The relationship between specific psychiatric disorders and type of crimes committed in a forensic psychiatry population

Relação entre diagnóstico psiquiátrico e tipo de crime cometido em doentes em enfermaria de psiquiatria forense

Relación entre trastornos psiquiátricos específicos y tipo de delitos cometidos en una población de psiquiatría forense

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ABSTRACT:
Introduction: The association between criminality and psychiatric disorders has been extensively studied. The most recent studies show that this appears to exist only in acute stages of the disorder. Adverse childhood events are also a risk factor in violent and antisocial behaviors.
Methods/Objectives: A retrospective exploratory study was designed, including 91 men and 19 women admitted in the Forensic Ward of Coimbra Hospital and University Center between January 2018 and august 2021 to evaluate the association between psychiatric diagnosis and crime committed. Gender differences and adverse childhood events were also evaluated. **Results:** Although psychotic disorders were the most common in both groups, mood disorders were significantly more common in women. 39 patients had comorbidity with substance abuse which was associated with a greater prevalence of criminal history and childhood adverse events, but also with a lesser prevalence of violent crimes and homicide. The victims of the crimes committed were mainly from the patient's nuclear family, with a low prevalence of crimes committed against strangers. The sample patients also reported more adverse childhood events than the general population. **Discussion:** There were no significant differences in the type of crime considering the psychiatric diagnosis, but comorbidity

with substance abuse was associated with greater criminality, but with less violent crimes. There was a greater prevalence of crimes committed against the nuclear family, and particularly against offspring in women.

Keywords: forensic psychiatry, not guilty by reason of insanity, adverse childhood events, substance use disorders, criminality, dual pathology

RESUMO:
Introdução: A associação entre criminalidade e transtornos psiquiátricos tem sido amplamente estudada. Os estudos mais recentes mostram que esta associação parece existir apenas nas fases agudas da patologia. Os eventos adversos na infância são um fator de risco para comportamentos violentos e antissociais. **Métodos/Objetivos:** Foi desenhado um estudo exploratório retrospectivo, incluindo 91 homens e 19 mulheres internados na Enfermaria de Psiquiatria Forense do Hospital e Centro Universitário de Coimbra, Portugal, entre janeiro de 2018 e agosto de 2021 para avaliar a associação entre diagnóstico psiquiátrico e crime cometido. Diferenças de gênero e eventos adversos na infância também foram avaliados. **Resultados:** Embora as perturbações psicóticas tenham sido os mais comuns em ambos os grupos, as perturbações do humor foram significativamente mais comuns nas mulheres. 39 pacientes tinham comorbidade com abuso de substâncias, associada a maior prevalência de antecedentes criminais e eventos adversos na infância, mas também a uma menor prevalência de crimes violentos e homicídio. As vítimas dos crimes cometidos eram principalmente do núcleo familiar do doente, com baixa prevalência de crimes cometidos contra estranhos. Os pacientes da amostra também relataram mais eventos adversos na infância do que a população geral. **Discussão:** Não houve diferenças significativas no tipo de crime considerando o diagnóstico psiquiátrico, mas a comorbilidade com abuso de substâncias associou-se a maior criminalidade, mas a crimes menos violentos. Houve maior prevalência de crimes cometidos contra o núcleo familiar e, principalmente, contra os filhos em mulheres.

Palavras-chave: psiquiatria Forense, inimputável, eventos adversos da infância, perturbações do uso de substâncias, criminalidade, patologia dual

RESUMEN:
Introducción: La asociación entre criminalidad y trastornos psiquiátricos ha sido ampliamente estudiada. Los estudios más recientes muestran que esto parece existir solo en las etapas agudas del trastorno. Los eventos adversos en la infancia también son un factor de riesgo en las conductas

violentas y antisociales. **Métodos/Objetivos:** Se diseñó un estudio exploratorio retrospectivo, que incluyó a 91 hombres y 19 mujeres ingresados en la Sala Forense del Hospital y Centro Universitario de Coimbra entre enero de 2018 y agosto de 2021 para evaluar la asociación entre el diagnóstico psiquiátrico y el delito cometido. También se evaluaron las diferencias de género y los eventos adversos en la infancia. **Resultados:** Aunque los trastornos psicóticos fueron los más comunes en ambos grupos, los trastornos del estado de ánimo fueron significativamente más comunes en las mujeres. 39 pacientes tenían comorbilidad con abuso de sustancias, lo que se asoció con una mayor prevalencia de antecedentes penales y eventos adversos en la infancia, pero también con una menor prevalencia de delitos violentos y homicidio. Las víctimas de los delitos cometidos fueron mayoritariamente del núcleo familiar del paciente, con una baja prevalencia de delitos cometidos contra extraños. Los pacientes de la muestra también informaron más eventos adversos en la infancia que la población general. **Discusión:** No hubo diferencias significativas en el tipo de delito considerando el diagnóstico psiquiátrico, pero la comorbilidad con el abuso de sustancias se asoció con mayor criminalidad, pero con menos delitos violentos. Hubo una mayor prevalencia de delitos cometidos contra el núcleo familiar, y particularmente contra la descendencia en las mujeres.

Palabras clave: psiquiatría forense, no culpable por razón de locura, eventos adversos en la infancia, trastornos por uso de sustancias, Criminalidad, patología dual

Introdução

Criminality in psychiatric patients is a complex topic whose study requires an understanding of the interaction of several factors. The concept of psychiatric illness is too broad and heterogeneous, making it difficult to define risk factors or behaviors common to all psychiatric disorders.

The first studies with scientific design to assess the risk of crime in psychiatric patients were carried out in the first half of the 20th century. Most showed that severe psychiatric patients were less likely to be arrested than the general population [1].

The deinstitutionalization of psychiatric patients in the second half of the 20th century led to an increase in reported crime associated with previous hospitalization, however this seemed to be related to other factors [2]. In fact, during the 1980s, scientific evidence pointed to sociodemographic and historical factors as the main contributors to the association between crime and psychiatric illness [3].

In the 1990's, although several studies indicated a higher risk of conviction for violent crime in subjects diagnosed with severe psychiatric illness, it was also found that violent behaviors were rare and appeared mainly in acute stages of the disease [4]. Recent studies have pointed to a more conservative estimative of the risk [5].

Authors such as Link et al., Teplin and Beck demonstrated that the acts of violence committed by psychiatric patients were related to the belief that the subject is under imminent threat, especially if there were delusional thoughts or hallucinatory activity. Thus, it was concluded that the risk of violent behavior in psychiatric patients was similar to that of the general population when the patient is stable, increasing only during the phases of acute decompensation [4–7].

Another important cause of criminality in psychiatric patients is the comorbidity with Substance Use Disorders (SUD) and with Personality Disorders, which increase the risk of violent behavior [8]. The association between SUD and the practice of criminal act is widely described in the literature and seems to be related to behavioral disinhibition, exacerbation of comorbid psychotic symptoms, negligence in adherence to therapy, worsening of interpersonal conflicts and exposure to a predatory environment [9].

Studies carried out in recent decades have also shown some differences regarding crimes committed by psychiatric patients and by the general population, namely the higher frequency of crimes against the nuclear family in psychiatric patients [10].

Adverse Childhood Events (ACE) and its relationship with disease, both mental and physical, in adults, has been extensively studied in recent years. Childhood and adolescence represent periods of great vulnerability during which the experience of adverse experiences can compromise the balance necessary for a healthy development [11].

Regarding psychiatric illness, several studies demonstrate that exposure to ACE increases the risk of developing a substantial number of psychiatric disorders, including mood disorders, anxiety disorders, SUD, psychotic disorders, personality disorders, while also increasing the risk of suicidal behavior [12]. Exposure to ACE also increases the risk of aggressive behavior and criminality in adulthood [11].

As previously reported, when stable, psychiatric patients have a similar risk of violent behavior to the general population. Also, SUD and Personality Disorders account for many crimes in this population. However, when the symptoms of the disease, namely psychotic symptoms, motivate violent behaviors special measures must be taken. On one hand, the patients cannot be hold accountable for the crime committed, as they were unable to evaluate the illegality of the act because of their psychiatric symptoms. On the other hand, the patient must be treated to reduce the risk of similar behaviors in the future.

With this study the authors aim to find associations between the psychiatric illness and the type of crime committed in a Forensic Psychiatry ward sample. The goal is to identify which symptoms lead to a particular type of crime so that preventive measures can be taken. Also, the authors aim to study the exposure to ACE in this sample.

Methods
Participants
A sample of patients committed in the Forensic Psychiatric Service of the Coimbra Hospital and University Center (CHUC) between January 2018 and August 2021 was collected. Patients were given an informed consent and those who could not consent to by reason of their illness and whose tutors could not be contacted were excluded from the study.

110 adults of both genders were included in our study. The average age at which the crime was committed was 43.48 years. No statistically significant differences were found regarding the age at which the crime was committed, academic qualifications, professional status, and area of residence. However, statistically significant differences were identified in the assessment of marital status, with a higher prevalence of married patients among females. The sociodemographic characteristics of the studied sample are summarized in Table 1.

Instruments
Adverse Childhood Experiences Questionnaire

The Portuguese version of the Adverse Childhood Experiences Questionnaire (ACE Questionnaire), translated and validated by Silva and Maia in 2006 was used [13, 14]. It comprehends 77 items, groped in 10 categories.

Data collection

An exploratory and retrospective study was carried out by collecting data from the clinical and judicial records. The diagnosis considered in the psychiatric expert evaluation was the one used in the study as "current psychiatric diagnosis". These were grouped according to their nosological category in "Psychotic Disorders", "Intellectual Development Disorders", "Mood Disorders" and "Substance Use Disorders".

Data regarding the crime committed and the socio-demographic characteristics of the patients was also collected. The crimes committed were grouped in two different ways: 1) in violent (including Homicide, Attempted Homicide, Rape or Sexual Abuse, Offense to Serious Physical Integrity and Kidnapping being considered violent) and non-violent crime (including all other crimes), according to the criteria of the Annual Internal Security Report; 2) "Homicide" (including attempted and consummated homicide), "Domestic Violence", "Arson" and "Other Crimes". The relationship with the victim was also grouped into "Known" and "Unknown". Adverse childhood experiences were also collected and cataloged using ACE Questionnaire, which patients were asked to complete, with the support of the research team. Only 67 patients correctly completed the questionnaire as some patients were unable to do so and others refuse to complete this part of the study.

Statistical analysis

The data analysis was performed using IBM SPSS version 26.0. The Kolmogorov-Smirnov test was used to teste the normality of the data. As the test determined that the variables did not have a normal distribution, parametric tests were used. Chi-square tests were used the evaluate the dependence between the nominal variables and the Mann-Whitney U test was used to evaluate the association between Total Adversity Scores and Current diagnosis or Type of crime committed.

Results
Descriptive analysis

The assessment of Adverse Childhood Events was possible in 67 patients. The average of Total Adversity was 2.42 and the mode was 1. The prevalence of each Total Adversity Score can be consulted in Table 2.

The category of experiences of adversity in childhood most represented was that of Physical Negligence (n = 22; 32.8%), followed clorela by Emotional Negligence (n = 20; 29.9), by parental separation (n = 19; 28.4%) and substance abuse in the family environment (n = 19; 28.4%). Emotional and physical abuse was reported by 18 (26.9%) and 12 (17.9%) patients, respectively.

The presence of domestic violence in their household was reported by 11 patients (16.4%) and 7 patients (n = 10.4%) reported suicidal behavior in the family. Sexual abuse was reported by only 4 patients (6%) and only 2 (3%) patients reported the arrest of a family member.

The majority had family support, translated into visits, phone calls, availability of essential items and money or collaboration with judicial exits (n = 79; 71.8%). However, 28.2% (n = 31) had no contact with the family. Most patients had a previous Psychiatric History (n = 86; 78.2%) and 71 patients (64.5%) had a history of inpatient treatment, which represents 82.55% of patients with previous follow-up. In patients with previous follow-up, 29.9% had previous diagnoses that did not agree with the current diagnosis.

Psychotic Disorders were the most common (n = 63; 57.3%), followed closely by Intellectual Development Disorders (n = 35; 31.8%). Mood Disorders (n = 9; 8.2%) and Substance Use Disorders (as a primary diagnosis) (n = 3; 2.7%) had significantly lower prevalence.

The most common diagnosis was Schizophrenia (n = 40; 36.4%), followed by mild and moderate Intellectual Development Disorders (n = 16; 14.5% in both). The diagnosis of Delusional Disorder was made in 16 patients (14.5%).

Of the mood disorders, the most frequently found was Bipolar Affective Disorder (n = 6; 5.4%). The psychiatric diagnoses of the subjects in the sample and their respective prevalence are presented in Table 3. 35.5% (n = 39) of patients presented comorbidity with SUD. Alcohol consumption was as prevalent as the consumption of multiple substances (n = 18; 16.4%).

The most prevalent crime was domestic violence (n = 25; 22.7%). In most cases, domestic violence was directed at the patient's parents (n = 13; 52%), followed closely by the spouse (n = 11; 44%). Consummate homicide was the second most committed crime (n = 20; 18.2%).

The data collected indicate that the crime occurred mainly in a relational context, having been committed against strangers in only 2 cases (10.5%). The most frequent victims were the parents (n = 5; 26.3%), followed by other members of the nuclear family and other known people (n = 4; 21.1% in both cases).

The homicide of children or spouses had an equal prevalence (n = 2; 10.5%). Arson accounted for 16.4% of crimes committed (n = 18) and theft or robbery accounted for 12.7% (n = 14). In the studied group, 40% of patients (n = 44) were convicted for a violent crime and 60% (n = 66) for a non-violent crime.

Globally, parents were the most frequent victims (n = 25; 22.7%), followed by neighbors (n = 15; 13.65%) and spouses (n = 14; 12.7%). Only 17.3% of crimes were committed against strangers (n = 19). 41.8% of the crimes were committed against the nuclear family and 21.8% against other acquaintances, including other relatives, neighbors, or friends. Most crimes were committed against adults (80%; n = 88).

Most patients did not have a criminal record (61.8%; n = 68) and only 13.6% had previously been admitted to a Forensic Psychiatric Ward (n = 15).

Statistical analysis

1. Gender differences in psychiatric disorder, type of crime committed, relationship with the victim and criminal record. We found that there was an association between the prevalence of Mood Disorders and gender (Fisher's Exact Test: p <0.05), with females being about 7 times more likely to have a diagnosis of Mood Disorders (OR: 7.768). We also found that males were about 12 times more likely to have comorbidity with Substance Use Disorders (Chi-Square 9.148: p <0.05) (OR: 12.906). Data on gender differences regarding current psychiatric diagnosis are summarized in Table 3.

No association was found between gender and the relationship with the victim. However, in our sample, only women had committed crimes against their children. This carried no statistical significance probably because of the small number of this type of crimes in our sample.

2. Differences related to the presence of comorbidities and psychiatric history, current family situation, characteristics of the crime committed and criminal history depending on current psychiatric diagnosis [Table 3].

Although there was a higher-than-expected prevalence of homicides in patients with psychosis and of arson in patients with Intellectual Development Disorders, these results were not significant. However, the comorbidity with SUD was significantly associated with the type of crime. Patients with this comorbidity were about 2 times more likely to have committed domestic violence (OR: 2.458) and patients without it were about twice as likely to have committed a crime of homicide (OR: 2,641) (Chi-Square Test 7.929; p <0.05).

Although there was no association between the current primary psychiatric diagnosis and the existence of a criminal record, patients with a history of SUD were 3 times more likely to have a criminal record (Chi-Square 8,506; p <0.05) (OR: 3,300).

The area of residence had a significant association with the current diagnosis of the patients, with a higher prevalence of Intellectual Development Disorders in rural areas and a higher prevalence of Psychotic Disorders in urban areas.

3. Differences regarding the presence of a criminal record, relationship with the victim and current family support depending on the crime committed

It was found that patients who committed homicide had a significantly lower prevalence of criminal history (Chi-Square 12,263; p <0.05). These data are summarized in Table 4. Also, patients convicted for a non-violent crime were about 11 times more likely to have history of hospitalization in a Forensic Psychiatric Ward (Chi-Square 8.041; p <0.05; OR: 11.577).

Patients convicted for Homicide had significantly lower family support and those convicted for Domestic Violence had significantly higher family support (chi-square 8.464; p <0.05) [Table 5]. No differences were found in family support depending on the current psychiatric diagnosis.

4. Differences in ACE Scores of the sample compared to the general Portuguese population

Although this finding is not statistically significant, patients with Intellectual Development Disorder were more likely to have at least one adverse childhood events. It was found that patients with SUD comorbidity had scores on the ACE questionnaire significantly higher than those without criteria for this diagnosis [Table 2].

Comparing the study subjects with a sample of the general Portuguese population described by Silva and Maia in 2011 [15], statistically significant differences were observed in the prevalence of various childhood adversities [Table 6].

Discussion

Most patients in the sample had been diagnosed with Psychotic Disorders, with Schizophrenia being the most common. This finding is expected considering that psychotic disorders are the ones that most often lead to the presence of assumptions for a patient to be found not guilty by reason of insanity. Additionally, the association between psychotic symptoms and aggressive behaviors has already been described [4, 16].

In our study, in almost 30% of the patients with a previous Psychiatric History, their previous diagnoses did not agree with the one made by the forensic psychiatrist. Clinical diagnosis presents several difficulties, namely the heterogeneous presentation of the various psychiatric disorders. Patients may present at different stages of the disease, have different symptomatic expressions, and report a different functional impact [17].

This diagnostic disagreement is not exclusive to Forensic Psychiatry, being frequently found in the clinical practice of Psychiatry. The comparison of the diagnostic agreement of the various nosological groups between the general psychiatric population and Forensic Psychiatry inpatients could be an interesting target for future studies.

In the sample studied, several relevant differences were found between female and male patients. Psychotic Disorders were the most prevalent, regardless of gender, however, the prevalence of Mood Disorders was significantly higher in females. This finding is understandable given the fact that affective disorders are about twice as common in females [18].

Additionally, most patients diagnosed with Mood Disorder met criteria for Depressive Episode and committed crimes against their children. None of the men were convicted for infanticide, a crime more prevalent in women and often associated with depressive disorders [19].

The higher prevalence of male patients with comorbidity with Substance Use Disorders found in our sample are in agreement with the predominance of substance abuse by male individuals in the general population. In Portugal, gender differences regarding substance use, especially alcohol, are among the highest in Europe [20].

The provenance of an urban region is an important risk factor, although largely misunderstood, for psychotic disorders and, more specifically, for schizophrenia. Pollution, differences in habits and the social environment have been studied as possible causes of increased risk [21]. Although this relationship is not completely understood, it is interesting to note that its effects are manifested in the sample of patients studied.

In the last decades there has been an effort on the part of the scientific community to understand whether there is an association between the type of crime and the underlying psychiatric pathology to prevent its occurrence. Considering the importance that psychotic symptoms, namely persecutory delusional ideation and hallucinatory activity, represent in the aggressive behaviors of psychiatric patients, it is not surprising that these are more serious and more often fatal in patients with primary psychotic disorders, especially in first psychotic episodes [22, 23].

The higher-than-expected prevalence of homicides in patients with psychotic disorders in our sample, although not statistically significant,

may reflect this association. In addition, none of the patients with psychotic disorders in the sample had committed crimes of sexual abuse, a finding also common in the literature. In fact, these crimes had been committed only by patients with Intellectual Development Disorders.

The association between Intellectual Development Disorders and inappropriate sexual behavior is already described in the literature, with reported prevalence between 15 and 33%. However, these refer, for the most part, to inappropriate social behaviors and not to coercive behaviors [24], which justifies the absence of over-representation of patients with intellectual development disorders in samples of national sex offenders [25]. The association found in this study can be explained by a selection bias, since hardly any other psychiatric disorders would have granted a veridic of not guilty by reason of insanity in this type of crime.

Despite the lack of a statistically significant relationship between the primary psychiatric diagnosis and the type of crime committed, we found an association between comorbidity with Substance Use Disorders and type of crime committed. SUD comorbidity increased the likelihood of domestic violence and decreased the likelihood of homicide. Nijman et al presented similar results in a study with psychotic patients, in which they reported a lower prevalence of substance use in patients who had committed homicide [22].

These results are interesting considering that the association between aggressive behaviors and crime and substance abuse is well established in the literature, both for subjects with and without comorbid psychiatric disorders [26]. In fact, this relationship is evident in the current study through the higher prevalence of criminal history in patients with comorbidity with SUD.

We could speculate that comorbid substance use could increase the frequency of criminal behavior, namely domestic violence, exercising less influence on more serious crimes, such as homicide. This may also play a part on the lower prevalence of criminal records in patients convicted for homicide. The greater risk of violent behaviors in first psychotic episodes can also explain this finding [23]

However, not all studies show similar results. Tiihonen et al. reported a higher risk of aggressive behavior in patients with schizophrenia and

comorbidity with SUD [27]. Thus, further studies are necessary to clarify this relationship. Interestingly, in our sample the prevalence of alcohol

consumption is like the prevalence of multiple substances consumption, contrary to what occurs in the general population, where the consumption of alcoholic beverages is much more frequent than that of any other substance [20].

Although there is a well-defined relationship between Personality Disorders and the risk of aggressive or criminal behavior, the lack of patients with this primary diagnosis in our sample meant that this association was not studied. Since it is considered that these Disorders do not cause a defect of reason, it will be difficult to determine a patient with Personality Disorder and no other comorbid diagnose not guilty by reason of insanity.

About this, the DSM-5 itself states that the diagnosis of a psychiatric disorder is not sufficient to establish the existence of a "mental defect" for legal purposes [28, 29]. However, these are often in comorbidity with other psychiatric disorders, acting as a poor prognosis factor. The possible influence of Personality Disorders on the risk of criminality in patients with other comorbid psychiatric disorders should be accessed.

The relationship with the victim in psychiatric patients has also been the subject of study. In patients with schizophrenia, the likelihood of aggressive behavior against strangers has been reported to be low, more than in the general population [22].

In our study, most crimes were committed against the nuclear family, which corroborates the notion that crimes committed by psychiatric patients are more often against close relatives. The diagnosis of a psychiatric disorder in a family member is considered a risk factor for family dysfunction, especially in the acute stages of the disease [30].

This dysfunction may contribute to the predominance of nuclear family members among the victims of the crimes committed by the patients in the studied sample. This contradicts and opposes the media portrayal of the psychiatric patients as a "deranged killer" as in the rare cases in which the psychiatric symptoms motivate violent behaviors they are mostly directed to the family.

Family support of patients in a Forensic Psychiatry ward is of great importance since support from family members is essential for the patient's

reintegration into society, facilitating jurisdictional licenses and their acceptance by the community.

That said, it is important to study what are the main variables that influence the existence, or not, of this support, so that these can be worked with the family and the patient himself. In the sample studied, there were no differences in family support depending on the current psychiatric diagnosis, but there are differences according to the type of crime committed. Considering the moral burden associated with the homicide, it is not surprising that patients who were convicted for this crime had less family support, many without any contact with family members.

However, patients convicted for domestic violence had a better-than-expected family support. The normalization and justification of aggressive behaviors within the family is a phenomenon described and evident in clinical practice and even in society [30]. This acceptance of domestic violence helps to understand that aggressive behaviors directed against the nuclear family may be the most accepted by the family itself.

The assessment of adverse childhood experiences was one of the main objectives of the investigation. The literature review showed that these events are very prevalent in patients with psychiatric disorders, as well as in the prison population. Thus, the assessment of its prevalence in our sample becomes essential for the true understanding of the remaining results obtained. Comparing the average of Total Adversity in the patients studied, we found that this is higher than that reported for the general Portuguese population [14].

Regarding the Portuguese inmate population, studied by Joana Alves et al. [11], the average total Adversity of our sample is like that reported in Men (2.63; SD = 2.18), but lower than that reported in women (5.05; SD = 2.63). In the present study, there were no significant differences in Total Adversity between genders, an inconstant finding in the literature.

However, more than total adversity, the type of adverse experience is influenced by gender. There seems to be a predominance of sexual abuse and exposure to domestic violence in females and physical abuse and substance abuse in the family in males. The way these experiences shape adult behavior also appears to be different across genders, with a higher prevalence of hopelessness, anxiety and depression in women and substance abuse and antisocial behaviors in men [31].

Although not statistically significant, the higher prevalence of at least one ACE in patients with a current psychiatric diagnosis of Intellectual Development Disorder is interesting. These disorders can be related to risky maternal behaviors during pregnancy, namely substance use. The consumption of substances by caregivers, in addition to being one of the events surveyed by the ACE Questionnaire, can result in neglect to the child and even in exposure to violence, directed at the child or other members of the household.

In addition, the patients studied also had a higher prevalence of various categories of adversity when compared to the general population. Although the Exposure to Domestic Violence is one of the categories with a higher prevalence in the studied sample, it did not show any relationship with the practice of the crime of Domestic Violence.

In fact, neither the Total Adversity score nor the prevalence of any of the categories was associated with the primary psychiatric diagnosis or with the type of crime committed. On the other hand, the Total Adversity score had a significant relationship with SUD comorbidity. This association has been widely explored in the literature, with several studies showing that adverse experiences in childhood increase the risk of substance abuse in adulthood [32]. As substance abuse is associated with a higher frequency of violent, antisocial, and criminal behaviors, we can say that adverse childhood events play an important role in these behaviors.

In this way, intervention by the competent authorities to protect children exposed to adverse events plays a pivotal role in preventing future crime. The small sample of the study is an important limitation since it did not allow the evaluation of the association of specific psychiatric diseases and impaired the statistical analysis of the data. Also, the different sample sizes of men and female hinders the differences found between these two groups. Another important limitation is the inclusion only of patients declared not guilty by reason of insanity committed in a Forensic Psychiatry ward, a measure used only when danger persists.

Most patients declared not guilty by reason of insanity do not need to be admitted in these wards and receive outpatient treatment. Therefore, this sample does not represent the typical Forensic Psychiatry patient, consisting of the more severe cases. Also, violence and criminality are greatly influenced by cultural and social factors which were not studied.

Conclusion

Although we did not find associations between specific psychiatric disorders and types of crime, this study showed that comorbid substance use increases the risk of violent behaviors in a forensic psychiatry sample, albeit not homicide. Also, Adverse Childhood Events seem to play an important role in substance abuse, psychiatric illness, and violent behaviors. These findings help understand how psychiatric symptoms can motivate violent behavior which, although rare, have important consequences on both the community and the patient.

These findings are only valid in a specific subpopulation of the forensic psychiatric patients and should not be compared to the general population as they do not represent a higher risk of violence in patients with specific psychiatric diagnosis, but the distribution of clinical, sociodemographic, and criminal factors in an already convicted sample of patients.

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	Male	Female	Total	
	Mean (SD)	Mean (SD)	Mean (SD)	t
AGE	42,93 (12,694)	46,11 (9,820)	43,48 (12,264)	-1,025 *ns*
	N (%)	N (%)	N (%)	**X²**
CIVIL STATUS				11,904 *
Single	63 (69,2%)	7 (36,8%)	70 (63,6%)	
Married	10 (11%)	8 (42,1%)	18 (16,4%)	
Divorced	15 (16,5%)	4 (21,1%)	19 (17,3%)	
Widow	3 (3,3%)	0 (0,0%)	3 (2,7%)	
EDUCATION LEVEL				3,772 *ns*
Illiterate	16 (17,6%)	1 (5,3%)	17 (15,5%)	
Primary Education	34 (37,4%)	9 (47,4%)	43 (39,1%)	
Basic Education	30 (33%)	4 (21,1%)	34 (30,9%)	
High School	8 (8,8%)	3 (15,8%)	11 (10%)	
University	3 (3,3%)	2 (10,5%)	5 (4,5%)	
PROFISSIONAL STATUS				
Employed	18 (19,8%)	5 (26,3%)	23 (20,9%)	
Unemployed	41 (45,1%)	12 (63,2%)	53 (48,2%)	
Retired	32 (35,2%)	2 (10,5%)	34 (30,9%)	
RESIDENCE AREA				0,027 *ns*
Urban	45 (49,5%)	9 (47,4%)	54 (49,1%)	
Rural	46 (50,5%)	10 (52,6%)	56 (50,9%)	

Table 1: Sociodemographic characteristics of patients

* p < 0,05, *ns*: not significant;
X²: Chi-Square test; SD: Standard deviation

Table 2: Total adversity scores

| CHARACTERISTIC | SAMPLE SIZE (N) | TOTAL ADVERSITY SCORE N (%) | | | | | | | UMW |
		0	1	2	3	4	5	6	
GENDER									**UMW** 297,5 *ns*
Female	13	4 (30,8%)	6 (46,2%)	1 (7,7%)	0 (0,0%)	1 (7,7%)	1 (7,7%)	0 (0,0%)	
Male	54	18 (33,3%)	11 (20,4%)	8 (14,8%)	3 (5,6%)	3 (5,6%)	6 (11,1%)	5 (9,3%)	
CURRENT PSYCHIATRIC DIAGNOSIS									**KW** 5,368 *ns*
Intelectual Development Disorders	22	3 (13,6%)	6 (27,3%)	4 (18,2%)	2 (9,1%)	1 (4,5%)	4 (18,2%)	2 (9,1%)	
Psychotic Disorders	35	15 (42,9%)	8 (22,9%)	4 (11,4%)	1 (2,9%)	1 (2,9%)	3 (4,8%)	3 (4,8%)	
Others	10	4 (40,0%)	3 (30,0%)	1 (10,0%)	0 (0,0%)	4 (40,0%)	0 (0,0%)	0 (0,0%)	
SUBSTANCE USE COMORBIDITY									**UMW** 330,0*
Yes	22	3 (13,6%)	6 (27,3%)	4 (18,2%)	3 (13,6%)	1 (4,5%)	2 (9,1%)	3 (13,6%)	
No	45	19 (42,2%)	11 (24,4%)	5 (11,1%)	0 (0,0%)	3 (6,7%)	5 (11,1%)	2 (4,4%)	
TYPE OF CRIME									**KW** 1,168 *ns*
Homicide	21	8 (38,1%)	6 (28,6%)	1 (4,8%)	2 (9,5%)	1 (4,8%)	2 (9,5%)	1 (4,8%)	
Domestic Violence	15	4 (26,7%)	3 (20,0%)	3 (20,0%)	0 (0,0%)	1 (6,7%)	2 (13,3%)	2 (13,3%)	
Arson	9	3 (33,3%)	2 (22,2%)	1 (11,1%)	0 (0,0%)	1 (11,1%)	2 (22,2%)	0 (0,0%)	
Others	22	7 (31,8%)	6 (27,3%)	4 (18,2%)	1 (4,5%)	1 (4,5%)	1 (4,5%)	2 (9,1%)	
TOTAL	67	22 (32,8%)	17 (25,4%)	9 (13,4%)	3 (4,5%)	4 (6,0%)	7 (10,4%)	5 (7,5%)	

*p < 0,05; *ns*: not significant
UMW: Mann-Whitney U test; KW: Kruskal-Wallis test

Table 3: Gender psychiatric history, diagnostic agreement, type of crime and criminal record according to current psychiatric diagnosis

CURRENT PSYCHIATRIC DIAGNOSIS	TOTAL	GENDER		X²	PSYCHIATRIC HISTORY		X²	DIAGNOSTIC AGREEMENT		X²	TYPE OF CRIME				X²	CRIMINAL RECORD		X²
		F	M		Yes	No		Yes	No		Homicide	Domestic Violence	Arson	Others		Yes	No	
	N (%)	N (%)			N (%)			N (%)			N (%)					N (%)		
Intellectual Development Disorders	35 (31,8)	5 (26,3)	30 (33,0)		23 (65,7)	12 (34,3)		16 (66,7)	8 (33,3)		6 (17,1)	8 (22,9)	8 (22,9)	13 (37,1)		17 (48,6)	18 (51,4)	
I.D.D. Mild	16 (14,5)																	
I.D.D Moderate	16 (14,5)																	
I.D.D. Severe	3 (2,7)																	
Psychotic Disorders	64 (58,5)	8 (42,1)	55 (60,4)	10,136*	52 (82,5)	11 (17,5)	5,170 ns	37 (71,2)	15 (28,8)	0,199 ns	21 (33,3)	13 (20,6)	9 (14,3)	20 (31,7)	8,451 ns	22 (34,9)	41 (65,1)	2,768 ns
Schizophrenia	42 (38,2)																	
Schizoaffective	2 (1,8)																	
Delusional Disorder	16 (14,5)																	
Toxic Psychosis	3 (2,7)																	
Others	12 (10,9)	6 (31,6)	6 (6,60)		11 (91,7)	1 (8,3)		8 (72,7)	3 (27,3)		6 (50,0)	4 (33,3)	1 (8,3)	1 (8,3)		3 (25,0)	9 (75,0)	
Bipolar Disorder	6 (5,4)																	
Depressive Disorder	3 (2,7)																	
Alcohol Dependency	2 (1,8)																	
Multiple Substances Dependency	1 (0,9)																	
Substance Use Comorbidity																		
Yes	39 (35,5)	1 (2,6)	38 (97,4)	9,148*	33 (84,6)	6 (15,4)	1,466 ns	21 (63,6)	12 (34,6)	1,065 ns	6 (15,4)	13 (33,3)	8 (20,5)	12 (30,8)	7,929*	22 (56,4)	17 (43,6)	8,506*
No	71 (64,5)	18 (25,4)	53 (74,6)		53 (74,6)	18 (25,4)		40 (74,1)	14 (25,9)		27 (38,0)	12 (16,9)	10 (14,1)	22 (31,0)		20 (28,2)	51 (71,8)	

*p < 0,05; *ns:* not significant; X²: Chi-Square; F: female; M: male; I.D.D.: Intellectual Disability Disorder

⬆ Table 4: Prevalence of criminal record according to type of crime

TYPE OF CRIIME	TOTAL	CRIMINAL RECORD		X²
		Yes	No	
		N (%)		
Homicide	33 (39,0%)	5 (15,2%)	28 (84,8%)	
Attempted Homicide	13 (11,8%)			
Consummated Homicide	20 (18,2%)			
Domestic Violence	25 (22,7%)	10 (40,0%)	15 (60,0%)	
Arson	18 (16,4%)	8 (44,4%)	10 (55,6%)	12,263*
Others	34 (30,9%)	19 (55,9%)	15 (44,1%)	
Offense to physical integrity	6 (5,5%)			
Threat	3 (2,7%)			
Abuse/Sexual coercion of minors	4 (3,6%)			
Kidnapping	2 (1,8%)			
Theft	14 (12,7%)			
Damage	2 (1,8%)			
Road crimes	1 (0,9%)			
Drug trafficking	1 (0,9%)			
Stalking	1 (0,9%)			

*p < 0,05; X²: Chi-Square

Table 5: Familiar support according to current psychiatric diagnosis and type of crime

FAMILIAR SUPPORT	TOTAL	CURRENT PSYCHIATRIC DIAGNOSIS			X^2	TYPE OF CRIME				X^2
		I. D. D.	Psychotic Disorders	Others		Homicide	Domestic Violence	Arson	Others	
		N (%)				N (%)				
Yes	79 (71,8%)	26 (74,3%)	44 (69,8%)	9 (75,0%)	0,287 ns	18 (54,5%)	22 (88,0%)	14 (77,8%)	25 (73,5%)	8,464*
No	31 (28,2%)	9 (25,7%)	19 (30,2%)	3 (25,0%)		15 (45,5%)	3 (12,0%)	4 (26,5%)	9 (29,0%)	

*p < 0,05; ns: not significant

Table 6: Adversity categories and comparison to general population

ADVERSITY EXPERIENCE	STUDY SAMPLE (%)	GENERAL POPULATION SAMPLE (%)	X^2
Emotional Abuse	27%	11%	17,227*
Physical Abuse	18%	12%	2,216 ns
Sexual Abuse	6%	11%	1,731 ns
Emotional Neglect	30%	29%	0,024 ns
Physical Neglect	33%	29%	0,479 ns
Exposition to Domestic Violence	16%	7%	9,129*
Substance Abuse in the Family	28%	18%	4,870*
Separation or Divorce	28%	5%	76,959*
Prison of a Family Member	3%	1%	2,667 ns
Mental Illness or Suicide	10%	25%	7,567*

*p < 0,05; *ns*: not significant