

Structure of self-schemas in patients with paranoia

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Negative self-schemas have been implicated in both paranoia and depression. There is a lack of research on the structural characteristics of self-schemas, even though these characteristics might be stable risk factors. The present study explored organization of positive and negative self-schemas in currently non-depressed individuals with persistent delusional disorder (PD), currently depressed individuals with persistent delusional disorder (PDD), and nonpsychiatric controls (NC). Self-schema consolidation was measured via the Psychological Distance Scaling Task. Within the interpersonal domain, negative self-schemas were more densely organized in PDD compared to both PD and NC. Both patient groups had less interconnected positive interpersonal schemas than controls. Within the achievement domain, PDD demonstrated less consolidated positive achievement schemas than NC and greater interconnectedness among negative adjectives than PD. Central limitation includes a small sample size. The findings point to an existence of at least two self-schema organizations in paranoid individuals.

Key words: self-structure, depression, paranoia, cognitive organization

Highlights:

- PDD patients have depressive cognitive organization.
- PD patients have less consolidated positive interpersonal schemas.
- There are at least two cognitive self-schema organizations in individuals with paranoia.

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Negative self-representations have been proposed to be an important risk factor for some pervasive clinical conditions including depression and paranoia (Beck, 1967; Beck, Rector, Stolar, & Grant, 2009; Bentall, Corcoran, Howard, Blackwood, & Kinderman, 2001; Freeman, Garety, & Fowler, 2008). Apart from the fact that these two conditions both account for a large number of mental health visits and hospital admissions, the rates of comorbidity between them is high, ranging from 25% to 75% (Birchwood, Iqbal, & Upthegrove, 2005).

Within Beck's cognitive theory of depression, self-schemas have been defined as organized structures of prior knowledge about the self, acquired through early experiences, which influence the processing of incoming information relevant to self and the retrieval of the previously stored information (Dozois & Beck, 2008). Schemas usually provide an adaptive advantage in terms of ease and speed of information processing, however, when they are negatively skewed and rigid they lead to psychopathology (Dozois & Beck, 2008). Distorted self-schemas, responsible for negatively skewed thinking seen in depression, bias the encoding, retrieval, and interpretation of information (Dozois & Beck, 2008; Kovacs & Beck, 1978). Until recently, researchers have focused largely on the content characteristics of self-schemas. For example, various dysfunctional attitudes, core beliefs (e.g., "I am bad" or "I am unlovable"), irrational beliefs, and pessimistic attributions represent self-schematic contents.

Ingram, Miranda, and Segal (1998) proposed that, in addition to content, self-schemas might differ in the ways their content is structured in the mind. The latter characteristics have become known as organizational (structural) properties of self-schemas (Ingram et al., 1998). Moreover, Dozois (2007) suggested that risk factors for psychopathology might lie within these structural characteristics. The information stored within self-schemas might be more or less interconnected, which might have implications for vulnerability to mental disorders (Dozois & Beck, 2008). For example, well-organized negative memories and beliefs might confer a greater risk for depression than less integrated negative content (Dozois & Frewen, 2006). Greater interconnectedness (smaller distance) among self-descriptors reflects a greater ease with which activation of one self-descriptor can lead to activation of similarly valenced self-descriptors (Dozois & Dobson, 2001a). To measure the organizational characteristics of self-schemas, Dozois and colleagues developed a computerized task which assesses the degree of interconnectedness among self-descriptive attributes (Dozois & Dobson, 2001a, 2001b). The task is based on the assumption that self-schemas represent an associative network of personally relevant positive and negative self-descriptors (Dozois & Dobson, 2001a; Dozois, 2007). So far, the structural characteristics of self-schemas have been explored in clinical depression and anxiety disorders (e.g., Dozois & Dobson, 2001b; Dozois, Eichstedt, Collins, Pheonix, & Harris, 2012; Dozois & Frewen, 2006; Lumley & Harkness, 2009). For example, it was reported that in individuals with depression, negative self-referent information, related to the interpersonal themes in particular, is more densely organized, whereas positive content, related either to the achievement or interpersonal themes, tends to be less interconnected (Dozois & Frewen, 2006). Research also

supports the idea that early childhood maltreatment (emotional maltreatment and physical abuse) is associated with this depressogenic cognitive organization (Lumley & Harkness, 2009).

Negative self-representations, in particular their content characteristics, have played a prominent role within various theories of paranoid thinking, albeit with a different emphasis (Bentall, Kinderman, & Kaney, 1994; Freeman, Garety, Kuipers, Fowler, & Bebbington, 2002; Trower & Chadwick, 1995). Bentall et al. (1994) have argued that other-blaming attributions for negative events have a defensive function, preventing activation of underlying negative self-representations. However, empirical evidence for this proposition has been fairly inconclusive (Kesting & Lincoln, 2013; Tiernan, Tracey, & Shannon, 2014). Different from the defense account of paranoia, Freeman et al. (2002) emphasized a direct causal role of negative self-representations in the development and maintenance of paranoia. Similarly, Garety, Kuipers, Fowler, Freeman, and Bebbington (2001) argued that negative schematic beliefs account for the development of persecutory delusions by heightening a sense of threat. Recent, longitudinal studies provide support for the proposition that negative self-schematic beliefs predict the maintenance of paranoia over time (Fowler et al., 2012; Freeman et al., 2012; Vorontsova, Garety, & Freeman, 2013).

The structural characteristics of self-schemas (operationalized as the degree of interconnectedness among self-descriptors) have not yet been explored in individuals with paranoia. Given that cognitive organization has been proposed to be an important vulnerability factor for depression (e.g., Dozois, 2007), which, in turn, is believed to contribute to maintenance of paranoid thinking (e.g., Vorontsova et al., 2013), exploration of the structural characteristics of self-schemas in paranoia seems a promising research endeavour. The present study was designed to explore organization of the positive and negative self-schemas, for both the interpersonal and achievement self-domains, in currently non-depressed individuals and depressed individuals, both with persistent delusional disorder, and non-psychiatric controls.

Based on empirical evidence suggesting the role of depression in the maintenance of paranoia (e.g., Freeman et al., 2012), the high rate of comorbidity between these two conditions (Birchwood et al., 2005), and various theoretical accounts which emphasize the importance of negative self-views in individuals with paranoia (Bentall et al., 1994; Freeman et al., 2002; Trower & Chadwick, 1995), we expected to find depressogenic cognitive organization in depressed paranoid individuals compared to nonpsychiatric controls. Namely, interpersonal self-schemas have long been implicated in depression (Bowlby, 1988; Dozois, 2007; Haaga et al., 2002; Hammen, 1999), but their importance has recently been emphasized for individuals with paranoia as well (Fowler et al., 2006; Kesting & Lincoln, 2013; Lincoln, Mehl, Ziegler, Kesting, Exner, & Rief, 2010; Rector, 2004). Hence, we expected that depressed paranoid patients would have more densely organized negative interpersonal and less interconnected positive self-descriptors compared to nonpsychiatric controls. Similarly, given the finding

that heightened autonomy scores in individuals with paranoia can be attributed to comorbid depression (Bentall & Swarbrick, 2003), organization of positive achievement-related adjectives in depressed paranoid patients was hypothesized to be more loosely organized compared to nonpsychiatric controls.

The organizational properties of self-schemas in non-depressed paranoid patients were, however, examined in an exploratory manner. It was important to include this group given the fact that the previous research on paranoia and schemas has not rigorously controlled for comorbid depression, producing some inconsistent findings. Hence, the results obtained in this group would have some relevance for the currently opposing views: one that holds that the achievement self-system in non-depressed paranoid individuals help them overcome the shortcomings associated with their interpersonal self-views (Ouimette, Klein, Anderson, & Riso, 1994), and the other, which suggests that self-schemas within the achievement domain might be less relevant to paranoia (Kesting & Lincoln, 2013).

Method

Participants

Twenty-six patients (65% females) with the diagnosis of persistent delusional (PD) disorder were recruited for the study through hospital referrals in a psychiatric hospital in Novi Sad, Serbia. Two psychiatrists were the main source of referrals for our study. They were asked to suggest patients who currently had persecutory delusions and a diagnosis of delusional disorder. The patients were also required to have at least 8 years of education and not to have comorbid diagnosis of dementia, substance abuse, or brain organic disorder. Patients were classified, according to the International Classification of Mental Disease (ICD-10, Svetska zdravstvena organizacija Ženeva, 1992), by two mental health professionals via consensus. Diagnoses were supported by the results of psychological testing and case notes¹. Unfortunately, information about the lifetime history of psychopathology, in particular affective disorders, was not available. All patients had delusions of the persecutory type, more than half had delusions of reference, whereas several had litigious and delusions of jealousy. The patients were split into two groups based on their depression scores: those without depression (PD, $N = 14$), and those with depressive symptoms (PDD, $N = 12$). Although 12 PDD patients had depressive symptoms of moderate intensity, the psychiatrists concluded that they did not satisfy criteria for affective disorders. In both patient groups, there were a greater proportion of females.

Females ($N = 34$) comprised the nonpsychiatric control group (NC). They represented a sample of convenience and were recruited from the psychology research pool at the Department of Psychology, University of Novi Sad, Serbia. The main inclusion criterion was absence of mental illness (scores of ≤ 20 on the *Clinical Outcomes in Routine Evaluation – Outcome Measure* and < 15 on the Beck Depression Inventory-II; Core Information Management System, 2015; Jakšić, Ivezić, Jokić-Begić, Surányi, & Stojanović-Špehar, 2013). Informed consent was obtained from all individual participants included in the study. Sample characteristics are presented in Table 1.

1 Psychological testing consisted of a standard battery for clinical assessment: clinical interview, inventories for assessment of personality, intelligence, and current psychopathological symptoms.

Measures

Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is a 21-item self-report measure for assessment of the severity of depressive symptoms in adolescents and adults (Beck et al., 1996). A Serbian translation of this measure, with adequate psychometric properties (Novović, Mihić, Jovanović, Tovilović, & Biro, 2011), was used. Cronbach's alpha in the present study was .94.

Clinical Outcomes in Routine Evaluation-Outcome Measure (CORE-OM; Evans et al., 2002). The CORE-OM is a 34-item self-report that assesses subjective well-being, symptoms, functioning, and risk with a 5-point Likert scale response format. Well-being reflects one's quality of life and affective tone. The symptom domain includes anxiety, depression, trauma, and physical aspect of psychological health. The functioning domain assesses one's functioning in daily life, social, and intimate relationships. Finally, the risk domain estimates self-harm, suicidality, and threats to violence. It cannot be used to obtain a diagnosis of a specific disorder. Psychometric properties of the translated version were previously reported (Jovanović, Gavrilov-Jerković, Žuljević, & Brdarić, 2014). In the present study, Cronbach's alpha was .95.

Paranoia Scale (PA; Fenigstein & Venable, 1992). The PA is a 20-item instrument with a 5-point Likert scale designed to measure paranoid symptoms. In addition to symptoms in currently psychotic patients (Smári, Stefánsson, & Thorgilsson, 1994), it also measures trait paranoia in nonclinical populations (Fenigstein & Venable, 1992). Reliability of a Serbian translation of the test was demonstrated previously (Bošković & Novović, 2011). In the present study, Cronbach's alpha was .88.

Psychological Distance Scaling Task (PDST; Dozois & Dobson, 2001a). The PDST assesses self-schema structure or organization in a way that smaller distances among self-descriptors reflect greater interconnectedness among them. Participants were seated in front of a computer screen and were presented with a square grid. Their task was to rate 80 adjectives, appearing in the middle of the grid, using two criteria simultaneously: self-descriptiveness and valence. Ratings on self-descriptiveness were placed along x-axis using the scale from *not at all like me* to *very much like me*. Valence, which was rated along y-axis, ranged from *positive* to *negative*. The adjectives belonged to one of four sets: 20 interpersonal positive, 20 interpersonal negative, 20 achievement positive, and 20 achievement negative (see Dozois, 2007). The PDST produced four scores which were essentially the average interstimulus distances among the adjectives within four sets (see Dozois & Dobson, 2001b). The adjectives were translated into Serbian by the principal investigator, then back-translated into English by a bilingual individual unaware of the purpose of the study. The adjective sets were equal regarding their frequency of use, word length, emotional intensity, and imaginability². Validity information for the translated PDST is reported in the Results section.

Results

Sample Characteristics and Correlations Among Measures

The two patient groups did not differ regarding their age but patients were older than participants in NC group (Table 1). The two patient groups did not differ regarding the number of days spent in hospital and the level of paranoid

2 The adjective sets were examined in a prior pilot study in which the existing lexicon ratings were used to estimate frequency and word length whereas subjective ratings served as a basis for emotional intensity and imaginability estimates.

ideation, which were comparable to the levels found in other studies in patients with persecutory delusions (e.g., Craig, Hatton, Craig, & Bentall, 2004). There were no significant differences in the depression scores between PD and NC groups. The three groups did not differ in their educational level. Additionally, the average CORE-OM score in the NC group was comparable to the normative values obtained in other studies using student samples (Evans et al., 2002), suggesting an absence of psychiatric problems in this group.

Table 1
Sample Characteristics

Variables	PD <i>M(SD)</i>	PDD <i>M(SD)</i>	NC <i>M(SD)</i>		<i>p</i>
Age	44.18(11.14)	43.47(14.96)	20.06(.92)	F(2, 59) = 53.66	.000
Education	12(1.79)	12(2.14)	13(1.56)	F(2, 59) = 2.47	.100
BDI-II	6.93(4.29)	26.58(9.11)	5.59(3.19)	F(2, 59) = 78.46	.000
PA	62.43(20.00)	76.18(11.20)	—	t(24) = -2.03	.053
Length	15.28(10.63)	22.45(35.63)	—	t(24) = -.72	.481
CORE-OM	—	—	.78(.62)	—	—

Note. PD = 14; PDD = 12; NC = 34; BDI-II = Beck Depression Inventory; PA = Paranoia Scale; Length = length of hospital stay; CORE-OM = Clinical Outcomes in Routine Evaluations-Outcome Measure; PD = paranoid, nondepressive patients; PDD = paranoid depressive patients; NC = nonpsychiatric control.

The correlations in Table 2 support the convergent and divergent validity of the Serbian versions of the instruments. For the PDST: negative distances (both achievement and interpersonal) were significantly and negatively correlated with the BDI-II scores, whereas positive distances (both achievement and interpersonal) were positively associated with the BDI-II scores. At the same time, the interstimulus distances were not related to the PA scores (Fenigstein & Venable, 1992).

Table 2
Correlations among Study Variables

Variables	1	2	3	4	5
PDST-NA					
PDST-PA	-.34**				
PDST-NI	.47**	-.22			
PDST-PI	-.13	.47**	-.12		
BDI-II	-.43**	.58**	-.39**	.47**	
PA ^a	-.38	.34	-.25	.23	.56**

Note. N = 60; PDST-NA = Psychological Distance Scaling Task, negative achievement attributes; PDST-PA = Psychological Distance Scaling Task, positive achievement attributes; PDST-NI = Psychological Distance Scaling Task, negative interpersonal attributes; PDST-PI = Psychological Distance Scaling Task, positive interpersonal attributes; BDI-II = Beck Depression Inventory; PA = Paranoia Scale.

^a Correlations were based on the two patient groups.

* $p < .05$, ** $p < .001$.

Differences in Cognitive Organization on the PDST

Interstimulus distances were positively skewed. Following the logarithmic transformation, skewness ranged from $-.38$ to $.83$, whereas the values of kurtosis ranged from $-.33$ to $.17$, suggesting the appropriateness of the transformed variables for the analysis. A 3 Group (PD, PDD, and NC) X 2 Adjective Content (interpersonal, achievement) X 2 Adjective Valence (positive, negative) split-plot Analysis of Covariance (ANCOVA) was performed on the logarithmically transformed average interstimulus distances. Age served as a covariate in this analysis. There was a significant three-way interaction, $F(2, 56) = 3.18$, $p = .049$, partial $\eta^2 = .10$, which was explored by a performance of two Group X Valence split-plot ANCOVAs for each content domain: interpersonal $F(2, 56) = 7.99$, $p < .001$, partial $\eta^2 = .22$, and achievement $F(2, 56) = 4.82$, $p = .012$, partial $\eta^2 = .15$ (see Figure 1).

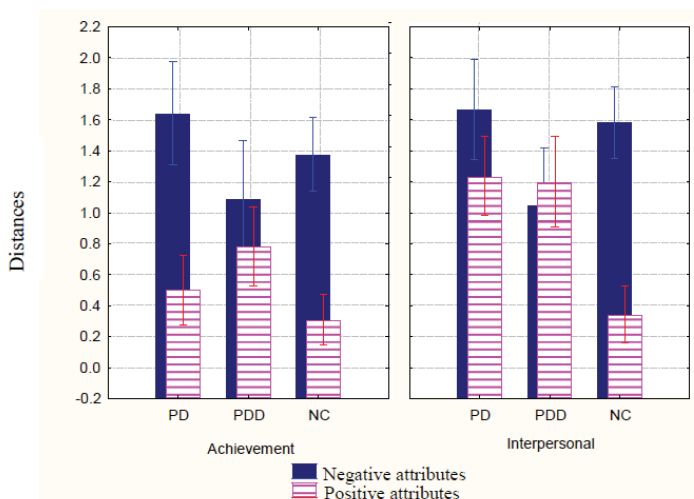


Figure 1. Interstimulus distances by Group, Valence, and Content. Computed for the covariate at its mean. Vertical bars denote .95 confidence intervals. PD = nondepressive paranoid patients; PDD = paranoid depressive patients; NC = nonpsychiatric control.

Tukey-Kramer pairwise contrasts suggested that the PD ($M = 1.24$, $SE = .13$) and PDD ($M = 1.20$, $SE = .15$) groups had less integrated positive interpersonal content than NC ($M = .34$, $SE = .09$), $q(3, 110) = 9.84$, $p < .01$ and $q(3, 110) = 8.92$, $p < .01$, respectively. The two patient groups did not differ in terms of organization of their positive interpersonal content. Regarding the interpersonal negative content, the PD ($M = 1.67$, $SE = .16$) and NC ($M = 1.58$, $SE = .12$) groups had similar distances, and both groups demonstrated less organized negative interpersonal content compared to the PDD group ($M = 1.05$, $SE = .18$), $q(3, 110) = 5.49$, $p < .01$ and $q(3, 110) = 5.56$, $p < .01$, respectively.

When positive achievement content was considered, post-hoc tests revealed that the PDD group ($M = .78$, $SE = .13$) had less interconnected self-schema structure in this domain compared to the NC ($M = .31$, $SE = .08$) group, $q(3, 110) = 5.21$, $p < .01$. Finally, the PD group ($M = 1.64$, $SE = .17$) had less interconnected negative achievement attributes than the PDD group ($M = 1.09$, $SE = .19$), $q(3, 110) = 4.92$, $p < .01$.³

Discussion

This is the first study to explore self-schematic structures in individuals diagnosed with persistent delusional disorder. An important finding was that both groups of patients with paranoia (currently depressed and non-depressed) demonstrated a less integrated interpersonal positive self-system in comparison to nonpsychiatric controls. Depressogenic cognitive organization (more organized interpersonal negative self-attributes and less interconnected positive attributes) was found in PDD individuals only.

Our findings raise interesting questions regarding development of these psychiatric conditions. One possibility is that paranoia (with and without the symptoms of depression) and depression share a common vulnerability in which dysfunctional positive interpersonal self-system plays a prominent role, whereas more interconnected negative interpersonal self schemas are present among individuals with comorbid delusional disorder and depression. The importance of the interpersonal self in development of these psychiatric conditions has been recognized by several authors. For example, less organized positive self-structures are theorized to be linked to instability of self-view in depression by creating difficulties in activation of positive schema and/or precluding positive reinforcement (Dozois, 2002). Fluctuations in self-esteem have been reported in paranoid individuals as well (e.g., Thewissen et al., 2007; Thewissen et al., 2008). According to Bentall et al. (2001), fluctuations in self-esteem result from unsuccessful attempts (via attributions) to protect a paranoid individual from negative thoughts about the self. However, our finding seems to suggest that fluctuations in self-views of individuals with paranoia might stem from the inaccessibility of integrated positive self-schemas rather than accessibility of negative ones.

Given the lack on information on lifetime history of affective disorders in both patient groups in our study, we do not know whether less integrated positive self-system is a phenomenon of pure delusional disorders without comorbid depression or potentially due to lifetime history of depression. A conclusion about stability of cognitive organization of the interpersonal self would be supported if the less organized interpersonal self was found in PD individuals

3 Similar analyses were performed only in the two patient groups but introducing gender as an additional factor. Neither the main effect of gender nor the gender X group interaction were significant for cognitive organization.

without history of depression. Hence, greater progress into understanding the development of paranoia might be obtained by looking at the stability of cognitive organization of positive interpersonal self-systems, which might prove to be more stable in pure paranoia compared to depression (Dozois, 2007). For example, Dozois (2007) reported that positive interpersonal self-system might be less stable and tend to consolidate faster once an individual with depression becomes asymptomatic whereas more organized negative interpersonal self-attributes seems to be state-independent and possible vulnerability factor (also see Dozois & Dobson, 2001a). The fact that the two groups of patients with paranoia in the present study did differ from the controls in the organization of their positive interpersonal schemas, might suggest a potentially more stable organization of this self-system in paranoia, which warrants further exploration.

Depressogenic cognitive organization (more organized interpersonal negative self-attributes and less interconnected positive attributes) was found in the PDD group only. Hence, at the structural level, these patients seem to be more similar to the patients diagnosed with depression and social phobia (Dozois & Frewen, 2006) than PD patients. Moreover, there was an additional structural difference between the PDD and PD groups regarding the achievement domain. PD individuals showed less interconnected negative achievement adjectives when compared to their depressed counterparts. Hence, the achievement self-system in PD individuals might be intact and a possible way by which they can compensate for the shortcomings associated with the organization of positive interpersonal self-views (Ouimette, Klein, Anderson, & Riso, 1994).

Based on the research literature regarding stability of cognitive organization in depression (Dozois, 2007), one might argue that a greater consolidation of negative interpersonal self-attributes in PDD individuals is not only state-dependent i.e., present during heightened depression. Also, in their threat anticipation model of paranoid delusions, Freeman et al. (2002) noted that negative interpersonal self-views lead to a sense of threat (anxiety) and vulnerability to harm which subsequently leads to development of paranoia and also makes individuals vulnerable to depression. It is possible that the threat anticipation model describes development of these conditions only in individuals with well-consolidated negative interpersonal self-system.

Limitations

Central limitations include a small sample size with predominant female participation and the cross-sectional nature of the study. Given that the main effect of gender and the gender X group interaction was not significant in two patients groups, one might assume that the gender composition of our control group did not bias the results substantially. Additional shortcomings include the lack of information on life-time history of affective disorders as well as the presence of mixed type of delusions in our sample. However, it should be noted that all patients had persecutory delusions.

Conclusions

There are two types of paranoid self-schema organizations. However, it is unclear whether these two types represent stable entities or different phases of the same disease process as previously reported (Melo, Taylor, & Bentall, 2006; Udachina et al., 2012). The findings in the PD group suggest the relevance of less organized interpersonal positive self-system in some individuals with persecutory delusions. The findings in the PDD group raise the possibility that the self-schema abnormalities reported in association with paranoia are in fact due to comorbid depression, and not directly involved in the generation of paranoid thinking as proposed, in different ways, by Bentall et al. (1994) and Freeman et al. (2002). Given the cross-sectional nature of this study and the lack of information on the history of affective disorders, our findings cannot provide direct support for either view. Some indirect support for the idea that self-schemas can have a more generative role in paranoid thinking comes from the studies on self-schema content in which negative self-schemas predict paranoid symptoms in longitudinal analyses over both the long- and short-terms (Fowler et al., 2012; Thewissen, Bentall, Lecomte, van Os, & Myin-Germeys, 2008; Vorontsova et al., 2013) and in which negative self-beliefs were associated with the severity of paranoia even when depression is controlled for (Bentall et al., 2009). Hence, future longitudinal studies should explore whether self-schema organization (less organized positive interpersonal self and more organized negative interpersonal self) predicts development of paranoid thinking.

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Struktura šema o sebi kod paranoičnih pacijenata

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Negativne šeme o sebi su prisutne i u okviru paranoje i u okviru depresije. Istraživanja koja se bave strukturalnim karakteristikama šema o sebi nema dovoljno, iako ove karakteristike mogu predstavljati stabilan faktor rizika. U ovoj studiji je ispitivana organizacija pozitivnih i negativnih šema o sebi kod trenutno nedepresivnih pacijenata sa perzistentnim poremećajem sa sumanutošću i kod kontrolne grupe iz opšte populacije. Konsolidacija šema o sebi je merena Zadatkom psihološke udaljenosti. U okviru interpersonalnog domena, negativne šeme o sebi bile su mnogo gušće organizovane kod trenutno depresivnih pacijenata sa perzistentnim poremećajem sa sumanutošću, u odnosu na trenutno nedepresivne pacijenate sa istim poremećajem i ispitanike iz opšte populacije. Obe grupe pacijenata imale su manje međusobno povezanih pozitivnih interpersonalnih šema u odnosu na kontrolnu grupu. U domenu postignuća, trenutno depresivni pacijenti sa perzistentnim poremećajem sa sumanutošću su pokazali manje konsolidovane pozitivne šeme, nego ispitanici iz kontrolne grupe, kao i veću međusobnu povezanost negativnih prideva nego trenutno nedepresivni pacijenti sa perzistentnim poremećajem sa sumanutošću. Rezultati ukazuju na postojanje bar dve organizacije šema o sebi kod paranodinih osoba.

Ključne reči: self-struktura, depresija, paranoja, kognitivna organizacija

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