The Disease History, Sociodemographics, and Criminal Features of the Homicidal Forensic Psychiatric Patients

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SUMMARY

Objective: The aim of this study was to evaluate the disease history, treatment adherence, and the criminal history of individuals who committed a homicide offence, with no criminal responsibility due to their psychiatric illness

Materials and Methods: Of 197 who had been released from our forensic psychiatric clinic after one-year-mandatory inpatient treatment, we evaluated 160 patients whom we were able to contact. To determine the severity of the crimes, criminal violence rating scale was used. The sociodemographic characterictics and certain variables associated with the disease and the criminal acts of the individuals were documented.

Results: Out of 160 patients, 48 had committed serious homicidal crime while 112 had committed milder or moderate crimes. All homicidal offenders were male. Most were single or divorced, living in metropolitan areas. 29.2% were unemployed. Of the homicidal offenders, 89.6% had a legal guardian, 93.8% had social insurance, 83.3% had psychiatric disorder with psychotic features. 29.2% of homicide offenders had criminal history even prior to the mandatory treatment, most of which were severe violent criminal offenses targeting directly a victim's life.

Conclusions: Among homicidal offenders, diagnosis of schizophrenia and other psychotic disorders were more and psychiatric comorbidities were less prevalent. The correlation of homicide and unemployment points to the importance of occupational rehabilitation. Identifying preventive factors and determining the risk of the homicidal behavior in individuals with mental disorders are important for the protection of both the patient and the public.

Keywords: Violence, homicide, mandatory treatment, criminal responsibility

INTRODUCTION

Throughout the history, it has been claimed that there is a relationship between violent behavior and psychiatric disorders. Until 1945, the studies investigating the relationship between violent behaviors in individuals with psychiatric disorders suggested that there was no increase in violent behavior in psychiatric patients and they were less likely to get arrested. But during the 20-year period after 1959, crime rates of patients discharged from hospitals were reported to be the same or even higher than those of the general population (Marzuk 1996).

In the last 20 years, an increasing number of studies have found higher incidences of crime and violent behavior among individuals with psychiatric disorder than the general population. Individulas with schizophrenia take place in 5% of all homicidal crimes although they constitute only 1% of the population. However, the presence of any abnormal mental state (mania or hypomania, depression, delusions, hallucinations, or other psychotic symptoms) was discovered only in 10% of the people who committed homicidal crime, 90% were the acts of persons who were assumed to be in normal mental state (Eastman et al. 2012). In contrast to the general public opinion, it is known that many people with psychiatric

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disorders do not engage in violent behavior. It has been discovered that the individuals with psychiatric disorders as a whole are not more dangerous than the normal population, instead, there is a dangerous subgroup of patients with the distinctive features of positive criminal history, alcohol and substance abuse, and non-adherence to medication (Taylor and Gunn 1999, Shaw 1999, Yee et al. 2011). In a study that reviewed all the persons convicted of homicide and attempted homicide during the period between 1988 and 2001 in Sweden, the rate of all psychiatric disorders including personality disorders and alcohol and substance use disorders was 90% in individuals got involved homicidal offense, and psychotic disorders constituted 20% in this group (Fazel and Grann 2004). In a study that compared individuals with and without psychiatric disorder, the frequency of violent behavior was found five times higher among individuals with psychiatric disorder (schizophrenia, mood disorder); this rate was even higher (12-16 times higher) among those with alcohol and substance abuse (Swanson et al. 1990, Brennan et al. 2000). In another study that followed 1410 patients with schizophrenia for 6 months for the acts of violence, the rate of violent crime was 19.1% and the rate of severe homicidal crime was 3.6%. Positive psychotic symptoms were positively associated with the risk of both simple offences and severe violent offences, and negative symptoms like social withdrawal was negatively associated with severe violent offence. Simple violent behaviors were associated with substance abuse and interpersonal and social factors whereas severe violent behaviors were associated with psychotic symptoms, depressive symptoms, conduct disorder, and trauma (Swanson et al. 2006). In a study of violent offences in 205 inpatients with severe psychiatric disorder, 49% of women and 39% of men displayed aggressive behavior and 17% of women and 47% of men committed at least one criminal violence in a period of 6 months (Hodgins et al. 2007).

In a study in England, Wales, and Scotland, violent behavior in a household population of 8886 persons between the ages of 17-74 had been followed for 5 years and 12% of the 8397 were found to commit a violent offence; 66% of this group were found to have a psychiatric disorder. Most frequent diagnoses were mood disorders, anxiety disorders, and personality disorders. In this sample, no significant association was found between psychotic disorders and violence (Coid et al. 2006). For individuals with a psychiatric disorder; being male, being young, alcohol or substance abuse, the presence of prominent symptoms, non-adherence to medication, the lack of insight were the most important determining factors associated with violence (Öncü 2002).

In Turkey, for the safety of the public, the individuals who are found not criminally responsible for their offence are sent to hospitals by legal authorities for compulsory inpatient treatment. For the termination of compulsory inpatient treatment, the patients' danger to the public must be eliminated or significantly diminished. After the inpatient treatment, the individuals who have been found not criminally responsible for their offence are released with a court order with the obligation of attending compulsory outpatient treatment. The compulsory outpatient follow-ups are subject to the inspection of the court. The patients are subject to obligatory inpatient treatment in case of non-adherence to treatment or relapse of the psychiatric disorder.

The aim of this study was to investigate the disease history, treatment adherence, and the criminal history of the psychiatric patients who had committed a homicidal offence but had no criminal responsibility.

In our study, we hypothesized that the history of criminal behavior and the severity of previous criminal behavior would be more common among those who committed homicidal crime. We also hypothesized that disease prognosis would be worse in the homicidal group.

METHOD

In this study; we analyzed the data of 160 accessible patients among 197 patients who were discharged from hospital with court order (per Turkish Criminal Law no: 57) after compulsory inpatient treatment in Forensic Psychiatry Clinic of Ord. Prof. Dr. Mazhar Osman Research and Training Hospital for Psychiatric and Neurological Diseases. Medical records of the patients were investigated using the Sociodemographic Data Form and Violence Rating Scale. Interviews were conducted face-to-face or on the phone with the patients or relatives of patients that we could contact. Data were completed with the information from the face-to-face and/or phone interviews.

Recruitment Criteria

1. Having a psychiatric disorder that removes criminal responsibility.
2. Being sentenced to compulsory inpatient treatment (protection and treatment) by court order.
3. Completing the compulsory inpatient treatment

The medical files of patients discharged in 2011 were retrospectively investigated. We tried to contact patients or their relatives, but we could not contact 27 of the 197 patients. 9 of the patient had died (1 suicide and 8 due to medical reasons); 1 was missing. These 37 patients were excluded from the study. Those who were missing or committed suicide were found to have schizophrenia diagnosis. The remaining 160 patients were divided into two groups based on whether they committed a homicidal crime or not:

1. The group of patients who committed severe Homicidal Crime (HC) consisted of 48 men. This category included completed homicide, attempted homicide, and robbery with severe mutilation or life-threatening wounding.
2. The group of patients who committed Minimal or Mild Crimes (MMC) consisted of 112 patients: 12 women and 100 men.

The study was approved by the Ethics Committee of Ord. Dr. Mazhar Osman Research and Training Hospital for Psychiatric and Neurological Diseases.

Instruments

General Information Form: This form was designed by the authors and used for recording the sociodemographic, criminal, and psychiatric features of patients.

Violence Rating Scale: This scale, designed by Taylor (1985), was used for assessing the violent behaviors of patients. The scale has four items:

0) Non-violent

1) Minimal violence
   a) Verbal aggression
   b) Carrying of weapons without using
   c) Accidental harm to the property

2) Mild violence
   a) Offence that causes mild wounding
   b) Sexual violence,
   c) Use of tools of crime without injury
   d) Intentional harm to the property

3) Moderate violence
   a) Offence that causes severe wounding
   b) Serious harm to the property with risk of death

4) Severe violence
   a) Death of the victim or victims
   b) Real risk of death and hospitalization of the victim for more than 24 hours

Items 0 through 2 were considered MMC, and items 3 and 4 were considered HC.

Statistical Analysis

The data derived from the study was analyzed with SPSS 16 for Windows (SPSS Inc., USA). Descriptive statistical methods (mean, standard deviation, frequency) were used. Student's t-test was used for the comparison of two groups with normal distribution, and Mann Whitney U test was used for the comparison of the data of two groups without normal distribution. Chi-square test was used for the comparison of categorical variables, and Fischer Exact test was used for the comparison of predicted frequencies. Simple and multiple logistic regression analysis were used for the determination of factors associated with homicidal crime, and pairwise logistic regression analysis was used for the determination of factors associated with seriousness of crime. Significance was evaluated at the level of $p<0.05$.

RESULTS

Sociodemographic Features

Of the patients, 92.5% (148) were male, and male/female ratio was 10/0.8. There was significant difference between the HC and MMC groups in terms of gender ($p<0.05$). When we evaluated all cases, we found that 53.8% of the patients did not have a regular job, 21.3% were working in merchandising, 15% were workers or farmers, and 10% were working for government or private organizations. There was a significant difference between the groups in terms of occupation ($p<0.05$). Unemployment rate of the HC group was lower than the MMC group. Before the criminal offence, 85 (53.1%) of the patients had a job and 75 patients were unemployed. Significant differences were found between the groups in terms of employment ($p<0.01$) and regularity of employment ($p<0.05$) before the crime. Unemployment rate was lower in the HC group. Of the patients, 78.8% had a legal guardian; the HC group had significantly higher rate of having a legal guardian (89.6%) than the MMC group (74.1%) ($p<0.05$). The data related to sociodemographic variables such as marital status, social insurance, occupation, and having a legal guardian were shown in Table-1.

Psychiatric Diagnosis Features

The diagnosis of schizophrenia was the most prevalent, constituting 42.5% of the cases. This was followed by mood disorders (19.5%) and other psychotic disorders (13.1%). When we combined the relevant items, we saw a significant difference: frequency of psychotic disorder diagnosis was higher in the HC group. Of the 68 patients diagnosed schizophrenia, 50 were diagnosed paranoid schizophrenia. There was no significant difference between the HC and MMC groups in terms of the type of schizophrenia ($p>0.05$). Among the patients who were sentenced with insanity defense with no criminal responsibility, 5 were detected with no psychiatric disorder that could diminish criminal responsibility. These patients were diagnosed with personality disorder or alcohol abuse and were presented in Table 1 in the "other diagnoses" group. When we evaluated the comorbidities during the compulsory treatment period, we found that there was

Table 1. Sociodemographic and diagnostic features of the cases

		Homicidal Severe Crime (-) (N=112)	Homicidal Severe Crime (+) (N=48)		
		N (%)	**N (%)**	**X^2**	**p**
Gender	Female	12(10.7)	-	5.560	0.019*
	Male	100(89.3)	48(100)		
Marital Status	Single	57(50.9)	20(41.7)	1.309	0.520
	Married	30(26.8)	14(29.2)		
	Divorced/Widow	25(22.3)	14(29.2)		
Place of Birth	Village	38(33.9)	19(39.6)	3.527	0.317
	Town	46(41.1)	13(27.1)		
	City	18(16.1)	12(25)		
	Big City	10(8.9)	4(8.3)		
Place of Residence	Village	18(16.1)	10(20.8)	1.417	0.702
	Town	32(28.6)	10(20.8)		
	City	26(23.2)	13(27.1)		
	Big City	36(32.1)	15(31.3)		
Immigration	No	105(93.8)	44(91.7)	0.228	0.735
	Yes	7(6.3)	4(8.3)		
Social Security	No	10(8.9)	3(6.3)	0.323	0.756
	Yes	102(91.1)	45(93.8)		
Profession/Job	No profession	67(59.8)	19(39.6)	9.617	0.022*
	Farmer-worker	13(11.6)	11(22.9)		
	Government-Private	13(11.6)	3(6.3)		
	Craftsman	19(17)	15(31.3)		
Employment Before Crime	No	61(54.5)	14(29.2)	8.635	0.003**
	Yes	51(45.5)	34(70.8)		
Regularity of Employment Before Crime	Unemployed	61(54.5)	14(29.2)	8.635	0.013*
	Irregular-Short Term	33(29.5)	22(45.8)		
	Regular	18(16.1)	12(25)		
	Yes	52(46.4)	26(54.2)		
Legal Guardian	No	29(25.9)	5(10.4)	4.809	0.028*
	Yes	83(74.1)	43(89.6)		
Diagnosis	Mental Retardation and Other Diagnoses	22(19.6)	1(2.1)	11.040	0.004**
	Psychotic Disorder	66(58.9)	40(83.3)		
	Mood Disorder	24(21.4)	7(14.6)		
Comorbidity	No	93(83)	46(95.8)	4.826	0.028*
	Yes	19(17)	2(4.2)		
		Mean±SD	**Mean±SD**	**t**	**p**
Age		43.68±11.19	44.63±10.21	-0.503	0.616
Years of Education		6.88±3.51	6.90±3.21	-0.023	0.082
Number of Children		1.06±1.42	1.44±1.86	-0.862	0.389

*p<0.05,**p<0.01

Table 2. Course of psychiatric disorder and criminal history

	Homicidal Severe Crime (-) (N=112)	Homicidal Severe Crime (+) (N=48)		
	Mean±SD	**Mean±SD**	**Z[1]**	**p**
Age at onset of disorder	25.62±11.20	27.50±10.53	-0.425	0.671
Duration of disorder (years)	18.24±11.03	17.40±8.18	-0.147	0.883
Age at first hospitalization	32.64±11.30	33.19±10.96	-0.447	0.655
Total Number of hospitalizations	5.26±4.69	4.25±4.26	-1.659	0.097
Total duration of hospitalizations (months)	13.21±16.80	22.02±22.55	-4.131	0.001***
Number of crimes after onset of disorder	1.99±1.93	1.60±0.96	-0.881	0.417
Number of crimes before compulsory treatment	0.77±1.67	0.42±0.73	-0.823	0.410
Previous duration of imprisonment	4.04±14.14	10.81±12.44	-5.860	0.001***
			t[2]	**p**
Age at first crime	33.89±11.40	34.38±9.93	-0.254	0.799

[1]-Mann- Whitney U, [2]- student's t test, ***p<0.01

comorbid disorders in 13.1% of the cases with alcohol abuse representing the most common comorbidity (5%). There was comorbidity in two patients in the HC group: one of them had mental retardation and the other had personality disorder. There was a significant difference between the groups in terms of the presence of a comorbidity (p<0.05). Comorbidity during compulsory treatment was less in the HC group. The data about the diagnostic features were presented in Table 1. History of psychiatric disorder was found in 68% of the patients. The prevalence of psychiatric disorders in first-degree relatives such as mother, father, or children of the patients in the MMC and HC groups were 25% and in 14.6%, respectively, but this difference was not significant (p>0.05).

There was no significant difference between the groups in terms of the age of onset and total duration of psychiatric disorders, the age at first hospitalization, and number of hospitalizations (p>0.05). Mean duration of hospitalization in the HC group (22.02 ±22.55 months) was significantly higher than that of the MMC group (13.21 ±16.80 months) (p<0.001). Disease progress and forensic history were presented in Table 2.

The factors such as employment before the crime, comorbid psychiatric disorder, adherence to obligatory treatment were included in the logistic regression analysis; unemployment before the crime was found to increase the probability of HC 2.8 times.

Criminal History Before the Compulsory Treatment

The rate of criminal conviction before disease onset was 2.5% in our sample; 1 subject in the HC group and 3 subjects in the MMC group had history of crime before disease onset. The average age at first crime was 34.04 (±10.95). When we evaluated the sample as a whole, number of crimes after the onset of psychiatric disorder was 1.88 (±1.71); in this calculation, the crimes committed before the psychiatric disorder and criminal offences related to the compulsory treatment (CT) were not considered. Fifty-four patients (33.8%) had committed criminal offence previously. The crimes committed before the disease onset and during the CT were not considered in this calculation. The mean number of crimes committed before CT was 0.42 (±0.73) in HC group and was 0.77 (±1.67) in MMC group. There was no significant difference between the groups in this regard (p=0.478).

In our sample, duration of any previous legal incarceration was 6.07 (±13.96) months. This duration was 4.04 (±14.14) months for the MMC group and 10.81 (±12.44) months for

Table 3. Multiple logistic regression analysis of the factors associated with severe homicidal crime

Variable	B	S.E	Wald	df	Sig	Exp(B)	Confidence Interval %95	
							Lower	**Higher**
Fixed	-1.164	0.440	3.212	1	0.008**	0.312		
Comorbidity (no/yes)	-1.515	0.782	3.751	1	0.053	0.220	0.047	1.018
Employment before crime (no/yes)	1.047	0.379	7.615	1	0.006**	2.848	1.354	5.991
Treatment Adherence in CT(no/yes)	-1.013	0.565	3.212	1	0.073	0.363	0.120	1.099

**p<0.01

Table 4. Criminal history before compulsory treatment (CT) and characteristics of the crime leading to the CT

		Homicidal Severe Crime (-) (N=112)	Homicidal Severe Crime (+) (N=48)		
		N (%)	N (%)	X^2	p
Crime before disease onset	No	109(97.3)	47(97.9)	0.049	1.000
	Yes	3(2.7)	1(2.1)		
Crime before CT	No	72(64.3)	34(70.8)	0.644	0.422
	Yes	40(35.7)	14(29.2)		
Victim of the crime leading to CT	Family members	28(25)	21(43.8)		
	2.degree relatives	12(10.7)	4(8.3)		
	Familiar persons	23(20.5)	18(37.5)	19.189	0.001***
	Unfamiliar persons/other	17(15.2)	2(4.2)		
	Against property	32(28.6)	3(6.2)		
Substance abuse before crime	No	87(77.7)	42(87.5)	2.075	0.150
	Yes	25(22.3)	6(12.5)		

***p<0.001

the HC group; there was a significant difference between the groups (p<0.001). Criminal histories of patients before the compulsory treatment were presented in Table 4.

Among the 14 patients in the HC group who had positive criminal history before the CT, 7 (50%) had committed serious criminal offence. Among 40 patients in the MMC group who had positive criminal history before the CT, 3 (7.5%) had committed serious crime. The rate of serious criminal offence before the CT was higher in the HC group. Regarding the most severe of crime before CT, there was significant difference between groups (p<0.01). Of the 54 patients, 26 (48.2%) had the history of crime against someone who was known by the patient but not a family member or a relative; there was no significant difference between the groups in this comparison (p>0.05).

Characteristics of the Criminal Offence Related to the Compulsory Treatment

The mean age at the time of the criminal offence related to the compulsory treatment (CT) was 35.93 (±10.65); there was no significant difference between the groups in this regard (p>0.05). Of the patients, 71.2% committed a crime against a person, the most common was wounding (25%), followed by verbal threat (13.1%). Rates of other crimes were as follows: homicide (10.6%), destruction of property (8.1%), attempted homicide (7.5%), arson (7.5%). The rate of crimes against person was higher in the HC group (91.7%) than the MMC group (54.4%), the difference between the groups was statistically significant (p<0.001). Of the 160 patients,, 66 (56.2%) had committed crimes against familiar persons other than family members or relatives. The rate of crimes against property was 28.6% in the HC group and 6.2% in the MMC group. Crimes against person were significantly more common in the HC group than MMC group (p<0.001). Comparisons about the characteristics of the criminal offences related to the compulsory treatment were given in Table 4.

DISCUSSION

Of the 197 cases considered for this study, 9 (4.5%) had been deceased and 1 person had been missing. In a similar study by Öncü in 2002 which spanneda period of 4-7 years, there were 17 (5%) deceased and 3 (0.9%) missing persons among the total of 337 cases; 49 (14.5%) of the patients had never been admitted to the hospital after the compulsory treatment. In another study, there were 6 (3.7%) deceased and 1 missing individuals during the 4 years after the compulsory treatment (Özbay 2010). In our study, there were 27 patients with incomplete data due to the fact that we could not contact with the patient or a family member. Soliman and Reza (2001) reported that they could not contact 11% of the cases in the study in Germany.

With the exclusion of deceased or missing patients and those that were not accessible, 160 cases were included in our statistical analysis: 48 (30%) cases with homicidal crimes (HC) and 112 (70%) cases with minimal or mild crimes (MMC) were compared. In one of the 9 deceased patients, the reason was suicide. Reported mortality rates in criminal psychiatric patients are higher than prisoner population (Zlodre and Fazel 2012); besides, these high mortality rates are similar to the mortality rates of persons with a diagnosis of psychotic disorder (Dutta et al. 2012). It had been suggested that the reason for this high mortality was unrelated to criminal history but was related to the unhealthy life styles such as physical

inactivity, high rates of tobacco or substances use due to psychotic disorders (Fazel et al. 2016).

In his study of compulsory inpatient treatment, Öncü (2002) reported that 29.1% of 268 patients had a history of either homicide or attempted homicide. In another related study, Özbay (2010) also reported that 20.8% of the 115 patients in compulsory inpatient treatment system had committed either homicide or attempted homicide.

When we evaluated the sociodemographic features of the patients, we found that male/female ratio was 12/1. This ratio was higher in the HC group. All of the available previous literature reported that men committed crimes of violence more than women (Ong et al. 2009, Öncü 2002, McGrath and Oyebode 2005, Quanbeck et al. 2005, Graz et al. 2009, Asnis et al. 1997, Özbay 2010, Koh et al. 2006).

Mean age was 43.96+10.89 years, and there was no significant difference between the groups in terms of age. The reported mean age in previous studies were as follows: 32 in Coid et al. (2007), 32.2 in Pera et al. (2005), 36.5 in Lee et al. (2003), 45.4 in Kravitz and Kelly (1999), 41.7 in Öncü et al (2002), and 41.7 in Özbay (2010).

The average years of schooling was 6.18 (±3.42), which was similar to other studies in Turkey. Reported average years of schooling in the studies conducted in United States and United Kingdom were higher, which could be related to the influence of their economic development on education (Özdemir 1992, Öncü 2002, Kravitz and Kelly 1999, Özbay 2010, Monson et al. 2001, Kayatekin et al. 1991, Şeker 1996). In our study, there was no significant difference between the HC and MMC groups in terms of the education level, which suggested that the education level might be a factor that was related to committing crime but not to the severity of crime.

We found that 48.1% of the patients were single, which became 72.5% when we included thedivorced and widowed patients. There was no significant difference between the HC and MMC groups in terms of marital status. These results were similar to those in the literature; single persons were found to be more likely to engage in criminal offence (Marzuk 1996, Özdemir 1992, Belli et al. 2010, Öncü 2002, Graz et al. 2009, Özbay 2010, Koh et al. 2006, Kayatekin et al. 1991).

There was a significant difference between the groups in terms of employment status. The unemployment rates were 59.8% and 39.6% in the MMC and HC groups. In previous studies in Turkey, unemployment rates among these patients were between 34.4% and 39%. Our unemployment results were similar to those of the previous studies. However, the most common occupation was being farmer or worker in those studies (Özdemir 1992, Kayatekin et al. 1991). Higher rates of employment in the HC group could be attributed to the prevalence of delusional disorder in this group since this disorder had a later onset and caused limited loss of functionality. The prevalence of mental retardation was higher in the MMC group and that could be another factor related to the findings about the employment status.

There was a significant difference between groups in terms of employment status and regularity of employment before the crime. In Özdemir's study (2012), 47.8% of the HC group had regular jobs before the crime. The discrepancy between the studies could be related to the improvements in patients' psychiatric disorders or in the employment opportunities for them over the years. The rate of delusional disorder diagnoses, which caused limited loss of functioning and was almost 25% in the HC group, might also be another factor in the employment status of patients in HC group.In a study conducted in Turkey, the rate of unemployment was 75.5% among psychiatric patients who committed a criminal offence against a person. Most of the working patients were farmers, but this study was conducted in a region with higher unemployment rate and fewer job opportunities (Belli et al. 2010). Unemployment was higher among people with a psychiatric disorder, but the employment rates and the regularity of employment in psychiatric patients with or without criminal history were not different. The psychiatric patients were less likely to be employed in jobs with higher degrees of specialization. Our results were similar to the literature in that employment in low-skill jobs was more common for homicidal offenders (Özdemir 1992, Belli et al. 2010, Koh et al. 2006). It should also be known that having a job or an ability to attend a job regularly were factors related to rehabilitation and recovery and were taken into consideration during the risk assessment for deciding the discharge of patients (Davoren et al. 2013).

There was a significant difference between the groups in terms of having a legal guardian. Those who had a legal guardian were 74.1% in the MMC group and 89.6% in the HC group. Previous studies in Turkey have reported rates of having legal guardian between 57.4 and 58.2% (Öncü 2002, Özbay 2010). Increasing awareness among clinicians about the necessity of having legal guardian as a factor of social support might be the reason for the higher rates in our study. Higher rates of psychotic disorder in the HC group might be the reason for higher rates of having legal guardian in this group since being diagnosed with a psychotic disorder is a reason for the assignment of legal guardian.

It was found that 56.5% of the patients had a diagnosis of schizophrenia or related psychotic disorders. This was similar to the results of previous studies (Özdemir 1992, Ong et al. 2009, Ilter 2010, Fazel and Grann 2004, McGrath and Oyebode 2005, Taylor and Gunn 1999, Swinson et al. 2011). Relative rates for schizophrenia and mood disorder (all types) diagnoses were 31.3% and 19.4%, respectively. In their study

examining the criminal psychiatry system of Canada, Crocker et al. (2015) found that being diagnosed with a mood disorder was a facilitating factor for discharge from criminal psychiatry service and being diagnosed with any of the schizophrenia spectrum disorders was a factor effecting the discharge negatively, as the number of previous crimes. For 3.1% of the patients in our study, there was not a psychiatric disorder associated with the court order based on the article 32 T.C.K. (a clause of the Turkish Punishment Law regulating insanity defense), this was similar to the studies by Öncü (2002) and Özbay (2010).

There was a comorbid psychiatric disorder in 13.1% of the cases; 62% of the comorbidities were personality disorders or substance abuse disorders. In previous studies in Turkey, the rate of comorbidity was 15.7-25%, and 75-78% of the comorbidities were personality disorders or substance abuse disorders (Öncü 2002, Özbay 2010). Comorbidity was higher in other countries; the difference might be related with the higher rates of substance abuse disorder (dual diagnosis) in western countries, it might also be related with the fact that compulsory criminal psychiatric treatment could be used in some countries for diagnoses of such personality disorders where criminal responsibility was only diminished. In our study, there was a significant difference between the groups in terms of comorbidity; it was 4.2% in the HC group and 17% in the MMC group. The studies in other countries have shown that comorbidity (especially substance abuse disorder or personality disorder) is a factor increasing the risk of violent behavior (Palijan et al. 2010, Coid et al. 2007, Palijan et al. 2010, Asnis et al. 1997, Soliman and Reza 2001, Monson et al. 2001). Retrospective design of our study could also be a reason for the detection of fewer comorbidities, diagnoses in the second axis (personality disorder) and some diagnoses in the first axis that required more careful evaluation could be overlooked.

For the complete set of the cases, mean number of hospitalizations was 4.96, the age at first hospitalization was 32.81 months, and mean total duration of hospitalization was 15.85 months. These were similar to the results of Öncü (2002) and Özbay (2010). There was no significant difference between the groups in terms of the number of hospitalizations and the age at first hospitalization, but duration of hospitalization was significantly higher in the HC group. The reason for longer duration of hospitalization in the HC group could be that the history of homicidal crime might be considered as a risk factor for future criminal behavior as well as the fact that it could result fromhigher relative frequency of psychotic disorders in the HC group.

In our study, 4 patients (2.5%) had criminal history before the onset of the psychiatric disorder, 54 patients (33.8%) had criminal history before the index crime leading to the CT. These results were similar to previous reports in Turkey but lower than the results reported in USA and England; higher incidence of crime in general population or higher incidence of dual diagnosis (substance abuse disorder) could be a reason for this discrepancy (Lee 2003, Coid et al. 2007, Öncü 2002, Parker 2004, Özbay 2010, Ekinci and Ekinci 2013, Lee, 2003, Monson et al. 2001). There was no significant difference between the HC and MMC groups in terms of criminal history before the onset of disease or before the index crime leading to the CT.

The mean age at the time of the first offence was 34 in our study. There was a significant difference between the groups in terms of age at the time of the first crime. This was similar to the results of Öncü (2002) and Özbay (2010), which were 32.2 and 32.7, respectively.

When we evaluate the characteristics of the crimes leading to CT, we found that 78.1% of the patients had history of crime against person, which was similar to the results of previous studies (Özdemir 1992, Öncü 2002, Coid et al. 2007, Kravitz and Kelly 1999, Monson et al. 2001). In the MMC group, 60.7% had committed crimes against person;40.5% of these involved a victim who was a family member or a familiar person. In the HC group 93.8% had committed crimes against person; 81.3% of these involved a victim who was a family member or a familiar person. As repeatedly reported in the studies concerning mental disorder and violent criminal offences, the victim was usually a family member or a familiar person (McGrath and Oyebode 2005, Meehan et al. 2006, Shaw et al. 2004, Shaw et al. 2006, Nielssen et al. 2007, Richard-Devantory et al. 2009, Ural et al. 2013). For example, it had been found that the decline in homicidal offences after the legislations that forbid carrying knives in public areas in Scotland were not observed in the cases involving offences related to mental health. Consequently, there were some suggestions for making changes in the designs of domestic knives to prevent crimes involving persons with mental disorder because the crime scene was usually domestic environment and victims were usually familiar persons (Hern et al. 2005, Crichton 2017).

In our study, the most frequent crime was wounding (25%), followed by threat (13.1%), murder (10.6%), destruction of property (8.1%), attempted murder (7.5%), and arson (7.5%). The most frequent crimes related to mental disorder in the study by Vinkers (2011) were wounding, attempted homicide, and arson, which was in accordance with our results.

Regarding the degree of severity of violent offences, the most common ones were moderately severe violent offences; this result was similar to other studies in Turkey (Öncü 2002, Özbay 2010).

In 19.4% of the cases in our study, the criminal offence involved abuse of alcohol or other psychoactive substances before or during the offence. This rate was 14-25% in other studies in Turkey (Özdemir 1992, Öncü 2002, Özbay 2010,

Belli et al. 2010). Studies from western counties reported higher ratios (from 45% to 80%) (Palijan et al. 2010, Schanda et al. 2004, Golenkov et al. 2011, Joyal et al. 2004). Higher rates of alcohol and substance abuse in western countries and higher rates of personality disorder diagnosis in criminal studies could be the reason for this difference. There was no difference between the MMC and the HC groups in terms of the alcohol or substance abuse disorder. We interpret these results as substance abuse disorder canbe considered as a factor that increases the risk of violent behavior but not specifically as a factor that influences the severity of criminal offence.

The retrospective design of our study was a limitation and our results needed reinforcement from future prospective follow-up studies featuring structured scales. Testing the hypothesis with the data from only one center was another limitation. However for this kind of investigation, our sample could be, by and large, representative of the forensic psychiatry clinics in Turkey, since our institution was the biggest of the five forensic psychiatry clinics in Turkey.

CONCLUSION

In our study, there were significant differences between the groups in terms of their employment status, the regularity of employment before the crime, the severity of crime leading to the CT, and diagnosis characteristics. That the incidence of criminal/offensive behavior before the CT was high in both groups and that the severity of the crimes before the CT was higher in the HC group than the MMC group support the history of violence/crime as the most important predictor of offending in this subject.

Higher rate of diagnosis for schizophrenia spectrum disorders in the HC group has shown that severe violent behavior was related to severe mental disorders. However, it should also be considered not all the patients with severe mental disorder but a subgroup with criminal history show violent behavior. It is important for both public security and patient well-being that when the clinicians assess the risk of violence, they should consider the history of previous crime/violence, knowledge about the criminal behavior of the patient or their family, and support of the caregivers during the outpatient controls and treatment.

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