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Sociodemographic, clinical and criminological characteristics of a sample of Italian Volterra REMS patients

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ABSTRACT

Background: In Italy the Law 9/2012 prescribed the total closure of forensic psychiatric hospitals (OPGs) and the conversion to a care model based on residential units in the community employing only clinical personnel (Residenze per l'Esecuzione delle Misure di Sicurezza – REMS) and fully integrated in public mental health services. The aim of this study is to report sociodemographic, clinical and criminological characteristics of patients admitted in Volterra REMS since it opened on 01/12/15 up to 31/12/17.

Methods: Sociodemographic and clinical information was collected from official documents (clinical files, ward reports) and from patients' personal health records. Psychiatric diagnoses were made by REMS psychiatrists according to the DSM-5 criteria. Criminological information was obtained from patients' criminal records.

Results: Volterra REMS patients' characteristics are similar to those of samples of OPGs patients (unmarried socially disadvantaged males with an average age of 40, no offsprings, low education, high rates of Schizophrenia Spectrum Disorders and medical comorbidity). However, the REMS model presents a very high turnover rate: during the study period 61 patients were admitted while 32 were discharged. Being assisted by public mental health services before committing the crime increased the probability of discharge. In non-EU patients long acting injectable antipsychotics were used more frequently than in community ones. Substance-Related Disorders are the main psychiatric comorbidity and resulted as being more frequent in bipolar patients than in other patients.

Conclusions: Due to the high patients' turnover, we expect a progressive change in sociodemographic, clinical and criminological features of the REMS population. The REMS model provides a return for mentally disordered criminals to the care of local public mental health services which are recovering after many years some of their most challenging patients ensuring their deinstitutionalization and reintegration into society.

1. Background

The total closure of forensic psychiatric hospitals (OPGs) in Italy and the conversion to a care model based on residential units in the community fully integrated in public mental health services (Residenze per l'Esecuzione delle Misure di Sicurezza – REMS) were prescribed by Law 9/2012 (Legge, 2012). The conversion to REMS has made Italy the first and only country in the world to have followed the principles of the deinstitutionalization movement to such extent as to abandon a hospital-based model of forensic psychiatric care in favor of residential units which only employ clinical personnel (Carabellese & Felthous, 2016). Law 9/2012 was followed by Law 81/2014 (DL, 2014), which made it mandatory for each of the 20 Italian regions to develop at least one REMS in the community by March 31st 2015. To date 30 REMS are operating in Italy for a total of 606 beds available. REMS were developed to be a service provided by the National Health System, rather

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than the Ministry of Justice, to emphasize their mission around the care, rather than the containment of mentally disordered offenders (De Leonardis & Emmenegger, 2012).

The structural characteristics of REMS are set by law to achieve four main goals: 1. Security measures; 2. Individualized care; 3. Recovery in a community setting; 4. Small scale units (Scarpa, Castelletti, & Lega, 2017). To ensure high-quality standards, each REMS are limited to a maximum of 20 beds and must employ only clinical personnel, with a staff-to-patient ratio of 0.9:1. At least two psychiatrists, one psychologist, two occupational therapists, one social worker, 16 nurses and 10 nursing assistants (Operatori Socio-Sanitari) must be employed in each REMS. Every patient is accommodated in single or double-occupancy rooms which remain unlocked throughout the day, granting in and out access to patients. The patients are encouraged to adorn their private spaces as they desire best with personal items and to make their spaces as comfortable and homelike as possible. Security measures only include a fenced perimeter, Closed Circuit Television (CCTV) and locked external doors (DM, 2012). In case of patients' acute crisis episodes, they can be transferred for immediate treatment to general psychiatric hospital acute wards. Admission in REMS can only occur for criminal offenders absolved because of insanity (mental illness) via mandatory referral by judicial authorities (Magistrato di Sorveglianza or Giudice delle Indagini Preliminari) (Scarpa et al., 2017). In particular, the judicial authorities may order the execution of security measures in REMS only if these mentally disordered patients are judged as socially dangerous meaning that there is a high probability of committing a new crime. In line with the ethos of the United Nations Convention on the Rights of Persons with Disabilities, Law 81/2014 prescribes that a patient cannot stay in a REMS for a period longer than a prison sentence for the same index offense, to prevent the phenomenon of unnecessary long-stay. Restrictive practices are strongly discouraged and limited to very exceptional cases. The mission of the service is to address the patients' individual psychosocial and treatment needs to favour socially-integrated lifestyles. The recovery approach is also reflected on individualized care pathways (Progetti Terapeutico-Riabilitativi Individualizzati - PTRI), developed upon admission to the service. This includes consideration of the index offence and its clinical/social determinants, a plan of the interventions that the REMS team is aiming to deliver and the expected length of stay of the patient (Scarpa et al., 2017). The care pathway is shared with mental health community services as required by Law 81/2014 in order to encourage proactive engagement/collaboration in the prospect of future release.

Volterra is a small Tuscan town in the province of Pisa which hosted an important Italian psychiatric hospital until the early 1980s. Following the Law 180/1978 (Legge, 1978) which prescribed the closure of all psychiatric hospitals in Italy except for the six forensic ones, Volterra psychiatric hospital was gradually closed and the psychiatric assistance assumed a territorial organization. This same process occurred throughout the rest of Italy. With the closure of the forensic psychiatric hospital of Montelupo Fiorentino (Florence, Tuscany) (one of the six Italian forensic psychiatric hospitals) prescribed by Law 9/2012, Volterra hosted the so far only reference REMS for the regions of Tuscany and Umbria. Volterra REMS opened on 01/12/15 according to structural and organizational requirements prescribed by the specific Decree of the Ministry of Health (DM, 2012). It can accommodate a total number of 30 patients: facility 1 includes 16 beds (14 for males, 2 for females), and facility 2 includes 14 beds (only for males). Volterra REMS guarantees 24-hour health care provided by a multidisciplinary team including psychiatrists, psychologists, nurses, nursing assistants, rehabilitation therapists, primary care physicians and social health workers. The aim of the present study is to report sociodemographic, clinical and criminological characteristics of all patients admitted in Volterra REMS since it opened to December 31st 2017.

2. Methods

2.1. Methods: subjects and assessment

The study sample included all patients admitted in Volterra REMS from 01/12/15 (opening date) to 31/12/2017. Admissions were decided by judicial authorities for the execution of security measures of those patients who committed a criminal offence but were judged as not guilty for reasons of insanity. Sociodemographic (age, sex, marital status, education, profession, region of origin, provenance, reference mental health services, offspring, immigrant status) and clinical information (psychiatric diagnosis, psychiatric and medical comorbidity, treatments, legal disability, smoking, lifetime mandatory psychiatric hospitalization) relevant for the purposes of the study was collected from official documents (clinical files, ward reports) and from the personal health record of patients completed upon entering REMS and regularly updated during their stay. Psychiatric diagnoses were made by REMS psychiatrists according to the DSM-5 criteria (APA, 2013). Patients were divided into diagnostic groups: Schizophrenia Spectrum Disorders (including cases of Schizophrenia, Delusional Disorder, Schizoaffective Disorder, Substance-Induced Psychotic Disorder, Unspecified Schizophrenia Spectrum Disorder), Bipolar Spectrum Disorders (including cases of Bipolar I Disorder, Bipolar II Disorder, Substance-Induced Bipolar Disorder, Unspecified Bipolar Disorder), Personality Disorders, Substance-Related Disorders, Intellectual Disability. Criminological information (type of crime, duration and type of security measures, ability to stay in judgment, duration of REMS permanence, mode of discharge) was obtained from the criminal records of each patient. A written informed consent for the processing of personal data useful for the purposes of this study was obtained from all patients as soon as admitted to Volterra REMS. The study project was approved by the local Institutional Review Board.

2.2. Methods: statistical analysis

The data were recorded in a specifically designed database and elaborated by means of the MedCalc software (version 12.7). The comparisons between patients' subgroups for continuous variables of Gaussian distribution were performed by means of parametric statistical tests: in particular, the Student's test for independent samples and the Anova one-way test were used. The Chi-square test and the Fisher test were used to compare the frequencies of categorical variables. A p value less than 0.05 was considered significant.

3. Results

3.1. Results: sociodemographic characteristics

Sixty-one patients were admitted in Volterra REMS from 01/12/15 (REMS opening date) to 31/12/2107. The detailed sociodemographic characteristics of the sample are reported in Table 1.

Patients were almost all male (n. 59, 96.7%) and had an average age of 41.54 ± 11.33 years. Most of them (n. 45, 73.8%) were unmarried, without offspring (n. 45, 73.8%), unemployed (n. 54, 88.5%) and with a low level of education (secondary school diploma) (n. 35, 57.4%). The majority of the sample lived in or committed the crime in Tuscany (n. 55, 91.8%). Fifteen patients (24.6%) were non-EU citizens. Twenty-six patients (42.6%), in accordance with Law 81/2014, were transferred to Volterra REMS from Montelupo Fiorentino OPG.

3.2. Results: clinical characteristics

As for the clinical characteristics (Table 2), almost half of the sample (29, 47.5%) had a positive history of internal and infectious diseases (above all hypertension, diabetes, HBV or HCV hepatitis), 54 patients (88.5%) were smokers and 35 (57.3%) had a lifetime use of substances.

Table 1
Sociodemographic characteristics of the sample.

Sociodemographic characteristics	Volterra REMS patients (n = 61)
Age (mean ± SD)	41.5 ± 11.3
Sex (m, %)	59, 96.7%
Marital status (n, %):	
Unmarried	45, 73.8%
Married	6, 9,8%
Cohabiting	0
Separated/divorced	9, 14.8%
Widowed	1, 1,6%
Education (n, %):	
Absent	2, 3.3%
Primary school diploma	5, 8.2%
Secondary school diploma	35, 57,4%
Triennial diploma	2, 3.3%
High school diploma	13, 21.3%
Graduation	1, 1.6%
Information not available	3, 4.9%
Profession (n, %):	
Unemployed	54, 88.5%
Employed	4, 6.6%
Retired	3, 4.9%
Region of origin (n, %):	
Tuscany	56, 91.8%
Umbria	5, 8.2%
Mental Health Services (n, %):	
Umbria Mental Health Services	5, 8.2%
Northwest - Tuscany Mental Health Services	25, 41%
Center - Tuscany Mental Health Services	27, 44.3%
Southeast - Tuscany Mental Health Services	4, 6.6%
Provenance (n, %):	
Montelupo Fiorentino forensic psychiatric hospital	26, 42.6%
Prison	13, 21.3%
Psychiatric ward in general hospital	9, 14.8%
Home	2, 3.3%
Psychiatric residential facility	7, 11.5%
Another REMS	4, 6.6%
Immigrant (n, %)	15, 24.6%
With offsprings (n, %)	16, 26.2%

Table 2
Clinical characteristics of the sample.

Clinical characteristics	Volterra REMS patients (n = 61)
Diagnosis (n, %):	
Schizophrenia spectrum disorders	33, 54.1%
Bipolar spectrum disorders	15, 24.6%
Personality disorders	6, 9.8%
Substance-related disorders	2, 3.3%
Intellectual disability	5, 8.2%
Comorbidity (n, %):	
None	19, 31.1%
Personality disorders	2, 3.3%
Substance-related disorders	28, 44.9%
Unspecified psychosis	2, 3.3%
Anxiety disorders	2, 3.3%
Personality and substance-related disorders	4, 6.6%
Impulse-control disorders	2, 3.3%
Neurocognitive disorder due to previous substance-related disorders	1, 1.6%
Neurocognitive disorder due to traumatic brain injury	1, 1.6%
LAI treatment (n, %)	23, 37.7%
Clozapine therapy (n, %)	15, 24.6%
Lithium therapy (n, %)	12, 19.7%
Legal disability (n, %)	37, 60.6%
Medical comorbidity (n, %)	29, 47.5%
Smoking (n, %)	54, 88.5%
Lifetime mandatory psychiatric hospitalization (n, %)	51, 83.6%
Followed by mental health services before committing crime (n, %)	43, 70.5%
Discharged patients (n, %):	32, 52.4%
Mode of discharge (n, %):	
Final experiment license	15, 46.9%
Probation	7, 21.9%
Revocation of security measure (social dangerousness cessation)	2, 6.2%
Overcoming duration of prison sentence for the same index offence	2, 6.2%
Therapeutic license	6, 18.8%
Destination of discharged patients (n, %):	
Tuscan high care intensity psychiatric residential facilities	17, 53.1%
Other Tuscan psychiatric residential facilities	7. 21.9%
Psychiatric residential facilities of other Italian regions	3, 9.4%
Home	5, 15.6%

The most represented diagnoses in the sample were those of Schizophrenia Spectrum Disorders (n 33, 54.1%) and Bipolar Spectrum Disorders (n. 15, 24.6%).

The most frequent lifetime comorbid psychiatric diagnosis (n. 33, 54.1%) was that of Substance-Related Disorders. By analysing these patients, we found that the number of patients diagnosed with Schizophrenia Spectrum Disorders (n. 15) was just slightly higher than that of patients with Bipolar Spectrum Disorders (n. 13). However, the frequency of comorbid Substance-Related Disorders in the subgroup of patients with Bipolar Spectrum Disorders (n = 13) was significantly higher than in the subgroup of patients with Schizophrenia Spectrum Disorders (86.7% vs 45.4%, p = 0.001).

Most of the samples (29, 83.6%) experienced at least one mandatory psychiatric hospitalization during their life and 23 patients (37.7%) took Long-Acting Injectable antipsychotics (LAI) because of non-compliance. We found that in the subgroup of non-EU patients (n = 15) the frequency of the use of LAI was significantly higher than in the subgroup (n = 46) of community patients (66.7% vs 30.4% p = 0.03).

From REMS-D opening about half of the patients (n. 32, 52.4%) were discharged. The most frequent discharge mode was the Final Experiment License (n. 15, 46.9%) followed by probation (n. 7, 21.9%). Most of the discharged patients (n. 17, 53.1%) were hosted by Tuscan high care intensity psychiatric residential facilities (Table 2).

Almost two-thirds of patients (n. 43, 70.5%) were already followed by mental health services of reference before committing the crime. In this regard, we observed a frequency of management by mental health services of reference (before the crime) in the subgroup of discharged patients (n = 32) significantly greater than in that of patients still present in REMS (n = 29). The difference is statistically significant (84.4% vs 55.2%, p = 0.02). Therefore, it can be deduced that being assisted by mental health services before committing the crime increases the probability of discharge for REMS patients (Fig. 1).

3.3. Results: criminological characteristics

Regarding the criminological characteristics (Table 3) of the sample, 44 patients (72.1%) were judged with a total defect of reason while 17 (27.9%) with a partial one. The most represented diagnoses in patients with total defect of reason were Schizophrenia Spectrum Disorders (70.4%) while in patients with a partial defect of reason were Bipolar Spectrum Disorders (35.3%) and Personality Disorders (35.3%).

The most represented crimes were personal injury/damage (n. 20, 32.8%), murder (n. 10, 16.4%), attempted murder (n. 9, 14.8%), multiple murder (n. 4, 6.6%), sexual violence (n. 6, 9.8%) and theft/robbery (n. 6, 9.8%). Among the authors of serious crimes (murder, multiple murder or attempted murder, n. 23, 37.7%) the patients with Schizophrenia Spectrum Disorders are in percentage significantly greater than those with Bipolar Spectrum Disorders (84% vs 16%). Moreover, the rate of serious crimes in the subgroup of patients with Schizophrenic Spectrum Disorders (n = 33) is greater than in that of patients with Bipolar Spectrum Disorders (n = 15) even if the

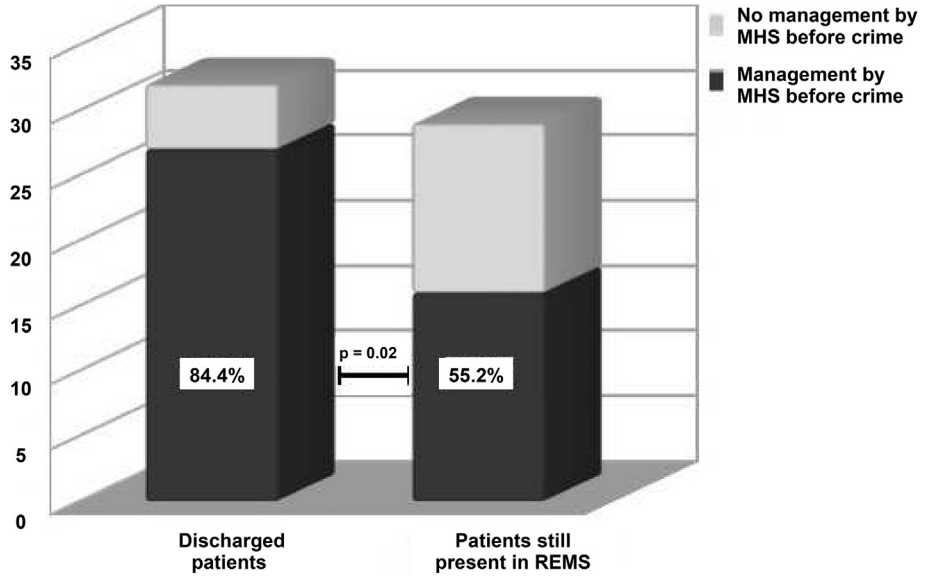

Fig. 1. Frequency of management by mental health services (MHS) of reference (before crime) in the subgroups of discharged and still present patients.

Table 3
Criminological characteristics of the sample.

Criminological characteristics	Volterra REMS patients (N = 61)
Total defect of reason (N, %)	44, 72.1%
Partial defect of reason (N, %)	17, 27.9%
Type of crime (N, %):	
Personal injury/damage	20, 32.8%
Murder	10, 16.4%
Multiple murder	4, 6.6%
Attempted murder	9, 14.8%
Sexual violence	6, 9.8%
Abduction of minors	1, 1.6%
Evasion/revocation of probation	3, 4.9%
Drug dealing	1, 1.6%
Theft/robbery	6, 9.8%
Receiving stolen goods	1, 1.6%
Crimes against family members (domestic violence) (N, %)	16, 26.2%
Security measure (N, %):	
Definitive	39, 63.9%
Provisional	22, 36.1%
Ability to stay in judgment (N, %)	59, 95.1%
Security measure duration (months) (mean ± SD)	48.1 ± 56.6
Permanence in REMS (months) (mean ± SD)	10.1 ± 6.4
Security measure extension (N, %)	21, 34.4%

difference does not reach the statistical significance (48.5% vs 20% p = 0.12).

Again, considering the authors of serious crimes, we found that the percentage of community patients is significantly greater than that of non-EU patients (83% vs 17%). Moreover, the frequency of committing a serious crime is greater in the subgroup of community patients (n = 46) than in that of non-EU patients (n = 15) but the difference does not reach the statistical significance (41.3% vs 26.7%, p = 0.48). Furthermore, the frequency of Substance-Related Disorders among the authors of serious crimes was lower than in the authors of other crimes (43.4% vs 65.8%, p = 0.15).

Considering discharged patients' duration of permanence in REMS (see Table 3), no statistically significant differences were found between subgroups of patients with provisional or definitive security measures (p = 0.34), with different diagnoses (p = 0.13) and with different provenance (p = 0.9).

4. Discussion, limitations and conclusions

The Italian scientific literature on mentally disordered offenders is limited to a small number of descriptive studies (Peloso, D'Alema, & Fioritti, 2014). Available information on the features of these patients derives from studies on OPGs population. In particular, a 3-year follow-up monitoring study on discharge from OPGs (Monitoraggio delle Dimissioni dall'Ospedale Psichiatrico Giudiziario – MoDiOPG) started in 1997 and evaluated the characteristics of a representative sample of patients treated in three Italian OPGs compared to a control group of psychiatric patients followed by territorial services (Fioritti, Ferriani, Rucci, et al., 2001; Fioritti, Ferriani, Rucci, & Melega, 2006; Fioritti, Melega, Ferriani, et al., 2006). Moreover, Andreoli (2002), on behalf of the Penitentiary Administration Department of the Ministry of Justice, carried out a comprehensive report on the population admitted to Italian OPGs. Finally, a study by the Italian national institute of health (Istituto Superiore di Sanità - ISS) was carried out from 2012 to 2015 to investigate on the status of Italian OPGs (OPG-ISS Project - Lega, Calevro, Ciraolo, et al., 2015; Lega, Del Re, Mirabella, et al., 2014).

To the best of our knowledge the present study is the first to date which explore the characteristics of a sample of REMS patients. Taking into account that the majority (57.7%) of our study sample consists of patients from Montelupo Fiorentino forensic psychiatric hospital, we expected to find sociodemographic, clinical, and criminological features overlapping with those reported in studies on OPGs patients' samples. In fact, in our sample as in the very large ones described by OPG-ISS Project (Lega et al., 2015, 2014) and by Andreoli (2002), the patients had an average age of about 40 years, were predominantly male, unmarried, without offspring, with low education level and socially disadvantaged (precarious work and economic conditions).

About a quarter of our study sample (24.6%) consisted of non-EU subjects: this result demonstrates a presence of foreigners in REMS higher than that of OPGs before closure (15,8% at 31/12/2014) but lower with respect to the Italian prisons population (32,3% at 31/12/2014) (Scarpa & Bonagura, 2015).

Even for clinical characteristics of patients our results are similar to those of MoDiOPG and OPG-ISS studies (Fioritti, Ferriani, et al., 2006, 2001; Fioritti, Melega, et al., 2006; Lega et al., 2015, 2014): most of subjects (over 50%) had a diagnosis of Schizophrenia Spectrum Disorders and about two-thirds of the sample presented a comorbid mental disorder. The most frequent psychiatric comorbidity was represented by Substance-Related Disorders that were present in about half of the

patients. We found that the frequency of comorbid Substance-Related Disorders in the subgroup of patients with Bipolar Spectrum Disorders was significantly higher than in the subgroup of patients with Schizophrenia Spectrum Disorders. This is in line with numerous epidemiological studies reporting a high rate of addictive disorders among bipolar patients and therefore hypothesizing bipolarity as a risk factor for addiction (Maremmani, Pacini, Perugi, & Akiskal, 2005; Pettorruso, De Risio, Di Nicola, et al., 2014).

According to the extensive research evidence reporting a high prevalence of many physical diseases in persons with severe mental illnesses (De Hert, Correll, Bobes, et al., 2011; Maj, 2009) as well as in forensic psychiatric populations (Ivbijaro, Kolkiewicz, McGee, & Gikunoo, 2008), about half of our sample had a medical comorbidity and over 80% were smokers.

About two-thirds of our sample (70.5%) were already assisted by the public mental health services before committing the crime and about 83.6% had carried out at least one mandatory psychiatric hospitalization. This data confirms MoDiOPG results which demonstrated a percentage of OPGs patients under the care of community psychiatric services at the time of offence of 58% for homicides–attempted homicides and of 65.7% for other offenders (Fioritti, Ferriani, et al., 2006). Furthermore, from the OPG-ISS study it emerged that 75% of the patients had carried out previous treatments for a mental disorder in the past and beyond 60% were followed by public mental health services (Lega et al., 2015). This means that in most cases, public services knew the patients who entered Volterra REMS. Moreover, we found that being followed by public mental health services before committing the crime increases the probability of discharge for REMS patients. A very important result of our study is certainly the high discharge rate: in two years about half of the patients (52.4%) were discharged. This finding represents an improvement with respect to the OPGs system: in fact, the MoDiOPG project showed that during an 18-month follow-up period only 39% of the initial OPGs population had been discharged (Fioritti et al., 2001). Probably, our very high patient turnover depends on some important innovations linked to the REMS model that provides a strict and continuous collaboration between the REMS team, the public mental health services responsible for the patients and the judicial authorities. This allows a faster reintegration of patients who are no longer socially dangerous and may be integrated back into their territory of provenance.

An important therapeutic issue in our sample regards the frequency of the use of LAI which was significantly higher in non-EU patients than in community ones. This result could be explained by considering aspects like linguistic difficulties, cultural differences and lack of family support. All of these aspects can make it difficult to treat non-EU patients which are often oppositional and uncooperative regarding oral psychopharmacological therapy.

Finally, regarding the judicial characteristics, 72.1% of Volterra REMS patients were judged with a total defect of reason because of mental illness and, in agreement with the literature (OPG-ISS Project - Lega et al., 2015, 2014), their most represented diagnoses were Schizophrenia Spectrum Disorders. In patients with a partial defect of reason the most frequent diagnoses were those of Bipolar Spectrum Disorders (35.3%) and Personality Disorders (35.3%). In 2005 the Italian Supreme Court held that also people suffering from “severe personality disorders” may be recognized as not guilty because of insanity (Sentenza Corte di Cassazione n. 9163, 2005). Since then, Personality Disorders have become very common in Italian insanity defence cases. In our subgroup of patients with a partial defect of reason they even present the same frequency of Bipolar Spectrum Disorders. This could have a negative impact on the therapeutic-rehabilitative activity carried out by the REMS team. In fact, these patients often present important antisocial and psychopathic traits and they are unlikely to be available to take pharmacological treatment, however, poorly effective on their disorders, or to participate in the rehabilitative activities (Thompson, Ramos, & Willett, 2014). In addition to the demonstrated ineffectiveness of therapeutic community programs on their global outcome and on violent recidivism (Ogloff, Wong, & Greenwood, 1990; Rice, Harris, & Cormier, 1992), these subjects tend to take on the role of leader within the group by manipulating other patients and health workers thus often causing relationship problems in the group (Thompson et al., 2014). Therefore, in our opinion, the management of these subjects should require a specific pathway maybe in dedicated facilities suitable to cope with their antisocial and psychopathic component.

Data on frequency of serious crime in our sample (37.7%) is supported by OPG-ISS results demonstrating that more than one third of OPGs patients had committed serious crimes against others (Lega et al., 2015). Even if in the absence of statistical significance, we found a rate of Substance-Related Disorders among the committers of serious crimes lower than in the committers of other crimes (43.4% vs 65.8%). Also in the MoDiOPG study 46% of homicides were substance or alcohol users versus 78% of non-homicides (Fioritti, Ferriani, et al., 2006). In samples of Italian forensic patients Substance-Related Disorders comorbidity therefore appears to be mainly associated with non-violent acquisitive crimes which probably derive from the need for money created by addiction on certain drugs (Nurco & Balter, 1990). Again, considering the committers of serious crimes, we also found that the percentage of community patients is significantly greater than that of non-EU patients (83% vs 17%). This is consistent with some studies demonstrating that being foreign born is negatively associated with crime overall and is not significantly associated with committing violent crimes: undocumented immigrants may indeed be less likely to engage in serious criminal offending behaviour because they seek to earn money and not to draw attention to themselves (Bernat, 2017).

Finally, in the subgroup of serious crime committers Schizophrenia Spectrum Disorders are significantly more frequent than Bipolar Spectrum Disorders (84% vs 16%). This result is in line with MoDiOPG data which found between homicides a number of schizophrenic patients (65.6%) much greater than that of patients suffering from affective disorder (3.1%) (Fioritti, Ferriani, et al., 2006).

A limitation of our study is certainly the small size of the sample: probably by increasing the number of the patients some of the above statistical analyses would reach a significant level. Another important bias is that the recruited sample included most patients institutionalized for years due to their provenance from Montelupo Fiorentino OPG. Further studies on larger samples are needed to evaluate possible changes of the analysed variables according to a more varied patients provenance (prison, freedom, psychiatric wards, etc).

In conclusion, although in the present study a sample of Volterra REMS patients had sociodemographic, clinical and criminological characteristics similar to those of samples of now closed Italian OPGs patients, the new Italian REMS model appears to represent a key step towards a complete deinstitutionalization based on care and not on containment of mentally disordered offenders. The new Italian reform, indeed, through the closure of OPGs, the opening of REMS and the sharing of care pathways with the entire public psychiatric circuits, provides, when possible, the return of mentally disordered offenders to the care of local mental health services. REMS should be considered as a residual choice and not as a place to relegate the most severe patients away from the rest of society. Due to the high patients' turnover, we therefore expect a further change in some sociodemographic, clinical and criminological features of the REMS population. All this is allowing mental health services in Italy to recover after many years some of their most challenging patients ensuring their deinstitutionalization and reintegration into society.

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