ORIGINAL ARTICLE

PHENOMENOLOGICAL ANALYSIS OF SUICIDAL BEHAVIOR IN PATIENTS WITH COGNITIVE IMPAIRMENT IN RECURRENT DEPRESSIVE DISORDER

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ABSTRACT

The aim of the study was to determine the characteristics of suicidal behaviour (SB) in patients with cognitive impairment in recurrent depressive disorder (RDD).

Materials and methods: The article presents a phenomenological analysis of suicidal behavior in 123 patients with recurrent depressive disorder. The study of cognitive dysfunctions in patients with recurrent depressive disorder included an analysis of the severity of cognitive impairment and the characteristics of cognitive processes, executive functions, and the specifics of social functioning. The study of the features of suicidal behavior included an analysis of the severity of suicidal risk, diagnosis of symptoms, stress level, suicidal behavior in the past, communication capabilities, reactions of significant others, and the severity of autoaggressive predictors. A complex of research methods was used: clinical-psychopathological, psychometrical, psychodiagnostical and statistical.

Results: It was determined that patients with recurrent depressive disorder have specific characteristics of suicidal behavior, which included: a moderate to low level of suicidal risk; the severity of symptoms of depression, tension, anxiety, guilt, hopelessness and exhaustion; repeated visits to doctors for help; presence and recurrence of stress factors; anamnestic burden; violation of communications; the presence of autoaggressive predictors.

Conclusions: It was found that a weak level of cognitive deficit, a tendency to catastrophisation and self-blame, low switchability and increased focus on negative stimuli in patients with recurrent depressive disorder was associated with a high risk of their suicidal behavior.

KEY WORDS: suicidal risk, suicidal behavior, recurrent depressive disorder, depression

INTRODUCTION

The relevance of the study is due to the high prevalence of suicide in the world. Every year, about 800,000 people become victims of suicide [1]. Suicide is a fairly common cause of premature death and a serious social problem in Ukraine [1,2]. According to the WHO for the year 2016, the overall suicide rate in Ukraine has counted 22.4 cases per 100,000 population [3]. One of the most contributing factors of the suicidal behavior development (SBD) is the presence of mental illness, which creates difficulties for the patient's adaptation to the social environment [1,2,4-6]. Depressive disorder (DD) has now been identified as the most suicidal of all mental and behavioral disorders (2,7). According to the American Suicidality Association, one in eleven patients with DD die from suicide (8). On average, the risk of suicide among people with a depressive disorder is 30 times higher than in the general population [9,10]. It has been noted that cognitive impairment (CI) affects SP by increasing suicide risk (SR) through impaired

cognitive (mental) control, deficits in social functioning and impulsivity in patients with CI [4,6,11-13].

One of the factors for successful suicide prevention in depression is the ability to assess the SR in a particular depressed patient [4,9,14]. This requires a clear understanding of the clinical characteristics and components of DR [2,12,15]. Meanwhile, it is precisely on this issue that there is still a lack of unity of opinion. The literature on this issue is contradictory, and different authors put forward different components of depression in terms of suicide ideation: melancholy, anxiety, agitation, dysphoria, depersonalization, sense of guilt, etc. [2,6,16-18]. [2,6,16-18]. At the same time, all diagnostic, preventive, therapeutic and prognostic measures, as well as the organization of suicidal care are carried out undifferentiated, without taking into account the features of depression, in the structure of which SB was formed, as well as without taking into account the existing KN in DR, which can have a significant impact on SB [2,16,21]. All this necessitates the analysis of SP in
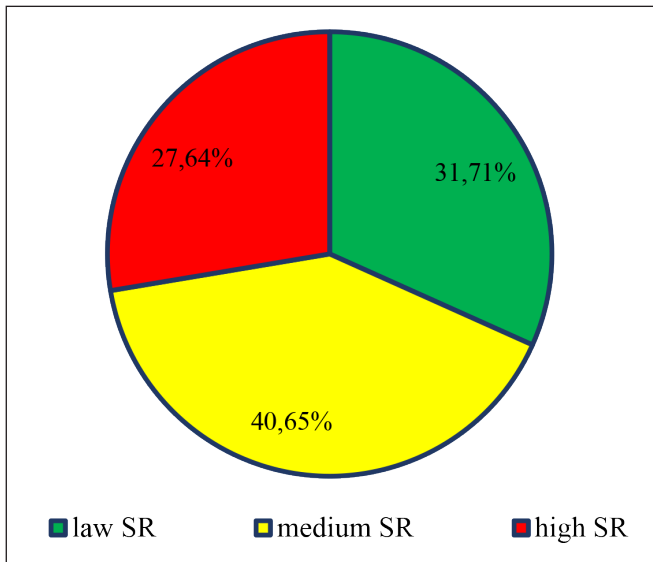
Fig. 1. Severity of suicide risk in patients with RDD

different types of depressive disorder taking into account cognitive dysfunction in order to justify the principles of differentiated prevention in this number of patients.

THE AIM

The aim of the study was to determine the characteristics of suicidal behaviour (SB) in patients with cognitive impairment in recurrent depressive disorder (RDD).

MATERIALS AND METHODS

The study of cognitive dysfunction in patients with RDD included an analysis of the cognitive impairment severity (CI) and features of cognitive processes (mental, mnemonic, attention process, perception), executive functions and specific social functioning features. The study of the SP features in patients with RDD was based on an SR severity analysis, diagnosis of symptoms, level of stress, past SP,
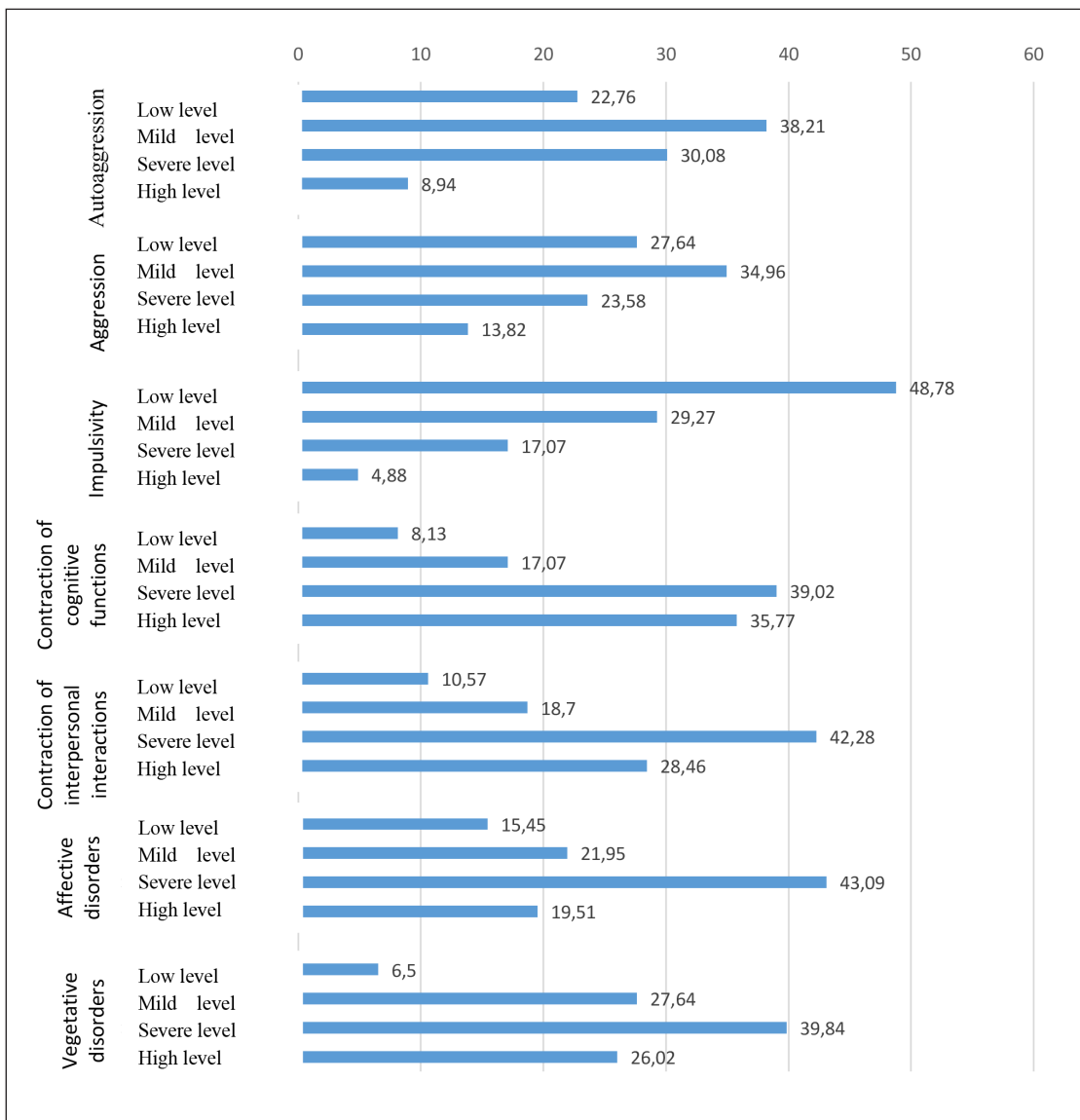

Fig. 2. Severity of auto-aggressive predictors in patients with RDD

communication abilities and reactions of others, and the severity of auto-aggressive predictors.

To investigate the clinical and psychopathological features of IP and the features of SP in RDD there has been used a set of methods : Clinical-psychopathological, psychometric (Los Angeles Suicide Center Suicide Risk Scale, General Impairment Scale (GDR) and Personal and Social Functioning Scale (PSP)), psychodiagnostic (Montreal Cognitive Assessment Scale (MoSa), modified Addenbrooke's Cognitive Scale (ACE-R), "10-Word Memorization" (A. Luria); proofreading test; Schulte tables; Münsterberg test; symbol connectivity test (SCT), verbal speed test (VST), self-rated expression of auto-aggressive predictors questionnaire and cognitive emotion regulation questionnaire (CREQ).

To determine the mean values of quantitative parameters there has been applied some statistical data processing, their standard errors, and some difference reliability (Student-Fisher's test [t], Kolmogorov-Smirnov test [λ]). The target markers of IP were determined by calculating diagnostic coefficients (DC) and Kullback's measures of informativeness (MI). The correlation between the level of SR and the features of cognitive dysfunctions was determined using correlation analysis. Statistical processing of the results was performed using Excel-2010 and STATISTICA 6.1 [22].

A total amount of 123 patients with RDD participated in the study: 57 males (46.34 ± 2.78) % and 66 females (53.66 ± 2.99) %. Middle-aged (30-44 years) (42.28 ± 2.63) % and mature (45-59 years) (37.40 ± 2.43) % were found to predominate.

RESULTS AND DISCUSSION

The study of suicidal behaviour peculiarities included the analysis of SR expression, diagnostics of symptoms, stress level, characteristics of SR in the past, communicative abilities and reactions of significant others, and expression of auto-aggressive predictors among patients with CR in RDD.

An analysis of the severity of SP revealed that a low level of SP was found in 31.71% of patients, a moderate level in 40.65% and a high level in 27.64% of patients with RDD (Fig. 1).

There has been observed that among the symptoms contributing to SB in patients with RDD, depression symptoms (7.89 ± 1.22 points), tension and anxiety (7.12 ± 1.11 points), guilt (7.04 ± 1.09 points), and feelings of hopelessness and exhaustion (6.45 ± 1.01 points), repeated problem experiences associated with repeated visits to psychiatrists (6.11 ± 0.95 points) were dominant.   Recurrent stressors (7.24 ± 1.12 points), increased stress symptoms (6.77 ± 1.05 points), changes in life and environment (5.92 ± 0.93 points), loss of job, money and status (5.87 ± 0.92 points) were found to be the leading psychotraumatic factors in patients with RDD. Past SB assessment has determined that recurrent depressive episodes in RDD patients were SR factors (8.79 ± 1.35 points).   An analysis of communicative SR factors determined that patients with RDD showed a lack of emotional support from family and friends (6.78 ± 1.06 points), impaired interpersonal contacts accompanied by a refusal to make restore attempts (5.47 ± 0.86 points), and insufficient sources of financial support (4.97 ± 0.78 points). It was also recorded that lack of patient's care , lack of patient's understanding (5.87 ± 0.92 points) was a factor of SR in RDD.

Analysis of self-assessment of autoaggressive predictors allowed us to determine specifics in the nature and severity of autoaggressive impulses in RDD patients: most RDD patients had a moderate (38.21 ± 2.46) % and expressed (30.08 ± 2.06) % level of autoaggression; moderate (34.96 ± 2.31) %; low impulsive (48.78 ± 2.86) % (Fig.2).

The scale of cognitive narrowing has determined the presence and cognitive impairment severity, with a decrease in criticism of actions, including auto-aggressive ones (Fig. 2). Thus, it was found that the majority of patients with RDD exhibited severe and high levels of cognitive impairment (39.02 ± 2.50% and 35.77 ± 2.35%, respectively). The Interpersonal Contact Impairment Scale diagnosed the presence and severity of interpersonal contact problems that could lead to SP. It was found that the majority of patients with DDR were found to have severely restricted interpersonal contacts (42.28 ± 2.63) %. A significant level of affective disturbance was found in the majority of patients with RDD (43.09 ± 2.66) %. The scale of autonomic disturbances has determined autonomic nervous system disorders severity, mental tension, and the degree of involvement of the autonomic nervous system in autoaggressive behaviour in patients with RDD. It was found that 39.84% of patients had severe, 27.64% had moderate and 26.02% had severe autonomic disturbances.

The study of the features of CCH in RDD has included an analysis of the severity of cognitive dysfunctions and features of cognitive processes (mental, mnemonic, attention process, perception), executive functions, specific features of cognitive regulation of emotions and social functioning in patients with RDD.

An analysis of the clinical and psychopathological features of cognitive disorders in patients with RDD revealed that the majority of patients has showed the reduced levels of interest (99.19 ± 0.73) %, difficulties in decision-making (90.24 ± 2.31) %, reduced concentration (82.11 ± 2.85) %, rigid thinking (79.67 ± 2.94) % and intrusive thoughts (78.86 ± 2.97) %. A significant number of patients showed rapid mental exhaustion (63.41 ± 3.14) %, hyper-sensitivity to criticism (61.79 ± 3.13) %, ideas of worthlessness (60.16 ± 3.11) % and suicidal ideation (58.54 ± 3.09) %.

Patients with RDD were characterized by cognitive decline, with an average overall MoSa score of 25.71 ± 5.54 (with N ≥ 26). The majority of patients with RDD had very mild cognitive impairment (62.60 ± 3.14) %, 31.71 % of patients has had mild cognitive impairment, and 5.69 % had moderate cognitive impairment. According to ACE-R data, the most pronounced cognitive deficits in patients with RDD were verbal (10.13 ± 0.15 points), visual-spatial (13.72 ± 0.42 points) and attention deficits (16.37 ± 0.81 points).

Table I. Differential diagnostic markers of cognitive impairment in recurrent depressive disorder

Sphere title	Indicator	DC	MC
Mental sphere	Law of interest	2,24	0,45
	Problems with decision taking	1,61	0,23
	Difficulties in abstraction	3,97	0,46
	Mind inflexibility	2,59	0,46
	Hypochondriac ideas	1,53	0,12
	Obsessive thoughts	2,11	0,25
Mnestic sphere	Decrease in short-term memory	2,67	0,13
	Mild disorders of delayed reproduction	2,47	0,27
Executive functions	Mild and severe disorders of hand-eye coordination	5,03	0,34
	Mild and severe disorders of executive functions	6,28	0,31
	Mild and severe disorders of lexical system	9,01	1,28
	Mild disorders of verbal productivity	6,79	1,57
Scope of attention	Decreased and law level of memory concentration	5,55	0,73
	Decreased and law level of shift in focus	5,36	0,51
	Decreased level of performance	3,11	0,35
	Median level of memory resilience	1,03	0,05
	Decreased and law level of workability	8,04	1,10
Matter of perception	High and law selectivity of attention to neutral stimuli	5,88	0,48
	High and law selectivity of attention to negative stimuli	1,88	0,10
	High and law selectivity of attention to positive stimuli	4,36	0,50
Cognitive regulation of emotions	«Putting things in perspective»	6,03	0,77
	«A positive refocusing»	3,32	0,11
Social functioning	Mild impairment in socially useful activities	2,93	0,28
	Moderate impairment of personal and social interaction	1,63	0,10
	Mild self-care impairments	2,88	0,25
	Mild impairment in aggressive behaviour patterns	4,97	0,22

A study of mnemastic processes showed that in RDD, short-term memory was reduced (4.32 ± 2.19 words), and most patients had an average delayed recall (50.41 ± 2.91) %.

Concentration of attention was below average in 36.59 % of patients with RDD, average in 27.64 %, low in 16.26 %, above average in 14.63 %, and only 4.88 % had high levels of concentration. The majority of patients had an attention switching rate below average (43.09 ± 2.66) %, and sustained attention was characterized by a predominance of average (42.28 ± 2.63) %.

Patients with RDD were predominantly characterized by low (43.90 ± 2.70) % and average (29.27 ± 2.02) % levels of performance, and low (37.40 ± 2.43) % and low (32.52 ± 2.19) % levels of "sleepiness," and low (41.46 ± 2.60 % and 30.08 ± 2.06 % respectively) levels of mental toughness.

A study of perceptual selectivity in RDD patients has showed that when perceiving neutral stimuli, most patients had an average level of attention selectivity (30.89 ± 2.11) %, when perceiving negative stimuli an increased (33.33 ± 2.23) % and a high (31.71 ± 2.15)% level, and when perceiving emotionally positive stimuli a reduced level of attention selectivity (54.47 ± 3.01) %.

It was found that 19.51% of patients with RDD appeared to have no abnormalities of hand-eye coordination but in 21.14% of cases mild, 39.84% moderate and 19.51% severe abnormalities of hand-eye coordination were registered. The majority of patients with RDD had a moderate level of executive function impairment (54.47 ± 3.01) %.

Analysis of verbal associative productivity showed that the majority of patients with RDD had a moderate level of impairment (58.54 ±3.09) %, 21.95 % of patients showed mild and 7.32 % had severe impairment. No impairment of associative productivity was detected in 12.20% of patients with RDD.

The functioning of the lexical system and the ability to actively search for necessary information in memory were somewhat reduced in RDD patients, and they were characterized by a significant slowing of the rate of task performance towards the end of the task due to a weakened motivational component and mental exhaustion: most patients had moderate (39.84 ± 2.53) % and pronounced (32.52 ± 2.19) % impairments of lexical system functioning and executive functions.

A study of cognitive strategies of emotion regulation showed that most patients with DDR exhibited "self-blaming" (69.11

Table II. Relationship between cognitive and clinic-psychopathological features of patients with RDD and severity of suicide risk (r)

	Indicator name	High SR	Mild SR	Law SR
Severity of cognitive dysfunction	Cognitive dysfunction severity	0,544		
	Law level of cognitive dysfunction	0,653	0,765	
	Mild level of cognitive dysfunction		0,349	
	High level of cognitive dysfunction			0,733
Mindset	Decreasing of interest			0,821
	Difficulties with decision taking			0,543
	rigid thinking		0,609	
attention	Attention concentration decreasing			0,453
	Shift in focus level decreasing		0,576	
	Low level of shift in focus	0,733		
	increased attention span	0,673		
	poor performance			0,677
Executive functions	moderate impairment of executive functions		0,506	
	Significant impairment of executive functions			0,691
Perception	high selectivity of attention to negative stimuli	0,877		
	decreased selectivity of attention to negative stimuli		0,734	
	low selectivity of attention to negative stimuli	0,713		
Cognitive regulation of emotions	«Self-incriminating»	0,723		
	«Catastrophizing»	0,884		
	«Blaming others»			0,634
	«Ruminations»		0,657	
	«Putting things in perspective»			0,734

± 3.15) %, "catastrophizing" (53.66 ± 2.99) %, expressed in thoughts of the global dimensions of the event and its negative consequences, "blaming others" (45.53 ± 2.75) %, manifested in attempts to shift blame for the event to others, "rumination" (43.90 ± 2.70) %, manifested in constant obsessive thinking about the situation, "putting things in perspective" (34.15 ± 2.27) %, manifested in a decrease in the significance of the event when compared to other situations.

A study of social functioning revealed that in the area of socially useful activities, including work and study, most patients (39.02 ± 2.50)% had mild impairments; in the area of personal and social interaction, impairments were moderate (38.21 ± 2.46)%; In the area of self-care, 33.33% of patients had no disorder, 35.77% had a mild disorder in self-care; in the area of anxiety and aggressive behaviour, 39.84% of patients had no disorder and 27.64% of patients had a mild disorder.

Diagnostic coefficients and measures of informativeness were calculated based on the identified features of IP in RDD, allowing for the identification of markers targeting IP in RDD (Table I).

A correlation analysis was performed to determine the relationship between the severity of suicide risk and cognitive impairment in RDD. Only those indicators that had significant correlations were included in Table II.

High SB in patients with RDD was found to be associated with the presence of an emotion regulation cognitive strat-

egy such as "catastrophizing" (r = 0.884), high selectivity of attention to negative stimuli (r = 0, 877) and low attention selectivity to positive stimuli (r = 0.713), low attention switching (r = 0.733), self-blaming (r = 0.723), increased attention stability (r = 0.673), mild and no cognitive dysfunction (r = 0.653 and r = 0.544 respectively).

Moderate levels of SR were associated with weak and moderate levels of cognitive dysfunction (r = 0.765 and r = 0.349, respectively), reduced selectivity of attention for positive stimuli (r = 0.734), cognitive emotion regulation strategies such as "rumination" (r = 0.657), thought rigidity (r = 0.609), reduced attention switching (r = 0.576) and moderate executive function impairment (r = 0.506).

Low SR correlated with apathy (r = 0.821), presence of cognitive emotion regulation strategies such as "perspective taking" (r = 0.734) and "blaming others" (r = 0.634), high cognitive dysfunction (r = 0.733), difficulty making decisions (r = 0.543) and decreased concentration (r = 0.453).

CONCLUSIONS

1. The study revealed the features of SP in patients with CKD in RDD. Thus, for patients with IBD in RDD, SP peculiarities were determined by: predominance of moderate (40.65%) and high (27.64%) levels of SP; severity of symptoms of depression, tension, anxiety, guilt, hopelessness and exhaustion; repeated seeking of medical help; presence of

stressors (unexpected changes in life, loss of job, money or status) and their recurrence; anamnestic burden (presence of previous depressive episodes, life-threatening previous suicide attempts, threat of suicide attempt methods) communication disorders (interpersonal relationships, lack of emotional or financial support, care and understanding from others) presence of auto-aggressive predictors (moderate level of auto-aggression (38.21%) and aggression (34.96%), low level of impulsiveness (48.78%), high and pronounced levels of cognitive deterioration (35.77 and 39.02%), markedly reduced interpersonal contacts (42.28%), markedly affected mood disorders (43.09%), moderate and severe levels of vegetative disorders (27.64 and 39.84%);

2. PDD patients' PNs are characterized by impairments in many areas: in the mental area: reduced I nterest(99.19%), difficulties in decision-making and abstracting (90.24 % and 38.21 % respectively), rigidity of thought (79.67 %); in the mental area: reduced level of   short-term memory (4.32 points) and the prevalence of moderate violations of delayed recall   (50.41 %); in the executive function area: moderate and severe visual-motor coordination (39.84 % and 19.51 % respectively) and visual-spatial impairment (13.72 points), moderate and severe executive function impairment (54.47 % and 13.01 % respectively), moderate, severe and mild executive lexical function impairment (39.84 %, 32.52 % and 23.58 % respectively), moderate verbal productivity impairment (58.54 %); in attention: reduced attention concentration (80.49 %), predominance of reduced and low levels of attention switching (43.09 % and 26.83 % respectively), reduced performance (43.90 %), medium and increased levels of attention stability (42.28 % and 27.64 % respectively), reduced and low levels of work-in-progress (37.40 % and 32.52 % respectively); in the perception domain: the presence of   medium,increasedand decreased attention selectivity to neutral stimuli (30.89 %, 21.95 % and 21.95 % respectively), high attention selectivity to negative stimuli (33.33 %), decreased and low attention selectivity to positive stimuli (54.47 % and 20.33 % respectively); in social   functioning: the expression of the following cognitive strategies for emotion regulation: "Self-blaming" (69.11 %), "Catastrophizing" (53.66 %), "Blaming others" (45.53 %), "Rumination" (43.90 %) and "Consideration in perspective" (34.15 %); No impairment and mild impairment in socially useful activities (21.95% and 39.02% respectively), predominance of moderate and mild impairment in personal and social interaction (38.21% and 24.39% respectively), mild impairment in self-care (35.77%) and no impairment and mild impairment in aggressive behaviours (39.84% and 27.64% respectively).

3. Mild cognitive deficits, a tendency towards catastrophizing and self-blaming, low switchability and increased focus on negative stimuli in patients with DDR were found to be associated with a high risk of their SP.

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The Authors declare no conflict of interest.

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D – Writing the article, **E** – Critical review, **F** – Final approval of the article