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Spanish Validation of the Impact of Event Scale for People with Intellectual Disabilities, IES-ID

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ABSTRACT

Introduction: The aim of this study is to validate a Spanish version of the Impact of Event Scale on People with ID (IES-ID).
Methods: IES-ID was administered to adults with ID (n = 120), analyzing internal consistency, inter-rater and test-retest reliability, criterion validity, construct validity and feasibility.
Results: Good internal consistency was found in the total of the scale (α = .91). Test-retest and inter-rater correlations yielded excellent level of agreement in the total scale. Criterion validity was significant. Regarding construct validity, the factor analysis yielded three well-defined factors and the model fit of the confirmatory factor analysis appears to be very good. Finally, the feasibility was also very good.
Conclusion: The Spanish version of the Impact of Event Scale for People with ID (IES-ID) showed adequate indexes of feasibility and reliability to assess the severity of PTSD symptoms in adults with borderline to moderate ID.

KEYWORDS
Assessment; intellectual disabilities; mental health; Post-traumatic stress disorder; scale; validation

Introduction

Post-traumatic stress disorder (PTSD) is defined by exposure to death, serious injury, or sexual violence, either real or threatened, resulting in the presence of symptoms of intrusion, avoidance, negative disturbance in cognitions and mood and significant alteration of arousal and reactivity (DSM-5, American Psychiatric Association [APA] 2013). People with intellectual disabilities (ID hereafter) are more likely to be exposed to traumatic events (Horner-Johnson & Drum, 2006; Martorell & Tsakanikos, 2008; Martorell et al., 2009; Reiter et al., 2007; Wigham & Emerson, 2015; Wissink et al., 2015), for example, the risk of being a victim of sexual abuse by a person with ID is up to ten times higher than that of people without disabilities (Focht-New et al., 2008; Horner-Johnson & Drum, 2006). Specifically, between 60% and 80% of women with ID

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and between 25% and 35% of men with ID have been victims of some episode of sexual abuse in their lifetime (Curry et al., 2009; Kuosmanen & Starke, 2015; Levy & Packman, 2004; Reid, 2018; Sullivan & Knutson, 2000). Moreover, this population has a higher prevalence of suffering bullying or intimidation (Young et al., 2012), and of being victims of crimes including physical assault, robbery, and all forms of hate crime (Shakespeare, 2012). On the other hand, they present less coping skills and therefore at increased risk of developing PTSD (Mevissen et al., 2016, 2020).

Diverse risk factors explain this vulnerability to being exposed to traumatic events, for example, the dependence of caregivers (Wissink et al., 2015) or the difficulty in distinguishing abusive relationships from consenting relationships (Nieuwenhuis et al., 2019), which make people with ID more likely to suffer sexual abuse (Wissink et al., 2015).

Despite the fact that the literature supports the clear presence of PTSD in people with ID (Kildahl et al., 2019; Kildahl et al., 2020; Mevissen & de Jongh, 2010), its diagnosis is still difficult to establish (Daveney et al., 2019; Hastings et al., 2004; Lovell, 2007; McCarthy, 2001; Peckham, 2007; Rittmannsberger et al., 2019; Sinason, 2010). For example, Mevissen et al. (2020) found a 40% diagnosis of PTSD, compared to the participants' records, where there was only a 2% diagnosis of PTSD. On the other hand, there is the difficulty of understanding and communicating certain symptoms, such as reexperiencing (Kildahl et al., 2019). Sometimes the presence of this symptomatology is confounded with diagnoses of psychosis or simply with the idea that these behaviors belong to the condition of their disability, with the consequent underdiagnosis (Peña Salazar et al., 2017), and also misinterpretating symptoms as challenging behaviors (Rittmannsberger et al., 2020), yielding what is called in the literature as "diagnostic overshadowing" (Jopp & Keys, 2001; Reiss et al., 1982). In addition, the manifestation of symptoms will depend on other factors such as the type of traumatic event, exposure to multiple traumatic events (Hughes et al., 2012), the person's coping skills (Kildahl et al., 2020). For all the above, it is important to note the impact on different dimensions of their quality of life, such as loss of autonomy, impairment of self-esteem (Nuñez-Polo et al., 2016), and the impact on adaptive skills (Kildahl et al., 2020), as well as increased aggressive behaviors (Clark et al., 2016; Rittmannsberger et al., 2020) and self-harm (Peckham, 2007).

Among the specific mental health diagnostic manuals for people with ID, we find the Diagnostic Criteria for Psychiatric Disorders for use with Adults with Learning Disabilities/mental retardation, DC-LD (Royal College of Psychiatrists, 2001) or the Manual of Diagnosis of Intellectual Disability, DM-ID-2 (Fletcher et al., 2016). DC-LD does not include a post-traumatic stress disorder section. However, DM-ID-2 includes a PTSD diagnosis, making a distinction in the description of the criteria in the diagnosis of PTSD for

people with mild or moderate ID and for people with severe or profound ID. In this manual, we can find specific adaptations for people with ID. For example, criterion A includes the possibility that the disorder may be activated by exposure to less serious events than the general population. Criterion B signals dissociative reactions require judicious assessment since they can resemble psychotic symptoms. Criterion D points out that it is important to note that many non-traumatized people with ID do not have high expectations about their futures. As a result, this may lead to a risk of false positives on this criterion. In addition, we can find some annotations about behavioral disorders such as greater irritability, avoidance efforts that can be shown as disobedience, re-experimentation as re-staging of the traumatic event, or the possibility of expanding the range of traumatic events.

Furthermore, there are few tools for assessing PTSD in people with ID (Mevissen & de Jongh, 2010; Mevissen et al., 2016, 2020):

- Wigham et al. (2011) developed *Lancaster and Northgate Trauma Scale (LANTS)*. It is composed of 29 items in the self-report subscale and 34 behavioral changes items in the informant subscale, measured by a 4-point Likert scale, with an adequate internal consistency (α = .84) and with test-retest reliability significant correlations (r = .72, p < .01).
- Hall et al. (2014) developed the version for people with ID of the *Impact of Event Scale for people with Intellectual Disabilities, IES-ID*. It measures specific symptoms of post-traumatic stress disorder and was adapted for people with ID under DSM-IV criteria (APA, 1994). It reported good internal consistency (test α = .90 and retest α = .91 internal consistency), reliability and validity. It consists of 22 items and measures three dimensions (avoidance, intrusion and hyperarousal).
- Mevissen et al. (2020) developed the *Adapted ADIS-C PTSD-Adults*. It was developed from the ADIS-C section child version of PTSD (Mevissen et al., 2016) with good psychometric properties (average Cohen's kappa for traumatic event scores .84). It consists of 29 events and 41 symptom questions.

In Spain there are tools that can assess PTSD symptoms but they have not been validated for people with ID:

- *Clinician-Administered PTSD Scale, CAPS*, Spanish version developed by Bobes et al. (2000). It is composed by 30 items, with good psychometric properties (average $\alpha \geq .70$). This scale is for general population, but it has not been adapted for assessing PTSD symptoms in people with ID.

- Echeburúa et al. (2016) developed the *Symptom Severity Scale-Revised, EGS-R*. This is a Spanish scale, it consists in 21 items according to the DSM-5 criteria diagnosis, measured by a 3-point Likert scale, with good internal consistency in the total of the scale (α = .89). This scale was developed for general population but was not adapted for people with ID.

After reviewing the properties of the scales mentioned above, it was decided to carry out a Spanish validation for of the Impact of Event Scale for People with Intellectual Disabilities, IES-ID, due to its excellent psychometric properties and generated knowledge. Moreover, the development of the IES-ID was based on the DSM-IV diagnostic criteria of the PSTD (Hall et al., 2014). Likewise, the IES-ID scale measures symptoms referring to a specific traumatic event, which is easier to assess for people with ID, as it is more specific and easier to understand. Furthermore, IES-ID has been validated in other countries (German validation) with good psychometric properties (Brüseke et al., 2020). Finally, the IES-ID seems like an easy tool, requiring little application time. Therefore, the aim of this study is to evaluate the validity and reliability of a Spanish version of the IES-ID. In addition, the LANTS scale assessed more general psychopathology.

Materials and method

Procedure

This validation study was carried out at the A LA PAR Foundation in collaboration with the Alcalá de Henares University and the University Autónoma of Madrid. The A LA PAR Foundation responds to the needs of individuals with ID providing supports for around 1000 people yearly, through different programs such as supported employment, specialized training programmes, independent living, dual diagnosis services or victim support unit for people with ID.

Firstly, an internal ethics committee from the A LA PAR Foundation approved the project (Ref. Number 1/2016). Secondly, for the Spanish version, forward and backward translation procedures were conducted. Two native Spanish professionals who were fluent in English translated the original IES-ID version from English into Spanish. One native English speaker who was fluent in Spanish again translated the draft from English into Spanish. A professional English and Spanish speaker with an expertise in ID compared the equivalence of the forward and backward translated version to the original questionnaires. The consent form, in an easy to read format, was applied to 123 people with ID by professional experts in ID, with three participants who declined their will to participate. Finally, 120 participants took part in the study.

The IES-ID scale was applied by two professionals during six months, both psychologists and specialized in ID. For test-retest reliability analysis, 30 randomly selected participants were interviewed again two weeks later by the same professional; in order to obtain inter-rater data, 30 randomly selected participants were interviewed in the same period by other professional. Interviewers used a visual support to help with the Likert scale as was done with the original instrument.

During the same period above, a specialized psychiatrist in ID interviewed the participants in order to evaluate PTSD symptoms according to DSM-5 criteria (APA, 2013) in order to assess criterion validity. At the end of the procedure, a feasibility questionnaire was administered, including questions on time completion, item relevance, content comprehensiveness and overall understanding.

Participants

As mentioned above, 120 participants with ID were recruited, all of them clients of the A LA PAR Foundation. All participants had the ID assessed through the *Wechsler Adults Intelligence Scale IV (WAIS-IV;* Wechsler, 2012), and had a certification of intellectual disability (specific certification from the Spanish Government).

Inclusion criteria were: being over 18 years old, having an intellectual disability with minimal language skills to understand the items. Exclusion criteria were: having a psychotic disorder (so that, as mentioned above, certain symptoms, such as hallucinations, would not be confused with symptoms related to dissociation due to PTSD), and having a severe and profound intellectual disability, due to the language and comprehension skills required to answer the scale questions.

The average mean age was 32 (between 18 to 60 years old) (M*age* = 32, *SD* = 9.90). Out of the 120 participants, 57% were women (n = 68) and 43% were men (n = 52), 18% (n = 22) of the participants presented borderline intelligence (IQ 70–86, World Health Organization [WHO], 1993, 2022), 66% (n = 80) presented mild intellectual disabilities (IQ 50–69, WHO, 1993, 2022) and 15% (n = 18) had moderate intellectual disabilities (IQ 35–49, WHO, 1993, 2022). At the time of the interviews, 78% (n = 94) lived with family members, 11% (n = 14) lived in shared sheltered apartments with other people with ID, 5% (n = 6) lived in residential settings and 5% (n = 6) lived as a couple.

Materials

Impact of Event Scale for People with Intellectual Disabilities (IES-ID)

IES-ID measures the response to traumatic events assessing the severity of PTSD symptoms. The original scale was developed by Horowitz et al. (1979). Subsequently, Weiss and Marmar (1997) produced a revised version, the Impact of Event Scale-Revised (IES-R), following the diagnostic criteria for PTSD of the DSM-IV (APA, 1994). Later, Hall et al. (2014) provided its adaptation for the population with ID, called IES-ID. It includes 22 items, measured by a yes/no answer to each question, and if yes, a 3-point Likert scale (a little bit, in the middle, a lot), which describes the discomfort or stress generated in relation to each of the items. The values are organized according to a questionnaire, in which the participant confirms or denies having the symptom, and in case of being affirmative, the seriousness of the symptom. As a result, the scale offers a total symptom score (sum of the scores) of post-traumatic stress disorder, and a score with respect to three dimensions (sum of each group of the scores): avoidance (8 items), intrusion (8 items) and hyperarousal (6 items). One of the limits of the scale is that it does not have a cutoff point for positivity for posttraumatic stress symptomatology.

For the feasibility analysis, a 4-point Likert scale (from 0 to 3, not at all, a little, quite a bit, a lot) semi-structure was conducted. The questions asked were: Are the questions on the instrument necessary?; Are the questions on the instrument sufficient?; Are the questions well phrased and understood easily?; Could you apply the instrument quickly?. Finally, the last question, "Write down approximately how many minutes it took you to apply the instrument" to analyze the average time of applicability of the scale.

Statistical Analysis

1. Descriptive analysis were performance through means and standard deviations, quartiles and kurtosis.
2. Reliability:
   - 2.1. Internal consistency: Cronbach's Alpha coefficient was used to calculate the internal consistency, (Cronbach, 1951).
   - 2.2. Test-retest and Inter-rater reliability: Intraclass Correlation Coefficient was used to calculate these reliabilities. Both, test-retest and inter-rater reliability, were interpreted with reference to Koo and Li (2016) (ICC < 0.4, poor reliability; 0.4 ≤ ICC < 0.75 fair to good reliability, and ICC ≥ 0.75 excellent reliability).
   - 2.3. In addition, in both groups (test-retest and inter-rater), a Pearson correlation analysis was performed.
3. Validity

3.1. Criterion validity was assessed by analyzing mean differences in IES ID in relation to the presence/absence of PTSD diagnosis assessed by an expert psychiatrist in ID.
3.2. Construct validity was analyzed by:
  3.2.1. Exploratory Factor Analysis, with extraction method of analysis of principal components with Varimax rotation.
  3.2.2. Confirmatory factor analysis.
3.3. Feasibility: feasibility and applicability was analyzed with the descriptive analysis of the semi-structured interview.

The statistical package used has been the Statistical Package for Social Sciences, version 24.0 (IBM Corp, 2016).

Results

1. Descriptive Scores.

Descriptive data, means, standard deviations, Kurtosis and quartiles of the IES-ID are presented in Table 1. The total average trauma symptomatology in the sample was 24.68.

2. Reliability.
  2.1. Internal consistency.

Table 1. IES-ID descriptive results.

							Quartiles		
IES-ID	N	Minim	Maxim	M	SD	Kurtosis	P25	P50	P75
Total	120	0	61	24.68	16.30	−.987	13.25	23	37
Avoidance	120	0	22	8.78	5.98	−.971	4	9	13
Intrusion	120	0	24	8.86	7.01	−.979	3	7	15
Hyperarousal	120	0	18	7.04	5.62	−1.153	1.25	7	12

Table 2. Internal consistency of dimensions and of the total scale.

	Spanish Validation (2021)	German Validation (Brüseke et al., 2020)	Original Version (Hall et al., 2014)	
IES-ID dimensions	α	α	α Time 1	α Time 2
Avoidance	.76	.67	.72	.61
Intrusion	.86	.84	.79	.88
Hyperarousal	.85	.68	.74	.77
Total	.91	.68	.90	.91

α = Cronbach´s Alpha Coefficient

Table 3. Test-retest reliability. Intraclass Correlation Coefficient.

	α				95% Confidence interval	
	Test	Retest	ICC	*p*	Lower	Upper
Avoidance	.75	.88	.79	.000***	.546	.900
Intrusion	.92	.93	.94	.000***	.797	.974
Hyperarousal	.86	.87	.93	.000***	.860	.969
Total	.93	.96	.95	.000***	.867	.976

*$p < .05$, **$p < .01$, *** $p < .001$; α = Cronbach´s Alpha Coefficient; ICC = Intraclass Correlation Coefficient

The internal consistency was analyzed by means of Cronbach's alpha coefficient (Table 2). As shown in Table 2, IES-ID between in our participants exhibits good homogeneity in the dimensions assessed, with values of 0.76 in avoidance, 0.85 in intrusion, 0.86 in hyperarousal and a global consistency of 0.91 (Cronbach, 1951). Similar results were reported in Hall et al. (2014), and German version (Brüseke et al., 2020).

2.2. Test-retest reliability.

Test-retest Interclass Correlation Coefficient (ICC; Table 3): this analysis also yields an excellent level of agreement in the total of scale (test, α = .93; retest, α = .99), and the dimensions of intrusion and hyperarousal. In avoidance dimension, the level of agreement was good.

2.3. Inter-rater reliability.

Table 4. Inter-rater reliability. Intraclass Correlation Coefficient.

	α				95% Confidence interval	
	Rater 1	Rater 2	ICC	*P*	Lower	Upper
Avoidance	.82	.86	.72	.001**	.393	.867
Intrusion	.81	.87	.86	.000***	.734	.941
Hyperarousal	.86	.84	.73	.001**	.414	.871
Total	.93	.94	.83	.000***	.636	.920

*$p < .05$, **$p < .01$, *** $p < .001$; α = Cronbach´s Alpha Coefficient; ICC = Intraclass Correlation Coefficient

Table 5. Pearson's correlation: test-retest and inter-rater.

	Test-retest		Inter-rater	
Dimensions	*r*	*p*	*r*	*p*
Avoidance	.662	.000***	.554	.002**
Intrusion	.908	.000***	.779	.000***
Hyperarousal	.883	.000***	.564	.001**
Total	.922	.000***	.703	.000***

*$p < .05$, **$p < .01$, *** $p < .001$; r = Pearson´s correlation coefficient

Inter-rater Interclass Correlation Coefficient (Table 4): this analysis yields excellent level of agreement in the total of scale (rater 1, α = .93; rater 2, α = .94), and intrusion dimension. Yet, in avoidance and hyperarousal dimensions, the level of agreement was a bit lower but still acceptable.

2.4. Reliability. Pearson's Correlation.

In addition, Pearson's correlation analysis was carried out for the test-retest and inter-rater data. The correlations turn out to be significant in all dimensions and in the total scale with respect to the test-retest. In the inter-rater scores, the correlation levels were lower though always significant (Table 5). Again, reliability of the results were all significant and with high correlations.

Table 6. Independent sample t test. IES-ID total score and psychiatry evaluation.

						95% Confidence Interval	
	Psychiatrist PTSD	n	M (SD)	*t*	*p*	*lower*	*Upper*
IES-ID Total	No	78	19.90 (13.903)	−4.766	.000***	−19.35	−7.99
	Yes	42	33.57 (16.844)				

*$p < .05$, **$p < .01$, *** $p < .001$; *t* = independent samples t test

Table 7. Load´s matrix and variance explained by each factor.

	Factor I	Factor II	Factor III
I *Hyperarousal*			
Item 20. Nightmares	.742		
Item 21. Extra careful	.725		
Item 3. Jumpy/easily scared	.678		
Item 19. Physiological symptoms	.666		
Item 2. Angry	.655		
Item 8. To keep away	.633		
Item 1. Trouble getting to sleep	.599		
Item 22. Trouble staying asleep	.571		
Item 15. Try not to get upset	.563		
Item 18. Difficulty to concentrate	.544		
Item 6. Remember unintentionally	.443		
II *Avoidance*			
Item 5. Try not to get upset		.733	
Item 17. Try to forget		.711	
Item 4. Don´t want to talk about event		.689	
Item 11. Try not to think and talk		.543	
Item 12. Scared without asking for help		.534	
Item 13. Difficulty feeling emotions		.401	
III *Intrusion*			
Item 10. Things you remember			.736
Item 9. Involuntary pictures			.556
Item 16. Feelings are too much			.555
Item 14. Feel like it was happening again			.522
Item 7. Felt it hadn´t really happened			.500
Percentage of variance explained	24.32	14.59	12.45

KMO = .878, $p = .000$ Extraction method: analysis of principal components. Rotation method: Varimax with Kaiser Normalization. Rotation has converged into 8 iterations.

3. Validity.

3.1. Criterion Validity.

Criterion validity was assessed by analyzing independent sample t test and mean differences in IES-ID in relation to the presence/absence of PTSD diagnosis assessed by an expert psychiatrist in ID. Significant differences were found ($p < .001$) between the two independent groups (with PTSD or NO PTSD according to the expert psychiatrist diagnosis); with significantly higher IES- ID scores on the PTSD group (Table 6).

3.2. Construct Validity.

3.2.1. Construct validity was assessed through Exploratory Factor Analysis. Extraction method: principal components analysis. Rotation method was Varimax with Kaiser Normalization. Rotation has converged into 8 iterations. (Table 7) finding three well defined factors (KMO = .878; Bartlett's sphericity test: $X^2 = 1162$; degrees of freedom = 231; $p = .000$) consistent with the three domains of hyperarousal, avoidance and intrusion. These factors, which explained 51,36% of the scale's variance, show a simple structure, with almost each item adequately loading in a single factor, ranging between 0.742 and 0.401 (Hair et al., 1999). The original instrument's structure according to the three dimensions was supported by the Principal Components Analysis: hyperarousal (related about psychosomatic symptoms), avoidance (related about behavior area) and intrusion (related about cognitive area). Some items loaded in different dimension, item 20 "*Have you had bad dreams or nightmares about ____?*" (.742), item 22 "*Have you had trouble staying asleep?*" (.571), item 15 *"Have you felt upset or scared when something reminds you of ___?"* (.563) and item 6 *"have you remembered ___ when you didn´t mean to?"* (.443) loaded in hyperarousal instead of intrusion. Item 7 "*Have you felt that ____ hadn't really happened?*" (.500) loaded in intrusion instead of avoidance, and item 8 *"Have you tried to keep away from places or people that make you remember ___?"* (.633) loaded in hyperarousal instead of avoidance.

3.2.2. Confirmatory Factor Analysis was performance also to analysed construct validity (Table 8 and Figures 1–3). The fit of the model is assessed with Chi-Square (χ2) which decreases in the re-specification of the model and achieving in model 3 a p-value that discards significant differences with respect

Table 8. Goodness-of-fit indices for the proposed structural equation model IES.

	Absolute fit indices [a]				Incremental adjustment indices [b]			Parsimony adjustment indices [c]			
Model	χ^2	*df*	*p*	RMSEA	CFI	TLI	NFI	PRATIO	PCFI	PNFI	AIC
1	343.447	206	.000	.075	.865	.848	.725	.892	.771	.646	481.447
2	189.755	160	.054	.040	.969	.963	.834	.842	.816	.703	329.755
3	146.281	153	.637	.000	1.000	1.009	.872	.805	.805	.702	300.281
Adjustment criteria	minor	minor	>.05	<.06	>.95	≥.90	≥.90	1	1	1	1

Estimation maximum-likelihood with varimax rotation. N = 120 [a] χ^2 = Chi-Square; *df* = degrees of freedom; RMSA = Root Mean Square Error of Approximation. [b] CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; NFI = Normed Fit Index. [c] PRATIO = Parsimony ratio; PCFI = Parsimony fit to CFI; PNFI = Parsimonious normed-fit index; AIC = Akaike Information Criterion.

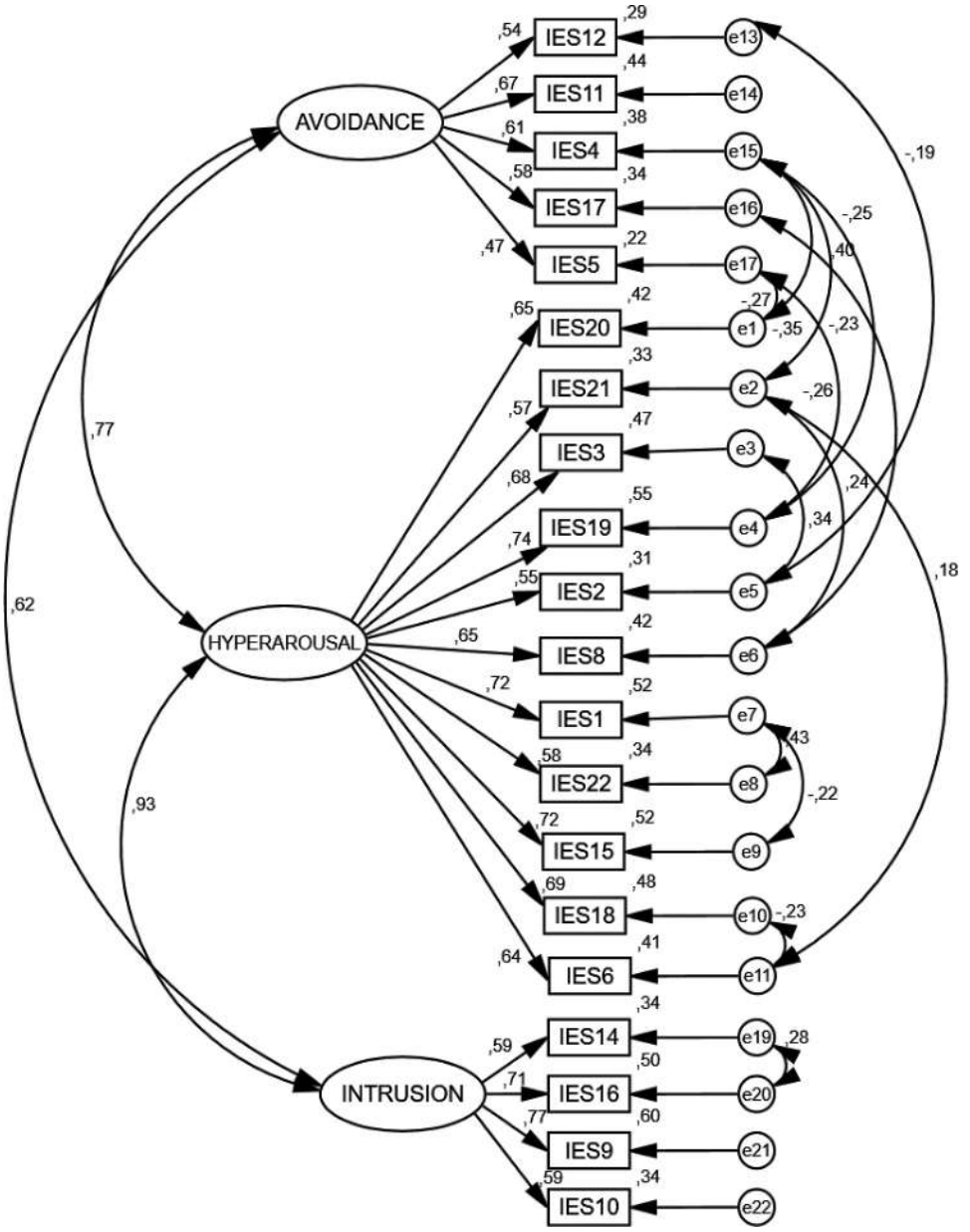

Figure 1. Confirmatory factor analysis. Model 1.

to the data matrix and the proposed model. The overall evaluation of the model has been carried out using goodness-of-fit indicators such as the "Comparative Fit Index" (CFI) and the "Tucker-Lewis Index" (TLI) are widely used and compare the existing model with a null model. The results indicate a good fit of the model 3 (Figure 3; Hooper et al., 2008; Hu & Bentler, 1999; Ortiz & Fernández-Pera, 2018). Furthermore, a good fit is achieved for

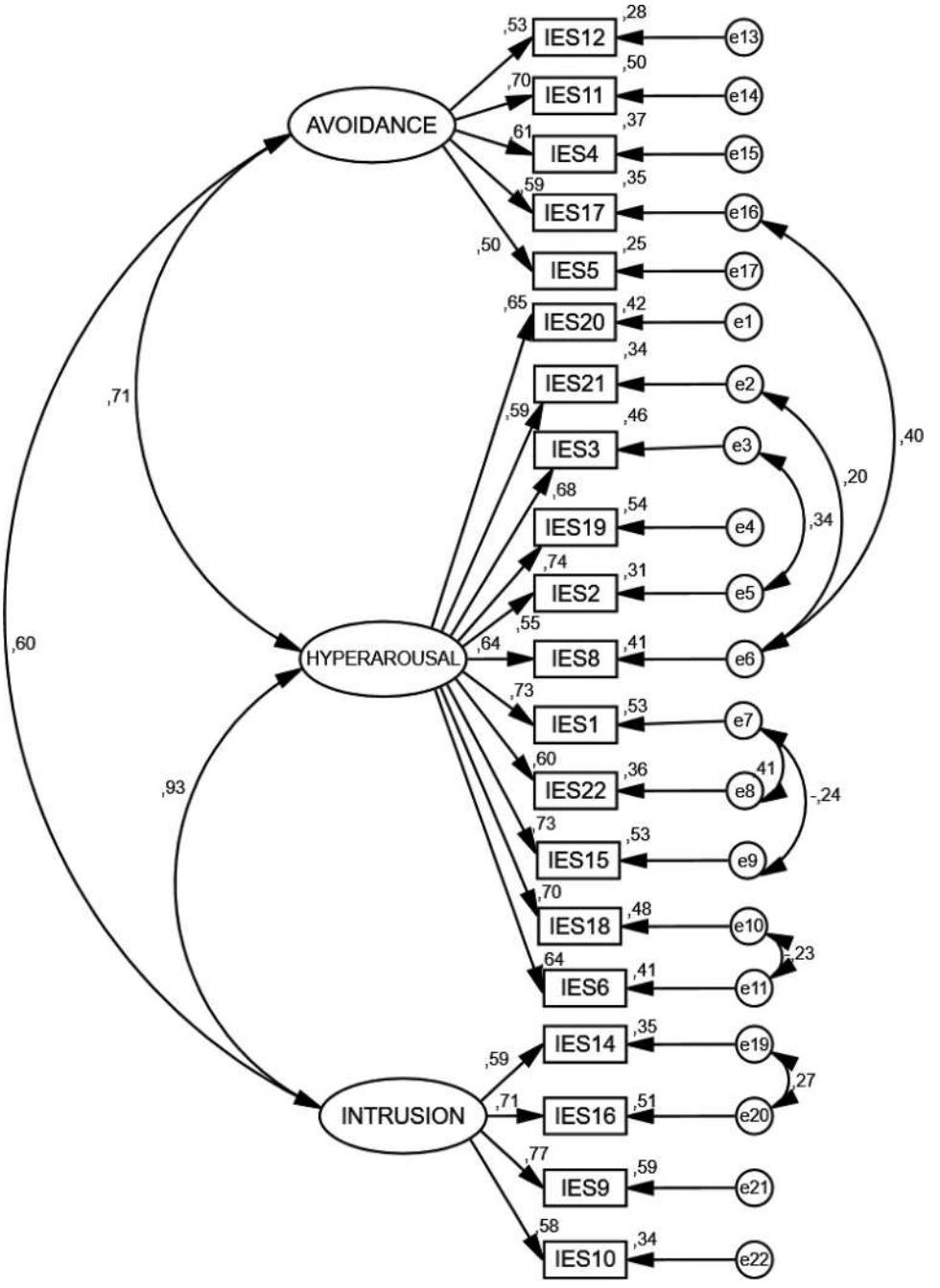

Figure 2. Confirmatory factor analysis. Model 2.

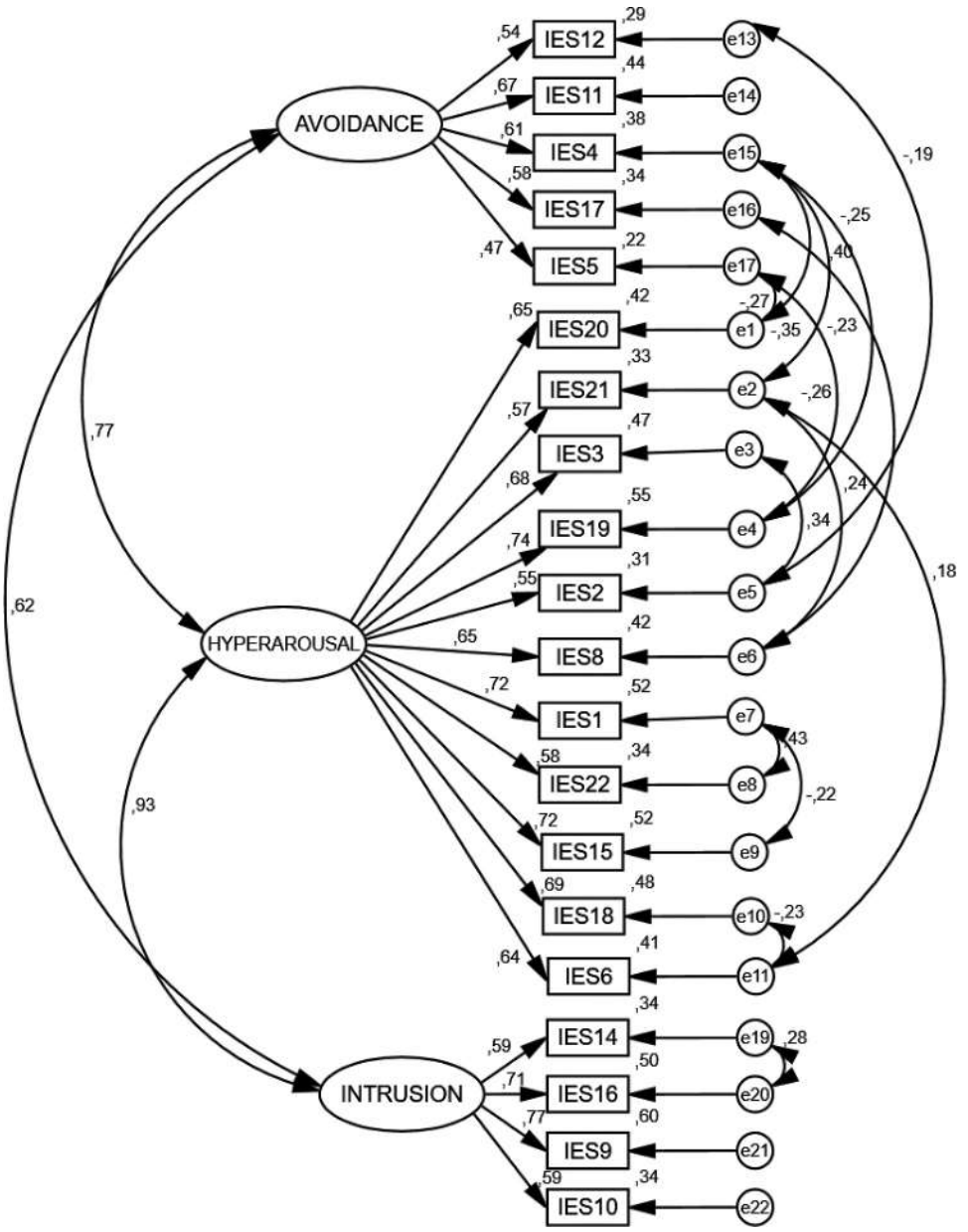

Figure 3. Confirmatory factor analysis. Model 3.

residual values close to zero, as indicated by the results of the "Root Mean Square Error of Approximation" (RMSEA) which represents a percentage of the variance not explained by the model 3 totally null (Fan & Sivo, 2007).

In model 3 (Figure 3) represented in the Table 8 it is possible to identify the strongest effect of intrusive thoughts (Intrusion) on hyperarousal (Hyperarousal) ($ß$ = .93; p < .000). The latter dimension (hyperarousal) is mainly caused by physiological symptoms (assessed at item 19) ($ß$ = .74;

Table 9. Feasibility and applicability (n = 11).

	IES-ID
Feasibility and Applicability	M (SD)
Average time application	18.27 (8.41)
Are the questions on the instrument necessary?	2.55 (0.52)
Are the questions on the instrument sufficient?	2.45 (0.82)
Are the questions well phrased and understood easily?	2.27 (0.65)
Could you respond quickly?	2.18 (0.75)

Note 6. 0 =not at all; 1 =a little; 2 =quite a bit; 3 =a lot.

$p < .000$), sleeping problems (assessed at item 1) and trying not to get angry (assessed at item 15) ($ß = .72$; $p < .000$). Furthermore, involuntary flashbacks of the traumatic event (item 9) are the major cause of intrusive thoughts ($ß = .77$; $p < .000$). The major cause of the avoidance symptom is trying not to think or talk about the traumatic event (assessed at item 11) ($ß = .67$; $p < .000$). Two items were removed, item 7 (Have you felt that ___ hadn't really happened?) and item 13 (Have you found it difficult to have strong feelings?).

4. Feasibility and applicability

Eleven mental health professionals specialized in ID were asked about the scale. According to Martínez et al. (2000), if respondents gave positive scores on the feasibility questions above 70%, the scale could be considered optimal. In our survey, 89% of the professionals surveyed judged the scale as optimal (48% = 3, a lot; 41% = 2, quite a bit; 11% = 1, a little; 0% = 0, not at all). On the other hand, a descriptive analysis (menas and standard deviations) was performed and the mean time taken by respondents to apply the scale was calculated (18.27; Table 9). In summary, the domains and questions of the IES-ID were evaluated as necessary, sufficient and appropriate for data collection and easily used by the interviewers.

Discussion

The present study seems to report adequate psychometric properties of the Spanish version of the Impact of Event Scale for people with ID (IES-ID) (n = 120, adults with borderline to moderate ID without psychotic disorder). It shows good internal consistency (Total $\alpha = .91$, Avoidance $\alpha = .76$, Intrusion $\alpha = .86$, Hyperarousal $\alpha = .85$) being similar to the properties of the original scale study (Hall et al., 2014; Total $\alpha = .91$) and the German validation study (Total $\alpha = .68$; Brüseke et al., 2020).

Regarding reliability, the level of agreement was high. In general, there was a greater level of agreement between the observations of the same evaluator (test-retest, over two weeks) than between the observations made by different evaluator (inter-rater, over two weeks), though both seemed adequate. This may be due to the complexity of some questions which have more abstract nature, therefore

requiring an explanation for their proper understanding. For example, in the question *"Have you found it difficult to have strong feelings?,"* it was important to offer the explanation of *"For example, difficulty crying or being very happy"*; or in the question *"Are there times when the feelings about what happened are too much for you?,"* included the explanation of *"For example, times when you have cried so much/ or been so scared you don´t think you can cope with them on your own"*; or in the question, *"Have you had feelings in your body when you think about _____?"* included the explanation of *"For example, sweating, trouble breathing, feeling sick, and heart beating faster."* These explanations, which are already included in the original IES-ID (Hall et al., 2014), could somehow misinterpret the questions and provide different answers from the participants.

Criterion validity was performanced by comparing the means between the psychiatrist's assessment of the sample participants and the results obtained by the IES-ID. The results show the efficacy of the IES-ID in assessing PTSD symptoms in adults with ID, although it is important to highlight the changes produced in the DSM-5 (APA, 2013), which includes four dimensions (intrusion, avoidance of trauma-related cues, negative alterations in cognitions and mood, and trauma-related arousal and reactivity), and IES-ID scale considers three dimensions (avoidance, intrusion and hyperarousal).

Construct validity was assessed through exploratory factor analysis (extraction method; principal components analysis) with Varimax rotation and confirmatory factor analysis.

At exploratory factor analysis, three factors were found, explaining around 51% of the scale´s variance. There is a higher load of items in the hyperarousal dimension. Loading some items in different dimensions than in the original scale (Hall et al., 2014). Item 20, "*Have you had bad dreams or nightmares about _____?,"* item 22 "*Have you had trouble staying asleep?,"* item 15 *"Have you felt upset or scared when something reminds you of ___?"* and item 6 *"have you remembered ___ when you didn´t mean to?"* fall in the hyperarousal factor instead of falling in the intrusion factor. Although in the diagnostic criteria of the DSM-5 (APA, 2013), the item 22, and item 15 are within criterion E, related to hyperarousal symptoms and therefore more aligned with our findings. With regard to items 20 and 6, both seem to have an involuntariness factor, which may be explained by the fact that, with both nightmares and unintentional memories, people with ID may experience these symptoms from bodily sensations rather than cognitive or thought states (Rittmannsberger et al., 2019). About item 8 *"Have you tried to keep away from places or people that make you remember ___?"* falls in the hyperarousal factor instead of falling in the avoidance factor. Sometimes people with ID cannot adequately communicate their desire to avoid activities, places or people that trigger memories or trauma (Borghus et al., 2018), so they may experience this symptom more from the hyperarousal caused by the impossibility of such avoidance. Concerning item 7, "*Have you felt that ___ hadn't really*

happened?" falls in intrusion, and not in avoidance. This may be because depersonalization is a more abstract phenomenon and in people with ID is more difficult to understand or even to be present in this population (Fletcher et al., 2016).

At Confirmatory Factor Analysis, good indices were found in model 3. The fit to the model seems very good and it can be concluded that there is a statistically significant effect of the covariation of the three dimensions on the impact index of post-traumatic stress symptoms caused in our sample of people with intellectual disabilities. In the version of IES-ID scale validated for the Spanish population, the two items with the lowest loadings were eliminated, both items having a high level of abstraction (item 7: *"Have you felt that ___ hadn't really happened?"* and item 13: *"Have you found it difficult to have strong feelings?"*) as mentioned in previous paragraphs.

In terms of its feasibility and applicability due to the simplicity of the scale and the explanatory examples provided in the items, the IES-ID can be used by both mental health professionals and professionals working in the field of intellectual disability for referral to specialists.

As for its clinical implications, this study provides a specific tool to assess the symptomatology of post-traumatic stress disorder in people with ID in the Spanish population. Therefore, by having an adequate diagnosis of post-traumatic stress disorder, a more specialized treatment can be offered.

Limitations

All the participants were recruited from the same center, so this could be a problem in terms of generalization. On the other hand, IES-ID was validated por los autores originales (Hall et al., 2014) with a sample with people with mild intellectual disabilities. Our study included in the sample people with moderate intellectual disabilities, but not with severe or profound intellectual disabilities due to the minimum linguistic and understanding level that required the scale. It would be worth developing a version for people with severe and profound intellectual disabilities. In terms of limitations of the scale, some questions on the scale have an abstract nature, being difficult for people with ID to understand properly, which required an explanation by the evaluator, for example, item 7, "*Have you felt that ___ hadn't really happened?*" and item 14, "*Have you felt like ____ was happening again?*."

One of the major limitations of the IES-ID is that it was developed according to the DSM-IV diagnostic criteria, being nowadays DSM-5 the reference manual for mental health diagnosis, with changes between both manuals regarding PTSD criteria. It is important to take into account the modifications made in the DSM-5 regarding the PTSD, since the Event Impact Scale for people with intellectual disabilities (IES-ID) is based mainly on the DSM-IV criteria. For example, possible dissociative reactions as well as persistent negative alterations

Table 10. Escala de impacto del evento revisada para personas con discapacidad intelectual (IES-DI).

(1)	¿Has tenido problemas para dormir? (Por ejemplo, permanecer despierto durante mucho tiempo cuando estas intentando dormir)
(2)	¿Te has enfadado? (Por ejemplo, ¿has querido romper o destruir cosas?)
(3)	¿Te has puesto nervioso o te has asustado fácilmente? (Por ejemplo, cuando alguien camina detrás de ti)
(4)	¿No has querido hablar de _____? (Por ejemplo, cuando las personas te hacen preguntas sobre el evento, has intentado no responder)
(5)	¿Intentas estar contento y no pensar en lo que está pasando? (por ejemplo, ¿has intentado no llorar cuando te has acordado de _____?)
(6)	¿Piensas todo el rato en lo que paso, aunque no quieras? (Por ejemplo, ¿has tenido pensamientos de _____ cuando estabas haciendo otra cosa?)
(7)	¿A veces sientes que no ha sido real? (Por ejemplo, como si lo hubieras soñado)
(8)	¿Has tratado de mantenerte alejado de lugares o personas que te hacen recordar _____?
(9)	¿Te vienen imágenes a tu cabeza sobre _____ aunque tú no quieras? (Por ejemplo, mientras que estás haciendo otra cosa te vienen imágenes de lo que te paso)
(10)	¿Hay cosas que siguen recordándote _____? (Por ejemplo, ¿hay cosas que al verlas o escucharlas te hacen recordar _____?
(11)	¿Has intentado no hablar o pensar sobre_____?
(12)	¿Te has sentido mal o asustado por _____ pero no has pedido ayuda?
(13)	¿Te ha resultado difícil expresar sentimientos fuertes? (Por ejemplo, dificultad para llorar o sentirte contento)
(14)	¿Has sentido que _____ estaba pasando otra vez?
(15)	¿Te has sentido molesto o asustado cuando algo te recuerda a _____?
(16)	¿Hay momentos en que los sentimientos sobre lo que sucedió son demasiado para ti o te sobrepasan? (Por ejemplo, cuando has llorado tanto/o has estado tan asustado que piensas que no puedes manejar la situación por tu cuenta)
(17)	¿Has intentado olvidar lo que pasó u olvidarte de _____? (Por ejemplo, ¿has pensado que quieres que se te olvide?)
(18)	¿Has tenido dificultad en prestar atención o concentrarte? (Por ejemplo, ¿te ha costado ver un programa de televisión entero?)
(19)	¿Has tenido sensaciones en tu cuerpo cuando piensas en _____? (Por ejemplo, sudoración, dificultad para respirar, sensación de estar enfermo, de que el corazón late más rápido)
(20)	¿Has tenido malos sueños o pesadillas sobre _____?
(21)	¿Estás siendo muy cuidadoso? (Por ejemplo, comprobando para ver quién está alrededor de usted)
(22)	¿Ha tenido problemas para quedarte dormido? (Por ejemplo, ¿te has despertado mucho durante la noche?)

in cognition and mood are not fully evaluated. Therefore, it would be necessary to be very careful with the use of the tool, being important to combine it for diagnostic use with the DSM-5 PTSD criteria.

Another limitation is that IES-ID does not collect information about symptoms related to behavioral equivalents, although it is true that avoidance is one of the coping strategies of people with ID (Medina Gómez & Gil Ibáñez, 2017), and can appear as challenging behaviors. Finally, the IES-ID lacks a positive cutoff point, which is not very useful for accurate diagnosis, although it could be useful for a first screening of PTSD symptomatology.

Conclusions

In conclusion, in terms of reliability, validity and feasibility, the Spanish version of the Event Impact Scale for people with intellectual disabilities, IES-ID (Table 10) shows adequate psychometric properties for the measurement of PTSD severity. Due to the high rate of mental illness among people with ID,

and their high vulnerability to suffer maltreatment and abuse, this scale seems an adequate tool for PTSD evaluation.

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Ethical approval

The A LA PAR Foundation's Ethical Committee approved the study. Only participants who consented to take part in the study were interviewed.

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