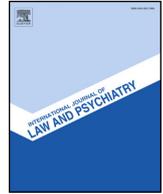




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Factors associated with referrals to high security forensic services among people with severe mental illness and receiving inpatient care in prison



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HIGHLIGHTS

- A mentally ill prisoner may be referred to a high security forensic services (HSFS).
- The aim was to identify predictors associated with admission to HSFS among a sample of male prisoners.
- Previous admission to HSFS, diagnosis of psychosis and cannabis use disorder were related to referral to HSFS.
- Diagnosis of personality disorder was inversely associated to referral to HSFS.
- Improving of interventions in preventing criminal recidivism and forensic admission should be considered.

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ABSTRACT

Background: Prison mental health care is a significant topic which has been already studied and described in literature, particularly because of important implications both in the prison and in the health care system. It's not uncommon that inmates suffering from mental disorders are referred to high security forensic services (HSFS) but, to date, studies assessing factors associated with relevant referrals to these services are missing. So, the aim of our study is to investigate socio-demographic, criminological, psychopathological and toxicological variables among those who were referred to HSFS as compared to their non-referred counterpart.

Methods: We conducted a cross-sectional study recruiting 159 subjects receiving prison inpatient care in an Italian jail, between January 2010 and August 2015. No subjects were excluded from the study. The mean age was 39.

Results: About half of included prisoners suffered from personality disorder while one-third from psychotic disorders. > 60% of the subjects had comorbid substance use disorders. The odds of being referred to HSFS were related to previous admission (odds ratio [OR] = 5.34, 95% confidence interval [CI] 1.66–17.16), diagnosis of psychosis (OR = 2.79, 95% CI 1.11–7.04) and cannabis use disorder (OR = 2.68, 95% CI 1.14–6.28). Personality disorder was inversely associated to the referral to forensic facilities (OR = 0.37, 95% CI 0.14–0.97).

Conclusions: Mental health services should improve preventive measures for vulnerable prisoners in order to reduce criminal recidivism and forensic readmission.

1. Introduction

1.1. Background

Over the past years, several studies have reported high rates of mental illness among inmates, particularly psychosis, major affective

disorders and personality disorders in comorbidity with substance misuse, i.e., “dual diagnosis”. (Hawthorne et al., 2012; Blaauw et al., 2016). A significant association between mental disorder and criminal offending has been consistently demonstrated (Fazel & Seewald, 2012) as well as higher criminal recidivism in mentally ill people (van der Put, Creemers, & Hoeve, 2014). Some variables as male gender, younger

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age, low socio-economic status, antisocial personality disorder, drug addiction and psychiatric hospitalizations have been associated with an increased risk of multiple incarcerations (Chang, Larsson, Lichtenstein, & Fazel, 2015). Moreover, inmates are at increased risk of suicide, self-harm and violence both inside and outside of prison (Fazel, Wolf, & Geddes, 2013; Fazel, Fimińska, Cocks, & Coid, 2016). Thus, in order to prevent and treat mental disorders, facilities for inpatient care have been increased in most prisons of high-income countries (Dressing & Salize, 2009; Giblin, Kelly, Kelly, Kennedy, & Mohan, 2012). However, prison mental health care often fails to provide adequate healthcare to all inmates because of severity of diagnoses and subject's vulnerability to the prison environment, leading to higher risk of violent behaviors (Fazel & Seewald, 2012). So, it's not uncommon that a prisoner suffering from mental disorders may be referred to a high security forensic services (HSFS) in order to address potentially effective interventions (Jakobowitz et al., 2017) and possibly reduce the risk of criminal recidivism (Hare Duke, Furtado, Guo, & Vollm, 2018).

1.2. The relationship between clinical and criminal variables with risk of rehospitalization among mentally ill prisoners

To date, a body of literature has described some demographic, clinical and criminal variables related to offending behaviour, the length of stay in forensic inpatient facilities and the risk of rehospitalization among mentally ill prisoners. The most important factors of a longer length of stay were found to be male gender, being not guilty for reason of insanity, severity of previous offence, history of absconding, seclusion during the admission (Senior et al., 2013; Davoren et al., 2015). The risk of rehospitalization, instead, has found to be higher in patients with a previous history of violence and a prior supervision failure (Green et al., 2014). It's noteworthy that, during the childhood, individuals develop some cognitive patterns related to themselves and the others, which lead behaviors and emotions throughout lifetime. So, early stressful events, including dysfunctional parenting care, may contribute to develop maladaptive schemas which might result, in the future, in conduct disorders and offending behavior (Pellerone, Craparo, & Tornabuoni, 2016). According to this perspective inmates, compared to non-offenders counterpart, appear to have more dysfunctional schemas regarding mistrust, fear of being abandoned, inclination to sacrifice for others, hypercriticalness towards themselves and the others. (Pellerone, Iacolino, Mannino, Formica, & Zabbara, 2017).

1.3. Objectives and hypotheses

To the best of our knowledge, there are no currently comprehensive descriptive data regarding characteristics of male prisoners referred to HSFS. We thus aimed to identify possible predictors associated to referral to forensic psychiatric services, i.e., cross-sectionally, among a sample of male prisoners, consecutively admitted to mental health facilities for inpatient care. Findings from this study could be important in developing management strategies for those subjects who are more likely to be sent to forensic services.

2. Methods

2.1. The Italian legal system

Since 2008 Italian Forensic system has gone through major changes about the management of psychiatric offenders. As a result of a series of legislative acts, the authority of prison health service gradually passed from the Ministry of Justice to the Ministry of Health with consequent reform of forensic psychiatric hospital and the institutions of new psychiatric forensic facilities exclusively operated by mental health services staff. (De Vito, 2014). Moreover, by the Article 112 (Decree of the President of Italian Republic n 230 of 2000) prisoners who are

suspected suffering from a mental illness should be referred to facilities for inpatient care of mentally disorder inmates, located in specific jails, to undergo an accurate mental health evaluation. Following the psychological and psychiatric assessment, Magistrate may decide if a prisoner is considered incompatible with the conditions of detention as affected from severe mental insanity (Article 148 of the Italian Penal Code and Article 111 Decree of the President of Italian Republic n 230 of 2000). So, the patient should be dismissed from the prison and referred to the HSFS or, less often, to other facilities for specific mental disorders, where he can have a more appropriate healthcare (Piselli et al., 2015).

2.2. Setting and study design

This is a cross-sectional study of consecutive male prisoners admitted to facility for inpatient care of mentally disordered inmates of Monza's jail (Mental Health Department of ASST Monza, Italy), between January 2010 and August 2015. All the prisoners admitted during this period were recruited and included in our study. They all were under 65 years old and nobody was excluded. Inmates were under psychiatrist evaluation and treatment, psychological evaluation and substance use evaluation and treatment for up to thirty days.

2.3. Measures

All data were anonymously and retrospectively collected and registered in an appropriate dataset, not allowing patient identification. Demographic (age, home country), criminal (type of offences, previous incarcerations), clinical (anamnesic access to mental health care, history of self-harm and suicide attempts, current diagnosis of mental disorder) and toxicological characteristics were retrospectively collected. Demographic and clinical information were collected from prisoner's medical record. According to the DSM IV TR criteria, final psychiatric diagnosis included schizophrenia and other psychosis, personality disorders, bipolar and major depressive disorder and learning disabilities. Information on index offence were extracted from official criminal files. Toxicological characteristics were collected by prison's specialist drug and alcohol dependence treatment service. The outcome (referral to HSFS - "positive outcome"- or readmission into original prison - "negative outcome") was also obtained from the clinical records.

The present study was approved by Italian Minister of Justice.

2.4. Data analysis

Statistical analyses were conducted using Stata Version 13.1 SE. Sample characteristics were summarized using mean and standard deviation (SD) for continuous variables, and frequency and percentage for categorical variables. First, we carried out univariate analysis in order to detect relevant variables associated to referral to HSFS. The normality of continuous data was verified by using Shapiro-Wilk's test. According to this assumption, Student's *t*-test was used or, in alternative, non-parametric Wilcoxon-Mann-Whitney test using for unequal variances the Welch's approximation for degrees of freedom. The categorical variables were analysed via the chi-square or Fisher's Exact tests. Finally, we carried out logistic regression evaluating the effect of clinically and significantly ($p < .05$) relevant covariates to HSFS. For subjects with multiple admissions we used data from the most recent one.

3. Results

A total of 159 male inmates were admitted during the time of the study. Among them, 127 subjects (79.8%) suffered from a mental disorder, including 46 with psychoses, 26 with mood disorders, 47 with personality disorders and 8 with learning disabilities. 46% of subjects

Table 1
Socio-demographic, criminological, clinical and toxicological characteristics.

	Total N = 159	Negative outcome N = 98	Positive outcome N = 61	P
	N (%)	N (%)	N (%)	
Age, years (mean, SD)	37 (11)	38 (11)	35 (11)	ns ^a
Home Country				
Italy	88 (55)	53 (54)	35 (57)	
North-Africa	38 (24)	28 (29)	10 (16)	
Other	33 (21)	17 (17)	16 (26)	ns ^b
Crimes ^c				
Against property	48 (31)	26 (27)	22 (37)	
Against person	31 (20)	17 (18)	14 (23)	
Drug-related	24 (15)	15 (16)	9 (15)	
Sexual related	12 (8)	9 (9)	3 (5)	
Family	7 (4)	5 (5)	2 (3)	
Other	34 (22)	24 (25)	10 (17)	ns ^b
Past incarcerations ^c	30 (41)	18 (40)	12 (41)	ns ^b
Clinical ^c				
Neuropsychiatry outpatient services	11 (7)	3 (3)	8 (13)	0.023 ^b
Outpatient mental health services	57 (36)	29 (30)	28 (46)	0.037 ^b
Past admission to HSFS	19 (12)	6 (6)	13 (21)	< 0.01 ^b
Mental ill facilities in prison	25 (16)	14 (14)	11 (18)	ns ^b
Self-harms and suicide lifetime attempts ^c	84 (53)	50 (51)	34 (56)	ns ^b
Schizophrenia and other psychoses	46 (29)	20 (20)	26 (43)	< 0.01 ^b
Mood disorders	26 (16)	16 (16)	10 (16)	ns ^b
Personality disorders	47 (30)	37 (38)	10 (16)	< 0.01 ^b
Learning disabilities	8 (5)	4 (4)	4 (7)	ns ^b
Drug lifetime abuse ^c				
Alcohol	53 (33)	28 (29)	25 (41)	ns
Cannabis	48 (30)	22 (22)	26 (43)	< 0.01 ^b
Cocaine	72 (45)	42 (43)	30 (49)	ns ^b
Opioids	38 (24)	23 (23)	15 (25)	ns ^b
Amphetamines	5 (3)	1(1)	4 (7)	ns ^b
Prescription Drugs	9 (6)	6 (6)	3 (5)	ns ^b
Any substance use disorder	96 (60)	54 (55)	42 (69)	ns ^b
Polysubstance dependence	73 (46)	40 (41)	33 (54)	ns ^b

SD = standard deviation; HSFS = high security forensic services.

^a Student's *t*-test.

^b Pearson's χ^2 tests d.f. = 1.

* Sample size varied due to missing data.

were polysubstance users and cocaine was the most frequent misused substance. Most subjects were at the first experience of incarceration. Occurrence of life-time self-harm or suicide attempts was found in 53% of the sample, 19 prisoners had already been admitted to HSFS (Table 1).

Table 1 shows the association of several variables at univariate level with the referral to HSFS. No statistical differences were observed between the two groups regarding to sociodemographic and criminological variables. Prisoners with previous neuropsychiatric treatments and access to adult mental health services were more likely to have a positive outcome as well as those with previous admission to HSFS. Diagnosis of psychosis was related to higher likelihood of referral to forensic services, while prisoners suffering from a personality disorder were less likely to have a positive outcome. However self-harms or suicide attempts had no influence on being referred to HSFS. Mentally ill prisoners using cannabis were more likely to be referred to HSFS.

Finally, we fitted a logistic regression model to analyse the effect on the outcome of statistically and clinically significant variables from previous univariate analysis. Adjusted odds ratios (OR), 95% confidence intervals (CI), are shown in Table 2. Previous admission to HSFS showed higher odds of new referral to HSFS. Diagnosis of psychotic

Table 2

Logistic regression model for statistically and clinically significant variables in univariate analysis.

Referral to HSFS	OR (95% CI)	P
Age	0.98 (0.94–1.02)	0.248
Neuropsychiatry outpatient services	3.36 (0.62–18.2)	0.160
Outpatient mental health services	1.54 (0.70–3.40)	0.282
Past admission to HSFS	5.34 (1.66–17.16)	0.010
Self-harms and suicide lifetime attempts	1.41 (0.60–3.28)	0.429
Schizophrenia and other psychoses	2.79 (1.11–7.04)	0.030
Personality disorders	0.37 (0.14–0.97)	0.043
Cannabis (lifetime abuse)	2.68 (1.14–6.28)	0.023

Abbreviations: HSFS = high security forensic services, OR = odds ratio; CI = confidence interval

Individual with missing values have been excluded from analyses.

disorders and cannabis use disorder showed a moderate effect on the outcome. Conversely, diagnosis of personality disorder was inversely related to referral to HSFS.

4. Discussion

4.1. Main findings

The present study aimed to identify variables which may predict the referral to HSFS in a sample of male offenders, consecutively admitted to mental health facilities for inpatient care. We explored the role of sociodemographic, criminological, clinical and toxicological characteristics, finding out two major results. First, personality and psychotic disorders were the most common diagnosis of our sample. Psychotic disorders had a significant effect on admission to forensic services, while an inverse correlation was found between the diagnosis of personality disorder and referral to HSFS. Psychosis among inmates is widespread and previous studies have underlined the relationship between psychosis and violence (Fazel & Yu, 2011). Many data reported psychosis as the majority of mental illness admitted to forensic facilities (Walsh et al., 2002; Andreason et al., 2014). Moreover, psychotic patients are more likely to have a longer stay in forensic hospital (O'Neill et al., 2016), and to fail on conditional release (Mungano-Mire, Coffman, Deland, Thompson Jr, & Myers, 2014). Compared to psychosis, the association between personality disorder and the referral to forensic services is poorly studied in literature. Personality disorder was not frequently found as diagnosis of admission to forensic facilities (Coid, Kahtan, Gault, & Jarman, 1999) neither with comorbid substance abuse disorder (Fazel, Hayes, Bartellas, Clerici, & Trestman, 2016).

Second, we found that a history of previous forensic hospitalizations was related to a new admittance. Our result contrasts with a meta-analysis of Fazel, Wolf, Fimińska, and Larsson (2016) showing a lower rate of offence among discharged patients from forensic psychiatric services. However, in this meta-analysis the rates of readmission to secure psychiatric hospitals varied significantly, according to different mental health legislation across several countries while other studies 'did not distinguish referral to forensic psychiatric hospital from the general one (Bernardo & Forchuk, 2001), making difficult any specific conclusions. Many studies have pointed out the risk of criminal recidivism among released prisoners with mental illness (Baillargeon, Binswanger, Penn, Williams, & Murray, 2009; Hawthorne et al., 2012). In particular individuals with psychosis are associated with a higher risk of reoffending and readmission to forensic facilities (Parker, 2004; Vitacco, Vauter, Erickson, & Ragatz, 2014), while mixed results were found considering other mental disorders (Marshall, Vitacco, Read, & Harway, 2014; Coid et al., 2015). Notably, in our sample, high percentage of comorbid substance abuse disorder was detectable. Previous studies reported an increased risk of criminal recidivism, (Grann,

Danesh, & Fazel, 2008) particularly related to a higher substance abuse prior to incarceration (Håkansson & Berglund, 2012; Pickard & Fazel, 2013). In the present study we found that the only substance associated with statistically significant risk of referral to HSFS was cannabis, although polyabuse was found in almost half of the sample. Many studies have documented that cannabis use increases longitudinally the likelihood of long-lasting of psychosis, (Radhakrishnan, Wilkinson, & D'Souza, 2014) not only among population-based cohorts, but also in offender population after release from prison (Rognli, Berge, Håkansson, & Bramness, 2015). Moreover, cannabis is strongly related to violent behavior prior and after a psychiatric discharge (Dugré, Dellazizzo, Giguère, Potvin, & Dumais, 2017). So, we cannot exclude the role of cannabis in offending recidivism and consequently in readmission to forensic facilities, especially among subjects vulnerable for psychosis.

4.2. Limitations

We acknowledge several limitations. First of all, our study could be affected by information bias. Diagnosis of mental disorders were made by a team of different psychiatrists, leading to possible interviewer bias. Moreover, self-reported data by prisoners about some variables like substances misuse and self-harms or suicide attempts outside the prison, may have been unreliable and fragmented. Further, prisoners, especially with personality disorders, can falsify the data to obtain some advantages (Kirkpatrick et al., 2007). Secondly, we could not consider variables as number of past incarcerations, non-compliance to pharmacological treatment, mental health and substance use specialist services and residential area, which affect the forensic admission (Marshall et al., 2014). Thirdly, the size of the sample is a further limitation, in terms of power of our study and interactions between variables. We restricted the sample to inmates referring to mental health facilities of prison but many offenders are admitted to forensic services directly from original prison, community or inpatient psychiatric unit (Coid et al., 2015). Fourth, according to the Italian legal system, it's possible that some prisoners with positive outcome were not referred to HSFS but to other residential facilities for mental disorders. So the percentage of individuals referred to HSFS could be overestimated. Finally, limitations regarding the cross sectional design in terms of temporal relationship and causality, should be obviously considered.

5. Conclusions

Despite some limitations, the current study underlines the presence of predictive factors related to the admission to forensic facilities. Diagnosis of psychotic disorders, cannabis use disorder and previous admission could play an important role in referring to HSFS, while personality disorder is associated with a lower probability. These findings suggest that services of mental health should improve interventions inside and outside the prison environment, in order to prevent criminal recidivism and forensic admission in most vulnerable subjects. Research should concentrate on recognition of mentally ill offenders at higher risk of recidivism and develops new measures to improve compliance with mental health services. Additional studies are necessary to confirm these results.

Conflict of interest

All authors report no financial or personal relationships with other people or organizations that could inappropriately influence this work.

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