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UNIVERSIDADE Ð
COIMBRA

Daniela Pereira Alves

PSYCHOPATHIC SEVERITY PROFILES OF COMMUNITY BOYS AND GIRLS AND ITS ASSOCIATION WITH EVOLUTIONARY VARIABLES

Dissertação de Mestrado no âmbito do Mestrado em Psicologia Clínica Forense, orientada pelo Professor Doutor Daniel Maria Bugalho Rijo e Doutora Diana Ribeiro da Silva e apresentado à Faculdade de Psicologia e de Ciências da Educação da Universidade de Coimbra

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Institutional framework

The present dissertation was developed within the strategic project of the Center for Research in Neuropsychology and Cognitive-Behavioral Intervention (CINEICC) (UIDB/00730/2020), and within the Research Project: "DYSheart - Emotion (dys)regulation in adolescence: Heart rate variability as a psychophysiological marker of emotion regulation in normative, internalizing, and externalizing youth samples" (PTDC/PSI-ESP/29294/2017), financed by the Fundação para a Ciência e Tecnologia (FCT) and by the Fundo Social Europeu (POPH/FSE).

Agradecimentos

Ao Professor Doutor Daniel Rijo, pelo exemplo de profissional de excelência que é. Por todo o conhecimento, sabedoria e rigor, pela referência incontestável. Foi um privilégio tê-lo como Professor e Orientador. Agradeço todos os ensinamentos e valiosos conselhos.

À Doutora Diana Ribeiro da Silva, por ser um guia incansável nesta caminhada final. Tenho-a como um modelo de excelência a seguir. Agradeço toda a orientação, sabedoria, ajuda e disponibilidade. Agradeço o apoio, amabilidade, validação e reconforto transmitidos. Foi sem dúvida fundamental a este meu percurso.

À Joana V. pela amizade criada e por ter sido a minha companheira nesta etapa. Agradeço toda a partilha de desabafos, ansiedades, medos e inquietações. Agradeço todo o apoio e entreajuda nesta caminhada em conjunto.

A todos os participantes que tornaram este estudo possível, agradeço a contribuição e o tempo despendido.

À Dani e à Rita por serem casa longe de casa. Por terem tornado o meu percurso académico e a minha vida tão mais feliz. Os domingos nunca mais foram domingos.

À Kika por toda a ajuda, amizade, boa-disposição e alegria. Este ano teria sido muito mais cinzento sem ti.

À Andreia, à Kika, à Dani e à Rita, por terem tornado Coimbra num lugar que sempre recordarei com o maior carinho e saudade.

A todos os meus amigos, e em especial à Joana J., Raquel, Margarida e Catarina por tornarem todos os regressos a casa tão especiais. Por serem família sempre.

À minha família, e em especial aos meus pais pelo apoio incansável, por todas as palavras de encorajamento e conforto, por todo o amor. Por serem tudo para mim.

À Ia, por tudo. A saudade é imensa. Espero que estejas a olhar por mim e orgulhosa deste meu percurso. A ti o dedico.

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Abstract

Psychopathic traits have been linked to characteristics like lack of empathy and emotion. However, recent research, adopting an evolutionary-based perspective, has suggested that psychopathic traits may be associated with externalizing ways of coping with unpleasant emotions, serving protective and adaptive purposes. These studies used variable-centered methods (e.g., Structural Equation Models), which limit our understanding of how evolutionary variables may differ across individuals. This work aims to address this issue by using a person-centered approach (Latent Profile Analysis) to identify groups of community boys and girls based on their levels of psychopathic traits (assessed with the Proposed Specifiers for Conduct Disorder scale; PSCD) and to compare those psychopathic profiles on key evolutionary variables (shame, fears of compassion and social safeness). Participants were 366 boys and 419 girls from a community sample. Results show that different psychopathic profiles differ on the abovementioned evolutionary variables. Although with differences across samples, comparisons between psychopathic profiles showed that, globally, a higher severity psychopathic profile is positively associated with higher levels of shame and fears of compassion and negatively linked to social safeness. Findings seem to strengthen the increasing evidence on the evolutionary roots of psychopathic traits, showing that this set of traits may be an adaptive response to hide high levels of shame and increased fears of compassion (for/from others and for the self) as well as lower safeness in social relationships.

Keywords: psychopathic traits, evolutionary approach, emotional regulation, shame, fears of compassion, social safeness.

Resumo

Os traços psicopáticos têm sido associados a características como a falta de emoção e de empatia. Contudo, estudos recentes, que adotam uma perspetiva evolucionária, sugerem que os traços psicopáticos podem estar associados a estratégias externalizantes para lidar com emoções desagradáveis, servindo um propósito protetor e adaptativo. Estes estudos utilizam métodos centrados em variáveis (e.g., Modelos de Equações Estruturais), o que limita a compreensão sobre como o papel das variáveis evolucionárias pode diferir entre indivíduos. Este estudo tem como objetivo abordar esta questão recorrendo a um método centrado na pessoa (Análise de Perfis Latentes) para identificar grupos de rapazes e raparigas da comunidade com base nos seus níveis de traços psicopáticos (avaliados com a medida Proposed Specifiers for Conduct Disorder; PSCD) e comparar esses perfis psicopáticos em variáveis evolucionárias-chave (vergonha, medos da compaixão e segurança nas relações sociais). Os participantes foram 366 rapazes e 419 raparigas de uma amostra da comunidade. Os resultados demonstram que diferentes perfis psicopáticos diferem nas variáveis evolucionárias mencionadas. Embora existam diferenças entre as amostras, as comparações entre perfis psicopáticos mostram que, globalmente, um perfil psicopático mais severo está positivamente associado a níveis mais altos de vergonha e de medos da compaixão e negativamente associado à segurança nas relações sociais. Este estudo parece fortalecer as evidências crescentes sobre a base evolucionária dos traços psicopáticos, mostrando que este conjunto de traços pode ser uma resposta adaptativa para mascarar altos níveis de vergonha e níveis acrescidos de medos da compaixão (pelos/dos outros e por si mesmo), bem como baixos níveis de segurança nas relações sociais.

Palavras-Chave: traços psicopáticos, abordagem evolucionária, regulação emocional, vergonha, medos da compaixão, segurança nas relações sociais.

Introduction

Psychopathic traits are commonly associated with antisocial behavior and include a range of problematic characteristics in the interpersonal, affective, and behavioral fields, being connected with Grandiose–Manipulative (GM), Callous–Unemotional (CU) and Daring–Impulsive (DI or Impulsive-Irresponsible - II) traits, respectively (Neumann & Hare, 2008; Salekin, 2017). Although more prevalent and severe in forensic populations, psychopathic traits are also present in community samples, being continuously distributed throughout the population, differing from normality in degree rather than in kind, in both adult and youth samples (Edens et al., 2006; Ribeiro da Silva et al., 2019). Increasing the study of psychopathic traits in community samples, also considering the influence of sex, has proved to be of the highest importance, as the absence of antisocial behavior may help to disentangle the associations between this set of traits and other outcome variables (Caldwell et al., 2012; Ribeiro da Silva et al., 2020).

Most research on psychopathic traits has been performed in forensic samples and many authors emphasize the need to expand our understanding of its manifestation among the general population (Hart & Hare, 1994; Levenson et al., 1995; Lynam et al., 1999; Salekin et al., 2001; Widiger & Lynam, 1998). Researchers have also stated that, when it comes to psychopathic traits, the best time to prevent and intervene is early in life. So, to make prevention possible, it is of utmost importance to assess this matter in youth samples (Lynam, 1996; Lynam et al., 2007; Salekin & Frick, 2005; Ribeiro da Silva et al., 2013). In sum, conducting more studies in youth community samples seems important as it could help to provide valuable insights for the study and design of preventive interventions (Neumann & Hare, 2008).

Although there is great interest in studying the presence of psychopathic traits in childhood and adolescence, few authors have developed their work upon an evolutionary basis, in which psychopathic traits are viewed as adaptive in dealing with adverse childhood experiences (Glenn, 2019; Ribeiro da Silva et al., 2013; Ribeiro da Silva et al., 2019b). Furthermore, it appears to be relevant to study evolutionary-based models in boys and girls from the community to achieve a better understanding about the potential discrepancies of this matter across sexes (Ribeiro da Silva et al., 2013; Ribeiro da Silva et al., 2019b; Shiner, 2009; Verona et al., 2010). There is thus a need to continue to study the potential evolutionary basis of psychopathic traits in different developmental stages, while also considering the potential influence of sex (e.g., Ribeiro da Silva et al., 2019b).

Recent findings point out that, on the one hand, adolescent females tend to act more on the internalizing spectrum of behavioral issues, struggling to deal with shame and other difficult emotions (Paulo et al., 2020). On the other hand, adolescent males tend to express more externalizing behaviors, directed to others (Garnefski et al., 2005; Paulo et al., 2020), with a tendency to report higher levels of psychopathic traits than girls (Pechorro et al., 2016; Ribeiro da Silva et al., 2021). Different studies claim that females, in general, show less violent tendencies but, among others, enroll in more sexual promiscuous conducts (Loeber et al., 2009; Odgers & Moretti, 2002; Ribeiro da Silva et al., 2013; Sevecke et al., 2009). Moreover, antisocial behavior in psychopathy, characterized by aggressive criminal behavior, is more common in boys than in girls, while the affective and interpersonal domains are different across sexes, with girls being shallower and more mischievous and displaying an increased tendency to lie than boys (Salekin et al., 2001; Verona et al., 2010). While the psychopathic traits assessment instruments have proven to be generalizable to female samples, they may not capture the psychopathic pattern as accurately as they do in male samples (Salekin et al., 1997; Verona et al., 2010; Verona & Vitale, 2018). On that premise, there is a lack of assessment tools specifically adapted to address psychopathy in females (Kotler & McMahon, 2005, 2010; Ribeiro da Silva et al., 2013).

Throughout the years, psychopathic traits have been associated with a lack of emotional experience, with features such as poor sensitivity to social feedback, low empathy, and high impulsivity (Del Giudice et al., 2011; Ellis et al., 2013; Ribeiro da Silva et al., 2015). However, new findings note that individuals with psychopathic traits do feel emotions even if regulating them is the challenge (Garofalo et al., 2018; Ribeiro da Silva et al., 2019a, 2019b). Recent studies argue that the lack of emotion may be better conceptualized as a tendency to externalize the experience of unpleasant emotions, which, in turn, may play an important role in endorsing and increasing psychopathic traits across time (Ribeiro da Silva et al., 2019a; Velloti et al., 2016).

A growing amount of literature has stated that psychopathy has an evolutionary stance (Glenn, 2019; Ribeiro da Silva et al., 2015). These studies present the idea that when rearing environments represent traumatic and distressing experiences and lack in positive circumstances, becoming disconnected, unemotional and callous (CU traits) as well as engaging in risk-taking (II traits) and dominant/aggressive (GM traits) behaviors is a strategy to filter those inputs and serves an adaptive purpose for children and youth

brought up in such surroundings (Del Giudice, 2016; Ribeiro da Silva et al., 2015; Ribeiro da Silva et al., 2019a, 2019b). Moreover, according to an evolutionary perspective, behavior is shaped through the influence of culture and social environment, in response to ancestrally based problems, aiming to enhance fitness advantage (Gangestad & Simpson, 2007; Gilbert, 2009, 2010; Ribeiro da Silva et al., 2015). Even though with obvious costs for the individual and the society, research suggests that psychopathic traits may offer a fitness advantage in specific environments, at least in the short run (Glenn, 2019). This does not translate into psychological welfare and/or behaving in a socially desirable manner (Krebs, 2007; Ribeiro da Silva et al., 2015).

Psychopathic traits can be seen as both psychopathological deviant traits and as an adaptive and protective response to handle harsh psychosocial backgrounds (Del Giudice, 2014; Ribeiro da Silva et al., 2015). It seems that psychopathic traits play as a shield against those harsh environments and the difficult emotions that they imply, portraying individuals as less vulnerable and less fearful (Del Giudice, 2016; Ribeiro da Silva et al., 2015; Ribeiro da Silva et al., 2019b). Moreover, adopting externalizing coping strategies, such as emotional avoidance and attack/manipulate others, helps them to regain power and control (Garofalo & Neumann, 2018; Garofalo et al., 2018; Ribeiro da Silva et al., 2020). In fact, recent research on psychopathic traits has noted that a hostile developmental environment can lead to emotional regulation difficulties, masked by the endorsement of an unemotional pattern, strongly associated with psychopathy (Ribeiro da Silva et al., 2012, 2015). Emotions and emotion regulation strategies are valuable by-products of evolution (Damasio, 2006; Gilbert, 2015). Emotional regulation issues seem to be highly associated with the development and maintenance of psychopathic traits (Garofalo et al., 2018), which, in turn, appears to reinforce the evolutionary stance on psychopathy (Ribeiro da Silva et al., 2015). Thus, while harsh rearing experiences may have an important role on the development of psychopathic traits, warmth and safeness experiences may buffer these hazardous pathways (Gao et al., 2010; Henry et al., 2018; Ribeiro da Silva et al., 2019a, 2019b).

From a young age, children begin to associate specific emotions with particular situations, adopting specific coping styles as protective strategies (Harper, 2011; Vagos et al., 2019). Particularly, adolescent years are a fundamental developmental stage characterized by an increased vulnerability to psychosocial environmental stressors (Kroger, 2004; Vagos et al., 2019). Since the emotion regulation strategies are still

evolving in youth, resorting to maladaptive coping strategies is very likely to happen, especially for adolescents who have faced adverse life scenarios throughout their growth (Ribeiro da Silva et al., 2015; Zimmermann & Iwanski, 2014).

In childhood and adolescence, the maturation of emotion regulation strategies can be majorly deteriorated if significant others represent a threat and/or do not provide enough support, care, and affection (Gilbert, 2015; Liotti, 2000, 2010). Higher levels of threat emotions with no soothing response from others throughout youth years can lead to degrading outcomes in adult affect regulation and social skills (Gilbert, 2015; Porges, 2007). Additionally, studies showed that harsh rearing experiences weigh in on the development of a shameful view on oneself, which, in turn, associates with psychopathology (Gross, 2014; Ribeiro da Silva et al., 2021). Shame is a self-conscious emotion that can serve an adaptive purpose when it is a temporary emotional experience, by regulating behavior according to societal norms and promoting success in interpersonal relationships (Harper, 2011; Ribeiro da Silva et al., 2019b). According to the evolutionary and biopsychosocial model of shame (Gilbert, 2010), humans have evolved with the desire to be socially wanted and valued by others, with instinctive needs to be accepted and cared for. Shame appears as a social response when there is a perceived threat that one exists negatively in the mind of others (Gilbert, 1998, 2007). Thus, when shame is rooted in persistent and negative early interactions with significant others, it becomes associated with one's persistent perception of being inferior and flawed, which usually has damaging mental health consequences and is considered a transdiagnostic feature in both internalizing and externalizing psychopathological disorders (Gilbert, 2017). Although several studies indicate the crucial role of shame and early life negative experiences in the development and maintenance of disruptive behavior, recent research suggests that the focus should rely on how each person copes with those experiences (Harper, 2011; Paulo et al., 2020). With special relevance for the study of psychopathic pathways in youth, externalizing coping strategies can represent a protection against experiencing negative emotions, while contributing to the eventual development, maintenance, and intensification of psychopathic traits (Ribeiro da Silva et al., 2015). More specifically, when an individual externalizes the shame experience, usually makes external attributions and adopts a predominantly aggressive strategy, as an attempt to humiliate and devalue potential rejecters (Gilbert 2005, 2009, 2010). This way, resorting to externalizing strategies when experiencing shame appears to be linked to a

proneness to aggression (Gilbert, 1997, 2003; Gilbert & Procter, 2006; Gilligan, 2003; Tangney & Dearing, 2002).

Some authors argue that the development of psychopathic traits is linked to a lack of shame (Cleckley 1941/1988; Hare, 2003). However, recent studies have shown a positive association between psychopathic traits and the experience of shame, as it seems that the more individuals think that they are being negatively judged by others, the more they tend to endorse those traits (Ribeiro da Silva et al., 2019a, 2019b). These findings are somewhat consistent with recent research emphasizing that emotion regulation difficulties may be linked with the development and maintenance of psychopathic traits (Garofalo et al., 2018). Moreover, it seems that early shameful memories, along with a lack of affiliative experiences, may lead to the perception of compassion as a frightening and aversive experience (Gilbert, 2009; Matos et al., 2015; Matos et al., 2017). Compassion has been defined as a motivation to care and empathize with ones'/others' suffering, allied with the wisdom, strength, and commitment to prevent and/or alleviate that same suffering in a non-judgmental way (Gilbert, 2010; Gilbert et al., 2009; Gilbert et al., 2011). Compassion as a multidimensional construct has also been associated to an ability to tolerate unpleasant emotions (Gilbert, 2005, 2009, 2010). Recent research showed that compassion seems to have an impact on a psychopathic pathway since the decrease of fears of compassion was related to the decrease of psychopathic traits (Rijo et al, 2022). Fearing compassion could happen in three domains: fear of self-compassion (i.e., fear to be compassionate to ourselves when we make mistakes or things go wrong in our lives), fear of compassion from others (i.e., fears to receive compassion from others, flowing towards the self), and fear of compassion for others (i.e., fears to give compassion to others) (Gilbert, 2009; Kirby et al., 2019). From an evolutionary point of view, compassion along with social safeness (i.e., perceiving the social world as safe, warm, and soothing) may be considered threatening rather than pleasant, by some individuals, which can be problematic since both play a major role on emotion regulation (Gilbert et al., 2011).

Previous studies have shown that early memories of warmth and safeness, which translate into a sense of being connected, safe and reassured in social interactions (Gilbert, 2009), were negatively connected with shame as well as with psychopathic traits (Ribeiro da Silva et al., 2019a, 2019b). It seems that the more one recalls and goes through shameful experiences and lacks in affiliative memories, the more likely one is to endorse

those traits (Ribeiro da Silva et al., 2019a, 2019b). Recent research has suggested that this link between the lack of warmth and safeness experiences and psychopathic traits may involve emotional dysfunctions and emotion regulation issues, including increased attempts to suppress the experience of shame and/or to attack others in potentially shameful circumstances (Campbell & Elison, 2005; Elison et al., 2006; Ferguson, 2010; Hare & Neumann, 2008; Kosson et al., 2016; Nyström & Mikkelsen, 2012; Ribeiro da Silva et al., 2019a, 2019b). When one's social world is perceived to be unsafe, individuals are more prone to resort to defensive emotional and behavioral strategies (Gilbert, 2009). Consequently, struggling to feel safe and soothed by others has been suggested to work as a transdiagnostic vulnerability (Gilbert et al., 2009). All in all, the lack of affiliative memories appears to potentiate the experience of shame, which is highly connected to developing fears of compassion and adopting a self-critic view of oneself along with a diminished sense of safeness, warmth, and pleasure in social interactions (Miguel et al., 2022).

To our best knowledge, studies on an evolutionary perspective resorted only to variable-centered approaches. These studies have shown that psychopathic traits are positively associated with shame, both in forensic and community samples (Garofalo & Neumann, 2018; Garofalo et al., 2018; Ribeiro da Silva et al., 2019a, 2019b). Some studies also suggested that psychopathic traits may be associated with high levels of fears of compassion and low levels of social safeness in samples of young offenders, but no study has yet tested these associations in community samples (Rijo et al., 2022). Although of extreme relevance, these studies analyze data with variable-centered methods, which allows researchers and clinicians to establish how variables relate within individuals but limit our understanding of how evolutionary variables may differ across individuals (Muthén & Muthén, 2000). For that matter, resorting to a person-centered method such as the Latent Profile Analysis (LPA) may help to sort individuals from a heterogeneous population into smaller, more homogeneous subgroups based on individuals' scores on continuous variables, and to provide a comprehensive picture of how variables differ across those different profiles (Bauer & Curran, 2003; McLachlan & Peel, 2004; Muthén, 2001; Vermunt & Magidson, 2002).

This Study

This study aims to identify groups of community boys and girls based on their levels of psychopathic traits and to compare those psychopathic profiles on key evolutionary variables (shame, fears of compassion, and social safeness).

It is expected that three psychopathic severity profiles will emerge (Ribeiro da Silva et al., 2019). More specifically, a low psychopathic traits profile, an average psychopathic traits profile and a high psychopathic traits profile.

It is expected that the high psychopathic profile would have the highest levels of shame (Campbel & Elison, 2005; Garofalo et al., 2018; Garofalo and Neumann 2018; Ribeiro da Silva et al., 2019a, 2019b), the highest levels of fears of compassion (Ribeiro da Silva et al. 2020; Rijo et al., 2022), and the lowest levels of social safeness (Ribeiro da Silva et al., 2019a, 2019b, 2020; Rijo et al., 2022), in comparison with profiles with lower scores on all three psychopathic traits.

Method

Participants

The sample consists of 366 boys and 419 girls of the community with an age range from 14 to 18 years old. Sociodemographic and descriptive characteristics of the participants are presented in Table 1.

Table 1.
Demographic characteristics and descriptive of measures for the female and male community samples.

	Male Sample (*n*=366)	Female Sample (*n*=419)	*t/χ2*
Sample size	366 (46.6)	419 (53.4)	
Age	16.06 (1.22)	16.06 (1.14)	0.42$^{\text{N}}$s
Years of education	9.66 (1.245)	9.75 (1.136)	-1.084$^{\text{N}}$s
Years of retention	.30 (.68)	.20 (.55)	2.220*
SES			.077$^{\text{N}}$s
Low	75 (21.1)	81 (20.3)	
Medium	212 (59.5)	241 (60.4)	
High	69 (19.4)	77 (19.3)	
PCSD -T	17.48 (7.36)	14.02 (6.24)	7.005***
PSCD - GM	4.81 (2.60)	3.82 (2.26)	5.604***
PSCD - CU	2.64 (2.35)	1.74 (1.91)	5.872***
PSCD - DI	6.55 (2.68)	6.33 (2.44)	1.197$^{\text{N}}$s
PSCD – CD	3.50 (2.567)	2.16 (1.948)	7.945***
YPI - T	38.01 (7.695)	34.87 (6.633)	5.996***
YPI - GM	12.39 (3.538)	10.91 (3.153)	6.014***
YPI - CU	11.78 (3.296)	10.13 (2.778)	7.395***
YPI – II	13.81 (3.30)	13.87 (2.90)	-.245$^{\text{N}}$s
OASB	8.30 (6.173)	9.97 (6.46)	-3.467***
FCS - GC	22.16 (7.371)	21.37 (6.903)	1.234$^{\text{N}}$s
FCS - RC	19.54 (10.158)	20.29 (9.315)	-.860$^{\text{N}}$s
FCS – SC	20.35 (13.183)	19.65 (12.684)	.597$^{\text{N}}$s
SSPS	41.07 (8.369)	39.49 (8.97)	2.469*

Note. Information for sample size and SES are presented as n (%); information for age, years of education, descriptive of measures and comorbidity are presented as M (SD).PSCD = Proposed Specifiers for Conduct Disorder: GM = Grandiose-Manipulative Factor CU = Callous-Unemotional Factor; DI = Daring-Impulsive Factor; CD = Conduct Disorder Factor; YPI-S = Youth Psychopathic Traits Inventory: Short Form: GM = Grandiose-Manipulative Factor CU = Callous-Unemotional Factor; II = Impulsive-Irresponsible Factor; OASB = Other as Shamer Scale Brief version for Adolescents; FCS= Fears of Compassion Scales; FCS-GC = fear of giving compassion to Others; FCS-RC = fear of receiving compassion from Others; FCS-SC = fear of self-compassion..
∗ Main effects significant at ***p <.001, **p <.01, *p <.05 for Independent-Samples *t-tests* and *χ2* tests between the forensic and the community samples. $^{\text{N}}$s = *p* non-significant.

Measures

The **Proposed Specifiers for Conduct Disorder (PSCD)** - Self-Report Version (Salekin & Hare, 2016; Portuguese version by Ribeiro da Silva et al., 2021) is a 24-item questionnaire designed to assess the multifaceted model of psychopathic traits in children/youth through self-report ratings within four expected factors (Salekin, 2017): GM (Items 1 to 6; e.g., "I can turn on the charm in any situation"); CU (Items 7 to 12; e.g., "I don't waste time thinking about how others feel"); DI (Items 13 to 18; e.g., "I get a thrill out of doing risky things"); and CD (Items 19 to 24; e.g., "I have engaged in physical aggression against animals or people"). Each factor is estimated by a set of six items, each one rated on a 3-point scale (0 = "not true"; 1 = "somewhat true"; 2 = "true"). A total score can be created including all 24 items. All PSCD factors and total score can be calculated by simply adding the item ratings; higher scores indicate increased levels of psychopathic traits. The Portuguese version of the PSCD showed a four-factor structure and a good internal consistency (α = .80). In the present study, the PSCD total score revealed good internal consistency (α = .83); the GM, CU and DI factors presented questionable internal consistency (α =.68, α =.65 and α = .69, respectively) and the CD dimension showed acceptable internal consistency (α =.72).

The **Youth Psychopathic Traits Inventory-Short** (YPI-S; Van Baardewijk et al., 2010; Portuguese version by Pechorro et al., 2015) is an 18-item self-report version of the original Youth Psychopathic Traits Inventory (YPI; Andershed et al., 2002). The YPI-S assesses psychopathic traits in youth through ratings within three different factors: GM (e.g., "It's easy for me to manipulate people"), CU (e.g., "I think that crying is a sign of weakness, even if no one sees you"), and II (e.g., "I like to do exciting and dangerous things, even if it is forbidden or illegal"). Each factor is estimated by a set of six items. Each item in the YPI-S is rated on a four-point scale (1 = "Does not apply at all" to 4 = "Applies very well"). The YPI-S can be scored by simply adding the item ratings, and higher scores are indicators of increased levels of psychopathic traits. The YPI-S has revealed a strong convergence with the original YPI and it has been demonstrated to have good psychometric properties (Pechorro et al., 2015; Pechorro et al., 2017; Van Baardewijk et al., 2010). For the Portuguese version, the Cronbach's alphas for the GM, CU and II factors were .86, .70 and .79, respectively (Pechorro, et al., 2015). In the present study, the YPI-S total score and the GM factor revealed good internal consistency (α = .82 and .80, respectively) the CU factor presented acceptable internal consistency (α =

.71), and the II factor showed questionable internal consistency (α =.68).

The **Others as Shamer Scale (OASB-A)** (Goss et al., 1994; Portuguese version by Vagos et al., 2016): This instrument consists of eight items that assess external shame, i.e., what the subjects think about the way others see them. Each item is 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"). Higher global scores indicate higher levels of external shame (Vagos et al., 2019). Data from the OASB-A showed a one-factor structure and good internal consistency values, within community (α = .90; Vagos et al., 2016) and behaviorally disturbed samples (α = .89; Vagos et al., 2016). In the present study, the OASB-A total score showed an excellent internal consistency (α = .92)

The **Fears of Compassion Scales (FCS)**, (Gilbert et al., 2011; Portuguese version by Matos, et al., 2016) consists of three scales that measure: fear of giving compassion to Others (FCS-GC; 10 items - e.g., 'Being too compassionate makes people soft and easy to take advantage of'); fear of receiving compassion from Others (FCS-RC; 13 items - e.g., 'I try to keep my distance from others even if I know they are kind'); fear of self-compassion (FCS-SC; 15 items - e.g., 'I worry that if I start to develop compassion for myself I will become dependent on it'); The items are rated on a five-point scale (0 = Don't agree at all, 4 = Completely agree). Higher scores are related to increased fears of compassion in the abovementioned dimensions. In the original study the Cronbach's alphas were .72 for the FCS-GC; .80 for the FCS-RC; and .83 for FCS-SG (Gilbert et al., 2011). In the Portuguese version study, the Cronbach's alphas were .88 for the FCS-GC; .91 for the FCS-GC, and .94 for the FCS_SC (Matos et al., 2016). In the present study, the Cronbach's alphas for the FCS-GC and for the FCS-RC were .80 and .86, respectively, showing good internal consistency; and .92 for the FCS-SC, revealed an excellent internal consistency.

The **Social Safeness and Pleasure Scale (SSPS)** (Gilbert et al., 2009; Portuguese version for adolescents by Miguel et al., 2022) is an 11-item self-report scale that assesses the social safeness construct, i.e., the extent to which people usually experience their social world as safe, warm, and soothing (e.g., "I feel content within my relationships). Items are rated on a five-point scale (0 = "Almost never" to 4 = "Almost all the time"). Higher global scores indicate higher levels of social safeness. The scale presents a one-

factor solution and both in the original and Portuguese version it has shown excellent internal consistency (.91 and .94, respectively). In the present study, the SSPS score also showed an excellent internal consistency (α = .93).

Procedures

This study is a part of a larger project named "DYSheart - Emotion (dys)regulation in adolescence: Heart rate variability as a psychophysiological marker of emotion regulation patterns in normative, internalizing, and externalizing youth samples" (PTDC/PSI-ESP/29294/2017), financed by the Fundação para a Ciência e Tecnologia (FCT) and by the Fundo Social Europeu (POPH/FSE). Therefore, the necessary ethical appraisal was already granted, as well as institutional authorizations for data collection.

For the present study, the community sample was recruited in high schools, and its recruitment was reliant on authorizations from the national entity responsible for the ethics of studies to be conducted in school settings (i.e., Portuguese Directorate-General for Education) and the executive boards of the schools. Moreover, participants who were 18 years old gave verbal and written consent for their own participation and participants younger than that age verbally assented to their own participation in addition to their parents/legal guardians' written consent.

All participants were informed about the nature of the study and were invited to voluntarily participate. It was explained that their decision would not impact their school grades in any way and that no payment or extra credit would be offered. Confidentiality and anonymity of their responses is also guaranteed.

Eligibility criteria included: 1) being aged from 14 to 18 years old, 2) not having a history of psychiatric disorders (in order to not introduce biases once the presence of a psychiatric disorder can impact the answers given), 3) not having a cognitive deficit (in order to ensure that measures were adequately understood and answered), 4) being of Portuguese nationality or having a good mastery of the language to avoid communication issues.

Participants received the assessment protocol in a random order, to control the fatigue effect on the responses, and fulfilled it in classes in the presence of a researcher to assist any doubt.

Data analysis

Data was analyzed with the IBM SPSS Statistic 22 (Statistical Package for the Social Sciences version 22) and the MPlus v7.4 (Muthén & Muthén, 2010) statistical software.

The SPSS software was used for descriptive and inferential statistics and for internal consistency calculations (Clark & Watson, 1995). Firstly, a missing completely at random (MCAR) test was performed to test the randomness of missing values and no patterns were found in the missing data: MCAR (3033) = 3014,735; p = .590. Then, internal consistency indices were calculated for each instrument using Cronbach's alpha, as it is the most frequent and global measure to test internal consistencies, considering Cronbach's values of .50 as unacceptable, between .50 and .60 as poor, between .60 to .70 as questionable, between .70 and .80 as acceptable, between .80 to .90 as good and between .90 and 1 as excellent (George & Mallery, 2003). The preliminary analysis also included Independent Samples T Tests and Chi-Square testes for comparisons between the two samples (i.e., boys and girls). Finally, demographic characteristics and descriptive of measures on interest for the current work were also calculated (cf. Table 1).

The MPlus v7.4 was then used to perform a Latent Profile Analysis (LPA) to identify distinct subgroups of youth (latent profiles) based on their scores on the GM, CU, DI, and CD PSCD factors both in the community sample of boys and girls separately.

When conducting a LPA, the first step is to determine the number of classes with well-defined differentiated profiles across samples (boys and girls). Having said that, LPA models were fit in a series of modeling steps starting with the specification of a one class model. Then, the number of classes was subsequently increased until there was no further improvement in the model, i.e., adding another class would result in meaningless classes (Lubke & Muthén, 2007).

According to the guidelines proposed by Ram and Grim (2009), the adjustment of the models and the decision about model selection were then evaluated. First of all, the output of each estimated model was examined and searched for potential problems or inconsistencies. Then followed the comparison of the models with different numbers of classes resorting to Information Criteria (IC) based on fit statistics, i.e., Bayesian Information Criteria (BIC; Schwartz, 1978), Akaike Information Criteria (AIC; Akaike, 1987), and Sample-Size-Adjusted BIC (SSA-BIC; Sclove, 1987). Lower values on these fit statistic indices indicate better model fit, which means an optimum trade-off between

model parsimony and residuals, with BIC being considered a better fit statistic index than the other IC indices (Nylund et al., 2007). Next, the Entropy values were examined, which assess the accuracy with which models classify individuals into their most likely class. Entropy ranges from 0 to 1, with higher scores representing greater classification accuracy. Entropy values superior to .70 are preferable, indicating clear classification and greater power to predict class membership (Muthén, 2001). Then the statistical significance was tested to determine whether a more complex model (k classes) would fit the data significantly better than a more parsimonious model ($k-1$ classes) by using the Lo Mendell-Rubin test (LMR; Lo et al., 2001) and the Bootstrap Likelihood Ratio Test (BLRT; McLachlan & Peel, 2004). The LMR and the BLRT tests provide p-values that can be used to determine if there is a statistically significant improvement in fit for the inclusion of one more class. For statistical model comparisons, the BLRT is generally preferred over the LMR test (Nylund et al., 2007). The sample size of the smallest class was then evaluated, specifically deciding that models with a class of <1% and/or numerically n < 25 members should be rejected or rigorously grounded by theory and research (Bauer & Curran, 2003). Since LPA is a probabilistic approach, the average probabilities of class membership were also considered (Rost, 2006). The more distinct the average latent class probabilities for the most likely class membership are, the more useful and accurate the latent class solution will be. Moreover, average probabilities that are equal to or higher than .80 indicate a good class solution (Rost, 2006).

Finally, after determining the optimal number of classes, the significant mean differences on outcome variables (in this study, sociodemographic characteristics, psychopathic traits related variables and evolutionary variables) across profiles in the male and female community samples were evaluated. These analyzes were performed with BCH and DCAT procedures. The modified BCH method (Bakk & Vermunt, 2016; Bolck et al., 2004) was selected because of its robust approach and since it is recommended for examining relationships between profiles and continuous distal outcomes (in this study age, years of education, shame, fears of compassion, and social safeness) across latent profiles (Asparouhov & Muthén, 2014); Also, the DCAT method (Lanza et al., 2013), was carefully chosen since it is the preferred method to accommodate categorical distal outcomes (in this study SES) across latent profiles (Asparouhov & Muthén, 2014).

Results

  Table 2 shows the LPA model fit outcomes for the female and male community samples. According to LPA results, and considering both samples, solutions with latent classes fit the data better than it did a unitary solution without latent classes.

  The Information Criteria (IC) based fit statistics (particularly BIC, but also AIC and SAS-BIC), along with entropy values and LMR/BLRT tests (Ram & Grimm, 2009), indicated that a three-class solution was the best model for allocating cases to profiles in both samples. Moreover, the average probabilities of class membership for the four-class solution had classes with less than 25 participants in the tested samples (Bauer & Curran, 2003). Therefore, for both samples, the three-profile solution provided a better model fit than a two or a four-profile solution (Ram & Grim, 2009) (see Table 2).

Table 2.

Model Fit of the Latent Profile Analyzes for the Male and Female Community Samples

	Log-likelihood (number of replications)	Nº of free parameters	AIC	BIC	SSA-BIC	Entropy	LMR *p*	BLRT *p*
Male sample (*n* = 366)								
1 Class	-3446.685 (100/100)	8	6909.370	6940.591	6915.210	-	-	-
2 Classes	-3356.167 (100/100)	13	6738.333	6789.067	6747.824	.72	.040	<.001
3 Classes	**-3318.409 (79/100)**	**18**	**6672.818**	**6743.065**	**6685.958**	**.70**	**.230**	**<.001**
4 Classes	-3298.668 (98/100)	23	6643.338	6733.099	6660.129	.741	.033	<.001
5 Classes	-3278.320 (100/100)	28	6612.639	6721.913	6633.080	.724	.250	<.001
Female sample (*n* = 419)								
1 Class	-3626.914 (100/100)	8	7269.828	7302.131	7276.475	-	-	-
2 Classes	-3479.077 (100/100)	13	6984.154	7036.647	6995.394	.949	.001	<.001
3 Classes	**-3440.091 (100/100)**	**18**	**6916.182**	**6988.863**	**6931.744**	**.807**	**.542**	**<.001**
4 Classes	-3389.367 (100/100)	23	6824.735	6917.606	6844.620	.876	.017	<.001
5 Classes	-3366.817 (11/100)	28	6789.635	6902.695	6813.843	.889	.325	<.001

Note. AIC = Akaike Information Criteria; BIC = Bayesian Information Criteria; SSA-BIC = Sample-Size Adjusted BIC; LMR *p* = *p* value of the Lo-Mendell-Rubin test; BLRT *p* = *p* value of the Bootstrap Likelihood Ratio Test.

Optima models are highlighted in boldface.

Table 3 reports profile allocation based on maximum posterior probability for the three latent profiles across samples. Considering the PSCD factors mean scores and previous research (e.g., Ribeiro da Silva et al., 2019), the three profiles were labeled as: Low Psychopathic Profile (LPP); Average Psychopathic Profile (APP), and High Psychopathic Profile (HPP). The HPP was the profile with the lowest percentage of youth (though equal/ to 25 participants as recommended by Bauer & Curran, 2004) in both samples. The APP was the one with the highest percentage of youth in the male sample, whereas in the female sample the LPP had the highest percentage of youth. The average probabilities of class membership were always equal or superior to .80 (Rost, 2006). Table 3 also presents the PSCD factor mean scores across the three latent profiles and samples (see Table 3).

Table 3.
Profile Allocation Based on Maximum Posterior Probability for Three Latent Profiles.
Mean Probabilities of Latent Profiles in the Male and Female Community Samples.
Mean scores on the PSCD Factors

	N	%	Latent Profile*			PSCD-GM	PSCD-CU	PSCD-DI	PSCD-CD
			LPP	APP	HPP				
Male sample (*N* = 366)									
LPP	154	42.1	.85			3.39 (.33)	1.23 (.25)	4.89 (.40)	1.76 (.18)
APP	184	50.3		.86		5.53 (.22)	2.96 (.35)	7.68 (.26)	4.37 (.39)
HPP	28	7.6			.91	7.42 (1.48)	7.82 (.75)	7.93 (.86)	6.88 (1.38)
Female sample (*N* = 419)									
LPP	326	77.8	.93			3.18 (.31)	1.15 (.18)	5.75 (.38)	1.46 (.20)
APP	68	16.2		.80		5.32 (.86)	2.31 (.52)	8.16 (.75)	4.08 (1.68)
HPP	25	6.0			.95	7.14 (.58)	7.00 (.80)	7.85 (.86)	4.90 (1.22)

Note. LPP = Low Psychopathic Profile; APP = Average Psychopathic Profile; HPP = High Psychopathic Profile. PSCD = Proposed Specifiers for Conduct Disorder: GM = Grandiose-Manipulative Factor; CU = Callous-Unemotional Factor; DI = Daring-Impulsive Factor; CD = Conduct Disorder symptoms Factor.
* Average probabilities of profile membership.

Tables 4a and 4b report the relationships between the three psychopathic severity profiles in the male and female community samples, respectively, and the outcome variables (sociodemographic measures, psychopathic traits, and evolutionary-related variables, namely, shame, fears of compassion and social safeness), in addition to overall chi-square tests and chi-square statistics for pairwise differences between profiles. The results indicated that the three latent profiles in both samples were similar in terms of age and education levels. For the SES, the three latent profiles were similar for the female sample but not for the male sample.

Among the male sample, significant differences between latent profiles in association with the outcome variables were identified, as represented in Table 4a through the chi-square analyses. The HPP had the highest scores on all factors of the YPI-S, the highest levels of shame, and fears of compassion. The opposite happened within the LPP. These results were significant for most of the comparisons, except for social safeness and when comparing: the LPP and the APP on the total scores of the OASB; or when comparing the APP with the HPP on the GM and II factors of the YPI-S and on the FCS-GC (see Table 4a).

In the female sample, the three latent profiles also showed significant differences when associated with outcome variables, analyzed with the chi-square's statistics (Table 4b). The HHP profile had the highest scores on most factors of the YPI-S (except for the II factor) and on all FCS scales. The APP showed the highest scores in shame and the lowest levels of social safeness. These results were significant for most of the comparisons, with the following exceptions: when comparing the LPP and the APP on the total score of the FCS-SC; when comparing the LPP and the HPP the total scores of the OASB and the SSPS; or when comparing the APP and the HPP on all measures, except for the FCS-SC (see Table 4b).

Table 4a.

Relations of the Three Latent Profiles to the Outcome Variables in the Male Community Sample

	LPP (n = 154)	APP (n = 184)	HPP (n = 28)	χ²	LPP vs APP	LPP vs HPP	APP vs HPP
Age	15.99 (.12)	16.08 (.11)	16.35 (.26)	1.58 $p =.45$	.23 $p =.63$	1.57 $p =.21$	.85 $p =.36$
Years of education	9.69 (.13)	9.57 (.11)	10.08 (28)	2.73 $p =.26$	.40 $p =.53$	1.64 $p = .20$	2.73 $p = .10$
SES				12.75 $p =.013$	.58 $p =.75$	8.02 $p = .018$	11.35 $p = .003$
Low	.22 (.05)	.17 (.04)	.40 (.10)				
Moderate	.59 (.06)	.61 (.05)	.54 (.09)				
High	.20 (.04)	.22 (.04)	.06 (.04)				
YPI-T	33.33 (.68)	40.33 (.61)	45.96 (2.14)	68.23 $p <.001$	47.01 $p < .001$	31.86 $p < .001$	5.95 p = .02
YPI-GM	10.32 (.30)	13.55 (.31)	15.18 (.81)	*63.86 $p < .001$*	44.00 $p < .001$	31.91 $p < .001$	3.26 $p = .07$
YPI-CU	10.83 (.32)	11.92 (.26)	15.49 (.86)	27.92 $p <.001$	5.45 $p = .02$	26.36 $p < .001$	14.78 $p < .001$
YPI-II	12.13 (.31)	14.89 (.28)	15.29 (.84)	40.34 $p <.001$	34.52 $p < .001$	12.70 $p < .001$	19.00 $p = .66$
OASB	7.48 (.61)	8.31 (.55)	12.51 (1.97)	6.31 $p = .04$	.80 $p = .37$	6.05 $p = .01$	3.94 $p = .04$
FCS-GC	19.42 (.98)	24.06 (.80)	26.51 (1.58)	18.46 $p < .001$	10.48 $p < .001$	14.88 $p < .001$	1.77 $p = .18$
FCS-RC	15.82 (1.23)	21.60 (1.17)	27.77 (2.57)	21.30 $p < .001$	8.93 $p = .003$	17.76 $p < .001$	4.39 $p = .04$
FCS-SC	15.92 (1.59)	21.63 (1.52)	31.60 (3.78)	18.05 $p < .001$	7.18 $p = .01$	14.80 $p < .001$	4.48 $p = .03$
SSPS	41.69 (.86)	41.04 (.75)	38.12 (1.72)	3.51 $p = .17$	.25 $p = .62$	3.50 $p = .06$	2.23 $p = .14$

Note. Analyzes were performed with BCH and DCAT procedures in MPlus 7. LPP = Low Psychopathic Profile; APP = Average Psychopathic Profile; HPP = High Psychopathic Profile.
YPI-S = Youth Psychopathic Traits Inventory: Short Form: T = total score; GM = Grandiose-Manipulative Factor CU = Callous-Unemotional Factor; II = Impulsive-Irresponsible Factor; OASB = Other as Shamer Scale Brief version for Adolescents; FCS= Fears of Compassion Scales; FCS-GC = fear of giving compassion to Others; FCS-RC = fear of receiving compassion from Others; FCS-SC = fear of self-compassion.
Information for relations of the three latent classes to categorical outcomes variables is presented as probability, Standard Error (SE). Information for relations of the three latent classes to continuous outcomes variables is presented as M (SE).

Table 4b.

Relations of the Three Latent Profiles to the Outcome Variables in the Female Community Sample

	LPP (*n* = 326)	APP (*n* = 68)	HPP (*n* = 25)	$\chi2$	LPP vs APP	LPP vs HPP	APP vs HPP
Age	16.08 (.07)	16.09 (.17)	15.73 (.24)	1.90, *p* =.39	.01 *p* =.95	1.87 *p* =.17	1.32 *p* =.25
Years of education	9.80 (.07)	9.66 (.17)	9.45 (.18)	3.73, *p* =.16	.49 *p* =.49	3.55 *p* =.06	.67 *p* =.41
SES				7.98, *p* =.09	1.10 *p* =.58	7.39 *p* =.03	3.61 *p* =.17
Low	.19 (.03)	.25 (.06)	.12 (.07)				
Moderate	.59 (.03)	.59 (.07)	.80 (.08)				
High	.22 (.03)	.15 (.06)	.08 (.05)				
YPI-T	32.71 (.39)	40.96 (.90)	42.27 (1.51)	95.94 *p* < .001	62.79 *p* < .01	37.64 *p* <.01	.51 *p* =.48
YPI-GM	9.99 (.18)	13.26 (.48)	14.83 (.80)	67.81 *p* < .01	35.01 *p* < .01	34.79 *p* <.01	2.59 *p* =.*11*
YPI-CU	9.63 (.17)	11.48 (.42)	11.86 (.74)	22.36 *p* < .01	14.51 *p* < .001	8.70 *p* <.01	.18 *p* =.*67*
YPI-II	13.08 (.18)	16.32 (.41)	15.64 (.53)	61.93 *p* < .001	46.26 *p* < .001	21.43 *p* <.001	.95 *p* =.33
OASB	9.33 (.42)	11.97 (1.04)	11.53 (1.33)	6.54 *p* =.04	4.64 *p* = .03	2.50 *p* =.11	.06 *p* =.80
FCS-GC	19.91 (.49)	25.82 (1.13)	26.09 (1.54)	31.63 *p* < .001	19.80 p < .001	14.70 *p* <.001	0.02 *p* =.89
FCS-RC	19.02 (.68)	23.11 (1.54)	26.92 (1.93)	18.20 *p* < .001	4.99 *p* = .03	14.98 *p* <.001	2.18 *p* =.14
FCS-SC	18.43 (.90)	21.14 (2.36)	29.65 (3.07)	12.91 *p* < .001	.98 *p* = .32	12.41 *p* <.001	4.47 *p* =.04
SSPS	40.41 (.56)	36.52 (1.44)	37.22 (2.06)	7.21 *p* = .03	5.40 *p* = .02	2.25 *p* =.13	.07 *p* =.79

Note: Analyzes were performed with BCH and DCAT procedures in MPlus 7. LPP = Low Psychopathic Profile; APP = Average   Psychopathic Profile; HPP = High Psychopathic Profile.

YPI-S = Youth Psychopathic Traits Inventory: Short Form: T = total score; GM = Grandiose-Manipulative Factor CU = Callous-Unemotional Factor; II = Impulsive-Irresponsible Factor; OASB = Other as Shamer Scale Brief version for Adolescents; FCS= Fears of Compassion Scales; FCS-GC = fear of giving compassion to Others; FCS-RC = fear of receiving compassion from Others; FCS-SC = fear of self-compassion.

Information for relations of the three latent classes to categorical outcomes variables is presented as probability, Standard Error (SE). Information for relations of the three latent classes to continuous outcomes variables is presented as M (SE).

Discussion

Recent research has been suggesting that psychopathic traits can be seen as adaptive strategies to survive and thrive in harsh rearing backgrounds (Del Giudice, 2016; Del Giudice & Ellis, 2015; Ferguson, 2010; Glenn, 2019; Ribeiro da Silva et al., 2015; Ribeiro da Silva et al., 2019a, 2019b). Although of most interest, these studies used variable-centered methods, which limits the understanding of how evolutionary variables may differ across individuals (e.g., Ribeiro da Silva et al., 2019a, 2019b). To overcome this issue, the present study aimed to identify groups of community boys and girls based on their levels of psychopathic traits (GM, CU, and DI) and CD symptoms, assessed with a new validated measure on this topic (i.e., the PSCD) and to compare those profiles on key evolutionary variables, namely, shame, fears of compassion, and social safeness.

To attain this goal, LPA was the chosen person-centered method, which is considered the most accurate based-model procedure to classify individuals from a heterogeneous population into smaller, more homogeneous subgroups based on their scores on continuous variables (Bauer & Curran, 2003; McLachlan & Peel, 2004; Muthén, 2001; Vermunt & Magidson, 2002). Results showed that a three-class solution was the best model for allocating cases to profiles in both samples. The three latent profile solution was related to different levels of severity of psychopathic traits: the LPP (i.e., low scores on all PSCD factors), the APP (i.e., average scores on all PSCD factors) and the HPP (i.e., high scores on all PSCD factors). These results are consistent with previous research that used person-centered methods with other psychopathic traits assessment tools (Lee et al., 2010; Ribeiro da Silva et al., 2019). These findings come in agreement with the notion that psychopathic traits appear to be continuously distributed throughout the population, differing from normality in degree rather than kind (Andershed et al., 2002; Edens et al., 2006; Frick et al., 2000; Kosson et al., 2013; Murrie et al., 2007; Neumann et al., 2012; Neumann & Hare, 2008; Ribeiro da Silva et al., 2019).

As expected, the HPP was the profile with the lowest percentage of youth in both samples (e.g., Andershed et al., 2008; Lee et al., 2010; Nijhof et al., 2011; Ribeiro da Silva et al., 2019). On the contrary, the LPP had the highest percentage of youth in the female sample (77.8%), whereas the APP was the profile with the highest percentage of youth in the male sample (50.3%). These results might reflect the difficulties of assessing psychopathic traits in female samples with the available assessment tools (Verona et al., 2010; Verona & Vitale, 2018). In specific, there is an increasing body of research showing

that psychopathic traits may have a distinctive presentation in female samples, which require specific and tailored assessment tools to accurately capture this set of traits in girls/women (Verona & Vitale, 2018).

Regarding comparisons between psychopathic profiles on key evolutionary variables, results differ across samples. For the male sample, most findings come in agreement with previous studies that used variable-centered methods (Campbel & Elison, 2005; Garofalo et al., 2018; Garofalo & Neumann, 2018; Ribeiro da Silva et al., 2019a, 2019b). In detail, the HPP was the one with significantly higher scores on all factors of other measure assessing psychopathic traits (i.e., the YPI-S), on levels of shame, and on fears of compassion. The opposite happened within the LPP since this profile had the lowest scores on all factors of psychopathic traits assessed by the YPI-S, on levels of shame, and on fears of compassion. These findings reinforce the notion that youth with high levels of psychopathic traits also exhibit higher rates of shame and of fears of compassion (Campbel & Elison, 2005; Garofalo et al., 2018; Garofalo and Neumann 2018; Ribeiro da Silva et al., 2019a, 2019b; Rijo et al., 2022). In fact, some authors argue that psychopathic traits most likely act like a mask of invulnerability concealing a shameful nucleus (Nathanson, 1992; Ribeiro da Silva et al., 2015; Ribeiro da Silva et al., 2019a). According to research, it seems that the more individuals think that they are being negatively judged by others, the more they tend to endorse psychopathic traits (Garofalo et al., 2018; Ribeiro da Silva et al., 2019a). Shame seems to have an important role in developing and maintaining psychopathic traits (Nathanson, 1992; Ribeiro da Silva et al., 2015), since this emotion appears to be regulated mostly by externalizing strategies as an attempt to suppress the experience of shame and/or to attack others in potentially shameful situations (Campbell & Elison, 2005; Nyström & Mikkelsen, 2012; Velotti et al., 2016; Ribeiro da Silva et al., 2019a, 2019b). Moreover, increased levels of shame are connected to perceiving compassion as threatening, frightening and aversive (Matos et al., 2017). Compassion plays an important part in emotion regulation (Gilbert et al., 2011) and studies have shown that the endorsement of psychopathic traits seems to be strongly connected to difficulties in regulating unpleasant emotions (Ribeiro da silva et al., 2012, 2015). Also, affiliative emotions such as compassion seem to buffer psychopathic pathways since recent studies show that a decrease on fears of compassion leads to a decrease of psychopathic traits (Rijo et al., 2022). Regarding social safeness, contrary to what was expected, male profiles did not significantly differ on this variable. This may

be explained by the fact that community boys tend to report higher levels of social safeness and to be more equivalent/consistent in that report than community girls (Miguel et al., 2022). Another possible explanation for this result might be due to the fact that the lack of affiliative memories shaped behavior in the sense that these boys may avoid portraying themselves as socially unsafe since it can mean becoming a target to others (Gilbert, 2009; Miguel et al., 2022).

On the female community sample, the three latent profiles also showed significant differences when associated with outcome variables, not all in the expected direction. As anticipated, the HPP profile had the highest scores on most factors of the YPI-S (Ribeiro da Silva et al., 2019), except for the II factor, which was higher for the APP profile. This result is contrary to what was hypothesized, although an increasing body of research is suggesting that II traits may be particularly difficult to capture among female participants (Verona & Vitale, 2018). The HPP was also the profile with the highest fears of compassion, which is consistent with the literature since there seem to be no significant sex differences when it comes to developing fears of compassion (Gilbert et al., 2011; Kirby et al., 2019) and higher levels of psychopathic traits are associated with higher rates of fears of being compassionate (to the self and others) and receiving compassion (Ribeiro da Silva et al., 2020; Rijo et al., 2022). As expected, the LPP was associated with higher levels of social safeness, and the lower levels of fears of compassion and shame. Contrary to what was hypothesized, the APP showed the highest scores in shame and the lowest levels of social safeness. Possible explanations for these discrepancies may also be related with the difficulties on the assessment of psychopathic traits among female participants using the available measurement tools (Verona et al., 2010; Verona & Vitale, 2018).

Studies across sex have been reporting that girls/women with psychopathic traits engage in less violent behavior but do show more vulnerabilities on the way they experience their social background and express emotions (Loeber et al., 2009; Odgers & Moretti, 2002; Ribeiro da Silva et al., 2013; Ribeiro da Silva et al., 2019b; Salekin et al., 2001; Sevecke et al., 2009; Vaughn et al., 2008; Verona et al., 2010; Verona & Vitale, 2018). This might result from the fact that harsh rearing experiences seem to have a different impact across sex as it appears to be more important for girls than for boys to experience warmth and safeness during early developmental stages (Vagos et al., 2017; Ribeiro da Silva et al., 2019b). Moreover, when experiencing unpleasant emotions, a different pattern in the adoption of coping strategies seems to appear between male and

female samples. Boys appear to resort more to externalizing coping strategies, directed to others, when compared to girls (Ribeiro da Silva et al., 2019b). These sex differences might be connected to early sex socialization patterns, which, taken together with cultural factors, influence how emotional expression is differently reinforced across sex and the adoption of gender-role consistent behaviors seem to be encouraged (Elison et al., 2015). Boys are socialized to exhibit a more restrained expression of emotion, accentuating anger, and physical attack (Kret & De Gelder, 2012; Nyström et al., 2018; Paulo et al., 2020) and there seems to be a higher tolerance regarding male aggressive behavior in comparison to girls (Paulo et al., 2020). Another potential reason for the findings from the female sample might be the role of social desirability and its impact on the answers of self-report measures. A study by Elison and colleagues (2015) provides insights on the traditional gender-based socialization roles that impact the resort to social desirability strategies in portraying a positive impression of oneself in interpersonal contexts, typically associated with female responses.

Limitations and Implications

The interpretation of the findings of this study needs to consider some limitations. Firstly, the current study only used self-report measures, which can compromise the validity of the results due to possible social desirability-based responses. Future research should attempt to include a measure to control for social desirability. Another limitation is related to the fact that the GM, CU and DI factors of the PSCD showed questionable internal consistency, with Chronbach's alfa values of .68, .65 and .69, respectively. Moreover, although there was taken a special caution to control the fatigue effect by counterbalancing the order of the assessment measures, the extension of the present protocol might have also influenced the responses. Along with that, the fact that samples were recruited from schools and the protocol was administered in the classroom, may have impacted the investment of the adolescents on performing the task. Finally, the fact that there are few studies conducted in youth community samples associating psychopathic traits to the evolutionary variables studied on this work (i.e., shame, fears of compassion and social safeness), made it difficult to fundament some of the results.

Conclusions

Coupled with the available literature (e.g., Edens et al., 2006; Kosson et al., 2013;

Neumann et al., 2012; Ribeiro da Silva et al., 2019), this study reinforces the notion that the prevalence rates of psychopathic traits on community samples of boys and girls must be considered and that psychopathic traits do exist in a continuum, differing from normality in degree rather than kind (Ribeiro da Silva et al., 2019). Findings of the current work also strengthen the increasing evidence on the evolutionary roots of psychopathic traits, showing that this set of traits may be an adaptive response to hide high levels of shame (Campbel & Elison, 2005; Garofalo et al., 2018; Garofalo & Neumann, 2018; Ribeiro da Silva et al., 2019a, 2019b). Furthermore, a recent study on the changeability of psychopathic traits among young offenders showed that, at baseline, this set of traits was positively correlated with fears of compassion and negatively correlated with social safeness (Rijo et al., 2022), which provides insights on the role of these evolutionary variables on the endorsement of psychopathic traits. This might be accounted by the fact that traumatic and distressing memories appear to potentiate the experience of shame, which is highly connected to developing fears of compassion along with a diminished sense of safeness, warmth, and pleasure in social interactions (Miguel et al., 2022).

Despite the limitations, the present study represents an innovative contribution to research with implications for intervention efforts as it can shed some light on the study of psychopathic traits in community samples of boys and girls from an evolutionary perspective, while resorting to a new and promising measure (PSCD) to assess these set of traits (in addiction to CD symptoms), and to a person-centered method. Few studies have used evolutionary arguments to discuss its findings and this work is a pioneer in studying the relationship between psychopathic severity profiles and evolutionary-related variables (i.e., shame, fears of compassion, and social safeness) within a person-centered method. All things considered, findings could provide important clues for the study of the evolutionary roots of psychopathy, the assessment of psychopathic traits in youth, the improvement of case conceptualization and, consequently, the design of preventive programs in community samples and/or intervention efforts.

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