

# Measurement properties of the Minimal Insomnia Symptom Scale (MISS) in adolescents

## Conclusions

This study provides general support that both MISS as well as the revised MISS (MISS-R) have good fit to the Rasch model. At this stage, neither the MISS nor the MISS-R can be advocated over the other for use among adolescents, although the MISS-R has slightly better reliability than the MISS.

## Aim

This cross-sectional study aimed to test the measurement properties of the MISS together with an additional item focusing on daytime functioning among adolescents using the Rasch measurement model.

## Methods

A cross-sectional design was used, and data from adolescents (age 13-17 years, n=3022) were analyzed using the Rasch measurement model. Analysis enables item locations (item difficulty) and respondent locations (person ability) to be measured independently of each other, in accordance with the requirements for measurement

## Results

The MISS had good measurement properties. When adding the item “daytime disturbance”, the measurement properties deteriorated. When replacing the original MISS item “not rested by sleep” with the item “daytime disturbance”, the measurement properties slightly improved. We label this new scale the MISS-Revised (MISS-R).

The reliability was better for the MISS-R (0.55) compared to the MISS (0.50). The optimal cut-off was found to be  $\geq 6$  points, both for the MISS and the MISS-R.

The item targeting tend to represent more severe levels of insomnia than that reported by the sample. However, this can be considered acceptable from the perspective of screening (Fig.1).

Caution should be exercised when comparing total MISS/MISS-R raw scores between age groups, due to Differential Item Functioning (DIF), but as screening tools for identifying potential insomnia they appear to work invariantly across both age and gender groups.

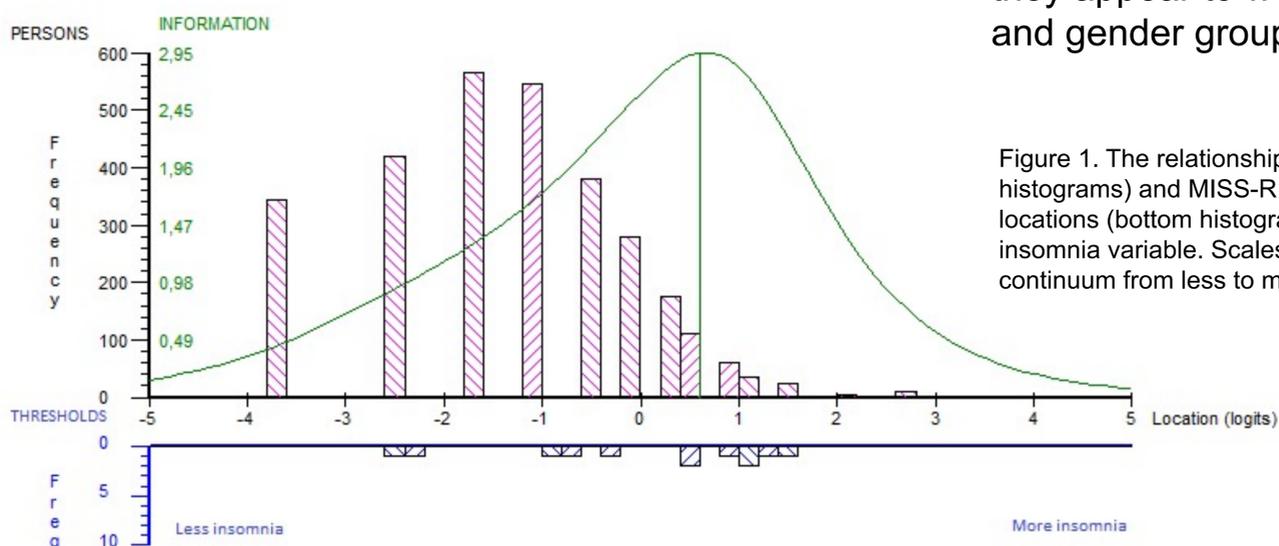


Figure 1. The relationship between person locations (top histogram) and MISS-R item response category threshold locations (bottom histogram) on the common latent insomnia variable. Scales represent a quantitative continuum from less to more insomnia.

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