available in various languages, including English, German, Hindi, Spanish, Italian, and Mandarin.

## Objective

This study aims to translate and culturally adapt the Pediatric Vanderbilt Fatigue Scale (VFS-Peds) into Brazilian Portuguese.

## Methodology

The translation and cultural adaptation process followed the six-stage methodology proposed by Hall *et al.* (2018).



Figure 1. Flowchart of the VFS Peds translation and cultural validation process

- 1. Preparation and Translation**  
Conducted by two native Portuguese speakers.  
Results: Versions TR1 and TR2.  
Outcome: Compiled version TR1,2.
- 2. Expert Meeting**  
Addressed discrepancies between TR1 and TR2.  
Outcome: Compiled version TR1,2.
- 3. Back-Translation**  
TR1,2 back-translated into English by a bilingual translator.
- 4. Committee review**  
Reviewed the back-translated text.  
Outcome: Consensual pre-final version (TR3).
- 5. Pilot application**  
TR3 was field-tested.
- 6. Finalization**  
Translation refined to the final version.

The pilot version and consensus document were sent to the original authors for expert review and feedback to ensure conceptual equivalence

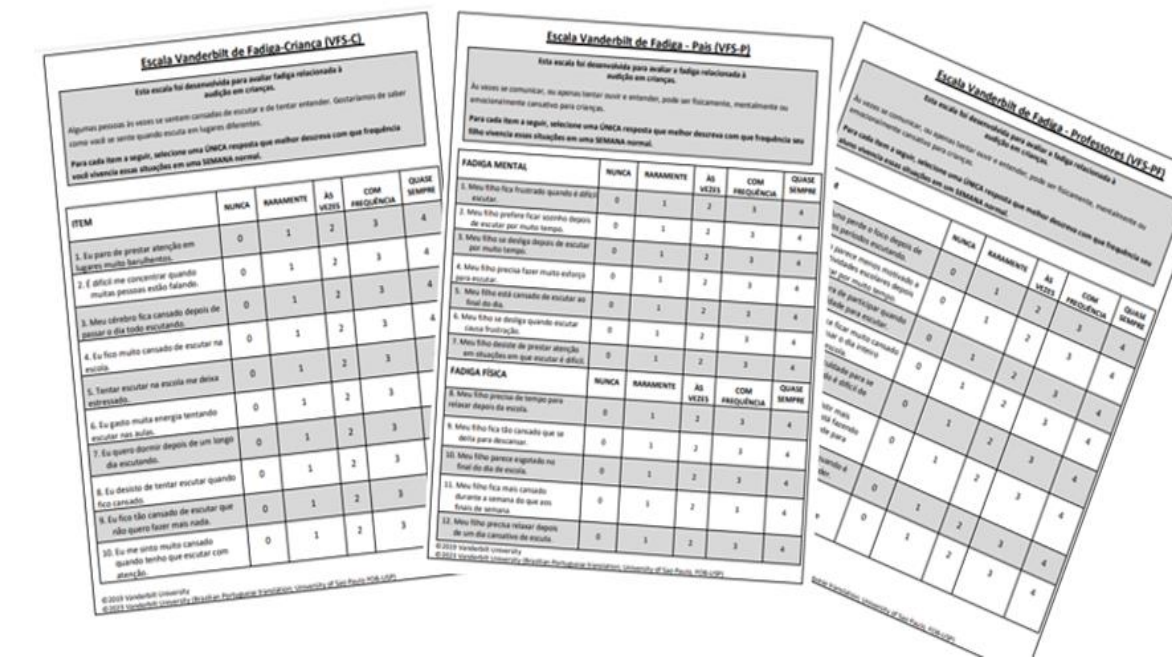


Figure 2. VFS - Peds translated into Brazilian Portuguese

The pilot version was shared via Google Forms, and responses were collected with a Likert scale.

Online informed consent was approved by the Institutional Review Board (Process 5,528,085).

**Statistical Analysis** - Internal consistency was evaluated using Cronbach's Alpha. Values above 0.7 indicate acceptable consistency, and above 0.8 indicate good reliability.

## Results

The VFS-C and VFS-T scales had two items revised, and the VFS-P scale had three items revised in its latest version.

Cronbach's Alpha Results	
Group	Cronbach's Alpha
Parents (Physical Fatigue)	0.888
Parents (Mental Fatigue)	0.842
Children (Total Fatigue)	0.863
Teachers (Total Fatigue)	0.739

Figure 4. Cronbach's Alpha values for different fatigue scales.

<b>Child (N = 27)</b> Age (mean) - 11 years Gender: 44% male and 56% female	<b>Parent (N = 46)</b> Mean age: 43 years Gender: 22% male and 78% female
<b>Child's hearing impairment</b> Slight (7,4%) Moderate (29,6%) Severe (22,2%) Profound (40%)	<b>School professional (N =24)</b> -Early childhood educators: 8% -Elementary school I educators: 42% -Elementary school II educators: 33% -High school educators: 17%
<b>Hearing device</b> CI (41%) Hearing aid (55,6%) Bimodal (3,4%) Remote Microphone System: 37%	

Figure 3. Demographic data  
Legend: CI - cochlear implant; N - number of participants.

## Conclusion

The Brazilian Portuguese versions of the pediatric Vanderbilt scales are conceptually equivalent to the original English versions and have good-acceptable internal consistency. The scales can be freely accessed using the QR code or by visiting: <https://www.vumc.org/vfs>

