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The Portuguese Prison Population: The Relation Between Childhood Trauma, Mental Health, and Emotional Dysregulation

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Abstract

Childhood trauma has been associated with criminal behaviour and a variety of psychopathologies. Furthermore, it is known that emotional dysregulation (ED) predicts anxiety and depression and can be a product of traumatic experiences. In order to develop effective interventions for offenders' rehabilitation and prevent recidivism, it is essential to fully understand their mental health and its relation with previous child trauma experiences and ED. This study involved a sample of 100 male inmates incarcerated in seven different prisons in the northern region of Portugal. The following measures were used: the Childhood Trauma Questionnaire-Short Form (CTQ-SF), the International Trauma Questionnaire (ITQ), the Generalized Anxiety Disorder-7 (GAD-7), the Patient Health Questionnaire (PHQ-9), and the Difficulties in Emotional Regulation Scale (DERS). Our findings suggest that individuals who experienced physical and sexual abuse are more likely to perpetrate violent crimes and that ED increases anxiety and depressive symptoms in individuals with traumatic symptoms. In conclusion, it is imperative to provide psychological support to this population, and interventions need to be adapted according to trauma exposure.

Keywords: adverse childhood experiences; trauma; emotional dysregulation; violent crime; non-violent crime

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1. Introduction

1.1. Violent Crime

The World Health Organization (WHO) defines violence as "an intentional use of physical force or power, whether real or threatened, against oneself or another person, group, or community, resulting, or with the possibility of resulting, in injury, death, psychological harm, developmental disability, or deprivation" (Krug et al. 2002, p. 3). The concept of violence is broad in scope, encompassing physical, psychological, sexual, and deprivation or neglect manifestations, with the underlying causes of violence varying according to the sociocultural context (Espín Falcón et al. 2008). Additionally, the definition of violent crimes (VCs) can vary from country to country according to the legal system, which usually refers to crimes that intentionally use physical force (Chan and Chui 2012).

Given its widespread and multifaceted nature, VCs have been identified as a significant public health issue due to their extensive social and health impacts (e.g., Kaplan et al. 2024; Ornstein 2017; Slutkin et al. 2018; Vidal et al. 2020). Exposure to violence can result in physical injuries, psychological trauma, and even death (Kaplan et al. 2024; Ornstein 2017; Slutkin et al. 2018; WHO 2022). In particular, victims of VCs frequently experience profound socio-emotional difficulties, which can manifest in a range of adverse psychological symptoms, including distress, anxiety, and depression (Bernard et al. 2019; Randa and Reyns 2020).

The consequences of violence are far-reaching, impacting not only individuals but also society as a whole. Annually, violence results in the loss of approximately 1.25 million lives worldwide, in addition to the individuals who suffer unintentional injuries and various health problems (WHO 2022). In Europe, homicide rates have generally declined; however, other forms of VCs, such as assault and rape, have increased in many countries (Gruszczyńska and Heiskanen 2018). In the Portuguese context, VCs such as intimate partner violence have been identified as a significant issue (Capinha et al. 2024), along with domestic violence (Rodrigues et al. 2021; Silva and Pais 2024) and physical violence against children, adolescents (Vidal et al. 2020), and elders (Gil et al. 2015).

1.2. Childhood Trauma and Violent Crimes

It is estimated that one in four adults has experienced some form of adversity during childhood, which serves to illustrate the significant scale of this issue (CDC 2019). While half of the adverse childhood experiences are not necessarily forms of maltreatment (e.g., parental separation and mental illness), the other half consists of childhood trauma—namely, physical abuse, sexual abuse, emotional abuse, physical neglect, and emotional neglect (Rowell and Neal-Barnett 2022). These adverse experiences have been shown to increase the risk for deviant life trajectories, including delinquency and criminal behaviour (Fox et al. 2015; MS et al. 2022). Higher adverse childhood experience scores are strongly associated with increased violence in adulthood, with violent offenders exhibiting higher adverse childhood experience scores than nonviolent offenders (Levenson and Grady 2016; MS et al. 2022). A variety of adverse childhood experiences, including child maltreatment, exposure to violence, and household dysfunction, are considered to have an impact on increasing the risk of violent behaviour (Amos et al. 2023; MS et al. 2022).

Nevertheless, the present study will focus on childhood trauma such as physical and emotional abuse, which has been associated with both VCs and non-violent crimes (NVCs; Bauer et al. 2024). Indeed, a large-scale study by Fox et al. (2015), involving over 22,000 juvenile offenders, demonstrated that physical abuse during childhood predicted 58% of the likelihood of becoming a serious, violent, and chronic offender, surpassing the impact of neglect, emotional abuse, and even sexual abuse, when controlling for other risk factors. Additional studies have linked sexual abuse with an increased likelihood of offensive behaviour (Basto-Pereira et al. 2022) and physical neglect with an increased risk for VCs (MS et al. 2022) and general criminal outcomes (Basto-Pereira et al. 2022). In contrast, current research suggests that emotional neglect does not appear to increase the risk of offending significantly (Basto-Pereira et al. 2022), including VCs (MS et al. 2022).

However, it is essential to emphasize that the relationship between childhood trauma and offending behaviour is probabilistic, not deterministic. Not all individuals exposed to childhood trauma develop violent tendencies. Strong social bonds, cohesive neighbourhoods, and a positive connection to schools have been shown to be protective factors, due to their role in promoting resilient development despite early adversities (Chang et al. 2022; Craig et al. 2017). Furthermore, there are several other factors, namely psychological and environmental variables, that can moderate or influence the strength or direction of

this association, or contribute to a greater propensity for violence, independent of childhood trauma experience. Personality traits (Perez et al. 2018), low empathy, impulsivity (Fox 2017), a raised environment (Levenson et al. 2016), favourable attitudes toward violence (Stefanile et al. 2021), and ED (Garofalo and Velotti 2017) are some examples.

1.3. Symptomatology in Inmates and the Role of Emotional Dysregulation

Research indicates that childhood trauma has a long-lasting impact on physical, psychological, and social development (Parvin et al. 2024). Such adverse experiences have been consistently associated with increased symptoms of anxiety, depression, post-traumatic stress (Negriff 2020), and emotional dysregulation (ED; Dunn et al. 2018). Notably, Dunn et al. (2018) found that maltreatment beginning in middle childhood was particularly associated with adult ED symptoms, suggesting that this developmental window may be especially sensitive for emotion regulation processes.

ED has been recognized as a transdiagnostic process that underlies multiple forms of psychopathology (Paulus et al. 2021). Several studies suggest that ED may precede and contribute to the onset of internalizing disorders, including depression and anxiety (Paulus et al. 2021; Rodrigues et al. 2024). Individuals with PTSD, for example, tend to employ maladaptive emotion regulation strategies, which are linked to higher levels of anxiety and depression (Ouhmad et al. 2023). In turn, these internalizing symptoms can further impair emotional regulation, reinforcing a cycle of dysfunction (Paulus et al. 2021).

Moreover, ED not only arises as a consequence of trauma (Paulus et al. 2021) but may also maintain or exacerbate PTSD symptoms (Demir et al. 2020; Dieujuste et al. 2025). This reciprocal relationship highlights the complex and bidirectional interplay between trauma-related symptoms and regulatory processes. Indeed, recent findings support the hypothesis that ED may act as a mediator between PTSD and depressive symptoms, as observed in clinical samples of adolescents (Espil et al. 2016). Despite the limited research specifically examining this mediating pathway, these findings underscore the relevance of studying ED in populations with a history of trauma.

However, it is important to note that not all individuals who experience childhood maltreatment develop PTSD (Moore et al. 2013), and those who do may also have experienced other traumatic events later in life. In the prison population, for instance, trauma symptoms may originate not only from early adversity but also from the offence itself or from the prison environment (Pham and Willocq 2013). Factors such as inadequate prison accommodations, poor nutrition (Osasona and Koleoso 2015), maladaptive coping mechanisms (Pleško and Rihtarić 2024), separation from family (Goomany and Dickinson 2015), and a loss of social support (Butler and Allnutt 2003) have all been linked to elevated levels of anxiety and depression in incarcerated individuals.

In this context, ED becomes particularly relevant. It has been linked to an increased propensity for violent behaviour, especially among individuals with histories of trauma, abuse, or psychiatric disorders (Paulus et al. 2021). In addition, both depression (Tayebi et al. 2024) and anxiety (Moberg et al. 2015) have also been associated with criminal offending. Therefore, examining how ED may mediate the relationship between trauma symptoms and internalizing symptoms in incarcerated individuals is not only theoretically valuable but may also inform the development of trauma-informed interventions aimed at improving mental health outcomes and reducing criminal recidivism.

In addition, research suggests that males tend to exhibit higher impulsivity—partly due to increased testosterone levels—and are more likely to endorse a favourable attitude towards violence, both of which have been identified as significant predictors of aggressive behaviour (Repple et al. 2018; Stefanile et al. 2021; Wagels et al. 2018). When combined with ED, this predisposition may lead to greater difficulty in controlling impulsive reactions,

thereby increasing the likelihood of aggression (Repple et al. 2018; Stefanile et al. 2021; Wagels et al. 2018). This highlights the importance of studying these dynamics specifically within male prison populations.

Understanding the psychological functioning of the prison population is critical not only for public health and safety but also for designing effective prevention and rehabilitation strategies. Offenders consistently report higher levels of childhood trauma than non-offenders (e.g., MS et al. 2022). Although childhood trauma has been strongly associated with an increased likelihood of juvenile offending (Fox et al. 2015), its role in adult criminal behaviour remains underexplored. Investigating this relationship in adult prison populations can help guide the development of targeted interventions, reduce recidivism, and support long-term rehabilitation.

Additionally, although traumatic symptoms in inmates may have multiple sources (e.g., Pham and Willocq 2013), understanding the specific contribution of childhood trauma to current trauma-related symptoms is especially important. Trauma is often linked with ED, anxiety, and depression (Dunn et al. 2018; Negriff 2020)—factors that, in turn, are associated with violent behaviour (e.g., Garofalo and Velotti 2017). Therefore, assessing and understanding the psychological well-being of incarcerated individuals is essential for both clinical and forensic purposes. ED may mediate the relationship between trauma—particularly PTSD and complex PTSD (C-PTSD), which remain under-researched in this context—and internalizing symptoms such as anxiety and depression. A better understanding of this mechanism can inform tailored mental health interventions within prison systems and contribute to a more comprehensive and trauma-informed framework for offender rehabilitation, which can, in turn, reduce recidivism and promote mental health equity within correctional systems.

The main objective of this study is to characterize mental health in the male prison population. More specifically, this study aims to (a) characterize the childhood trauma of inmates; their mental health, namely anxious, depressive, and traumatic symptoms; and their ED; (b) examine the relation of mental health with childhood trauma, ED, VCs, and NVCs; (c) identify the impact of each forms of childhood trauma on traumatic symptoms (PTSD and C-PTSD) and on the perpetrated crimes (VCs and NVCs); and (d) determine whether ED mediates the relationship between traumatic symptoms (PTSD and C-PTSD) and other mental health symptoms (anxiety and depression).

2. Materials and Methods

2.1. Participants

The sample consisted of 100 male inmates, aged between 24 and 78 (M = 45.97 and SD = 9.81), spread across seven prison establishments located in the north and centre of Portugal. Participants were recruited through convenience sampling until the target sample size of 100 was reached, based on the following inclusion criteria: male sex, age 18 or older, Portuguese-speaking, and having been convicted and sentenced for a criminal offence. No additional exclusion criteria were applied (Table 1).

Most participants were single (n = 48, 48%) and had completed secondary education (n = 31, 31%). Additionally, a higher proportion of participants engaged in VCs (n = 88, 88%), with a notably greater number of violent offences committed (M = 16.57 and SD = 108.41).

Table 1. Sociodemographic variables and descriptive statistics (N = 100).

	n (%)	M (SD)
Age	-	45.97 (9.81)
Marital Status		
Single	48 (48%)	-
Married/non-marital partnership	20 (20%)	-
Divorced/separated	28 (28%)	-
Widow	3 (3%)	-
Education Level		
No education	5 (5%)	-
Knows how to read and write	3 (3%)	-
1st cycle of basic education	16 (16%)	-
2nd cycle of basic education	26 (26%)	-
3rd cycle of basic education	10 (10%)	-
Secondary education	31 (31%)	-
Higher education	9 (9%)	-
Type of Crime		
Violent crime	88 (88%)	16.57 (108.41)
Non-violent crime	55 (55%)	7.18 (7.57)

2.2. Instruments

2.2.1. Sociodemographic Questionnaire

The sociodemographic questionnaire gathered information about age, marital status (single, divorced/separated, married/marital partnership, or widowers), and education level (can read and write, no schooling, first cycle of basic education, second cycle of basic education, third cycle of basic education, high school, or university degree).

2.2.2. Analysis Grid for Inmates' Files

A grid was used to collect information from the files, such as the offence for which the participant was in prison for and their criminal history. The data collected by the grid was used to create a binary variable for VCs and another for NVCs. Crimes can be divided into NVCs and VCs according to the law (Chan and Chui 2012). The Portuguese Code of Criminal Procedure (Código de Processo Penal), in Article 1 (j) and (l) of the legal definitions, defines VCs as acts against life, physical integrity, personal freedom, sexual freedom, and self-determination or public authority (e.g., murder, serious bodily injury, rape, sexual abuse of minors, domestic violence, or serious physical injury resulting from a crime of robbery; Código de Processo Penal 1987).

2.2.3. Childhood Trauma

The Childhood Trauma Questionnaire-Short Form (CTQ-SF; Portuguese version by Dias et al. 2013) was used to assess potentially traumatic experiences. The CTQ-SF is a short, self-administered questionnaire for adolescents (12 years and older) and adults in clinical or non-clinical populations. It consists of 25 items covering five forms of childhood maltreatment in retrospect (each composed of five items): emotional neglect, emotional abuse, physical neglect, physical abuse, and sexual abuse. There are also 3 additional items to assess the tendency to deny or minimize experiences of abuse, making up 28 items in total. The score for each category (from 5 to 25 points) is obtained by adding the items corresponding to each of the five categories, using a five-point Likert scale ranging from one (never true) to five (very often true) that reflects the frequency of maltreatment (Bernstein et al. 2003; Dias et al. 2013). The original short version of the CTQ-SF obtained results from acceptable to good internal consistency (α = 0.61 to 0.95; Bernstein et al. 2003).

The Portuguese version of the CTQ-SF (Dias et al. 2013) has acceptable validity properties, with internal consistency between 0.79 and 0.71 (except the physical neglect subscale, which had an α of 0.47). In the present study the scale demonstrated good internal consistency, with a Cronbach's alpha between 0.81 and 0.85 (except the physical neglect subscale, which had an α of 0.62).

2.2.4. Mental Health Assessment: Traumatic, Depressive, and Anxious Symptoms

The International Trauma Questionnaire (ITQ; Portuguese version by Rocha et al. 2020) was used to assess symptoms resulting from a traumatic event, as well as the symptoms of PTSD and C-PTSD. This instrument consists of two subscales of the ICD-11 Trauma Questionnaire (Maercker et al. 2013), namely PTSD, which contains 7 items, and C-PTSD, which contains 17 items. These items correspond to statements that must be rated on a five-point Likert scale ranging from zero (never) to four (extremely) and in turn can be grouped into five components: negative self-concept, PTSD symptoms, emotional numbing, affective dysregulation, and impulsivity control (Rocha et al. 2020). In addition, the ITQ includes a dichotomous (yes/no) questionnaire with 14 items on the characteristics of borderline personality disorder (BPD) according to the DSM-IV (APA 1996) for differential diagnosis, for a total of 38 items (Rocha et al. 2020). The potential diagnosis is derived from the quotation sheet. The diagnosis of PTSD is indicated by a score of two or higher on at least one symptom from questions one to three, from four to five, and from six to seven. The presence of C-PTSD is confirmed if there is a diagnosis of PTSD and if the following conditions are met: for items 1 to 5, a score of 10 or higher is obtained and/or for items 6 to 9, a score of 8 or higher is obtained; for items 11 to 14, a score of 10 or higher is obtained; and for items 16 to 18, a score of 6 or higher is obtained. The presence of at least five positive answers on the BPD scale is indicative of a positive BPD diagnosis. The Portuguese version of the ITQ has good internal consistency, with values between 0.84 and 0.88 (Rocha et al. 2020). In the present study the scale demonstrated excellent internal consistency, with a Cronbach's alpha between 0.83 and 0.89 (except the BPD subscale, which had an α of 0.79).

The Generalized Anxiety Disorder-7 (GAD-7; Sousa et al. 2015) is a self-report questionnaire commonly used to assess symptoms of generalized anxiety. It consists of seven items scored on a four-point Likert scale, ranging from zero (not at all) to three (almost every day), indicating how often the person is bothered by each of the problems presented. The seven items correspond to the symptoms based on the criteria for GAD in the DSM-IV-TR (APA 2002). The GAD-7 index is obtained by summing the questionnaire scores. The cut-off points of 5, 10, and 15 allow anxiety to be categorized as none/normal (0–4), mild (5–9), moderate (10–14), and severe (15–21). In general, anyone with a score of eight or more can be considered to have significant anxiety symptoms. The Portuguese version of the GAD-7 showed a good level of internal consistency for the entire scale ($\alpha = 0.88$; Sousa et al. 2015). In the present study the scale demonstrated good internal consistency as well, with a Cronbach's alpha of 0.88.

The Patient Health Questionnaire (PHQ-9; Monteiro et al. 2013) is a self-report instrument for diagnosing depressive disorders and classifying the severity of depressive symptoms. It consists of nine items related to the nine criteria for the diagnosis of major depression. These items are scored on a four-point Likert scale, ranging from zero (never) to three (on almost every day) (Monteiro et al. 2013). The total score ranges from 0 to 27 and is classified as no depression (0–4), mild depressive disorder (5–9), moderate (10–14), moderately severe (15–19), and severe (20–27). The Portuguese version of the PHQ-9 showed satisfactory internal consistency ($\alpha = 0.86$; Monteiro et al. 2013). In the present study the scale demonstrated excellent internal consistency, with a Cronbach's alpha of 0.84.

2.2.5. Emotional Dysregulation

ED was assessed using the Difficulties in Emotional Regulation Scale (DERS; Veloso et al. 2011). The DERS was developed to assess difficulties in the following dimensions of emotional regulation: (1) awareness and understanding of emotions; (2) acceptance of emotions; (3) ability to engage in goal-directed behaviour and (4) to refrain from impulsive behaviour when experiencing negative emotions; (5) emotional clarity; and (6) access to emotional regulation strategies perceived as effective. However, it is also possible to work with the total score of the scale. The scale consists of 36 items whose statements must be rated on a five-point Likert scale ranging from one (almost never) to five (almost always). The scale consists of six dimensions: non-acceptance of emotional responses, difficulty engaging in goal-directed behaviour, impulse control difficulties, a lack of emotional awareness, limited access to emotional regulation strategies, and a lack of emotional clarity.

The DERS has some inverted items, namely 1, 2, 6, 7, 8, 10, 17, 20, 22, 24, and 34; all the others are directly quoted. After recoding the inverted items, it is possible to obtain a total score (sum of all 36 items) or a score for each subscale. Higher scores indicate greater difficulties in emotional regulation (Veloso et al. 2011). The Portuguese version of the DERS showed a good level of internal consistency for the total scale ($\alpha = 0.90$; Veloso et al. 2011). In the present study the scale demonstrated good internal consistency as well, with a Cronbach's alpha of 0.86.

2.3. Procedures

The project was initially submitted to the Ethics and Deontology Council of University of Maia. Following the approval, a request for authorisation to conduct the research in Portuguese prisons was dispatched via email to the Director General of the Directorate General for Reintegration and Prison Services. Following the requisite authorisation, a total of seven prisons located within the expanded territorial jurisdiction of the Oporto Court of Execution of Sentences were contacted and provided with information about the study. Potential participants who met the established inclusion criteria and consented to participate in the study were selected with the assistance of prison staff, including guards and re-education technicians. All the participants who provided written informed consent to participate voluntarily in this study were informed that their data would be protected, that no compensation would be provided, and that they could withdraw from the study at any time. The participants were also informed that their data would remain private and anonymous. Considering that this could be an emotionally triggering topic, measures were taken to safeguard participants' right to avoid harm from their involvement in the research. Specifically, in cases of psychological distress during the completion of the tests, emotional regulation strategies were immediately applied, and a follow-up with the prisons' psychologists was ensured.

The data collection process was carried out in April and May 2024 by two trained individuals following the study protocol. The instruments were applied to small groups of inmates, predominantly in classrooms or other equivalent places such as libraries, which are therefore quiet and conducive to concentration. Only those who agreed and provided written informed consent were included. No formal refusals or withdrawals were recorded, as only individuals who expressed willingness to participate proceeded with the full assessment. During these sessions, the presence of the researchers was imperative to ensure the facilitation of the process, addressing queries and any challenges encountered during the administration of the instruments. The researchers thus ensured that the participants completed the questionnaires correctly. All participants completed the battery of instruments in full. Subsequent to this

procedure, the judicial dossiers located within each penitentiary institution were analyzed, with the express consent of the respective inmates.

2.4. Data Analysis

The data collected was organized in a database and analyzed using the Statistical Package for the Social Sciences—SPSS—version 28. In order to characterize the sample, frequencies, means, and standard deviations were calculated for the sociodemographic variables. In order to analyze the childhood trauma experienced by the individuals, the mean and standard deviation for each of the CTQ-SF factors were calculated. Similarly, to analyze the presence of symptoms indicative of traumatic stress, anxiety, and depression, the frequency, mean, and standard deviation for PTSD, C-PTSD, anxiety, and depression symptoms were calculated. The frequency, mean, and standard deviation for ED, VCs, and NVCs were also calculated.

To examine the associations between the variables of childhood trauma, symptomatology (traumatic, anxious, and depressive), ED, VCs, and NVCs, Pearson correlation analyses were carried out. The resulting correlations were then classified into weak for values below 0.30, moderate for values between 0.30 and 0.50, and strong for values above 0.50 (Field 2013). Finally, linear regression analyses were conducted to assess the impact of childhood trauma and to ascertain the mediating function of ED.

3. Results

3.1. Mental Health, Childhood Trauma, and Violent Crimes

The first objective was to characterize the childhood trauma of inmates; their mental health, namely anxious, depressive, and traumatic symptoms; and their ED. Table 2 presents the descriptive statistics for the CTQ-SF factors, namely traumatic, anxious, and depressive symptomatology, and ED. Of the five CTQ-SF maltreatment factors, emotional neglect (M = 10.99 and SD = 5.44) was the most frequently reported (n = 81, 81%), while sexual abuse (M = 5.94 and SD = 2.55) was the least frequently reported factor (n = 26, 26%).

Table 2. Descriptive Statistics for CTQ-SF factors, symptomatology (traumatic, anxious, and depressive), and emotional dysregulation.

	n (%)	M (SD)
CTQ-SF		
Emotional Neglect	81 (81%)	10.99 (5.44)
Physical Neglect	75 (75%)	8.95 (4.01)
Emotional Abuse	70 (70%)	8.70 (4.35)
Physical Abuse	56 (56%)	8.05 (4.27)
Sexual Abuse	26 (26%)	5.94 (2.55)
PTSD	93 (93%)	9.42 (6.45)
C-PTSD	98 (98%)	17.99 (12.06)
Anxiety	90 (90%)	7.04 (5.38)
Depression	90 (90%)	7.04 (5.40)
Emotional Dysregulation	41 (41%)	78.08 (19.39)

Note: PTSD = Post-traumatic Stress Disorder; C-PTSD = Complex Post-traumatic Stress Disorder.

Regarding symptomatology, the majority of the participants exhibited anxious (n = 90; M = 7.04 and SD = 5.38) and depressive (n = 90; M = 7.04 and SD = 5.40) symptoms. Consequently, the present sample exhibited moderate anxiety and mild depression. Considering the ED variable (M = 70.08 and SD = 19.39), the sample demonstrates a mean score that falls within the average range of the original study of the scale (M = 78.39 and SD = 15.835). This finding suggests that, on average, the participants exhibit proficiency in regulating their

emotions. However, a proportion of the participants exhibited above-average emotional regulation skills (n = 17, 17%), while others demonstrated below-average abilities in this domain (n = 24, 24%). Finally, on average, participants reported a higher prevalence of C-PTSD symptoms (M = 17.99 and SD = 12.06) compared to PTSD symptoms (M = 9.42 and SD = 6.45).

3.2. Adverse Childhood Experiences as a Predictor of Traumatic Symptoms

The second objective was to examine the relation of mental health with childhood trauma, ED, VCs, and NVCs. The Pearson correlation coefficient was used to test the correlation between variables (see Table 3). Regarding childhood trauma, there was a positive, moderate, and significant correlation between anxiety and emotional abuse (r = 0.345, p < 0.001) and a positive, weak, and significant correlation between anxiety and emotional neglect (r = 0.268, p = 0.007), physical neglect (r = 0.222, p = 0.027), physical abuse (r = 0.242, p = 0.015), and sexual abuse (r = 0.256, p = 0.010). A positive, moderate, and significant correlation was identified between depression and sexual abuse (r = 0.322, p = 0.001), as well as a positive, weak, and significant correlation between depression and emotional abuse (r = 0.236, p = 0.018), physical neglect (r = 0.223, p = 0.026), and physical abuse (r = 0.223, p = 0.026).

Table 3. Correlations between mental health, childhood trauma, emotional dysregulation, and violent and non-violent crimes.

	1	2	3	4	5	6	7	8	9	10	11
Emotional Neglect (1)	-	-	-	-	-	-	-	-	-	-	-
Physical Neglect (2)	0.583 ***	-	-	-	-	-	-	-	-	-	-
Physical Abuse (3)	0.470 ***	0.559 ***	-	-	-	-	-	-	-	-	-
Sexual Abuse (4)	0.169	0.223 *	0.470 ***	-	-	-	-	-	-	-	-
Emotional Abuse (5)	0.519 ***	0.546 ***	0.710 ***	0.299 **	-	-	-	-	-	-	-
Anxiety (6)	0.268 **	0.222 *	0.242 *	0.256 *	0.345 ***	-	-	-	-	-	-
Depression (7)	0.153	0.223 *	0.223 *	0.322 **	0.236 *	0.779 ***	-	-	-	-	-
ED (8)	0.248 *	0.239 *	0.184	0.270 **	0.246 *	0.528 ***	0.587 ***	-	-	-	-
PTSD (9)	0.039	0.107	0.315 **	0.286 **	0.352 ***	0.382 ***	0.374 ***	0.226 *	-	-	-
C-PTSD (10)	0.190	0.327 ***	0.363 ***	0.380 ***	0.482 ***	0.493 ***	0.575 ***	0.493 ***	0.559 ***	-	-
VC (11)	0.102	0.044	0.255 *	0.541 ***	0.110	0.068	−0.001	0.020	0.028	0.026	-
NVC (12)	−0.037	0.049	0.101	0.020	0.020	0.001	−0.040	−0.025	0.120	0.062	−0.122

Note: Hífen use is to display exclusively the lower triangle. ED = Emotional Dysregulation; PTSD = Post-traumatic Stress Disorder; C-PTSD = Complex Post-traumatic Stress Disorder; VC = Violent Crime; NVC = Non-violent Crime. *** indicates p < 0.001; ** indicates p < 0.01; * indicates p < 0.05.

A positive, moderate, and significant correlation was identified between ED and emotional abuse (r = 0.321, p = 0.014). Additionally, a positive, weak, and significant correlation was observed between ED and emotional neglect (r = 0.269, p = 0.013), physical neglect (r = 0.272, p = 0.017), physical abuse (r = 0.246, p = 0.014), and sexual abuse (r = 0.218, p = 0.007). A positive, weak, and significant correlation was observed between PTSD symptoms and sexual abuse (r = 0.286, p = 0.004). Furthermore, a positive, moderate, and significant correlation was identified between PTSD symptoms and emotional abuse (r = 0.352, p < 0.001), as well as physical abuse (r = 0.315, p = 0.001).

A positive, moderate, and significant correlation was identified between C-PTSD symptoms and physical neglect (r = 0.327, p < 0.001), physical abuse (r = 0.363, p < 0.001), sexual abuse (r = 0.380, p < 0.001), and emotional abuse (r = 0.482, p < 0.001). Additionally, a positive, weak, and significant correlation was observed between physical abuse and VC (r = 0.255, p = 0.008), and a positive, strong, and significant correlation was identified between sexual abuse and VC (r = 0.541, p < 0.001).

ED correlated with all symptoms. A positive, strong, and significant correlation was observed with anxiety (r = 0.528, p < 0.001) and depression (r = 0.587, p < 0.001). Additionally, a positive, weak, and significant correlation was identified with PTSD (r = 0.226, p = 0.023) and a positive, moderate, and significant correlation with C-PTSD

($r = 0.493$, $p < 0.001$). A positive, moderate, and significant correlation was found between PTSD symptoms and anxiety ($r = 0.382$, $p < 0.001$), as well as depression ($r = 0.374$, $p < 0.001$). There was also a positive, moderate, and significant correlation between C-PTSD symptoms and anxiety ($r = 0.493$, $p < 0.001$) and a positive, strong, and significant correlation between C-PTSD symptoms and depression ($r = 0.575$, $p < 0.001$).

The third objective was to identify the impact of each form of childhood trauma on traumatic symptoms (PTSD and C-PTSD) and on the perpetrated crimes (VCs and NVCs). To address the impact on traumatic symptoms, a multiple regression analysis was conducted to examine whether physical, sexual, and emotional abuse predicted PTSD symptoms. The analysis revealed that physical abuse ($\beta = 0.315$, $p = 0.001$), sexual abuse ($\beta = 0.286$, $p = 0.004$), and emotional abuse ($\beta = 0.352$, $p < 0.001$) were highly significant predictors of PTSD symptoms, accounting for 9%, 7.2%, and 11.5% of the variance, respectively (see Table 4).

Table 4. Adverse childhood experiences predicting PTSD and C-PTSD symptoms.

Predictor	B	SE	β	R^2	F
		(a)			
Physical Abuse	0.476	0.145	0.315 **	0.090	10.795 **
Sexual Abuse	0.724	0.245	0.286 **	0.072	8.708 **
Emotional Abuse	0.522	0.140	0.352 ***	0.115	13.855 ***
		(b)			
Physical Neglect	0.985	0.287	0.327 ***	0.098	11.764 ***
Physical Abuse	1.026	0.266	0.363 ***	0.123	14.908 ***
Sexual Abuse	1.800	0.443	0.380 ***	0.136	16.527 ***
Emotional Abuse	1.337	0.245	0.482 ***	0.225	29.736 ***

Note: (a) Post-traumatic stress disorder symptoms as the dependent variable; (b) Complex post-traumatic stress disorder symptoms as the dependent variable. *** indicates $p < 0.001$; ** indicates $p < 0.01$.

A second regression model was conducted with four forms of maltreatment as predictors of C-PTSD symptoms. The analysis revealed that physical neglect ($\beta = 0.327$, $p < 0.001$), physical abuse ($\beta = 0.363$, $p < 0.001$), sexual abuse ($\beta = 0.380$, $p < 0.001$), and emotional abuse ($\beta = 0.482$, $p < 0.001$) were highly significant predictors of C-PTSD symptoms, accounting for 9.8%, 12.3%, 13.6%, and 22.5% of the variance, respectively (see Table 4).

3.3. Predictors of Violent Crimes

To address the impact on perpetrated crimes (VCs and NVCs), the number of VCs was regressed on physical abuse and sexual abuse. The analysis revealed that physical abuse ($\beta = 0.255$, $p = 0.010$) and sexual abuse ($\beta = 0.541$, $p < 0.001$) were highly significant predictors of the number of VCs, accounting for 5.5% and 28.6% of the variance, respectively (see Table 5).

Table 5. Childhood trauma predicting violent crimes.

Predictor	B	SE	β	R^2	F
Physical Abuse	6.472	2.480	0.255 *	0.055	6.809 *
Sexual Abuse	23.049	3.618	0.541 ***	0.286	40.582 ***

Note: *** indicates $p < 0.001$; * indicates $p < 0.05$.

3.4. Mediating Role of Emotional Dysregulation

The fourth and final objective was to determine whether ED mediates the relationship between traumatic symptoms (PTSD and C-PTSD) and other mental health symptoms (anxiety and depression). Hierarchical regression analyses were conducted to examine whether ED mediated the relationship between PTSD symptoms and symptoms of anxiety and depression, as well as between C-PTSD symptoms and symptoms of anxiety and depression (see Table 6). Anxiety symptoms were regressed on PTSD symptoms and ED. The findings revealed that PTSD symptoms explained 12.6% of the variability in anxiety symptoms, which was highly significant ($\beta = 0.367$, $p < 0.001$). ED was a significant predictor of anxiety symptoms ($\beta = 0.500$, $p < 0.001$), and the inclusion of this variable increased the amount of variability explained ($R^2 = 0.358$). The analysis of the final model suggests a mediation F (2,94) of 27.811, with $p < 0.001$ (Model 1).

Depressive symptoms were regressed on PTSD symptoms and ED as well. The findings revealed that PTSD symptoms explained 11.4% of the variability in depressive symptoms, which was highly significant ($\beta = 0.351$, $p < 0.001$). ED was a significant predictor of depressive symptoms ($\beta = 0.542$, $p < 0.001$), and the inclusion of this variable increased the amount of variability explained ($R^2 = 0.390$). The analysis of the final model suggests a mediation F (2,94) of 31.699, with $p < 0.001$ (Model 2).

Subsequently, anxiety symptoms were regressed on C-PTSD symptoms and ED. The findings revealed that C-PTSD symptoms explained 24.4% of the variability in anxiety symptoms, which was highly significant ($\beta = 0.502$, $p < 0.001$). ED was a significant predictor of anxiety symptoms ($\beta = 0.410$, $p < 0.001$), and the inclusion of this variable increased the amount of variability explained ($R^2 = 0.368$). The analysis of the final model suggests a mediation F (2,94) of 28.998, with $p < 0.001$ (Model 3).

Finally, depressive symptoms were regressed on C-PTSD symptoms and ED as well. The findings revealed that C-PTSD symptoms explained 31.3% of the variability in depressive symptoms, which was highly significant ($\beta = 0.566$, $p < 0.001$). ED was a significant predictor of depressive symptoms ($\beta = 0.419$, $p < 0.001$), and the inclusion of this variable increased the amount of variability explained ($R^2 = 0.444$). The analysis of the final model suggests a mediation F (2,94) of 39.255, with $p < 0.001$ (Model 4).

Table 6. Emotional dysregulation mediating traumatic symptomatology and anxiety/depression.

	B	SE	β	R^2	F
Model 1 (a)					
PTSD	0.307	0.080	0.367 ***	0.126	14.788 ***
PTSD + ED	0.139	0.023	0.500 ***	0.358	27.811 ***
Model 2 (b)					
PTSD	0.295	0.081	0.351 ***	0.114	13.367 ***
PTSD + ED	0.151	0.023	0.542 ***	0.390	31.699 ***
Model 3 (a)					
C-PTSD	0.225	0.040	0.502 ***	0.244	31.970 ***
C-PTSD + ED	0.114	0.026	0.410 ***	0.368	28.998 ***
Model 4 (b)					
C-PTSD	0.254	0.038	0.566 ***	0.313	44.679 ***
C-PTSD + ED	0.117	0.024	0.419 ***	0.444	39.255 ***

Note: (a) Anxiety symptoms as the dependent variable; (b) depressive symptoms as the dependent variable. ED = Emotional Dysregulation; PTSD = Symptoms of Post-traumatic Stress Disorder; C-PTSD = Symptoms of Complex Post-traumatic Stress Disorder. *** indicates $p < 0.001$.

4. Discussion

The main objective of this study was to characterize mental health in the male prison population. The analysis revealed that the vast majority of participants had symptoms of anxiety, depression, and trauma, with emotional neglect being the most frequently reported childhood trauma experience. These findings highlight the lack of emotional support during childhood among this population, as well as their current psychological vulnerability. As described in the literature, such psychological vulnerability may be associated with various factors, including the nature of the crime committed (Pham and Willocq 2013) or the prison environment itself (e.g., Pleško and Rihtarić 2024). However, the present findings suggest that childhood trauma plays a significant role in the development of these symptoms. This is consistent with previous studies indicating that adverse childhood experiences are associated with poorer mental health outcomes (Negriff 2020). Importantly, these associations are not deterministic; rather, they point to the value of providing adequate psychological support to incarcerated individuals—not only to improve their quality of life and well-being but also to foster conditions that support rehabilitation and reintegration.

Interestingly, the sample in this study falls within the average ED levels reported in the original Portuguese validation study of the DERS (Veloso et al. 2011). That study, which was conducted with a community sample of 431 university students, reported a mean total score of 80.28 (SD = 16.94), which is comparable to the mean obtained in our sample (M = 70.08 and SD = 19.39). This suggests that the general level of emotional regulation in our incarcerated sample is not substantially elevated compared to normative community values. This finding is somewhat unexpected, given that the literature suggests a higher prevalence of emotional regulation difficulties among individuals with histories of trauma and psychopathology (Paulus et al. 2021). However, the literature has also shown that some individuals with histories of maltreatment develop resilience—often due to protective factors such as community support and social cohesion (Chang et al. 2022). Some individuals exposed to maltreatment develop adaptive coping mechanisms and benefit from protective experiences, which may buffer against the development of emotional or behavioural difficulties.

One of the objectives was to examine the correlations between childhood trauma, symptomatology, ED, VCs, and NVCs. The results of this study demonstrated significant relationships between childhood trauma and symptoms of anxiety, depression, and trauma, which aligns with previous research (Negriff 2020). These findings underscore the importance of early detection and intervention in cases of child maltreatment, given the broad and persistent psychological consequences that can result from such experiences.

Regression analyses showed that physical, emotional, and sexual abuse predicted PTSD symptoms, while physical neglect and all three forms of abuse predicted symptoms of C-PTSD, which is consistent with what has been shown in prior studies (Turner et al. 2020), and expanding the understanding regarding the influence of childhood trauma on trauma symptoms by identifying additional predictive forms of maltreatment. This reinforces the idea that childhood trauma is a significant factor in the development of trauma symptomatology among incarcerated populations.

The analysis also revealed that both physical and sexual abuse were significantly associated with the number of VCs committed, with regression models indicating that these forms of abuse increase the risk of violent offending (e.g., Basto-Pereira et al. 2022; Fox et al. 2015). In contrast, no association was found between emotional neglect and criminal behaviour, which aligns with previous findings (Basto-Pereira et al. 2022; MS et al. 2022). Although earlier studies have suggested a link between physical neglect and VCs (MS et al. 2022), this association was not replicated in the present sample. Collectively, these results support the

notion that the relationship between childhood adversity and violent behaviour is neither deterministic nor linear. As discussed in previous studies, psychological, contextual, and environmental variables likely moderate or mediate these associations (Chang et al. 2022; Garofalo and Velotti 2017). Notably, in this study, some forms of childhood trauma were more strongly associated with ED than with criminal behaviour per se. This suggests that early adversity may contribute primarily to difficulties in emotional regulation among this population, which, in turn, may increase vulnerability to psychopathology or aggression under specific conditions. These findings underscore the importance of trauma-informed and individualized interventions in forensic contexts that take into account the diverse ways in which early adverse experiences manifest in adulthood while avoiding reductionist or pathologizing interpretations of trauma histories.

Although prior research has indicated an association between childhood trauma and NVCs (e.g., Bauer et al. 2024), this was not observed in the present study. This suggests that other factors, such as social and economic variables or peer influence—often accompanying childhood trauma (Brezina and Azimi 2018; Maguire-Jack et al. 2021) and associated with NVCs (Brown 2016; Dong and Hou 2024)—may play a more significant role in the number of NVCs committed than childhood adversity alone.

Another objective of this study was to examine whether ED mediates the relationship between traumatic symptomatology (PTSD and C-PTSD) and symptoms of anxiety and depression. As expected, a correlation between these symptom clusters was found (e.g., Ouhmad et al. 2023; Rodrigues et al. 2024). Additionally, linear regression analysis indicated that ED mediated the relationship between PTSD symptoms and both anxiety and depression. Although this specific mediation pathway has not been widely explored, related studies support the plausibility of this mechanism (e.g., anxiety—Kocyigit et al. 2024; Paltell et al. 2019; depression—Espil et al. 2016).

Finally, the analysis suggested that ED mediates the relationship between C-PTSD symptoms and both anxiety and depression, highlighting its potential role as a transdiagnostic mechanism through which trauma symptoms give rise to internalizing difficulties (Paulus et al. 2021). While, to our knowledge, no previous studies have directly examined this specific mediation, the existing literature supports the plausibility of these pathways. C-PTSD is known to involve disturbances in self-organization—including difficulties in emotional regulation (Maercker et al. 2013)—and ED has been associated with greater symptom severity in anxiety (Rodrigues et al. 2024). Moreover, prior research has shown that ED can mediate the link between PTSD symptoms and depressive outcomes (Espil et al. 2016), suggesting that a similar mechanism may be at play in the context of C-PTSD. These findings highlight the potential of targeting ED in interventions aimed at reducing the psychological burden of complex trauma.

Overall, these findings suggest that individuals experiencing traumatic symptoms may struggle with emotional regulation, which, in turn, may contribute to heightened symptoms of anxiety and depression. Interventions focused on enhancing emotional regulation could therefore play a crucial role in improving psychological outcomes and reducing symptom severity in trauma-affected populations. Importantly, these results should not be interpreted as implying causality or inevitability. Rather, they underscore the importance of recognizing how complex interactions between trauma, psychological mechanisms, and environmental factors contribute to the development of psychopathology and behaviour.

5. Conclusions

In summary, the present study identified a high prevalence of childhood trauma and psychopathology—namely, symptoms of anxiety, depression, and trauma—among the

incarcerated male population in Portugal. Physical, emotional, and sexual abuse emerged as significant predictors of PTSD and C-PTSD symptoms, while physical neglect was a predictor of C-PTSD. Furthermore, physical and sexual abuse were significant predictors of the number of VCs committed. Importantly, ED was found to mediate the relationship between traumatic symptomatology (PTSD and C-PTSD) and internalizing symptoms such as anxiety and depression.

This study reinforced previous findings in the literature while also providing novel insights into the Portuguese prison context, carrying significant implications for forensic psychology and criminology. The results highlight the importance of providing psychological support to this population and emphasize the need for tailored interventions that address their specific mental health needs.

Despite these contributions, this study presents certain limitations. Chief among them is the use of a convenience sample, which may limit the generalizability of the findings. One example is the considerable discrepancy in the number of VCs committed by participants. Although outliers (e.g., individuals with over 100 VCs and in one case more than 1000 VCs) did not significantly alter the findings, future research should approach VCs not as a single, homogeneous category, but rather disaggregate them based on legal and contextual distinctions (e.g., homicide, intimate partner violence and sexual offences). Such categorization would enable a more nuanced understanding of how different forms of childhood adversity may relate to specific behavioural outcomes.

Another limitation of this study is the exclusive inclusion of male participants. Given known gender differences in emotional processing (Stefanile et al. 2021), psychopathology (Farhane-Medina et al. 2022), and maltreatment–violence association (Leban and Delacruz 2023), the findings cannot be generalized to female prison populations. Future research should replicate this design with incarcerated women to examine whether similar psychological mechanisms are observed. Additionally, this study did not take into account whether participants had received any interventions aimed at addressing trauma-related symptoms or their offending behaviour. Such interventions could play an important role in the clinical presentation of symptoms and emotional dysregulation and should therefore be controlled for in future research.

Building on the finding that certain forms of childhood trauma have an impact on criminal behaviour, future research should investigate psychological mechanisms that may mediate or moderate this relationship. Variables such as ED, personality traits (e.g., impulsivity), and protective factors (e.g., social support and prosocial role models) may play a critical role in shaping behavioural trajectories. Identifying the weight and interplay of these variables in individuals with a history of maltreatment could help disentangle why some develop maladaptive outcomes while others do not, thereby supporting more individualized and effective prevention strategies.

Future research should continue to explore the interplay between early adversity, mental health outcomes, and criminal behaviour. While this study highlights the enduring impact of childhood trauma on psychopathology, it is also important to consider the potentially exacerbating effects of incarceration itself. Longitudinal designs could help disentangle the pre-existing vulnerabilities from the consequences of imprisonment. Additionally, applying network analysis methods could provide valuable insights into the associations between symptomatology and the various prison-related factors known to impact mental health. Finally, the absence of a significant association between childhood trauma and NVCs in this study raises important questions. Future research should explore potential moderating variables and assess whether this pattern persists across other inmate populations—such as individuals from different regions of Portugal, those serving non-custodial sentences, or incarcerated individuals in other countries.

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