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Reliability and validity of the Dutch Anxiety, Depression And Mood Scale in adults aged <50 years with intellectual disabilities

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Abstract

Background: Reliable and valid screening instruments for depression and anxiety are needed for adults with intellectual disabilities.

Methods: Internal consistency ($n = 198$), inter-rater reliability ($n = 41$), test–retest reliability ($n = 37$) and criterion validity ($n = 43$) were studied in adults aged between 18 and 49 years. Internal consistency was also studied in a sample with epilepsy ($n = 98$).

Results: Internal consistencies of the Dutch ADAMS total scale and subscales were satisfactory to good ($\alpha = 0.76$–0.92), as well as in the subgroup with epilepsy ($\alpha = 0.74$–0.88). Inter-rater reliability and test–retest reliability were fair to excellent for the total scale (ICC's: 0.57–0.84) and subscales (ICC's: 0.43–0.86). The criterion validity of the Dutch ADAMS Depressive Mood subscale was good with a sensitivity of 88% (95% CI: 53%–98%) and a specificity of 80% (95% CI: 64%–90%).

Conclusions: Our study shows that the Dutch ADAMS is a reliable and valid instrument for adults aged between 18 and 49 years with intellectual disabilities (and co-morbid epilepsy).

KEYWORDS
anxiety, depression, intellectual disabilities, reliability, validity

1 | INTRODUCTION

In the population of adults with intellectual disabilities, the prevalence of depression ranges from 2.2% to 8.3%, and the prevalence of anxiety disorders varies from 1.7% to 7.8%, depending on the study population and which (clinical) diagnostic criteria are used (Cooper, Smiley, Morrison, Williamson, & Allan, 2007; Deb, Thomas, & Bright, 2001; Hermans, Beekman, & Evenhuis, 2013; Smiley,

2005; Smiley et al., 2007). Depressive symptoms can be hard to recognize and are often missed in people with intellectual disabilities (Hermans et al., 2013). Limited cognitive and verbal abilities make diagnosing depression challenging. Therefore, accurate screening and diagnostic instruments, specifically developed for the population with intellectual disabilities, are important for detecting depressive symptoms and also to monitor the effectiveness of interventions. Unfortunately, the number of reliable and valid screening instruments to detect psychopathology, such as depression, in the adult population with intellectual disabilities is limited (Hermans & Evenhuis, 2010; Matson, Belva, Hattier, & Matson, 2012).

Having epilepsy is associated with an even higher prevalence of depressive symptoms in adults with intellectual disabilities (van Ool et al., 2016). Moreover, van Ool et al. (2016) suggest that more severe epilepsies are risk factors for behavioural problems and psychiatric disorders. Depressive and anxiety symptoms may result from epilepsy due to seizure-related or psychosocial factors, such as increased dependence, experienced stigma, restrained activity and poor seizure control (Peterson, Walker, & Shears, 2014; Reisinger & DiIorio, 2009), or may come from the same underlying neurobiological mechanism (Kanner et al., 2012). Depression in patients with epilepsy seems underdiagnosed (Kanner, 2006), and depressive symptoms may be partly hard to distinguish from epilepsy-related symptoms, such as fatigue and concentration problems. Therefore, proper screening instruments for adults with intellectual disabilities and comorbid epilepsy are needed as well.

In 2003, Esbensen, Rojahn, Aman, & Ruedrich (2003) published the Anxiety, Depression And Mood Scale (ADAMS) which is specifically developed for the population with intellectual disabilities. Hermans, Jelluma, van der Pas, & Evenhuis (2012) investigated the reliability and validity of the Dutch translation in adults with intellectual disabilities, aged 50 years and older (Healthy Ageing and Intellectual Disabilities Study, HA-ID study). The authors concluded that the feasibility, test–retest reliability and internal consistency of the Dutch translation of the ADAMS are fair to good, with exception of a poor inter-rater reliability of the Social Avoidance subscale in the borderline and mild intellectual disability subgroup. The clinical manual of the Dutch ADAMS was published in 2013, including new data and reordered subscales (Hermans & Evenhuis, 2013). Currently, this version of the Dutch ADAMS is used in many different care provider services of people with intellectual disabilities in the Netherlands. As the HA-ID study focused on people of 50 years and older, no conclusions can be drawn about the reliability and validity of the Dutch ADAMS within a younger adult population (18–49 years). Therefore, the aim of this study was to investigate the validity and reliability of the Dutch ADAMS in adults with intellectual disabilities in a sample of adults younger than 50 years of age.

2 | METHODS

2.1 | Study population

Participants were recruited by behavioural scientists, psychologists and physicians of different care provider services for adults with intellectual disabilities in the Netherlands. The only exclusion criterion of this study was age below 18 or above 49 years. The legal guardians of the participants gave informed consent to participate if the participant was not able to give informed consent. Adapted information letters were used for the people with intellectual disabilities who gave permission themselves. The questionnaires were completed by professional caregivers of the participants who knew the participants for at least 3 months. The Medical Ethical Testing Committee of the Erasmus University Medical Center Rotterdam in the Netherlands concluded that the rules laid down in the Dutch Medical Research Involving Human Subjects Act (WMO) do not apply to the current study (MEC-2015-587 and MEC-2016-408).

2.2 | Instrument characteristics

2.2.1 | ADAMS

The ADAMS is a by proxy instrument for adults with intellectual disabilities (Esbensen et al., 2003). This instrument consists of 28 items (4-point scale) and five subscales ("Manic/Hyperactivity Behaviour," "Depressive Mood," "Social Avoidance," "General Anxiety" and "Obsessive/Compulsive behaviour"). The minimum total score is 0, and the maximum score is 84.

In 2012, the ADAMS was translated into Dutch and feasibility, reliability and validity of the Dutch version of the ADAMS were studied as part of the HA-ID study (Hermans et al., 2012). In total, 975 participants of 50 years and older were screened with the ADAMS. Internal consistency was tested in a sample of 127 participants and was good (Cronbach's alpha 0.80–0.88 for the five different subscales). Test–retest reliability was tested in a sample of 93 participants and was good as well (ICC total ADAMS: 0.83, ICC subscales: 0.75–0.86). The test–retest reliability of the total score and subscales was also studied in different subgroups based on level of intellectual disabilities. Good test–retest reliability was found in all level of intellectual disability subgroups, with exception of a fair test–retest reliability in the severe/profound intellectual disability group (0.52, 95% CI: 0.11–0.78). Inter-rater reliability, measured in a sample of 83 participants, was fair to good for all subscales (ICC total ADAMS: 0.76, ICC subscales: 0.57–0.78). Inter-rater reliability was fair to good for all levels of intellectual disability subgroups except for the borderline/mild intellectual disability subgroup where a poor inter-rater reliability was found (0.38, 95% CI: 0.02–0.66). Criterion validity of the ADAMS Depressive Mood Subscale was tested in a sample of 288 participants by studying the sensitivity and specificity rates compared to the outcome of the PAS-ADD interview (Moss, 2011). Sensitivity and specificity ranged from sufficient to good (Hermans et al., 2012).

After the study of Hermans et al. was published in 2012, more data have been collected in clinical practice. In 2013, Hermans & Evenhuis (2013) published the manual of the Dutch ADAMS which included this new data. In response to an explorative factor analyses and to what extent a subscale is indicative of a depression or anxiety disorder, the "Depressive Mood" subscale was extended with

six items, the "Manic/Hyperactivity Behaviour" and "Obsessive/Compulsive behaviour" subscales have been removed and a subscale labelled "Other problems" has been added. The anxiety subscale and social avoidance subscale are unchanged. The current "Depressive Mood" subscale covers the following topics: "Sleeps more," "Depressed," "Sad," "Worried," "Attention," "Fatigued," "Lacks energy," "Distracted," "Facial expression," "Starting routine tasks," "Listless," "Trembles" and "Tearfull." The Anxiety subscale includes the original topics: "Nervous," "Does not relax," "Tense," "Worried," "Anxious," "Panic attacks" and "Trembles." As the previous subscale, the "Social Avoidance" subscale covers the same topics as the original subscale: "Communication," "Withdraws," "Shy," "Avoids others," "Facial expression," "Avoids eye contact" and "Avoids peers." The fourth subscale of the Dutch ADAMS, "Other Problems," consists of some items included in the "Manic/Hyperactive Behaviour" and the "Compulsive Behaviour" subscales of the original ADAMS complemented by other items. The following topics are included in the "Other Problems" subscale of the Dutch ADAMS: "Communication," "Overactive," "Ritualistic behaviour," "Attention," "Checker," "Distracted," "Rituals," "Facial Expression," "Starting routine tasks," "Panic attacks" and "Avoid eye contact."

2.2.2 | PAS-ADD

The Psychiatric Assessment Schedule for Adults with Developmental Disability (PAS-ADD) is a semistructured clinical interview which provides full diagnoses under both ICD-10 and DSM-IV (TR) for several disorders, including depression and anxiety disorders (Moss, 2011). The PAS-ADD can be used for the patient, as well as with an informant when the patient's language or verbal level is poor (Moss, 2011). The test–retest and inter-rater reliability analysis of the PAS-ADD show moderate to high kappa values (Gonzalez-Gordon, Salvador-Carulla, Romero, Gonzalez-Saiz, & Romero, 2002). The PAS-ADD has a good inter-rater reliability as well (mean Kappa of 0.65 for individual items) (Costello, Moss, Prosser, & Hatton, 1997). Criterion validity of the PAS-ADD was investigated with psychiatric diagnoses of experts. The validity of the PAS-ADD in relation to depressive symptoms was good (Moss et al., 1997).

2.3 | Procedure

After informed consent, the main professional caregiver of the participant was asked to fill out the Dutch ADAMS (baseline, T1, n = 198). For the participants in sample A, a second professional caregiver of the participant was asked to fill out the Dutch ADAMS at baseline as well, independent of the main professional caregiver (inter-rater reliability sample). In sample A, the main professional caregiver was also asked to fill out the Dutch ADAMS 4 weeks after baseline (T2; test–retest sample). Further, a random part (n = 43) of sample A was assessed with the PAS-ADD interview as well (only the Depression section). Personal characteristics (gender, age, level of intellectual disabilities) and type of care setting of the participants were retrieved from the personal files. The inter-rater reliability,

test–retest reliability and criterion validity were not studied at the tertiary epilepsy centre (sample B).

2.4 | Statistical analyses

For the reliability analyses, we calculated that the sample size must be at least 39 participants (minimal 95% confidence interval [CI]; Esbensen et al., 2003; Hermans et al., 2012; Walter, Eliasziw, & Donner, 1998). In order to be able to examine the reliability for subgroups based on the degree of intellectual disabilities (mild, moderate, severe/profound), we needed at least 117 participants. IBM SPSS Statistics version 22 was used to perform the statistical analyses with a significance level of α = 0.05. Differences on baseline in means of the total Dutch ADAMS score and four Dutch ADAMS subscales were studied in the whole sample with t tests for gender and two age groups (18–34 and 35–49) and with one-way ANOVA for level of intellectual disabilities. Differences between sample A and sample B were studied with Pearson's chi-square tests for independence for gender, the two age groups and level of intellectual disabilities. The Yates continuity correction is used with 2 by 2 tables. Besides, we used a two-way between-group ANOVA to explore the impact of two independent variables (level of intellectual disabilities and sample A/B) on the total Dutch ADAMS score.

Pearson's chi-square tests for independence were used to study if the three subsamples (the inter-rater reliability sample, test–retest reliability sample and criterion validity sample) are representative for sample A. The Yates continuity correction is used with 2 by 2 tables. The following characteristics of the participants were used to determine representativeness: gender, age and level of intellectual disabilities. Our hypothesis was that the participants in sample A and the inter-rater reliability, test–retest reliability and criterion validity are not significantly different.

Cronbach's alpha was used to analyse internal consistency of the Dutch ADAMS (total scale and the subscales). Correlations below 0.40 are considered to be poor, between 0.40 and 0.59 fair and between 0.60 and 0.74 are considered as good. Excellent correlations are those above 0.75 (Cicchetti & Sparrow, 1981). With item analysis, we studied if one or more items decreased the internal consistency. Test–retest reliability was used to measure stability and reliability of the Dutch ADAMS over time. Intraclass correlation coefficients (ICCs) were used to examine whether professional caregivers scores were correlated. The scores of the Dutch ADAMS can be influenced by an occurrence of a major event. If a major event occurred between T1 and T2, the scores of the participant were not included into the analyses. To measure the inter-rater reliability, the T1 scores of the main professional caregiver and the second professional caregiver were examined. ICCs were used to measure the inter-rater reliability. Both test–retest reliability and inter-rater reliability were measured for the total test–retest and inter-rater reliability samples as well as for subgroups (mild intellectual disabilities, moderate intellectual disabilities and severe/profound intellectual disabilities). The criterion validity of the Dutch ADAMS Depressive mood subscale was

studied with sensitivity and specificity rates. The PAS-ADD interview (Depression section) was used as the reference standard.

3 | RESULTS

3.1 | Participants characteristics

The total study population consisted of 198 adults aged between 18 and 49 years (mean age: 34.8 years) with mild, moderate, severe or profound intellectual disabilities and were recruited from different care provider services in the Netherlands. The participants of sample A (n = 100) lived in different care provider services for people with intellectual disabilities. The participants of sample B (n = 98) lived in residential facilities of a tertiary epilepsy centre. All the participants of sample B had epilepsy. Details of the participants characteristics are found in Table 1.

In the total sample (n = 198), we did not find significant differences in mean total score and subscale scores for gender, age and level of intellectual disabilities. There were no significant differences in gender and age between sample A and sample B. There were significant differences in level of intellectual disabilities between sample A and sample B: less participants with mild intellectual disabilities and more participants with profound intellectual disabilities were included in sample B. The interaction effect between group (sample A/B) and level of intellectual disabilities was not significant (p = 0.10).

A significant main effect was found for "group" (p = 0.027), but the effect size was small (partial eta squared = 0.03). The main effect of level of intellectual disabilities was not significant (p = 0.632).

3.2 | Representativeness

3.2.1 | Inter-rater reliability sample

No significant differences in gender (p = 0.566) and age (p = 0.416) between sample A and the inter-rater reliability sample were found. There were significant differences in level of intellectual disabilities (p = 0.000), because no adults with mild intellectual disabilities were included in the inter-rater reliability sample.

3.2.2 | Test–retest reliability sample

There was a significant difference in gender (less women; p = 0.020) and no significant differences in age (p = 1.000) and level of intellectual disabilities (p = 0.418) between sample A and the test–retest reliability sample.

3.2.3 | Criterion validity sample

There were no significant differences in gender (p = 0.073) and age (p = 0.419) between sample A and the criterion validity sample.

TABLE 1 Participants characteristics

	Total sample n = 198[a]	Sample A n = 100	Sample B n = 98	Inter-rater reliability sample[b] n = 41	Test–retest reliability sample[b] n = 37	Criterion validity sample[b] n = 43
Gender						
Male/female	108/90	51/49	57/41	19/22	25/12	17/26
Age (%)						
18–34	97 (49.0)	50 (50.0)	47 (48.0)	18 (43.9)	18 (51.4)	19 (44.2)
35–49	101 (51.0)	50 (50.0)	51 (52.0)	23 (56.1)	19 (48.6)	24 (55.8)
Level of intellectual disabilities (%)						
Mild intellectual disabilities	44 (22.2)	28 (28.0)	16 (16.3)	0 (0.0)	13 (35.1)	9 (20.9)
Moderate intellectual disabilities	46 (23.2)	21 (21.0)	25 (25.5)	11 (26.8)	8 (21.6)	11 (25.6)
Severe intellectual disabilities	57 (28.8)	30 (30.0)	27 (27.6)	18 (43.9)	13 (35.1)	12 (27.9)
Profound intellectual disabilities	41 (20.7)	11 (11.0)	30 (30.6)	11 (26.8)	2 (5.4)	11 (25.6)
Unknown	10 (5.1)	10 (10.0)	0 (0.0)	1 (2.4)	1 (2.7)	0 (0.0)
Residential setting (%)						
Central location	129 (65.2)	53 (53.0)	76 (77.6)	41 (100)	25 (67.6)	32 (74.4)
Community-based	33 (16.7)	15 (15.0)	18 (18.3)	0 (0.0)	7 (18.9)	8 (18.6)
Independent with support	12 (6.1)	8 (8.0)	4 (4.1)	0 (0.0)	5 (13.5)	3 (7.0)
Unknown	24 (12.1)	24 (24.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Epilepsy (%)						
Diagnoses of epilepsy	98 (49.5)	0 (0.0)	98 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)
Epilepsy data not collected	100 (50.5)	100 (100.0)	0 (0.0)	41 (100.0)	37 (100)	43 (100)

[a]Total sample = sample A + sample B. [b]Part of sample A.

Significant differences were found in level of intellectual disabilities between sample A and the criterion validity sample (p = 0.001) due to less adults with mild intellectual disabilities and more adults with profound intellectual disabilities in the criterion validity sample.

3.3 | Reliability

In the total sample (n = 198), the alpha coefficient of the total Dutch ADAMS scale was 0.91. The alpha coefficients of the four subscales ranged from 0.76 to 0.87. The internal consistency was also calculated for sample A. The alpha coefficient of the total Dutch ADAMS scale in sample A was 0.92. The alpha coefficients of the four subscales of sample A ranged from 0.77 to 0.90. The internal consistency was calculated for the subgroup with epilepsy as well (sample B). The alpha coefficient for the total Dutch ADAMS in this subgroup was 0.88, and the alpha coefficient for the four subscales ranged from 0.74 to 0.84. Details of the internal consistency results are found in Table 2.

For the inter-rater reliability, 41 second professional caregivers also completed the Dutch ADAMS at baseline. The inter-rater reliability of the total Dutch ADAMS was 0.64 (ICC; 95% CI: 0.42–0.79). The inter-rater reliability of the four subscales ranged from 0.64 to 0.77. Inter-rater reliability was also measured for the different levels of intellectual disabilities. These, and the details of the overall inter-rater reliability, are presented in Table 2.

To measure the stability and reliability of the Dutch ADAMS over time (test–retest reliability), professional caregivers completed the Dutch ADAMS at T1 and T2. Sixteen participants who experienced major life events between T1 and T2 were not included into the test–retest analyses, resulting in a sample of 37 participants. The test–retest period (T1-T2) ranged from 27 to 72 days. The test–retest reliability of the whole Dutch ADAMS was 0.71 (ICC; 95% CI: 0.51–0.84). The test–retest reliability of the four subscales varied from 0.72 to 0.79. The details of the test–retest reliability of the Dutch ADAMS, as well as the results in the level of intellectual disability subgroups, are found in Table 2.

3.4 | Validity

The criterion validity was studied in a sample of 43 participants. A cut-off score of ≥14 on the Depressive Mood subscale was used for the sensitivity and specificity analyses based on the manual of the Dutch ADAMS (Hermans & Evenhuis, 2013). When a participant was diagnosed with a major depressive disorder (MDD) according to the DSM criteria in the PAS-ADD clinical interview, this participant was marked as "positive" on the PAS-ADD. When a participant did not reach the required number of symptoms on the PAS-ADD clinical interview to be diagnosed with a MDD, the participant was marked as "negative" on the PAS-ADD. Of the 43 participants, 28 participants scored negative on the PAS-ADD clinical interview as well as on the ADAMS Depressive Mood subscale (true negatives).

TABLE 2 Reliability of the Dutch ADAMS

	Total Dutch ADAMS	Depressive mood	Anxiety	Social avoidance	Other problems
Total sample (n = 198)					
Mean score (SD)	24.69 (14.24)	10.95 (7.88)	6.28 (4.48)	5.34 (4.26)	10.07 (5.88)
Min–max score	0–69	0–34	0–20	0–19	0–24
Internal consistency (Cronbach's alpha)					
Total sample (n = 198)	0.91	0.87	0.83	0.80	0.76
Sample A (n = 100)	0.92	0.90	0.84	0.81	0.77
Sample B (n = 98)	0.88	0.84	0.76	0.77	0.74
Inter-rater reliability[a] (ICC, 95% CI) n = 41[b]	0.64 (0.42–0.79)	0.77 (0.61–0.87)	0.64 (0.42–0.79)	0.69 (0.49–0.82)	0.66 (0.45–0.81)
Moderate intellectual disabilities (n = 11)	0.70 (0.19–0.91)	0.68 (0.17–0.90)	0.78 (0.35–0.93)	0.59 (0.01–0.87)	0.74 (0.28–0.93)
Severe/profound intellectual disabilities (n = 29)	0.57 (0.28–0.77)	0.81 (0.64–0.91)	0.49 (0.16–0.72)	0.60 (0.31–0.79)	0.62 (0.34–0.80)
Test–retest reliability[a] (ICC, 95% CI) n = 37[b]	0.71 (0.51–0.84)	0.72 (0.52–0.84)	0.75 (0.57–0.87)	0.79 (0.63–0.89)	0.72 (0.53–0.85)
Mild intellectual disabilities (n = 13)	0.64 (0.15–0.87)	0.59 (0.07–0.86)	0.77 (0.41–0.92)	0.61 (0.11–0.87)	0.43 (−0.17–0.79)
Moderate intellectual disabilities (n = 8)	0.59 (−0.11–0.90)	0.82 (0.35–0.96)	0.58 (−0.20–0.90)	0.52 (−0.15–0.88)	0.75 (0.22–0.94)
Severe/profound intellectual disabilities (n = 15)	0.84 (0.58–0.94)	0.75 (0.40 –0.90)	0.85 (0.61–0.95)	0.86 (0.63–0.95)	0.85 (0.60–0.95)

[a]Analysed in sample A. [b]One participant's level of intellectual disabilities is missing.

Seven out of the 43 participants scored positive on the PAS-ADD Clinical interview (MDD diagnosed) and also positive on the ADAMS Depressive Mood subscale (true positives). Seven out of the 43 participants were not diagnosed with an MDD according to the PAS-ADD Clinical interview, but scored above the cut-off point of the ADAMS Depressive Mood subscale (false positives). One of the 43 participants had a MDD according to the PAS-ADD Clinical interview, but did not have a score above the cut-off point of the ADAMS Depressive Mood subscale (false negative).

The sensitivity of the Dutch ADAMS Depressive Mood subscale is 88% (95% CI: 53%–98%). The specificity of the Dutch ADAMS Depressive Mood subscale is 80% (95% CI: 64%–90%). As the criterion validity sample is small, sensitivity and specificity rates of the Dutch ADAMS Depressive Mood subscale were not measured for the level of intellectual disability groups separately.

4 | DISCUSSION

Depressive and anxiety symptoms can be difficult to recognize in adults with intellectual disabilities. Therefore, reliable and valid screening instruments are needed for this population. Prior to this study, the reliability and validity of the Dutch translation of the ADAMS were not investigated in adults with intellectual disabilities below the age of 50 years (and with comorbid epilepsy). The results of our study show a good internal consistency of the Dutch ADAMS total scale and satisfactory to good internal consistency of the subscales, for adults younger than 50 years of age. In the subgroup of participants with epilepsy (sample B), the internal consistency of the Dutch ADAMS total scale is good and the internal consistency of the subscales is satisfactory to good. Thus, even including participants with epilepsy did not have consequences for the internal consistency of the Dutch ADAMS.

Furthermore, our results suggest a good inter-rater reliability of the total Dutch ADAMS scale and a good to excellent inter-rater reliability for the subscales. In the level of intellectual disability subgroups, the inter-rater reliability is fair to good for the total scale and fair to excellent for the subscales (Cicchetti & Sparrow, 1981). The stability over time of the Dutch ADAMS (measured with test–retest reliability) is good for the total scale and good to excellent for the subscales. In the level of intellectual disability subgroups, the test–retest reliability of the total scale is excellent for the severe/profound subgroup and fair to good for the mild and moderate subgroups. The test–retest reliability of the subscales in the intellectual disability subgroups ranges from fair tot excellent (Cicchetti & Sparrow, 1981). The criterion validity of the Dutch ADAMS Depressive Mood subscale, expressed with sensitivity and specificity rates, is good. In summary, our results show that the Dutch ADAMS is a reliable and valid screening instrument for detecting anxiety and depressive symptoms in adults aged between 18 and 49 years.

Previous research by Hermans et al. (2012) in an elderly sample (mean age 62.2 years) showed a good internal consistency of all subscales of the Dutch ADAMS. Moreover, they also found a

good test–retest reliability for the total group and good test–retest reliability in the level of intellectual disability subgroups (except for the Social avoidance subscale in their severe/profound intellectual disability subgroup, which had a fair test–retest reliability; Hermans et al., 2012). Furthermore, they also mentioned a fair to good inter-rater reliability for the total scale and subscales. In their level of intellectual disability subgroups, the inter-rater reliability was fair to good, with exception of a poor inter-rater reliability in the borderline/mild intellectual disability subgroup (Hermans et al., 2012). Furthermore, their criterion validity analyses of the Dutch ADAMS showed a sufficient to good sensitivity and specificity. Rojahn, Rowe, Kasdan, Moore, & van Ingen (2011) mention in their study an excellent internal consistency of the total ADAMS, which is comparable to ours. The French version of the ADAMS was evaluated in 2004 (Methot & Morin, 2004). They found a satisfactory to excellent internal consistency and an excellent test–retest reliability. The results in the studies of Hermans et al. (2012) and Rojahn et al. (2011) are based on the ADAMS with five subscales, and the study of Methot & Morin (2004) is based on an ADAMS with three subscales. As the Dutch ADAMS in the present study has four subscales, results of the previous studies are not completely comparable with the current study.

The first strength of the present study is the large sample used in the internal consistency analyses. A second strength of the current study is the significant amount of adults with intellectual disabilities and comorbid epilepsy who are included. Third, the mean age of the participants of the current study (34.8 years) is almost 30 years below the mean age of the previous study in 2012 by Hermans and colleagues (62.2 years). As a result, the current study adds valuable information to the existing literature about the reliability and validity of the Dutch ADAMS.

The small sample sizes of the subgroups used in the reliability and validity analyses is a limitation of this study. A second limitation of this study is that the three subsamples of this study (inter-rater reliability sample, test–retest reliability sample and criterion validity samples) do not completely represent sample A. There was a difference between the inter-rater reliability sample and sample A because no adults with mild intellectual disabilities were included in the inter-rater reliability sample. In the test–retest reliability sample, there was an underrepresentation of women and in the criterion validity sample, the overrepresentation of participants with profound intellectual disabilities and the underrepresentation of participants with mild intellectual disabilities caused significant differences. A third limitation is the rather large range of the test–retest period.

In conclusion, the Dutch ADAMS is a reliable and valid screening instrument which can be used to screen for depressive symptoms and anxiety symptoms in the adult population with intellectual disabilities in clinical practice and to monitor the effectiveness of interventions. Routine screening is recommended in order to prevent underdiagnosis, especially among those with epilepsy. In the future, larger subgroups based on level of intellectual disabilities are needed, and more research can be done in analysing the underlying factors in the Dutch ADAMS in the population with intellectual disabilities aged between 18 and 49 years.

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CONFLICT OF INTEREST

None.

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