RASSEGNA ITALIANA DI CRIMINOLOGIA
ANNO XIII N. SPECIALE 2019

THE NEW ITALIAN RESIDENTIAL FORENSIC PSYCHIATRIC SYSTEM (REMS). A ONE-YEAR POPULATION STUDY

INDAGINE SULLE REMS ITALIANE. UN ANNO DI OSSERVAZIONE

Roberto Catanesi • Gabriele Mandarelli • Stefano Ferracuti • Antonia Valerio • Felice Carabellese

Abstract
The process of deinstitutionalization of the Italian forensic psychiatric system consisted mainly of the replacement of forensic psychiatric hospitals with the Residences for the Execution of Security Measures (REMS), and with community treatment of forensic psychiatric patients. The 30 existing REMS are regional-based community residential facilities with no more than 20 patients each, designed to accomplish a preeminent therapeutic/rehabilitative purpose, with limited duration of treatment and the absence of police officers. The present study aims to describe the clinical, criminological, and treatment characteristics of the REMS patient population between June 2017 and June 2018. The health managers of the 28 participating REMS provided data through an *ad-hoc* form relating to N = 730 patients (80 females), with average age of 41.7 (SD 11.8) years with a mean long history of disease. The patients were mostly already in psychiatric care at crime time (82.2%), and 48.4% had previous criminal convictions. Most patients suffered from schizophrenia (33.0%), personality disorder (32.0%) and substance-related and addictive disorders (21.4%). Significant psychiatric comorbidity emerged. The crimes underlying the measure were homicide/attempted homicide (26%), personal injury/threats/harassment (24%), domestic violence (29%), property crime (12%), violence against a public official (7%), stalking (7%), sexual crimes (4%), and misdemeanors (1%). Most of the victims were family members (45%), followed by previously unknown persons (31%). The most frequently used therapeutic approach was pharmacotherapy (98%), followed by psychiatric rehabilitation (81%) and psychotherapy (57%). We found a significant degree of variability of aggressive behavior in the REMS as measured by the Modified Overt Aggression Scale, with a predominance of verbal and physical aggression, but no gender differences emerged. Among recorded critical events we found absconding (5.3%), involuntary admission to civil hospital (5.9%) and physical restraint (4.1%). The REMS-based Italian forensic psychiatric system has some criticalities that should be deepened and addressed in order to preserve aspects of the protection of patients and the community.

Key words: severe mental illness • forensic psychiatric treatment • REMS • deinstitutionalization • violence • crime

Riassunto
Il processo di deistituzionalizzazione del sistema psichiatrico forense italiano ha previsto, da un lato l'affido ai DSM del trattamento di pazienti psichiatrici autori di reato socialmente pericolosi, dall'altro la sostituzione degli ex ospedali psichiatrico giudiziari con le neocostituite residenze per l'esecuzione delle misure di sicurezza (REMS). Le 30 REMS esistenti sono strutture residenziali su base regionale, con non più di 20 pazienti ciascuna, progettate per realizzare un percorso terapeutico/riabilitativo con durata del trattamento limitata nel tempo e nessuna presenza di agenti di polizia. Il presente studio mira a descrivere le caratteristiche cliniche, criminologiche e trattamentali della popolazione di pazienti presenti nelle REMS, nel periodo di tempo compreso tra giugno 2017 e giugno 2018. I responsabili sanitari delle 28 REMS partecipanti hanno fornito dati attraverso un modulo *ad hoc*. Abbiamo così raccolto dati relativi a N = 730 pazienti (80 femmine), di età media di 41,7 anni (DS 11,8) con una storia mediamente lunga di malattia (11,5 anni), che erano per lo più già in carico ai DSM (82,2%) e che nel 48,4% dei casi avevano precedenti condanne penali. Le diagnosi più ricorrenti sono risultate: schizofrenia (33,0%); disturbo di personalità (32,0%) e disturbi correlati a sostanze (21,4%); è emersa significativa comorbilità psichiatrica. I delitti più rappresentati sono stati: omicidio/tentato omicidio (26%); lesioni personali minacce/ molestie (24%); maltrattamenti in famiglia (19%); reati contro il patrimonio (12%); oltraggio/violenza a pubblico ufficiale (7%); stalking (7%); reati sessuali (4%). La maggior parte delle vittime sono risultate membri della famiglia (45%) seguiti da sconosciuti (31%). L'approccio terapeutico più frequentemente utilizzato prevede il contestuale ricorso a farmacoterapia (98%), riabilitazione psichiatrica (81%) e psicoterapia (57%). È emerso significativo grado di variabilità nel comportamento aggressivo dei pazienti presenti in REMS, valore misurato tramite MOAS (Modified Overt Aggression Scale), con predominanza di aggressività verbale e fisica; non sono emerse differenze di genere. Tra gli eventi critici sono emersi: 5,3% di fughe; 5,9% di trattamenti sanitari obbligatori in SPDC; 4,1% di contenzioni fisiche.

Parole chiave: disturbi mentali gravi • trattamento psichiatrico forense • REMS • deistituzionalizzazione • violenza • crimine.

Corresponding Author: Gabriele MANDARELLI, Interdisciplinary Department of Medicine, Section of Criminology and Forensic, Psychiatry University of Bari, "Aldo Moro", email: gabriele.mandarelli@uniba.it

Roberto CATANESI, Interdisciplinary Department of Medicine, Section of Criminology and Forensic Psychiatry, University of Bari "Aldo Moro", Bari, Italy
Gabriele MANDARELLI, Interdisciplinary Department of Medicine, Section of Criminology and Forensic Psychiatry, University of Bari "Aldo Moro", Bari, Italy
Stefano FERRACUTI, Department of Human Neurosciences, "Sapienza University of Rome, Rome, Italy
Antonia VALERIO, Interdisciplinary Department of Medicine, Section of Criminology and Forensic Psychiatry, University of Bari "Aldo Moro", Bari, Italy
Felice CARABELLESE, Interdisciplinary Department of Medicine, Section of Criminology and Forensic Psychiatry, University of Bari "Aldo Moro", Bari, Italy

DOI: 10.7347/RIC-NS2019-p07

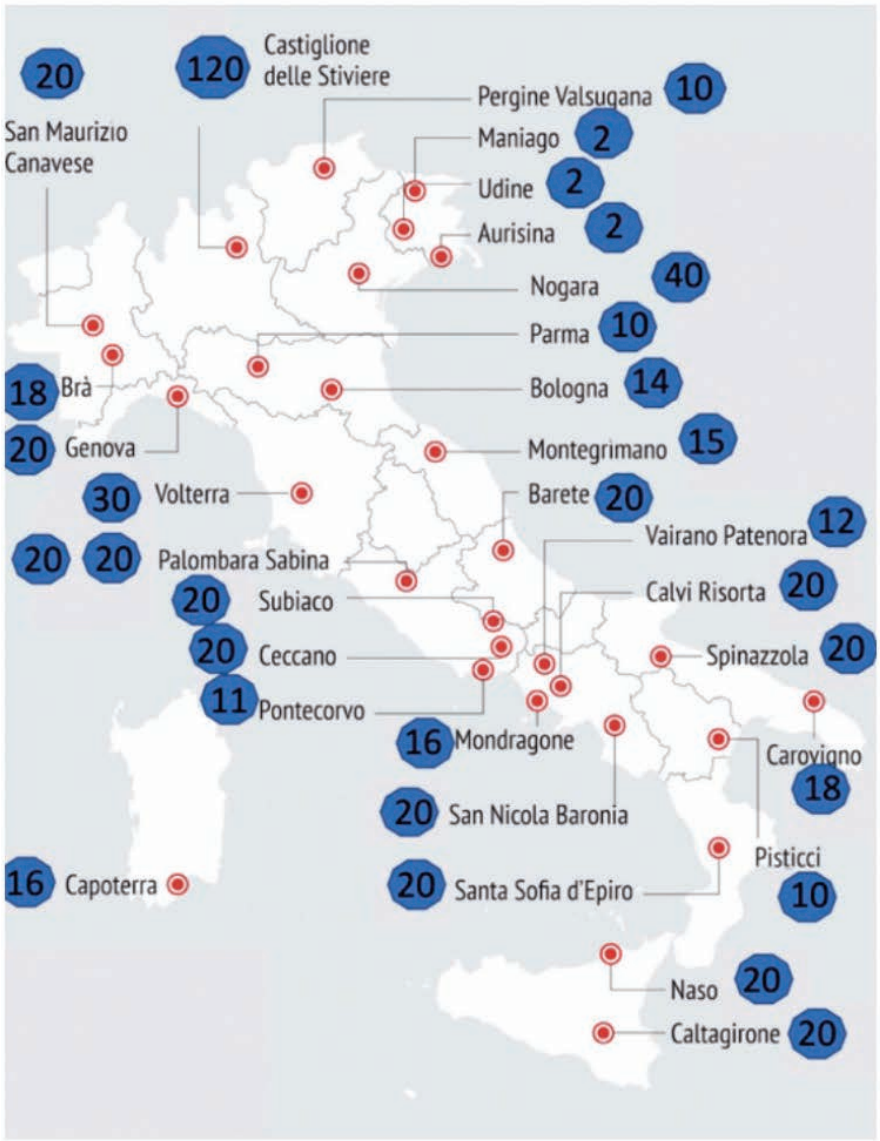
The new italian residential forensic psychiatric system (REMS). A one-year population study

Introduction

The process that led to the closure of the former Italian Forensic Psychiatric Hospitals (*Ospedali Psichiatrici Giudiziari*, OPGs), now replaced by Residences for the Execution of Security Measures (REMS), represented a significant advance toward a more respectful and efficient model of care of dangerous offenders affected by mental disorders (Barbui & Saraceno, 2015; Carabellese & Felthous, 2016). Despite the closure of Italian civil psychiatric hospitals having been determined by Law 833/1978, no effective deinstitutionalization process for forensic psychiatric patients started until 2015 (Casacchia et al., 2015).

The legislative process leading to the Italian REMS system began in 2008, when the Italian Government issued a decree that established the progressive closure of the 6 existing OPGs. In 2012, Law 9/2012 established that REMS, new small-scale residential facilities, should be developed. Finally, Law 81/2014 set deadlines as well as operational procedures and requested individualized discharge programs. It established a maximum length of stay in REMS as well.

Figure 1 - Regional distribution of REMS in Italy (from http://avvenire.it, modified)



The main critical issues of the previous Italian forensic psychiatric hospitals included excessive crowding, problematic hygienic conditions, inadequacy of provided treatments to fit changing levels of dangerousness, their non-therapeutic or non-rehabilitative nature, the presence of police officers, and the possibility of indefinite hospitalization. However, all 6 OPGs were high-security, penitentiary-like psychiatric hospitals, which guaranteed high standards in terms of security.

The OPGs' replacement structures have been conceived as community residential facilities with no more than 20 patients each, designed to accomplish a preeminent therapeutic/rehabilitative purpose, with limited duration of treatment and the absence of police officers. The REMS were conceived as regional-based, according to the Italian territorial psychiatric management policy, and none were set to become high-security (Kennedy, 2002).

Thirty REMS are currently active, with a total of 604 forensic psychiatric beds (Corleone, 2017), which is far less than the number of patients who were sectioned in Italian OPGs in late 2008 (n=1639) (Ministero della Giustizia, 2019), when the process of deinstitutionalization of forensic psychiatric patients began.

The limited availability of REMS psychiatric beds deter-

mined the existence of an admissions waiting list. The waiting list is managed by the Ministry of Justice and does not include priority admission criteria based on clinical risk assessment. Those patients awaiting admission to REMS can be in freedom, in prison, or already in treatment in a non-forensic psychiatric facility (sometimes under a supervised freedom provision issued by a judge). Due to regional autonomy, each REMS presents heterogeneous security and organizational characteristics, with some classifiable as medium security, while others provide lower security standards (Sgarbi et al., 2017; Traverso & Traverso, 2017).

According to Italian legislation, REMS provide care and security to those subjects deemed irresponsible or with substantially diminished criminal responsibility, who also present high levels of social dangerousness. The normative framework implies that REMS psychiatrists have little, or no power to decide a patient's admission and discharge. Such decisions are made by the Judicial Authority, usually based upon forensic psychiatric expert opinion, which serves as evidence in the trial. These features imply that the population of REMS patients, their characteristics, as well as the methods of treatment, the results and the adequacy of safety standards, all deserve to be verified empirically.

The aims of the present study were *a)* to analyze the main socio-demographic, clinical and criminological characteristics of the population of patients admitted to the Italian REMS system, *b)* to identify diagnostic profiles and any association with specific crimes, *c)* to assess the type of treatments performed and the effectiveness perceived by patients and operators, and *d)* to assess incidences of violent behavior by patients in the REMS, the use of coercive treatments and patients' escapes from REMS.

Having such information would be useful to identify clinical and criminological factors associated with REMS admission, in order to further improve forensic psychiatry health service management efficacy. Finally, while identifying any critical issues and indicating possible strategies to reduce them, the study sheds light on the peculiar characteristics of the Italian community-based, low/medium security deinstitutionalization process in forensic psychiatric care.

Methods

In order to obtain data on the clinical, criminological, legal and treatment characteristics of patients being treated in Italian REMS, we created an *ad-hoc* Microsoft Access form, and a correspondent with Microsoft Excel. One of the authors directly contacted the medical manager of each of the 30 Italian REMS, proposing participation in the study, of which they accepted in n = 28, which corresponds to 96.4% of the Italian REMS population of patients in the study period. Data were collected for all patients present in the participating REMS, in the period between June 2017 and June 2018.

The psychiatric diagnoses were made by the treating staff, based on the criteria of the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) (American Psychiatric Association, 2013).

The presence and degree of patients' aggressive behavior was measured with the Italian version of the Modified Overt Aggression Scale (MOAS) (Margari et al., 2005). The scale comprises 4 categories (verbal aggression, aggression against property, autoaggression, physical aggression); each one is scored from 0 to 4, with higher values indicating severer aggressive behavior. The MOAS total score, ranging from 0 to 40, is calculated by summing the weighted score of each category. We used MOAS total score cut off of > 1 to identify the presence of any aggressive behavior during the last month (Margari et al., 2012). We analyzed the MOAS mean total and subscale scores as well.

Binary logistic regression analysis was used to individuate those variables associated with absconding (dependent variable). Possible predictors included gender, age (as a continuous variable), having a diagnosis of schizophrenia spectrum disorder, substance-related disorder, personality disorder and mood disorder.

We used the Statistical Package for Social Sciences version 20.0 for all statistical analyses. All tests were 2-tailed, with α value set at 0.05. We used the independent sample *t*-test to compare parametric quantitative between-group data. Chi-square test with Yates correction for 2 x 2 tables, or Fisher's exact test, as appropriate, was used to compare categorical variables. We reported the frequency of missing data for each variable and calculated the valid relative frequency (730 - missing data).

The study is based on the analysis of aggregated data, which does not allow the identification of identity and thus protects sensitive data. The study was subject to approval by local research ethics committee.

Results

We obtained data on N = 730, mostly Italian (83%) patients from 17 Italian regions (Table 1), who were treated in Italian REMS in the 1-year study period. The main sociodemographic and clinical characteristics of the study population are reported in Table 2.

Table 1 - Number of patients included by Italian region

Italian Region	District REMS	Beds	Patients/(Female)
Piemonte	San Maurizio Canavese (TO)	20	35 (2)
	Bra (CN)	18	24
Liguria	Genova Prà	20	31 (1)
Lombardia	Castiglione delle Stiviere (MN)*	120	131 (17)
Trentino-Alto Adige	Pergine Valsugana (TN)	10	15
Friuli-Venezia Giulia	Aurisina (TS)	2	3
	Maniago (PN)	2	2
	Udine	2	-
Veneto	Nogara (VR)*	40	52 (7)
Emilia-Romagna	Bologna	14	19 (6)
	Casale di Mezzani (PR)	10	12
Toscana-Umbria	Volterra (PI)	30	45 (2)
Lazio	Ceccano (FR)	20	18
	Pontecorvo (FR)	11	11 (11)
	Palombara Sabina, "Merope" (RM)	20	30
	Palombara Sabina, "Minerva" (RM)	20	18
	Subiaco (RM)	20	15
Marche	Montegrimano (PU)	15	20 (3)
Abruzzo	Barete (AQ)	20	29 (5)
Puglia	Carovigno (BR)	18	14 (1)
	Spinazzola (BT)	20	11
Campania	Mondragone (CE)	16	15
	Calvi Risorta (CE)	20	37 (5)
	Vairano Patenora (CE)	12	17
	San Nicola Baronia (AV)	20	30
Basilicata	Pisticci (MT)	10	15 (3)
Calabria	Santa Sofia (CS)	20	15
Sardegna	Capoterra (CA)	16	29
Sicilia	Caltagirone (CT)	20	37 (17)
	Naso (ME)	20	--
	Totale	606	730 (80)

Note. * Some Italian regions, such as Lombardy, have established a higher number of beds (120) subdivided into 6 modules with 20 beds each

The study sample mean age was 41.7 years (SD 11.8); independent sample *t*-test disclosed no significant differences between male and female patients (M_{age}, males = 41.6 SD 11.8, females 42.5 SD 11.1; p = 0.54). Most of the patients were male (89.0%), and 80 female patients were included in the study. Patients presented a mean long history of disease (11.5 years), no significant differences in mean disease duration between genders emerged (mean disease duration, males = 11.8 SD 9.6, females 9.9 SD 9.1; p = 0.06).

Thirty-nine percent of the patients were under a provisional security measure (Article 206 of the Italian Penal Code), 14.8% were subjects with substantially diminished criminal responsibility under a permanent security measure (Article 219 of the Italian Penal Code), while the majority (46.2%) were irresponsible offenders under a permanent security measure (Article 222 of the Italian Penal Code).

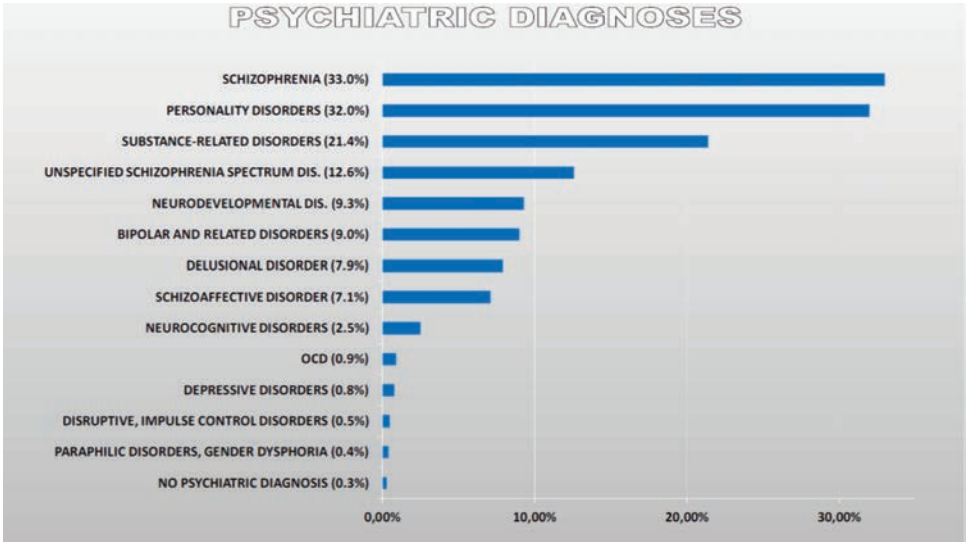
The information we collected about the patients' placement before REMS admission showed the following distribution: 31.0% were in prison, 27.7% in other non-forensic treatment facilities, 21.5% in freedom, 12.0% in another REMS, 7.0% were under supervised freedom. Interestingly among those patients previously in freedom (n = 142), 23.9% were dangerous irresponsible offenders, waiting for the application of a permanent security measure (Article 222 of the Italian Penal Code). From those previously in prison (n = 205), 43% were dangerous irresponsible offenders waiting for application of a permanent security measure, 15% were subjects with substantially diminished criminal responsibility, and 42% were waiting for the application of a provisional security measure.

Table 2 - Socio-demographic and clinical characteristics of N = 730 patients treated in 28 Italian REMS between June 2017 and June 2018

Age	**Mean, years**		**(SD)**			**Range**
	41.7		(11.8)			19–86
Sex	**Males**		**Females**			
	650 (89%)		80 (11%)			
Nationality	**IT**		**EU**			**non EU**
	575 (83.1%)		19 (2.7%)			98 (14.2%)
Disease duration	**Mean, years**		**(SD)**			**Range**
	11.5		(9.5)			0–42
Length of stay in REMS	**Mean, years**		**(SD)**			
	1.2		(0.8)			
Already in care at public mental health services	**Yes**		**No**			
	82.2%		7.8%			
Previous psychiatric hospitalization (%)	**0**	**1**	**2**	**3**	**≥4**	**Yes, unspecified**
	28.9	6.7	3.4	2.8	13.3	44.9
Previous involuntary psychiatric hospitalization	**0**	**1**	**2**	**3**	**≥4**	**Yes, unspecified**
	45.2	6.6	5.4	1.6	7.9	33.3

Note. Missing data: age n = 3, nationality n = 38, disease duration n = 165; length of stay in REMS n = 57; Previous psychiatric hospitalization n = 43; previous involuntary psychiatric hospitalization n = 57.

Figure 2 - DSM-5 diagnoses of the N = 730 patients admitted to the Italian REMS between June 2017 - June 2018



Most of the patients (82%) were already in care with the public department of mental health at crime time. Seventy-one percent of the study sample had previous psychiatric admissions in civil hospitals, of which 50% were involuntary psychiatric hospitalizations. The DSM-5 psychiatric diagnoses of the study sample are reported in figure 2.

We found a total of 1,010 DSM-5 psychiatric diagnoses for the 730 patients, indicating a significant amount of psychiatric comorbidity (1.4 diagnoses per patient). Schizophrenia was the most frequent psychiatric diagnosis (33.0%), followed by personality disorder (32.0%), and substance-related disorder (21.4%). Sixty percent of the patients suffered at least from a schizophrenia spectrum disorder. Among this DSM-5 chapter we found the following diagnoses in the REMS sample: schizophrenia, delusional disorder, schizoaffective disorder, unspecified schizophrenia spectrum disorder.

Italian patients were more likely to be diagnosed with a personality disorder than non-Italians (32.9% *vs.* 19.7%, $\chi^2 = 8.05$, p = 0.005), while chi-squared disclosed no significant differences concerning diagnosis of schizophrenia spectrum disorders (59.1% *vs.* 67.5%, $\chi^2 = 2.91$, p = 0.08), substance-related disorders (21.8% *vs.* 16.2%, $\chi^2 = 1.80$, p = 0.18), and mood disorders (9.8% *vs.* 11.1%, $\chi^2 = 0.20$, p = 0.65) between Italian and non-Italian patients.

To evaluate the impact of specific psychiatric diagnoses, and possible psychiatric comorbidity, we did a sub-analysis. To do so, we analyzed more deeply the impact of specific psychiatric disorders, including the presence of a specific disorder as a single diagnosis, as well as main comorbidities for schizophrenia spectrum disorders (Table 3), bipolar and related disorders (Table 4), depressive disorders (Table 4), and personality disorders (Table 5).

Schizophrenia was also the most frequent single diagnosis among the REMS patients; moreover in 77.2% of those patients suffering from schizophrenia we found no psychiatric comorbidity.

Table 3 - Schizophrenia spectrum disorders and their principal psychiatric comorbidities in the sample of N = 730 patients admitted to Italian REMS between June 2017 and June 2018

Schizophrenia spectrum and other psychotic disorders (n=443 - 60.7%)	Single diagnosis		Comorbidity with personality disorders		Comorbidity with substance-related and addictive disorders		Comorbidity with other mental disorders	
	n	%	n	%	n	%	n	%
Schizophrenia (n=241 - 33.0%)	186	77.2	12	5.0	33	3.7	17	7.1
Delusional disorder (n=58 – 8.0%)	44	75.8	9	15.5	5	8.6	1	1.7
Schizoaffective disorder (n=52 – 7.1%)	44	82.7	5	9.6	3	5.8	1	1.9
Unspecified schizophrenia spectrum disorder (n=92 – 12.6%)	54	58.7	10	10.9	18	19.6	14	15.2

Note. Different comorbidities in the same patient were considered independently. The percentages are calculated on the number of patients affected by each of the 4 spectrum disorders of schizophrenia that emerged in the sample

Table 4 - Mood disorders and their principal psychiatric comorbidities in the sample of N = 730 patients admitted to Italian REMS between June 2017 and June 2018

Mood disorders (n=72 - 9.9%)	Single diagnosis		Comorbidity with personality disorders		Comorbidity with substance-related and addictive disorders		Comorbidity with other mental disorders	
	n	%	n	%	n	%	n	%
Bipolar & related disorders (n=66 - 9.0%)	39	59.1	23	34.8	14	21.2	5	12.8
Depressive disorders (n=6 - 0.8%)	2	33.3	2	33.3	1	16.7	1	16.6

Note. Different comorbidities in the same patient were considered independently. The percentages are calculated on the number of patients affected by each of the 4 spectrum disorders of schizophrenia that emerged in the sample

Table 5 - Personality disorders and their principal psychiatric comorbidities in the sample of N = 730 patients admitted to Italian REMS between June 2017 and June 2018

Personality disorders (n=236 - 32.3%)	Single diagnosis		Comorbidity with substance-related and addictive disorders		Comorbidity with schizophrenia spectrum and other psychotic disorders		Comorbidity with other mental disorders	
	n	%	n	%	n	%	n	%
Cluster B								
Antisocial personality disorder (n=46 - 6.3%)	22	47.8	7	15.2	8	17.4	12	26.1
Borderline personality disorder (n=61 - 8.4%)	15	24.6	29	47.5	8	13.1	2	3.3
Narcissistic personality disorder (n=12 - 1.6%)	2	16.6	2	16.6	7	58.3	1	8.3
Histrionic personality disorder (n= 2 - 0.3%)	0	0	0	0	0	0	2	100
Cluster A								
Paranoid personality disorder (n=18 - 2.5%)	8	44.4	2	11.1	2	11.1	5	27.7
Schizoid personality disorder (n= 8 - 1.1%)	5	62.5	0	0	2	25.0	7	87.5
Schizotypal personality disorder (n= 4 - 0.5%)	2	50.0	1	25.0	1	25.0	0	0
Cluster C								
Dependent personality disorder (n= 3 - 0.4%)	3	100	0	0	0	0	0	0
Obsessive-compulsive personality disorder (n= 2 - 0.3%)	2	100	0	0	0	0	0	0
Personality disorder not otherwise specified (n=80 - 11%)	26	32.9	24	30.0	12	15.0	20	25.3

Note. The percentages are calculated with reference to the sample of N = 730 patients. No patient was diagnosed with an avoidant personality disorder.

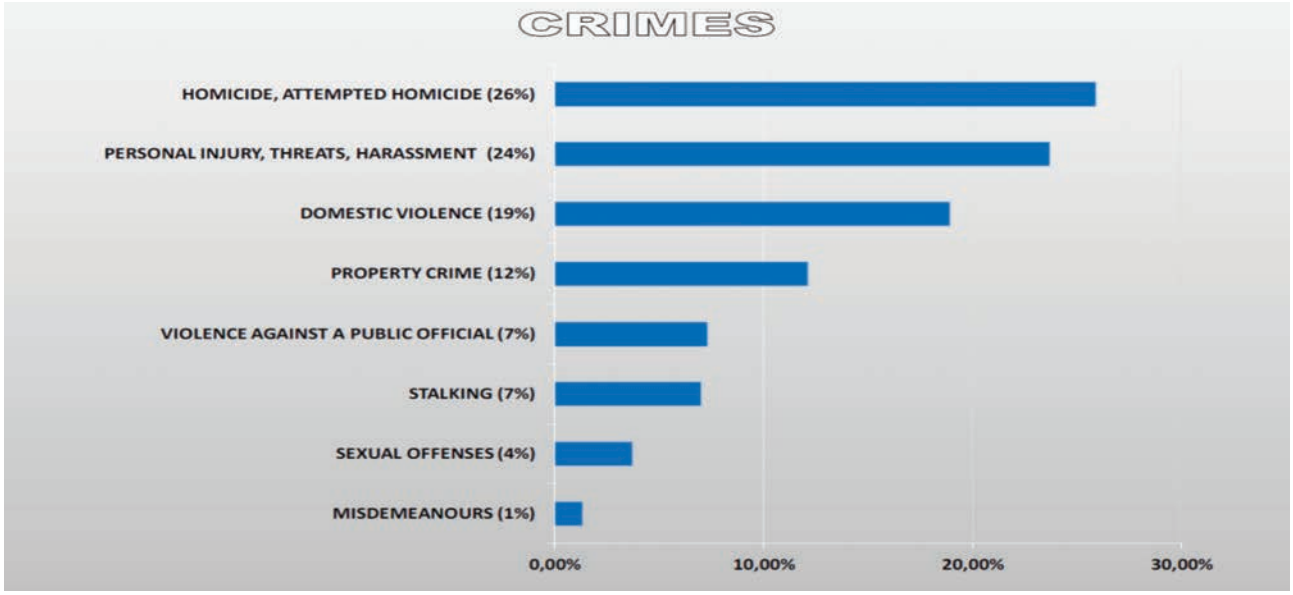
Among personality disorders the most frequent was borderline personality disorder (8.4%), followed by antisocial personality disorder (6.3%). However, there was a greater amount of unspecified personality disorder (11%), often due to the presence of mixed personality traits.

If only cases with a diagnosis of personality disorder are taken into consideration, 1 in 3 is unspecified. Despite being infrequently diagnosed in the overall study sample, dependent (n = 3) and obsessive-compulsive (n = 2) personality disorders, when present, were the only psychopathological condition found in affected patients (Table 5).

The analysis of crimes committed by the patients treated in REMS, showed that homicide and attempted homicide were most frequent, followed by a group of crimes that included personal injury, threats, and harassment (Figure 3). Overall, around 80% of the committed crimes were against the person with the use of violence.

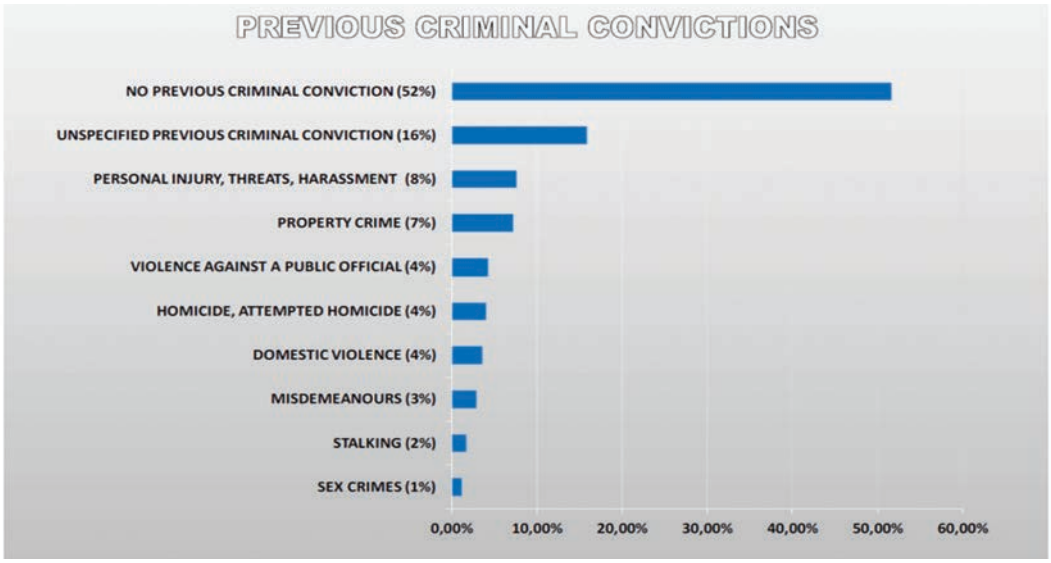
Forty-eight percent of the patients presented previous criminal convictions including 4.0% for homicide/attempted homicide, 1.7% stalking, 1.2% sex crimes, 7.6% harassment/personal injury/threat, 3.6% domestic violence, 4.3% violence against a public official, 7.3% property crime, 2.9% misdemeanors, and 15.4% unspecified. Interestingly n = 4 patients who had already been convicted for homicide/attempted homicide (3 cases had committed homicide), were in the REMS for having repeated the same serious crime (Figures 4).

Figure 3 - Crimes commited by N = 730 patients admitted to the Italian REMS between June 2017 and June 2018



Note. In the case of multiple crimes, only the one with the highest sentence was considered

Figure 4 - Previous criminal convictions in N = 730 patients admitted to Italian REMS between June 2017 and June 2018



Note. Missing data N = 150

Analysis of crime type distribution in the different psychiatric diagnoses is reported in Table 6. Chi-square disclosed a significant difference in the distribution of crimes among all the psychiatric diagnoses we found in the study patients ($p<0.01$). To further verify possible differences in crime types among specific psychiatric disorders, we grouped patients into 4 diagnostic clusters, including schizophrenia spectrum disorders, personality disorders, substance-related disorders, and mood disorders. The analysis of crime by diagnostic clusters is shown in Table 7. We found significant differences in crime type distribution in all but the mood disorders cluster.

Table 6 - Crimes and main psychiatric diagnosis in the sample of N = 730 patients admitted to Italian REMS between June 2017 and June 2018

	Homicide, attempted homicide		Personal injury, threats, harassment		Domestic violence		Property crime		Violence against public official		Stalking		Sexual offenses		Misdemeanours	
	n.	%	n.	%	n.	%	n.	%	n.	%	n.	%	n.	%	n.	%
No psychiatric diagnosis	0	0	0	0	1	0.8	1	1.2	0	0	0	0	0	0	0	0
Schizophrenia	80	46.0	48	30.0	41	32.3	19	23.2	17	34.0	10	21.3	8	32.0	0	0
Delusional disorder	17	9.8	9	5.6	11	8.7	5	6.1	3	6.0	7	14.9	1	4.0	1	11.1
Unspecified schizophrenia spectrum disorder	20	11.5	19	11.9	14	11.0	12	14.6	16	32.0	3	6.4	3	12.0	1	11.1
Personality disorders	25	14.4	43	26.9	35	27.6	21	25.6	7	14.0	17	36.2	5	20.0	5	55.6
Bipolar	13	7.5	12	7.5	12	9.4	16	19.5	2	4.0	3	6.4	2	8.0	1	11.1
Neurodevelopmental disorders	2	1.1	5	3.1	4	3.1	4	4.9	1	2.0	1	2.1	1	4.0	0	0
Schizoaffective disorder	12	6.9	16	10.0	7	5.5	3	3.7	3	6.0	5	10.6	2	8.0	1	11.1
Substance-related and addictive disorders	0	0	0	0	0	0	0	0	1	2.0	0	0	0	0	0	0
Neurocognitive disorders	1	0.6	2	1.2	0	0	0	0	0	0	1	2.1	2	8.0	0	0
Trauma- and stressor-related disorders	1	0.6	1	0.6	0	0	1	1.2	0	0	0	0	0	0	0	0
Depressive disorders	3	1.7	2	1.2	1	0.8	0	0	0	0	0	0	0	0	0	0
Disruptive, impulsive-control and conduct disorders	0	0	2	1.2	0	0	0	0	0	0	0	0	0	0	0	0
Obsessive-compulsive	0	0	1	0.6	1	0.8	0	0	0	0	0	0	1	4.0	0	0
Total	174	100	160	100	127	100	82	100	50	100	47	100	25	100	9	100

Table 7 - Crimes by diagnostic cluster, in the sample of N = 730 patients admitted to Italian REMS between June 2017 and June 2018

Crime	Schizophrenia spectrum and other psychotic disorders	Personality disorders	Substance-related and addictive disorders	Mood disorders[1]
	%	%	%	%
Homicide, attempted homicide (n = 174)	74.1	20.1	7.5	9.2
Personal injury, threats, harassment (n = 160)	57.9	35.2	27.0	8.8
Domestic violence (n = 127)	57.5	33.9	28.3	10.2
Property crime (n = 82)	47.6	29.3	26.8	19.5
Violence against Public official (n= 50)	78.0	22.0	22.0	4.0
Stalking (n = 47)	53.2	40.4	12.8	6.4
Sexual offenses (n = 25)	56.0	28.0	12.0	8.0
Misdemeanours (n = 9)	33.3	66.7	66.7	11.1
	p<0.001	p<0.01	p<0.001	Ns

Note. P values by chi-square refer to the presence/absence of cluster diagnosis; Ns = not significant. [1]Patients with bipolar disorder or depressive disorders were aggregated in the mood disorders cluster

Analysis of type of victim is shown in Table 8.

Table 8 - Victims of the N = 730 patients admitted to Italian REMS between June 2017 and June 2018

	Victim
	%
Family member	45.1
Previously unknown	30.6
Acquaintance	13.3
No human victim	10.9

Note. Missing data n = 227.

Table 9 - Use of Long-acting injectable (LAI) antipsychotics, in the sample of N = 730 patients admitted Italian REMS between June 2017 and June 2018, associations with other drugs

Patients treated with LAI antipsychotic (n = 301 – 47.0%)		
	n	%
Monotherapy	**52**	**17.2**
More than 1 LAI antipsychotic	**4**	**1.3**
Association with oral antipsychotics	**173**	**57.4**
only 1antipsychotic	*122*	
> 1 antipsychotic	*51*	
Association with mood stabilizers	**143**	**47.5**
+oral antipsychotics	*90*	
Association with other drugs	**145**	**48.1**

Note. Missing data n = 90

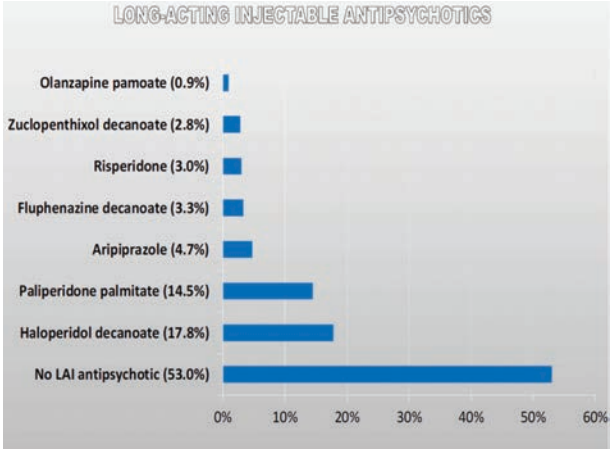
The analysis on treatments focused on pharmacological, rehabilitative, and psychotherapeutic types. Forty-seven percent of the patients (n = 301) received a prescription of a long-acting injectable (LAI) antipsychotic, among which, the first-generation antipsychotic haloperidol decanoate was the most frequently used, followed by paliperidone palmitate (Figure 5).

In 17.2% of the patients a LAI antipsychotic was prescribed as monotherapy; in 57.4% an oral antipsychotic was associated, while in 47.5% a mood stabilizer was associated: carbamazepine, lithium carbonate, or sodium valproate (table 9). Four patients were prescribed an association of two LAI antipsychotics.

Oral antipsychotics were also frequently prescribed, 79% of the patients receiving at least one oral antipsychotic: among these 71 patients (12.9%) received an oral antipsychotic in monotherapy, while 187 patients (34.0%) received a combination of two oral antipsychotics, and 51 (9.3%) received a combination of two oral, and a LAI antipsychotic (Table 10). One patient received a prescription of 3 oral antipsychotics.

The absolute frequency of the 10 most used oral antipsychotics is shown in Figure 6. A second-generation oral

Figure 5 - Use of long-acting injectable antipsychotics (LAI) in the sample of N = 730 patients admitted to the Italian REMS in the period June 2017 - June 2018



Note. Missing data n = 90

antipsychotic was the preferred choice, especially olanzapine, clozapine, quetiapine, even though there are still a significant number of patients being treated with haloperidol.

Mood stabilizers were prescribed to 45.9% of the patients (Table 11). Antiepileptic drugs used as mood stabilizers, or lithium, were prescribed to 80.5% of patients also treated with oral antipsychotics, and in 45.2% of patients treated with a LAI antipsychotic. In 10.2% of cases, more than one mood stabilizer was used for the same patient.

The psychiatrists' opinion about the efficacy of pharmacotherapy on clinical symptoms was insufficient in 4.8%, partial in 29.9% and good in 65.3% of the cases. Reported efficacy on violent behavior was poor in 3.8%, moderate in 18.2%, and good in 78.1%. We found no significant differences in reported pharmacological efficacy on violence based on primary diagnosis. Psychiatrists reported that the patients' adherence to pharmacological treatment was low in 8.5%, partial in 22.1%, and full in 69.4% of the patients.

In 43.0% of the cases, the treating staff reported that patients were receiving no psychotherapy, 23.3% received more than one type of psychotherapy, 19.3% received psychoeducation, and 14.4% received individual unspecified psychotherapy.

The patients' adherence to psychotherapy as reported by physicians, was insufficient in 10.6%, partial in 26.0% and good in 63.4% of the cases. Estimated efficacy was poor in 15.1%, moderate in 39.2%, and good in 46.7% of the patients who received psychotherapy in REMS. Psychotherapy patient satisfaction was low in 12.5%, partial in 29.0%, and full in 58.5% of the cases.

Rehabilitation programs were reported for 81.2% of the patients, most of them receiving more than one type of rehabilitative approach (63.3%), including simple activities of daily life, cultural activities, or motor activities. Among those patients receiving only one type of rehabilitation, 11.1% focused on simple activities of daily life, 4.6% on cultural activities, and 2.3% on motor activities. More than half of the

patients (50.7%) were rehabilitated exclusively inside the REMS, 44.4% had rehabilitation inside and outside the REMS, while 4.9% were rehabilitated exclusively outside the facilities.

Patients' adherence to rehabilitation reported by physicians was insufficient in 14.5%, partial in 28.2%, and good in 57.3% of the cases. Estimated efficacy was poor in 15.5%, moderate in 36.2%, and good in 48.3% of the patients who received one or more rehabilitation programs in the REMS. Rehabilitation patient satisfaction was low in 14.1%, partial in 32.9%, and full in 53.0% of the cases (Figure 7).

The analysis of aggressive behavior in REMS as measured by the MOAS total score indicated a significant degree of variability ranging from 0 to 40. Mean MOAS total score resulted 3.1 (SD 6.4), and we found no gender differences as disclosed by independent sample *t*-test (MOAS total score, males 3.0 SD 6.4; females 3.6 SD 6.7; p = 0.44).

Table 10 - Use of oral antipsychotics in the sample of N = 730 patients admitted to Italian REMS between June 2017 and June 2018, associations with other drugs

Patients treated with oral antipsychotics (n = 551 – 79%)		
	n	%
Monotherapy	71	12.9
Association with LAI antipsychotic	173	31.4
Association of two or more oral an antipsychotic	187	34.0
Association with an antiepileptic or Lithium	252	45.8
Association with benzodiazepines or antidepressants	331	60.2

Note. Missing data n = 33

Figure 6 - Absolute frequency of the 10 most prescribed oral antipsychotics in the sample of N = 730 patients admitted to the Italian REMS in the period June 2017 - June 2018

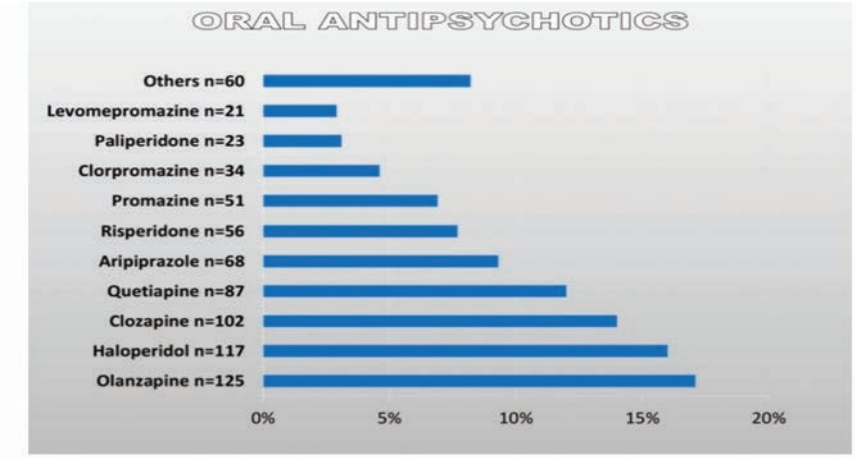
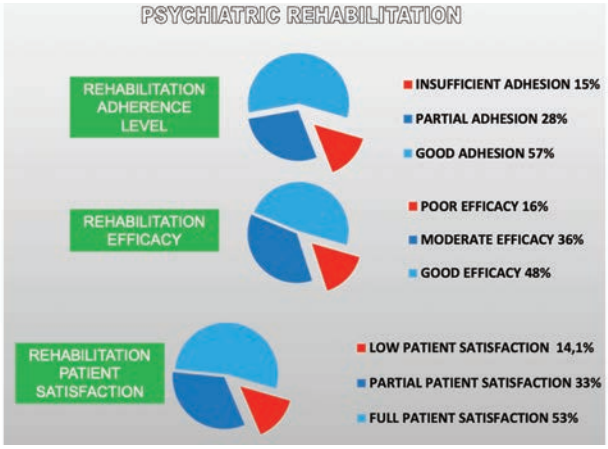


Table 11 - Mood stabilizers, associations with other drugs in the sample of N = 730 patients admitted to Italian REMS between June 2017 and June 2018

Patients treated with mood stabilizers (n=313 – 45.9%)		
	n	%
Monotherapy	2	0.6
More than 1 mood stabilizer	32	10.2
Association with oral antipsychotics	252	80.5
Association with LAI antipsychotic	143	45.7
+oral antipsychotics	*90*	
Association with other drugs	183	58.5

Note. Mood stabilizer included sodium valproate, carbamazepine, lithium carbonate. Missing data n = 48

Figure 7 - Psychiatric rehabilitation adherence, efficacy and patient satisfaction in those patients who received at least rehabilitation program (81% of N = 730)



The estimated incidence of violence as defined by a MOAS total score > 1 resulted in 36% of patients who committed any type of violence in the month before assessment (females 40%, males 35%, $\chi^2 = 0.58$, p = 0.44). The same analysis on MOAS subscales showed 33.7% of verbal aggression, 14.1% of aggression against property, 6.3% of autoaggression and 19.3% of recorded episodes of physical aggression. There were no significant differences between genders in the distribution of aggression type, as measured by the MOAS subscales by chi-squared analysis (Table 12).

We found a total of 39 absconders from REMS, in the 1-year study period (5.4%, n = 5 data missing) and we found no significant gender differences (escapes, females 2.5%, males 5.7%, $\chi^2 = 1.46$, p = 0.22). Chi-squared disclosed that the presence of a diagnosis of personality disorder was associated with more frequent absconding, than in cases of the absence of such disorder (8.1% *vs.* 4.2%, $\chi^2 = 4.65$, p<0.05), while no significant differences concerning presence/absence of a diagnosis of schizophrenia spectrum disorder (4.8% *vs.* 6.3%, χ^2=0.83, p = 0.36), substance-related disorders (3.3% *vs.* 6.0%, $\chi^2 = 1.71$, p = 0.19), and mood disorders (5.6% *vs.* 5.4%, $\chi^2 = 0.01$, p = 0.92) emerged in those patients who escaped from REMS. This result was confirmed by a binary logistic regression analysis controlling for possible confounders, which disclosed that having a diagnosis of personality disorder is a significant risk factor for absconding (OR: 3.8, CI 95% 1.5–10.0), while older age is a protective factor (OR: 0.93, CI 95% 0.89 –0.96).

Thirty cases of patient physical restraint in REMS were reported overall in the study period, and there were 43 cases on involuntary commitment in civil hospitals. Fourteen REMS declared the use of de-escalation rooms (Table 13).

Discussion

Our one-year longitudinal study that included 730 patients treated in Italian REMS provides a significant amount of data, useful to clarify several features and criticalities of this new and peculiar system. In Italy there is an ongoing scientific and political debate focusing on the new legislation concerning the treatment of dangerous offenders affected by severe mental disorders and the empirical data we report here might help in determining possible solutions.

The first aim of the study was to delineate the main characteristics of the REMS population. This data is also important because the REMS staff has little to no power to decide patients' admission and discharge, those aspects being determined by the juridical system. We found an average middle-aged population of 42 years, which comprises mostly male patients, although there was a significant female presence (n = 80). Most of the patients are affected by schizophrenia spectrum disorders (60.6%), were already being treated at public mental health services (82.2%), have a long mean disease history (11.5 years), had already been

Table 12 - Type of aggression reported in the last month, Modified Overt Aggression Scale (MOAS)

MOAS	Total		Males		Females		P (chi-squared, *t*-test)
	% >1	Mean (SD)	% >1	Mean (SD)	% >1	Mean (SD)	
Verbal aggression	33.7%	0.7 (1.1)	32.6%	0.7 (1.1)	42.5%	0.9 (1.3)	Ns, Ns
Aggression against property	14.1%	0.3 (0.9)	14.5%	0.3 (0.9)	11.3%	0.2 (0.7)	Ns, Ns
Autoaggression	6.3%	0.1 (0.6)	6.2%	0.1 (0.6)	7.0%	0.1 (0.5)	Ns, Ns
Physical aggression	19.3%	0.3 (0.8)	18.4%	0.3 (0.8)	27.5%	0.5 (1.0)	Ns, Ns

Note. P values by chi-squared or independent sample t-test. Ns=not significant

Table 13 - Critical events reported in the sample of N = 730 patients admitted to the Italian REMS in the period June 2017 - June 2018

CRITICAL EVENTS		
	n	%
Involuntary hospital admission	43	5.9
Involuntary extra-hospital treatment	7	1.0
De-escalation room	95	13.0
Absconders	39	5.3
Physical restraint	30	4.1

previously admitted into civil psychiatric wards (71.1%, with 13.3% presenting more than 4 previous admissions), including involuntary psychiatric hospitalization (54.8% of those with previous psychiatric admission, with 7.9% presenting more than 4 previous involuntary psychiatric admissions).

About half of the patients who entered the REMS between June 2017 and June 2018, are criminally irresponsible offenders with a provision of a permanent security measure, while a smaller part (15%) were judged to have substantially diminished criminal responsibility. Even though the Legislator has hypothesized to dedicate REMS to the fulfillment of permanent security measures, we found that 39.0% of the treated patients were under a provisional security measure. This last figure is not surprising, considering that the level of social dangerousness is usually higher in the phases closest to the crime, where there is still no definitive measure due to the trial time. As discussed further below, this data suggests the need for additional intermediate forensic psychiatric facilities for the rapid treatment of those irresponsible offenders who present a high level of social dangerousness.

Interestingly, many patients waiting to be admitted to REMS were held in prison (31.0%), others were already being treated in non-forensic psychiatric facilities (27.7%), while 21.5% were in freedom. This data makes it possible to hypothesize two cases regarding patients who were already treated in other psychiatric facilities; 1) that such facilities were inadequate to manage the levels of patients' dangerousness, since REMS are the only facilities with a mandate to control patients' social dangerousness and 2) that the patients' dangerousness levels had decreased with treatment, consequently REMS admission could have been no longer necessary.

A similar argument can be applied to patients who were free before REMS admission. Even in this case we can hypothesize that dangerous patients were left in freedom, with potential serious risk for the community safety, or that REMS admission was no longer necessary. For the proportion of patients who were in prison, it can be assumed that the judicial authority preferred to focus and control the levels of dangerousness, to the possible detriment of the adequacy of the psychiatric treatment.

Schizophrenia was the most frequent diagnosis (33.0%). We also found a relevant presence of unspecified schizophrenia spectrum and other psychotic disorders (12.6%), which is a result that might be interpreted considering the clinical complexity of the study population. The significant amount of psychiatric comorbidity that emerged is another result deserving attention, as it implies a greater complexity of patients' management and treatment needs. Eighteen percent of the patients who received a diagnosis of a schizophrenia spectrum disorder, also presented a diagnosis of personality disorder, or a substance-related and addiction disorder (Table 3). This is in line with data indicating a greater risk of aggressive or violent behavior in those patients affected by psychotic disorders (Fazel, Gulati, Linsell, Geddes, & Grann, 2009; Fazel & La, 2009), and severe mental illness (Fazel & Grann, 2006).

The data on prevalence and characteristics of personality disorders, in our opinion, deserve more reflection. In the sample of 730 patients, almost one-third was diagnosed at least with a personality disorder (32.3%), which was also frequently associated with a substance-related disorder (27.5%). It is hardly surprising that, among the patients diagnosed with personality disorder, the most represented were the borderline (25.9%), antisocial (19.5%), paranoid (7.8%) and narcissistic (5.1%) personality disorder. Thus, the DSM-5 cluster B (51.3%) is the more represented cluster among personality disorders.

It should also be noted that in 33.9% of the cases of personality disorder, the diagnosis was of unspecified personality disorder. This is a result that raises doubts about the effectiveness of the diagnostic methodology; these were patients already in care, who had been subjected to one or more forensic psychiatric evaluations during the criminal trial (Mandarelli et al., 2019), thus greater diagnostic detail would be expected. The frequent lack of specification in personality disorder diagnoses is probably due to the complained shortage of longitudinal data and information on patients, often due to the insufficient cooperation with the juridical system as well as other public health services, or to the limited time of observation at the time of diagnosis.

The analysis we conducted to evaluate possible differences in diagnoses, which we aggregated into 4 clusters, between Italian and non-Italian patients (14.2% of the study sample), disclosed that the latter were less likely to be diagnosed with a personality disorder. No significant differences emerged in the frequency of schizophrenia spectrum disorders, substance-related disorders and mood disorders, be-

tween Italian and non-Italian patients. Such differences can be interpreted based on cultural differences and language barriers of a population that, in our experience, often presents difficulties in providing historical clinical data, and where it is difficult to find other informants which can be necessary to make a personality disorder diagnosis (Tarsitani & Biondi, 2016).

The analysis of crime type and distribution disclosed that most of the patients treated in REMS were convicted for a violent crime against a person (Figure 3). Interestingly one in four patients underwent the custodial security measure for having committed or attempted a homicide; one in two patients committed other crimes against a person including violence, threat, harassment or personal injury (24%), domestic violence (19%) or stalking (7%) (Figure 4).

The most serious crimes we found in the study population, i.e. homicide or attempted homicide (n = 174) were mostly committed by patients suffering from schizophrenia (46%). Other diagnoses included: personality disorder (14.4%), unspecified schizophrenia spectrum disorder (11.5%), delusional disorder (9.8%), bipolar disorder (7.5%) and schizoaffective disorder (6.9%) (Table 6). Overall, we found that schizophrenia spectrum disorders accounted for 70% of the most serious crimes (homicide/attempted homicide), 52% of other crimes against a person (threat, harassment, personal injury), 56% of cases of domestic violence, and 77.5% of cases of violence against a public official.

Personality disorder was the most represented diagnosis among those convicted for stalking (36.2%), followed by schizophrenia (21.3%), and delusional disorder (14.9%). Personality disorder was also the most common diagnosis in property crime (25.6%), followed by schizophrenia (23.2%) and bipolar disorder (19.5%).

Only a minor proportion of patients committed sexual crimes (3.4%), which in more than half of the cases were attributable to patients suffering from schizophrenia spectrum disorders (56.0%). The low presence of sexual crimes in REMS can be read in the light of the nature of these crimes, which is infrequently associated with psychopathological features, or the tendency of the courts to judge the perpetrators of sexual crimes as criminally responsible. This result, however, deserves further study considering that, except for the sexual crimes committed on a psychotic basis, the possible role of personality disorders and consequent degree of responsibility remains to be clarified.

Overall, these data seem to indicate that the judgment of social dangerousness in psychiatric patients who committed a crime, a prerequisite for REMS admission, came to concentrate on those cases where there is a prognostic risk of recurrence of offenses against third parties and of clinical complexity. We have detected a low number of misdemeanors, apart from violence against a public official (6.8%), which was almost entirely attributable to patients affected by schizophrenia spectrum disorders.

Data on the victims of crimes committed by patients treated in REMS indicate that most of the damage is practiced against known persons (45.1% against relatives and 13.3% against acquaintances), while one-third of crimes were against a previously unknown victim.

Despite the REMS system being in discontinuity with the previous one, which was based on forensic psychiatric hospitals, these data are like those that emerged in a previous survey by the inter-Ministerial Commission (Commissione Interministeriale Giustizia Salute, 2008; Fioritti et al., 2006). Specifically, the OPGs survey showed that 70% of the internees suffered from schizophrenia or delusional disorder, 42% committed homicide, and 32% committed other serious crimes against a person. Moreover, they found that 46% of the OPGs population presented a history of substance abuse, 32% had voluntary civil psychiatric admissions, while 69% had a history of involuntary psychiatric admission in civil hospitals. The percentage of patients already in care at public mental health services was 61% for OPGs, while we found a greater frequency of 82% in the actual REMS system.

It is possible to argue that the REMS system is to manage and treat a patient population that is similar to the one once interned in OPGs, a result that resembles those reports indicating poor capacity to modify the nature of forensic psychiatric populations by deinstitutionalization programs (Mullen, Burgess, Wallace, Palmer, & Ruschena, 2000), or poor efficacy due to organizational problems (Fuller Torrey, 2015). Nevertheless, there is an element of greater diversity that is represented by the important proportion of patients with personality disorders that we have found in REMS.

The result of a great proportion of REMS patients affected by personality disorders can be traced back to the ruling of the Italian Supreme Court of Cassation of 2005 (9163/2005, "Raso"), which enshrined the possibility of considering subjects suffering from serious personality disorders as criminally irresponsible or with substantially diminished responsibility. This possibility, considering our data, has evidently determined a change in the socially dangerous forensic psychiatric patient population, who are subjected to a custodial security measure.

If we compare the prevalence rates of mental disorders treated in public psychiatric services, as recorded on a national scale by a ministerial source (Ministero della Salute, 2018), we can note that the prevalence of schizophrenia and other psychoses is 35.8 per 10,000 inhabitants, in Italy. Forty percent of the health services (nursing, psychiatric activity, territorial rehabilitation and re-socialization, family-oriented and support activities) provided in 2017 by the mental health departments were dedicated to patients diagnosed with schizophrenia and other psychoses (Ministero della Salute, 2018). However, if we look at the typology of the psychiatric population in Italian residential structures, it emerges that schizophrenia and other psychoses represent half of the use of community psychiatric residential structures (49.6%).

Another difference between the diagnostic characteristics of patients treated in community psychiatric facilities and in REMS can be detected in the case of mood disorders. In our sample, the percentage of patients suffering from bipolar disorder was 9%; the presence of patients suffering from depressive disorders was only 0.8%. The preva-

lence of depressive disorders treated in the outpatient mental health department services was instead 14.3 per 10,000 for bipolar disorder, and 39.2 per 10,000 for depressive disorders (Ministero della Salute, 2018). Ten percent of the community psychiatric health services provided by the mental health departments in 2017 were attributable to patients diagnosed with bipolar disorders, and 15.0% to patients suffering from depressive disorders.

In our sample we found a prevalence of 32.1% of patients suffering from a personality disorder, while the prevalence rate of this diagnosis in the Italian community psychiatric services was 12.0 per 10,000 inhabitants (Ministero della Salute, 2018). The percentage of services provided by the mental health departments in favor of patients affected by this diagnosis is 10.0%.

The comparison between these data certainly presents limitations, but we have proposed it because we believe it can still allow some considerations. The first consideration is that the clinical typology of REMS patients is not quantitatively overlapping with that which is usually faced by psychiatrists in public services, in the different articulations of the Department of Mental Health. The percentage of schizophrenia spectrum disorders is much higher, even higher than that of civil psychiatric rehabilitation facilities. It is easy to argue that the most complex patients are those admitted to REMS, either because they are not adherent to treatment, or are non-compliant, perhaps due to psychiatric comorbidity or a difficult existential or environmental condition.

The presence of personality disorders is clearly greater compared to the population treated in civil community psychiatric services. This data requires consideration on the need for specific staff training for those who work in REMS, as well as on the adequacy of therapeutic programs for these patients. Especially if we consider the mandate inherent in these structures: the care of patients and also the management of their behavior, in order to avoid violent recurrences.

One of the major issues in REMS, non-high security structures without police personnel, concerns possible violent behavior acted by patients, to themselves or towards operators or other patients. The analysis we carried out through the MOAS on aggressive behavior, indicates that one patient in three had presented aggressive behavior in the last month (74% did not have indications of violent behavior committed). The average MOAS score is suggestive of aggressive behaviors on average of moderate impact (3.1), in any case it was higher than that reported in an Italian study on patients in non-forensic residential facilities (de Girolamo et al., 2016).

Moreover, the analysis of the MOAS sub-scales, indicates that a third of the recorded episodes was of verbal aggressiveness (33.7%) and episodes of physical aggressiveness, the most serious for the scale, had been 19.3%. There was no significant gender difference regarding the distribution of aggressive behavior types, nor the total MOAS scores. The absence of gender differences in violent behavior suggests the possible relevance to women of common violence risk factors identified in men in this particular forensic psychiatric population (Logan & Blackburn, 2009).

Thirty cases of physical restraint were reported during the year of observation (4.1%). In addition, 43 cases of involuntary hospitalization in a civil psychiatric setting (5.9%) have been reported, which in Italy occurs in non-forensic facilities and necessarily involves the refusal of care.

Another critical aspect of REMS, which our original data allow us to verify, is the level of security deduced from REMS escape events. We found n = 38 absconders which corresponds to a percentage of 5.3% of the study population. This is a figure that, if read in the light of the non-high security nature of the REMS, can be considered low. Conversely, if the percentage of escapes is observed starting from the assumption that they are highly dangerous patients subjected to a custodial security measure, then compared to OPGs or to prisons, it appears to be high. Once again, the impact of the personality disorder emerged, which from our analysis turned out to be a significant risk factor for absconding, while older patients showed a lower proneness to escape from REMS.

As concerns treatment, the most common planning found is that typical of psychiatric rehabilitation structures, with an integrated approach, in which the predominant role is played by rehabilitation activities, together with pharmacological treatment (Figure 8).

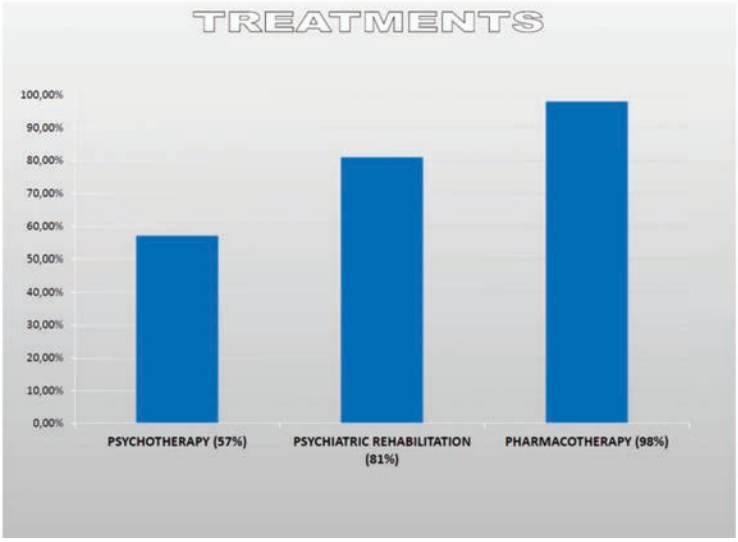
One of the parameters usually associated with social dangerousness and risk in forensic psychiatric patients is the limited awareness of illness, and poor adherence or response to treatment (Buchanan, Sint, Swanson, & Rosenheck, 2019).

It is not surprising that 45.2% of patients received treatment with LAI antipsychotics, including first- and second-generation antipsychotics (Table 8) because they have been considered useful for treatment and management of violent behavior in forensic psychiatric patients (Mohr, Knytl, Vorá ková, Bravermanová, & Melicher, 2017).

Another interesting result we found is the frequent use of mood stabilizers (45.9%). This percentage is significantly larger than the number of patients diagnosed with mood disorders (9.9%) and suggest a dimensional therapeutic approach possibly aimed at controlling impulsive behavior (Felthous & Carabellese, 2018). The significant percentage of off-label pharmacological prescriptions implies, on the one hand, the complex nature of the psychopathological characteristics of the population, on the other the need for attention both in terms of informed consent and professional liability.

Psychotherapy in REMS was reported in 57% of the patients, while a rehabilitation program was reported in 81%. In the case of rehabilitation, we mostly recorded the use of different approaches on the same patient (63%), which include cultural, motor activities, daily life activities, and psycho-educational programs. The clinical judgment on the effectiveness of these programs was estimated by observers as good (48%) or moderate (36%) and coincides with the gradient of appreciation and satisfaction of patients (full 53%, partial 33%).

Figure 8 - Treatment in the sample of N = 730 patients admitted to the Italian REMS in the period June 2017 - June 2018



Note. Missing data: psychotherapy n = 134, psychiatric rehabilitation n = 27, pharmacotherapy n = 28

Conclusion

Our data raise questions about the treatment strategies used today in REMS, and the need to be able to predict treatment models that consider the specific diagnostic and prognostic features. We believe that a more articulated therapeutic planning than the current one, will become necessary, including staff training programs aimed at improving the capacity to deal therapeutically with a heterogeneous clinical population, represented not only by patients affected by psychosis. We believe it is legitimate to ask whether different types of forensic psychiatric facilities, including different REMS, with specific treatment and security characteristics, would be necessary to satisfy the various needs of different psychiatric disorders as well as different levels of dangerousness (Catanesi, 2017; Kennedy, 2002).

As a result of local autonomy, some Italian regions have already taken a path in this direction, for example, the development of "Communities for serious personality disorders", in Lazio. An active partnership between the addiction treatment services and the public mental health departments will have to assume a greater importance, given the number of patients with substance use disorder, especially in those regions where they are distinguished from each other.

The data we analyzed in this report indicate that most of the forensic psychiatric patients treated in REMS were already long in the care of public psychiatric services (82.2%), which mirrors what emerged in the 2008 OPGs survey. Half of the cases already had criminal convictions, a figure that could be interpreted as a risk factor for criminal recurrence. It is reasonable to assume that the treatment opportunities of the departments of mental health have already been used and proved ineffective with this type of patient.

Thus, it is essential to think about different and differentiated treatment and management pathways (Carabellese, 2017), and probably also to rethink the contractual nature of the patient's position, with particular reference to consent to treatment and the possibility of refusing it despite being under a custodial security measure in the REMS (Carabellese, Urbano, Coluccia, & Mandarelli, 2018).

During conversations that we had with REMS health managers, we found difficulties sometimes encountered with patients who refuse treatment, for example with patients suffering from delusional disorder. In these cases, a paradoxical situation is realized, with patients compelled by the judicial authorities to reside in a psychiatric service for the execution of a psychiatric treatment safety measure, which however, having entered REMS, can partially or completely refuse the proposed treatments.

Some authors have proposed to provide for mandatory treatment during the execution of the psychiatric safety measure (Hachtel, Vogel, & Huber, 2019), and in most countries forensic psychiatric care is involuntary (Howner et al., 2018). We believe that the treatment safety measure, like other psychiatric residential forms, should instead provide a consensus at the source, the acceptance of a project that becomes binding for the patient too. A form of contract, like those used in some Northen Wuropean forensic psychiatric systems, could also be envisaged in the Italian system. However, this solution must inevitably include alternative residential solutions if the patient refuses to continue treatment.

The last observation is strictly criminological, since even in an indirect way the analysis of the population interned in REMS is indicative of those psychiatric patients who committed a crime due to a mental disorder, and our data clearly indicates the diagnostic types most correlated to the commission of violent crimes. The first three in terms of frequency are schizophrenia, personality disorders and sub-

stance-related disorders. These results confirm the existing data (Fazel & Grann, 2006) and generate the need to reflect on the disparities in treatment between different countries and systems, forensic psychiatric patients who have similar clinical and criminological characteristics.

These first data on the clinical functioning and on the criminological characteristics of REMS population, on the one hand confirm the evident need to maintain a thorough scientific monitoring and verification work on the whole system; on the other they suggest the need to no longer delay changes to the Italian Penal Code. We deem it is unrealistic to believe that it will be possible to obtain results only by closing the OPGs, and leaving the main legal assumptions underlying the psychiatric security measures unchanged. The complexity of the issues highlighted by this report requires a global modification of the system that can only start from the review of criminal responsibility and social dangerousness criteria.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5™, 5th ed*. Arlington, VA, US: American Psychiatric Publishing, Inc. https://doi.org/10.1176/appi.books.9780890425596

Barbui, C., & Saraceno, B. (2015). Closing forensic psychiatric hospitals in Italy: a new revolution begins? *British Journal of Psychiatry*, *206*(6), 445–446. https://doi.org/10.1192/bjp.bp.114.153817

Buchanan, A., Sint, K., Swanson, J., & Rosenheck, R. (2019). Correlates of Future Violence in People Being Treated for Schizophrenia. *American Journal of Psychiatry*, *176*(9), 694–701. https://doi.org/10.1176/appi.ajp.2019.18080909

Carabellese, F. (2017). Il malato di mente autore di reato socialmente pericoloso dopo la chiusura degli OPG: gli strumenti diagnostici dalla valutazione psichiatrico-forense alle pratiche trattamentali. *Rassegna Italiana di Criminologia*, *11*(3), 173–181.

Carabellese, F., & Felthous, A. R. (2016). Closing Italian Forensic Psychiatry Hospitals in Favor of Treating Insanity Acquittees in the Community. *Behavioral Sciences & the Law*, *34*(2–3), 444–459. https://doi.org/10.1002/bsl.2234

Carabellese, F., Urbano, M. T., Coluccia, A., & Mandarelli, G. (2018). Informed consent in forensic treatment. Lights, shadows, assumptions, perspectives. *Rassegna Italiana di Criminologia*, *12*(3), 207–214.

Casacchia, M., Malavolta, M., Bianchini, V., Giusti, L., Di Michele, V., Giosuè, P., … Xocco, W. (2015). Il superamento degli Ospedali Psichiatrici Giudiziari: A new deal per la salute mentale? *Rivista Di Psichiatria*, *50*(5), 199–209. https://doi.org/10.1708-/2040.22158

Catanesi, R. (2017). La responsabilità professionale dello psichiatra ai tempi delle REMS. *Rassegna Italiana di Criminologia*, *11*(3), 182–192.

Commissione Interministeriale Giustizia Salute. (2008). *Gruppo di lavoro per i problemi degli Ospedali psichiatrici giudiziari*. Retrieved from http://www.news-forumsalutementale.it/public/COMMISSIONE-INTERMINISTERIALE.pdf

Corleone, F. (2017). Seconda Relazione Semestrale sulle attività svolte dal Commissario unico per il superamento degli Ospedali Psichiatrici Giudiziari. Retrieved September 28, 2019, from https://www.camera.it/temiap/2017/02/28/OCD177-2763.pdf

de Girolamo, G., Buizza, C., Sisti, D., Ferrari, C., Bulgari, V., Iozzino, L., … Candini, V. (2016). Monitoring and predicting the risk of violence in residential facilities. No difference between patients with history or with no history of violence. *Journal of Psychiatric Research*, *80*, 5–13. https://doi.org/10.1016/j.jpsychires.2016.05.010

Fazel, S., & Grann, M. (2006). The population impact of severe mental illness on violent crime. *American Journal of Psychiatry*, *163*(8), 1397–1403.

Fazel, S., Gulati, G., Linsell, L., Geddes, J. R., & Grann, M. (2009). Schizophrenia and violence: Systematic review and meta-analysis. *PLoS Medicine*, *6*(8). https://doi.org/10.1371/journal.-pmed.1000120

Fazel, S., & La, N. (2009). Schizophrenia, Substance Abuse, and Violent Crime. *JAMA Psychiatry*, *301*(19), 2016–2023. https://doi.org/10.1001/jama.2009.675

Felthous, A. R., & Carabellese, F. (2018). The pharmacotherapy of clinical aggression in criminal offenders. *Rassegna Italiana di Criminologia*, *12*(3), 196–206.

Fioritti, A., Melega, V., Ferraiani, E., Rucci, P., Venco, C., Scaramelli, A. R., & Santarini, F. (2006). I percorsi assistenziali del paziente reo: il punto di osservazione dell'ospedale psichiatrico giudiziario. *Noos*, *12*(1), 91–95. https://doi.org/10.1722/-2516.26318

Fuller Torrey, E. (2015). Deinstitutionalization and the rise of violence. *CNS Spectrums*. Cambridge University Press. https://doi.org/10.1017/S1092852914000753

Hachtel, H., Vogel, T., & Huber, C. G. (2019). Mandated Treatment and Its Impact on Therapeutic Process and Outcome Factors. *Frontiers in Psychiatry*, *10*, 219. https://doi.org/10.3389-/fpsyt.2019.00219

Howner, K., Andiné, P., Bertilsson, G., Hultcrantz, M., Lindström, E., Mowafi, F., … Hofvander, B. (2018). Mapping Systematic Reviews on Forensic Psychiatric Care: A Systematic Review Identifying Knowledge Gaps. *Frontiers in Psychiatry*, *9*, 452. https://doi.org/10.3389/fpsyt.2018.00452

Kennedy, H. G. (2002). Therapeutic uses of security: mapping forensic mental health services by stratifying risk. *Advances in Psychiatric Treatment*, *8*(6), 433–443. https://doi.org/10.11-92/apt.8.6.433

Logan, C., & Blackburn, R. (2009). Mental disorder in violent women in secure settings: Potential relevance to risk for future violence. *International Journal of Law and Psychiatry*, *32*(1), 31–38. https://doi.org/10.1016/J.IJLP.2008.11.010

Mandarelli, G., Carabellese, F., Felthous, A. R., Parmigiani, G., Del Casale, A., Catanesi, R., … Ferracuti, S. (2019). The factors associated with forensic psychiatrists' decisions in criminal responsibility and social dangerousness evaluations. *International Journal of Law and Psychiatry*, *66*, 101503. https://doi.org/-10.1016/J.IJLP.2019.101503

Margari, F., Matarazzo, R., Casacchia, M., Roncone, R., Dieci, M., Safran, S., … Simoni, L. (2005). Italian validation of MOAS and NOSIE: a useful package for psychiatric assessment and monitoring of aggressive behaviours. *International Journal of Methods in Psychiatric Research*, *14*(2), 109–118. https://doi.org/10.1002/mpr.22

Margari, F., Sicolo, M., Spinelli, L., Mastroianni, F., Pastore, A., Craig, F., & Petruzzelli, M. G. (2012). Aggressive behavior, cognitive impairment, and depressive symptoms in elderly subjects. *Neuropsychiatric Disease and Treatment*, *8*, 347–353. https://doi.org/10.2147/NDT.S33745

Ministero della Giustizia. (2019). Detenuti per posizione giuridica

- 31 dicembre 2008. Retrieved September 28, 2019, from https://www.giustizia.it/giustizia/it/mg_1_14_1.page?facetNode_1=1_5_4&contentId=SST32974&previsiousPage=mg_1_14

Ministero della Salute. (2018). *Rapporto salute mentale Analisi dei dati del Sistema Informativo per la Salute Mentale (SISM)*. Retrieved from http://www.salute.gov.it/imgs/C_17_pubblicazioni_2841_allegato.pdf

Mohr, P., Knytl, P., Vorá ková, V., Bravermanová, A., & Melicher, T. (2017). Long-acting injectable antipsychotics for prevention and management of violent behaviour in psychotic patients. *International Journal of Clinical Practice*, *71*(9), e12997. https://doi.org/10.1111/ijcp.12997

Mullen, P. E., Burgess, P., Wallace, C., Palmer, S., & Ruschena, D. (2000). Community care and criminal offending in schizophrenia. *Lancet*, *355*(9204), 614–617. https://doi.org/10.1016/S0140-6736(99)05082-5

Sgarbi, C., Paulillo, G., Frivoli, G. F., Domiano, P., Molinaro, V. I., Pellegrini, P., … De Fazio, L. (2017). L'esperienza della REMS di Casale di Mezzani: funzionamento della struttura e caratteristiche dei pazienti ricoverati. *Rassegna Italiana di Criminologia*, *11*(3), 203–212.

Tarsitani, L., & Biondi, M. (2016). Migration and mental health: new challenges. *Rivista di Psichiatria*, *51*(2), 45–46. https://doi.org/10.1708/2246.24192

Traverso, S., & Traverso, G. B. (2017). La nascita delle REMS in Toscana ai sensi della Legge n.81/2014. *Rassegna Italiana di Criminologia*, *11*(3), 220–223.