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ORIGINAL ARTICLE

# Leaving this world: investigation on self-injurious and suicidal behavior in the correctional facilities of Puglia and Basilicata, Italy

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## ABSTRACT

BACKGROUND: Our research stems from an eloquent fact: in Italy, detainees commit suicide or self-injury between 9 and 21-fold more frequently than the free population. Suicide and deliberate self-harm are the most common forms of death within detention facilities. A better knowledge of how inmates commit suicide, suicide attempts and self-injury can help operators to develop preventive projects. Moreover, data and reflections upon these phenomena can be used as support for judiciary and social-health operators; they are often the first to cope with these phenomena within penitentiary facilities, and need to adapt their work to insufficient resources when facing this delicate problem.

METHODS: Data were collected through a "Suicide risk assessment form" extrapolated from 88 files on inmates held at the penitentiaries of Trani, Foggia, Matera and the Psychiatry inmates Section of the A.O.U. Policlinico of Bari. Data collected relate to personal data, mental and physical health status and committing suicide attempts (SA) and non-suicidal self-injury acts (NSSI acts).

RESULTS: Data showed that asphyxiation was the method most commonly used for suicide attempts (55%), while wounds inflicted with sharp, cutting weapons were the means most widely used for committing non-suicidal self-injury acts (25%). Concerning mental health status, 81% of our sample have a psychiatric diagnosis. This suggests that psychiatric disorders are an important risk factor for self-inflicted aggressiveness.

CONCLUSIONS: The wide variety of methods used indicates the need to restructure prison spaces and environments to reduce the risk of these phenomena.

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KEY WORDS: Suicide; Attempted suicide; Self-injurious behavior; Prisons.

Self-inflicted aggressive acts in prison have various peculiarities requiring multidisciplinary analysis. Detainees live in contexts with high levels of bio-psycho-social vulnerabilities, that exponentially increase suicidal and self-harm behaviors as paradoxical expressions of freedom and self-control.[1]

A better understanding of these phenomena could help to transform prison environments into a form that respects detainees' dignity as human

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beings and makes their path of resocialization and social reintegration feasible.[2]

Data in literature showed that suicide rates within penitentiary facilities were significantly and globally higher than in the free population.[3, 4]

Fazel *et al.* found that male prisoners commit suicide 4-6 times more frequently than the free population, and female prisoners 20 times more than the free population.[5-7]

Suicides numbers in prison were higher in northern European countries (except for Denmark), where suicides were more than 100 per 100,000 detainees, also in France and Belgium. Australia and the USA had suicide rates ranging from 23 to 67 per 100,000 detainees.[7]

During the last decade, in Italy, suicide rates in detention have increased. In 2014 the prisoners' suicide mortality rate was 7.5/10,000 inmates, 11 times higher than in the same year in the rest of the Italian free population, *i.e*. 0.68 per 10,000 residents.[8]

This trend remained stable in 2015 and 2016, while in 2017 this rate rose to 8.4/10,000 detainees. In 2018, the suicide rate in prison was 10.4/10,000.[9, 10] The analysis of suicide attempts (SA) also showed an increase, going from 930 SA recorded in 2014 to 1197 SA in 2018.[9]

Self-aggressive behaviors also include non-suicidal self-injury (NSSI) behaviors, being all those actions that directly and intentionally cause personal bodily injury. These actions can be aimed at reducing negative emotions, self-punishment and/or at resolving interpersonal difficulties, paradoxically inducing a state of well-being and immediate relief. What differentiates suicidal behavior from an act of self-harm is mainly the purpose: in self-harm acts the intention to take one's own life is completely absent. Other differences are the motivation that leads to the behavior either suicidal or self-harm, and the frequency and the lethality of the methods used.[11]

Internationally, even NSSI acts rates within prisons were higher than in the free population as stressed by Dixon-Gordon *et al.* in 2012. According to their studies, 30% of inmates committed NSSI acts at least once during detention.[12] Hawton *et al.* highlighted the fact that about 6% of the male prison population and about 22% of female detainees committed self-injury behaviors every year. The rate of self-harm gestures in the female population was 10 times higher than in the male population. In both sexes, however, the trend towards self-harm was associated with young age, ethnicity, life imprisonment or lack of a final sentence. Moreover, for women, having committed a violent crime against the person and, for men, being imprisoned in maximum security prisons could be major risk factors.[13]

Penitentiary general situation in Italy remained stable. In fact, from the analyses carried out by *Ristretti Orizzonti* (the journal of the prison of Padua and of the Giudecca Women's Correctional Facility in Venice) from 1990 to 2014, the rate of self-harm in prisons, compared with the average presence of prisoners during the year, showed a fairly stable trend, rising from 9.8% to 12%. The latest data on NSSI acts, on the other hand, rising from 7.5 episodes of NSSI acts out of 10,000 inmates in 2014 to 10.4 episodes per 10,000 inmates.[8, 9]

Data from the Italian Institute of Statistics (ISTAT) regarding the 2011-2013 period suggests that suicide is not always related to physical or mental diseases; these were present in 19% of cases, whereas 81% of suicides were not affected by any particular disease. The analysis showed that 13% were affected by mental diseases (mostly anxiety disorder and depression), while 5.7% were affected by physical disease.[14]

What emerged was that the suicidal phenomenon was not caused exclusively by psychiatric disease. In fact, suicidal behaviors resulted from multiple interactions among genetic, psychosocial, biological, individual, cultural and environmental factors. Depression, alcohol abuse, unemployment, indebtedness and social inequality rates had a strong impact on suicidal behaviors.[15]

Recent ISTAT data showed that in Italy, in 2015, 3935 suicides occurred in the general population, 3065 of which were committed by men and 870 by women.[14] ISTAT data from 2012 showed that, for both males and females, the methods most commonly used for making the extreme gesture were hanging and suffocation (N.=1966), followed by precipitation (N.=777), in both healthy and clinical subjects. The age groups between 35-64 years old and over 65 years old were the most affected.[16, 17]

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Instead, among detainees, the method most commonly used was hanging[18] up to 82% of cases, followed by gas inhalation, medication poisoning and suffocation.[19]

Hayes in her study stressed that in 93% of prisoners the method of choice for committing suicide was asphyxiation caused by hanging, 2/3 using sheets and 16% of cases using clothes. In the same study there were differences between district houses and detention facilities: in the former, clothing was used in 47% of cases and sheets in 33%; in the latter clothes were used only in 11% of cases and sheets in 71%. This study showed that even apparently harmless handholds can facilitate suicidal behaviors. In fact, in 30% of cases suicide by asphyxiation occurred with the help of bed bars and in 27% occurred using the bars of the cell or door; the ventilation grilles were used in 18% of cases.[20]

Particular attention was paid to the condition of drug addicts, who account for 25% of the inmate population, since prison administrations often tended to classify deaths from gas inhalation not as "suicide," but as overdoses to relieve drugs abstinence. Given this situation, it was difficult to draw a precise line between overdose, as an unintended outcome of gas inhalation and self-harm.[21]

As regards methods adopted for NSSI acts, gender differences were found between the male and female population: women appeared to be more inclined to engage in such behaviors and used self-cutting and blood-letting methods,[22] whereas men seemed to prefer methods such as hitting themselves and burning. Bresin and Schoenleber found that women used self-cutting, -burning, -scratching, -pinching, hair-pulling and interfering with healing wounds more frequently than men.[23]

Prison population data showed, however, that the main NSSI acts method was scratching (95.7%) or cutting (94.3%); other methods included banging the head (84.8%), scratching with fingernails (82.2%), opening wounds (81.3%) and inserting objects (70.9%).[24] The instruments most frequently used by prisoners to injure themselves were razor blades (3.6%) followed by the ingestion of detergent/soap (2.8%) or the use of various tools (12%).[24]

## Materials and methods

### Sample

Our sample consisted of 88 prisoners' files collected from the prison records of Trani, Foggia, Matera, and the prison ward of the Polyclinic Hospital of Bari. The collected files referred to the years 2014-2018. The sample consisted of 96.6% (N.=85) males and 3.4% (N.=3) females; 97.7% of the detainees were Italian. The total average age of the sample was 40.8 years. Data on marital status and working status are shown in Table I.

### Methods

The Suicide Risk Assessment Form devised by Prof. Francesco Ceraudo (penitentiary physician and former medical director of Correctional Facility of Pisa) was used to collect the data. For each prisoner's file the main parameters described below were taken into consideration.

Physical and psychiatric health status was analyzed, by considering:

- psychotic disorder;
- schizophrenia;
- bipolar disorder;
- depressive syndrome;
- panic disorder;
- generalized anxiety disorder;

TABLE I.—*Demographics of the sample.*

| Characteristics | Value |
|---|---|
| N. subjects | 88 |
| Mean age, years | 40.8 |
| Mean education, years | 7.8 |
| Nationality | |
| Italian | 74 (84.1%) |
| Foreign | 12 (13.6%) |
| Not specified | 2 (2.3%) |
| Previous employment status | |
| Employed | 15 (17.1%) |
| Self-employed | 10 (11.4%) |
| Unemployed | 39 (44.3%) |
| Retired | 2 (2.3%) |
| Disability pension | 2 (2.3%) |
| Not specified | 20 (22.7%) |
| Vital records | |
| Unmarried | 40 (45.5%) |
| Married/domestic partner | 25 (28.4%) |
| Divorced | 11 (12.5%) |
| Widower | 2 (2.3%) |
| Not specified | 10 (11.4%) |

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- adjustment disorder;
- substance use disorders;
- personality disorders;
- any other psychiatric disorder/organic disease.

For the epidemiologic analysis, we assessed suicide, SA, and NSSI acts.

With the Suicide Risk Assessment Form, we found the presence of:

- SA (1-2-3) and methods used;
- structured suicidal ideation level;
- self-injury threat;
- self-injury behavior and its description.

### Statistical analysis

The completed forms were loaded on a database built with Google Drive software and analyzed with Office Excel and Stata SE14 software.

Continuous variables were expressed as standard mean and standard deviation and range, categorical variables as proportions.

The prevalence of individual pathologies was expressed as a percentage and the 95% confidence interval (95% CI) was calculated for the prevalence of each individual pathology.

## Results

There were no completed suicides.

Statistical analysis showed that 79.6% (N.=71) of the subjects had a diagnosis of psychiatric, ongoing or previous pathology. Figure 1 illustrates the prevalence of psychiatric disease in the sample by specific disorder.

Substance abuse disorder was the most common disorder (47.7%, N.=42). Analyzing the comorbidity of substance abuse disorder with other disorders, it was found that of the 42 total subjects with the former, only 16.7% (N.=7) had only a substance abuse diagnosis, while 83.3% (N.=35) of substance addicts had at least one psychiatric diagnosis in comorbidity. Moreover, for 95.2% (N.=40) of prisoners with substance abuse disorders the substance they used was known. Data showed that 55.0% (N.=22) used drugs, 17.5% (N.=7) used alcohol, 5.0% (N.=2) used tobacco, 17.5% (N.=7) used a combination of alcohol and drugs, 2.5% (N.=1) used drugs and medicine, and 2.5% (N.=1) used alcohol, drugs and medicine.

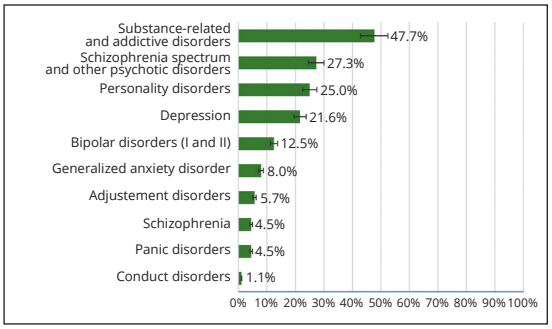


Figure 1.—Past and ongoing psychiatric pathology prevalence by single disorder.

Twenty-five percent (N.=23) of our sample had personality disorder. Of these, 54.4% (N.=12) had a borderline personality disorder, 13.6% (N.-3) a antisocial personality disorder, 13.6% (N.=1) a NAS personality disorder, 4.6% (N.=1) a narcissistic personality disorder, 4.6% (N.=1) a paranoid personality disorder, 4.6% (N.=1) a schizotypal personality disorder and

TABLE II.—*Prevalence of the diagnosis of psychiatric pathology (past or ongoing) for specific disorder.*

| Disorders | SchS | Sch | BP | Dep | GA | Pan | AdjD | SA | Pers |
|---|---|---|---|---|---|---|---|---|---|
| SchS | 5 (20.8%) | 4 (16%) | 5 (20%) | 5 (20%) | 2 (8%) | 1 (4%) | 1 (4%) | 12 (48%) | 8 (28%) |
| Sch | 4 (100%) | - | - | 1 (25%) | - | - | - | 3 (75%) | - |
| BP | 5 (45.5%) | - | 1 (9.1%) | - | - | - | - | 7 (63.6%) | 3 (27.3%) |
| Dep | 5 (26.32%) | 1 (5.26%) | - | 6 (31.6%) | 2 (10.5%) | 2 (10.5%) | 1 (5.26%) | 10 (53.6) | 5 (26.3%) |
| GA | 2 (25%) | - | - | 2 (25%) | - | - | - | 5 (62.5%) | 3 (50%) |
| Pan | 1 (25%) | - | - | 2 (50%) | - | - | - | 4 (100%) | - |
| AdjD | 1 (20%) | - | - | 1 (20%) | - | - | 3 (60%) | 1 (20%) | 1 (20%) |
| SA | 12 (28.6%) | 3 (7.1%) | 7 (16.7%) | 10 (21.4%) | 5 (11.9%) | 4 (9.5%) | 1 (2.4%) | 7 (16.7) | 15 (35.7%) |
| Pers | 8 (36.4%) | - | 3 (13.6%) | 5 (22.7%) | 3 (13.6%) | - | 1 (4.5%) | 15 (68.2) | 3 (13.6) |

61.9% of subjects have two or more comorbidities; 24% (N.=17) have three or more comorbidities.
SchS: schizophrenia spectrum disorder; Sch: schizophrenia; BP: bipolar disorder; Dep: depression; GA: generalized anxiety; Pan: panic disorder; AdjD: adjustment disorder; SA: substance abuse disorder; Pers: personality disorder.

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4.6% (N.=1) a borderline personality disorder in comorbidity with antisocial personality disorder.

An analysis was conducted on the general comorbidity of disorders (Table II).

In addition, 19.3% of the subjects suffered from multiple diseases, showing out that comorbidity levels are also consistent.

The analysis of SA showed that 46.6% of the total sample committed at least one serious SA; 65.9% of these two SA and, for 51.9%, at least three SA or more.

The methods most commonly used by the sample to commit SA are shown in Table III.

Distribution of suicidal ideation is shown in Table IV, both in inmates who attempted suicide at least once and in detainees who committed NSSI acts. In 85.4% (N.=35) of those who have attempted suicide at least once, the suicidal ideation is partially/totally structured.

Concerning NSSI acts, instead, 12.5% (N.=11) of subjects made at least one threat of NSSI acts, while 69.8% of the sample committed at least one self-harm behavior during detention. For 86.7% of them the method is known: a cutting blade injury wound was the method most frequently employed (N.=22; 25.0%; Figure 2). It should be specified that 23.1% (N.=12) of the subjects whose self-injury act was known have committed more than one NSSI act.

Overall, 94.3% of prisoners (N.=83) committed at least one attempted suicide and/or self-harm, while 5.7% went on hunger and thirst strikes (N.=5).

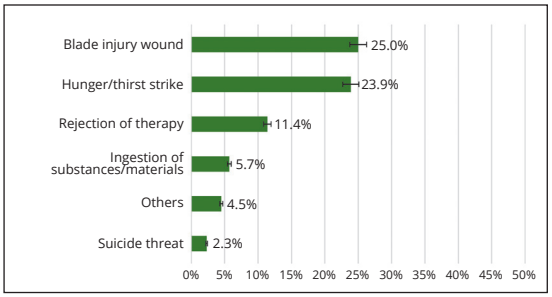


Figure 2.—Proportion of subjects whose modality of self-harm is known (N.=60), by method.

## Discussion

Data showed interesting differences in regard to the distribution of the mean age, based on the nationality of the subjects in relation to suicidal acts.

The mean age among foreigners committing SA and NSSI acts in our sample was, in fact, 31.25 years, far below the overall mean age; for the Italian-only group, however, the mean age was 43 years. This result was confirmed in a study by Bazzerla *et al.*, which examined the health of Italian prisoners in six regions (Veneto, Liguria, Tuscany, Umbria, Lazio, and Campania).[25] Their study of 15.751 prisoners found that the average age of the total sample was 39.6 years; specifically, 35 years for foreign inmates and 43.6 years for Italian inmates. The age at which SA and NSSI acts occurred most frequently, was between 18 and 29 years, when more than 70% of the critical events oc-

TABLE III.—*Proportion of subjects known to be SA, as adopted in individual attempts.*

| Methods | Attempt n.1 [a] | Attempt n.2 [b] | Attempt n.3 [c] |
|---|---|---|---|
| Asphyxiation (hanging, suffocation, inhalation) | 22 (55.0%) | 6 (27.3%) | 3 (33.3%) |
| Ingestion of substances/materials | 11 (27.5%) | 10 (45.5%) | 3 (33.3%) |
| Cutting blood vessels | 4 (10.0%) | 4 (18.2%) | 2 (22.2%) |
| Others | 3 (7.5%) | 2 (9.0%) | 1 (11.2%) |

[a] Known modality for 40/41 (97.6%) prisoners who have attempted suicide at least once.; [b] known modality for 22/27 (81.5%) prisoners who have attempted suicide at least twice; [c] 9/14 (64.3%) prisoners who have attempted suicide three times or more.

TABLE IV.—*Sample distribution, showing suicidal ideation structuring and attempted suicide at least once/not attempted.*

| Suicidal ideation | SA (N.=41) | No SA (N.=47) | Total (N.=88) |
|---|---|---|---|
| Not structured | 6 (14.6%) | 36 (76.6%) | 42 (47.7%) |
| Partially structured | 17 (41.5%) | 10 (21.3%) | 27 (30.7%) |
| Structured | 18 (43.9%) | 1 (2.1%) | 19 (21.6%) |

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curred, according to the authors of this analysis. It is necessary, however, to make a clarification. SA were much more frequent in male inmates aged 30-35, on the second conviction, and who had spent several years in prison. The SA can therefore be read as a result of particular motivations, linked to the loss of hope or to fear for the future. Self-harm gestures were more frequent among prisoners who had not been definitively convicted, as they are linked to a condition of insecurity and waiting.[26]

The most interesting data emerged from the analysis of the psychiatric disorders' prevalence in our sample, presented in 80% of prisoners. The high prevalence of mental disorders in prisons may be associated with the vulnerability of this population, but there are probably many other factors involved. Some studies have suggested that mental health problems precede imprisonment, while others argued that the prison experience may worse the already precarious mental health conditions.[27]

A mental disorder diagnosis was the most commonly detected disease within prison facilities. Fazel tested the prevalence of mental disorders in the inmate population, finding that psychotic disorders had a prevalence of 3.6% in men and 3.9% in women; as for depression, the prevalence was greater than 10.2% and 14.1% respectively; alcohol addiction disorders were found in 17-30% of men and 10-24% of women and substance abuse disorders in 10-48% and 30-60%, respectively.[28]

The distribution of mental disorders in our sample clearly showed that Substance Abuse Disorder was the most common (47.7%). This was followed by schizophrenia spectrum disorders (27.3%), personality disorders (23.9%), major depression (21.6%), bipolar disorder (12.5%), generalized anxiety disorder (8%), adaptation disorder (5.7%), panic disorder (4.5%) and schizophrenia (4.5%); about 63% (N.=44) of those diagnosed with psychiatric diseases had at least two comorbidities.

Our data showed a strong prevalence of substance abuse. Fazel estimated that the prevalence of alcohol abuse ranged from 18% to 30% in male inmates and 10% to 24% in female inmates. Drug abuse, on the other hand, ranged from 10% to 48% in males and 30% to 60% in women. The prevalence of substance addiction was almost 10 times higher than in the general population for men and was slightly higher as regards alcohol dependence. For incarcerated women, on the other hand, the prevalence was 2 to 4 times higher for alcohol addiction, while it was 13 times higher for substance addiction.[29]

An Italian study conducted by Macciò *et al.* compared the prevalence of mental disorders between inmates and free individuals, showing that 58.7% of inmates had at least one ongoing or previous psychiatric condition compared to 8.7% of the general population. Of these, about 70% were diagnosed with substance abuse disorder.[30]

The study by Bazzerla *et al.* showed that the overall prevalence of the disorder, calculated on a sample of 666 subjects, was around 83% of the mental disorders found, as confirmed by our results. Again, substance abuse disorder was the most common, accounting for 56.9% of the total psychiatric subjects.[25]

Data on the comorbidity of substance abuse disorders with other disorders were also crucial. In our sample, in fact, more than 80% of the subjects had at least one other psychiatric disorder in comorbidity. The most common comorbidity in our sample, together with substance abuse disorders, was with personality disorders (35.7%); followed by comorbidity with schizophrenia spectrum disorders and other psychotic disorders (28.6%) and with depression (21.4%). Data showed that only 16.7% of addicts had an exclusive diagnosis of Substance Abuse Disorders.

Schizophrenia spectrum disorders and other psychotic disorders were present in 27.3% of our total cases. A specific category was created for Schizophrenia, present in 4.5% of the total cases.

These data are in contrast with what was highlighted in the literature,[28, 31, 32] that estimated the prevalence of psychotic disorders at around 3.6% in male inmates and 3.9% in female inmates.[28] The Bazzerla *et al.* study also confirmed these trends; their study found that the prevalence of schizophrenia spectrum disorders was around 1% of the total number of inmates examined, while psychotic affective disorders were estimated at around 4.4%.[25] it should be considered, however, that both in-

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ternational data and national data relate to the total prison population, not specifically to those committing SA or NSSI acts.

Marzano *et al.*, in a study of a sample of female inmates who committed NSSI acts, found that about 22% of subjects had a psychotic disorder. The same study in a male sample found that the prevalence of psychotic disorders in individuals who committed NSSI acts was about 25%. Interestingly, the prevalence of disorders in the general population committing NSSI acts was about 7% in women and 2% in men.[33] Specifically for SA, data from the Rivlin *et al.* study showed that about 15.3% of subjects had psychotic disorders. In fact, the Authors pointed out that the peculiar characteristics of these inmates were the presence of a long history of SA and NSSI acts, a clinical history reporting several hospitalizations in psychiatric wards, a high incidence of comorbidity with other disorders, especially substance abuse disorder, and a tendency to criminal recidivism.[34]

In line with these results, in a study by Peas *et al.* conducted on a sample of 302 prisoners in Italy, about 10% of those diagnosed with a psychotic disorder had a structured suicidal ideation, while 5% of them had attempted suicide at least once.[32]

The prevalence of psychotic disorders in this work could therefore be a starting point for future developments, in order to try to understand why data on prisons in Puglia and Basilicata differed so much from data in the international literature.

Another disorder whose prevalence has emerged with greater importance is a personality disorder, present in 25% of total cases. Data from the 2001-2002 National Epidemiological Survey on Alcohol and Related Conditions estimated that, in the USA, about 15% of adults had at least one personality disorder.[35]

Fazel, in a review of the prevalence of disorders in prison, stated that the prevalence of personality disorders in prisons ranges from 7-10% in some studies[36, 37] up to 65%.[38] This discrepancy, continued the author, can presumably be attributed to the different diagnostic systems used and the presence of an antisocial personality disorder, generally the most commonly diagnosed in prison, since there was an overlap between diagnostic criteria for this specific disorder and the possible reasons underlying incarceration.[39]

A study by Jenkis *et al.* on the social and psychiatric aspects of suicidal behavior in prison showed a 14.8% prevalence of antisocial personality disorder in individuals with a structured suicidal ideation, while the prevalence of the disorder in comorbidity with another personality disorder was 51%.[40]

The prevalence of SA identified by the authors, on the other hand, referred to an antisocial disorder was 14% and rose to 52% when considering this disorder in comorbidity with other personality disorders.The analysis proposed by the authors, therefore, showed that people with psychiatric disease are at increased risk of committing NSSI acts.[40]

Italian studies of the personality disorders prevalence in SA and NSSI acts were lacking. One of the most recent studies showed that the prevalence of personality disorders was 14.6% in inmates who carried out NSSI acts, while for SA the prevalence was 16.2%.[25]

In an Italian study by Verdolini *et al.*, of a sample of 526 inmates, it was found that only 93 prisoners committed NSSI acts, of which 65.6% had a diagnosis of borderline disorder and 24.7% of antisocial disorder; 3.2% were diagnosed with narcissistic disorder, 6.5% were paranoid and 9.7% had schizotypal disorder.[41]

The comorbidity analysis on our sample showed that, exactly as confirmed in the literature, in 68.2% of cases personality disorders were present in comorbidity with substance abuse disorder, while 36.4% had a diagnosis in comorbidity with psychotic disorders.[39, 40] About 86.5% of our sample had at least one diagnosis in comorbidity with personality disorders.

Another interesting finding in this work was certainly the prevalence of depression and a generalized anxiety disorder, which were around 21.6% and 8%, respectively.

Fazel estimated that major depression had a prevalence of 10% in male inmates and 14% in female inmates, almost twice as high as in the general population.[39] Jekins found, however, that about 25.6% committed a SA.[40]

Almost all inmates experienced depressive moods or stress symptoms. Blaauw *et al.* showed

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that 89% of all inmates had depressive symptoms and that 74% had stress-related somatic symptoms.[42]

Bazzerla *et al.* found that the total anxiety disorders prevalence within the prisons examined was around 7%.[25] Macciò *et al.*, comparing the incidence of psychiatric disorders between the inmate population and the general population, highlighted that, in the former, anxiety disorders were present in 21.7% of cases.[30] Subjects with a generalized anxiety disorder, on the other hand, accounted for around 19%.[33, 40] Italian authors, on the other hand, by grouping generalized anxiety disorder within the cluster of neurotic disorders and adaptation reactions, highlighted that NSSI acts were carried out by 41.6% of detainees with this diagnosis.

Our data, especially those referred to anxiety disorders, were below the data collected in the national and international literature. The hypothesis could be advanced that prison is an institution where schizophrenia, depressive disorders and anxiety disorders could be more contained. There were four of 88 subjects with schizophrenia, 19 of 88 subjects with depression, while 8/88 had a Generalized Anxiety Disorder. It could be possible that continuous monitoring of particularly vulnerable people, an easier detection of depressive frameworks within the prison environment, taking medicines under the surveillance of nursing staff in the institutions and psychological and psychiatric treatments to which inmates always had access can contain the most violent behaviors.

As to the method used for NSSI acts, in our sample it was known for 68% of cases (N.=60). Our analysis showed that blade injury wounds (25%; N.=22) were the most common, immediately followed by hunger and thirst strikes (23.9%; N.=21). About 23.1% of those known were multiple NSSI acts.

A comparison was possible between the results of this study and those in the Bazzerla *et al.* study[25] and in the study conducted by Buffa *et al.*[43]

Bazzerla *et al.* identified the blade injury wound as the method most widely used for NSSI acts (59.7%), followed by ingestion of foreign bodies (15%), hunger strike (12.4%), self-provoked trauma (9.1%) and others (3.7%). Hunger strike seemed to be most common in men who often use this method as a protest against the prison administration.[25] The trend of our work also confirms this analysis.

Buffa *et al.* noted that the method most widely used was a cutting lesion (56.4%); other methods were used in 24.5% of cases and in 19.1% were not known.[43]

The Department of Prison Administration (2011) indicated as methods for NSSI acts the use of razor blades to obtain surface cuts, foreign bodies ingestion, stove gas used to stun inhalation and hunger and thirst strike.[26]

These results were confirmed in the literature, which clearly showed that hanging asphyxiation (about 85%), gas inhalation/intoxication (about 7%) and suffocation (about 3%) were the methods most frequently used.[25]

In our sample, among those who attempted suicide at least once, 43.9% of subjects presented structured suicidal ideation.

Suicidal ideation could be defined as the peculiar capacity to realistically plan. In general, "suicidal risk is high when intent is strong, a well-defined plan is described, and the chosen methods are violent and irreversible".[44] Aggressiveness, anger, violence towards others, lack of hope, impulsiveness, anxiety, panic attacks, anhedonia, insomnia were considered as psychiatric signs of a structured suicidal ideation.

This discussion of our results demonstrates that the implementation of SA and NSSI acts was multicausal and multifactorial. Despite the complexity of these phenomena, there could be a simple explanation: inmates use their bodies to express discomfort or to ask for help. The body, therefore, is taken hostage by the prisoners themselves being used as a distorted means of communication.

### Limitations of the study

Some points must be made regarding our sample. The files analyzed in the prisons of Matera, Trani, and Foggia referred exclusively to the events that took place in the years 2017-2018 and it was therefore difficult to trace the subjects' clinical and self-harm history. Furthermore, since the institutions we approached did not have a comput-

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erized storage system, it was difficult to analyze and trace all the records of detainees with histories of NSSI acts and TS; therefore only the most striking and strong impact cases were provided.

In addition, almost one-third of the reference sample (N.=25) was drawn from the prison ward of the Polyclinic Hospital of Bari, where the observation of acute psychotic disease was more usual and easier to detect and could therefore provide an explanation for the high prevalence of schizophrenia spectrum disorders.

## Conclusions

Within the prison context, as Buffa pointed out, "aggression is regarded as a differentiated response to states of deep discomfort by those with insufficient and distorted coping abilities."[43].

In our investigation, we observed that the most seemingly innocuous objects could be turned into lethal means in prison environments. Rejection of pharmaceutical therapy can also be used as a suicidal behavior and self-harm means.

Psychiatric conditions may expose inmates to a higher SA and NSSI acts risk, but were not the only precipitating factor for these phenomena.

The essential step, however, remains to train prison staff as well as possible, and to provide them with adequate psychological and technical assistance to manage these extremely complex phenomena. In addition, a restructuring of the physical, architectural and structural environment of prisons should be promoted in order to better deal with these phenomena.

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