

1. Introduction

Suicide is a complex and multifaceted phenomenon, and clinicians need a multidimensional approach to identify specific suicide risk factors in psychiatric patient population in order to address specific preventing lethal suicide strategies. It's important to note that according to results from a meta-analysis (Walsh et al., 2015) psychiatric inpatient settings showed high suicide rates. In this sense, the World Health Organization has recognized suicide as one of the most important areas of interest in terms of public health and suggested health operators the importance of intensifying prevention strategies.

In Mood Disorder population the depressive state represents an increased suicide risk (Bostwick et al., 2016); moreover among depressed inpatients two sharp peaks of risk for suicide typically occur, one in the first week after admission and another in the first week after discharge (Qin and Nordentoft, 2005). Identifying a suicidal risk profile at the admission, could facilitate clinical management of patients and this is especially important in open-door ward to promote the safety of these patients (Mann et al., 2005). Mood Disorders are associated with the highest increased of attempted and completed suicide with a lifetime suicide risk of 5-6% (Isometsä, 2014); suicide risk is lightly higher in Bipolar Disorder than in Major Depressive Disorder and about 30% of bipolar depressed patients attempted suicide during their lifetime (Chen and Dilsaver, 1996; Leverich et al., 2003) and about 20% eventually die from suicide (Jamison, 1986; Ösby et al., 2001). A meta-analysis (Hawton et al., 2005) of risk factors for complete suicide among subjects with Bipolar Disorder found male sex, previous suicide attempts and hopelessness to be the most robust risk factors.

Long-term lithium treatment has been found to markedly reduce the risk for complete suicide and suicide attempts among patients with Bipolar Disorder and other Major Affective Disorders (Baldessarini et al., 2001; Baldessarini et al., 2006; Cipriani et al., 2005; Gonzalez-Pinto

et al., 2006; Goodwin et al., 2003; Oquendo et al., 2011; Tondo and Baldessarini, 2009; Yerevanian et al., 2007). Moreover, patients affected by a Mood Disorder with high levels of impulsivity have been put in relation with a higher risk of suicidal ideation and/or attempted suicide (Conrad et al., 2009; Swann et al., 2005). Individuals with a Mood Disorder and a co-existent Personality Disorder (PD) represent the great majority of all suicides (Foster et al., 1997). A particularly interesting personality feature that may play a role in suicide ideation and suicide behavior is narcissism. Pathological narcissism and Narcissistic PD (NPD) are clinically and empirically recognized as significant risk factors for suicidal ideation and behavior in adolescent, adult, and geriatric populations (Links, 2013; Pincus et al., 2015; Ronningstam, 2011), and it is believed that a certain percentage of suicide completers also exhibit elevated NPD symptoms (Apter et al., 1993). However the association between NPD and suicide behavior remains a controversial issue. For example, a study carried out in mood-disordered patients seems to show that patients with NPD were 2.4 times less likely to make a suicide attempt compared with non-NPD patients and NPD was not associated with lethality behaviors (Coleman et al., 2017). On the other hand, several findings have suggested the relationship between NPD and suicide in psychiatric populations, also demonstrating some specific features of narcissism-related suicidality. For example, Stone (1990) conducted a 15-year follow-up study of 550 general psychiatric patients and showed that those with NPD or narcissistic traits were more likely to have died by suicide compared with patients without the disorder or traits. Also a study by Heisel et al. (2007) with geriatric patients attending a depression day hospital reported a significant relation between narcissistic pathology and suicide ideation, even after controlling for demographic factors, depression severity and cognitive function. In addition, it has also been empirically suggested that patients with NPD exhibit particularly deliberate and lethal forms of suicidal behavior (Blasco-Fontecilla et al., 2009).

The comprehension of suicide needs a multidimensional approach in order to identify socio-demographic, clinical and narcissistic personality factors useful for better profiling the risk of hospital suicide. In the present study, we considered suicide attempts and suicide ideation as different dimensions of suicide risk. Indeed, several data (Kessler, et al., 1999; Wang and Mortensen, 2006; Su et al., 2018) suggested that attempted suicide (SA) is one of the strongest predictors for death by suicide, and 60% of planned first attempts occur within the first year of ideation onset. Suicidal Ideation (SI) represents a relevant precursor of SA, and SA has been known to be a potent predictor of completed suicide (Su et al., 2018). From this point of view, it is highly important to understand the risk factors of SI and SA in order to identify preventive strategies.

Starting from these considerations the aim of the present study was to apply a suicide risk evaluation in a high-risk sample at the Mood Disorder Unit of San Raffaele Hospital (Milan), a rehabilitative psychiatric ward with an open-door policy. In order to better profile the higher suicide risk participants during hospitalization, we:

- Compared socio-demographic and clinical characteristics of participants who attempted suicide during their life time versus participants who did not attempt suicide. Specifically we hypothesized that the co-occurrence of some clinical variables (duration of depressive state), socio-demographic variables (gender, employment and civil status) was related to suicide attempts;
- Tested in suicide attempters the relationship between the presence of active suicide ideation and the number of previous suicide attempts.
- Evaluated the association between narcissistic personality features, number of suicide attempts and suicide ideation. Furthermore, we investigated separately in males and females the association between narcissistic personality and suicide ideation. Literature data suggest that antagonistic personality traits (see narcissism) are most common in males.

2. Methods.

2.1. Subjects

The sample was composed by 93 patients consecutively admitted in the Mood Disorders Unit of the San Raffaele Turro Hospital in Milan, from May 2017 to May 2018. There were 40 (43.0%) women and 53 (57.0%) men who participated in the study. Participants' mean age was 52.38 years, $SD=13.04$ 12.43 years. There were 28 (30.1%) patients affected by Bipolar Disorder (BD), 45 (48.38%) affected by Major Depressive Disorder (MDD), 20 (21, 5%) affected by Major Depressive Disorder and other DSM-5 Section II psychiatric disorder (namely Obsessive Compulsive Disorder, Panic Disorder and Generalized Anxiety Disorder). During hospitalization all patients were in depressive phase and received antidepressant therapy according to the clinical judgment (SSRI, SNRI, TCA); the 43% of the whole sample (40/93) was undergoing a maintenance treatment: 23 (57.5%) with lithium and 17 (42.5%) with anticonvulsant. Neither suicides nor attempts occurred; one patient died for suicide one week after discharge.

Inclusion criteria were 1) Major Depressive Episode in a diagnosis of Major Depressive Disorder (MDD) or Bipolar Disorder (BD), 2) age, > 18 years; 3) an education level beyond primary school; 4) ability to give informed consent to participate in the study.

2.2. Procedures

All participants volunteered to take part in the study after being presented with a detailed description and the investigation was carried out in accordance with the latest version of the Declaration of Helsinki; none of the participants received an incentive for participating and all were administered all measures as part of their routine clinical assessment. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Psychiatric disorder diagnoses were assessed by the clinicians who were following the participants in treatment according to the DSM-5 criteria. Sociodemographic variables and clinical

information, included the history of suicide attempts and the duration of the current depressive episode, were assessed by interviewer and independent clinicians using best estimation procedure, taking into account available charts, case notes and information provided by at least one relative (Leckman et al., 1982). After an explanation of the study to the subjects, written informed consent was obtained. None of the participants refused to participate to the study.

At the admission two independent and trained psychiatrists (SB and LF) administered 21- Hamilton Depression Rating Scale (HAMD) to measure the severity of the present depressive symptomatology and Beck Scale for Suicide Ideation (SSI) to assess suicidal ideation. A trained Psychologist (BS) took care of the administration of the psychological measurement scales just before discharge: Five Factor Narcissism Inventory (FFNI) to assess the narcissistic personality traits.

2.3. Measures

2.3.1. Hamilton Depression Rating Scale (HAMD, Hamilton, 1960)

The HAMD (Hamilton, 1960) is a 21-item rating scale designed to systematically quantify expert clinical judgment regarding the severity of illness in patients diagnosed with depression.

Symptoms are defined by anchor-point descriptors that increase in intensity and clinical raters are encouraged to utilize all available information including both the intensity and frequency of symptoms in assigning rating values (Williams, 1988). In the present study we relied on HAMD total score.

2.3.2. Beck Scale for Suicide Ideation (SSI, Beck, Kovacs, & Weissman, 1979)

SSI (Beck et al, 1979) is a semi-structured interview composed by 19 items designed to quantify the intensity of current conscious suicidal intent by scaling various dimensions of self-destructive thoughts or wishes. Suicidal ideation also encompasses "suicidal threats" that have been expressed in overt behavior or verbalized to others. Each item consists of three alternative

statements graded in intensity from 0 to 2. The total score is computed by adding the individual item scores. Thus, the possible range of scores is 0-38. The items assess the extent of suicidal thoughts and their characteristics as well as the patient's attitude towards them; the extent of the wish to die, the desire to make an actual suicide attempt, and details of plans, if any; internal deterrents to an active attempt; and subjective feelings of control and/or "courage" regarding a proposed attempt. Those subjects who obtained scores lower than five have not been considered at risk, while those with scores higher than five at risk of suicide. Through the scale of Suicide Ideation, it is aimed to quantify the intensity of the present suicidal ideation, giving specific importance to the different thought dimensions and self-harm domains. In the evaluation, verbally expressed or behavioral suicidal threats, are also included. Representing the suicidal ideation the premise for the suicidal act, the authors of the scale consider important to highlight the ideation pervasiveness and intensity in order to get a reasonable suicide risk prediction and, therefore, plan the prevention strategy. In the present study we relied on SSI total score and we used SSI score both as a continuous variable and a dichotomous one. Following previous studies (Sokero et al., 2006), we considered SSI score ≥ 5 as an indicator of moderate to severe suicidal ideation and a score of zero as indicator of no suicidal ideation.

2.3.3. *Five-Factor Narcissism Inventory- Short Form (FFNI; Sherman, et al., 2015)*

FFNI-SF is a 60-item self-report measure of 15 traits related to Narcissistic Personality Disorder as well as vulnerable and grandiose narcissism. Vulnerable narcissism (NV) is the sum of Cynicism/distrust, Need for Admiration, Reactive Anger, and Shame. Grandiose narcissism (NG) is the sum of the remaining scales. Items are measured on a 5-point Likert scale ranging from 1 (disagree strongly) to 5 (agree strongly). In the current study, Cronbach's alpha values were .84 for FFNI-SF NV scale, .90 for FFNI-SF NG scale, and .90 for the total score. In the present study we considered the NV and NG scales.

2.4 Data analysis

The statistical analysis has been performed using the Stat-Soft STATISTICA 8.0 and SPSS 22 software. Cronbach alpha was used to assess the internal consistency of the measures; t tests were used to evaluate the presence of significant differences on the continuous clinical variables (i.e. HAMD and SSI mean scores) between participants who attempt suicide (SA group) and participants who did not attempt suicide (NSA group). Moreover, t tests were used to evaluate the presence of significant gender differences on the FFNI, and SSI scale scores; Cohen's d values was used as an effect size measure for gender comparisons. With dichotomous variables (namely psychiatric diagnosis and socio-demographic variables), we used χ^2 contingency tables in order to evaluate significant differences between SA and NSA groups.

Furthermore, we performed a logistic regression analysis in the SA group considering the present suicide risk (SSI score > 5) as dependent variable to identify clinical variables associated with the present suicidal risk. Finally, Pearson bivariate correlations were used to evaluate the association between FFNI and SSI scale scores.

3. Results

Clinical and sociodemographic characteristics of the sample are summarized in Table 1. In our sample, the 51.6% (48/93) attempted suicide (SA group); among them, 20/48 committed a suicide behavior within the last 12 months, during the index episode, whereas 28/48 committed suicide behavior life time. 75% of attempters was affected by MDD (36/48) and the 25% was affected by BD (12/48). The majority of individuals attempted suicide with pharmaceutical overdose (33/48; 68.7%); other methods included stabbing (8/48, 16.6%), hanging (5/48, 10.4%) and defenestration (2/48, 4.3%).

In table 2 are listed the socio-demographic and clinical variables significantly associated with suicidal attempts. The SA group was composed by more women and included a higher percentage of unemployed and married participants than NSA group. Moreover, SA group showed a lower association with MDD with other DSM-5 Disorders than NSA group. In SA group we have

found a longer index depressive episode duration, compared to NSA group. Considering SA and NSA group differences in the HAM-D and SSI mean scores, SA participants scored significantly higher than NSA participants on the item 3- HDRS mean score and SSI total mean score (Table3).

Considering socio-demographic characteristics, we did not find significant differences between SA and NSA group for the mean age ($t(91)=-1.34, p>.10$), years of education ($t(91)=.217, p>.10$) and for life events ($\chi^2(1)=1.74, p>10$). With regard to clinical variables, no significant associations were found between MDD and BD diagnosis ($\chi^2(1)=.19, p>10$), familiarity history of psychiatric disorder ($\chi^2(1)=.42, p>50$), familiarity history of suicide death ($\chi^2(1)=.21, p>50$) and number of episodes ($t(18)=-.89, p>.30$). Moreover, no significant differences in the type of stabilizing treatment have been observed between SA and NSA groups ($\chi^2(1)=.12, p>50$). Eventually, we have found no differences in mean scores on narcissistic personality scale: ($t(91)=-.907, p>.30, t(91)=-2.05, p>.20$ and $t(91)=1.79, p>.20$ for FFNI total score, NV and NG respectively)

Considering the suicide ideation, our results showed that in SA group ($N= 48$) the presence of active suicide risk (SSI score >5) was positively associated only with the number of previous suicide attempts $r=.24, p<.05$. No significant associations were found between SSI score >5 and other socio-demographic and clinical variables.

Considering the narcissistic personality features, we found a negative and significant association between NG and the number of previous suicide attempts: $r=.39, p<.05$

Descriptive statistics and Pearson bivariate correlations for FFNI and SSI are listed in Table 4. With regard to gender differences in the FFNI scales, male participants scored significantly higher than female participants on the FFNI NG scale and total score and the effect sizes for these differences were medium for FFNI total score and large for NG scale: ($t(91) = -2.78, p < .005, \text{Cohen's } d = .68$ for FFNI total score and $t(91) = -3.40, p < .001, \text{Cohen's } d = .81$ for NG). Considering the SSI overall level, FFNI NV scale showed significant association with SSI total score. When we separately

considered the male and the female sample, the correlation between FFNI NV remained significant only in the male participants: $r=.52, p<.001$. Moreover, we found significant differences in r value between male and female participants in the association between SSI total score and FFNI NV scale: male participants, $r=.52, p<.001$, female participants, $r=-.005, >.05, z=2.68, p<.01$,

4. Discussion

The aim of the present study was to test the role of clinical, sociodemographic and personality features in the suicide behavior risk assessment in a sample of depressed inpatients hospitalized in an unlocked unit. In our sample, we found a suicide attempters rate aligned with literature data (51.6%) (Sokero et al., 2003; Valtonen et al., 2005, Malone et al., 1995). Reported prevalence of lifetime history of suicide attempts among psychiatric patients with mood disorders varies between studies, with reported values about 30%-40% in MDD and 50% in BP. Considering the role of any mood disorder, we did not find an association between bipolar and non-bipolar mood disorder and suicide ideation in suicide attempters. These findings are consistent with other data in inpatients samples (Taylor et al 2016).

In our sample, suicide attempters were most female, unemployed and married. The association between female gender and suicidal behavior was consistent with studies in western countries, which showed higher percentages of non-fatal suicidal behavior among females (Boeninger et al., 2010; Wichstrøm and Rossow, 2002). In our sample, suicidal behaviors were associated with unemployment status. This result confirms literature data, suggesting higher vulnerability of female gender to unemployment (Denton et al., 2004). Moreover, in our study, we found that marriage does not represent a protective factor for suicidal behaviors. This data could be counterintuitive but according to Agerbo's study (2007) in psychiatric population loss of income, labor market status, and marriage increased suicide risk.

In our study, among the sociodemographic variables considered, age and education level were not associated with previous suicide attempts. In previous data, the role of age in suicide risk remained an open issue: some studies evidence an higher risk among younger inpatients, while other studies show that the risk increased with increasing age and others reported not significant impact of age (Madsen et al 2017). In community studies, the education level has been associated with lower mortality rates including suicide; on the other hand, in clinical population other studies found that high education, high income and being employed were associated with an increased risk of suicide. In this sense, the commonly held view hypothesized the role of insight in the course of the mental illness that could increase the risk of suicidal behavior (stebalj A Tavcar, 1999).

Contrary to our expectations but consistent with others Authors (Pompili et al 2014), in our sample, life events don't represent a relevant suicide risk factor. We could hypothesize that other protective factors contribute balancing negative life experiences in our sample. Other studies are needed to investigate which factors could play a protective role with respect to life events. It is important to note that in our study the lifetime evaluation of life events may have been affected by the depressive state of participants. From this point of view, it would be appropriate to use standardized interviews or questionnaires for the evaluation of life events.

As far as clinical variables are concerned, compared with the NSA group, the SA group was characterized by lower association of the mood disorder in co-occurrence with other DSM-5 Section II psychiatric disorder (Obsessive Compulsive Disorder, Panic Disorder and Generalized Anxiety Disorder), characterized by behavioral expression of anxiety. The role of anxiety in suicidal behavior is controversial. Some authors suggest a protective role of general anxiety for suicidal behaviors (Uebelacker et al., 2013; Lewitzka et al, 2017). On the contrary, in some studies anxious symptomatology and anxiety disorders are considered risk factors for suicidal behaviors (Pompili et al, 2011; Villa-Manzano et al., 2009; Rhimer, 2007; Hawton et al, 2005). Moreover, a

recent meta-analytic review (Bentley et al., 2016) showed that anxiety represents a statistically significant, yet weak, predictor of suicide ideation and attempts, but not death.

In our sample, SA group showed a longer duration of the index depressive episode than NSA group. Our findings confirmed that an important clinical factor leading to suicidal behaviors is the time spent in illness phases (Holma et al., 2014, Valtonen et al., 2005). Moreover, consistent with other data (Madsen, 2017), this finding suggests that the duration of the depressive episode represents a relevant variable to investigate in the assessment of the suicidal risk in depressed inpatients.

As a whole, in our sample, no significant associations were found between a history of suicide attempts and biological features of mood disorder. In fact, participants who attempted suicide and participants who did not, were similar in diagnosis, total number of mood disorder episodes, familial history of psychiatric disorder and familial history of suicide. On the contrary and in line with the suicide capability theory in SA group, the presence of an active suicide ideation was significantly related to subjects with an higher number of previous suicide attempts, this indicating a potential risk progression from ideation to acting (Smith et al., 2010). In particular, at the beginning of the admission, in the SA group, we found significantly higher HDRS- item 3 mean scores (suicide) and higher SSI total mean score. In addition, our correlation analysis results showed a significant association between the number of previous suicide attempts and the presence of the active suicidal ideation measured with SSI in SA group. These data fitted with interpersonal theory of suicide (Van Orden et al., 2010) that showed no-lethal suicide attempts increase the risk of death by suicide due to their facilitation of acquired capability. The acquired capability for suicide develops over time through repeated exposure to psychological provocative events including previous suicide attempts, impulsivity, childhood maltreatment, fear-inducing and physically painful life-events (Joiner et al., 2005).

Considering the personality features, we have found no differences in mean scores on narcissistic personality scales between SA and NSA group, but we found a negative and significant association between NG and the number of previous suicide attempts. This result seems to suggest that the grandiose aspects of narcissism, namely sense of superiority, arrogance, and behavior of dominance, could represent a protective factor with respect to repeated suicide gestures. On the other hand, considering suicide ideation, in the whole sample, SSI total score was significantly related to vulnerable narcissistic personality features. In other words, NV seems to be the narcissistic dimension significantly related to suicidal ideation. Suicide ideation was associated with a personality profile characterized by susceptibility to self and emotional dysregulation (shame, self-esteem, anger, anxiety, envy) when narcissistic needs are not met (Pincus et al., 2015). Our findings were consistent with a study (Jaksic et al., 2017) conducted in a sample of 250 adult psychiatric outpatients suggested that narcissistic vulnerability seems to be more strongly related to suicidal tendencies than narcissistic grandiosity. Up to now, only few studies have evaluated the relationship between both narcissistic grandiosity and narcissistic vulnerability and suicidal behavior with controversial results. Pincus et al. (2009), conducting a chart review of 25 patients, found that the report and number of suicide attempts was positively related with both grandiose and vulnerable dimension of narcissism. Ellison et al. (2013) in a sample of 62 outpatients showed no significant relationships between suicidal ideation and either feature of narcissism, although the interaction between grandiosity and vulnerability was marginally related to suicidality. Further research is warranted in order to better outline the matter. Moreover when we considered separately male and female this relation was significant only in the male subsample. According to our preliminary results the co-existence of depression in male with NV features could represent a relevant clinical marker to be considered in the assessment of suicidal risk in mood-disordered inpatients.

As a whole, our findings are consistent with a recent study (Lewitzka, et al., 2017) conducted in mood-disordered participants that considers the role of personality traits and sociodemographic factors for assessing suicidal risk.

In our sample, the presence of suicidal gestures as a risk factor for suicide was associated with a long lasting depressive state and with the presence of active suicidal ideation as well as some socio-demographic variables. In addition to these factors already known, the evaluation of the vulnerable features of narcissism seem to represent an additional clinical variable related to the intensity of the suicide ideation. This finding could represent an element to be used in the management of the depressed patients hospitalized in a preventive perspective.

The need of a multidimensional approach to assess suicidal risk and its complexity is supported by the story of the patient who died of suicide one week after discharge. T.D. was a 30-year-old man, single, unemployed who died poisoning himself. His chartered diagnostic entity was resistant major depression with behavioral expression of anxiety and obsessive compulsive disorder. T.D. presented a high suicidal ideation (SSI total score=12), a severe depressive episode (31 HAM-D total score) and a long duration of the depressive episode (32 weeks). Considering narcissistic aspects of personality, T.D. showed a low score to the NG scale (NG=85, score that fits between the 10th-15th percentile of the normative distribution data) and a moderately high score to the NV scale (NV=55, score that fits to the 75th percentile). According to evidence, patients had procured poison some months earlier before the admission, and he made sure he wasn't saved, putting a large piece of furniture in front of the house door, while the parents were on summer vacations.

The present study suffered from some limitations. Our sample was composed of adults who volunteered to participate in the study and from a methodological point of view this could represent a more convenient study group than a random sample; we used a single measure for each construct which limits the generalizability of our results to other measures; the sample size was small and composed only by patients admitted in our ward that excluded non cooperative and acute patients.

In this sense our results cannot be generalized to psychiatric emergency hospitals. Moreover, the study was trans-sectional, this do not allow to evaluate the intensity and the oscillation of suicide ideation that represent a relevant aspect in the progression from ideation to acting (Law et al., 2017) As a whole, these limitations stress the need for further replications and extension. In spite of these aspects, to our knowledge, the present study allows a preliminary profiling of patients at risk for suicide behavior during hospitalization in an open-door hospital using a multidimensional approach to an early detection and management of Mood Disorder inpatients with active suicide ideation and with an increased suicidal behavior risk.

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