



Measuring Shame in Adolescents: Validation Studies of the External and Internal Shame Scale in a Community Sample

Marina Cunha^{1,2} · Patrícia Silva¹ · Cláudia Ferreira² · Ana Galhardo^{1,2}

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Abstract

Background Shame, as a self-conscious, complex, and universal emotion, plays an important role in mental health. In adolescents, given their greater vulnerability to the development of psychological difficulties, the assessment of shame, in its various dimensions, is especially relevant.

Objective To adapt and validate the External and Internal Shame Scale for adolescents (EISS-A). Specifically, the EISS-A factor structure, reliability, and validity were analysed.

Methods The studies were conducted in two Portuguese independent samples aged 12 to 18 years old ($N=497$; 58.2% female). Participants voluntarily completed a set of self-report questionnaires in the classroom. Forty-one adolescents completed the EISS-A 4-weeks after the first administration.

Results The second-order confirmatory factor analysis confirmed the EISS-A model of two related factors (external and internal shame). This model was replicated in a second independent sample. The EISS-A showed measure invariance across sex. It revealed adequate internal consistency ($\alpha = .85$), test-retest reliability ($r = .81$), and concurrent validity with different measures of positive and negative affect. Girls showed higher shame (internal and external) scores. Age and education showed a weak positive association with shame. The EISS-A presented significant positive correlations with indicators of psychopathology (symptoms of anxiety and depression), with self-criticism and external shame (assessed by another instrument). Inversely, it showed negative associations with self-reassurance and with favourable social comparison.

Conclusions The EISS-A is a short, reliable, and useful measure for research, educational and clinical contexts with school-aged adolescents. Measuring shame may contribute to a broader understanding of its role during the most formative years of an individual's life.

Keywords Shame assessment · External shame · Internal shame · Adolescence · Confirmatory factor analysis · Psychometric properties

✉ Marina Cunha
marina_cunha@ismt.pt

Extended author information available on the last page of the article

Introduction

Adolescence is a developmental stage that encompasses several age-related challenges and potentialities, which may contribute to a significant increase in the prevalence of adjustment difficulties and mental health problems. More than 50% of psychological problems tend to emerge in adolescence (Kessler et al. 2005; World Health Organization 2018). This is a critical period that involves the frontal cortex maturation that is particularly relevant for emotion regulation skills acquisition (Steinberg 2010). Indeed, this developmental stage is characterised by affect and behavioural regulation difficulties and high emotionality (e.g., Costello et al. 2011; World Health Organization 2018). Adolescents' negative heightened emotionality is associated with several maladaptive emotion processes, such as unfavourable social comparison and self-criticism, leading to shame feelings (Gilbert and Irons 2009). Thus, early assessment and research on shame in this developmental stage may assume particular relevance.

Shame is a self-conscious emotion, multifaceted and socially focused, resulting from the interaction between biological, individual, and contextual factors (Gilbert 1998, 2002; Tangney and Tracy 2012). Shame involves a set of feelings such as loneliness, isolation, inferiority, and devaluation (Gilbert 1998, 2007; Gilbert and Irons 2009; Kaufman 1989; Tangney and Dearing 2002). It includes social discomfort, embarrassment, and humiliation that signal threat regarding social bonds (Scheff 2003; Retzinger 1991). Although shame presents a negative valence, it is important to highlight that shame has an adaptive function, allowing for compliance with moral and social rules and simplifying social interactions and intimate relationships (Muris et al. 2018; Tangney and Tracy 2012). Despite shame being a common experience in humans, high levels of this self-conscious emotion may trigger feelings of inadequacy and self-punishment or defensive strategies (submissive or aggressive). These maladaptive strategies increase the vulnerability to the development of emotional problems, both internalising (e.g., Kim et al. 2011; Muris and Meesters 2014; Muris et al. 2018) and externalising (Muris et al. 2016; van Tijen et al. 2004). Previous studies have shown a positive relationship between shame and psychopathology [e.g., social anxiety (Arditte et al. 2016), eating behaviours (Duarte et al. 2015; Levinson et al. 2016) and other (non-social) anxiety symptoms (Muris et al. 2015; Shahar et al. 2015)].

Shame experiences tend to emerge early in life, within the context of intimate and familiar relationships and involve a primary threat to the (social) self (Gilbert 1998, 2003). These experiences can integrate interpersonal schema that guides expectations of how others will see and respond to the self and form the basis for self-esteem assessments and experiences (Baldwin 1997; Baldwin and Holmes 1987). Early childhood experiences of shame feelings and negative evaluations may become more intense in adolescence due to the focus on competition and social comparison, as well as on key themes (identity, feelings, sexuality, and physical changes), that arise in social groups (Gilbert and Irons 2009; Reimer 1996). Developing relationships with peers, fitting in and being attractive to others is crucial, leading to shame feelings, fear of rejection and unwanted social ranking positions (Gilbert 2007; Gilbert and Irons 2009).

In these competitive contexts, when the comparison with others is unfavourable, it is possible that feelings of disappointment and/or frustration with oneself, become a source of shame and self-criticism (Irons and Gilbert 2005). Thus, according to Baumeister et al. (1989), people presenting low self-esteem tend to choose to self-protect and minimise the exposure of their flaws to avoid shame feelings, whereas people with high self-esteem tend to show a favourable comparison with others, emphasising their talents and skills. In fact,

shame can be seen as a sign that the individual could not generate positive feelings in others, being related to the formation of a negative self-image (Tracy and Robins 2004). This perception of oneself, which determines human behaviour in social contexts, can influence one's relationship with oneself and others, consequently affecting identity development, and the feeling of acceptance and social desirability (Pinto-Gouveia and Matos 2010).

According to the biopsychosocial and evolutionary model (Gilbert 2003, 2009), it is possible to distinguish between two types of shame: external and internal shame. In external shame, the focus is on the individual's perception of how others judge him/her, believing that they will reject or attack him/her. External shame relates to the way one believes existing in the mind of others as unworthy, undesirable, inferior, defective and unattractive (Allan et al. 1994; Gilbert 1998, 2003; Kaufman 1989; Lewis 1992; Tangney and Dearing 2002; Tangney and Fischer 1995). On the other hand, internal shame is focused inwardly, involving negative self-evaluations of the self as inadequate, inferior, undesirable, empty, or isolated (Gilbert 2003). In internal shame, there is a focus in the self's flaws and imperfections by evaluating one's attributes, emotions, and behaviour, in a negative way (Gilbert 2002; Lewis 2000). Although these two concepts are strongly associated, it is possible for an individual to feel external shame (consider that he/she exists in the mind of others as flawed and a rejectable social agent) and not to feel internal shame (Crocker and Major 1989; Gilbert 1998). Contrarily, internal shame involves identification with others' negative evaluations. Therefore, for someone who feels internal shame the likelihood of feeling external shame is high (Goss et al. 1994).

Within this theoretical framework, several self-report instruments have been developed to assess external shame (OAS; Goss et al. 1994; brief Portuguese version for adolescents OASB-A; Cunha et al. 2017a) and internal shame (ISS; Cook 1994/2001; Portuguese version for teenagers ISS-A; Januário and Salvador 2011). These two instruments have been widely used and have shown a strong positive association between external shame and internal shame, suggesting an interdependence. More recently, Ferreira et al. (2020) developed a self-report instrument that simultaneously assesses these two types of shame (external and internal) as well as a global sense of shame, the External and Internal Shame Scale (EISS). The EISS addresses four central domains of the shame experience: (1) Inferiority/inadequacy (e.g., "I feel that others see me as not being up to their standards"); (2) Sense of isolation/exclusion (e.g., "I feel that other people don't understand me"); (3) Uselessness/emptiness (e.g., "I feel that I am unworthy as a person"); (4) Criticism/judgment (e.g., "I feel that I am judgmental and critical of myself"). Higher scores reveal higher shame levels. The EISS showed good internal consistency with a Cronbach alpha of 0.89 for the total scale and Cronbach alphas of 0.80 and 0.82 for the external and internal shame subscales, respectively (Ferreira et al. 2020).

Considering the importance of shame feelings in adolescence, not only due to their frequency in this developmental stage but also due to its negative impact and acknowledging the lack of measures to assess this construct within this population, such a measure's availability is pertinent. In fact, a brief self-report instrument assessing simultaneously external and internal shame, as well as a global sense of shame, was not available until recently (EISS; Ferreira et al. 2020). An adolescents' version of the EISS would allow addressing the different role of external and internal shame in the development and maintenance of psychopathology in this age group, also providing support for the biopsychosocial model of shame (Gilbert 2007).

The current study sought to adapt and validate the EISS (Ferreira et al. 2020) for adolescents, the EISS-A. The aims were to confirm and cross-validate the factor structure with two independent samples of adolescents and evaluate its invariance across sex.

Psychometric characteristics, such as reliability, temporal stability and the scale psychometric characteristics according to sex, age and years of education were analysed. Finally, associations between shame and other variables of positive and negative affect were also investigated.

Method

Participants

The current study included distinct convenience samples collected from public schools in the centre region of Portugal. Sample 1 consisted of 297 adolescents, 152 females and 145 males, aged between 12 and 19 years old ($M=14.85$; $SD=2.04$), from the 9th to the 12th (years of education $M=9.38$, $SD=1.71$). There were no differences between boys and girls concerning age ($p=0.820$) and years of education ($p=0.983$). Sample 1 was used to examine the scale's factor structure, its psychometric properties, and the association with other constructs. For test–retest purposes, 41 participants, including 20 girls and 21 boys, were randomly selected from this sample to complete a second administration of the EISS-A with 4-weeks interval.

Sample 2 was collected 3-months later in secondary schools and was used to confirm the scale structure. It included 200 adolescents (137 girls) aged 12 to 19 years old ($M=15.46$; $SD=1.79$), presenting a mean of 9.70 ($SD=1.43$) years of education.

Instruments

The research protocol comprised a set of self-report instruments validated for the adolescent population:

External and Internal Shame Scale for Adolescents (EISS-A). This self-report scale was developed based on the original EISS (Ferreira et al. 2020). Approval from the authors of the original adult version of the EISS to conduct this adaptation was obtained. This measure consists of eight items that assess external shame (e.g., “Other people see me as not being up to their standards”) and internal shame (e.g., “I am different and inferior to others”). The items are answered according to a 5-point scale (0=“never” and 4=“always”). The EISS allows the assessment of both external shame (ES) and internal shame (IS) as well as a global sense of shame. The higher the score, the greater the global sense of shame.

Forms of Self-Criticism and Self-Reassurance (FSCSR; Gilbert et al. 2004; Portuguese version by Silva and Salvador 2010). The FSCSR is a 22-items instrument that assesses the way people self-criticise, self-attack, or self-reassure in situations of failure or setback. Participants were asked to answer the 22 items, selecting on a 5-point scale how they typically think and react (0=“Not at all like me” to 4=“Extremely like me”). The items are organised in 3 subscales: “inadequate-self” (e.g., “I am easily disappointed with myself”), which assesses how the subject behaves and feels in situations of failure, difficulty, or error; “reassured self” (e.g., “I forgive myself easily”), which measures the ability of the self to reassure, comfort and have compassion for itself; and, finally, the “hated-self” that assesses self-loathing or hatred and self-destructive behaviour in situations of failure or error (e.g., “I think I deserve to criticise myself”). Higher scores reveal higher levels of self-criticism and self-reassurance. In the Portuguese version for adolescents, the internal consistency proved

to be excellent for the inadequate-self ($\alpha=0.90$), good for the self-reassure ($\alpha=0.86$) and reasonable for the hated-self ($\alpha=0.75$) (Silva and Salvador 2010). Moreover, this instrument presented good test–retest reliability ($r=0.89$ for the inadequate-self; $r=0.62$ for the hated-self; $r=0.66$ for the self-reassure). Validity results revealed that the inadequate-self and the hated-self are positively correlated with depression ($r=0.69$; $r=0.55$, respectively) and anxiety ($r=0.59$; $r=0.38$, respectively) and negatively correlated with social comparison ($r=-0.30$; $r=-0.25$, respectively). The self-reassure showed to be positively correlated with social comparison ($r=0.12$) (Silva and Salvador 2010). In the current study, similar results were found, with the scale presenting an excellent internal consistency for the inadequate-self ($\alpha=0.90$), good for the self-reassure ($\alpha=0.86$), and reasonable for the hated-self ($\alpha=0.70$). In this study, the self-criticism dimension was used as a measure of the process of internal shame and resulting from the sum of the subscales inadequate-self and hated-self (SC-FSCRS; Halamová et al. 2018), and presented an excellent internal consistency ($\alpha=0.91$).

Depression, Anxiety, and Stress Scales—21 (DASS-21; Lovibond and Lovibond 1995; Portuguese version by Pais-Ribeiro et al. 2004). The DASS-21 assess three dimensions of psychopathological symptoms: anxiety (7items), depression (7items), and stress (7items). The 21 items are answered on a 4-point scale (0=“did not apply to me at all” to 3=“applied to me very much, or most of the time”). In the Portuguese version’s validation study, the authors found a Cronbach’s alpha of 0.85 for the depression subscale, 0.74 for anxiety, and 0.81 for stress (Pais-Ribeiro et al. 2004). Previous studies conducted in adolescents’ samples (12–18 years old) showed that the DASS-21 proved to be a reliable measure, with Cronbach alpha values ranging from 0.87 to 0.90 for the depression subscale, from 0.79 to 0.88 for the anxiety subscale and from 0.84 to 0.90 for the stress subscale (Cunha et al. 2012; Carvalho et al. 2015). Test–retest reliability showed the following results: $r=0.85$ for the depression subscale, $r=0.50$ for the anxiety subscale, and $r=0.65$ for the stress subscale (Cunha et al. 2012). Validity results showed that the DASS-21 was positively correlated with depression, as measured by the Center for Epidemiological Studies Depression Scale for Children ($r=0.77$, $r=0.74$, $r=0.71$, for the depression, anxiety and stress subscales, respectively), as well as with the Children’s Depression Inventory ($r=0.71$, $r=0.67$, $r=0.64$, for the depression, anxiety and stress subscales, respectively). The DASS-21 subscales revealed to be negatively correlated with the Students’ Life Satisfaction ($r=-0.55$, $r=-0.50$, $r=-0.43$, for the depression, anxiety and stress subscales, respectively) (Carvalho et al. 2015). In our sample, Cronbach alpha values were 0.85, 0.79, and 0.84, for depression, anxiety, and stress subscales, respectively.

Other as Shamer Scale Brief version for Adolescents (OASB-A; Cunha et al. 2017a). This brief version is an 8-items self-report measure that assesses external shame (the individual’s perception of how others see him, for example, “I feel other people see me as not quite good enough”). Items are rated on a 5-point scale (0=“Never” to 4 “Almost always”). Higher scores reveal high external shame. The Portuguese version for adolescents (12–18 years old) showed good reliability, with a Cronbach alpha of 0.92. Test–retest reliability also proved to be good ($r=0.73$). Convergent validity was assessed through correlation results of the OASB-2 with the Impact Event Scale—revised for Adolescents ($r=0.58$), the DAAS-21 depression subscale ($r=0.67$), the DAAS-21 anxiety subscale ($r=0.63$) and the DAAS-21 stress subscale ($r=0.60$) (Cunha et al. 2017a). In the present study, the OAS showed a Cronbach alpha of 0.91.

Social Comparison Scale (SCS; Allan and Gilbert 1995; Portuguese version by Gato and Pinto-Gouveia, unpublished manuscript). This self-report instrument assesses how individuals compare in their relationships with others. It has 11 bipolar constructs (e.g.,

unconfident/more confident; left out/accepted), which comprises two subscales: Rank and Social group fit (items related to adaptation and acceptance by a social group). Respondents express the way they perceive themselves, compared to peers. Higher scores indicate a more positive perception of oneself when compared to peers. In Portuguese adolescents (12–18 years old), SCS has shown to be a robust measure, with a Cronbach alpha value of 0.90 (Cunha and Santos 2011). SCS was negatively correlated with depression ($r = -0.61$), anxiety ($r = -0.43$), and cognitive fusion ($r = -0.28$). A positive correlation was found between the SCS with quality of life, measured by the KIDSCREEN ($r = 0.62$). In the current sample, a Cronbach alpha of 0.90 was found for the total score.

Procedure

After EISS' s authors consent, the EISS adults' version was adapted for adolescents. Conceptually, the scale items are the same in the adolescents' and adults' versions. Minimal changes in the wording of the scale instructions and the graphic presentation were made, taking into account the participants' age. A small pilot study was conducted ($N = 15$), aiming to analyse the items' comprehensibility. These 15 adolescents volunteered to give feedback on the instructions and items clarity. This procedure was conducted in a class with the class director and the presence of one of the study researchers. Participants reported no difficulties in understanding the EISS-A instructions and the item's content, suggesting that it is appropriate for use with adolescents.

The study protocol included a participants' informed consent, a cover page with a brief explanation of the study aims and procedures, a short sociodemographic questionnaire, and the Portuguese validated versions of the self-report instruments described above. Ethical approval was obtained from the Portuguese Ministry of Education (n° 0082000016).

Before the administration of the study protocol, authorisation was required from the headteacher of each school and the students' parents/legal guardians. In line with ethical requirements, it was emphasised that students' participation was voluntary and that their answers were confidential and used only for research purposes. Students filled in the self-report instruments in the classroom, for approximately 20 min.

To examine EISS-A test–retest reliability two classes were randomly selected to answer the EISS-A a second time after 4-weeks. At the first assessment, students were asked to provide a personal code to match the two surveys.

Data Analysis Strategy

The analyses were conducted using the Predictive Analytics Software (PASW, version 24, SPSS, Chicago, IL, USA) and the Analysis of Moment Structures (AMOS, version 22, Amos Development Corporation, Crawfordville, FL, USA).

The EISS-A structure adequacy was tested through confirmatory factor analysis (CFA), with Maximum Likelihood as the estimation method. Data were analysed for uni- and multivariate normality and all items presented skewness and kurtosis values pointing that there was no severe violation of a normal distribution ($Sk < |3|$ and $Ku < |10|$; Finney and DiStefano 2006; Kline 2005). The Mahalanobis distance (MD^2) was used to analyse the existence of outliers. The one higher-order factor with two lower-order factors (previously found for the EISS adults' version) was tested. The chi-square statistic and the following goodness-of-fit indices were selected to address the adequacy of the model: the Comparative Fit Index (CFI), the Goodness of Fit Index (GFI), the Tucker & Lewis Index (TLI), the

Root-Mean Square Error of Approximation (RMSEA) and the Standardised Root Mean Square Residual (SRMR). The CFI, the GFI, and the TLI are indicative of an adequate model fit to the data when values are between 0.90 and 0.95 (Hu and Bentler 1999). As for the RMSEA, values lower than 0.10 are considered acceptable, with a 95% confidence interval, and values between 0.05 and 0.08 in the SRMR suggest acceptable model fit (Hu and Bentler 1999; Kline 2005). All these steps were applied to both samples. Items' local adjustment was analysed through standardised regression weights and squared multiple correlations. Standardised regression weights higher than 0.40 and squared multiple correlations higher than 0.25 were considered adequate (Tabachnick and Fidell 2007).

A multi-group CFA was conducted to assess the measurement invariance across sex. The non-significant result of the χ^2 difference test and the change value of Comparative Fit Indices (Δ CFI) equal to or smaller than 0.01 indicates that the invariance tests claimed are supported (Byrne 2010).

Items' psychometric properties were examined by calculating each item mean, standard deviation, item-total correlations, and Cronbach alfa if item removed. The reliability of the EISS-A was examined by calculating the Cronbach alphas and Composite Reliability (CR; Peterson and Kim 2013) for the global score and each subscale. Good reliability is considered when Cronbach's alphas or CR are above .70 (Field 2013). The average variance extracted (AVE) was also computed to further determine construct reliability and convergent validity. A Composite Reliability Calculator was used (estimates CR based on standardised factor loadings and error variances) (Raykov 1997). AVE results were calculated manually through the computation of AVE formula (Fornell and Larcker 1981).

Student t-tests were computed to analyse sex differences, and effect sizes were examined through Cohen's *d*. Values between 0.20 and 0.49 are considered small, between 0.50 and 0.79 medium and above 0.80, large (Cohen 1988).

Associations between the EISS-A total score and subscales and other measures addressing the same construct and measures of related constructs were computed through Pearson correlations (zero-order correlations and partial correlations). According to Dancy and Reidy (2017), Pearson correlation coefficients between 0.10 and 0.39 are considered weak, between 0.40 and 0.69 moderate and above 0.70 strong.

The EISS-A incremental validity was tested through hierarchical regression analyses (Weems and Stickle 2012). The OASB-2 was entered in the first step and the EISS-A was entered in the second step as predictors of depression and anxiety symptoms (dependent variables).

Effects with $p < 0.050$ were considered statistically significant.

Results

EISS-A Confirmatory Factor Analysis

The one higher-order factor with two lower-order factors model (found for the EISS adults' version) was tested. Each item was specified to load on its respective lower order factor as suggested by the original authors of the scale. Sample 1 results ($N=297$) revealed a good fit to the data (CMIN/df=2.21, $\chi^2_{(19)}=41.89$, $p=0.002$; GFI=0.97; CFI=0.97; TLI=0.96; RMSEA=0.06 [0.04–0.09]; SRMR=0.04) (Fig. 1).

To further confirm the adequacy of the EISS-A factor structure, the one higher order factor model was tested in sample 2 ($N=200$). CFA results also revealed a good fit to

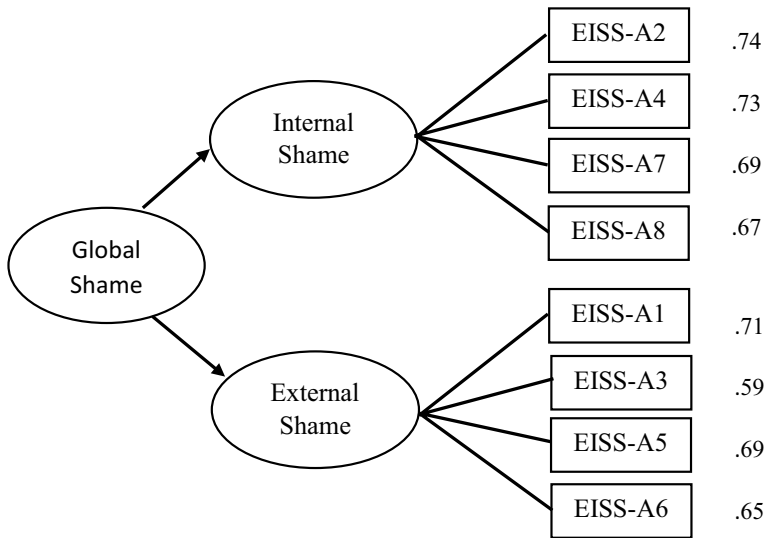


Fig. 1 Confirmatory factor analysis model of the External and Internal Shame Scale for adolescents (EISS-A)

the data (CMIN/df=3.17, $\chi^2_{(19)}=60.20$, $p<0.001$; GFI=0.93; CFI=0.96; TLI=0.95; RMSEA=0.10 [08–0.13]; SRMR=0.03). Factor loadings and multiple correlations found in sample 1 and sample 2 are presented in Table 1.

All items revealed standardized regression weights ranging from 0.59 (item 3) to 0.74 (item 2) in sample 1 and from 0.68 (item 8) to 0.91 (item 6) in sample 2. Also, squared multiple correlations results confirmed the instrument reliability, both in sample 1 and in sample 2, with values ranging from 0.35 (item 3) to 0.55 (item 2) in sample 1 and from 0.46 (item 8) to 0.83 (item 6) in sample 2. These values were above the recommended cut-off point (Tabachnick and Fidell 2007). The correlation between the ES and IS subscales in sample 1 was moderate ($r=0.66$; $p<.001$).

Item reliability Analysis

EISS-A items' skewness values varied between 0.10 (item 8) and 1.11 (item 7), and kurtosis values ranged from 0.06 (item 2) to 0.88 (item 8), demonstrating a non-severe violation of normal distribution (Kline 2005). The 8-item EISS-A showed good internal consistency, with a Cronbach alpha of 0.85 for the total scale, of 0.75 for the external shame subscale, and .79 for the internal shame subscale (Table 1). Corrected item-total correlations ranged from $r=0.53$ (item 3) to $r=0.66$ (item 2). All items contributed positively to the internal consistency of the adolescents' version of the EISS, given that reliability would not improve if any item was removed. The measure's construct validity was additionally confirmed through composite reliability (CR), showing a CR value of 0.88 for the EISS-A total score, of 0.76 for the external shame subscale, and 0.80 for the internal shame subscale. The average variance extracted (AVE) results for the ES subscale was 0.56 and for the IS subscale 0.63, suggesting the EISS-A convergent validity (Fornell and Larcker 1981). Comparing the AVE of each subscale with the squared correlation between the ES and IS

Table 1 EISS-A items' means (M), standard deviations (SD), corrected item-total correlations, Cronbach's alpha if item deleted, standardized regression weights (SRW) and squared multiple correlations (SMC) (Sample 1: N=297; Sample 2: N=200)

Item content	Sample 1 (N=297)		Sample 2 (N=200)				
	M(SD)	Item-total correlation	α if deleted	CFA		CFA	
				SRW	SMC	SRW	SMC
<i>External Shame ($\alpha = .75$)</i>							
<i>I feel that ...</i>							
1. Other people see me as not being up to their standards	0.87 (0.86)	.61	.83	.71	.51	.69	.47
3. Other people don't understand me	1.70 (0.96)	.53	.84	.59	.35	.75	.56
5. Others are judgmental and critical of me	1.23 (0.97)	.59	.84	.69	.47	.83	.69
6. Other people see me as uninteresting	1.39 (0.91)	.58	.84	.65	.43	.91	.83
<i>Internal shame ($\alpha = .79$)</i>							
<i>I feel that ...</i>							
2. I am isolated	0.61 (0.86)	.66	.83	.74	.55	.83	.69
4. I am different and inferior to others	0.70 (0.85)	.63	.83	.73	.53	.85	.73
7. I am unworthy as a person	0.61 (0.88)	.61	.83	.69	.48	.82	.67
8. I am judgmental and critical of myself	1.65 (1.16)	.59	.84	.67	.45	.68	.46
EISS-A global score ($\alpha = .79$)							

subscales were used to address discriminant validity. The squared correlation between the factors was 0.44, and AVE results were higher than these squared correlations, denoting the two factors have adequate discriminant validity.

Test–Retest Reliability

EISS-A test–retest reliability analysis was conducted in a subsample of 41 adolescents who completed this self-report measure a second time, 4-weeks after the first administration. Pearson product-moment correlation coefficients between test and retest were $r=0.81$; $p < .001$ for the EISS-A total score, $r=0.76$; $p < .001$, for the external shame subscale, and $r=0.78$; $p < .001$, for the internal shame subscale.

Multi-Group CFA for Measurement Invariance Across Sex Groups

The model invariance between boys and girls was examined through a series of analyses. Firstly, confirmatory factor analyses were separately conducted for the male and female groups, and goodness-of-fit was confirmed for both male (CFI=0.92) and female (CFI=0.99) groups. A summary of goodness-of-fit indices for measurement invariance across sex groups in sample 1 is presented in Table 2.

Secondly, the structure of the EISS-A across both sex groups simultaneously was tested through a baseline unconstrained model. A very good model fit (CFI=0.96) was found,

Table 2 Summary of fit indices for measurement invariance across gender groups (N = 297)

	χ^2	df	p	CFI	RMSEA [90% CI]	$\Delta\chi^2$	Δdf	p	ΔCFI
<i>Summary of fit statistics</i>									
Females	22.32	19	.269	.99	.034 [.00-.08]				
Males	47.12	19	.001	.92	.101 [.06-.14]				
<i>Multi-group analyses</i>									
Unconstrained model	7.30	6	.249	.960	.053 [.03-.07]	-	-	-	-
Measurement weights	1.59	1	.208	.958	.050 [.03-.07]	7.30	6	.002	.002

χ^2 = chi-square goodness-of-fit statistic; df = degrees of freedom; CFI = comparative fit index; RMSEA = Root Mean Square Error of Approximation

denoting that the factor structure model fitted the data very well in both groups (configural invariance). Then, a measurement weights model was tested with factor loadings constrained to be equal across sex groups. This model also revealed a very good model fit ($CFI=0.96$). A comparison with the baseline unconstrained model showed that no significant changes occurred ($\Delta CFI=0.002$). Therefore, the factor loadings were invariant across groups (metric invariance). Taking together, these results suggest that the EISS-A is adequate to assess shame in both sex groups.

Data Concerning Sex, Age, and Years of Education

Significant differences were found when comparing boy's (_b) and girl's (_g) mean scores on the EISS global scale [$M_b=7.99(4.94)$ vs. $M_g=9.71(5.42)$, $t(295)=2.86$; $p=0.005$, $d=0.33$], on the external shame subscale [$M_b=4.74(2.63)$ vs. $M_g=5.62(2.91)$, $t(295)=2.71$; $p=0.007$, $d=0.32$] and on the internal shame subscale [$M_b=3.24(2.84)$ vs. $M_g=4.09(3.04)$, $t(295)=2.49$; $p=0.013$, $d=0.29$], with girls presenting higher scores.

Age was positively associated with the EISS-A total score ($r=0.28$, $p<0.001$), with the external shame subscale ($r=0.20$, $p<0.001$), and the internal shame subscale ($r=0.30$, $p<0.001$). A similar pattern was found concerning years of education ($r=0.29$, $r=0.20$, and $r=0.32$, $p<0.001$, respectively).

Associations with Other Variables

Concurrent validity was assessed by calculating the zero-order and partial correlation coefficients between the two EISS subscales and other measures tapping the same constructs. The OAS-2 was used as a measure of ES, and the self-criticism subscale of the FSCRS was used as a measure of IS. Table 3 presents the zero-order and partial correlations results.

The analysis of the zero-order correlations showed moderate to strong correlations between EISS-A subscales and external shame (OASB-2) and self-criticism (SC-FSCRS). Considering the partial correlations of the ES subscale of the EISS-A with OASB-2 and SC-FSCRS, when controlling for the effect of the IS subscale, results showed lower correlations but still significant correlations. For example, when excluding the influence of IS, the association between ES and SC-FSCRS becomes smaller ($r=0.16$; $p=0.006$).

Correlations between EISS-A global score, the ES and IS subscales and self-reassurance (SR-FSCRS), and social comparison (SCS) were computed to study discriminant validity. ES was negatively and weakly correlated with self-reassurance and IS, and global shame were negatively and moderately associated with self-reassurance. Partial correlation between the IS and the SR-FSCRS, while controlling for the ES, was moderate ($r=-0.40$; $p<0.001$); on the contrary, when controlling the IS the association between ES and the SR-FSCRS subscale became non-significant ($r=-0.01$; $p=0.982$). ES, IS, and global shame were negatively and moderately correlated with social comparison. Partial correlation between the ES and SCS, while controlling for the IS, was weak ($r=-0.18$; $p=0.002$) but still significant, as well as the correlation between IS and SCS, while controlling for ES ($r=-0.28$; $p<0.001$).

The associations between EISS global score and its subscales and the DASS-21 Depression and Anxiety subscales were calculated to assess concurrent validity and results indicated moderate correlations. When testing the partial correlations for each subscale, the partial correlations remained significant but smaller than the zero-order correlations,

Table 3 Zero-order correlation and partial correlations between EISS-A subscales and global score and the OASB-2, SC-FSCRS, SCS, SR-FSCRS and DASS-21 depression and anxiety subscales

	<i>M</i>	<i>SD</i>	OASB-2	SC-FSCRS	SR-FSCRS	SCS	DASS-21 Dep	DASS-21 Anx
ES-EISS	5.19	2.80	.74** (.52**) ^b	.56** (.16*) ^b	-.33** (-.01) ^b	-.43** (-.18*) ^b	.50** (.11) ^b	.47** (.22**) ^b
IS-EISS	3.68	2.97	.71** (.44**) ^a	.73** (.58**) ^a	-.50** (-.40**) ^a	-.48** (-.28**) ^a	.67** (.52**) ^a	.50** (.29**) ^a
EISS (global)	8.87	5.26	.80**	.71**	-.46**	-.50**	.65**	.54**

* $p < .050$, ** $p < .00$

ES-EISS = External Shame EISS dimension; IS-EISS = Internal Shame EISS dimension; EISS (global) = EISS global score; OASB-2 = Others As Shamer Brief-2; SC-FSCRS = Self-criticism dimension of Forms of Self-Criticizing & Self-Reassurance Scale; SR-FSCRS = Self-Reassurance dimension of Forms of Self-Criticizing & Self-Reassurance Scale; SCS = Social Comparison Scale; DASS-21 Dep and DASS-21 Anx = Depression and Anxiety subscales of the Depression, Anxiety and Stress Scales-21, respectively

Numbers outside of parentheses are the zero-order correlations. Numbers within parentheses are the partial correlations. ^aPartial correlation controlling for ES-EISS; ^bPartial correlation controlling for IS-EISS

except for the partial correlation between ES and depression, when controlling IS ($r=0.11$; $p=0.051$), that became non-significant. Additionally, the ES and IS EISS-A subscales showed to be positively correlated ($r=0.66$; $p<0.001$).

Incremental Validity

Hierarchical regression models were used to test the incremental validity of the EISS-A in predicting depressive and anxiety symptoms, when controlling for external shame as measured by the OASB-2. Results showed that shame, as measured by the OASB-2, accounted for 40% of the DASS-21 Depressive symptoms ($\beta=0.64$; $F(1,293)=199.26$; $p<0.001$). On step two, when the EISS-A was added, results revealed that the model was significant and accounted for 46% of DASS-21 Depressive symptoms ($F(1,293)=125.35$; $p<0.001$). EISS-A emerged as the best global predictor ($\beta=0.40$; $p<0.001$). Considering the the DASS-21 Anxiety symptoms as the dependent variable, the OASB-2 accounted for 29% of the variance ($\beta=0.54$; $F(1,293)=117.55$; $p<0.001$). When the EISS-A was added in step two the model explained 32% of anxiety symptoms ($\beta=0.32$; $F(1,293)=69.50$; $p<0.001$).

Discussion

There is a consensus in recognition of the relevance of studying shame given that it is a common human emotion and it can harm the individual's harmonious and balanced development (Cunha et al. 2012; Matos et al. 2013a, b; Rebelo 2012; Sjoberg et al. 2005). In this context, some instruments have been developed for assessing shame, focusing on one or another specific dimension. Recently, Ferreira et al. (2020), based on the biopsychosocial evolutionary perspective of Gilbert (2002, 2007), developed and tested the External and Internal Shame Scale in adults (EISS).

This study presents the development and validation of the EISS for adolescents (EISS-A). The EISS-A is based on the EISS original version for adults, a brief, reliable and valid self-report instrument that allows for the assessment of the phenomenology of shame and its specific dimensions of external and internal shame. Furthermore, this study explored the relationships between a sense of shame and other relevant constructs, namely external shame, self-criticism, self-reassurance, favourable social comparison, and general psychopathological symptoms (depression and anxiety symptoms).

The EISS factor structure found in the adult validation study was tested in an adolescent sample through a CFA, which confirmed the adequacy of a two-factor structure (External and Internal Shame) underlying one higher-order factor (global sense of Shame). Global and local adjustment indices proved the suitability of the EISS-A factor structure and its items adequacy, taking into consideration the recommended standards (e.g., Tabachnick and Fidell 2007). Moreover, the CFA conducted in a second adolescents' sample confirmed this previously found factor structure. The study confirmed that the EISS-A total score and its subscales have high internal consistency, assessed by Cronbach alpha and by composite reliability. The item-total correlation analyses also corroborated the quality and adequacy of the items to each respective subscale and overall scale. The test-retest analyses of the EISS-A over a 4-week interval also showed that the EISS-A has adequate temporal stability.

Measurement invariance of EISS-A factor structure across sex was tested, and results revealed the model was supported for boys and girls (configural invariance) and each item contributed similarly to the latent construct (metric invariance).

Regarding sex differences, girls scored higher than boys in the EISS-A total score and external and internal shame subscales. A similar pattern was also found in the adults' version of the scale, and these findings are in line with previous research indicating that, both in adolescents and adults, females tend to present higher levels of shame when compared to males (e.g., Else-Quest et al. 2012; Muris et al. 2018). The EISS-A showed to be weakly or moderately associated with age and years of education, suggesting there is a tendency for older adolescents to present a higher overall sense of shame, as well as external and internal shame. This result should be interpreted with caution, given that the level of significance may be influenced by the sample size. Furthermore, it may be hypothesised that the older the adolescents, the greater their capacity for self-knowledge, their involvement in comparison with peers, the construction of their own identity, and these aspects can lead to the emergence of shame feelings (Cunha et al. 2012; Gilbert and Irons 2009; Steinberg 2010). However, it is worth noting that other studies have found no relationship between shame (assessed by different self-report instruments) and age (Cunha et al. 2017a, b; Walter and Burnaford 2006). Additional studies are needed to clarify shame experiences in different stages of adolescence.

Concerning concurrent validity, the findings showed that the EISS-A total and the two subscales scores present strong correlations with measures addressing other similar constructs. The EISS-A external shame subscale showed a stronger correlation with another external shame measure (OASB-A) whereas the EISS-A internal shame subscale showed a stronger association with an emotional process associated with the internalisation of shame (i.e., self-criticism as measured by SC-FSCRS). Moreover, partial correlation results sustained the specificity of EISS-A two subscales to address the external and internal dimensions of shame experiences when mutually controlled for.

To further explore the relationship between the experience of shame, as measured by the EISS-A, and psychological adjustment indicators (self-reassurance, favourable social comparison), correlation analyses were conducted, showing negative moderate to strong associations. Results from partial correlation analyses showed that when the internal shame dimension was controlled for, the association between external shame and self-reassurance weakens and loses significance and the association between external shame and favourable social comparison weakens. A similar result had already been found for the EISS adults' version pointing to the key role of internal shame in the relationship of shame and one's capability to self-reassure when facing adversities. Moreover, these results suggest that the negative experience of the self, characterised by a sense of inferiority, exclusion, emptiness, and criticism, is related to the tendency towards less favourable social comparison, even when the effect of external shame is controlled for.

As expected, and following previous studies, results also showed that the EISS-A total score and external and internal shame dimensions presented a strong association with symptoms of depression and anxiety (e.g., Cunha et al. 2012, 2017a; Muris et al. 2018; Paulus et al. 2016). Noteworthy, partial correlation findings highlight the central role of the internal shame dimension in psychopathological symptoms. Particularly in depressive symptoms, when the internal shame dimension is controlled for, the relationship of external shame and depressive symptoms is no longer significant. In general, these results are consistent with the ones found in the EISS adults' version (Ferreira et al. 2020). Regarding incremental validity, regressions results indicated that EISS-A significantly accounts for

more variance in the prediction of depressive and anxiety symptoms, when compared to the OASB-2.

The current study results need to be interpreted, taking into consideration some limitations. This was the first study examining the structure of the EISS in adolescents' samples and allowed us to confirm the factor structure found in the adults' version. However, to ensure the plausibility of this structure, future research should confirm the EISS-A structure in other adolescents' non-clinical and clinical samples, as well as in other languages. Moreover, future studies may also explore the relationship between shame and other self-conscious emotions, such as humiliation and guilt, given that these emotions may share roots in painful interpersonal experiences.

To sum, the EISS-A revealed to be a valid and reliable measure of the shame experience, encompassing the possibility to assess, not only a global sense of shame but also the dimensions of external and internal shame. In particular, this measure is of potential interest and use by researchers and practitioners, contributing to a broader understanding of the role shame plays during the most formative years of an individual's life.

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Compliance with Ethical Standards

Conflict of Interest The authors have no conflicts of interest.

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Authors and Affiliations

Marina Cunha^{1,2}  · Patrícia Silva¹ · Cláudia Ferreira²  · Ana Galhardo^{1,2} 

Patrícia Silva
silvapatricia9503@gmail.com

Cláudia Ferreira
claudiaferreira@fpce.uc.pt

Ana Galhardo
anagalhardo@ismt.pt

¹ Instituto Superior Miguel Torga, Largo da Cruz de Celas, nº1, 3000-132 Coimbra, Portugal

² CINEICC—Centre for Research in Neuropsychology and Cognitive and Behavioural Intervention, Faculty of Psychology and Education Sciences of the University of Coimbra, Rua do Colégio Novo, 3000-115 Coimbra, Portugal

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