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Assessment of suicide and self-harm risk in foreign offenders. Evaluating the use of tree-drawing test

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Abstract

Background: Among foreigners, imprisonment is a potential traumatic event characterized by further afflictions due to language difficulties and cultural differences. For these reasons, the psychological diagnosis with this prison population, appears complicated and misleading, despite their tendency to engage in self-harm and suicidal behavior. However, an early and correct diagnosis process is at the core of prevention and reduction of suicides and self-harm. The clinical interview and specific rating scales are inefficient to achieve the diagnosis in foreign subjects because of poor education levels, linguistic barriers and cultural differences. The aim of this study is to explore the efficacy of the Tree-drawing test (Koch, 1958) evaluating the risk factors for suicide and self-harm.

Methods: We administered to 100 inmates (34 Italians; 66 foreigners) of an Italian prison the Tree-drawing test in order to establish its effectiveness in identifying the subjects most at risk for suicide and self-harm. After developing a numerical score associated to the tree-drawing test we performed descriptive statistics and a binary logistic regression analysis to test the hypothesis.

Results: The analysis, supported by the software SPSS, revealed how the Tree-drawing test is sensitive for identifying individuals with vulnerabilities compatible with the risk of self-harm.

Conclusions: Our results represent a first step in guiding the choice of the most suitable tools to support self-harming and suicide risk assessment in foreign offenders.

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1. Introduction

The phenomenon of globalization entails, among its various implications, that the percentage of foreigners in prison populations is also growing (Till et al., 2019). In Italy, statistics regularly published by the Ministry of Justice show a constant rise in the number of foreign offenders who currently number over 17,000 in a total population of more than 53,000 prisoners (33% of

the total) (Ministero della Giustizia, 2021). Thus, foreigners represent a significant subgroup of the overall prison population. In parallel with the growth of the foreign prison population, statistics also flag a rise in the phenomena of suicide and self-harm in national penitentiaries. In fact, the self-harming risk among foreigners is two times higher than for Italian offenders (Frangione et al., 2017; Preti & Cascio, 2006; Vinokur & Levine, 2019).

Suicide in prison is a problem that affects all countries (Kaba et al., 2014). It is well known that the rates of suicide among prisoners is significantly higher than for the general population (Marzano et al., 2011). From a meta-analysis of cross-country comparison conducted by Fazel and collaborators (2017) emerged that, on average, the rate of suicides is equal to 100 per 100,000 inmates. These percentages, compared to those of the general population, are three times higher for men and nine times higher for women. Therefore, the authors offer a picture of an elevated risk of suicide in prison, especially for females. Similar data were presented through the SPACE I report (2019).

In Italy in 2018, 67 confirmed suicides out of 148 deaths in prison were reported (45% of total deaths), increasing compared to 2017 (52/123, 42%). Such suicides were carried out by 39 (58% of the total) Italians and 28 (42%) foreigners. Among foreigners, the most prevalent nationalities were Moroccan (18% of total suicides) and Tunisian (10%). The suicides were carried out by hanging (57), inert gas asphyxiation (3), self-defenestration (3), fasting and dehydration (1), self-immolation (1) and wounding (1). The most frequently reported reasons were the concurrence of a psychiatric condition with the trauma of entering prison (Ristretti Orizzonti, 2021).

It is well known that the prevalence of poor mental health among prisoners is considerably higher than in the community (WHO, 2014). These disparities are further accentuated among foreigners whose psychological morbidities and vulnerabilities can be exacerbated by social and cultural isolation, lack of family support and significant legal and social-health related limitations (Barnoux & Wood, 2013; Till et al., 2019).

In a foreign person, imprisonment often impacts on a psychic system already challenged by migration, understood as a very important and potentially traumatic psychological event. Moreover, it can become an even more distressing experience due to linguistic difficulties and complexities around maintaining family ties (Ministero della Giustizia, 2016). There is evidence to support the idea that self-harming represents a way to cope with emotional distress or that it is the result of an emotional dysregulation (Pope, 2018). Thus, carrying out demonstrative self-harming acts represents the externalization of distress; in other words, it is a means of

communication used by subjects who are not able to appeal for their rights through institutional channels and who use their bodies as self-affirmation means and message (Associazione Antigone, 2018; Lohner & Konrad, 2007; Turati et al., 2018). Among the Italian context self-harm behavior seems to be most associated with the North African ethnicities (Castelpietra et al., 2018). People of such ethnicities are more likely to use their body as a mean expressing themselves due to cultural reasons.

In seeming contradiction with the phenomenon of increasing suicide cases, individual prisons seem to have undertaken some action in drawing up prevention protocols for suicide risk. The World Health Organization and the Italian Penitentiary Administration point to these protocols as the primary tools for preventing this phenomenon, but the rise in suicide cases reminds us of the complexity of the current reality (WHO, 2014).

Jail Screening Assessment Tool (JSAT) (Italian version edited by Ciappi, 2011) or the Beck Hopelessness Scale BHS (Italian version edited by Pompili et al., 2009), and the clinical interview are some of the instruments currently available to penitentiary psychologists; however, they are often not feasible for several reasons.

While assessment scales are reliable and valid for a great variety of psychological constructs, and many clinicians find them easy to use, they have several drawbacks (Packman et al., 2004): response bias and socially desirable answers, the possibility of different interpretations of labels associated with the response categories, the length of the questionnaire, which could tire the subject and induce him/her to respond inattentively, and linguistic and cultural difficulties (Wetzel & Greiff, 2018). The outcome of the interview can also be influenced by lack of compliance, linguistic barriers, as well as cultural differences and those related to educational level. Sometimes, taking a patient's history is difficult, if not impossible, and the psychological examination of the patient is limited to observing behaviors and non-verbal communication (Turati et al., 2018).

Against this background, projective and non-verbal tools could provide an alternative or an auxiliar diagnostic tool. Projective tests are personality tests designed to let a person respond to ambiguous stimuli, presumably revealing hidden emotions and internal conflicts. They are likewise characterized by a global approach to the appraisal of personality. Attention is focused on a composite picture of the whole personality, rather than on the measurement of separate traits. Considering the many limitations placed on clinical work in detention settings, the present study aimed to explore the applicability and validity of the Tree-drawing Test (TDT) (Koch,

1958) as useful non-verbal tool for identifying vulnerability factors associated with the risk of self-harm and suicide among foreign prisoners.

The TDT, belonging to the category of projective tests, is a diagnostic instrument for analyzing personality characteristics. It is often used for assessing personality in the developmental age. Its easiness of administration makes it a useful tool to express self-image and emotional states with relatively little resistance. TDT has been widely studied in schizophrenic patients showing a good capacity to distinguish pathological condition from normal condition (Maserati et al., 2015). There are extensive researches of tree drawing test in the psychological field which demonstrated that tree drawing has a good ability to distinguish between pathological condition and normal condition (Kan & Guangxing, 2008; Kaneda et al., 2010). Moreover, Gu et al. (2020) demonstrated that selected quantitative indexes from the tree-drawing test can be used as an auxiliary diagnostic tool to screen depressive disorders. Jaeger et al. (2017) proposed the tree-drawing test as a useful tool for studying a single case of melancholia and suicide attempt in childhood. Already used in Italian forensics field, it has proven to be valuable in cases of separation and divorce, mobbing, adoption, and gender identity disorder (Roberti, 2017).

However, among the international psychological literature, studies concerning the applicability and validity of the TDT on offenders are lacking.

The current study aims to set out to fill this gap trying to evaluate if TDT - so easy to administer even to foreign subjects - provides informative data that the psychologist can easily elaborate. In order to achieve this objective, we made a risk score based on the presence/absence of risk factors associated with anti-conservative behaviour and we hypothesized that scoring high on tree-drawing test increases the likelihood of self-harm within six months of entering prison.

2. Methods

The subjects were recruited and evaluated during their first 24-72 hours of detention in the prison where the study took place, as required by suicide prevention protocols. This study was approved by the management of the prison and its health department.

The study was carried out in two phases: an assessment performed at the time of the access into the prison and a follow-up six months later.

2.1 First phase

Sociodemographic (age, gender, nationality, occupation, marital status, and life conditions) and clinical data (self-harm/suicide ideation, active symptomatology, previous self-harm gestures or

suicide attempts, positive psychopathological patient history, historical risk factors, cognitive deficits) were collected through the anamnestic form and the clinical interview by the psychologists of the prison. The use of the anamnestic form made it possible to reduce the possibility of omissions and to assess all relevant factors considered as predictors of suicide and self-harm risk by the psychological literature.

All the subjects were then assessed individually by the prison psychologist using the Tree-drawing test.

To corroborate the proposal of a suicide and self-harm risk prevention model that involves the use of such tool, we explored its applicability and validity developing a numerical score based on literature that associated some test items to indicators of uneasiness, suicide and self-harm risk.

2.2 Second phase

Six months after the first phase, we proceeded to check the sample' clinical records to find out whether self-harm gestures, suicide attempts, or completed suicides had occurred.

2.3 Measure

2.3.1 Tree-drawing Test

TDT is a projective tool. One of its advantages is that it requires to perform a non-verbal task. Moreover, because the subjects are unlikely to understand what is being investigated during the task, it is difficult for them to distort the results on purpose.

Briefly, TDT involved subjects to draw a tree. A pencil and A4-size paper were given to the subjects. The paper was handed to each subject in a vertical orientation. The instruction for the TDT was simply: 'Please draw a tree'.

2.3.2 Subjects

100 subjects were included in this study (80 = males; 20 = females), recruited at the time of their access into a prison of northern Italy. The inclusion criteria were: (1) age ≥ 18 years old, no gender limits; (2) new prisoners selected during their first 24-72 hours of detention; (3) Italians or foreigners.

The participants provided their written informed consent to participate in this study. Data were processed anonymously, and privacy was respected.

Participants' mean age is 35 (SD = 9.27; range: 19 – 62 years).

The sample is composed by 34 inmates of Italian nationality and 66 foreigners. The latter come from: Morocco (N=22), Tunisia (N=13), Algeria (N=5), Egypt (N=5), Romania (N=7), Albania (N=2), Nigeria (N=2), Chile (N=1), Ecuador (N=1), The Philippines (N=2), Lebanon (N=1), Mauritania (N=1), Moldavia (N=1), Peru (N=1), Turkey (N=1) and Ukraine (N=1), for a total of 17 nationalities represented in the sample. All subjects are offenders who have received a final sentence.

2.4 Data analysis

In order to assess the adaptability and effectiveness of the TDT, we developed a scoring mode that provides a numerical score.

The scoring of the Tree-drawing Test was carried out according to the presence/absence of some of the items of the tree-drawing. The selection criteria of the items are based on the meaning associated with each one. As stated in the manual of the tree-drawing test (Koch, 1958), such items reflect some of the factors considered potentially predisposing people to suicide and self-harm, as described in literature for the clinical and general population. These factors are: a) desperation (Ballard et al*.,* 2016; Folk et al*.,* 2018; Rogers et al., 2016; WHO, 2007); b) anxiety (Butler et al. 2018; Saavedra & Lopez, 2015); c) impulsivity (Carli et al., 2010; Mann et al., 2009; Mc Girr et al*.,* 2008; Zouk et al., 2006); d) depressive symptoms (Butler et al., 2018; Folk et al., 2018); e) alienation (Appleby et al., 1996; De Risio & Sarchiapone, 2002; Folk et al., 2018; Kaslow et al*.,* 2005; Maris, 1997; Zouk et al., 2006); f) low self-esteem levels (Marzano et al*.,* 2011); g) violence (Blumenthal, 1988; Bourgeois, 1991; Pompili et al., 2006) ; h) hostility (Marzano et al., 2011); k) psychological turbulence (Folk et al*.,* 2018). The selected items belong to broader test categories: the tree's size; its position on the sheet of paper; the characteristics of the pen stroke; the trunk to crown size ratio; the roots; the base of the trunk; the trunk; the branches; the crown; decorative elements (for a more detailed description of the characteristics, see Koch, 1958).

Each selected item was associated to a different level of risk score (from 1 -low risk- to 5 point -high risk-) in line with available literature. Table 1 synthesizes the indicators (items of the tree-drawing), representational modalities (the way the item was drawn), psychological equivalent (the meaning attributed to the item's representational modality), and the assigned risk score.

Table 1. Categorization of the Tree-drawing's elements in self-harm risk score

INDICATORS		REPRESENTATIONAL MODALITIES	PSYCHOLOGICAL EQUIVALENT	SCORE
TREE SIZE	A	RELATIVELY SMALL	Detached subject on the emotional level	1
	B	SMALL	The ego is lacking, sense of inferiority	2
	C	LARGE	Hypertrophic ego, impositional subject	2
STROKE	A	EXAGGERATEDLY MARKED LINES	Aggressiveness, outbursts of anger	5
	B	DISCONTINUOUS PRESSURE	High degree of emotionality	3
	C	THIN LINES	Inner anxieties and fears	2
	D	BROKEN	Feeling of abandonment	3
POSITION	A	LOWER AREA	Insecurity/introversion	1
	B	LEFT AREA	Melancholic and distrustful temperament	4
	C	INNER/LEFT AREA	Inner fears and conflicts	3
SIZE RATIOS	A	ACCENTUATION LOWER PART (TRUNK>CROWN)	Instinctiveness	4
ROOTS	A	DOUBLE LINE	Primitiveness	3
	B	SINGLE LINE	Adherence to instincts and impulses	4
BASE of the TRUNK	A	RESTING ON THE LOWER EDGE OF THE PAGE	Immaturity/infantilism	1
	B	RESTING ON A FLOWERBED/HILL	Feeling of loneliness and abandonment	3
	C	ENLARGED ON THE LEFT	Inability to extricate oneself	2
TRUNK	A	TRUNK shaped like a T	Impulsivity	5
	B	DOTTED CONTOUR	Explosive and impulsive	5

	C	INDENTATIONS OR PROTUBERANCES	Feeling of inferiority or guilt	3
	D	MOTTLED SURFACE	Guilty feeling	4
BRANCHES	A	SINGLE BRANCH AT BOTTOM OF TRUNK	Unpredictable behaviour	5
	B	THICKENED TOWARD THE EXTREMITIES	Accentuated instinctive life	3
	C	OPEN TUBULARS	Violence	5
	D	OPEN TUBULARS, ARRANGED IN DISORDERLY FASHION (IN THE SPHERICAL CROWN)	Explosive temperament	5
	E	DISHARMONIOUS COORDINATION	Reactive	4
	F	REVERSED	Lack of self-control	5
	G	INTERRUPTION OF STROKES	Impulsivity	5
	H	SAWN OFF	Inferiority complex	3
	I	KNOT/EYE ON THE TRUNK	Regression/lack of something	1
	L	DISTINCTLY CENTRIFUGAL PATTERN	Aggressiveness	5
CROWN	A	RADIATING SPOKES WITH SINGLE STROKE BRANCHES	Absence of control	5
	B	WITH TANGLED LINES	Impulsivity/instinctiveness	5
	C	BLACKENED	Insecure/possibly depressed	4
	D	BENT IN THE WIND	Inner weakness	3
	E	FLATTENED	Inferiority complex/desperation	5
	F	WITH EMPTY SPACES	Sense of inferiority	2
DECORATIVE ELEMENTS	A	FALLING FRUIT/LEAVES/BRANCHES	Pain/suffering	2

We identified three level of total risk score: not at risk, 0 – 8 points (the drawings lack or have few items considered as risk factors); moderate risk, 9 – 16 points; elevated risk, ≥ 17 points, (the drawings present numerous risk elements). The choice to divide the total score into three level of risk and to set nine as the cut-off for determining situations of risk, depends on whether the Tree-drawing Test provides a complete picture of the subject's personality when considered in its entirety. Thus, the presence of one indicator by itself cannot be considered as an element of risk. The cut-off, while arbitrary, was defined on the basis of a pre-test run by the prison psychologist and performed on subjects (n = 15) who had already carried out self-harm gestures and who, at the time of the assessment, still had suicidal ideation.

Analyses of the Tree-drawing Test were performed on 87 pictures because 13 out of 100 subjects sampled did not take the test or drew an inappropriately shaped tree (e.g., anthropomorphized drawings of the tree like crown or trunk with human faces, etc. and trees shaped like a flower, which are not easy to interpret: these occur especially in children's drawings and in cases of cognitive deficit).

45 out of 87 participants (52%) obtained a total score categorized as "not at risk"; 34 out of 87 subjects (39%) obtained a total score indicating "moderate risk"; while 8 out of 87 subjects (9%) obtained a score indicating "elevated risk".

2.5 Follow-up

Six months after the administration of the tool, the clinical records of the participants involved in this study were checked to verify how many subjects had carried out a self-harm act during the period of detention under consideration. The clinical records of 18 participants reported a self-harm behavior (there were no cases of suicide). Of these, 16 were males and two females; 17 were foreigners, and one was Italian. The foreign nationalities represented were: Moroccan (7); Tunisian (7); Algerian (2); Romanian (1). The mean age of these subjects is 30.66 years (lower than the average age of the sample = 35 years).

Unfortunately, consultation of the prisoners' clinical records did not make it possible to distinguish the type of self-harm behavior carried out because of a lack of information.

3. Results

Descriptive statistical analyses and a binary logistic regression analysis were performed using SPSS v24.0 software.

The following data are extracted from the anamnestic form. Of the 100 subjects assessed at their initial detention, 3 people (3%) referred a clear suicidal intention; 20 people (20%) presented depressive symptoms; 9 people (9%) emotional lability; 2 people (2%) restlessness and exhibited disorganized or odd behavior. One individual presented psychotic symptoms; 46 out of 100 subjects (46%) claimed self-injurious behavior in the past. Of these, 69% (32/46) are foreigners and 31% (14/46) are Italians.

With regard to psychopathological history, most subjects (59%) are drug or alcohol dependent; have mood disorders (18%); impulse control disorder (13%); antisocial personality disorder (10%); borderline personality disorder (8%); psychosis (7%); adjustment disorder (6%) and PTSD (2%).

Lastly, 26 out of 100 participants were on their first imprisonment; 4 people had recently received traumatic news and 7 persons had a history of disciplinary sanctions or warnings for aggressive behavior.

Binary Logistic Regression Analysis

The logistic regression model (method: Step Wald) was tested on 87 subjects who completed the TDT in an appropriate manner. The dependent variable is dichotomous and refers to the "self-harm" (not carried out = 0; carried out = 1) verified 6 months after the assessment phase; the independent variables entered are 1. The quantitative risk score obtained from the analysis of the tree-drawing and 2. the age of subjects. The logistic regression equation was statistically significant ($R^2 = .531$; $X^2 = 32,366$; $p < .001$). In detail, we can say that the TDT score increases the logit by .367 for unit (see Table 2). We can also express the same relationships in terms of OR (= 1.443) so we can say that those who have a TDT higher score are nearly 1.5 times as likely to carry out a self-harm behavior as those who have a lower TDT score. The last two columns of the table 2 indicate the lower and upper limits of 95% CI which is 1.181 of a lower level and 1.763 at the upper level. Then, we can say that in our model there is a relationship between the TDT score and the likelihood of carrying out a self-harm behavior during the first six months of detention. For every 1-unit increases TDT score the odds of carrying out a self-harm behavior increased by about 44% (Wald (1) = 12,908; $p < .001$; OR = 1,443). In contrast, in our model, there is not any significant relationship between age and self-harm behavior (Wald (1) = 3,753; $p = .053$; OR = .893).

Table 2. Model parameters of the first Binary Logistic Regression of "carried out self-harm" versus "not-carried out self-harm", n = 87.

					95% CI for OR	
INCLUDED	*B (SE)*	Wald(df)	*p*	OR	Lower	Upper
TDT score	.367(.102)	12.908	.000**	1,443	1.181	1.763
age	-.113(.059)	3.753	.053	.893	.796	1.001

TDT = Tree-drawing test; ** = p < .001; OR = Odds Ratios; CI = Confidence Intervals

4. Discussions

The psychological diagnosis with foreigner prisoners is difficult and misleading because of language barriers and cultural differences, all the more it is so important for their tendency to engage in self-harm and suicidal behavior. According to the classification of the American Psychiatric Association (DSM-5), self-injury is being treated as separate nosologically entity, named Non-Suicidal Self-Injury (NSSI), and it is understood as one of the symptoms co-occurring with emotional and developmental disorders with several etiology or personal disorders. Despite the value of such classification, it doesn't fully fit with the penitentiary environment, because the situational peculiarities of this context are not considered.

Self-harm in prison is reasonably associated with sociodemographic, psychiatric, and criminological factors. Moreover, recent research (Favril et al., 2020) underline prison-specific environmental risk factors for self-harm included solitary confinement, disciplinary infractions, and experiencing sexual or physical victimization while in prison. Among sociodemographic risk factors Favril and colleagues (2020) mentioned age, gender, and permanent home without considering other important aspects connected to migration background and ethnicity.

The current Italian prison contexts are characterized by the growth of foreigners' prisoners that produces a multiethnic composition. Multi-ethnicity affects the quality of relationships and requires changes in interactions both between prisoners and between prisoners and prison staff. The neglecting of the relational dimension in prison is a topic currently lacking in literature despite its relevance both for prisoners and prison workers well-being (Sorge et al., 2021).

So that, a comprehensive sociodemographic factors assessment could orient the diagnosis process through the full consideration of a person symptoms and signs. In fact, an early and correct diagnosis process is at the core of prevention and reduction of suicides and self-harm. One or more assessment tools are also important during the diagnostic process. The clinical interview and specific rating scales are inefficient to achieve the diagnosis in foreign subjects because of poor education levels, linguistic barriers, and cultural differences.

The aim of the present study was to explore the applicability and validity of a projective and non-verbal tool - Tree-drawing Test (TDT, Koch, 1958) - for identifying vulnerability factors associated with the risk of self-harm and suicide among foreign prisoners. We chose to use a non-verbal tool because language can be a real barrier for foreign inmates (Gallez, 2018) and can represents a critical element in the relationship between foreigners and institutions. Due to language barrier and cultural differences their physical, psychological, emotional, or social needs struggle to be decoded. Moreover, Iversen et al. (2013) highlighted that poor language skills associated with an authoritarian prison system, might trigger off aggressive violence, anger and frustration between foreign inmates and prison officers.

Once defined the problem, the attitude of responsible professionals cannot be reduced to renunciation or resignation. Working with people requires the activation of all human and professional skills through which the problem can be solved.

Drawings are widely highlighted as useful tool both in assessment process and therapy (Oster & Gould Crone, 2004; Yu et al., 2016). For example, the tree drawing, similarly to the widely managed drawing of the human figure, provide information about the psychological, emotional, and mental health status of individuals performing the task. Specifically, the tree drawing represents the direct expression of the person's emotional and psychological sense of self, while the human figure drawing provides a more direct reflection of the person's sense of self (Becker-Weidman, 2020)

For these reasons, we proposed the use of the TDT as a support tool in the suicide risk assessment process of foreign inmates testing its predictability. According to the psychological literature, we identified some tree drawing traits which reflect most of the self-harming and suicide risk factors. Then, we developed a quantitative score, and we tested a logistic regression model in order to confirm or refute the hypothesis that score high on tree-drawing test increases the likelihood of self-harm within six months of entering prison. Our results allow us to underscore the efficacy of TDT in terms of predicting the risk of self-harm behavior in the prison environment. In our model low "age" not increases the likelihood of carrying out self-harm. This finding seems to contrast with a theoretical frame broadly supported in psychological literature according to which low age (< 30 years old) is one of the most important socio-demographic factors that influences self-harm behaviors in prison (Dixon-Gordon et al., 2012; Hawton et al., 2014; Lohner & Konrad, 2006; Sanchez et al., 2018).

Despite the psychological literature indicate the age (low) as an important risk factor for self-harming, in our model the whole consideration of the individual psychological and emotional

status through the tree drawing test allowed to detect more vulnerable inmates. Such results may suggest that the use of a comprehensive tool such as the tree drawing test could be more useful than the consideration of single items, such as the age of the people involved in the assessment process.

Lastly, through the consultation of the clinical records we found that in our sample self-harm is a phenomenon almost exclusively associated with foreigners. The nationalities most represented were Moroccan, Tunisian, and Algerian. In previous research (Buffa, 2008) it was highlighted that comparing a sample of Italians and foreigners' young adults' inmates, foreigners were most associated with self-harming behaviors. Moreover, Pietrantoni et al. (2010) found that according to perceptions of the prison workers such self-harming behaviours are most associated with prisoners of North African ethnicity.

Our results confirm the previous findings and the hypothesis that self-harming in prison is associated to North African ethnicities, but further studies would be necessary to confirm it and to better understand the cultural underlying factors explaining these behaviours so that could be considered as a normative modality to express some feelings (Turati et al., 2018).

5. Limitations

A number of limitations of our research should be considered. First, the number of subjects who carried out a self-harm behavior is tiny; thus, eventual future studies will have to bear in mind the necessity of using a larger sample in order to better detect the incidence of the self-harm phenomenon. Enlarging the sample will, moreover, make it possible to identify possible gender differences and to consider whether it is appropriate to have the same cut-offs for sexes, or whether they should be differentiated. The enlargement of the sample would also make it possible to evaluate the meaning of subjects' refusal to execute the tasks, either partially or completely.

Second, no cases of suicides were recorded during the six months considered, therefore no consideration could be given to this phenomenon. Moreover, due to systemic difficulties in recording self-harm events, it was not possible to distinguish between the various types of self-harm perpetrated by the participants in our study.

Third, we believe that it would be useful to postpone the follow-up to one year, to make it possible to obtain a broader spectrum evaluation.

Lastly, 13 out of 100 subjects refused to execute the TDT, or executed it in an inadequate manner. Among these, three individuals (23%) carried out a self-harm behavior during the following 6 months.

Data presented so far suggest to reflect on the meaning of the participants' refusal. We assume that an oppositional attitude can be associated to self-harm. Self-harm in prison is often not indicative of a real desire to end one's own suffering. People in prison frequently use the violent bodily form of protest, which is expressed by means of self-harm (Olmo, 2016).

Despite the above-mentioned limitations, the present study constitutes a first step toward the identification of tools able to support the risk assessment of self-harm in prison. Given the current prison composition, we believe that projective tools such as TDT allow us to approach the evaluation of people in prison in a simpler way. Further researches are needed to ensure that this tool can be considered appropriate as screening tool of people with psychological vulnerabilities and then decreases the rates of self-harm behavior among people in prison.

Conflict of Interest Statement

The authors declare that the research was conducted in the absence of any potential conflict of interest.

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