American Journal on Intellectual and Developmental Disabilities
The French version of the DABS: Adaptation process and preliminary field test
--Manuscript Draft--

Abstract:	The aim of this study was to develop a transcultural adaptation of the Diagnostic Adaptive Behavior Scale (DABS) in French and to perform a field evaluation of the adapted version of the tool (DABS-F). Eight experts in intellectual and developmental disabilities (IDD) and two professional translators formed two committees to translate the instrument. Thirty-four independent experts in IDD rated the clarity and relevance of the DABS-F. Results indicated complete agreement between the two translation committees and also demonstrated very satisfactory levels of clarity and relevance for the DABS-F. The latter result can be considered as evidence of the content validity of the adapted tool. Adjustments for the few items that presented less satisfactory results are discussed.

Abstract

The aim of this study was to develop a transcultural adaptation of the Diagnostic Adaptive Behavior Scale (DABS) in French and to perform a field evaluation of the adapted version of the tool (DABS-F). Eight experts in intellectual and developmental disabilities (IDD) and two professional translators formed two committees to translate the instrument. Thirty-four independent experts in IDD rated the clarity and relevance of the DABS-F. Results indicated complete agreement between the two translation committees and also demonstrated very satisfactory levels of clarity and relevance for the DABS-F. The latter result can be considered as evidence of the content validity of the adapted tool. Adjustments for the few items that presented less satisfactory results are discussed.

Keywords: Transcultural adaptation, DABS, Adaptive behavior, Intellectual disability, Diagnosis

The French version of the DABS:

Adaptation process and preliminary field test

Introduction

Adaptive Behavior (AB) limitations in conceptual, social and/or practical skills are diagnostic criteria for Intellectual Disability (ID). The DSM-5 (APA, 2013) even recommended establishing ID severity levels based on AB rather than IQ. However, despite their importance, standardized evaluations of AB appear to be used less systematically than evaluations of intellectual functioning during the ID diagnostic process (Lecavalier et al., 2001). This may partly be due to the absence of an instrument specifically developed for diagnostic purposes.

The Diagnostic Adaptive Behavior Scale (DABS, Tassé et al., 2017; Tassé et al., 2016; Tassé et al., 2016) has been designed to fill this gap. The instrument was developed using Item Response Theory models (Samejima, 1997) enabling it to achieve reliable measurements at around the levels of AB corresponding to significant limitations in these skills. The DABS convergent validity was examined in comparison with the Vineland-II (Sparrow et al., 2005). Correlation coefficients between the two instruments ranged from .70 to .84 across domain scores. Furthermore, the test–retest reliability coefficients ranged from .78 to .95, and the inter-rater concordance as measured by intraclass correlation coefficients ranged from .61 to .87 (Tassé et al., 2016). Concerning the diagnostic process of ID, DABS sensitivity ranged from 81% to 98%, specificity ranged from 89% to 91%, and that the Area Under the Receiver Operating Characteristic Curve for all domains as well as for the Total score were excellent or good (Balboni et al., 2014).

The aim of this study was to develop a transcultural adaptation of the DABS in French (DABS-F) to remedy the lack of access to a standardized assessment instrument for French-

speaking individuals and to conduct a preliminary field evaluation of this assessment instrument.

Methods

Instruments

The DABS consists of 75 items, 25 items for each domain of AB (conceptual, social, and practical skills). The rating system uses a 4-point scale to indicate the level of autonomy of the person being assessed in relation to each item. This assessment instrument was developed in three different forms for the following age groups: 4-8, 9-15 and 16-21 years old. The DABS was adapted in French with the authorization of the American Association on Intellectual and Developmental Disability, using the methodology proposed by Tassé and Craig (1999). This method involves a 7-step process of translation/adaptation of adaptive behavior assessment instruments through two adaptation committees. Basically, three members of the first committee each provided an independent English to French translation of the instrument. Then, all the members of the first committee worked with these three translations and the original version to produce a preliminary French translation. The second committee then compared the preliminary translation with the original version and suggested any adjustments and modifications that were needed. Finally, the two committees met to discuss and agree on the final French translation which has been used in this study.

We created an online questionnaire to study the content validity of the DABS-F and asked a group of experts in the field of IDD, and consequently potential users, to evaluate the clarity and relevance of the items and the rating system used in this assessment instrument. Clarity and relevance were rated on a 5-point scale following the methodology of Tassé and Craig (1999): 0 = Not at all clear/relevant, 1 = Not clear/relevant enough, 2 = Neutral, 3 = Fairly clear/relevant, and 4 = Perfectly clear/relevant.

Participants

Two committees composed of bilingual (French-English) content experts in IDD and/or AB assessment, and professional translators participated in the adaptation process. The first committee was composed of four experts (two in academic positions and two working in a University Hospital) and a professional translator. Similarly, the second committee was composed of four different experts (all in academic positions, including the first author of the DABS original version) and a second professional translator.

Ten experts responded to the online questionnaire for the 4-8 years old form, 12 responded for the 9-15 years old form and 12 for the 16-21 years old form. This resulted in a panel of 34 experts in IDD, comprising academic researchers (14), psychologists (18) and neuropsychologists (2), whose professional experience averaged 7.85 years ($SD = 6.84$). All the experts answered "yes" to the question "do you see any value in using this instrument in your work?".

Statistical analysis

Relevance and clarity have been evaluated using an ordinal scale and we therefore mainly analyzed the median of each variable. We also computed means and standard deviations for descriptive purposes. Items with a median higher than or equal to 3 were considered to be clear/relevant. Moreover, the content validity index (CVI) was calculated on the basis of relevance evaluations. The CVI, and more specifically the Item-level CVI (I-CVI) (Zamanzadeh et al., 2015), is frequently used for measuring content validity during test development. I-CVI is obtained by dividing the number of experts who considered the item to be "relevant" by the total number of experts. In our case, and because we have used a 5-point scale using the methodology proposed by Tassé and Craig (1999), we merged the fourth and fifth modality of the scale into one modality (relevant) in a similar way to previous comparable studies (e.g., Rodrigues et al., 2017). I-CVI values range between 0 and 1, with I-

CVI > 0.79 considered to be good, between 0.70 and 0.79 suggesting the item should be reconsidered, and < 0.70 suggesting the item should be eliminated (Zamanzadeh et al., 2015).

Results

With respect to the adaptation and translation process, the first committee achieved a total consensus of the five members after an online meeting and several email discussions. The second committee suggested modifying the rating scale description as well as 14 items of the 4-8 years old form of the DABS, nine items of the 9-15 years old form, and 16 items of the 16-21 years old form. The first committee reviewed and accepted all the modifications proposed by the second committee. Table 1 shows two examples of the adaptation process at the item level. In the first example, Committee 2 suggested a style change while in the second example a change was made in order to describe a more observable action, a closer translation of the original item.

Table 1 about here

Analysis of clarity and relevance revealed that the rating scale of the DABS-F presents a good clarity level with a median of 3 ($M = 3.41$; $SD = 0.66$) and an excellent relevance level with a median of 4 ($M = 3.53$; $SD = 0.66$), which is the highest score. Consistent with this, the I-CVI score is 0.97.

Analysis of clarity at item level revealed that almost all items were rated as clear ($Mdn \geq 3$). In the 4-8 years old form, Item 25 and 31 showed a median of 2 and 2.5 respectively, in the 9-15 years old form, Item 49 presented a median of 2.5, and in the 16-21 years old form, six items showed a median lower than 3, with two of them having a median of 1 (Item 43 and 54). All these items showed good levels of relevance.

Similarly, almost all items were rated as relevant ($Mdn \geq 3$, $I\text{-}CVI \geq .70$). The 4-8 years old form included three items with I-CVI < .70 (Item 15, 37, and 74), the 9-15 years old form had six items (Item 5, 14, 23, 24, 28, and 34) and the 16-21 years old form included

5

three items (Item 19, 21, and 54). Out of these items, only two (Item 37 of the 4-8 years old form and Item 19 of the 16-21 years old form) also presented a median < 3 (*Mdn* = 2 and *Mdn* = 2.5, respectively). The former was the only item with I-CVI < .50, indicating that for all other items the majority of the experts rated the items as relevant[1].

Discussion

The translation process ended with the agreement of all translators, suggesting that the DABS-F is a good translation and adaptation of the original instrument. On this basis, we launched the study on the content validity of the DABS-F.

The three forms of the DABS-F produced very satisfying results, in spite of the fact that a few items revealed less satisfactory results in their clarity or relevance. Only two items showed particularly low levels of clarity. This result is very encouraging, given that the DABS has been developed to be a short and succinct assessment instrument. We will add reformulations and examples in the administration manual of the DABS-F for the nine items that showed lower levels of clarity as presented in the first example included in Table 1. Particular attention will be paid to the two items with particularly low levels of clarity. A similar solution has already been adopted in the Italian adaptation of the instrument (Balboni, et al., 2022).

With respect to relevance, all items but one showed that the majority of experts rated the items as relevant. Overall, these results suggest a good level of content validity in the DABS-F. However, for 12 items out of 225 (75 x 3 forms) the relevance was rated lower than we expected. Nevertheless, we will include these items in the final field test of the DABS-F because the use of the Item Response Theory models allows us to analyze how each item

---

[1] Detailed results on clarity, relevance and I-CVI for each item are presented in Appendices A, B, and C by following the link below: https://perso.unifr.ch/claudio.straccia/supplementary-materials/

behaves. We will also use these models to test shorter forms of the instrument and compare them to the original 75-item forms.

In conclusion, this study gives an overview of the adaptation process of the DABS in French, as well as a first face and content validity analysis of the adapted version. Results suggest that the DABS-F is a clear and relevant adaptation of the original instrument and that it is ready for the final field test. Furthermore, the present study may be useful for further adaptations and developments of the original instrument. Indeed, instrument translation and adaptation are complex and important processes. The *translation–back translation* and the *forward translation* are two methods frequently used in transcultural adaptation studies. According to Arce-Ferrer and Ketterer (2003), the first method has a number of limitations that can be better managed using a forward translation methodology, as recommended by Massoubre et al. (2002). The committee translation approach that was used in this study falls into this latter category (see Tassé & Craig, 1999). Also, this approach has already been used to adapt several instruments from English to French in the field of intellectual disability (e.g., Lamoureux-Hébert & Morin, 2009; Tassé et al., 2000).

However, we can question the difficulties and limitations that this committee translation approach can present in times of pandemic. As the committees could not meet in-person during the lockdown, they worked remotely through video conferences and shared documents online. At times, this may have made the interactions between the committee members less fluid. Despite this aspect, the experts managed to arrive at a total agreement concerning the DABS-F, which was the criterion to launching the validation study.

References

Arce-Ferrer, A. J., & Ketterer, J. J. (2003). The effect of scale tailoring for cross-cultural application on scale reliability and construct validity. *Educational and Psychological Measurement, 63*(3), 484-501. https://doi.org/10.1177/0013164403063003009

Association, A. P. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.).

Washington, DC: American Psychiatric Association.

https://doi.org/10.1176/appi.books.9780890425596

Balboni, G., Bacherini. A., Anselmi, P., Brovedani, P., Buono, S., Micheletti, S., Robusto, E.,

Tassé, M.J. (2022). *Italian Diagnostic Adaptive Behavior Scale: Reliability and*

diagnostic accuracy compared with the Vineland-II. Research in Developmental

Disabilities, 123. 104185. https://doi.org/10.1016/j.ridd.2022.104185

Balboni, G., Tassé, M. J., Schalock, R. L., Borthwick-Duffy, S. A., Spreat, S., Thissen, D., ...

& Navas, P. (2014). The diagnostic adaptive behavior scale: Evaluating its diagnostic

sensitivity and specificity. *Research in developmental disabilities, 35*(11), 2884-2893.

https://doi.org/10.1016/j.ridd.2014.07.032

Lamoureux-Hébert, M., & Morin, D. (2009). Translation and cultural adaptation of the

Supports Intensity Scale in French. *American Journal on Intellectual and*

Developmental Disabilities, 114(1), 61-66. https://doi.org/10.1352/2009.114:61-66

Lecavalier, L., Tassé, M. J., & Lévesque, S. (2001). Assessment of mental retardation by

school psychologists. *Canadian Journal of School Psychology, 17*(1), 97-107.

https://doi.org/10.1177/082957350201700108

Massoubre, C. E. I., Lang, F., Jaeger, B., Jullien, M. C., & Pellet, J. Q. (2002). La traduction

des questionnaires et des tests: techniques et problèmes. *The Canadian Journal of*

Psychiatry, 47(1), 63-69. https://doi.org/10.1177/070674370204700110

Rodrigues, I. B., Adachi, J. D., Beattie, K. A., & MacDermid, J. C. (2017). Development and

validation of a new tool to measure the facilitators, barriers and preferences to exercise

in people with osteoporosis. *BMC Musculoskeletal disorders*, *18*(1), 1-9.

https://doi.org/10.1186/s12891-017-1914-5

Samejima, F. (1997). Graded response model. In W. van der Linden & R. K. Hambleton

(Eds.), *Handbook of modern item response theory* (pp. 85–100). New York, NY:

Springer.

Sparrow S. S., Cicchetti D. V. & Balla D. A. (2005) *Vineland-II: Vineland Adaptive Behavior*

Scales, 2nd ed. Pearson Assessments, Minneapolis, MN.

Tassé, M. J., & Craig, E. M. (1999). Critical issues in the cross-cultural assessment of

adaptive behavior. In R. L. Schalock (Ed.), *Adaptive behavior and its measurement:*

Implications for the field of mental retardation (pp. 161-184). American Association

on Mental Retardation.

Tassé, M. J., Morin, I. N., & Girouard, N. (2000). Traduction et validation canadienne-

française du Nisonger Child Behavior Rating Form. *Canadian*

Psychology/Psychologie Canadienne, 41(2), 116-123.

https://doi.org/10.1037/h0086861

Tassé, M. J., Schalock, R. L., Balboni, G., Spreat, S., & Navas, P. (2016). Validity and

reliability of the Diagnostic Adaptive Behaviour Scale. *Journal of Intellectual*

Disability Research, 60(1), 80-88. https://doi.org/10.1111/jir.12239

Tassé, M. J., Schalock, R. L., Thissen, D., Balboni, G., Bersani Jr, H., Borthwick-Duffy, S.

A., . . . Navas, P. (2016). Development and standardization of the Diagnostic Adaptive

Behavior Scale: application of item response theory to the assessment of adaptive

behavior. *American Journal on Intellectual and Developmental Disabilities, 121*(2),

79-94. https://doi.org/10.1352/1944-7558-121.2.79

Tassé, M. J., Schalock R. L., Thissen, D., Balboni, G., Bersani Jr, H., Borthwick-Duffy, S. A.,

    Spreat, S., Widaman, K. F., & Zhang, D. (2017). *Diagnostic Adaptive Behavior Scale*

    User's Manual. American Association on Intellectual Developmental Disabilities.

Zamanzadeh, V., Ghahramanian, A., Rassouli, M., Abbaszadeh, A., Alavi-Majd, H., &

    Nikanfar, A. R. (2015). Design and implementation content validity study:

    development of an instrument for measuring patient-centered communication. *Journal*

    of caring sciences, *4*(2), 165.

Table 1

Two examples of adaptations made to items.

Original item	Committee 1	Committee 2	Added example
Example 1			
… identify when there is a problem.	… repérer **quand il y a** un problème.	… repérer **la présence** d'un problème.	(p. ex. il se rend compte qu'il n'arrive pas à suivre les règles…)
Example 2			
Responds to hints or indirect social cues …	**Prend en compte** les indices non verbaux ou les signaux sociaux …	**Réagit aux** indices ou aux signaux sociaux non verbaux …	

Appendix A

Descriptive statistics for the relevance and clarity of the 75 items of the version of the DABS-F relating to the 4-8 years old form

	Relevance				Clarity		
	Mdn	*M*	*SD*	*I-CVI*	*Mdn*	*M*	*SD*
Item 1	3.5	3.7	0.48	1	3.5	3.1	1.10
Item 2	4	3.6	0.70	0.9	4	3.8	0.42
Item 3	4	3.7	0.48	1	4	3.6	0.52
Item 4	3.5	3.1	1.10	0.7	3.5	3.4	0.70
Item 5	3	2.8	1.14	0.7	4	3.8	0.42
Item 6	4	3.7	0.48	1	4	3.7	0.48
Item 7	4	3.7	0.42	0.9	4	3.8	0.67
Item 8	4	3.5	1.08	0.8	4	3.8	0.42
Item 9	4	3.9	0.32	1	4	3.8	0.42
Item 10	4	3.7	0.95	0.9	3.5	3.4	0.70
Item 11	4	3.4	1.07	0.8	4	3.3	1.06
Item 12	4	3.8	0.42	1	4	3.8	0.42
Item 13	4	3.8	0.42	1	4	3.7	0.48
Item 14	4	3.4	1.07	0.8	3	3	1.05
Item 15	3	2.7	1.42	0.5	4	3.7	0.48
Item 16	4	3.2	1.23	0.8	4	3.8	0.42
Item 17	4	3.4	1.26	0.8	4	3.7	0.48
Item 18	4	3.7	0.48	1	4	3.7	0.48
Item 19	4	3.6	0.70	0.9	4	3.8	0.42
Item 20	4	3.7	0.67	0.9	4	3.8	0.42
Item 21	3.5	3.3	0.95	0.9	3	3.8	0.42
Item 22	4	3.8	0.42	1	4	3.8	0.42
Item 23	4	3.8	0.42	1	4	3.8	0.42
Item 24	4	3.8	0.42	1	4	3.8	0.42
Item 25	3.5	2.9	1.45	0.7	2	2.2	1.32
Item 26	4	3.6	0.52	1	4	3.5	0.71
Item 27	4	3.6	0.52	1	4	3.7	0.48

Item 28	4	3.4	0.84	0.8	3	2.6	1.26
Item 29	4	3.7	0.48	1	3.5	3.3	0.95
Item 30	3.5	3.3	0.82	0.8	4	3.4	0.97
Item 31	3.5	3.1	1.10	0.7	2.5	2.5	0.85
Item 32	4	3.8	0.42	1	4	3.8	0.42
Item 33	4	3.8	0.42	1	3.5	3.1	1.10
Item 34	4	3.8	0.42	1	4	3.5	0.97
Item 35	4	3.4	0.97	0.9	4	3.8	0.42
Item 36	3	3.1	0.99	0.8	4	3.8	0.42
Item 37	2	2.5	1.35	0.4	3	3.1	0.99
Item 38	3.5	3.3	0.82	0.8	4	3.7	0.48
Item 39	4	3.8	0.42	1	4	3.8	0.42
Item 40	4	3.3	1.06	0.8	3.5	3.3	0.82
Item 41	4	3.6	0.70	0.9	4	3.8	0.42
Item 42	4	3.7	0.48	1	4	3.8	0.42
Item 43	4	3.6	0.52	1	3.5	3.5	0.53
Item 44	4	3.6	0.70	0.9	4	3.6	0.97
Item 45	4	3.4	0.97	0.9	4	3.7	0.48
Item 46	4	3.8	0.42	1	3.5	3.1	1.10
Item 47	4	3.6	0.97	0.9	4	3.8	0.42
Item 48	4	3.7	0.48	1	3	2.7	0.82
Item 49	4	3.1	1.29	0.7	3	2.8	1.23
Item 50	4	3.7	0.48	1	4	3.5	0.97
Item 51	4	3.4	1.07	0.8	4	3.8	0.42
Item 52	4	3.4	0.84	0.8	4	3.8	0.42
Item 53	4	3.6	0.70	0.9	3.5	3.2	1.03
Item 54	4	3.8	0.42	1	4	3.8	0.42
Item 55	4	3.8	0.42	1	4	3.4	0.84
Item 56	4	3.8	0.42	1	4	3.8	0.42
Item 57	4	3.8	0.42	1	4	3.8	0.42
Item 58	4	3.3	1.06	0.8	4	3.7	0.48
Item 59	4	3.8	0.42	1	4	3.7	0.48
Item 60	4	3.7	0.67	0.9	3	3.1	0.99

Item 61	4	3.7	0.67	0.9	4	3.8	0.42
Item 62	4	3.8	0.42	1	4	3.7	0.48
Item 63	4	3	1.41	0.7	4	3.7	0.48
Item 64	4	3.3	1.06	0.8	4	3.8	0.42
Item 65	4	3.4	1.07	0.8	4	3.8	0.42
Item 66	3.5	3.3	0.82	0.8	4	3.6	0.70
Item 67	4	3.7	0.48	1	4	3.8	0.42
Item 68	4	3.6	0.70	0.9	4	3.8	0.42
Item 69	4	3.5	0.71	0.9	4	3.7	0.48
Item 70	4	3.7	0.48	1	4	3.7	0.48
Item 71	4	3.8	0.42	1	4	3.8	0.42
Item 72	3	3	1.05	0.7	4	3.2	1.23
Item 73	4	3.7	0.48	1	4	3.6	0.97
Item 74	3.5	3	1.15	0.6	4	3.8	0.42
Item 75	3	3	1.05	0.7	3.5	3.2	1.03

Note. *Mdn* = Median; *M* = mean; *SD* = standard deviation; *I-CVI* = content validity index (Item-level).

Appendix B

Descriptive statistics for the relevance and clarity of the 75 items of the version of the DABS-F relating to the 9-15 years old form

	Relevance				Clarity		
	Mdn	*M*	*SD*	*I-CVI*	*Mdn*	*M*	*SD*
Item 1	3	3.17	0.94	0.83	4	3.75	0.45
Item 2	4	3.58	0.51	1	4	4	0
Item 3	4	3.75	0.45	1	4	3.92	0.29
Item 4	4	3.83	0.39	1	4	3.83	0.39
Item 5	3	3.08	0.90	0.67	4	4	0
Item 6	4	3.58	0.51	1	4	4	0
Item 7	4	3.67	0.65	0.92	4	3.75	0.87
Item 8	4	3.42	0.90	0.92	4	3.75	0.45
Item 9	4	3.83	0.39	1	4	3.83	0.39
Item 10	4	3.92	0.29	1	4	3.83	0.39
Item 11	4	3.67	0.49	1	4	3.92	0.29
Item 12	4	3.92	0.29	1	4	3.92	0.29
Item 13	4	3.75	0.45	1	4	3.58	0.90
Item 14	3	3	1.04	0.67	4	3.50	1
Item 15	4	3.42	1	0.83	4	3.92	0.29
Item 16	4	3.42	0.79	0.83	4	3.92	0.29
Item 17	4	4	0	1	4	3.83	0.58
Item 18	4	4	0	1	4	4	0
Item 19	4	4	0	1	4	4	0
Item 20	4	3.58	0.67	0.92	4	3.58	0.90
Item 21	4	3.58	0.67	0.92	4	3.75	0.62
Item 22	4	3.67	0.65	0.92	4	3.92	0.29
Item 23	3	2.83	1.19	0.58	3.5	3.33	0.78
Item 24	4	3.25	0.97	0.67	4	3.92	0.29
Item 25	4	3.67	0.49	1	3	2.92	1.16
Item 26	4	3.92	0.29	1	4	3.75	0.45
Item 27	4	3.75	0.62	0.92	3.5	3.33	0.78

Item 28	3.5	3.08	1.08	0.67	4	3.42	0.79
Item 29	4	3.92	0.29	1	4	3.92	0.29
Item 30	4	3.67	0.65	0.92	3	3.17	0.72
Item 31	4	3.92	0.29	1	4	4	0
Item 32	4	4	0	1	4	3.83	0.39
Item 33	4	3.83	0.39	1	4	3.83	0.58
Item 34	3	2.92	1.08	0.58	4	3.50	1
Item 35	4	3.58	0.67	0.92	4	3.67	0.65
Item 36	4	3.67	0.65	0.92	4	3.33	0.98
Item 37	3.5	3.25	0.97	0.83	4	3.50	1
Item 38	4	3.50	0.67	0.92	4	3.58	0.67
Item 39	4	3.83	0.39	1	4	3.83	0.39
Item 40	4	4	0	1	4	4	0
Item 41	4	3.92	0.29	1	4	3.92	0.29
Item 42	4	3.83	0.39	1	4	3.92	0.29
Item 43	4	3.42	0.79	0.83	4	3.58	0.90
Item 44	4	3.92	0.29	1	4	3.58	0.90
Item 45	3	3	0.95	0.75	3.5	3	1.13
Item 46	3.5	3.33	0.78	0.83	4	3.50	0.80
Item 47	4	3.92	0.29	1	4	3.58	0.51
Item 48	4	3.58	0.79	0.83	4	3.17	1.19
Item 49	3	3.33	0.65	0.92	2.5	2.25	1.22
Item 50	4	3.75	0.45	1	4	3.50	0.67
Item 51	4	3.83	0.39	1	4	4	0
Item 52	4	4	0	1	4	4	0
Item 53	4	4	0	1	4	4	0
Item 54	4	3.92	0.29	1	4	4	0
Item 55	4	4	0	1	4	3.83	0.39
Item 56	4	3.92	0.29	1	4	4	0
Item 57	4	4	0	1	4	4	0
Item 58	4	3.83	0.39	1	4	3.92	0.29
Item 59	4	3.83	0.39	1	4	3.92	0.29
Item 60	4	4	0	1	4	4	0

Item 61	4	3.75	0.62	0.92	4	3.67	0.89
Item 62	4	4	0	1	4	4	0
Item 63	4	3.92	0.29	1	4	4	0
Item 64	4	3.83	0.39	1	4	3.92	0.29
Item 65	4	3.67	0.89	0.92	4	4	0
Item 66	4	3.83	0.39	1	4	4	0
Item 67	4	3.67	0.89	0.92	4	4	0
Item 68	4	4	0	1	4	4	0
Item 69	4	3.83	0.39	1	4	3.92	0.29
Item 70	4	3.83	0.39	1	4	3.75	0.62
Item 71	4	4	0	1	4	3.92	0.29
Item 72	4	3.83	0.39	1	4	3.75	0.87
Item 73	4	3.67	0.49	1	4	4	0
Item 74	4	3.83	0.58	0.92	4	3.75	0.62
Item 75	4	4	0	1	4	4	0

Note. *Mdn* = Median; *M* = mean; *SD* = standard deviation; *I-CVI* = content validity index (Item-level).

Appendix C

Descriptive statistics for the relevance and clarity of the 75 items of the version of the DABS-F relating to the 16-21 years old form

	Relevance					Clarity		
	Mdn	*M*	*SD*	*I-CVI*		*Mdn*	*M*	*SD*
Item 1	3.5	3.33	0.89	0.92		4	3.75	0.45
Item 2	4	3.50	0.80	0.83		4	3.67	0.65
Item 3	4	3.33	1.15	0.92		4	3.58	0.67
Item 4	4	3.50	1.17	0.92		4	3.83	0.39
Item 5	4	3.83	0.39	1		4	3.67	1.15
Item 6	4	3.50	0.67	0.92		4	3.58	0.67
Item 7	4	3.58	1.16	0.92		4	3.83	0.58
Item 8	4	3.58	1.16	0.92		4	3.75	0.62
Item 9	4	3.50	1.17	0.92		4	3.58	1.16
Item 10	4	3.58	0.67	0.92		4	3.83	0.39
Item 11	4	3.58	1.16	0.92		3	2.50	1.31
Item 12	3.5	3.53	0.78	0.92		4	3.58	0.67
Item 13	4	3.83	0.39	1		4	3.33	1.23
Item 14	4	3.92	0.29	1		3.5	3.17	1.03
Item 15	4	3.58	0.67	0.92		3.5	3.08	1.16
Item 16	4	3.58	1.16	0.92		4	3.58	1.16
Item 17	4	3.17	1.34	0.83		4	3.58	1.16
Item 18	4	3.25	1.22	0.83		4	3.58	1.16
Item 19	2.5	2.67	1.37	0.50		4	3.67	1.15
Item 20	4	3.92	0.29	1		4	3.92	0.29
Item 21	3	3	0.95	0.58		4	3.58	0.79
Item 22	4	3.58	0.67	0.92		4	3.83	0.39
Item 23	3.5	3.25	0.87	0.75		4	3.50	1
Item 24	4	3.75	0.45	1		4	3.92	0.29
Item 25	4	3.33	0.89	0.75		4	3.75	0.62
Item 26	4	3.33	0.89	0.75		4	3.75	0.62
Item 27	4	3.75	0.62	0.92		4	3.67	1.15

Item 28	4	3.50	0.80	0.83	3.5	3.08	1.16
Item 29	4	4	0	1	4	3.58	1
Item 30	4	3.58	1.16	0.92	4	3.25	1.42
Item 31	4	3.75	0.62	0.92	4	3.67	0.65
Item 32	4	3.75	0.62	0.92	4	3.25	1.06
Item 33	4	3.92	0.29	1	4	3.67	0.65
Item 34	4	3.83	0.39	1	2	2.33	1.44
Item 35	4	3.42	1	0.83	2.5	2.50	1.51
Item 36	4	3.75	0.45	1	2.5	2.75	1.22
Item 37	4	3.50	1.17	0.92	4	3.33	1.23
Item 38	4	3.83	0.39	1	4	3.67	0.49
Item 39	4	4	0	1	4	3.58	0.90
Item 40	4	3.75	0.87	0.92	3	2.58	1.31
Item 41	4	4	0	1	3.5	3.17	1.11
Item 42	4	3.92	0.29	1	3.5	3	1.28
Item 43	4	3.83	0.39	1	1	1.08	1.24
Item 44	4	3.75	0.62	0.92	4	3.75	0.62
Item 45	4	3.92	0.29	1	4	3.92	0.29
Item 46	4	3.58	0.79	0.83	4	3.33	1.15
Item 47	4	3.50	0.67	0.92	2	2.25	1.14
Item 48	4	3.83	0.39	1	3	2.83	1.34
Item 49	4	3.08	1.38	0.75	3.5	2.67	1.61
Item 50	4	3.42	0.79	0.83	3.5	3.25	0.97
Item 51	4	3.67	0.65	0.92	4	3.50	1.17
Item 52	4	3.75	0.62	0.92	4	4	0
Item 53	4	3.92	0.29	1	4	3.50	0.90
Item 54	3	2.75	1.42	0.67	1	1.50	1.17
Item 55	4	3.75	0.45	1	4	3.33	0.98
Item 56	4	3.83	0.58	0.92	4	3.75	0.62
Item 57	4	4	0	1	4	4	0
Item 58	4	4	0	1	4	3.92	0.29
Item 59	4	3.58	1.16	0.92	4	3.58	1.16
Item 60	4	3.92	0.29	1	4	3.92	0.29

Item 61	4	4	0	1	4	3.50	1.17
Item 62	4	4	0	1	4	3.25	1.36
Item 63	4	4	0	1	4	4	0
Item 64	4	3.75	0.62	0.92	4	3.42	1.38
Item 65	4	4	0	1	4	4	0
Item 66	4	4	0	1	4	3.67	1.15
Item 67	4	4	0	1	4	3.58	1.16
Item 68	4	3.83	0.58	0.92	4	3.83	0.58
Item 69	4	4	0	1	4	3.92	0.29
Item 70	4	4	0	1	4	3.67	0.89
Item 71	4	3.58	1	0.83	4	3	1.65
Item 72	4	3.67	0.78	0.83	3	2.75	1.29
Item 73	4	4	0	1	4	3.92	0.29
Item 74	4	3.67	1.15	0.92	4	3.42	1.38
Item 75	4	3.83	0.58	0.92	4	3.75	0.62

Note. *Mdn* = Median; *M* = mean; *SD* = standard deviation; *I-CVI* = content validity index (Item-level).