

Sensitivity of the Vineland Adaptive Behavior Scale Second edition (VABS-II) in the assessment of adaptive behavior in patients with Down Syndrome

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Background

The assessment of adaptive behavior now represents a major issue in the identification and management of patients with intellectual disability (ID). The Vineland-II (VABS II) is one of the most commonly used tools in clinical practice in France to measure adaptive level. It is also used as an essential measurement/variable in numerous clinical studies involving patients with intellectual Disabilities (ID). However, according to our clinical practice, we found a frequent floor effect on this scale which could limit its relevance in daily practice but also its relevance in studies involving patients with ID, especially those with Down Syndrome and a moderate to severe intellectual disability.

Objective

Assess the sensitivity of the VABS II scale in our cohort of patients with Down Syndrome and quantify the prevalence of an eventual “floor effect” depending on age and level of ID.

Method

- Retrospective study carried out on collected data in our consultation between 2018 and 2024 at the Lejeune Institute.
- 265 patients with Down Syndrome (complete and homogeneous trisomy 21, free or with translocation).
- Divided in 4 groups according to their ages (3 years old to 4 years old and 11 months ; 5 years old to 11 years old and 11 months ; 12 years old to 17 years old and 11 months ; 18 years old and older).
- Sorted by their level of ID, obtained by a complete neuropsychological assessment adapted to the patient’s age and capacities, carried out along the VABS-II assessment.
- Parents/caregivers of the 265 patients completed either the parent/caregiver rating form of the VABS-II, or the survey interview form.
- Floor effect was identified when the patient obtained a score of 20 at the Adaptive Behavior Composite Score (a.k.a the minimum Adaptive Behavior Composite Score allowed by the VABS-II norms).
- Floor effect percentages originated from the number of people in said category that obtained an Adaptive Behavior Composite score of 20.
- 20 out of the 259 patients in the younger age range had some missing data, their Adaptive Behavior Composite Score could not be computed and was thus not taken into account for the analysis.

Results

- Floor effect at the VABS-II increased with age :
 - For very young patients (up to 5 years old) we found no floor effect (0%),
 - For children (up to 12 years old) we found a floor effect of 37%,
 - For teenagers (12-17 years old) we found a floor effect of 49%,
 - For adults (+18) we found a floor effect of 65%.
- Floor effect at the VABS-II also increased with the severity of ID :
 - Floor effect was found in 21% patients with mild ID,
 - Floor effect was found in 37% patients with moderate ID,
 - Floor effect was found in 79% patients with severe ID.

Linking the two leads to a visible floor effect that increases with age and level of ID (Figure 1).

Patient's characteristics	3 years to 4 years and 11 months (N=76)	5 years to 11 years and 11 months (N=57)	12 years to 17 years and 11 months (N=63)	18 + years (N=63)
Male n (%)	40(53)	37(65)	27 (44)	37 (62)
Level of ID				
Mild	11 (20)	17 (30)	12 (19)	16 (25)
Moderate	38 (68)	32 (56)	41 (65)	39 (62)
Severe	7 (13)	8 (14)	10 (16)	8 (13)

Table 1. Characteristics of the four age groups

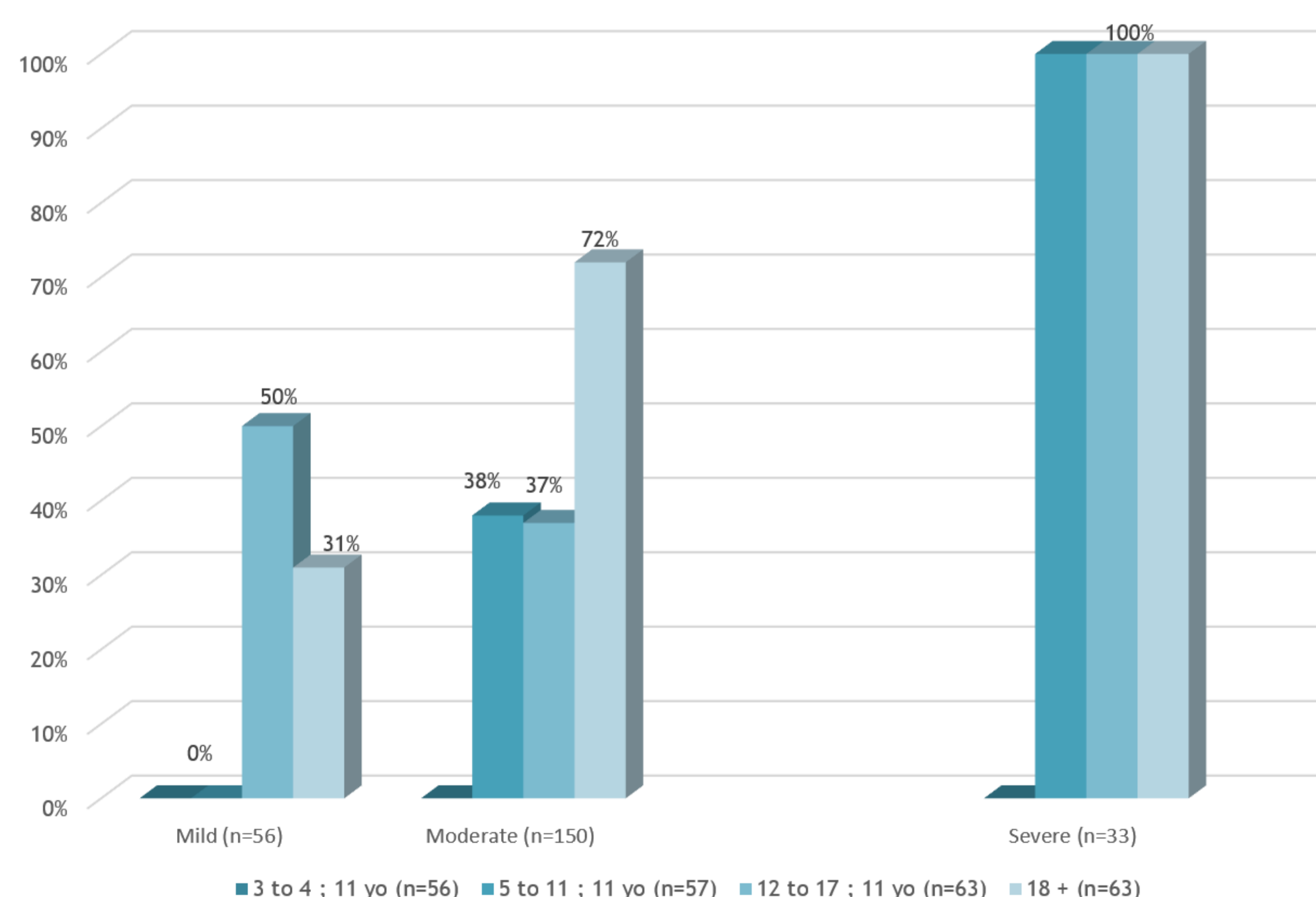


Figure 1. Percentage of floor effect by age and level of ID

Conclusion

ID is characterized by a deficit in intellectual skills (IQ), limited adaptive abilities and an onset before the age of 18. Neuropsychological evaluation of these patients with ID is often limited by a lack of tools and adapted norms and the evaluation of adaptive behaviors does not seem to be an exception. Indeed, the VABS-II, a major tool, showed here its limitations in assessing patients with Down Syndrome with moderate to severe ID and aged more than 5 years old. On the contrary, the sensitivity seems good for very young patients. **Therefore, it seems important in our daily practice and research outcomes to question the use of the VABS-II in patients with ID.** We might also consider in further researches a **specific standardization of this scale for the entire population with ID** that would not leave behind a large part of our population.