



Self-inflicted Injuries in The Forensic Pathology Department. Is there an Underlying Socio-psychopathological Terrain? (A Retrospective Study of 100 Cases)

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DOI: 10.31080/ASMS.2023.07.1567

Received: April 24, 2023

Published: May 04, 2023

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Abstract

Introduction: The complexity of self-inflicted injury behaviour hinders understanding of this phenomenon and the person's motive. Impulsivity is the most described risk factor (Ferraz., *et al.* 2009). Other socio-psychological factors are also described: anxiety-depressive disorders, history of physical or sexual abuse, parental relationship disorders, unemployment... etc. For some authors, this phenomenon represents a suicidal risk factor. In this perspective, ask whether these people practicing this act of self-harm present an associated psychopathological terrain. On the other hand, to ask whether this act constitutes a pathological element whose suicidal act is disguised. The question is then to assess the intentionality of these people with stigmata of self-harm in the forensic service and to look for possible social or psychological factors that can be contributed.

We will try to show that this act of self-harm is practiced to simulate aggression (a thoughtful act used as physical evidence to prosecute an alleged aggressor), or uncontrolled occurring against any thoughtful will.

Material and Method: We conducted a retrospective study analyzing the questionnaires of people with self-inflicted injuries at the medico-judicial consultation of the University Hospital of Sidi Bel Abbés (Algeria). This study ran from 01.03.2017 to 28.02.2019. Persons under the age of 18 and those with an inability to cooperate with the questionnaire were eliminated.

Impulsivity was measured by La Barratt Impulsiveness Scale version 11 (BIS-11; Patton., *et al.* 1995). We translated and validated it in a version adapted to the cultural context and lifestyle of the target population. The suicidal potential was assessed by the Risk-Emergency-Dangerousness (RUD) tool.

Obtaining the participant's informed consent, following his or her information; Its collaboration is integrated within the framework of an anonymous, voluntary research work and that there is no benefit, in particular, on legal proceedings.

Data analysis was performed using IBM SPSS 23 (Statistical Package for the Social Sciences) software.

Results: We received 6638 people, 143 people (02%) with injuries with the self-inflicted characteristics. 38 cases not having the inclusion criteria and 05 cases were randomly eliminated to have the figure of 100. There were 67 males for 33 females (M/F sex ratio = 02). The maximum age was 69. The median was 29 years. People had confessed to self-harm (66%) and (34%) denied it.

The level of impulsivity was: normal (67%), high (12%) and low (21%). The distribution according to socio-psychological risk factors recovered: history of abuse (11%), family separation/abandonment (20%), lack of family cohesion (28%), economic difficulty (19%), depression (05%), psychosis (01%), substance abuse (02%), alcohol (05%). The risk of suicide was: low (92%), medium (07%) and high (01%).

Conclusion: The presence of an underlying socio-psychopathological terrain does not represent the majority of cases in a forensic setting. Simulation was the fundamental issue, the motive of which was: to take revenge on a person or institution, to simulate defensive injuries or cover up their own attacks against another individual, to have compassion and attention. However, faced with such a situation it is necessary to resort to a rigorous psychiatric expertise.

Keywords: Self-inflicted Injuries; Impulsiveness; Socio-psychopathological Factors; Suicidal Risk; Simulation

Introduction

The physical examination of people with stigma of self-harm is part of our daily practice in clinical forensics. Self-harm remains poorly understood despite its medico-judicial and social benefits. This phenomenon is vague and ambiguous, because the process that triggers and maintains self-destructive behavior is not well understood, particularly in its form, consequences, intentionalities and underlying mechanisms implemented. Although this phenomenon among the mentally ill has been recognized for several years in hospital and legal circles, the literature on this issue is far from sufficient.

Several difficulties have hindered the understanding of this phenomenon, including the complexity of the behavior and the motive of the person performing this act as well as the lack of consistency in terminology.

The motivations of the person who self-harms are varied (underlying psycho-psychiatric condition, part of a suicidal approach and/or have as objective the obtaining of secondary judicial or material benefit).

Self-harm is listed in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) as a symptom of Borderline personality disorder where it can integrate into a general impulse control disorder. A number of social or psychological factors correlate with self-harm. However, sexual abuse, psychological and physical suffering during childhood are considered high risk

factors including bereavement for certain parental relationship disorders, poverty and unemployment. Alcohol dependence and a variety of addictions that can contribute to self-harm.

Cases of self-harm in women have been described in the literature; occurring during domestic violence in verbal form or during sequestration and following sexual assault (consequence of post-traumatic stress disorder).

Self-harm and suicide attempts are not easy to differentiate. Self-harm presents for some a suicidal risk factor; a study was carried out in 2012 showed that suicide attempts and self-mutilation have a more specific link, first by their proximity to the modality of realization of the act, and because of the frequency of association (55% and 85% of suicide attempt in subjects who self-harm.) [5]. For others, self-harm and suicide are different phenomena; they define self-injury as injury intentionally inflicted by the individual on his or her person, but which is not sufficient to result in death (Weekes and Morison 1992).

Self-harm is a topic to be debated as it defines a multitude of behaviours of varying severity and purpose. It covers several types of conduct that do not all have the same meanings ranging from simple excoriation to death.

In this perspective, ask whether these people practicing this act of self-harm present an associated psychopathological terrain. On the other hand, to ask whether this act constitutes a pathological

element whose suicidal act is disguised. The question is then to assess the intentionality of these people with stigmata of self-harm in the forensic service and to look for possible social or psychological factors that can be contributed.

We will try to show that this act of self-harm is practiced to simulate aggression (a thoughtful act used as physical evidence to prosecute an alleged aggressor), or uncontrolled occurring against any thoughtful will.

Material and Method

We conducted a retrospective study analyzing the questionnaires of people who voluntarily inflict recent injuries received at the medico-judicial consultation of the University Hospital of Sidi Bel Abbés (Algeria), in order to benefit from an initial medical certificate of finding of injuries to file a complaint against an alleged aggressor. This study ran from 01.03.2017 to 28.02.2019.

Persons under the age of 18 and those with cognitive disabilities or an inability to collaborate on the questionnaire (perceptual ability and impaired communication) were eliminated.

The variables studied were selected based on data from the literature for discussion. The questionnaire was developed according to the objectives of our research, based on data from the scientific literature and our questions which include:

- The assessment of impulsivity in these people as well as its three dimensions (motor impulsivity, lack of planning and cognitive impulsivity) using The Barratt Impulsiveness Scale version 11; Patton., *et al.* 1995. It is a 30-item questionnaire reflecting how to act and think in various situations. This type of measurement is limited by the veracity of the answers given by individuals. Respondents are asked to rate on a Likert scale in 4 proposals: Rarely or never, occasionally, often and almost always or always.

The rating mode ranging from 1 to 4. The total score can range from 34 to 136. We translated and validated it in a version adapted to the cultural context and lifestyle of the target population.

- The search for other socio-psychopathological risk factors that may be involved in this act.
- Assessment of suicidal potential using as an assessment tool: Risk-Emergency-Dangerousness (RUD). These three axes allow the diagnosis of the crisis and the evaluation of the

suicidal potential (consensus conference on the recognition and management of suicidal behavior). The assessment can be based on a three-level scale: low, medium and high. This tool has the advantage of being easily usable in daily practice and the interactive aspect of risk factors between them [7].

The interview of the participants is individual over a period of 45 minutes on average. Obtaining the informed consent of the participant, following his information; his collaboration is integrated into an anonymous, voluntary research work and that there is no benefit, in particular, on legal proceedings. As a result, he is free to refuse any participation. Similarly, he can withdraw from the project at any time, without having to give an explanation.

Ethical and deontological measures are undertaken to preserve the anonymity as well as the confidentiality of participants and all data collected have been referenced.

Results

During the period from 01.03.2017 to 28.02.2019, the forensic medicine department of the University Hospital of Sidi Bel Abbés (Algeria) received 6638 people at the level of medico-judicial consultation. Including 143 people with injuries with self-inflicted characteristics. This represents a rate of 02% of the total number of forensic consultations. Of the 143 cases of self-inflicted injury, 38 cases that did not meet the inclusion criteria were excluded according to the criteria established in the methodology.

Our study involved 100 people with injuries with the self-inflicted characteristics. 05 cases drawn at random and excluded in order to have a sample of 100 people.

Total number of forensic consultations	6638
Total number of cases of self-inflicted injuries	143
Number of cases of self-harm included	105
Number of cases of self-harm not included	38

Table 1: Distribution of Cases by Total Number of Forensic Consultations During the Study Period.

We obtain on our sample of 100 people, 67 men for 33 women; sex ratio is 02.03. The age minimum was selected by us (an exclusion criterion established in the methodology) was 18 years.

The maximum age was 69 years, with a mean of 30.23 years and a standard deviation of 9.175 years. The median was 29 years, located in the age group < 30 years; the latter represents 55% of which the male sex represents 69%.

The level of planning difficulty is high for 60 people which represents 76% and normal for 19 people which represents 24%.

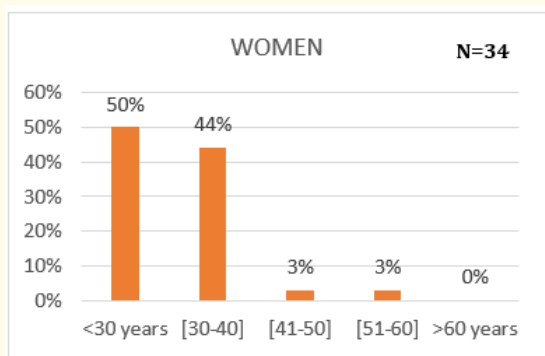
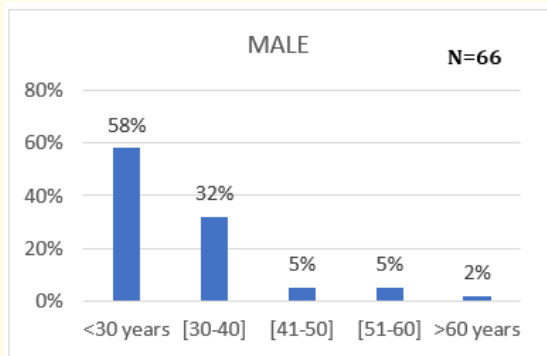


Figure 1: Distribution of self-inflicted injury cases by age and sex.

Sidi Bel Abbés University Hospital, Algeria (From 01.03.2017 to 28.02.2019).

Single people represent 48%, married 40%, divorced 11% and 01% widowed. The distribution according to the level of impulsivity assessed in these people with self-inflicted injuries found that they have a high level of impulsivity of the order of 12%, those with a normal level of impulsivity represent 67% and people have a low level of impulsivity 21%. In order to determine the dimension that best discriminates these people, we assessed impulsivity in its three dimensions in people with high or normal total impulsivity. People with low impulsivity (a score below 52) were eliminated, as it indicates an overly controlled or dishonest individual (N = 79).

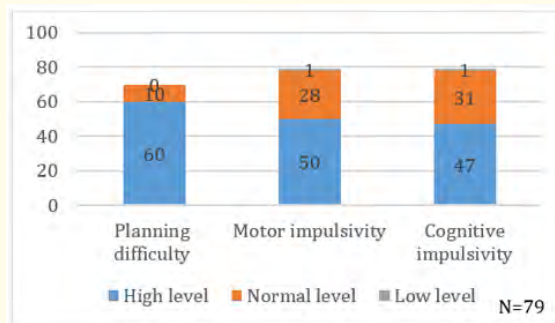


Figure 2: Distribution of cases of self-inflicted injuries with normal and high total impulsivity according to the three dimensions of impulsivity – Sidi Bel Abbés University Hospital, Algeria (From 01.03.2017 to 28.02.2019).

The distribution according to socio-psychological risk factors has recovered: an unemployment rate (53%). Lack of family cohesion was found in 28% of cases. People who have been victims of separation or abandonment of family represent 19%. People who reported difficulty managing stress (21%) and associated somatic illness (20%). People who reported a history of childhood abuse accounted for (11%). Those who reported excessive alcohol consumption (05%). The rate of people who repeatedly report use of a toxic substance (02%). People reporting depression or psychosis in their history (notion of hospitalization in a psychiatric ward or receiving treatment), we noted the presence of depression in 05% and one case with psychosis.

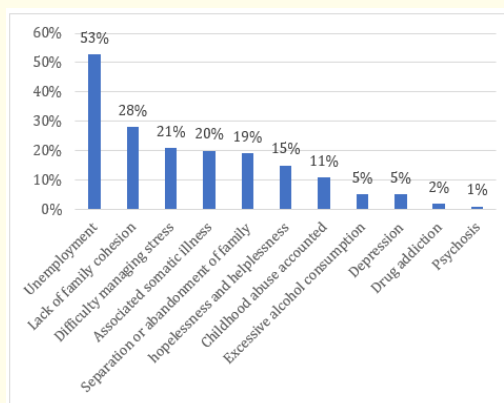


Figure 3: Distribution according to socio-psychological risk factors.

Sidi Bel Abbés University Hospital, Algeria (From 01.03.2017 to 28.02.2019).

The assessment of suicidal potential in our sample was carried out by the tool: Risk-Emergency-Dangerousness (RUD).

The estimate based on epidemiology according to risk factors and protective factors allowed us to find that, people with low suicidal potential represent 92%, people with medium suicidal potential represent 07% and those with high suicidal potential represent 01%.

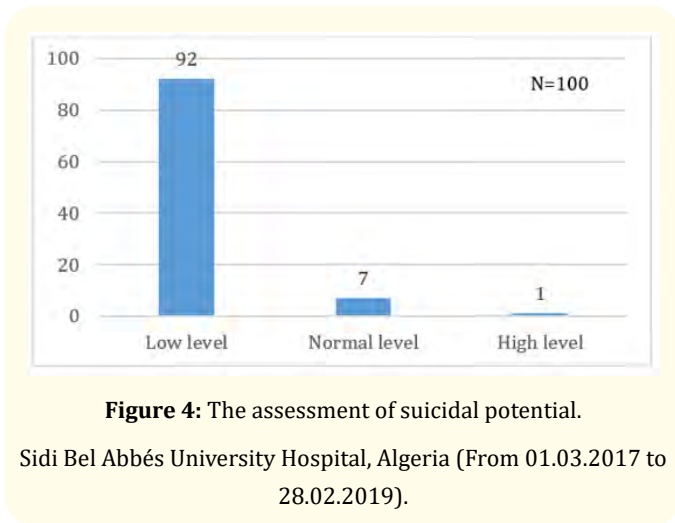


Figure 4: The assessment of suicidal potential.

Sidi Bel Abbés University Hospital, Algeria (From 01.03.2017 to 28.02.2019).

Discussion

We emphasize that the studies found in the literature covering self-inflicted injuries are few and do not cover all the variables studied, however the analysis of the remaining variables will be based on the results of our study.

Scientific studies have been done in other countries with different socio-cultural environments. In theory, epidemiological research is essentially Anglo-Saxon, resulting from psychiatric research, prevention programs and sociological studies. This research was done in a very comprehensive way on non-suicidal self-aggressive behavior.

Our entire sample consisted of 100 individuals observed at the level of the medico-judicial consultation during the period from 01.03.2017 to 28.02.2019 in order to benefit from an initial medical certificate of finding of injuries, one case of which was examined in order to establish a descriptive medical certificate of injuries in pre-police custody.

General characteristics of the sample

The most reliable recognized study is that of Briere and Gil (1998) estimates a prevalence rate of 04% of the general population, including those who claim to simulate aggression. This prevalence rate has been confirmed by other studies. (Klonsky; Oltmanns; Turkheimer 2003).

However, other studies have shown variable and contradictory figures, prompting caution in handling these figures.

Little research has been found on self-inflicted injuries in forensic samples. We found three studies:

- A study carried out at the forensic medicine department of the University Hospital of Constantine, (a city located in eastern Algeria) during the period from 01.01.2017 to 30.06.2018 including 43 cases reveals a self-inflicted injury rate of 0.49%.
- Another study carried out at the different forensic medicine services in Portugal including 10 cases during the period from 2002 to 2008 reveals a rate of self-inflicted injuries of 01%.
- The third study was conducted in Ghoushan (a city located in northeastern Iran) during the period from January 2003 to January 2006 including 1248 cases had engaged in self-injurious behavior at some point in their lives with a rate of 12.6%.

We did not find a prevalence rate of self-inflicted injuries compared to the general population in studies conducted in forensic settings, the frequencies of self-inflicted injuries found were calculated in relation to the number of forensic consultations.

Comparing these studies conducted on a forensic sample with our study, we noticed that the rate of cases of self-inflicted injuries at the level of our forensic consultation (02%) is slightly higher than other studies. A high rate (12.6%) of the study that was carried out in Ghouchan can be explained by the characteristics of the individuals in the sample, which include all persons with a history of self-harm.

It is recognized that women self-harm more than men, although the evidence to this effect is not indisputable. A study carried out

at the forensic medicine department of the University Hospital of Constantine, Algeria (01.01.2017 to 30.06.2018) shows a high prevalence among men (88.37%) than women (11.63%) with a sex ratio = 07. A study was carried out at the forensic medicine department in Ghouchan, Iran (2003 to 2006) indicates that men had a significantly higher rate than women (76.9% versus 23.1% respectively).

However, many studies report a higher prevalence of this behavior among women (Institute of Forensic Medicine of the University of Göttingen-Germany in 2004). This may be due to the disproportionate emphasis on women in these studies, particularly those conducted on psychiatric and prison samples, or by false accusations that reflect a unique condition of women claiming sexual assault. Other authors have indicated that women are more likely to turn their anger against them: they are socialized to be gentler while men are more likely to express their negative feelings through external anger.

Some studies have not revealed gender differences in prevalence rates (Service of Forensic Medicine in Portugal, 2002 to 2008).

The distribution by sex of our study sample allowed us to find that, men represent a high rate compared to women (67% men against 33% women) with a sex ratio of 02.03. These results are consistent with studies of forensic samples. This can be explained by the high proportion of men in the city of Sidi Bel Abbes with the age group [20-30] years which represents the highest number of the population (National Statistics Office 2008), the high number of men compared to women in all medico-judicial consultations received during the study period as well as, Men may also take the risk of achieving a goal more than women.

In comparison with the data in the literature, we noted that the age of onset corresponds to the majority of studies found, in particular, those carried out on populations in the forensic pathology department. The prevalence of this behaviour in males compared to females was high for all selected age groups with a peak incidence for the age group <30 years.

Assessment of impulsivity in these individuals

Impulsivity is an important concept for understanding normal and pathological behavior (Stanford., *et al.* 2009). It is the most

described risk factor for self-injurious behaviour (Herpertz., *et al.* 1997; Ferraz., *et al.* 2009; Ferraz., *et al.* 2009). Impulsivity is a character that is difficult to circumscribe (Herpertz, Sass and Favazza, 1997). This difficulty lies in its three dimensions. Studies have been carried out assessing impulsivity in its three dimensions (motor, cognitive and planning difficulty) in people who practice this act of self-harm. The difficulty of planning is the one that best discriminates against self-harmers. Herpertz., *et al.* (1997).

According to the results found in our study, we found that people who have a normal level of impulsivity represent the majority of cases (67%). Total impulsivity is not a characteristic of the people in our sample. This can be explained by the type of population on which the studies were conducted (the motivation of people with self-inflicted injuries in a forensic setting does not match that of the psychiatric or prison setting) and that this action was planned and premeditated. We assessed the subscales of impulsivity (motor, cognitive and planning difficulty) in these people to determine the dimension that best discriminates against them. We found that planning difficulty is the dimension that best discriminates against the majority of people in our sample (76%). These results are consistent with those found by Herpertz., *et al.* (1997).

The search for other socio-psychopathological risk factors

Data from the literature show that people who fake assault are more frequently single. We noted that the results obtained on our study sample correspond to the results found by all the studies found in the literature. The study carried out at the Forensic Medicine Service in Portugal (2002 to 2008) found that 50% of people were single, 20% divorced, 20% married and 10% did not want to declare their marital status. The study conducted at the Ghoushan Forensic Medicine Department in Iran (2003 to 2006) found that 58.2% are single. This finding was explained by Briere and Gil (1998) as follows: single and unemployed patients may have more reasons to seek gain through self-harm.

According to the results found in our study, we suggest that the changes that affect the timing of nuptiality in Algeria, which has experienced a significant aging with a postponement of the age at marriage in Algeria (almost 30 years for women and 33 years for men) has induced an increase in singles in the total population. And correlating with the distribution of our sample by age group, the

[18-30] and [31-40] age group accounted for the highest rate. Thus, the single person experiences many frustrations, disappointments, disappointments, constituting real suffering, can lead to self-harm.

According to the literature, unemployment is one of the major aggravating factors of self-harm. Poverty and unemployment are social or psychological factors that correlate with self-harm. The study carried out at the Ghouchan Forensic Medicine Department in Iran (2003 to 2006) found that people without a profession accounted for 56.1%. However, the study carried out at the forensic medicine service of Constantine, Algeria (01.01.2017 to 30.06.2018) reveals a high rate of people without a profession (60.49%).

In our study, the sample was classified into three modalities: permanent employees represent 47%. The rate of people without any occupation is 35% and people with unstable and undeclared occupation represent 18%. The results obtained are consistent with those obtained by the majority of studies. Individuals without employment or with an unstable and undeclared occupation of insufficient income constitute a majority.

A number of socio-psychological factors have been identified as risk factors for self-harm. All types of sexual abuse, psychological and physical suffering during childhood including parental relationship disorders, low levels of education, poverty and unemployment are considered to be the most described risk factors in the literature. Alcohol dependence and substance use can contribute to self-harm.

The existence of previous trauma or psychiatric history are considered psychopathological vulnerability factors.

The distribution of cases according to the toxic notion of a retrospective study that was carried out at the forensic medicine department of the University Hospital of Constantine, Algeria (from 01/01/2017 to 30/06/2018) found that 27.91% have habits of use of psychotropic substances, those who are not used represent 37.21% and 34.88% remain undetermined.

A breakdown according to medical history and use of psychotropic substances of the study that was carried out at the different forensic medicine services in Portugal (from 2002 to 2008) finds that 10% of people with depression, those with suicidal

ideation 10%, psychosis and drug addiction 10% and 50% of cases remain undetermined. People with associated somatic disease account for 20%.

We found that the socio-psychological risk factors assessed in our population do not represent the majority of cases including alcohol dependence (05%) and psychotropic substances (02%), depressive disorders (05%) and psychopathological history (01%).

These results do not correspond with those found in the literature. However, other socio-psychological risk factors; Psychological and physical suffering during childhood (11%), poor parental relationships (19%), poverty and unemployment (53%), family coherence (28%) including intra-family physical violence, associated somatic illness (20%), difficulty managing stress (21%) and the notion of loss of hope (15%) can contribute to this act. This discrepancy between the results found and those found in the literature is explained by the different motive between the two psychiatric and forensic populations. However, simulation was the fundamental issue in the forensic field. The above findings from forensic settings are based on sample studies that include old and recent self-inflicted injuries.

Assessment of suicidal potential

Many large-scale studies have shown a link between self-harm and suicide. WHO (2009) estimates that for every person who commits suicide, there are at least 20 suicide attempts. Hawton K, Zahl D and Weatherall R (2003) show a high risk of suicide, of which about 40% to 60% die. Self-harm is often recognized as a facilitating factor in suicidal ideation. It is considered for some authors as a risk factor for acting out, especially when the person expresses more despair and impulsivity.

Other authors see two distinct concepts. Suicidal intent, lethality of self-destructive harm, chronicity of the act, and ability to resist impulse were described as distinguishing elements. However, the repetition of self-injurious behaviours could be considered a risk factor for suicidal acts, despite the absence of suicidal intentionality expressed by the individual.

A minority of cases of combination of methods have been described (the individual abandons the method consisting of wrist and/or throat wounds and turns to another form of self-destruction, which should be more effective. According to a study

carried out at the various forensic services in Portugal (from 2002 to 2008) reveals a rate of 0.1% of suicides is the cause of self-harm.

The results obtained in our study allowed us to find that people with a high suicidal potential represent a minority (01%) and those with an average suicidal potential represent 07%.

This noted that self-inflicted injuries in forensic settings and suicide are different concepts, they are not a suicidal risk factor or a pathological element whose suicidal act is disguised.

Methodological limitations

After establishing the results observed in our study and their links with the literature, it is essential to explain the methodological limitations encountered in our study. Impulsivity is one of the most common factors encountered in psycho-psychiatric settings, but its measurement remains difficult. The translation and validation of the Barratt Impulsiveness Scale version-11 was laborious (e.g. in obtaining the appropriate terms to properly collect our data by discarding homonymous terms that can influence our results). The performance of the scale is limited by the veracity of the person's responses. We could not verify reproducibility, because of the lost follow-ups; Indeed, not all those summoned showed up to repeat the impulsivity test fifteen days after the first consultation [1-4,6,8-22].

Conclusion

The forensic study of self-inflicted injuries to a judicial impact, as it distinguishes between assaults, accidents and other forms of self-destructive behaviour. Data from the scientific literature indicate that self-injurious behaviours can be integrated into a general impulse control disorder. Indeed, total impulsivity is not a characteristic of the people in our sample. This can be explained by the type of population on which the studies were conducted (the motivation of individuals with self-inflicted injuries in a forensic setting does not match that of the psychiatric or prison setting) and that this act was premeditated. We assessed the subscales of impulsivity (motor, cognitive and planning difficulty) in these people to determine the dimension that best discriminates against them. We found that planning difficulty is the dimension that best distinguishes the majority of people in our sample.

We found that the socio-psychological risk factors assessed in our population do not represent the majority of cases, including

alcohol dependence and psychotropic substances, depressive disorders and psychopathological history. However, other socio-psychological risk factors; Psychological and physical suffering during childhood, parental disorders, poverty and unemployment, family coherence, an associated somatic illness, difficulty managing stress and the notion of loss of hope can contribute to this act. This discrepancy between the results found and those found in the literature is explained by the different motive between the two psychiatric and forensic populations. However, simulation was the fundamental issue in the forensic environment; taking revenge on a person or institution, simulating defensive injuries or covering up their own attacks on others, having compassion and care.

The results obtained in our study allowed us to find that people with a high suicidal potential represent a minority. This noted that self-inflicted injuries in forensic settings and suicide are different concepts, they are not a suicidal risk factor or a pathological element whose suicidal act is disguised.

Physicians in the face of such behavior interfere with their own ethical or moral attitudes and provide adequate medical care to the patient, but also with the professional diagnostic objectivity of the physician who is aware of the existence and motivation of self-inflicted injuries committed with fraudulent intent. However, it is necessary to resort to forensic and psychiatric expertise.

Declaration of Interests

The authors state that they have no links of interest.

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