Cognitive – Behavioural Coping Strategies as Predictor of Suicide Risk Severity

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Abstract:

Background and aim: Cognitive behavioural coping strategies are closely correlated with depression and suicide risk. The aim of this study is to explore the particular features of cognitive-behavioural coping strategies and their impact on depression levels and suicidal ideation.

Methods: The study included a total of 131 participants, of whom 65 had a clinical diagnosis of depression and 66 were controls. Psychometric tools were administered to both groups: Montgomery-Asberg Depression Scale (MADRS), Depression Anxiety Stress Scale (DASS21R), Strategic approach to coping scale (SACS), Columbia Suicide Severity Rating Scale (C-SSRS), in order to assess the differences between depressive and non-depressive individuals in relation to cognitive behavioural coping strategies.

Results and conclusion: Results based on statistical analysis of scores obtained on various psychometric scales showed significant differences between depressed and non-depressed patients. Also, cognitive-behavioural strategies could represent predictors that can be used in the prevention of suicide risk.

Keywords: *Depression, Suicide Risk, Behavioural Coping Strategies* .

Introduction

The depressive disorder is characterized by several psychopathological dimensions, such as mood deviation, suicide potential, psychomotor delay or agitation, loss of motivation, despair and anhedonia Tye et al. (2013). Beck defines the depressive disorder as a condition characterized by negative future expectations, general lack of motivation and attribution of wrong significance to personal experience Beck et al. (1974). In the last decades, the lack of hope has appeared to be one of the main features of the depressive disorder Hawton et al. (2013). From a clinical point of view, the negative outlook on the future combined with psychological suffering and pain that often occurs in depressive patients leads to increased suicide risk. In fact, the lack of hope seems to be closely related to suicidal ideas, this relationship being stronger than the one between suicide and severity of depression Pollock & Williams (2004), as reported in a recent systematic review by Hawton et al. (2013). Moreover, the lack of hope could be considered a clinical predictor of any suicide attempt Brown et al. (2000).

Suicide risk

Suicidal behaviour is a major public health challenge. The risk factors of suicide and suicide attempts have been constantly identified and updated Hawton et al. (2013). They include high rates of suicide attempts among patients diagnosed with bipolar disease, and in association with depressive disorder, especially when its severity requires hospitalization Galfalvy et al. (2006); Simon & Hales (2012). The presence of other various features (psychomotor restlessness, hypomanic symptoms) in depressive patients is also an important risk factor of suicidal behaviour Hawton et al. (2013); Tondo et al. (2020). Additional risk factors include mood instability Peters et al. (2016).

Coping

When confronted with negative or stressful life events, psychological and physical wellbeing are influenced by the coping strategies acquired by the person Aspinwall & Taylor (1997). Coping has been conceptualized, in general, as addressing a problem directly by action, or actions and cognition that influence how the problematic situation and one's emotional response to stress are perceived Endler & Parker (1990); Folkman & Lazarus (1980, 1988).

Coyne & Smith suggested that the basis of coping consists of social interaction Coyne & Smith (1991). There are a number of tools that include subscales with measuring variables such as social support seeking Amirkhan (1990); Carver et al. (1989); Folkman & Lazarus (1980, 1988).

Hobfoll has designed the multiaxial coping model in order to facilitate the understanding of both individual and community aspects of coping. They proposed a biaxial model which included the active-passive dimension and the prosocial-antisocial dimension of coping Hobfoll & London (1986).

While testing and validating the model, the authors found no differences between men and women regarding the active-passive dimension of coping. However, when women resorted to an active strategy, they had a prosocial attitude, both seeking social support and relying on social relations. Unlike women, men who resorted to active strategies display mostly aggressive and even antisocial behaviours (like "attacking" others in order to reach their goals). These results have been explained by referring to the fact that men tend to be more individualistic than women, sometimes at the expense of the other people in the community, while women tend sacrifice their goals in exchange of caring for others Hobfoll & London (1986); Kessler et al. (1985).

Moreover, preliminary studies that tested the model Hobfoll et al. (1994a) showed that a prosocial and active coping mode was more frequently associated with increased control power and psychological distress. Coyne & Gotlieb have suggested that most coping strategies aim at maintaining the wellbeing of group members and social relationship Coyne & Gottlieb (1996). The beneficial associative nature of active and social coping was illustrated by Hobfoll, who discovered that higher stress resistance was displayed by people who use active coping behaviours and also ask for social support Hobfoll et al. (1994a). In order to further develop the biaxial coping model, the authors added another dimension, namely the indirect approach to problems. The authors revised the model and turned it into a triaxial one that includes the following dimensions: prosocial-antisocial, active-passive, direct-indirect.

The relationship between coping, depression and suicide risk

Several studies have attempted to establish whether there is a link between the coping style and the risk of suicide. Kotler reported that the patients at high risk of suicide were less likely to use a minimizing style in order to cope with life problems Kotler et al. (1993).

Among the patients with a history of suicide attempts, suicide risk was negatively correlated with the minimization, replacement and blaming styles of coping. It has been demonstrated that the suicide risk is predicted by the coping style. Josepho & Plutchik investigated the relation between interpersonal problems, coping styles and suicide risk. They showed that interpersonal problems and the way to face suppression (the tendency to

avoid a threatening situation) proved to be significantly positively correlated with suicide risk Josepho & Plutchik (1994).

Numerous studies have demonstrated a correlation between suicidal ideation and dysfunctional use of strategies in stressful situations Kaslow et al. (2004); Law et al. (2015); Marty et al, (2010); Marusic & Goodwin (2006); Takahashi et al. (2013), stress being an independent risk factor Phillips et al. (2002); Stack (2018). There is also a correlation between coping and depressive symptoms Cairns et al. (2014) and, in another study conducted Guerreiro et al. (2013), it is mentioned that avoidant coping strategies have been consistently associated with suicidal and self-harm behaviours.

Moreover, there are studies that show that specific coping behaviours have been examined in an independent way, for example, self-blame de Leo & Heller (2004), or disengagement Wadsworth & Compas (2002).

Studies in clinical settings investigating psychiatric patients with suicide attempts show that they frequently use avoidant coping and very little adaptive coping strategies compared to control groups Kaslow et al. (2004); Sunnqvist et al. (2013).

In the general population, especially in non-psychiatric patients, studies in the United States, D'Zurilla et al. (1998); Pietrzak et al. (2011), China, Li & Zhang (2012); Tang & Qin (2015), Sweden, Ambrus et al. (2020); Sunnqvist et al. (2013), Japan, Sugawara et al. (2012); Svensson et al. (2014), etc., have found an association between suicidal behaviour and an increased use of maladaptive strategies, such as avoidant coping.

Current study

Thus, the aims of this study were to analyse the relationship between depression, suicidal risk and behavioural coping strategies, to identify the most used behavioural coping strategies as well as their prediction level, because with a good identification and understanding of these strategies it will be possible to create practical guidelines for psychotherapeutic interventions to specifically reduce suicidal behaviour.

Objectives, hypotheses and design of the study

Objectives

O1. Identification of differences regarding cognitive-behavioural coping strategies between depressive and non-depressive patients.

O2. Investigation of the relationship between the level of depression, suicide risk and cognitive-behavioural coping strategies.

O3. Identification of the role of a clinical diagnosis of depression and cognitive-behavioural coping strategies in the prediction of suicide risk severity.

Hypotheses

For the fulfilment of these objectives, the following hypotheses were developed:

H1. Statistically significant differences are expected regarding the scores of cognitive-behavioural coping strategies between depressive patients with suicide risk and the non-depressive ones.

H1.1. Depressive patients, unlike non-depressive ones, present a statistically significantly higher level on the scales: Avoidance, Antisocial behaviour, Instinctive behaviour, Indirect behaviour, Aggressive behaviour.

H1.2. Depressive patients, unlike non-depressive ones, present a statistically significantly higher level on the scales: Assertive behaviour, social relations, Seeking social support, Cautious behaviour.

H2. Suicide risk has a statistically significantly positive correlation with the existence of a clinical diagnosis of depression (condition) and the following cognitive-behavioural coping strategies: Avoidance, Antisocial behaviour, Instinctive behavior, Indirect behaviour, social relation, Seeking social support, Cautious behaviour.

H3. Cognitive-behavioural coping strategies predict the severity of suicide risk when controlling for gender, age, and the existence of a clinical diagnosis of depression.

Study design

The study was conducted in accordance with good clinical practice guidelines. It is an observational study, clinical trial, with two parallel groups: one group of patients with depression and one control group.

Participants

In **Table 1** are presented the socio-demographic characteristics of the participants.

Table 1. *Comparison of sociodemographic characteristics between clinical and control groups*

		Total (n=131)	Clinical group (n=65)	Control group (n=66)	p
Gen	masculine	47 (35.9)	31 (47.7)	16 (24.2)	p=.05
	feminine	84 (64.1)	34 (52.3)	50 (75.8)	
Environment of origin	rural	67 (51,1)	45 (69.2)	22 (33.3)	p<.001
	urban	64 (48.9)	20 (30.8)	44 (66.7)	
Studies	Primary Inv.	2 (1.5)	1 (1.5)	1 (1.5)	p=.03
	Secondary school education	7 (5.3)	3 (4.6)	4 (6.1)	
	High school education	48 (36.6)	28 (43.1)	20 (30.3)	
	Post-secondary education	25 (19.1)	13 (20.0)	12 (18.2)	
	License	24 (18.3)	15 (23.1)	9 (13.6)	
	master	17 (13.0)	5 (7.7)	12 (18.2)	
	doctorate	8 (6.1)	0	8 (12.1)	
Age	Median (Percentile 25% - Percentile 75%)	37 (29-49)	40 (32 - 3.50)	34 (25.75 – 45)	p<.001
Marital status	unmarried	53 (40.5)	25 (38.5)	28 (42.4)	P=0.9
	married	54 (41.2)	24 (36.9)	30 (45.5)	
	divorced	19 (14.5)	11 (16.9)	8 (12.1)	
	widower	5 (3.8)	5 (7.7)	0	
Socio-economic status	student	10 (7.6)	6 (9.2)	4 (6.1)	p<.001
	employee	78 (59.5)	33 (50.8)	45 (68.2)	
	unemployed	5 (3.8)	4 (6.2)	1 (1.5)	
	No occupation	21 (16)	6 (9.2)	15 (22.7)	
	pensioner inv.	16 (12.2)	16 (24.6)	0	
	pensioner age	1 (0.8)	0	1 (1.5)	

The authors created the table, according to the data collected in our study and statistics used to analyze data.

Inclusion criteria: Ages range from 20 to 60, regardless of gender. Patient/participant volunteers who gave informed consent; ability to comprehend texts in grades 6 and above. A patient admitted to a psychiatric

ward. depression; recurrent depressive disorder; bipolar disorder, current depressive episode; Suicide risk.

Assessment instruments:

1. Strategic approach to coping scale - SACS Dunahoo et al. (1998); Hobfoll et al. (1994b) is a self-assessment questionnaire which measures the active, passive, prosocial, antisocial, direct and indirect behaviour coping strategies of adults over 18 years old. SACS (Strategic approach to coping scale) is a multidimensional questionnaire designed to identify the behavioural coping strategies in a social context, by someone who has experienced negative events or circumstances. Compared to other coping assessment questionnaires, which do not explicitly distinguish between a person's thoughts and real actions, SACS refers exclusively to the ways a person reacts through her/his behaviour – active/passive, prosocial/antisocial, direct/indirect, after a negative experience. SACS measures the frequency of the use of certain strategies and includes 9 subscales.

Assertive action: it is a behavioural coping strategy by which a person approaches a situation firmly, sincerely and directly. The person engages in problem solving. He expresses what he feels in accordance with his own wishes and plans. He pursues his interests firmly, without harming others. An item example for this scale is #1: "Don't give up, even when things look their worst, because you can often turn things around". For this scale we obtained α = .67

Social relationing: it is a behavioural coping strategy by which a person joins others in order to face problems together. The person approaches problems together with others, taking into account their problems too. Item example is #17: "You join others to face problems together." For this scale, we obtained α = .80.

Seeking social support: it is a behavioural coping strategy by which a person appeals to others for help, advice, information and emotional support, in order to improve or solve a stressful situation. In such situations he counsels with family and friends about what is to be done. He seeks emotional support in other people. Item example #2: "You consult with friends about what they would do". For this scale we obtained α = .78.

Cautious behaviour: it is a behavioural coping strategy by which a person carefully evaluates his options before acting. In a stressful situation the person assesses all possible choices before acting. He takes all the safety

measures to prevent dangers. Item example is #12: "You are very cautious and assess carefully your options (better be safe than sorry)". On this scale we obtained α = .60.

Instinctive behaviour: it is a behavioural coping strategy by which a person approaches a stressful problem/situation relying first of all on his own instincts/intuition. In stressful circumstances the person acts impulsively. He tackles problems head on, without thinking of the consequences. Item example is #5: "You rely on yourself and your own power, as you think it is not a good idea to depend on others". For this scale, we obtained α = .71.

Avoidance: it is a behavioural coping strategy by which a person engages in other activities in order to elude the stressful problem/situation. In such situations the person withdraws from the problem and waits for it to be resolved by itself. He undertakes other activities and abandons the problems he has to solve. Item example is #7: "You avoid dealing with the problem, because you think that often these things will disappear by themselves". For this scale we obtained α = .78.

Indirect action: it is a behavioural coping strategy by which a person prefers to tackle the stressful problem in an obscure manner, behind the scene. In stressful situations the person influences or manipulates the environment, the context, or other people in order to improve or solve the problem. Item example is #4: "You try to keep in control, while letting the others believe they have the decision". For this scale we obtained α = .75.

Antisocial behaviour: it is a behavioural coping strategy by which a person approaches stressful problems/situations by pursuing his own interests. In stressful situations the person seeks solutions taking into consideration only his personal needs. He acts even if the consequences of his actions will negatively impact on others. Item example is #19: "You defend your interests, even if these will hurt the others involved". For this scale we obtained α = .82.

Aggressive behaviour: it is a behavioural coping strategy by which a person approach stressful problems/situations in a rapid and decisive manner in order to surprise the others unawares. The persons tackle the problem fast, takes control at all costs, his behaviour aiming at dominating and disarm the others. Item example is #31: "You act aggressively, because if the other is caught unawares, things will often settle in your favor". For this scale we obtained α = .78.

As the overall score of the SACS inventory, we obtained a Cronbach's alpha coefficient α = .87

2. Columbia Suicide Severity Rating Scale - *C-SSRS*, Posner et al. (2008). This scale is a complex and multidimensional tool designed to assess severity of suicidal ideation, intensity of suicidal ideation, suicidal behaviour, lethality of suicide thoughts and planning.

The C-SSRS scale provides:

    1) define suicidal ideation, suicidal behavior, and non-suicidal self-harm behavior.

    2) quantify the full spectrum of suicidal ideation and behavior.

    3) distinguish suicidal behavior from self-harm; and

    4) multiple sources.

In our study, this measure proved to have good psychometric significance with $\alpha = 0.80$.

3. Depression Anxiety Stress Scale - DASS21R, Lovibond & Lovibond (1995) this scale consists of three subscales to assess depression, anxiety, and stress. Each subscale of the DASS-21R contains seven items rated from 0 (disagree) to 3 (strongly agree). The score for each subscale is the sum of the item scores. High scores indicate high levels of anxiety, depression or stress.

    Depression Scale measures discomfort, loss of hope, loss of life values, loss of interest, and anhedonia associated with decreased levels of self-esteem and initiative in pursuing personal goals. Item example: "I felt that life had no meaning" (item 20). Cronbach alpha coefficient was $\alpha = .94$.

    Anxiety scale evaluates the activation of the autonomic nervous system, situational anxiety and subjective experience of the state of anxiety. Item example: "I felt that life was meaningless" (item 21). Cronbach alpha coefficient was $\alpha = .91$.

    Stress scale includes items related to difficulty relaxing, nervous agitation, restlessness, and irritability/irritable tendencies. Item example: "I had the tendency to overreact to situations" (item 3). Our Cronbach Alpha coefficient was $\alpha = .93$. In this study for total DASS21R we obtained $\alpha = .97$.

    4. Montgomery-Asberg Depression Scale – MADRS, Montgomery & Åsberg (1979). This scale was developed by Montgomery & Äsberg in 1979 and is based on the Comprehensive Psychopathology Rating Scale, Åsberg et al. (1978). It consists of 10 items that evaluate the main symptoms of depression. Nine of the 10 items were self-appraisal, and one included the rater's observations during the interview. In this study we obtained Cronbach alpha coefficient $\alpha = .97$.

Procedure

The study protocol is approved by the Iuliu Haţieganu UMPh Ethics Committee. Patients were enrolled after admission and signed written informed consent. Personal data is treated as strictly confidential and can be identified using a unique code. This study respects the provisions of the Declaration of Helsinki. Participants were briefed on the goals of the study and told they could withdraw from the study at any time. Each participant took her 25 to 40 minutes. Participants were told that they would have access to the results after the study was completed.

Results

Table 2 shows descriptive statistics for variables that were included in the study.

Table 2 *Descriptive statistics for the measured variables*

	Minimum	Maximum	Mean	SD	Skewness	Kurtosis
Suicidal behaviour	0	3	.52	.75	1.44	1.72
Assertive behaviour	13.00	45.00	31.48	6.16	-.57	.59
Cautious behaviour	7.00	25.00	17.33	3.70	-.35	-.02
Indirect behavior	4.00	20.00	10.05	3.99	.39	-.27
Social relation	5.00	25.00	17.77	4.42	-.35	-.23
Instinctive behaviour	8.00	29.00	19.52	4.82	-.07	-.31
Antisocial behaviour	5.00	24.00	11.07	5.01	.88	-.02
Seeking social support	8.00	35.00	22.98	5.88	-.34	-.14
Avoidance	6.00	29.00	15.53	5.71	.30	-.70
Aggressive behaviour	5.00	24.00	12.18	4.18	.62	.27
DASS Depression	.00	21.00	6.95	6.85	.82	-.68
MADRS Depression	.00	60.00	12.29	16.49	.92	-.44

The authors created the table, according to the data collected in our study and statistics used to analyze data.

Testing of hypotheses (inferential statistics)

In order to confirm that the samples were adequately selected, the depression and suicidality scores of clinical and non-clinical groups were compared using repeated independent sample t tests. A Bonferroni correction was applied to account for the accumulation of type I error. Thus,

the significance level was set at .016. On the DASS21R Depression scale the clinical group scored higher (m=13.83, σ=5.52) than the non-clinical one (m=2.46, σ=2.57). The difference is statistically significant (t(107) = 14.49; p =.001). On the MADRS scale the clinical group had higher scores (m=31.16, σ=9.87) than the non-clinical one (m=.00, σ=.00). The difference is statistically significant (t(107) = 25.70; p =.001). On the C SSRS Suicidal behaviour the clinical group had lower scores (m=1.33, σ=.60) than the non-clinical one (M=.00, σ=.00). The difference is statistically significant (t(107) = 17.80; p <.001). As all of the differences were significant, we conclude that the sampling was adequately selected.

In order to test the first hypothesis of the study (statistically significant differences regarding cognitive-behavioural coping styles between depressive and non-depressive persons), a one-way MANOVA was used. As Box's Test of Equality of Covariance Matrices indicated that the homogeneity assumption was violated ($M = 100.62$, $p < .001$), Pillai's Trace criterion was used in the interpretation of the multivariate test. A significant difference between groups in terms of coping styles was observed (Pillai's Trace = .433, F(9, 121) = 10.29, $p < .001$, partial $\eta^2 = .43$). Post hoc tests using the Bonferroni correction (significance level = .0005) revealed significant differences in assertive behaviour ($m_{clinical} = 28.09$, sd = 6.71; $m_{non-clinical} = 33.69$, sd = 4.63, F(1, 129) = 29.41, $p < .0005$, partial $\eta^2 = .19$), cautious behaviour ($m_{clinical} = 15.83$, σ = 4.04; $m_{non-clinical} = 18.30$, σ = 3.12, F(1, 129) = 15.59, $p < .0005$, partial $\eta^2 = .11$) and antisocial behaviour ($m_{clinical} = 12.93$, σ = 6.02; $m_{non-clinical} = 9.86$, σ = 3.83, F(1, 129) = 13.73, $p < .0005$, partial $\eta^2 = .10$). Significant differences that did not survive the Bonferroni correction were observed in social relations ($m_{clinical} = 16.76$, σ = 4.79; $m_{non-clinical} = 18.43$, σ = 4.07, F(1, 129) = 5.55, $p = .020$, partial $\eta^2 = .04$), seeking social support ($m_{clinical} = 21.25$, σ = 6.46; $m_{non-clinical} = 24.10$, σ = 5.23, F(1, 129) = 6.69, $p = .011$, partial $\eta^2 = .05$), indirect action ($m_{clinical} = 10.83$, σ = 4.32; $m_{non-clinical} = 9.54$, σ = 3.70, F(1, 129) = 4.10, $p = .045$, partial $\eta^2 = .03$), and avoidance ($m_{clinical} = 16.95$, σ = 5.50; $m_{non-clinical} = 14.60$, σ = 5.69, F(1, 129) = 6.62, $p = .011$, partial $\eta^2 = .05$). Nonsignificant differences were observed in instinctive behaviour ($m_{clinical} = 18.86$, σ = 5.16; $m_{non-clinical} = 19.95$, σ = 4.58, F(1, 129) = 1.39, $p = .241$, partial $\eta^2 = .01$) and aggressive behaviour ($m_{clinical} = 12.90$, σ = 5.27; $m_{non-clinical} = 11.71$, σ = 3.24, F(1, 129) = 3.36, $p = .069$, partial $\eta^2 = .03$).

In order to test the second hypothesis – H2 – suicide risk is expected to be positively correlated with a clinical diagnosis of depression (condition) and with the following cognitive-behavioural coping strategies: avoidance, antisocial behaviour, instinctive behaviour, aggressive behaviour, and negatively correlated with: assertive behaviour, social relation, seeking social support, cautious behaviour – we used Pearson's correlation analysis.

Table 3. *The relationship between cognitive-behavioural coping, depression and suicide risk*

	1	2	3	4	5	6	7	8	9	10	11	12
1. DASS Depression	1											
2. MADRS Depression	.78**	1										
3. Assertive behaviour	**-.51****	-.40**	1									
4. Cautious behaviour	**-.26****	-.26**	.41**	1								
5. Indirect action	**.21***	.15	.11	.30**	1							
6. Social relation	-.12	-.11	.15	.55**	-.01	1						
7. Instinctive behaviour	-.08	-.06	.35**	.29**	.48**	.17	1					
8. Antisocial behaviour	**.31****	.34**	.10	.18	.75**	-.09	.48**	1				
9. Seeking social support	-.15	-.20*	.08	.54**	.05	.64**	.12	.00	1			
10. Avoidance	**.35****	.23*	-.55**	.08	.11	.17	.09	.22*	.29**	1		
11. Aggressive behaviour	.12	.16	.30**	.17	.66**	-.06	.57**	.71**	-.04	.01	1	
12. Suicidal behaviour	**.75****	**.86****	**-.43****	**-.29****	.17	-.16	-.07	**.36****	**-.24****	**.22***	.17	1

**. p < 0.01

*. p < 0.05 level

The authors created the table, according to the data collected in our study and statistics used to analyze data.

As shown in Table 3, we identified correlations between the main indicator of suicidal behaviour and the cognitive-behavioural coping strategies. We may state that there is a negative correlation between suicidal behaviour and seeking social support ($r = -.24$, $p < .01$), cautious behaviour ($r = -.29$), assertive behaviour ($r = -.43$, $p < .01$).

At the same time, there is a significant positive correlation between suicidal behaviour and depression ($r = .75$, $p < .01$ depressive state, $r = .86$, $p < .01$ depression severity), antisocial behaviour ($r = .36$, $p < .01$), avoidance ($r = .22$, $p < .05$).

A significant negative correlation was also found between depression and indirect action ($r = .21$, $p < .05$), avoidance ($r =.35$, $p <.01$) and antisocial behaviour ($r = .31$, $p < .01$); a significant positive correlation exists between depression and cautious behaviour ($r = -.26$, $p < .01$), assertive behaviour ($r = -.51$, $p < .01$).

In order to test the third hypothesis – H3 – a clinical diagnosis of depression and cognitive-behavioural coping strategies are predictors of suicide risk severity – we used a hierarchical regression analysis, having as dependent variable suicide behaviour assessed by the Columbia scale of suicide risk severity (C-SSRS). In the initial model, the predictive variables introduced were gender and age. In the second model, we introduced the existence of a diagnosis of clinical depression (experimental condition). In the third model, we introduced the cognitive-behavioural coping strategies scores: assertive behaviour, social relations, seeking social support, cautious

behaviour, instinctive behaviour, avoidance, indirect action, antisocial behaviour, aggressive behaviour.

The first model was statistically significant ($F(3,127) = 19.99$, $p < .001$) and explained 15.1% of the variance of suicide behaviour. The second model was statistically significant ($F(2,128) = 6.65$, $p < .001$) and explained 73.2% of the variance of suicide behaviour, the increase in explained variance being statistically significant ($F(1, 127) = 279.10$, $p < .001$). The third was statistically significant ($F(12,118) = 5.26$, $p < .001$) and explained 75.5% of the variance of suicide behaviour, the increase in explained variance being statistically significant ($F(9, 118) = 2.32$, $p = .020$). We can thus state that suicidal behaviour is better explained when taking into account the cognitive-behavioural coping strategies in addition to having a diagnosis of depression, gender and age.

Table 4. *Regression model coefficients for the prediction of suicide behaviour by the cognitive-behavioural coping*

	Model	B	Std. Error	Beta	t	p
1	Intercept	.727	.296		2.460	.015
	Gender	**-.478**	**.133**	**-.291**	**-3.601**	**.000**
	Age	**.019**	**.005**	**.294**	**3.629**	**.000**
2	Intercept	.005	.172		.027	.978
	Gender	-.142	.077	-.086	-1.838	.068
	Age	**.007**	**.003**	**.107**	**2.289**	**.024**
	Diagnosis	**1.268**	**.076**	**.805**	**16.706**	**.000**
3	Intercept	.759	.345		2.202	.030
	Gender	-.101	.080	-.061	-1.264	.209
	Age	**.007**	**.003**	**.108**	**2.204**	**.029**
	Diagnosis	**1.024**	**.095**	**.650**	**10.807**	**.000**
	Assertive behaviour	-.020	.010	-.165	-1.969	.051
	Social relation	.019	.012	.106	1.534	.128
	Seeking social support	-.016	.009	-.126	-1.911	.058
	Cautious behaviour	-.010	.015	-.046	-.651	.517
	Instinctive behaviour	-.005	.010	-.034	-.525	.601
	Avoidance	-.003	.010	-.024	-.351	.726
	Indirect action	-.014	.015	-.074	-.934	.352
	Antisocial behaviour	**.041**	**.014**	**.281**	**3.043**	**.003**
	Aggressive behaviour	-.004	.014	-.023	-.297	.767

The authors created the table, according to the data collected in our study and statistics used to analyze data.

The regression analysis evidenced that the severity of suicide ideation was statistically significantly influenced by: age (β = .11, p = .029), antisocial behaviour (β = .28, p = .003) and the existence of a diagnosis of clinical depression (condition) (β = .65, p < .001).

Discussion

The first objective of this study was to analyze the differences between depressive and non-depressive subjects regarding their cognitive-behavioural coping strategies. The second objective was to test our assumption that suicide risk correlates positively with a clinical diagnosis of depression (condition) and the following cognitive-behavioural strategies: avoidance, antisocial behaviour, instinctive behaviour, indirect action, aggressive behaviour, and negatively with the coping strategies of assertive behaviour, social relations, seeking social support, cautious behaviour. The third objective was to investigate whether a clinical diagnosis of depression and cognitive-behavioural coping strategies could predict or influence the severity of suicide risk.

Our results partially support the first hypothesis, as we found that the patients with a clinical diagnosis of depression presented statistically significantly lower scores on the SACS subscales of assertive behaviour, social relations, seeking social support and cautious behaviour; while we obtained statistically significantly higher scores on the SACS subscales of avoidance and antisocial behaviour. Regarding SACS subscales of aggressive behaviour, instinctive behaviour, indirect action, we obtained close mean scores, the differences between them being not statistically significant. Our results are similar with other studies (Pápai et al., 2021).

The second hypothesis is also partially supported by the results. We identified statistically significant negative correlations between suicidal behaviour and the following cognitive-behavioural coping strategies: seeking social support, cautious behaviour, assertive behaviour. We also identified statistically significant positive correlations between suicidal behaviour and antisocial and avoidance coping.

The results are consistent with previous studies that have shown a positive correlation between suicidal ideation and passive coping Li & Zhang (2012), dysfunctional coping Marty et al. (2010); Sugawara et al. (2012), lack of active coping skills Yip et al. (2003). Another study notes that avoidance of social activities can lead to certain psychological difficulties Beutler & Moos (2003) and increase the risk of suicidal ideation Gould et al. (2004); Ortin et al. (2012) as well as suicide attempts Orbach et al. (1990).

The assumption of a negative correlation between suicide risk and coping based on social relations was not supported. No positive correlation was found between suicide risk and instinctive behaviour, indirect action and aggressive behaviour. Our results support the hypothesis of a positive relation between suicide risk and depression, being similar to another studies Amirkhan (1990); Hobfoll et al. (1994b); Josepho & Plutchik (1994); Kotler et al. (1993).

Regarding the third hypothesis, that the existence of a clinical diagnosis of depression and the cognitive-behavioural coping strategies predict or influence the severity of suicide risk, we may state that the results partially support it, meaning that only one of the nine coping strategies influenced suicidal behaviour, namely antisocial action. Our results are similar with those reported by recent studies Larasati et al. (2021); Li & Zhang (2012); Meehan et al. (2007); Nicoara et al. (2022); Ooi et al. (2021).

The present study primarily contributes to the improvement of the literature on suicide risk reduction through the specific use of behavioural coping strategies and may also be useful for future research in the same field. The results also prove useful to mental health specialists for the development of prevention and psychotherapeutic intervention programs.

Limitations of the study

The limitations of our study, which caution against generalizing the results, are theoretical and methodological in nature. Self - assessment tests rely on the honesty and self-reflection of the respondent. Another limitation is the convenience in selecting study participants and study population characteristics.

Directions for future investigation

Although this study provides important insights into the relationship between suicide risk and cognitive-emotional coping strategies, we must stress that further studies are needed in the future, longer periods (eg, 6, 12 months or longer), across larger groups of patients selected from different geographic regions. Another future direction is to optimize the regression model to predict suicide risk severity considering other types of coping strategies, for example, cognitive-emotional coping strategies.

Conclusions

Despite these caveats, the present study presents compelling evidence that cognitive behavioural coping strategies explain a substantial part of the variance in suicide risk. Also, cognitive-behavioural strategies could represent predictors that can be used in the prevention of suicide risk. These promising findings may lead to better interventions for reducing suicide risk, and, ultimately, death.

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