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Psychometric Properties of the Compass of Shame Scale: Testing for Measurement Invariance Across Community Boys and Boys in Foster Care and Juvenile Detentions Facilities

Paula Vagos[1,2] · Diana Ribeiro da Silva[1] · Nélio Brazão[1,3] · Daniel Rijo[1] · Jeff Elison[4]

Abstract

Background Shame has been found to relate to several psychopathologies, but the way the individual copes with experiences of shame may determine specific expressions of psychopathology, making it essential to rigorously address such coping styles.

Objective This study evaluated the psychometric properties of a Portuguese version of the Compass of Shame Scale using an adolescent sample, to investigate if its internal structure was valid for diverse adolescent subsamples, and to gather evidence on the construct validity of the instrument.

Method Adolescent community boys and girls (n = 1924; 52.3% boys) and adolescent boys with a history of behavior problems taken from foster care and juvenile detention facilities (n = 396) filled in self-report questionnaires on coping with shame and other relevant constructs.

Results A five-factor model was applicable to exploring the coping with shame of adolescent community boys and girls and adolescent boys with behavior problems. Girls, in comparison with boys, more frequently internalized shame or coped with it adaptively. Boys taken from foster care and juvenile detention facilities, compared with community boys, more often externalized shame by attacking others and less frequently attacked themselves, avoided shame experiences or coped with it adaptively. Construct validity in relation to self-criticism, external shame, and experiential avoidance was found.

Conclusions The measure demonstrated reliability and validity estimates consistent with expectations across diverse samples of adolescents. So, it may help advance knowledge on how diverse youth cope with shame and on the interchanges between experiencing shame, managing shame, and psychopathology.

Keywords Shame · Shame coping-styles · Psychometrics · Measurement invariance · Adolescence · Disruptive behavior

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✉ Paula Vagos
  paulavagos@fpce.uc.pt

Extended author information available on the last page of the article

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Introduction

Shame is a self-conscious emotion that plays a crucial role in the processes of socialization and self-identity by shaping one's behavior towards oneself and others (e.g., adjusting one's behavior to implicit and/or explicit social rules; Harper 2011). Nonetheless, individuals who were raised in critical, abusive, and hostile environments (i.e., experiencing recurrent and intense shameful experiences) tend to develop shame proneness, meaning that shame becomes part of their identity, comprising persistent and overwhelming feelings of being inferior, inadequate, unwanted, undesirable, and worthless (Gilbert 2014; Elison et al. 2014; Harper 2011; Tangney and Tracy 2012). Shame proneness is generally maladaptive and has been associated with several psychopathological disorders. However, it may not be shame proneness per se that is maladaptive, but rather the way shame is handled by each individual (Elison et al. 2006).

Shame and Coping with Shame

According to Nathanson's (1992) Compass of Shame Model, people can cope with the experience and feelings of shame by using adaptive or maladaptive styles. The adaptive style is associated with self-soothing (i.e., being self-reassuring and accepting shameful feelings as part of the human condition) and/or with restoration of relationships (i.e., trying to solve misunderstandings with others, considering their points of view, and/or making amends). The model further includes four different maladaptive coping styles: Attack Self, Withdrawal, Attack Other, and Avoidance (Elison et al. 2006; Harper 2011; Nathanson 1992). They are not mutually exclusive (i.e., the same individual may use multiple styles in response to a single shame event or different styles in different situations). By using them, shame can be either denied, ignored, or intensified.

Within Attack Self, the person recognizes the shaming experience as negative and valid, endures shame in order to maintain relationships with others, and turns anger inward (Elison et al. 2006; Nathanson 1992). Within Withdrawal, the person also recognizes the experience of shame as negative and valid, but because she is unable to tolerate it, she moves away from others and from the shameful situation (Elison et al. 2006; Harper 2011; Nathanson1992). The Attack Self and Withdrawal styles are commonly found in individuals with internalizing disorders, namely mood and anxiety disorders.

Within Attack Other, the person tries to minimize the shaming experience by externalizing it and turning anger outward (Elison et al. 2006; Harper 2011; McWilliams 1994/2011; Nathanson 1992). Finally, within Avoidance, the person also tries to minimize the experience of shame, but by distracting the self and others from that experience. Avoidance seems to be the coping style most likely to work outside consciousness and to be more effective than the other maladaptive styles (at least in the short term; Elison et al. 2006; Nathanson1992). In comparison with other maladaptive coping styles, it has been found to be associated in a weaker way with self-reported psychopathological symptoms (Elison et al. 2006; Harper 2011; Nathanson 1992). The Attack Other and Avoidance coping styles are more frequently found in individuals with externalizing disorders, namely disruptive behavior problems (Elison et al. 2006; Schalkwijk et al. 2016).

Coping with Shame in Adolescence

Research suggests that both the development of shame proneness and of preferred shame-coping styles occurs in parallel with the development of the self. From a very early age, children start to associate specific emotions with particular situations and tend to adopt specific coping styles to protect the self (Harper 2011; Kaufman 1996; Nathanson 1992). Adolescence is a crucial developmental period marked by an increased vulnerability to psychosocial environmental stressors (Kroger 2004) that cause youth to experience intense emotional arousal (Zeman et al. 2006) while they are still developing their emotion regulation strategies (Zimmermann and Iwanski 2014). Consequently, shameful experiences (Cunha et al. 2012; Gilbert 2014; Gilbert and Irons 2009) and maladaptive shame management (Yelsma et al. 2002) may play an important role in the mental health of adolescents, especially for those who face adverse life experiences from an early age, namely adolescents with disruptive behavior problems. These youths seem to struggle more strongly to achieve the developmental tasks of adolescence, probably resorting more frequently and intensely to maladaptive shame-coping styles, in comparison with their normative peers (Crittenden 1992; Nathanson 1992; Ribeiro da Silva et al. 2015).

The Compass of Shame Scale

Different ways of coping with shame may play an underlying role in the etiology and maintenance of different psychopathological symptoms. Given that shame-coping styles may impact differently on several psychopathological symptoms and disorders, it seems paramount to be able to accurately assess those styles. To our knowledge, there is only one measure designed to do so: The Compass of Shame Scale. It was initially developed by Elison et al. (2006; CoSS-3) and it was found to be psychometrically valid under a four-factor measurement model among European-American community adults. The authors also assessed the convergent validity of the CoSS-3 and found that both the Withdrawal and Attack Self subscales were positively associated with low self-esteem (which, in turn, associated with self-criticism—being harsh, judgmental, and critical to oneself; Gilbert 2014) and shame feelings. The Attack Self subscale was found to be most strongly associated with internalizing symptoms (e.g., depression; anxiety, and feelings of inadequacy and inferiority in comparison to others), whereas the Avoidance subscale achieved the weakest associations with those same variables. The Attack Other subscale was found to be positively associated with anger and hostility while the Avoidance subscale was found to be positively associated with emotional minimization/denial (i.e., efforts to detach oneself from the situation/emotional experience and to minimize its significance). As expected, significant associations were found among the four subscales of the CoSS-3 (Elison et al. 2006). The latest version of the CoSS (i.e., CoSS-5) is a modification of the CoSS-3, with the addition of 10 new items designed to compose a measure of adaptive coping with shame strategies.

The CoSS-5 was previously used in a study with 236 community adolescent, and achieved acceptable to good reliability values (i.e., $\alpha = 0.84$ for Withdrawal, $\alpha = 0.90$ for Attack Self, $\alpha = 0.67$ for Avoidance, and $\alpha = 0.85$ for Attack Other), though other psychometric proprieties of the instrument were not reported (Nyström and Mikkelsen 2012). Another recent study (Schalkwijk et al. 2016) investigated the psychometric properties of an adapted short version of the CoSS-5 with young offenders and non-offenders.

They proposed and found confirmatory evidence for a six-factor solution for the items (vs. the five-factors originally proposed by the Compass of Shame model). These six factors include the five originally proposed within the Compass of Shame model plus a shame proneness measure that the authors suggested; they additionally organized four of these six factors into two higher order factors (i.e., internalization and externalization) and considered overarching factors relating to maladaptive and adaptive shame regulation (Schalkwijk et al. 2016).

Though the Schalkwijk et al. (2016) study tested for measurement invariance of the CoSS-5 across young offenders and non-offenders, they tested for an alternative measurement model and found evidence only for configural invariance (i.e., the measurement model is applicable to both groups, though comparison between them is not justified). Taking into consideration the current status of research on the CoSS-5, it seems that the scale's ability to compare the way youths with and without disruptive behavior cope with shame still needs further investigation.

Another issue in need of further research is the ability of the CoSS-5 to reliably address gender differences when coping with shame. Gender measurement invariance for both the CoSS-3 and the CoSS-5 have not been investigated though it is a prerequisite to assure that the scale is able to assess the same constructs across male and female groups, so that between gender conclusions may be reliable (Chen 2007). Previous research using several versions of the CoSS-3 with adult samples and investigating gender differences found divergent results, namely no gender differences (Yelsma et al. 2002) versus men scoring significantly higher on avoidance and lower on attack self and withdrawal in comparison to women (Elison et al. 2006; Yelsma et al. 2002). In the only study that used an adolescent sample, girls scored higher than boys on the Attack Self, Withdrawal, and Attack Other styles; no significant gender differences were found for the Avoidance subscale (Nyström and Mikkelsen 2012).

Though the CoSS has proven to be a reliable self-report instrument aiming to assess shame coping styles in youth, no study to date tested its psychometric proprieties in a complete way. Moreover, no study validated this measure using large and diverse youth samples, namely including normative boys and girls and youth with disruptive behavior, who struggle to deal with adverse life experiences and shame from an early age. Such shameful experiences may have become an elicitor to aggressive behavior, as this evolutionary based response to physical pain was transferred also to social pain (Elison, et al. 2014). Being able to accurately assess how adolescents cope with shame may be paramount in as much as shame coping styles seem to play a key role in shaping mental health, namely in adaptive and maladaptive ways (Elison et al. 2006, 2014; Nyström and Mikkelsen 2012; Schalkwijk et al. 2016; Yelsma et al. 2002).

The Current Study

The current study was performed to investigate the psychometric properties of the CoSS-5 in diverse samples of Portuguese adolescents, in terms of history of disruptive behavior and gender. In relation to the previous works, the current work contributed with the test of the five-factor measurement model (i.e., four maladaptive coping styles and one adaptive coping style) in adolescence, which was not accomplished before. That model was expected to acceptably fit the adolescent data, following what was found for adults. Also, the current work advanced on previous works by investigating the measurement invariance of that measurement model in relation to gender and behavior; it was hypothesized that

Table 1 Sociodemographic characteristics of participants by samples

	Gender		Age	Socioeconomic status		
	Male	Female		Low	Medium	High
Complete sample	1214 (52.3)	1106 (47.7)	16.21 (1.43)	574 (24.7)	1167 (50.3)	523 (22.5)
Subsample 1	209 (47)	236 (53)	16.73 (1.13)	81 (18.2)	191 (42.9)	172 (38.7)
Subsample 2	905 (55)	740 (45)	16.22 (1.48)	553 (21.5)	848 (51.6)	384 (23.6)
Community sample	818 (42.5)	1106 (57.5)	16.20 (1.43)	520 (27.0)	953 (49.5)	448 (23.3)
Subsample 3	60 (42.6)	81 (57.4)	16.87 (1.11)	–	52 (36.9)	89 (63.1)
Sample from foster care and juvenile detention facilities	396 (100)	–	16.24 (1.47)	54 (73.6)	214 (54.0)	75 (18.9)

Information for gender and socioeconomic status are presented as n (%); information for age is presented as M (SD). Discrepancies in partial versus total n are due to missing values

that model would be invariant across gender in the community sample and across samples (community boys and boys in foster care and juvenile detention facilities).

Construct validity was further analyzed, based on gender and sample-based comparisons and correlational analyses in relation to measures of external shame, experiential avoidance, self-criticism, and self-reassurance. Following previous works, community girls were hypothesized to score higher on the Attack Self, Attack Others and Withdrawal styles in comparison with community boys (Nyström and Mikkelsen 2012). Boys in foster care and juvenile detention facilities were also predicted to score higher than community boys on the Attack Other shame-coping style. Based on the reviewed literature (Elison et al. 2006; Nathanson 1992), maladaptive shame-coping styles were expected to be positively associated with shame and self-criticism. Given their defining features, the Avoidance shame-coping style was anticipated as being positively associated with experiential avoidance and the Adaptive subscale was expected to be positively associated with self-reassurance.

Method

Sample

Participants in the current study included 2420 adolescents (i.e., combined sample), aged between 12 and 21 years old. Of those, 1924 (82.9%) were recruited from public schools in Mainland Portugal (i.e., community sample), including 818 boys and 1106 girls (Table 1). The combined sample also included 396 (17.1%) adolescent boys who were recruited in juvenile facilities, either in foster care and detention centers. All of those recruited in these settings had a history of behavior disturbances.

This second sample included only male participants,[1] so there was not an equal distribution by gender in both samples. Additionally, participants in both samples were not equally

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[1] Taking into account that disruptive behaviors are more prevalent in male than in female youths (APA 2013), we considered this to be a relevant sample to study shame-coping styles within a disruptive behavior framework. Female young offenders were also excluded because they represent only 10–15% of the young offenders placed in Portuguese juvenile detention facilities, and any possible idiosyncrasies from this cohort would be underrepresented.

original English version of the instrument for revision. No relevant inconsistencies were found between the back-translation and the original version, indicating that the Portuguese version of the CoSS-5 had the same or very similar meaning to the original version. The final version of the questionnaire was then tested in a community sample focus group of 20 adolescents who discussed the clarity and appropriateness of the items and instructions. Slight phrasing changes were deemed necessary and made to the instrument, in order to assure its suitability. Analyses of the psychometric properties of the CoSS-5 within the current study will be reported in the results section.

Other as Shamer Scale Brief-Adolescent Version

The Other as Shamer Scale Brief-Adolescent version (OASB-A; Cunha et al. 2015) is a short-version of the Other as Shamer Scale (Allan et al. 1994; Goss et al. 1994) assessing external shame (i.e., the individual's perception of being negatively judged by others). This brief version consists of eight items rated on a five-point scale ($0 = never$ to $4 = almost$ $always$) according to how frequently the individual feels he is being judged by others (e.g., "I feel other people see me as not good enough"). Data from the OASB-A showed a one-factor structure and good internal consistency values, within community ($\alpha = 0.92$; Cunha et al. 2015) and behaviorally disturbed samples ($\alpha = 0.89$; Vagos et al. 2016), using confirmatory factor analyses. In the present study, the Cronbach's alpha value for the combined sample was 0.89.

Forms of Self-Criticising/Attacking and Self-Reassuring Scale

The Forms of Self-Criticising/Attacking and Self-Reassuring Scale (FSCRS; Gilbert et al. 2004; Portuguese version by Castilho and Pinto-Gouveia 2011) includes 22 items rated on a five-point scale, ranging from $0 = not$ at all $like$ me to $4 = extremely$ $like$ me. It measures two forms of self-criticism: (1) the inadequate self, which focuses on a sense of personal inadequacy (e.g., "There is a part of me that feels I am not good enough"), and (2) the hated self, which measures the desire to hurt or persecute the self (e.g., "I have become so angry with myself that I want to hurt or injure myself"). The scale also assesses self-reassurance (e.g., "I am gentle and supportive of myself"). The original version of the FSCRS presented good internal consistency values, with alphas of 0.90 for the inadequate-self subscale and 0.86 for both the hated self and self-reassurance subscales (Gilbert et al. 2004). In the Portuguese version, alphas ranged from 0.62 to 0.89 (Castilho and Pinto-Gouveia 2011). In the present study, internal consistency values for the combined sample were 0.89 for the inadequate self, 0.81 for the hated self, and 0.88 for self-reassurance.

Acceptance and Action Questionnaire

The Acceptance and Action Questionnaire (AAQ-II; Bond et al. 2011; Portuguese version by Pinto-Gouveia et al. 2012) is a seven-item scale that assesses experiential avoidance (i.e., attempt to avoid internal experiences as they occur, particularly negative ones). Items are rated on a seven-point scale, ranging from $1 = never$ $true$ to $7 = always$ $true$, and higher scores indicate greater experiential avoidance and immobility, while lower scores reflect greater acceptance and action. The original version of the AAQ-II presented a one-factor solution and good internal consistency ($\alpha = 0.84$; Bond et al. 2011). In the Portuguese

validation study (Pinto-Gouveia et al. 2012), as well as in the combined sample within the current work, the internal consistency value for the AAQ-II was 0.89.

Procedure

The community sample was recruited in schools, and its recruitment was dependent upon authorizations from the national entity responsible for the ethics of studies to be conducted in school settings (i.e., Portuguese Directorate-General for Education), the executive boards of the schools, the legal guardians of students under 18 years of age (i.e., the legal age to consent in Portugal), and the participants themselves. The confidentiality and anonymity of the data were guaranteed at all times. Additionally, schools preferred not to disclose information on how many students had their participation denied by their legal guardians, nor any other information concerning these students. Data were collected in groups (during classes), in the presence of the researchers and the class teacher; students responded to the instruments after having provided their assent and being assured of the confidentiality and anonymity of their participation.

Participants with a history of behavioral disturbances were recruited from foster care and juvenile detention facilities in Mainland Portugal and in the Azores Islands, after the study was approved by both the foster care and the detention facilities' boards (i.e., Portuguese Directorate-General for Justice and Prison Services), as well as the legal guardians of adolescents under 18 years of age (i.e., the legal age to consent in Portugal), and the participants themselves. The institutions were asked to identify adolescents who were referred to the state as presenting behavioral problems. The goals of the study were explained and informed consent was obtained from each participant and his legal guardian; 24 participants refused to participate. Data were collected individually by the researchers and by psychologists from foster care and juvenile detention facilities. Research ethical standards were ensured, and data collected was used exclusively for research purposes, guaranteeing the confidentiality and anonymity of each participant's data.

In both cases, exclusion criteria were the presence of cognitive deficit or of psychotic symptoms, as signaled previously by the school or justice system/foster care staff. Data used in the current work regarding the instrument of interest (i.e., the CoSS-5) constitutes original data, though data concerning the external variables against which convergent construct validity was tested had been previously used for other research purposes.[3] The first author takes responsibility of the integrity of the data and the accuracy of the data analysis.

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[3] Further information on the previous use of the data concerning these measures may be requested from the first author.

Results

Data Analysis Strategy

Data were analyzed with Mplus v7.4 (Muthén and Muthén 2012) and IBM SPPS Statistic 21 software. The IBM SPPS Statistic 21 software was used for correlation analyses concerning convergent construct validity, for descriptive analyses, and for calculation of Cronbach Alpha. For the latter, values higher than 0.70 were considered acceptable (Nunnally 1978). Mplus was used for confirmatory factor analyses (CFA), for multi-group analyses, and for latent mean comparisons. The adjustment indicators as taken from CFA were judged according to the two-index approach proposed by Hu and Bentler (1999). So, the model was considered an acceptable fit for the data if achieving a *Standardized Root Mean Square Residual* (SRMR) lower than 0.09 combined with either a *Comparative Fit Index* (CFI) higher than 0.95 or a *Root Mean Square Error of Approximation* (RMSEA) lower than 0.06. The Maximum Likelihood Robust estimator was used for CFA and multi-group analyses, because data taken from the complete sample were not multivariate normal (Mardia'χ^2 skewness = 107,452.3, $p < .001$; Mardia'χ^2 kurtosis = 282.03, $p < .001$; Korkmaz et al. 2014).

Multi-group analyses were conducted following a forward approach as suggested by Dimitrov (2010): configural, then metric, and then scalar invariance were tested. So, it was firstly ensured that the measurement model acceptably fitted each group separately (i.e., configural invariance), then forcing loading values for each item to be equal across groups (i.e., metric invariance) was tested, and then forcing intercept values for each item to also be equal across groups (i.e., scalar invariance) was tested. A unit loading constraint on the first item of each factor was used for scaling purposes. Multi-group measurement invariance was evaluated based on the guidelines set forth by Chen (2007), so that metric invariance was achieved if finding a ΔCFI ≤ -0.01 combined with a ΔRMSEA ≤ 0.015 or with a ΔSRMR ≤ 0.03 when comparing the fit indices obtained for the baseline model (i.e., no equality constraints placed upon groups) with those obtained for the metric invariance model. In turn, scalar invariance was determined if finding a ΔCFI ≤ -0.01 combined with a ΔRMSEA ≤ 0.015 or with a ΔSRMR ≤ 0.01 when comparing the fit indices obtained with the metric invariance model versus the scalar invariance model. At least partial scalar invariance should be obtained before groups can be compared based on the factor variables. Groups were then compared based on latent mean comparisons, according to the guidelines provided by Dimitrov (2006).

Factorial Invariance of the Compass of Shame Scale

A confirmatory factor analysis (CFA) approach was used, considering that the CoSS-5 was a priori developed to measure four maladaptive shame-coping styles, and that a new set of 10 items was afterwards developed and added to measure the adaptive coping style. A correlated four-factor model was initially tested, in trying to replicate the findings obtained with adults (Elison et al. 2006), followed by testing a correlated five-factor model, which had not been addressed before.

Considering the combined sample, both measurement models were considered acceptable because they showed a combination of acceptable RMSEA and SRMR values (see statistical analyses; Table 2). The CFI value was always below the cutoff of 0.95. Taken

Table 2 Fit indicators for CFA and multi-group invariance analyses of the compass of shame scale-adolescent version by samples

	RMSEA	90% CI for RMSEA	CFI	SRMR
Combined sample				
Four-factor model	0.050	0.049; 0.051	0.823	0.064
Five factor model	0.049	0.048; 0.050	0.802	0.070
Community sample	0.051	0.050; 0.052	0.784	0.074
Male participants	0.057	0.055; 0.058	0.759	0.074
Female participants	0.055	0.053; 0.056	0.753	0.079
Sex baseline model	0.056	0.055; 0.057	0.756	0.077
Sex full metric invariance	0.055	0.054; 0.056	0.754	0.078
Sex full scalar invariance	0.056	0.055; 0.057	0.743	0.079
Sex partial scalar invariance	0.056	0.055; 0.057	0.744	0.079
Sample from foster care and juvenile detention facilities	0.048	0.045; 0.051	0.831	0.062
Sample baseline model	0.054	0.052; 0.055	0.784	0.070
Sample full metric invariance	0.053	0.052; 0.055	0.781	0.072
Sample full scalar invariance	0.054	0.053; 0.056	0.770	0.073
Sample partial scalar invariance	0.054	0.053; 0.056	0.772	0.073

CFA = confirmatory factor analysis. The four-factor model includes only the maladaptive coping styles (i.e., withdrawal, attack self, avoidance, and attack others) whereas the five-factor model additionally includes an adaptive coping style. The sample taken from foster care and juvenile detention facilities included only male participants. Cut off values for the acceptability of the models were SRMR ≤ 0.09 combined with CFI ≥ 0.95 or with RMSEA ≤ 0.06

together, these values indicate that those models adequately explain the covariance between data (i.e., RMSEA) with little unexplained variance (i.e., SRMR), though those models were only slightly better than a null model in which there is no correlation between the observed variables (i.e., CFI). This holds both for the five and the four-factor models under examination. Even though adjustment indicators referring to the four-factor model showed a slightly improved fit to the data, the authors opted for the five-factor model for the following analyses, because: (1) it achieved the same combination of acceptable fit indicators as the four-factor solution; (2) it included the four-factor model plus one adaptive coping factor; and (3) it may be more informative for researchers and clinicians interested in using the full scope of the instrument. Loadings for all items in the five-factor model were significant ($p < .001$) and all measures achieved acceptable internal consistency values ($\alpha \geq 0.77$) in the current samples; cf. Supplementary Material).

Measurement invariance

Configural invariance by gender (i.e., community boys versus community girls) and by sample (i.e., community boys versus boys taken from foster care and juvenile detention facilities) was established based on the acceptable fit indicators obtained for all these separate samples (i.e., combination of RMSEA and SRMR values; Table 2). Furthermore, the five-factor solution as applied to these different samples always showed significant loading values and acceptable internal consistency values ($\alpha \geq 0.73$ for the community sample and

α ≥ 0.83 for boys taken from foster care and juvenile detention facilities; cf. Supplementary Material).

Concerning gender, full metric invariance (ΔCFI = −0.002; ΔRMSEA = −0.001; ΔSRMR = 0.001) and partial scalar invariance were found (ΔCFI = −0.01; ΔRMSEA = 0.001; ΔSRMR = 0.001), after relaxing the intercept of item 24 (i.e., "I don't let it show", referring to avoidance, which achieved a higher intercept value for girls). As for sample invariance (i.e., concerning community boys versus boys taken from foster care and juvenile detention facilities), full metric (ΔCFI = −0.003; ΔRMSEA = −0.001; ΔSRMR = 0.002) and partial scalar invariance were also found (Δ CFI = −0.009; ΔRMSEA = 0.001; ΔSRMR = 0.001), with the intercept of item 5 (i.e., "I criticize myself" referring to attack self) being variant across samples; specifically, this intercept was higher for community boys. The fit indices of the baseline, the metric invariant, the scalar invariant, and the partial scalar invariant models are presented in Table 2.

Latent Means Comparisons

When compared to boys, girls significantly endorsed more of the Attack-Self (boys = 0; girls = 0.42, $p < .001$) and Withdrawal (boys = 0; girls = 0.42, $p < .001$) maladaptive coping styles, as well as the adaptive coping factor (boys = 0; girls = 0.35, $p < .001$); for the remaining measures, gender differences were non-significant. Boys taken from foster care and juvenile detention facilities, when compared with community boys, reported a higher endorsement of the Attack Other maladaptive coping style (community boys = 0; fostered or detained boys = 0.24, $p < .001$). Alternatively, they scored lower on the Avoidance (community boys = 0; fostered or detained boys = −0.18, $p = .008$) and Attack-Self (community boys = 0; fostered or detained boys = −0.20, $p = .003$) factors and on the adaptive coping (community boys = 0; fostered or detained boys = −0.32, $p < .001$). No significant differences were found for withdrawal. These results are in line with the descriptive values (i.e., mean and standard deviation) found for each measure, which are presented in Table 3.

Convergent Construct Validity Analysis[4]

The maladaptive shame-coping styles correlated significantly and positively with all other negative external variables considered in the current work (Table 4); the more one adopts a negative way of coping with shame, the more one feels ashamed by others, perceives one's self as inadequate and hateful, and resorts to experiential avoidance. On the contrary, these maladaptive coping styles correlated negatively and significantly with the self-reassurance measure (except Avoidance, which correlated positively with self-reassurance).

The adaptive coping measure correlated significantly and positively with the scores of self-reassurance, and significantly and negatively with the scores of the hated self (Table 4). So, it seems that the more one adopts an adaptive way of coping with shame, the

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[4] Because data were collected from each participant on the different variables within the same context and moment and resorting to a similar format of data collection (i.e., self-report questionnaires using Likert-type response scales), association between variables may be due, to some extent, to common method variance. To ascertain for this, we used a CFA approach to Hartman's single-factor test as a diagnostic technique, and found that a multi-factor model accounted for the data better than a single-factor model. So, though the presence of common method variance cannot be ruled out, its effect is not likely to be contaminating the following convergent validity results.

Table 3 Descriptive measures for the five factors of the Compass of Shame Scale-adolescent version by samples

	Combined sample	Community sample			Cohen d[a]	Sample from foster care and juvenile detention facilities	Cohen d[b]
		Total	Male	Female			
Avoidance[d]	19.14 (7.35)	19.32 (7.03)	19.54 (7.61)	19.15 (6.56)	0.05	18.33 (8.73)	0.15
Attack self[c, d]	19.12 (10.87)	19.95 (10.73)	17.55 (10.38)	21.72 (10.64)	0.39	15.06 (10.67)	0.24
Withdrawal[c]	17.51 (9.73)	17.79 (9.55)	15.57 (9.12)	19.44 (9.53)	0.42	16.15 (10.43)	0.06
Attack others[d]	12.43 (8.24)	11.99 (7.85)	12.31 (8.01)	11.75 (7.71)	0.07	14.57 (9.64)	0.26
Adaptive coping[c]	25.35 (7.14)	25.92 (6.82)	24.81 (7.33)	26.75 (6.29)	0.28	22.57 (7.96)	0.29

Values are presented as M (SD); M is the descriptive mean, calculated based on the sum of the responses to each one of the items composing each measure. The sample taken from foster care and juvenile detention facilities included only male participants

[a]Comparing community boys with community girls

[b]Comparing community boys with boys in foster care and juvenile detention facilities

[c]Gender-based (i.e., community boys versus community girls) mean comparison was statistically significant

[d]Sample-based (i.e., community boys versus boys in foster care and juvenile detention facilities) mean comparison was statistically significant

Table 4 Correlation values between the five factors of the Compass of Shame Scale-adolescent version and external measures

	Avoidance	Attack Self	Withdrawal	Attack Other	Adaptive Coping
FSCRS					
Inadequate self	.29**	.73**	.67**	.39**	.04 ns
Hated self	.26**	.51**	.46**	.43**	− .15*
Self-reassurance	.13*	− .29**	− .29**	− .18**	.38**
OASB-A	.29**	.56**	.59**	.45**	.01 ns
AAQII	.27**	.67**	.67**	.40**	.08 ns

FSCRS Forms of Self-Criticising and Self-Reassuring Scale, *OASB-A* Other as Shamer Scale Brief-Adolescent version, *AAQII* Acceptance and Action Questionnaire. All available data were used for each analysis

$*p < .01$; $**p < .001$, ns non-significant

more one is capable of self-reassurance and the less one develops extreme forms of self-criticism (hated self).

Discussion

The current work set out to investigate the psychometric properties of the Portuguese version of the Compass of Shame Scale (CoSS-5) with adolescents. Though maladaptive ways of coping with shame may be particularly relevant for adolescents (who struggle to manage their intense emotions with still underdeveloped coping styles), this scale, as originally proposed, had not been examined with youth samples.

Results indicated the goodness of fit of a five-factor measurement model (in addition to showing preliminary evidence on the acceptability of a four-factor measurement model,[5] similar to the results of Elison et al. 2006), addressing four maladaptive ways of coping with shame and one adaptive coping style. Like previous studies (Campbell and Elison 2005; Elison et al. 2006; Nyström and Mikkelsen 2012; Schalkwijk et al. 2016), all the maladaptive subscales further demonstrated acceptable internal consistency values; the adaptive subscale also achieved acceptable internal consistency values as applied to the diverse samples under study. The five-factor measurement model was further found to be invariant across community boys and girls, and across community boys and boys taken from foster care and juvenile detention facilities, thus allowing for meaningful comparisons across those groups (Chen 2007).

Latent mean comparisons pointed to girls, in comparison with boys, more frequently attacking themselves and withdrawing, which is in line with previous findings (Elison et al. 2006; Nyström and Mikkelsen 2012); girls also coped adaptively with shame more frequently than boys. Boys and girls thus appear not to differ in externalizing ways of coping with shame, but to diverge in internalizing and adaptive ways of coping with this emotion. These findings may be explained, at least partially, by differential childhood socialization practices generally used for boys and girls. These practices may lead

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[5] For more information on the analyses pertaining to this four-factor model, please contact the corresponding author.

women to better acknowledge their emotions and hold more complex and enhanced cognitive representations of emotional events, whereas men are encouraged to suppress or modulate their emotional expression (Boals 2010). Though this seems protective, because it can lead to more adaptive ways of coping with emotional events, it could also help to explain why girls seem to be more at risk for psychopathological distress when experiencing a stressful event (Boals 2010; Vagos et al. 2018). In other words, although girls seem to be more prone to cope with shameful feelings in an adaptive way (resorting to self-reassurance and/or to the reestablishment of relationships), they may also turn the anger experience inward (attacking the self and ruminating) and/or moving away from others (withdrawing) when the shameful feelings become overwhelming.

Results also showed that community boys and girls similarly resort to avoidance and attacking others when feeling ashamed. This between gender similarity of attacking others may have to do with this style being, when assessed with the CoSS-5, reactive to a shameful experience (Elison et al. 2015). Portuguese boys and girls have been found to equally react (overtly and) aggressively, though not to equally engage proactively in (overt or relational) aggression (Vagos et al. 2014). Nevertheless, our findings are not consistent with previous works within non-Portuguese youth samples (i.e., Nyström and Mikkelsen 2012) thus requiring further research. Associating the forms and functions of aggression with shame and shame management may help to make sense of these confounding results.

As for comparisons between community boys and boys taken from foster care and juvenile detention facilities, the latter reported more probability of attacking others, which was expected, because the Attack Other script is linked to externalization, including anger and hostility (Campbell and Elison 2005; Elison et al. 2006). Attacking others (i.e., adopting aggressive acts) may even have come to represent the most adaptive response as these adolescents develop in harsh and intensely shameful environments (Elison et al. 2014; Ribeiro da Silva et al. 2015). Alternatively, boys taken from foster care and juvenile detention facilities resorted less to avoidance, to attack themselves, or to adaptive ways of coping with shame. Though it is not surprising that the latter tend to resort less to Adaptive and even Attack Self coping styles, the fact that they also resort less to the Avoidance style is in contradiction with existing literature (Campbell and Elison 2005). These results should be explored in further studies.

Convergent construct validity evidence was found for results of the CoSS-5 in adolescence. In line with previous research associating the way one copes with shame with several indicators of psychopathology (Campbell and Elison 2005; Elison et al. 2016; Nathanson 1992; Schalkwijk et al. 2016), the maladaptive shame-coping styles were positively associated with external shame, self-criticism, and experiential avoidance. On the contrary, when using such ways of coping, one feels less self-reassured. In other words, and as expected (Gilbert 2014; Nathanson 1992), maladaptive shame-coping styles seem to be positively associated with psychopathological problems and negatively associated with adaptive processes to cope with life adversities (such as self-reassurance).

The case of the avoidance maladaptive coping style may be a specific one, because it appeared as positively associated with self-reassurance. This result is interesting, and possibly relates to previous findings showing that avoidance commonly leads individuals to have a diminished awareness of their own emotional difficulties (Campbell and Elison 2005; Elison et al. 2006; Nathanson 1992) and possibly confuse this emotional disavowal with self-reassuring mechanisms. So, in the case of avoidance, the processes behind self-reassuring may be more related with the suppression of shameful feelings than with openness and acceptance of what one is feeling (Castilho et al. 2015).

In the case of the adaptive style to cope with shame, it was positively associated with self-reassurance and negatively associated with perceiving oneself as hateful. This supports the subscale's validity, because an adaptive coping style involves employing adaptive mechanisms of emotion regulation, like self-reassurance and/or relationship restoration, and less display of psychopathological difficulties (Campbell and Elison 2005; Elison et al. 2006; Gilbert 2014; Nathanson 1992).

Limitations and Future Studies

This study is not without limitations. One limitation is related to the fact that the sample taken from foster care and juvenile detention facilities included only male participants. It would be of interest to test the invariance of the CoSS-5 across gender in that kind of sample; only that will guarantee that girls presenting a history of behavioral disturbances would answer the CoSS-5 invariantly in relation to their male counterparts. Given the gender invariance results from the current community sample, we would expect that to be the case. Also, this study relied only on a Portuguese sample, which may question the generalization of findings to other cultural contexts, though they were in line with previous findings from research with samples from other nationalities (e.g., Schalkwijk et al. 2016). Also, the impact that the differing socioeconomic status between samples might have had upon the results was not explored.

It is also worth mentioning that no models were investigated via exploratory factor analyses in the current work, which intended to validate previously ascertained measurement models. The lower than acceptable CFI values may indicate that, to these specific samples, a different measurement model may best fit the data. Exploring this model would have the advantage of providing an optimal nation-specific tool, whereas confirming previous models has the advantage of rendering cross-cultural works and comparisons possible; the current work focused on the latter. Finally, the current work relied only on self-report questionnaires, which are prone to several biases (e.g., social desirability, experiential avoidance, or gender role compliance). Though current findings seem in line with the observable behavioral patterns that characterize at least one of our samples (i.e., that taken from foster care and juvenile detention facilities), future works might investigate the criterion related validity of the CoSS-5 or judge its results against those of clinical interviews or observation methodologies.

Conclusions

This study presented a thorough evaluation of the psychometric properties of the original version of the CoSS-5 for use with adolescents, with and without a signaled history of behavioral problems. Considering that adolescents with behavioral problems are known to have been exposed to a greater amount of traumatic experiences and to present more shame feelings than their normative peers (Abram et al. 2004; Vagos et al. 2016), it is of the utmost importance to develop credible and valid instruments that may assess their shame management styles in a robust way. Moreover, assessing shame management in adolescence seems relevant due to its potential impact on the comprehension and treatment of mental health problems during this developmental phase. Finally, it is crucial for clinicians and researchers to have reliable measures that accurately assess how mental health

interventions not only decrease maladaptive mechanisms but also increase adaptive ways of functioning.

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Affiliations

Paula Vagos[1,2] · Diana Ribeiro da Silva[1] · Nélio Brazão[1,3] · Daniel Rijo[1] · Jeff Elison[4]

1   Center for Research in Neuropsychology and Cognitive and Behavioral Intervention, Faculty of Psychology and Educational Sciences, University of Coimbra, Coimbra, Portugal

2   Present Address: Portucalense Institute for Human Development – INPP, Univ. Portucalense, Oporto, Portugal

3   Present Address: School of Psychology and Life Sciences, Lusófona University, Lisbon, Portugal

4   Adams State University, Denver, CO, USA