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The Inventory of Callous–Unemotional Traits: Psychometric properties among referred and non-referred Portuguese female juveniles☆ ☆☆

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ABSTRACT

The presence of callous–unemotional (CU) traits delineates a subgroup of male youth with severe conduct disorder and antisocial behavior, but little research has been done among female youth. Drawing on 377 female adolescents (103 selected from forensic settings and 274 selected from school settings) from Portugal, the current study is the first to simultaneously examine the psychometric properties of the Inventory of Callous–Unemotional Traits (ICU) in incarcerated female youth and community youth. The results support the use of the ICU in terms of its factor structure, and internal consistency despite the fact an item had to be removed from the Callousness dimension. Statistically significant positive associations were found with measures of psychopathic traits and aggression, as well as non-significant associations with empathy and social anxiety. Significant associations were also found with several indicators of delinquent careers including age of criminal onset, age of first contact with the law, Conduct Disorder symptoms and diagnosis, crime seriousness, previous violent offending, number of criminal charges, alcohol use, and drug use. Findings are discussed in terms of the use of the ICU among female juvenile offenders and community youths.

1. Introduction

Psychopathy is a multidimensional personality disorder consisting of interpersonal (e.g., narcissistic, superficial, and manipulative), affective (e.g., callous, guiltless, and remorseless), and behavioral (impulsive and antisocial behaviors) dimensions (e.g., Hare & Neumann, 2008). Individuals with psychopathic traits tend to show a particularly persistent and severe pattern of antisocial behavior (e.g., violence, aggression, and legal transgressions; e.g., Gendreau, Goggin, & Smith, 2002; Hemphill, Hare, & Wong, 1998). The extension of psychopathy to youth has become a salient goal of research (e.g., Pechorro, Jiménez, Nunes, & Hidalgo, 2016). One potentially fruitful approach to this has been through the application of the affective features of psychopathy to youth. As such, the construct of callous–unemotional (CU) traits have been found to demarcate a subgroup of conduct-disordered youth who begin engaging in problematic behaviors at a very early age and have a tendency to persist in such behaviors with increasing frequency and severity (Barry et al., 2000). Youth with CU traits are characterized as lacking remorse or guilt, having a deficient affect, and a callous disregard for others (Frick, Ray, Thornton, & Kahn, 2014). Recently, the "With Limited Prosocial Emotions" specifier to conduct disorder was adopted into the DSM-5 in order to help guide clinical diagnoses of this subgroup of youth who tend to show a particularly stubborn responsiveness to treatment reflecting the clinical relevance of identification of these youth (Frick et al., 2014). Therefore, accurate measurement of CU traits for both clinical and research purposes has become paramount.

Given the recent downward extension of psychopathy to youth, several measures have been developed to assess the psychopathy construct including semi-structured assessments such as the Psychopathy Checklist: Youth Version (PCL: YV; Forth, Kosson, & Hare, 2003) as well as several self-report measures including the Antisocial Process Screening Device (APSD; Frick & Hare, 2001), the Childhood Psychopathy Scale (CPS; Lynam, 1997), and the Youth Psychopathy Index (YPI; Andershed, Kerr, Stattin, & Levander, 2002). While these measures include subscales specifically tapping the CU component of the general psychopathy construct, the Inventory of Callous–Unemotional (ICU) traits (Kimonis et al., 2008) was designed as a stand-alone, comprehensive measure of CU traits. An extensive body of research has emerged that has provided evidence

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for the ICU as a valid measure of the CU construct (Frick et al., 2014).

Despite the emergence of such measures and the importance of CU traits in identifying a clinically important subgroup of antisocial youth, few studies have been concerned with the assessment of these traits among female youth. Results from a few studies have suggested that measures of CU traits, namely the ICU, performs equally well for both girls and boys (e.g., Essau, Sasagawa, & Frick, 2006; Fanti, Frick, & Georgiou, 2009; Kimonis et al., 2008). However, these studies have typically relied on mixed-gender, community-based samples of youth. More research is needed to evaluate the psychometric properties of the ICU among justice involved samples of female juveniles.

1.1. CU traits among girls

There is some evidence to suggest that there may be gender difference in both the level and manifestation of CU traits. It has been suggested that gender differences in socialization processes as well as biological differences between males and females may account for differences in average levels of CU traits (Hipwell et al., 2007). For instance, cultural norms shape gender specific socialization processes that tend to promote empathic concern, fearfulness, risk-taking, and emotional expression among girls (Byrnes, Miller, & Schafer, 1999; Hipwell et al., 2007; Keenan & Hipwell, 2005). Girls are also more likely to experience internalizing disorder (e.g., depression, anxiety, phobias) that co-occur with externalizing behaviors such as conduct disorder (e.g., Wasserman, McReynolds, Ko, Katz, & Carpenter, 2005). Such traits are inconsistent with the concept of CU traits and suggest gender differences in pathways leading to severe conduct disorder (CD), which may account for differences in mean levels of CU traits among males and females. Indeed, research consistently finds that males show significantly higher mean levels of CU traits across different samples regardless of the measure (Declercq, Markey, Vandist, & Verhaeghe, 2009; Essau et al., 2006; Fanti et al., 2009; Kimonis et al., 2008). Most notably, Essau et al. (2006) and Kimonis et al. (2008) compared mean scores on the ICU across males and females. Both studies found that males scored higher on the ICU total and its three subscales compared to females.

Nonetheless, a few studies have suggested that CU traits play an important role in understanding pathways to severe conduct disorder among females (Essau et al., 2006; Frick, Cornell, Barry, Bodin, & Dane, 2003; Marsee, Silverthorn, & Frick, 2005) and that CU traits may identify a particularly deviant subgroup of antisocial females (e.g., Hipwell et al., 2007). Importantly, a growing body of research suggests that CU traits may manifest differently among females compared to males as evidenced in gender differences in the association between CU traits and externalizing behaviors. For instance, Frick et al. (2003) found that CU traits alone (i.e., occurring without CD) are predictive of delinquency while CU traits were only predictive of delinquency when co-occurring with CD for boys. Similarly, Marsee et al. (2005) found that CU traits were associated with relational and overt aggression for females but not males. Although Essau et al. (2006) found a positive association between CU traits and conduct disorder for males and females, the association was stronger among females. Kimonis et al. (2008) also found CU traits to be associated with violent delinquency for females but not males among a detained sample of youth. Declercq et al. (2015) recently found that, among a community sample of adolescents, CU traits were associated with serious property offending for girls but not boys. Thus, it appears that there may be gender specific manifestations of CU traits and that CU traits may be an especially relevant factor in understanding female externalizing behaviors.

Research has also suggested that CU traits may manifest themselves differently across gender with regard to other life domains leading to unique negative outcomes for males and females. For instance, research has suggested that CU traits associate differently among girls and boys with regard to psychosocial impairment. One study found that the association between CU traits and negative peer associations was significant for girls but not boys (Essau et al., 2008). Research has also found that CU traits show some unique associations with certain individual characteristics for girls, particularly internalizing disorders. Among a sample of girls, Hipwell et al. (2007) found that CU traits were associated with depressed mood and generalized anxiety, an association not typically found among male or mixed-gender samples (e.g., Frick, Lilienfeld, Ellis, Loney, & Silverthorn, 1999; Frick & Ray, 2015; Rowe et al., 2010). Likewise, Essau et al. (2006) found that CU traits were positively associated with internalizing disorders and emotional instability for girls but not boys and also found a positive association between CU traits and experience seeking for girls but not boys. Although not thoroughly explored, these findings do suggest that associations between CU traits and certain external criteria differ across gender and highlight the importance of evaluating measures designed to assess CU traits among samples of females.

1.2. Psychometric properties of the ICU

The ICU (Kimonis et al., 2008) was developed to address the limitations of the Antisocial Process Screening Device (APSD; Frick & Hare, 2001). That is, the ICU was designed to be a more comprehensive measure of CU traits and expanded the number of items that tapped into the CU construct from the four items of the APSD to 24 items. Based on empirical evaluations, six items were derived from each of those four items of the APSD that continued to show the most construct validity regarding CU traits (Forth et al., 2003; Frick, Bodin, & Barry, 2000). In order to limit response bias, the ICU was developed to have an even number of positively and negatively worded items in which individuals respond using a 4-point response set (see measure description below; Kimonis et al., 2008).

Several studies examining the psychometric properties of the ICU across a diverse range of samples have found fairly consistent support for both the reliability and validity of the ICU. That is, the majority of studies examining the factor structure of the ICU support a bi-factor model in which a general CU factor accounts for associations among all items as well as three distinct factors (Callousness, Uncaring, and Unemotional) accounting for unique associations among groupings of items (Byrd, Kahn, & Pardini, 2013; Ciucci, Baroncelli, Franchi, Golmaryami, & Frick, 2014; Essau et al., 2006; Ezpeleta, de la Osa, Granero, Penelo, & Domenech, 2013; Fanti et al., 2009; Houghton, Hunter, & Crow, 2013; Kimonis, Branch, Hagman, Graham, & Miller, 2013; Kimonis et al., 2008; Pechorro, Ray, Barroso, Maroco & Gonçalves, 2016; Roose, Bijttbier, Decoene, Claes, & Frick, 2010; Waller et al., 2015; for a 5-factor alternative solution see Feilhauer, Cima, & Arntz, 2012). Across these studies the reliability of the ICU and its subscales has been less consistent. For instance, reliability coefficients (i.e., Cronbach's alphas) ranged from .77–.93 for the ICU total, .59–.88 for the Callousness scale, .55–.87 for the Unemotional scale, and .47–.87 for the Uncaring scale. The majority of studies, however, have examined the psychometric properties of the ICU among all male or mixed-gender samples and only a few studies have examined whether the CU construct differs across gender as measured by the ICU.

For the most part, studies suggest that there is consistency across males and females with regard to both factor structure and reliability

of the ICU (Essau et al., 2006, Fanti et al., 2009; Houghton et al., 2013; Kimonis et al., 2008; Waller et al., 2015). Studies utilizing mixed gender samples have found adequate fit for the three bi-factor model (Fanti et al., 2009; Kimonis et al., 2008; Roose et al., 2010). The majority of those studies that have examined gender differences in the factor structure of the ICU suggest that the identified bi-factor structure is invariant across gender (Ciucci et al., 2014; Essau et al., 2006; Houghton et al., 2013; Waller et al., 2015).

Only one recent study we are aware of examined both the psychometric properties of the original full ICU and the brief ICU-12 among a detained sample of females, focusing especially on the ICU-12 (Colins, Pardini, Andershed, Hawes, & Bijttebier, 2016). The model fit indices indicated poor fit for the proposed 3-bifactorial model of the ICU. Cronbach's alpha was adequate (above .70) for the total score and subscales, with the exception of the Unemotional subscale (.52). These authors concluded that the evidence supporting the validity of the ICU scores was generally weak, largely due to very poor functioning of the Unemotional subscale.

Research examining the association between the ICU and measures of theoretically relevant constructs has also supported the construct validity of the ICU. To start, research tends to find evidence of convergent validity between the ICU and existing measures of CU traits (Fink, Tant, Tremba, & Kiehl, 2012; Kimonis et al., 2008; Roose et al., 2010). The ICU has also shown consistent positive associations with a variety of externalizing behaviors including CD (Essau et al., 2006; Ezpeleta et al., 2013), delinquency (Essau et al., 2006; Kimonis et al., 2008), substance use (Byrd, Loeber, & Pardini, 2012), bullying (Munoz, Qualter, & Padgett, 2011), and aggression (Essau et al., 2006; Fanti et al., 2009; Kimonis et al., 2008). Importantly, although there are few studies examining gender differences in the ICU and associations with external criteria, there is some evidence that unique associations with externalizing behavior emerge across gender (Ciucci et al., 2014; Essau et al., 2006; Kimonis et al., 2008). For instance, Essau et al. (2006) found that while the Callousness subscale predicted externalizing behaviors for both genders, the association between the Uncaring factor and externalizing behaviors was unique to males. Kimonis et al. (2008) also found that the Uncaring subscale was more salient in predicting externalizing outcomes for males; however, the Callousness subscale showed gender specific associations when considering specific behaviors such as reactive overt aggression and violent delinquency which both showed a positive association for girls but not boys. Ciucci et al. (2014) found several differences across gender with regard to the ICU's association with several external criteria at the subscale level. For instance, they found that the Uncaring subscale was positively related to certain types of bullying (i.e., direct and indirect) and that the Unemotional subscale was negatively related to reactive aggression for females and not males.

Consistent with the core features of psychopathy, youth with CU traits would be expected to lack empathy and have a fearless temperament (Frick, Ray, Thornton, & Kahn, 2013). Thus, measures of CU traits should be negatively related to measures of both empathy and anxiety (or positively with measures of fearlessness). With regard to empathy, research consistently finds the expected negative association between the ICU and measures of empathy (Kimonis et al., 2008; Munoz et al., 2011; Roose et al., 2010). Essau et al. (2006) also identified a consistent negative relationship between the ICU and Agreeableness, a general personality trait consistently found to be positively associated with empathy, across genders. However, they did find that the Unemotional scale was only significantly related to Agreeableness for males and not females.

Studies have also examined the association between the ICU and measures of anxiety with findings running somewhat counter to expectations. That is, several studies have found positive associations between the ICU and measures of anxiety (Berg et al., 2013; Essau et al., 2006; Ezpeleta et al., 2011; Hawes et al., 2014; Waller et al., 2015). For instance, Ezpeleta et al. (2011) found an unexpected positive association between the Uncaring subscale of the ICU and anxiety disorder. In the only study that examined gender differences in the association between CU traits and anxiety, Berg et al. (2013) did not find evidence for gender differences regarding this association. Importantly, these studies did not account for conduct problems when examining the association between the ICU and anxiety. It has been suggested that anxiety is a result of the psychosocial impairment suffered by youth as a result of their conduct; however, those youth with CU traits are less distressed by their conduct problems and, in turn, show lower levels of anxiety compared to their counter parts with normative levels of CU traits (Frick et al., 1999). Thus, it is important to account for conduct problems while examining the association between CU traits and anxiety. Additionally, research has found positive associations between CU traits and thrill or sensation seeking (traits that should be inversely related to anxiety). For example, Essau et al. (2006) found the ICU total score to be positively related to measures of experience seeking and thrill and adventure seeking; however, they also found that that this association was somewhat isolated to females.

In sum, the majority of studies suggest support for the use of the ICU for both males and females, particularly regarding its factor structure. However, there is some evidence for gender differences with regard to the ICU and its associations with external criteria. One major limitation of past studies examining the ICU among females is that it has been mostly done among mixed-gender samples of community youth. There is a need to evaluate the psychometric properties of the ICU among a sample of females only, particularly one that is heterogeneous with regard to justice involvement.

1.3. Current study

The current study addresses limitations of past research by examining the psychometric properties of the ICU among a sample of females both with and without a history of justice involvement. Specifically, the current study examines the factor structure of the ICU based on confirmatory factor analysis and assesses the internal reliability of the ICU and its subscales based on Cronbach's alpha, mean inter-item correlations, and corrected item-total correlations. We also examine the convergent validity of the ICU with existing measures of CU traits as well as its criterion and divergent-related validity based on its association with a number of theoretically relevant variables. It was hypothesized that: (1) a 3-factor structure, identified by previous research, would best fit the ICU using confirmatory factor analytic methods and would show good internal consistency; (2) the ICU would exhibit expected associations with theoretically relevant outcomes used to a assess aspects of convergent validity (i.e., psychopathic traits, aggression) and discriminant validity (i.e., empathy, anxiety); and (3) the ICU scores would be significantly associated with relevant variables used to assess aspects of criterion validity, such as conduct disorder, age of crime onset, age of first contact with the law, increased crime seriousness, use of physical violence, alcohol abuse, and drug use.

2. Method

2.1. Participants

The sample was composed of 377 female participants ($N = 377$; mean age = 16.23 years; $SD = 1.38$ years; range = 14–19 years) recruited from forensic and school contexts. Of this total, 103 participants ($n = 103$; mean age = 16.41 years; $SD = 1.19$ years; range = 14–18 years) formed the forensic sample and 274 participants ($n = 274$; mean age = 16.17 years; $SD = 1.44$ years; range = 14–19 years) formed the school sample. The female inmates were recruited from the three juvenile detention centers managed by the Portuguese Ministry of Justice that admit female detainees. They were all detained by the court's decision, the harshest sanction a Portuguese juvenile court can impose. The community females were recruited from public schools of the Lisbon, Algarve, and Coimbra regions. All the participants were informed about the nature of the study and asked to voluntarily participate.

The participants were mainly Europeans (forensic sample: white Europeans = 59.2%, ethnic minorities = 40.8%; school sample: white Europeans = 90.1%, ethnic minorities = 9.9%) from an urban background (forensic sample = 97.1%; school sample = 100%) with a low socioeconomic status (forensic sample = 60.2%; school sample = 39.1%). The detained youths had their crime onset ($M = 12.50$ years; $SD = 1.56$ years) and first contact with the law ($M = 13.27$ years; $SD = 1.55$ years) early in their lives. Most were detained before they were 16 years old ($M = 15.90$, $SD = 1.04$) due to having committed serious and violent crimes (e.g., robbery, assault).

2.2. Measures

The Inventory of Callous–Unemotional Traits (ICU; Essau et al., 2006; Kimonis et al., 2008) is a 24-item self-report scale designed to assess callous–unemotional traits in youth derived from the callous–unemotional (CU) subscale of the Antisocial Process Screening Device (APSD; Frick & Hare, 2001). Each item is scored on a four-point ordinal scale (ranging from 0 = *Not at all true* to 3 = *Definitely true*). Scores are calculated by reverse-scoring the positively worded items and then summing the items to obtain a total score. Using confirmatory factor analysis it was possible to identify three independent factors, namely: Callousness, Unemotional, and Uncaring. All items also loaded onto a general callous–unemotional factor. Higher scores indicate an increased presence of CU traits. The Portuguese validation of the ICU (Pechorro, Hawes, Gonçalves & Ray, 2017; Pechorro, Ray, Barroso, Maroco, & Gonçalves, 2016) was used. Internal consistency reliability statistics for the ICU will be given later in this paper.

The self-report Antisocial Process Screening Devise (APSD-SR; Caputo, Frick, & Brodsky, 1999; Frick & Hare, 2001) is a multidimensional 20-item measure designed to assess psychopathic traits in adolescents. It was modeled after the Psychopathy Checklist (Forth et al., 2003; Hare, 2003; Pechorro, Barroso, Maroco, Vieira, & Gonçalves, 2015). Each item is scored on a 3-point ordinal scale (0 = *Not at all true*, 1 = *Sometimes true*, or 2 = *Definitely true*). The total score, as well as each dimension score, is obtained by adding the respective items. Some more recent studies (e.g., Frick, Barry, & Bodin, 2000) reported three main factors: Callous–Unemotional, Narcissism, and Impulsivity. Higher scores indicate higher psychopathic traits. The Portuguese version of the APSD-SR was used to analyze the convergent validity with the ICU because it is presently the most widely used self-report measure of psychopathic traits among youths (Pechorro, Hidalgo, Nunes, & Jiménez, 2016; Pechorro, Maroco, Poiares, & Vieira, 2013). The internal consistency for the current study, estimated by Cronbach's alpha, was: APSD-SR total = .77; APSD-SR Callous–Unemotional dimension = .51; APSD-SR Impulsivity dimension = .56; and APSD-SR Narcissism dimension = .72.

The Youth Psychopathic Traits Inventory (YPI; Andershed et al., 2002), is a 50-item self-report measure designed to assess the core personality traits of the psychopathic personality constellation in youth aged 12 years old and up. Each item is scored on a 4-point ordinal scale (ranging from 1 = *Does not apply at all* to 4 = *Applies very well*). The YPI consists of 10 subscales that were designed to be in line with Cooke and Michie's (2001) three-dimensional conceptualization of the psychopathy construct, namely: the Grandiose–Manipulative dimension (G–M), the Callous–Unemotional dimension (C–U), and the Impulsive–Irresponsible dimension (I–I). More specifically, the Grandiose–Manipulative dimension consists of the Dishonest charm, Grandiosity, Lying, and Manipulation subscales; the Callous–Unemotional dimension consists of the Callousness, Unemotionality, and Remorselessness subscales; the Impulsive–Irresponsible dimension consists of the Impulsivity, Thrill-seeking, and Irresponsibility subscales. Higher scores indicate higher levels of psychopathic traits. The Portuguese version of the YPI was used to analyze the convergent validity with the ICU because research has supported a stable three-factor structure in samples of female youths (Pechorro, Andershed, Ray, Maroco, & Gonçalves, 2015; Pechorro, Ribeiro da Silva, Rijo, Gonçalves & Andershed, 2016; Pechorro, Ribeiro da Silva, Rijo, Gonçalves, & Andershed, in press). The internal consistency for the current study, estimated by Cronbach's alpha, was: YPI total = .94; YPI G–M dimension = .93; YPI C–U dimension = .78; and YPI I–I dimension = .87.

The Reactive–Proactive Aggression Questionnaire (RPQ; Raine et al., 2006) is a self-report measure that distinguishes between reactive and proactive aggression. The RPQ consists of 23 items rated on a 3-point ordinal scale (0 = *Never*, 1 = *Sometimes*, 2 = *Often*). A total of 11 items assess reactive aggression (e.g., "Reacted angrily when provoked by others") and 12 items assess proactive aggression (e.g., "Hurt others to win a game"). Summed scores provide measures of reactive or proactive aggression, as well as total aggression. Higher scores indicate higher levels of aggression. The RPQ is appropriate for use with youth and young adults. The Portuguese version of the RPQ was used to analyze the convergent validity of the ICU because the psychopathy construct, in particular the CU traits dimension, identifies extremely violent individuals whom express both proactive and reactive aggression (Pechorro, Ray, Raine, Maroco & Gonçalves, in press; Pechorro, Kahn, Ray, Raine, & Gonçalves, in press). The internal consistency for the current study, estimated by Cronbach's alpha, was: RPQ total = .90; Reactive dimension = .81; and Proactive dimension = .87.

The Basic Empathy Scale (BES; Jolliffe & Farrington, 2006) is a 20-item self-report measure designed to assess empathy in youths. The BES was developed as a concise and coherent scale with the aim of measuring two distinct factors: affective empathy and cognitive empathy. Each item is scored on a five-point ordinal scale (ranging from 1 = *Strongly disagree* to 5 = *Strongly agree*). Scores are calculated by reverse-scoring the positively worded items and then summing the items to obtain the total score and the factor scores. Higher scores indicate an increased presence of the associated characteristics. The Portuguese validation of the BES was used to analyze the discriminant validity of the ICU because the extension of psychopathy to youths has highlighted the core affective components of this disorder and, given that low empathy is a core feature of the construct, it would be expected to correlate negatively with empathy

(Pechorro, Kahn, Gonçalves & Ray, submitted for publication; Pechorro, Ray, Salas-Wright, Maroco, & Gonçalves, 2015). The internal consistency for the current study, estimated by Cronbach's alpha, was: BES total = .88; Affective dimension = .83; and Cognitive dimension = .91.

The Social Anxiety Scale for Adolescents (SAS-A; La Greca & Lopez, 1998) is an 18-item self-report scale designed to assess subjective experience of social anxiety in adolescents. Each item is rated on a 5-point ordinal scale (ranging from 1 = *Not at all* to 5 = *All the time*). Three distinct subscales have been identified: the Fear of Negative Evaluation (FNE) subscale reflects fears, concerns, or worries regarding negative evaluations from peers; the Social Avoidance and Distress — New (SAD-New) subscale reflects social avoidance and distress with new social situations or unfamiliar peers; the Social Avoidance and Distress — General (SAD-General) subscale reflects more generalized or pervasive social distress, discomfort, and inhibition. Scores are obtained by summing the ratings for the items comprising each subscale. The Portuguese version of the SAS-A was used to analyze the discriminant validity of the ICU because of its good psychometric properties and the fact that social anxiety generally does not overlap with the psychopathy construct (Pechorro, Ayala-Nunes, Nunes, Maroco, & Gonçalves, 2016). The internal consistency for the current study, estimated by Cronbach's alpha, was: SAS total = .93; SAS-A FNE dimension = .92; SAS-A SAD-New dimension = .91; and SAS-A SAD-General dimension = .86.

Delinquency seriousness was assessed in the current study using the *Sellin-Wolfgang Index of Crime Seriousness* (ICS; Wolfgang et al., as cited in White et al., 1994). This measure guided the delinquency seriousness classification of the official court reports. Level 0 consists of no delinquency. Level 1 consists of minor delinquency committed at home such as stealing minor amounts of money from mother's purse. Level 2 consists of minor delinquency outside the home including shoplifting something worth less than 5 euros, vandalism and minor fraud (e.g. not paying bus fare). Level 3 consists of moderately serious delinquency such as any theft over 5 euros, gang fighting, carrying weapons, and joyriding. Level 4 consists of serious delinquency such as car theft and breaking and entering. Level 5 consists of having performed at least two of each of the behaviors in level 4.

A questionnaire was constructed to describe the socio-demographic and criminal characteristics of the participants, to offer a descriptive account of the sample, and to explore the association of some of these variables (e.g., age of onset) with ICU scores. This questionnaire included variables such as participants' age, nationality, ethnic group (white Europeans vs. minorities), socioeconomic status, parental marital status, level of schooling completed, age of crime onset, age of first problem with the law, age of first incarceration, length of the conviction, taking of psychiatric drugs, use of physical violence in committing crimes, alcohol use, cannabis use, and cocaine/heroin use (these last three variables coded as 5-point ordinal variables). Socioeconomic status (SES) was measured by considering both parental level of education and profession, appropriate to the Portuguese reality (Simões, 1994). DSM-5's Conduct Disorder (CD; American Psychiatric Association, 2013) was assessed using the official diagnostic criteria (i.e., the standard method described in the DSM-5).

2.3. Procedures

Authorization to assess detained youths was obtained from the General Directorate of Reintegration and Prison Services of the Portuguese Ministry of Justice. The detainees, recruited from the three Portuguese juvenile detention centers that admit females, were informed about the nature of the study and asked to voluntarily participate. The participation rate was approximately 89%. Reasons for non-participation included: refusal to participate (6%), inability to participate due to not understanding the Portuguese language (4%), and inability to participate due to security issues (1%). Authorization to assess youth in the school context was obtained from the General Directorate of Education of the Portuguese Ministry of Education, and parental permission was obtained for all children. The participants, students from public schools of the Lisbon, Algarve, and Coimbra regions, were informed about the nature of the study and asked to voluntarily participate. The participation rate was approximately 84%. The measures were administered in an appropriate setting. Male subjects and subjects that were 21 years or older were excluded from the present study. Some of the information (e.g., socio-demographic variables) was obtained from self-reports and institutional files were also used to complement the information obtained (e.g., prior criminal activity and detentions). The first author (PhD in Psychology and PhD in Legal Medicine and Forensic Sciences) made the diagnosis of Conduct Disorder (American Psychiatric Association, 2013), after interviewing each youth and reviewing their institutional files.

The data were analyzed using SPSS v24 (IBM SPSS, 2016) and EQS 6.3 (Bentler & Wu, 2015). The factor structure of the Portuguese language version of the ICU was assessed with Confirmatory Factor Analysis (CFA) performed in EQS 6.3 (Bentler & Wu, 2015; Byrne, 2006). Goodness of fit indices were calculated, including Satorra-Bentler chi-square/degrees of freedom, comparative fit index (CFI), incremental fit index (IFI), and root mean square error of approximation (RMSEA). A chi-square/degrees of freedom value < 5 is considered adequate, ≤ 2 is considered good and values = 1 are considered very good (Maroco, 2014; West, Taylor, & Wu, 2012). A CFI $\geq .90$ and RMSEA $\leq .10$ indicate adequate fit, whereas a CFI $\geq .95$ and RMSEA $\leq .06$ indicate good model fit (Byrne, 2006). Regarding the incremental fit index, also known as Bollen's IFI, values that exceed .90 are regarded as acceptable. In terms of the Akaike Information Criterion (AIC), which measures the expected discrepancy between the true model and the hypothesized model, the model with the smallest AIC should be selected (West et al., 2012). The CFA was performed on the original scale items and only items with standardized loadings above .30 were retained (Nunnally & Bernstein, 1994). Polychoric correlations with robust methodologies were used to perform the CFA on the ordinal items and modification indices were considered (Byrne, 2006). Pearson correlations were used to analyze associations between scale variables, Spearman correlations were used with ordinal variables, and point-biserial correlations were used to analyze associations between nominal dichotomous variables and scale variables (Leech, Barrett, & Morgan, 2015). Cronbach's alpha values above .70 were considered to be good, mean inter-item correlations were considered good if between .15 and .50, and corrected item-total correlations were considered satisfactory if above .20 (Clark & Watson, 1995; Nunnally & Bernstein, 1994).

3. Results

The first step in examining the psychometric properties of the ICU was to use CFA to examine the fit of previously reported factor structures for this instrument, focusing primarily on replicating the factor structures suggested. Regarding the forensic sample, no CFA was performed due to the insufficient size ($n = 103$). As shown in Table 1, the correlated three-factor model for both the school sample

Table 1.
Goodness of fit indexes for the different models of the ICU.

	S-Bχ^2/df	IFI	CFI	RMSEA (90% CI)	AIC
Forensic sample[a]					
ICU 1-factor	–	–	–	–	–
ICU 3-factor	–	–	–	–	–
ICU 3-factor 2nd order	–	–	–	–	–
Bifactor	–	–	–	–	–
School sample					
ICU 1-factor	5.84	.73	.73	.13(.13–.14)	966.67
ICU 3-factor[b]	2.92	.90	.90	.08(.08–.09)	206.92
ICU 3-factor 2nd order	2.87	.76	.75	.08(.07–.09)	195.58
Bifactor	2.72	.80	.79	.08(.07–.09)	146.46
Total sample					
ICU 1-factor	7.28	.79	.78	.13(.12–.14)	1214.82
ICU 3-factor[b]	3.65	.91	.91	.08(.08–.09)	373.95
ICU 3-factor 2nd order	2.86	.84	.84	.07(.06–.08)	195.26
Bifactor	3.20	.83	.83	.08(.07–.08)	242.98

Note. ICU = Inventory of Callous–Unemotional Traits; S-Bχ^2 = Satorra-Bentler chi-square; df = degrees of freedom; IFI = Incremental Fit Index; CFI = Comparative Fit Index; RMSEA (90% CI) = Root Mean Square Error of Approximation (90% Confidence Interval); AIC = Akaike Information Criterion; ML = Maximum Likelihood.

[a] No CFA was performed due to the insufficient size (n = 103) of the forensic sample.

[b] Item 10 was removed due to low loadings (< .30).

and the total sample obtained a better fit than the unidimensional model, the three-factor second-order model, and the bifactor model.

Presented in Table 2 are the loadings for the 3-factor first order inter-correlated structure of the ICU. As can be seen in Table 2, the factor loadings reached acceptable levels (> .30) and support the groupings of items identified by prior research. However, it is important to point out that item 10 had to be removed due to low loadings (<.30).

Table 2
Item loadings for the confirmatory 3-factor first order inter-correlated structure of the ICU using the total sample.

Items	Factor 1	Factor 2	Factor 3
Callousness			
2. What I think is right and wrong is different from what […].	.34		
4. I do not care who I hurt to get what I want.	.79		
7. I do not care about being on time.	.53		
8. I am concerned about the feelings of others. (R)	.76		
9. I do not care if I get into trouble.	.63		
10. I do not let my feelings control me. (E)	–		
11. I do not care about doing things well.	.61		
12. I seem very cold and uncaring to others.	.48		
18. I do not feel remorseful when I do something wrong.	.72		
20. I do not like to put the time into doing things well.	.66		
21. The feelings of others are unimportant to me.	.75		
Uncaring			
3. I care about how well I do at school or work. (R)		.48	
5. I feel bad or guilty when I do something wrong. (R)		.81	
13. I easily admit to being wrong. (R)		.58	
15. I always try my best. (R)		.48	
16. I apologize ("say I am sorry") to persons I hurt. (R)		.70	
17. I try not to hurt others' feelings. (R)		.85	
23. I work hard on everything I do. (R)		.35	
24. I do things to make others feel good. (R)		.85	
Unemotional			
1. I express my feelings openly. (R)			.80
6. I do not show my emotions to others.			.89
14. It is easy for others to tell how I am feeling. (R)			.62
19. I am very expressive and emotional. (R)			.62
22. I hide my feelings from others.			.76

Note. ICU = Inventory of Callous–Unemotional Traits; (R) = negatively worded items reverse-scored prior to analysis; (E) = excluded item.

Presented in Table 3 are the correlations between the ICU total and its dimensions for the total sample as well as for the forensic and school samples separately. As seen in the table, these correlations were mostly moderate to high. The weakest correlations emerged among the subscales of the ICU particularly for the forensic sample. However, the latter finding may be due to low power considering that the forensic sample is much smaller. Thus, it is important to point out that the direction is consistent across the two samples.

The next step was the estimation of Cronbach's alpha, mean inter-item correlations and corrected item-total correlations range for the ICU. The results presented in Table 4 show that the ICU and its dimensions exhibited good internal consistency.

Correlations and partial-correlations (controlling for each of the dimensions of the ICU) with convergent and discriminant validity measures are presented in Table 5. As shown in the table, the correlations of the ICU and its dimensions with the APSD-SR, YPI, and the RPQ revealed mostly moderate to high statistically significant positive correlations. The discriminant validity with the BES and SAS-A revealed mostly the expected negative or low correlations. It is worth pointing out that the Unemotional subscale showed the weakest correlations and even negative partial-correlations (e.g., with APSD-SR Narcissism and YPI Impulsive–Irresponsible) in terms of convergent

Table 3
Pearson correlations matrix for the ICU.

	ICU total	Callousness	Uncaring	Unemotional
Forensic sample				
ICU total	1			
Callousness	.83***	1		
Uncaring	.71***	.36***	1	
Unemotional	.59***	.23*	.22*	1
School sample				
ICU total	1			
Callousness	.82***	1		
Uncaring	.73***	.38***	1	
Unemotional	.72***	.40***	.31***	1
Total sample				
ICU total	1			
Callousness	.84***	1		
Uncaring	.75***	.44***	1	
Unemotional	.65***	.32***	.26***	1

Note. ICU = Inventory of Callous–Unemotional Traits.

*** Significant at the .001 level.

Table 4
Cronbach's alpha, mean inter-item correlation, and corrected item-total correlation range for the ICU.

	Cronbach α	MIIC	CITCR
Forensic sample			
ICU total	.84	.19	.17–.65
ICU Callousness	.79	.27	.23–.60
ICU Uncaring	.78	.30	.22–.72
ICU Unemotional	.70	.32	.26–.62
School sample			
ICU total	.86	.21	.22–.57
ICU Callousness	.76	.24	.31–.52
ICU Uncaring	.80	.33	.45–.55
ICU Unemotional	.86	.49	.53–.76
Total sample			
ICU total	.86	.21	.24–.57
ICU Callousness	.80	.28	.31–.55
ICU Uncaring	.80	.34	.38–.60
ICU Unemotional	.82	.47	.50–.74

Note. ICU = Inventory of Callous–Unemotional Traits; Cronbach α = Cronbach's alpha; MIIC = Mean inter-item correlation; CITCR = Corrected item-total correlation range.

Table 5
Correlations and partial correlations of the ICU with other psychometric measures using the total sample.

Psychometric measures	ICU total	Callousness	Uncaring	Unemotional
APSD-SR total	.61***	.58***(.45***)	.59***(.47***)	.16**(−.12*)
APSD-SR Callous–Unemotional	.56***	.37***(.12*)	.56***(.45***)	.33***(.20***)
APSD-SR Impulsivity	.37***	.41***(.33***)	.36***(.24***)	.02^{ns}(−.17**)
APSD-SR Narcissism	.45***	.46***(.36***)	.44***(.32***)	.05^{ns}(−.17**)
YPI total	.53***	.53***(.41***)	.51***(.39***)	.09^{ns}(−.16**)
YPI Grandiose–Manipulative	.45***	.45***(.34***)	.43***(.31***)	.07^{ns}(−.13*)
YPI Callous–Unemotional	.53***	.46***(.30***)	.50***(.37***)	.19***(−.01^{ns})
YPI Impulsive–Irresponsible	.43***	.46***(.38***)	.42***(.31***)	.01^{ns}(−.22***)
RPQ total	.47***	.51***(.43***)	.44***(.30***)	.04^{ns}(−.21***)
RPQ Reactive	.44***	.44***(.33***)	.45***(.34***)	.05^{ns}(−.16**)
RPQ Proactive	.42***	.50***(.44***)	.35***(.20***)	.02^{ns}(−.20***)
RPQ Reactive (controlling also for Proactive)	.44***(.24***)	.44***(.07^{ns})	.45***(.28***)	.05^{ns}(−.05^{ns})
RPQ Proactive (controlling also for Reactive)	.42***(.18***)	.50***(.32***)	.35***(−.01^{ns})	.02^{ns}(−.14**)
BES total	−.28***	−.13*(.05^{ns})	−.29***(−.24***)	−.25***(−.20***)
BES Affective	−.23***	−.13*(.00^{ns})	−.20***(−.14**)	−.22***(−.17**)
BES Cognitive	−.22***	−.07^{ns}(.09^{ns})	−.28***(−.26***)	−.19***(−.14**)
SAS-A total	.01^{ns}	.04^{ns}(.06^{ns})	−.06^{ns}(−.09^{ns})	.05^{ns}(.06^{ns})
SAS-A General	.09^{ns}	.06^{ns}(.04^{ns})	−.04^{ns}(−.10^{ns})	.19***(.19***)
SAS-A New	.06^{ns}	.05^{ns}(.03^{ns})	.01^{ns}(−.02^{ns})	.09^{ns}(.08^{ns})
SAS-A FNE	−.06^{ns}	.01^{ns}(.08^{ns})	−.10^{ns}(−.11*)	−.07^{ns}(−.06^{ns})
SAS-A total (controlling also for CD)	.01^{ns}(.03^{ns})	.04^{ns}(.07^{ns})	−.06^{ns}(−.09^{ns})	.05^{ns}(.05^{ns})
SAS-A General (controlling also for CD)	.09^{ns}(.10^{ns})	.06^{ns}(.01^{ns})	−.04^{ns}(−.09^{ns})	.19***(.21***)
SAS-A New (controlling also for CD)	.06^{ns}(.09^{ns})	.05^{ns}(.05^{ns}	.01^{ns}(−.01^{ns})	.09^{ns}(.07^{ns})
SAS-A FNE (controlling for also CD)	−.06^{ns}(−.06^{ns})	.01^{ns}(.08^{ns})	−.10^{ns}(−.11*)	−.07^{ns}(−.06^{ns})

Note. ICU = Inventory of Callous–Unemotional Traits; APSD-SR = Antisocial Process Screening Device — Self-Report; YPI = Youth Psychopathic Traits Inventory; RPQ = Reactive–Proactive Aggression Questionnaire; BES = Basic Empathy Scale; SAS-A = Social Anxiety Scale for Adolescents; SAS-A FNE = Fear of Negative Evaluation dimension; CD = Conduct Disorder diagnosis. Correlations in parentheses represent partial correlations controlling for the other two subscales except where otherwise noted.
Partial correlations controlling for the dimensions of the ICU are given in parenthesis.
ns = non-significant.

*** Significant at the .001 level.

** Significant at the .01 level.

* Significant at the .05 level.

validity and also an unexpected positive correlation/partial-correlation with generalized anxiety.

Presented in Table 6 are the correlations and partial-correlations (controlling for each of the dimensions of the ICU) with other variables (e.g., age, years of education). Statistically significant correlations were found between the ICU and many of the variables analyzed (e.g., age of first problem with the law, CD diagnosis, crime seriousness). Interestingly, the Unemotional subscale also presented the weakest associations, this time in terms of criterion-related validity, with some partial-correlations being unexpectedly negative (e.g., with CD, crime seriousness).

Table 6
Correlations and partial correlations of the ICU with other variables using the total sample.

Variables	ICU total	Callousness	Uncaring	Unemotional
Age	.08^{ns}	−.09^{ns}(.06^{ns})	.09^{ns}(.06^{ns})	−.02^{ns}(−.05^{ns})
Education (years)	−.21***	−.20***(−.13*)	−.24***(−.18**)	−.02^{ns}(−.08^{ns})
SES	−.07^{ns}	−.10^{ns}(.03^{ns})	−.04^{ns}(.06^{ns})	−.01^{ns}(.09^{ns})
Psychiatric drugs	.29***	.25***(.15**)	.28***(.19***)	.10^{ns}(−.01^{ns})
ACO	−.14^{ns}	−.16^{ns}(−.13^{ns})	−.20*(−.18*)	.10^{ns}(.19*)
AFPL	−.31**	−.25**(−.15^{ns})	−.27**(−.19*)	−.12^{ns}(−.01^{ns})
AFIJDC	−.25*	−.12^{ns}(.04^{ns})	−.28**(−.25*)	−.17^{ns}(−.11^{ns})
CD symptoms	.39***	.44***(.36***)	.38***(.26***)	.01^{ns}(−.20***)
CD diagnosis	.35***	.39***(.31***)	.33***(.21***)	.02^{ns}(−.15**)
ICS	.41***	.45***(.37***)	.37***(.23***)	.03^{ns}(−.17**)
PVC	.38***	.40***(.31***)	.36***(.24***)	.04^{ns}(−.14*)
NCC	.29***	.20*(.08^{ns})	.23*(.13^{ns})	.20*(.12^{ns})
Alcohol	.28***	.34***(.29***)	.30***(15*)	−.05^{ns}(−.17**)
Cannabis	.33***	.31***(.25***)	.34***(.17**)	.02^{ns}(−.14*)
Cocaine/heroin	.29***	.29***(.24***)	.28***(.14*)	.01^{ns}(−.09^{ns})

Note. ICU = Inventory of Callous–Unemotional Traits; ACO = Age of crime onset; AFPL = Age of first problem with the law; AFIJDC = Age of first incarceration into a Juvenile Detention Center; CD symptoms = DSM-5 Conduct Disorder symptoms scored as a scale; CD diagnosis = DSM-5 Conduct Disorder diagnosis; ICS = Index of Crime Seriousness; PVC = Previous violent crimes; NCC = Number of criminal charges.
Partial correlations controlling for the dimensions of the ICU are given in parenthesis
ns = non-significant.

*** Significant at the .001 level.

** Significant at the .01 level.

* Significant at the .05 level.

4. Discussion

The main aim of this study was to analyze the psychometric properties of the ICU among incarcerated female juvenile offenders and community youths. It was hypothesized that: (1) a 3-factor structure, identified by previous research, would best fit the ICU using confirmatory factor analytic methods and would show good internal consistency; (2) the ICU would exhibit expected associations with theoretically relevant outcomes used to a assess aspects of convergent validity (i.e., psychopathic traits, aggression) and discriminant validity (i.e., empathy, anxiety); and (3) the ICU scores would be significantly associated with relevant variables used to assess aspects of criterion validity, such as conduct disorder, age of crime onset, age of first contact with the law, increased crime seriousness, use of physical violence, alcohol abuse, and drug use.

In the forensic sample no CFA was performed due to the insufficient sample size (see Kline, 2011; Muthén & Muthén, 2002). The ICU total and its dimensions reached the recommended Cronbach's α above .70 (Nunnally & Bernstein, 1994). These values of Cronbach's alpha were better than the ones obtained by Colins et al. (2016) among detained female youths. Regarding the mean inter-item correlations, the ICU total and its dimensions were all within the recommended value range of .15–.50 (Clark & Watson, 1995; Domino &

Domino, 2006), revealing adequate heterogeneity between the items. In terms of the corrected item-total correlation range, the ICU total failed to reach the minimum recommended value of .20 (Kaplan & Saccuzzo, 2013; Nunnally & Bernstein, 1994), suggesting weak associations between some items and the total scale among this sample. This, however, may reflect the multidimensional nature of the ICU given that the corrected item-total correlations corresponding to each of the three dimensions of the ICU were all above the .20 value.

In the school sample, in terms of the CFA, several fit indices suggested that the three-factor inter-correlated model presented the best fit, but item 10 ("I do not let my feelings control me") was removed due to the low loading it obtained. The removal of this item due to low loadings problems is consistent with prior research among male samples and mixed gender samples (e.g., Lopez-Romero, Gomez-Fraguela, & Romero, 2015; Kimonis et al., 2008; Ray, Frick, Thornton, Steinberg, & Cauffman, 2016). As in the forensic sample, we evaluated the internal consistency of the ICU and its dimensions based on several indices including Cronbach's α level, the mean inter-item correlations, and the corrected item-total correlation range. All three measures of internal consistency suggested that the ICU and each of the dimensions had good internal reliability based on minimum recommended values (Kaplan & Saccuzzo, 2013; Nunnally & Bernstein, 1994). Again, these values were better than the ones obtained by Colins et al. (2016) among detained female youths.

In the total sample, the three-factor inter-correlated model also presented the best fit, but item 10 was also removed due to the low loading it obtained. Good values were also found regarding the internal consistency of the ICU and its dimensions, the mean inter-item correlations, and the corrected item-total correlation range. The correlations between the ICU total and its dimensions showed mostly moderate to high statistically significant positive associations, with the weakest correlations being found between the Unemotional dimension and the other two dimensions of the ICU among the forensic sample. These findings are in line with previous studies, which have found moderate correlations among the dimensions with particularly weak correlations among the Unemotional scale (e.g., Colins et al., 2016; Essau et al., 2006; Kimonis et al., 2008).

The convergent validity of the ICU and its dimensions with the APSD-SR, the YPI, and the RPQ revealed mostly moderate to high statistically significant positive correlations demonstrating the expected overlap in line with the ones found in previous studies (e.g., Lopez-Romero et al., 2015; Pihet, Etter, Schmid, & Kimonis, 2015; Roose et al., 2010). The exception was the Unemotional dimension, which revealed mostly non-significant correlations and even unexpected negative partial-correlations. This suggests that the Unemotional dimension should be used with caution because it may not be tapping the CU construct. More work at the item-level is necessary to inform revisions of the Unemotional subscale in order to better capture the intended construct (see Colins et al., 2016). With regard to discriminant validity (AERA, APA,, & NCME, 2014; Kaplan & Saccuzzo, 2013), for the most part, the associations revealed the expected non-significant or low negative correlations with empathy (e.g., Kimonis et al., 2008; Munoz et al., 2011; Roose et al., 2010) and anxiety (e.g., Berg et al., 2013; Essau et al., 2006; Ezpeleta et al., 2011; Waller et al., 2015).

The analyses also showed moderate to high associations between the ICU and several criterion related parameters such as criminal onset, CD symptoms and diagnosis, crime seriousness, history of previous violent crime, number of criminal charges and substance use. These findings are consistent with previous studies using samples of males (e.g., Byrd et al., 2013; Kahn, Byrd, & Pardini, 2013) and mixed gender samples (e.g., Lopez-Romero et al., 2015; McMahon, Witkiewitz, & Kotler, 2010). Again, the exception was the Unemotional dimension, which revealed mostly non-significant correlations and negative partial-correlations. These criterion-related and convergent validity problems of the Unemotional dimension suggest that the self-reported version items of this subscale are poor indicators of an overarching CU factor (see Hawes et al., 2014).

Like their male peers, females in the forensic and school context who display more CU features are likely to exhibit generalized problem behaviors that are associated with juvenile justice system involvement. The high prevalence of conduct disorder (85.4%) found in the current forensic sample was higher than those typically found among forensic samples composed of female youths (Sevecke & Kosson, 2010). This was not a surprise due to the fact that youth incarceration is the harshest sanction a Portuguese juvenile court can impose and this sanction is reserved for the more serious cases. These findings are consistent with other studies of youth where CU traits were robustly associated with arrest, probation, incarceration, total offending, and overall criminal justice system involvement (Frick et al., 2014). In sum, these findings are mostly consistent with other previous research using male adolescent detainees (e.g., Lopez-Romero et al., 2014; Pihet et al., 2015).

Our findings should be considered in light of several limitations. First, we must mention that only the self-report version of the ICU was used and future research should attempt to replicate these results using multiple informants (i.e., parent-report, teacher-report). Second, the small size of the forensic sample excluded the use of CFA among this specific sample. Third, further psychometric procedures are needed and must be done in the near future (e.g., cross-validation, temporal stability).

CU traits have been shown to delineate a unique subgroup of children and adolescents with severe and persistent conduct problems that seem to have unique etiological origins (e.g., Hawes et al., 2014; Waller et al., 2015). Considering the costs that these children and adolescents create in terms of their behaviors and collateral effects on other people and society as a whole, we hope that our study may promote future research and a more generalized use of the ICU among different cultures, ethnicities and samples. Our findings are consistent with that of previous studies suggesting support for the use of the ICU for both males and females (e.g., Essau et al., 2006; Fanti et al., 2009; Kimonis et al., 2008) in terms of its psychometric properties. One major limitation of past studies examining the ICU among females is that it has been done among mixed-gender samples of community youth. Our research addressed this major limitation of past studies by being one of the first to examine the psychometric properties of the ICU among a sample of females both with and without a history of justice involvement. That is, among this sample of females, we found support for the three-factor structure of the ICU, the internal consistency of the ICU, and convergent and divergent validity of the ICU and is dimensions. Additionally, the findings from the current study raise important concerns regarding the Unemotional subscale of the ICU that are consistent with prior research among male and mixed-gender samples that requires further investigation. In sum, we were able to provided clear evidence supporting the ICU as a valid measure of CU traits in a Portuguese sample referred and non-referred female youth.

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