INTRODUCTION

Italy has a strong history of deinstitutionalization. It was the first country to completely dismantle psychiatric hospitals in order to create small psychiatric wards closer to the community (i.e., in general hospitals). Nevertheless, it took the nation nearly 40 years to complete the process of closing all forensic psychiatry hospitals. Deinstitutionalization however, was not fully addressed by the first wave of Italian psychiatric reform. This paper describes the establishment of new facilities replacing old forensic hospitals, formally known as Residences for the Execution of Security Measures (REMS). REMS are a paradigm shift in terms of community-based residential homes, and are mainly focused on treatment and risk assessment, rather than custodial practices. The use of modern assessment tools, such as the Aggressive Incident Scale (AIS) and the Hamilton Anatomy of Risk Management (HARM), is crucial in order to objectively assess the clinical cases and are consistent instruments that form part of the treatment plan. A preliminary analysis of data from the first 2 years of activity, focusing on severely ill patients who have been treated for more than 12 months, is described for two REMSs in the Lazio region, close to Rome. Encouraging results suggest that further research is needed in order to assess clinical elements responsible for better outcomes, and to detect follow-up measures of violence or criminal relapse post discharge.

Key words

Forensic psychiatric hospitals, deinstitutionalization, detention security measures, Italian psychiatric reform, Hamilton Anatomy of Risk Management (HARM), Residences for the Execution of Security Measures (REMS)
that favored extensive community treatment over hospitalization. But it did not address the framework of the Detention Security Measures, which outlines the process of internment in forensic hospitals. Starting from 1978, 6 forensic hospitals survived, preserving the characteristics of both asylum and prison, and complying with social obligations for cure and custody.

Over the years, the discrepancies between the different treatments provided to patients who did not commit crimes, versus patients who did, gradually increased. The Forensic Psychiatry population was poorly studied with little epidemiological data available on quality of health care provided (3–5). The heavy use of custodial staff led to uneven observations of offending behaviors, and impeded the development of strategies to monitor and prevent them. A lack of constant cooperation with mental health community-based teams further weakened the therapeutic project.

Additionally, the lack application of, the geographic catchment principle, resulted in patients being treated far from their homes, relatives, and doctors. This led to deficient and unsatisfactory discharge programs due to the lack of social support and therapeutic planning.

The stagnation that the OPGs (forensic psychiatric hospitals) have experienced over the past decades, along with rare occasions of cooperation and collaboration with Mental Health Departments and Universities, partially set back the access to more recent acquisitions and practices.

However, on March 31st, 2015, the reform process concluded; two more years were necessary to complete the transition period but by February 2017, 569 inpatients had been admitted to REMS throughout Italy.

The entire therapeutic path of mentally ill offenders still remained under judiciary control, with Judges’ ruling both on its length and its development, as well as defining the level of intensive care required, and sentencing patients either to REMS or other residential settings according to a highly subjective interpretation of the legal indications.

To overcome any prolonged length of stay of patients within the forensic setting, the reform stated that the maximum length of the Detention Security Measure (i.e. the maximum internment in REMS) could not exceed the maximum detention provided by the Penal Code (i.e., the Italian Criminal Law) for that specific crime.

The introduction of temporal limits, along with community proximity and small-scale numbers, are all key features intended by the legislator to guarantee a therapeutic journey aimed at rehabilitation and social reintegration.

The REMS are small residences with a 20-person capacity. Here, mentally ill offenders undergo the same pharmacological and therapeutic approach as any other psychiatric patient, and where health care more than custodial necessities determines the nature of treatment.

As of July 2015, with the new allocation planned nationwide, the Lazio Region became the second largest forensic psychiatry center in Italy, with 81 beds and specific focus on violence risk assessment and management.

So far, Mental Health Departments in Lazio have had 110 forensic patients admitted since their implementation; the 1st REMS has been in Subiaco («Castor») in July 2015, then a second one in Palombara Sabina («Merope»), in Fall 2015, and a 3rd REMS has been established in Spring 2016 again in Palombara Sabina («Minerva»). The aim of our paper is to describe how the adoption of the Aggressive Incident Scale (AIS) along with the Forensic Version of Hamilton Anatomy of Risk Management (HARM-FV), as primary tools in violence risk assessment [6,7], have improved our daily practice guiding the evaluations within a team environment and granting a constant assessment of our rehabilitation program’s efficacy, monitoring and redirecting our therapeutic intervention.
Rehabilitation and risk assessment in REMS

As the new Law has clearly demanded, REMS facilities have been established with the specific aim of psychiatric treatment and rehabilitation. Consequently, REMS have been the first units in our Department to structurally employ Psychiatric Rehabilitation (PR) therapists and include PR interventions as an integral part of the treatment team and program.

Therefore the clinical assessment of forensic patients routinely consists of the following: 1) a mental status examination performed by a psychiatrist, 2) a psychological assessment undertaken by clinical psychologists using clinical examination and psychometric tools, 3) a psychosocial evaluation of social needs in terms of financial resources, family support and social inclusion by a social worker, 4) a functional assessment obtained through clinical examination; and functional scales and measurement by PR therapists. Measurements of psychopathology, personality traits, and level of functioning are regularly obtained through the Italian versions of internationally validated rating scales, tests, and interviews including: the Brief Psychiatric Rating Scale (BPRS) [8,9], the Minnesota Multiphasic Personality Inventory Ver. 2(MMPI-2) [10], the Millon Clinical Multi-axial Inventory 3rd Ed. (MCMI-III) [11], the Personality Inventory for DSM-5 (PID-5) [12], the Scale for Personal and Social Functioning (FPS) [13], and the Scale for Specific Level of Functioning (SLOF) [14,15]. Cognitive assessment is performed through the Wechsler Adult Intelligence Scale 4th Ed. (WAIS-IV) [16] and the Repeatable Battery for the Assessment of Neuropsychological Status Update (R-BANS) [17]; while specific psychopathological dimensions are addressed and measured by specific scales, tests or interviews, such as the Barratt Impulsiveness Scale (BIS-11) [18,19] for impulsiveness, the Columbia Scale for Suicidal (C-SSRS) [20] for suicidal behaviors, the Psychopathy Check List – Revised (PCL-R) [21] for psychopathy, and the HCR-20 V3 [22].

Concerning the assessment and management of the risk of violence, REMS have established the regular use of AIS and HARM-FV as new instruments for the whole Department of Mental Health since the outset, with possible future extension to other Community Services or Psychiatric Intensive Care Units.

The routine use of HARM-FV during the early phase of admission has demonstrated impressive usefulness in defining most of the treatment plans for violent and non-violent offenders. In fact, reporting and analyzing Current Risk Factors from the HARM-FV Present Section, makes it easy to underline which psychopathological conditions and behavioral problems are to be addressed first, and in which way. For instance, when Mood or Psychotic Symptoms are assessed as “severe” (“needing improvement” in the newer version), the physician has a clear indication for introducing or adjusting antipsychotic, or mood stabilizing pharmacological treatments. At the same time, when Impulse Control, Attitude/Cooperation or Anger Management (the last two being features of the newer version) are considered an issue in the current status of the offender, the treatment plan is oriented to include the patient in individual or group psychotherapy, or in Social Skills Training (SST) programs focused on anger management or cooperativeness.

REMS utilized multiple psychopharmacological interventions, most commonly being second generation antipsychotics and mood stabilizers. Adjunctive therapy to the pharmacological interventions included: individual and group psychotherapy, psychological interventions, and psycho-education. Specific focuses within these therapies included DBT for personality disorders, cognitive therapy for psychosis, and SST for better control of anger, impulsivity and violence. There was also a behavioral program in place to grant gradual access to privileges by virtue of constant rule adherence.
Effects of psychiatric rehabilitation on risk indexes

Since the implementation of the REMS, 46 patients have been admitted to REMS Castor, and 41 to REMS Meropa. (REMS Minerva has had 23 patients, but they were not included in this study). In this study, we only considered patients with a diagnosis of Schizophrenia Spectrum Disorder (DSM-5 criteria), including Schizoaffective Disorder, and treatment-resistant Schizophrenia, assessed according to Kane criteria [23, 24]. We did include the patients suffering from Antisocial Personality Disorder as a comorbid condition. Exclusion criteria were: the presence of DSM-5 diagnosed Moderate to Profound Intellectual Disability, or the presence of Antisocial Personality Disorder alone with no association with Disorders of the Schizophrenia Spectrum or other major psychiatric disorders. A further 3 patients were excluded because they did not complete the initial assessment period following transfer to other correctional or rehabilitation facilities on the order of judicial authority. At the end of the recruitment period, 80 patients were included in this study.

The evaluation of each current risk factor at baseline is reported in Table 1, where each degree of class according to the HARM scale (a 4-point Likert scale from none to severe) is expressed in terms of frequencies.

Evidently, some factors are considered more problematic in the forensic population at baseline, with more than 50% of patients presenting a “moderate” or “severe” risk (in red in Table 1). These results support clinical experience where it was observed that forensic patients are commonly unaware of their psychiatric conditions, frequently present comorbidly with substance abuse, often demonstrate scant participation in the rehab program in the beginning and most have inadequate social support, hampering the treatment plan.

Table 1 - Severity of HARM Risk Factors (RF) at baseline (n: 80)

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>None/Mild</th>
<th>Moderate/Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rule Adherence</td>
<td>21.25%</td>
<td>31.25%</td>
</tr>
<tr>
<td>Illness Insight</td>
<td>0.00%</td>
<td>13.75%</td>
</tr>
<tr>
<td>Mood Symptoms</td>
<td>17.50%</td>
<td>38.75%</td>
</tr>
<tr>
<td>Psychotic Symptoms</td>
<td>33.75%</td>
<td>23.75%</td>
</tr>
<tr>
<td>Social Support</td>
<td>13.75%</td>
<td>33.75%</td>
</tr>
<tr>
<td>Impulse Control</td>
<td>26.25%</td>
<td>30.00%</td>
</tr>
<tr>
<td>Program Participation</td>
<td>17.50%</td>
<td>32.50%</td>
</tr>
<tr>
<td>Substance Abuse</td>
<td>36.25%</td>
<td>27.50%</td>
</tr>
<tr>
<td>Med Non-Adherence</td>
<td>51.25%</td>
<td>20.00%</td>
</tr>
<tr>
<td>Antisocial Attitude</td>
<td>28.75%</td>
<td>27.50%</td>
</tr>
</tbody>
</table>

Aggregated frequencies >50% are reported in red

The early phase of the REMS intervention is focused on increasing Illness Insight through individual and group psychotherapy, as well as psycho-educational programs, as soon as the clinical acuteness has been sufficiently stabilized. Substance abuse is another key target of psycho-educational interventions, psychotherapy, and pharmacological anti-craving strategies. Individual and group therapy and social play activities, are oriented in granting greater inclusion and increase participation to rehab programs, as well as improving social competencies and attitudes. Finally, joint interventions with Community Mental Health Teams are proposed to enhance financial and social fragility. Figure 1, summarizes REMS intervention addressing specific Risk Factors of aggressive behaviours as conceptualized in the HARM-FV tool.

Of the 80 patients included in the study, 37 received consistent treatment for more
than 12 months. This completed the treatment sets created to target clinical needs, as determined by baseline evaluations, such as the HARM profile.

Clinical data from BPRS confirm the general trend of improvement after 12 months, as shown in Table 2, with a statistically significant mean difference in Total score (7.32), Negative Affect (1.46), Positive Symptoms (1.51), and Expanded affect (2.35).

Surprisingly, no significant improvement was reported for the Disorganization scale, whereas no significant worsening was reported for the Negative Symptoms scale. Matched pair t-test and Wilcoxon signed rank test were used in the JMP© 13.2 Software from SAS Institute Inc. to assess the statistical significance of the mean difference.

The summary of HARM re-evaluations at 12 months is represented in Table 3, where improvements from the baseline are also represented in terms of overall and paired differences from the total (n=80) or paired counterpart (n=37) at baseline, considering the frequency of moderate/severe attributions alone.

Statistical significance tests have also been performed in order to consider the frequencies of moderate/severe attributions that are different from the baseline, but no statistical significance has been demonstrated through the Chi-square and Fisher’s exact tests for categorical variables.

Despite the lack of statistical significance, there was an evident overall trend in improvement for all of the Risk Factors except Social Support. For the individuals that were scored moderate/severe risk, it is noted that 9 (out of 10) risk factors are reduced. The greatest improvement in terms of paired difference was found in Psychotic Symptoms and Substance Abuse (21.62%), Impulse Control, Program Participation and Mood Symptoms (-18.92%). The following factors reported a reduced frequency of moderate/severe risk evaluation: Antisocial attitude (16.22%), Illness Insight (-16.22%) and Rule Adherence (-13.51%) reported. Little to no improvement was found in Medication non-adherence and Social Support.

Figure 1 - Manual interventions performed in REMS addressing specific RF for violence

<table>
<thead>
<tr>
<th>HARM Risk Factor</th>
<th>Individual/ group interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illness Insight</td>
<td>Cognitive therapy for psychosis [25]</td>
</tr>
<tr>
<td>Medicine Non-Adherence</td>
<td>INTE.G.R.O. Psycho-educational program [26]</td>
</tr>
<tr>
<td>Program Participation</td>
<td>Group CBT [27]</td>
</tr>
<tr>
<td>Substance abuse</td>
<td>Individual DBT and Group Skills Training [28]</td>
</tr>
<tr>
<td>Impulse Control</td>
<td>SST for Schizophrenia [29]</td>
</tr>
</tbody>
</table>

Table 2 - BPRS total and subscales mean scores after 12 months of admission

<table>
<thead>
<tr>
<th></th>
<th>Total score</th>
<th>Disorganisation</th>
<th>Negative Affect</th>
<th>Positive Symptoms</th>
<th>Expanded Affect</th>
<th>Negative Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>63.46</td>
<td>9.84</td>
<td>15.65</td>
<td>12.78</td>
<td>9.70</td>
<td>7.43</td>
</tr>
<tr>
<td>12 months</td>
<td>56.14</td>
<td>8.76</td>
<td>14.19</td>
<td>11.27</td>
<td>7.35</td>
<td>7.54</td>
</tr>
<tr>
<td>Mean difference</td>
<td>7.32</td>
<td>1.08</td>
<td>1.46</td>
<td>1.51</td>
<td>2.35</td>
<td>-0.11</td>
</tr>
</tbody>
</table>

Figures in red are reported p-values <0.001
Frequency is a-e-ic-ility to social roles. In o-s-o-nced I
rucial in forensic patients, a
ni-t, indicates that even when treatment non the comorbid drug use and possible period severity of there is significant reduction in the global ivism. As pointed out by Table 2, although especially when connected with violent reci-divism. This can be done through the t-tors for violence relapse. The predictive validity of HARM has been ascertained to confirm the effective and crucial in o
reduction of psychiatric those factors playing a role of violence This may be explained by the comorbid drug use and possible period of treatment non-compliance and treatment-resistant Schizophrenia. Our study indicates that even when some symptoms persist, such as auditory hallucinations, delusions, disorganized speech, and no major clinical improvement is noted, their level of risk can nevertheless be assessed as reduced by the clinicians who consid-ered some risk factors as being managed on the HARM tool (Table 3).

At the 12-month follow up mark, clinicians generally tend to assess reduced severity for most of the HARM risk factors, especially those considered more problematic at the outset. Substance abuse and pro-gram participation reported an impressive reduction in those who scored severely or moderately at risk. Illness insight reduced the proportion of more critical patients to 72%, which still represents a critical issue for the majority of forensic patients. The aspect that is almost completely unaffect-ed by treatment is Social Support, one of the limitations of the REMS model. Indeed, the majority of interventions are more orien-ted to social inclusion in terms of in-creased sociality rather than greater social equality or accessibility to social roles. In practice, this means that many forensic patients who are clinically stable but eco-nomically fragile cannot directly access external vocational therapy programs or job training. This is a direct consequence of reform that has ensured stronger clinical attitudes, but less funding for increasing opportunities in a socially vulnerable con-text.

Our study model did not take into consid-eration the relative role played by specific

Discussion

The introduction of modern and scientific assessment tools for violence assessment and management in REMS has allowed psychiatric attitudes towards forensic pa-tients to change significantly, from a mainly custodial practice to a more clinical and predictive one, with focus on risk factors for violence relapse. The predictive validity of HARM has already been ascertained and demonstrated [7] across different cultures and countries [30]. However, in order to confirm the predictive validity of HARM in an Italian context, further research in Italy is needed to compare clinical assessment to follow-up data after discharge from REMS.

Our study shows that evaluating risk fac-tors for violence is effective and crucial in the treatment planning for a forensic unit. This can be done through a comprehen-sive toolbox of instruments that focus on those factors playing a role of violence recidivism in psychiatric offenders, such as the HARM. As a reduction of psychiatric symptoms is crucial in forensic patients, a specific focus of intervention is devoted to positive and disorganizing symptoms, especially when connected with violent recid-ivism. As pointed out by Table 2, although there is significant reduction in the global severity of symptomatology (BPRS total score), the reduction in positive symptoms remains subtle. This may be explained by the comorbid drug use and possible period of treatment non-compliance and treatment-resistant Schizophrenia. Our study indicates that even when some symptoms

Table 3 - Severity of HARM Risk Factors at 12 months and difference from baseline

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>None/Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>None/Mild</th>
<th>Moderate/Severe</th>
<th>Difference</th>
<th>Paired difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rule Adherence</td>
<td>27.03%</td>
<td>35.14%</td>
<td>24.32%</td>
<td>13.51%</td>
<td>62.16%</td>
<td>-7.16%</td>
<td>-13.51%</td>
</tr>
<tr>
<td>Illness Insight</td>
<td>5.41%</td>
<td>21.62%</td>
<td>40.54%</td>
<td>32.43%</td>
<td>27.03%</td>
<td>-13.26%</td>
<td>-16.22%</td>
</tr>
<tr>
<td>Mood Symptoms</td>
<td>18.92%</td>
<td>37.84%</td>
<td>29.73%</td>
<td>13.51%</td>
<td>56.76%</td>
<td>-5.51%</td>
<td>-18.92%</td>
</tr>
<tr>
<td>Psychotic Symptoms</td>
<td>40.54%</td>
<td>32.43%</td>
<td>10.81%</td>
<td>16.22%</td>
<td>72.97%</td>
<td>-17.97%</td>
<td>-21.62%</td>
</tr>
<tr>
<td>Social Support</td>
<td>16.22%</td>
<td>21.62%</td>
<td>32.43%</td>
<td>29.73%</td>
<td>37.84%</td>
<td>0.91%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Impulse Control</td>
<td>21.62%</td>
<td>48.65%</td>
<td>13.51%</td>
<td>16.22%</td>
<td>45.95%</td>
<td>10.81%</td>
<td>-18.92%</td>
</tr>
<tr>
<td>Program Participation</td>
<td>16.22%</td>
<td>43.24%</td>
<td>24.32%</td>
<td>16.22%</td>
<td>59.46%</td>
<td>-13.21%</td>
<td>-18.92%</td>
</tr>
<tr>
<td>Substance Abuse</td>
<td>32.43%</td>
<td>29.73%</td>
<td>32.43%</td>
<td>5.41%</td>
<td>62.16%</td>
<td>-17.16%</td>
<td>-21.62%</td>
</tr>
<tr>
<td>Med Non-Adherence</td>
<td>56.76%</td>
<td>27.03%</td>
<td>10.81%</td>
<td>5.41%</td>
<td>83.78%</td>
<td>-10.03%</td>
<td>-8.82%</td>
</tr>
<tr>
<td>Antisocial Attitude</td>
<td>21.62%</td>
<td>45.95%</td>
<td>21.62%</td>
<td>10.81%</td>
<td>67.57%</td>
<td>-8.82%</td>
<td>-16.22%</td>
</tr>
</tbody>
</table>

Figures in bold are considered more critical at baseline (moderate/severe frequency >50%). Red applies when moderate/severe frequency is still >50% at the 12-month follow-up, and green when it falls <50%.
interventions or by other clinical elements such as personality traits (antisocial or psychopathic for example) and impulsivity. Further research is needed to develop a more complex model in which personality profiles, impulsivity and likelihood of violence are examined within the setting of REMS interventions.

This is the first study in Italy to evaluate the role of the HARM assessment tool in a forensic context. Here we present preliminary results on the experience of forensic de-institutionalization and the introduction of the REMS model in Italy.

References


Conflict of Interest: none

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24. Kane J. Clozapine for the treatment-resistant schizophrenic: a double-blind comparison with chlorpromazine. *Arch Gen Psychiatry* 1988;45(9):789.


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