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Behavioural, psychological, and temperamental predictors of risk suicide trend after brief psychodynamic psychotherapy

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Abstract. – BACKGROUND: Evidence has shown that psychotherapy is effective for depression, whereas the outcome for suicide risk is unclear.

AIM: It was to investigate whether possible pre-treatment predictors of suicide risk (SR) decrease after a brief psychodynamic psychotherapy treatment and at follow-up.

PATIENTS AND METHODS: Forty-one patients were assessed at: baseline (T0) for clinical history, clinical family history, physical diseases, type of suffered abuse; after the treatment (T1); and, at six-month follow-up (T2) for mood ratings, temperamental features, and SR levels.

RESULTS: The levels of depression and cyclothymia decreased at T1 and T2 compared to T0; however, the distribution of the patients with high SR level was similar between T0 and T1, and at T2 it increased.

T1-T0 SR (Δ1SR) was correlated with suicidality in the last month and with depression levels at T0; T2-T0 SR (Δ2SR) was correlated with many historical, clinical, and temperamental variables; T2-T1 SR (Δ3SR) was correlated with the presence of previous psychotherapy, abuse, and anxiety.

Linear regression models revealed that Δ1SR was predicted by the suicidality in the last month; Δ2SR was not significantly predicted by any variable; and, Δ3SR was predicted by anxiety.

CONCLUSIONS: The treatment was able to decrease the depression but not the SR. Findings confirm the difficulty of affecting SR and the importance of carefully considering the anxiety and the previous experiences of abuse in order to manage the interruption of the psychotherapy.

Key Words:
Suicide risk, Psychodynamic psychotherapy, Temperament, Depression.

Introduction

Temperamental predictors of suicide risk have been identified as a cyclothymic temperament in subjects with mental illness[1-5], as hopelessness, anhedonia, anxiety, hostility, undirected anger expression, and as high scores for aggression at six-month follow-up after inpatient psychiatric treatment[6]. Hyperthymic temperament has been identified as a possible protective factor[7-10]. A two year prospective study[11] showed that younger age, high hostility scores, subjective pessimism (as reflected in depression and suicidal ideation), and few reported reasons for living predicted suicidal acts during the whole period. An interesting study[12] showed that an avoidant problem-solving style is a good predictor of depression severity and suicidality. Specifically, an impulsiveness/carelessness problem-solving style appeared to predict only suicidal ideation.

Psychopathological dimensions are also predictors of suicide, such as psychosis proneness, antisocial and borderline traits, interpersonal difficulties[6,13-14], alcohol abuse/dependence[15], post-traumatic stress disorder[16], non-suicidal self-injury, and poor family function[17].

Historical and demographic predictors of risk of suicide attempts are being Black, childhood sexual abuse[6], low socio-economic status, poor psychosocial adjustment, family history of suicide, prior psychiatric hospitalization, and absence of any outpatient treatment prior to the suicide attempt[18].

Several studies have shown that psychotherapy is effective for patients with depression[19-22]. In particular, some studies have shown the effectiveness

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of cognitive behavioural therapy[23-27], intensive short-term dynamic psychotherapy[28], interpersonal psychotherapy[29], internet psychotherapy[30], telephone psychotherapy intervention[31], and mindfulness-based cognitive therapy[32-34].

It has been argued in Cuijpers et al[20,21] that there is insufficient evidence to assume that suicidality in depressed patients can be reduced with psychotherapy focused on depression. In a prospective study[13] of 5001 subjects interviewed at the outset and again after 10 years, more than one-third of the subjects who reported a history of suicide ideation at the baseline continued to experience suicide ideation after ten years.

Some studies[35,36] have suggested that depression and suicidality are often associated from a diagnostic point of view. However, depression seems to respond to treatment while suicidality seems to be a very stable treatment-resistant symptom.

Many studies have tried to identify predictors of suicide attempts; it is crucial to investigate and to identify which pre-treatment factors could predict the suicide risk after psychotherapy.

The aim of this study was to investigate possible pre-treatment predictors of suicide risk after psychotherapy treatment and at follow-up. The hypothesis of the present study was that the following predict suicide risk after psychotherapy treatment and at six-month follow-up: a more severe clinical family history; familial suicide; drug abuse; experience of psychological and moral abuse; higher levels of cyclothymic, dysthymic, irritability, and anxiety temperamental traits; and, a low level of hyperythymic temperamental trait.

Patients and Methods

Design

All the patients who required psychotherapy in outpatient psychiatry at the Psychotherapy Service of the Sant'Andrea Hospital in Rome from 1 January 2010 to 1 January 2011 were asked to participate in the present study. After a complete description of the study, written informed consent was obtained from the participants. The Ethical Committee of Sant'Andrea Hospital approved the study.

Inclusion criteria were: a primary DSM-IV-TR (Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision) diagnosis of anxiety disorder, personality disorder or mood disorder, and age between 18 and 65 years.

Exclusion criteria were: a history of neurosurgery, severe medical conditions, previous psychotherapy treatment in the past 12 months, a lifetime history of schizophrenia, mental disorder due to a general medical condition, and retardation.

Diagnoses were made by an expert clinician using the Structured Clinical Interview for DSM-IV Axis I and II[37-38] disorders.

Assessment

Each patient included in the study was enrolled on a pre-treatment psychiatric assessment related to the clinical history of the patient (previous psychotherapy, previous inpatient treatment, suicidality in the last month, suicide attempts, number of previous suicide attempts, abuse of alcohol or other substance), clinical family history (familial suicide attempts, familial affective disorders, familial psychotic disorders, familial anxiety disorders, familial abuse of alcohol or other substances), physical diseases (diabetes mellitus, hypertension, cardiac diseases, other physical diseases), and type of suffered abuse (physical or psychological abuse by father, by mother, by partner, by a different relative, not by a relative). Moreover, mood ratings (depression and mania), temperamental features (dysthymia, cyclothymia, hyperthymia, irritability, anxiety) and suicide risk levels were assessed for each patients at the baseline (T0), after the treatment (T1), and at six-month follow-up (T2). Patients were assessed by independent and trained clinicians.

Measures

The measures used in this study were the Gotland Scale of Depression; the Altman Self-rating Mania Scale; the Temperament Scale of Memphis; the Pisa, Paris and San Diego Auto-questionnaire[39]; and the Mini International Neuropsychiatric Interview.

The Gotland Scale of Depression[40-42] is a screening instrument that measures symptoms of depression, which consists of 13 items rated on a 4-point Likert scale from 0 = *not present*, to 3 = *present to a high degree*. The total score for the 13 items has a theoretical range of 0 to 39.

The Altman Self-rating Mania Scale[43,44] is a self-assessment scale for mania, compatible with the diagnostic criteria of the DSM-IV. It assesses the presence and the severity of manic symptoms.

The Temperament Scale of Memphis[39] (TEMPS-A) measures five temperaments: depressive, cyclothymic, hyperthymic, irritable, and anxious. The scale has been verified in versions in thirty-two languages and has been widely used in a number of epidemiological and clinical studies

with psychiatric patients and healthy subjects. The TEMPS-A 110-item version of the questionnaire was used in this study. The evaluation of five temperament domains was performed: depressive (items 1-21), cyclothymic (items 22-42), hyperthymic (items 43-63), irritable (items 64-84), and anxious (items 85-110).

The Mini International Neuropsychiatric Interview[45] (MINI) is a short structured interview for 17 disorders according to DSM-III-R. It has undergone many reliability and validity studies[45]. One section of this instrument is devoted to the assessment of suicide risk, with questions about past and current suicidality. The suicidality section of the MINI classifies the subjects into four groups: no suicide risk, low suicide risk, medium suicide risk, and high suicide risk.

Psychotherapy Treatment

For each patient a brief dynamic psychotherapy intervention programme (24 sessions) was proposed according to previous studies[19,21]. All psychotherapy sessions were conducted by a psychotherapist with full psychotherapy training and supervised once a week by an expert psychodynamic supervisor. Each session lasted 45 minutes.

The brief dynamic psychotherapy was focused on enhancing insight and providing a corrective emotional experience.

Statistical Analysis

In order to investigate the indicators and possible predictors of a decrease of suicide risk post-treatment (T1) and at the six-month follow-up psychotherapy (T2) compared to pre-treatment (T0), the variables MINI Δ1 (suicide risk at T1 – suicide risk at T0), MINI Δ2 (suicide risk at T2 – suicide risk at T0), and MINI Δ3 (suicide risk at T2 – suicide risk at T1), were calculated.

Correlation analysis (Pearson's *r*) was carried out in order to test which behavioural, clinical, and temperamental variables were correlated with MINI Δ1, Δ2, and Δ3.

Only the variables significantly correlated with the MINI Δ1, Δ2, and Δ3 were inserted in three linear regression models in order to evaluate significant predictors of the three MINI Δ. The *p* value was considered significant when it was less than 0.05.

Results

Fifty-five patients agreed to enter the study. As fourteen patients dropped out of the psychotherapy treatment, the final sample for the present study was composed of 41 patients (10 males and 31 females; age: 40.7 ± 12.7). ANOVA comparison between the three disorders of anxiety disorder (8 males and 11 females, age: 36.1 ± 12.1), personality disorder (0 males and 4 females, age: 49.7 ± 7.7), and mood disorder (2 males and 12 females, age: 43.5 ± 12.8) on the age variable did not show a significant effect, $F(2,38) = 2.9$, $p = .064$.

Table I shows the trend of the dependent variables at the three times: pre-, post-, and at six-month follow-up treatment. The levels of depression and cyclothymia decreased at T1 and T2 compared to T0; however, the distribution of patients with a high suicide risk level was similar be-

Table I. Anovas within factor Pre (T0), Post (T1), and six months Follow up (T2) treatment for the clinical variables.

	T0	T1	T2	Fisher F (2.80)	Post hoc comparisons
Gotland Depression Scale	15.8 ± 10.2	12.0 ± 8.5	10.5 ± 8.2	9.7 $p = 0.0002$	T0 >T1 $p = 0.003$ T0 >T2 $p = 0.00005$
Altman Scale Rating Mania	3.2 ± 2.7	3.6 ± 2.9	3.7 ± 2.8	0.35 $p = 0.71$	
Mini (patients with high suicide risk)	0.76 ± 1.2 (14/41)	0.66 ± 1.0 (15/41)	0.85 ± 0.96 (23/41)	0.62 $p = 0.54$	
Dysthymia	11.0 ± 4.3	11.1 ± 5.1	10.3 ± 4.6	0.64 $p = 0.53$	
Cyclothymia	9.1 ± 4.9	7.5 ± 5.0	7.1 ± 5.1	5.7 $p = 0.005$	T0 >T1 $p = 0.01$ T0 >T2 $p = 0.002$
Hyperthymia	8.0 ± 3.5	7.7 ± 4.1	7.7 ± 4.2	1.7 $p = 0.20$	
Irritability	6.8 ± 4.8	6.5 ± 4.6	5.8 ± 4.4	1.5 $p = 0.22$	
Anxiety	13.6 ± 6.5	13.0 ± 6.6	11.7 ± 5.4	2.6 $p = 0.08$	T0 >T2 $p = 0.029$

Table II. Correlations (Pearson r) between Δ1 (T1-T0), Δ2 (T2-T0), and Δ3 (T2-T1) suicide risk and variables related to the clinical history of the patients, to the clinical familiarity, to the physical disease, to the type of suffered abuse, to the temperamental features, and to the mood ratings

N:41	MINI Δ1 (T1-T0)	MINI Δ2 (T2-T0)	MINI Δ3 (T2-T1)
Clinical history of the patients			
Previous psychotherapy (presence)	r: -.10 $p = 0.64$	r: -.31 $p = 0.52$	r: -.35 $p = 0.02$
Previous in-patient treatment	r: .01 $p = 0.93$	r: -.01 $p = 0.93$	r: .03 $p = 0.87$
Suicidality in the last month	r: -.40 $p = 0.009$	r: -.33 $p = 0.03$	r: .06 $p = 0.70$
Suicide attempts (presence)	r: -.24 $p = 0.13$	r: -.45 $p = 0.003$	r: -.19 $p = 0.24$
Number of previous suicide attempts	r: -.29 $p = 0.06$	r: -.36 $p = 0.02$	r: -.06 $p = 0.72$
Abuse of alcohol or other substance	r: .02 p = 0.93	r: -.31 $p = 0.05$	r: -.30 $p = 0.06$
Clinical familiarity			
Familiarity suicide attemps	r: -.22 $p = 0.17$	r: -.36 $p = 0.02$	r: -.13 $p = 0.43$
Familiarity affective disorders	r: -.20 $p = 0.21$	r: -.17 $p = 0.29$	r: -.03 $p = 0.86$
Familiarity psychotic disorders	r: -.14 $p = 0.38$	r: -.22 $p = 0.16$	r: -.07 $p = 0.64$
Familiarity anxiety disorders	r: .05 $p = 0.77$	r: -.10 $p = 0.54$	r: -.17 $p = 0.40$
Familiarity abuse of alcohol or other substance	r: .02 $p = 0.90$	r: -.13 $p = 0.43$	r: -.13 $p = 0.40$
Physical diseases			
Diabetes mellitus	r: -.24 $p = 0.13$	r: -.03 $p = 0.83$	r: -.19 $p = 0.23$
Hypertension	r: -.12 $p = 0.47$	r: .01 $p = 0.97$	r: .11 $p = 0.48$
Cardiac diseases	r: -.18 $p = 0.25$	r: -.04 $p = 0.78$	r: .13 $p = 0.42$
Other physical diseases	r: -.08 $p = 0.63$	r: -.10 $p = 0.52$	r: -.02 $p = 0.89$
type of suffered abuse			
Physical or psychological abuse	r: -.09 $p = 0.56$	r: -.13 $p = 0.40$	r: -.04 $p = 0.82$
By father	r: -.20 $p = 0.21$	r: -.04 $p = 0.80$	r: .14 $p = 0.36$
By mother	r: .05 $p = 0.73$	r: -.16 $p = 0.33$	r: -.19 $p = 0.22$
By partner	r: -.29 $p = 0.06$	r: -.34 $p = 0.03$	r: -.04 $p = 0.81$
By a different relative	r: .23 $p = 0.15$	r: -.13 $p = 0.43$	r: -.33 $p = 0.04$
By a no relative	r: -.18 $p = 0.25$	r: -.18 $p = 0.25$	r: -.33 $p = 0.03$
Temperamental features			
Dysthymia	r: -.29 $p = 0.06$	r: -.32 $p = 0.04$	r: -.03 $p = 0.87$
Cyclothymia	r: -.21 $p = 0.17$	r: -.36 $p = 0.02$	r: -.14 $p = 0.38$
Hyperthymia	r: -.14 $p = 0.37$	r: -.10 $p = 0.63$	r: .06 $p = 0.71$
Irritability	r: -.27 $p = 0.09$	r: -.50 $p = 0.001$	r: -.22 $p = 0.17$
Anxiety	r: -.12 $p = 0.46$	r: -.52 $p = 0.0001$	r: -.37 $p = 0.02$
Mood ratings at T0			
Gotland Depression Scale	r: -.36 $p = 0.02$	r: -.53 $p = 0.0001$	r: -.16 $p = 0.32$
Altman Scale Rating Mania	r: -.02 $p = 0.87$	r: -.13 $p = 0.40$	r: -.10 $p = 0.53$

tween T0 and T1 (T0: $n = 14/41$ compared to T1: $n = 15/41$; see Table I), but the number of patients with high suicide risk increased at the six-month follow-up (T2: $n = 23/41$; see Table II).

Table II reports the correlations (Pearson's r) between MINI Δ1 (T1-T0), Δ2 (T2-T0), and Δ3 (T2-T1) and the variables related to the clinical history of the patients (previous psychotherapy, previous in-patient treatment, suicidality in the last month, presence of previous suicide attempts, number of suicide attempts, and abuse of alcohol or other substances) to the following: clinical family history (familial suicide attempts, familial affective disorders, familial psychotic disorders, familial anxiety disorders, familial abuse of alcohol or other substance), physical disease (diabetes mellitus, hypertension, cardiac disease, other physical disease), the type of abuse suffered (physical or psychological abuse, by father, by mother, by partner, by a different relative, not by a relative), the temperamental features (dysthymia, cyclothymia, hyperthymia, irritability, anxiety); and, mood ratings at T0 (Gotland Depression Scale, Altman Scale Rating Mania). MINI Δ1 was correlated only with the suicidality in the previous month ($r = –0.40$, $p = 0.009$) and with Gotland depression levels at T0 ($r = –0.36$, $p = 0.02$); MINI Δ2 was correlated with the suicidality in the last month ($r = –0.33$, $p = 0.03$), presence of suicide attempts ($r = –0.45$, $p = 0.003$), number of previous suicide attempts ($r = –0.36$, $p = 0.02$), abuse of alcohol or other substance ($r = –0.31$, $p = 0.05$),

familial suicide attempts (r = –0.36, p = 0.02), physical or psychological abuse by partner (r = –0.34, p = 0.03), dysthymia (r = –0.32, p = 0.04), cyclothymia (r = –0.36, p = 0.02), irritability (r = –0.50, p = 0.001), anxiety (r = –0.52, p = 0.0001), and with Gotland depression levels at T0 (r = –0.53, p = 0.0001); MINI Δ3 was correlated with the presence of previous psychotherapy (r = –0.35, p = 0.02), physical or psychological abuse by a relative (r = –0.3, p = 0.04), by a non-relative (r = –0.3, p = 0.03), and anxiety (r = –0.37, p = 0.02).

In Table III three linear regression models are reported for the three MINI Δ: MINI Δ1 (T1-T0); MINI Δ2 (T2-T0) MINI Δ3 (T2-T1). The variables which significantly correlated with the three MINI Δ were inserted in the regression models as predictors. MINI Δ1 was significantly predicted by the suicidality in the last month (p = 0.009); MINI Δ2 was significantly predicted by any variable; and, MINI Δ3 was significantly predicted by anxiety (p = 0.01).

Discussion

A brief dynamic psychotherapy of 24 sessions in an out-patient regimen was able to decrease depression and cyclothymia levels, as reported in other studies[46,47]. This effect remained stable at the six-month follow-up. However, the treatment was not able to decrease the suicide risk levels after the treatment was completed. Moreover, at the six-month follow-up, the percentage of patients at risk of suicide increased compared to post-treatment. This data confirms the difficulty of decreasing the suicide risk levels through psychotherapy, as shown in previous studies[46]. Moreover, this data suggests that the treatment was efficacious for depressive symptoms but not for suicide risk levels. A possible explanation of this finding could be that 24 sessions of psychotherapy are sufficient to decrease depression levels, but insufficient to decrease suicidality. In order to identify an efficacious treatment for suicidality it seems important planning clinical studies with a longer psychotherapy.

The trend for the suicide risk levels during the pre- and post-treatment period correlated only with the suicidality in the last month and depression. However, only suicidality was able to predict an increase in the level of suicide risk after the treatment, showing that suicide risk and depression, although related each other, can respond in a different ways to treatment.

The trend of risk suicide levels from the pre- to the six-month follow-up treatment was correlated with suicidality, depression, abuse of alcohol or other substance, familiarity of suicide attempts, physical or psychological abuse by partner, dysthymia, cyclothymia, irritability, and anxiety[48-49]. This finding shows the relevance of historical and temperamental variables on the outcome of a brief psychodynamic psychotherapy. However, no variable was able to predict the trend in suicide risk levels between the pre-treatment and the follow-up. This outcome could be due to the number of predictors inserted in the model. Notwithstanding this, it was interesting that the depression levels presented a strong negative correlation (p = 0.0001) with the decrease of suicide risk at the follow-up compared to the pre-treatment, in the regression model this relationship was strongly attenuated (p = 0.81).

The trend of the suicide risk level from the post-treatment to follow-up treatment was correlated with the presence of previous psychotherapy treatment, an experience of physical or psychological abuse, and anxiety levels. Anxiety levels and the experience of physical and psychological abuse were significant predictors in the regression model. A possible explanation of this data is that anxiety and previous relationships perceived as harmful, previous inefficacious psychotherapies and, more crucially, physical and psychological abuse could increase the suicide risk levels when psychodynamic treatment is interrupted. This finding suggests that general social support could be insufficient to decrease suicide risk levels and that more accurate variables (such as how the patient interprets the experience of social support) could have a crucial role.

In the current work no variable was positively and significantly related to the decrease of suicide risk after psychotherapy, showing that any of the considered variables could be interpreted as protective factors. Recent reports[7-10] have identified hyperthymia as a protective factor of suicidality and suicide attempts. In the present paper a hyperthymic temperament was not related to the trend of suicide risk after psychotherapy, showing that hyperthymia seems to be a protective factor of absolute suicidality but not of the decrease of the suicide risk level after psychotherapy.

Finally, the findings confirmed that although depression and suicide risk seem to be related, they could react in a different and unrelated way, showing that a treatment could be efficacious for depression but not for suicidality. Specifically, in the present study at six-month follow-up the distribution of patients with a high suicide risk was increased compared to post-treatment. This data, as reported in other researches[46] suggests that a psychotherapy

Table III. Three linear regression models on the three MINI Δ (MINI Δ1 (T1-T0); MINI Δ2 (T2-T0) MINI Δ3 (T2-T1)). The predictors were inserted if significantly correlated with the three MINI Δ

Variable	R	R^2	Adjusted R^2	F (fd)	p level	SE	BETA	SE BETA	B	SE B	T *(fd)*	p level
MINI Δ1 (T1-T0)	.48	.23	.19	5.8 (2,38)	.006	1.0						
Intercepts									.56	.29	2.0 (38)	0.05
Suicidality in the last month							-.34	.15	-.66	.29	-2.3 (38)	0.03
Gotland Depression Scale at T0							-.28	.15	-.03	.02	-1.9 (38)	0.07
MINI Δ2 (T2-T0)	.73	.53	.35	2.9 (11,29)	.01	.88						
Intercepts									1.0	.43	2.3 (29)	0.027
Suicidality							-0.12	0.24	-0.24	0.46	-0.52 (29)	0.61
Suicide attempts							-0.50	0.55	-1.64	1.81	-0.90 (29)	0.37
Number of previous suicide attempts							0.69	0.59	1.53	1.31	1.16 (29)	0.25
Abuse of alcohol or other substance							0.27	0.27	1.86	1.87	0.99 (29)	0.33
Familiarity suicide attemps							-0.22	0.20	-0.68	0.62	-1.09 (29)	0.28
Physical or psychological abuse by the partner							-0.56	0.31	-2.82	1.55	-1.82 (29)	0.08
Dysthymia							0.16	0.21	0.04	0.05	0.78 (29)	0.44
Cyclothymia							0.32	0.24	0.07	0.05	1.35 (29)	0.19
Irritability							-0.45	0.26	-0.10	0.06	-1.75 (29)	0.09
Anxiety							-0.42	0.23	-0.07	0.04	-1.81 (29)	0.08
Gotland Depression Scale at T0							-0.08	0.26	-0.01	0.03	-0.32 (29)	0.75
MINI Δ2 (T2-T0)	.62	.39	.32	5.7 (4,36)	.001	.98						
Intercepts									1.5	.38	4.1 (36)	0.0002
Previous psychotherapy							-0.23	0.14	-0.54	0.33	-1.65	0.11
Physical or psychological abuse by a different relative							-0.19	0.14	-1.06	0.78	-1.37	0.18
Physical or psychological abuse by a no relative							-0.30	0.14	-1.20	0.54	-2.21	0.03
Anxiety							-0.38	0.13	-0.07	0.02	-2.89	0.01

treatment that is efficacious for depression cannot be considered a sufficient treatment for suicide risk. As previous studies[35-36] have suggested, it is possible that suicidality represents a specific diagnostic identity and is not just a symptom of depression.

Moreover, pre-treatment suicidality levels seems to predict the outcome at the post- and follow-up brief psychodynamic treatment, showing the difficulty of treating suicidal symptoms.

High anxiety levels and previous experiences of physical and psychological abuse predicted the increase of suicide risk after the interruption of the psychotherapy. The finding suggests paying particular attention to the management of the interruption of the psychotherapy with anxious patients with abuse experience.

A limitation of the present study was that the patients were not homogeneous for suicide risk level at the pre-treatment stage. There could be different outcomes for patients with high or low pre-treatment suicide risk levels. Moreover, investigating specific psychiatric samples could allow the outcome for a specific psychiatric condition (such as borderline personality disorder) to be identified.

Conclusions

A specific psychotherapeutic treatment focused on suicide risk should be planned, and the outcome should be evaluated. Moreover, it seems crucial to investigate whether and which psychological variables, such as coping strategies or alexithymia, and psychotherapy process variables, such as therapeutic alliance[50], could predict the decrease of suicide risk level after psychotherapy.

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Conflict of Interest

The Authors declare that there are no conflicts of interest.

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