

POSSIBILITIES OF USING THE SANS METHOD FOR ASSESSING THE FEATURES OF NEGATIVE SYMPTOMS IN PATIENTS WITH SCHIZOPHRENIA**Municipal Non-Profit Enterprise "Clinical Hospital "Psychiatry" (Kyiv, Ukraine)****kalenskaya_galina@ukr.net**

The prevalence of schizophrenia in the world is from 0.4 to 1.4%, and the number of patients with negative disorders in this group reaches 90%. Negative symptoms are considered main components of schizophrenia. Negative symptoms are associated with negative social and economic consequences; therefore, their recognition, timely assessment and treatment are relevant. Modern investigations about negative symptoms in schizophrenia remain unsystematized and scattered, which requires further clarification and addition.

The purpose of the study was to determine the characteristics of the clinical and psychopathological structure and the severity of negative symptoms in patients with schizophrenia in order to improve the diagnosis and treatment of negative symptoms in schizophrenia.

331 patients with schizophrenia were examined: 252 patients with negative symptoms of schizophrenia (main group) and 79 patients with positive symptoms of schizophrenia (control group). The research used a comprehensive approach, consisting in the use of clinical-psychopathological, psychometric (SANS scale) and statistical research methods.

The features of the manifestations of affective flattening, alogia, abulia, apathy, anhedonia, asociality, and impaired attention in patients with negative and positive symptoms of schizophrenia were analyzed. Features of the clinical-psychopathological structure and severity of negative symptoms in patients with schizophrenia were established. Among patients with negative symptoms of schizophrenia, mainly moderate and severe disorders of the components of affective flattening, alogia, abulia and apathy, anhedonia and asociality, and attention were determined. The obtained data can be used as diagnostic criteria when conducting differential diagnosis and choosing treatment strategies for patients with schizophrenia.

Key words: negative symptoms, positive symptoms, schizophrenia.

Connection of the publication with planned research works.

This work is a fragment of research topic "To study the factors predicting the formation, course and outcome of depressive disorders in order to develop effective means of therapy and rehabilitation". State registration number 0116U000016.

Introduction.

The prevalence of schizophrenia in the world is from 0.4 to 1.4% [1]. The number of patients with negative disorders in this group reaches 90% [1, 2]. Negative symptoms are considered key components of schizophrenia [1-3]. According to the results of modern research, the group of negative symptoms includes five domains: flattened affect, alogia, asociality, anhedonia, and decreased motivation [4]. Most often, negative symptoms are not recognized, and primary negative symptoms do not respond or respond poorly to available types of therapy [5, 6]. Approximately 20-30% of patients with schizophrenia exhibit several characteristic domains of negative symptoms, which indicates an increased risk of symptom chronicity and an unfavorable outcome of the disease [3, 5]. The growing interest in the specifics of the manifestation of negative symptoms in schizophrenia is associated with a pronounced relationship between negative symptoms and a low proportion of patients achieving remission, poor functioning and low quality of life [7, 8]. In light of the significant impact on functional outcomes and the burden on patients, relatives, and the health care system, negative symptoms in schizophrenia have become a major target in the search for new therapeutic agents [9]. However, the process of developing innovative treatment methods has been rather slow until now, and negative symptoms still represent an unsolved problem in the

treatment of people suffering from schizophrenia [3, 10, 11]. Therefore, the study of the characteristics of negative symptoms in patients with schizophrenia is relevant and requires careful research.

The aim of the study.

To determine the features of the clinical and psychopathological structure and severity of negative symptoms in patients with schizophrenia to improve the diagnosis and treatment of negative symptoms in schizophrenia.

Object and methods of research.

A total of 331 patients with schizophrenia took part in the study. 252 patients with negative symptoms (NS) in schizophrenia (main group) and 79 patients with positive symptoms (PS) in schizophrenia (comparison group) were examined. Patients were given full information about the study, in accordance with the principles of the Helsinki Declaration of Human Rights, the Council of Europe Convention on Human Rights and Biomedicine, relevant laws of Ukraine and international acts, and they were asked to sign an informed consent for participation in the study, which was approved by the ethics committee. The research used a comprehensive approach, consisting in the use of clinical-psychopathological, psychometric (SANS scale) and statistical research methods. Statistical data processing was used to determine the average values of quantitative parameters, their standard errors (in $M \pm m$ format), the reliability of differences (Fisher's exact method and Fisher's angular transformation). For each gradation of the diagnostic criterion, its contribution to the diagnosis was determined: Kullback's measure of informativeness (MI) was calculated and diagnostic (prognostic) coefficients (DC) were calculated [12, 13]. Statistical processing of the results was carried out using Excel-2010 and STATISTICA 6.1.

Research results and their discussion.

Verification of negative symptoms in the main group was carried out using the SANS scale (fig.).

An affective flattening prevailed in 127 people (50.52%) of the main group and 27 people (33.85%) of the control group. The main manifestation was the impoverishment of the expressiveness of reactions and emotional sensitivity. Weakening of emotional reactions, indifference, mental coldness, indifference, monotony also were observed. Against this background, many patients lost all feelings for relatives and loved ones, and showed complete indifference to themselves and their condition.

An alolia came to the fore in 125 patients (56.85%) of the main group and in 26 people (33.10%) of the control group and manifested as a loss of the ability to draw conclusions and, accordingly, judgments on a logical basis. This symptom developed instead of impoverishment and reduction of the pace of thinking, loss of its content, spurring, and in severe cases – complete associative emptiness. In the speech of the patients, this was manifested by a general lack of volume and content, a delay in responding to the spoken language.

An abulia – apathy as the leading symptom was noted in 146 people (58.17%) of the main group and in 30 people (37.81%) of the control group. Key violations were persistent loss of energy, impulses (including for work), drives and interests against the background of emotional indifference and indifference.

The vast majority of anhedonia – asociality was found in 171 patients (68.04%) of the main group and in 28 people (35.44%) of the control group. The most characteristic manifestations were persistent loss of interest in social interactions and satisfaction from their implementation. This concerned relations with the immediate

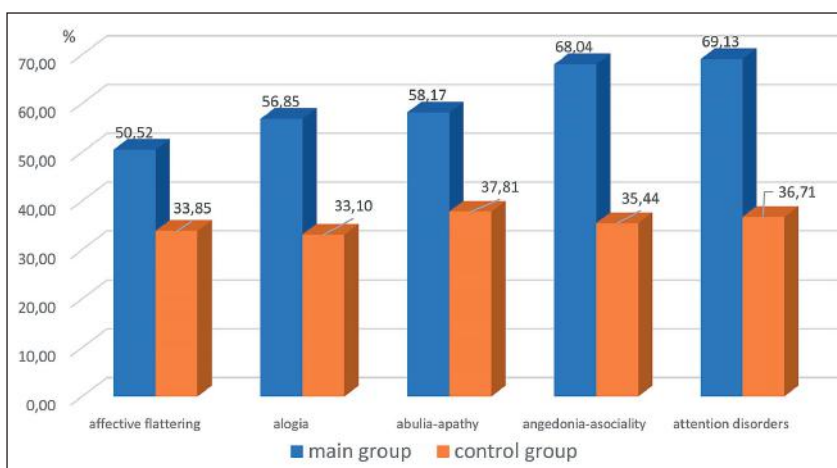


Figure – Distribution of patients with schizophrenia according to indicators of negative symptoms (according to SANS results).

environment, the expression of emotional and sexual intimacy. Patients practically did not show any desire to establish social ties, maintain existing contacts even within the boundaries of the department.

Violations of attention came to the fore in 174 patients (69.13%) of the main group and in 29 patients (36.71%) of the control group and manifested difficulties in fixing and maintaining attention, distraction, inattention. This interfered with activities that require concentration, including reading, using a personal computer, and even watching television and movies.

The most pronounced among the negative symptoms in patients of the main group were attention disorders (69.13±27.44)%, anhedonia (68.04±16.03)%, abulia (58.17±19.80)% and alolia (56.85±15.56)%. In the control group, all indicators of negative symptoms reached only average values. A more detailed analysis of indicators is presented in table 1.

The evaluation of the components of affective flattening showed that among patients with NS, the impoverishment of facial expressions was mainly expressed in minimal (28.17±0.95)%, mild (25.00±0.86)% and moderate (23.81±0.83)% levels. In patients with PS in schizo-

Table 1 – Percentage distribution of affective flattening in patients with schizophrenia

Symptoms of affective flattening	Main group (n=252)						Control group (n=79)					
	There is no violation	The violation is minimal	Lightly	Moderately	Expressed	Severe violations	There is no violation	The violation is minimal	Lightly	Moderately	Expressed	Severe violations
	percent (%)											
Impoverishment of facial expressions	14,29	28,17	25,00	23,81	6,75	1,98	44,30	34,18	13,92	5,06	2,53	0,00
Decreased spontaneous mobility	19,84	32,54	16,27	15,48	14,68	1,19	27,85	43,04	22,78	6,33	0,00	0,00
Impairment of motor expressiveness	15,48	24,21	23,41	19,05	13,89	3,97	15,19	31,65	32,91	10,13	6,33	3,80
Avoiding eye contact	1,19	4,76	14,29	27,78	35,32	16,67	5,06	15,19	35,44	30,38	10,13	3,80
Consolidation of affect	1,90	22,22	23,89	31,75	13,49	6,75	1,27	15,19	29,11	46,84	7,59	0,00
Inadequacy of affect	2,38	7,54	28,97	44,44	11,90	4,76	1,27	16,46	44,30	21,52	13,92	2,53
Monotony	0,79	2,38	11,90	31,75	40,08	13,10	29,11	43,04	27,85	0,00	0,00	0,00
Subjective feeling of loss of emotions	3,57	10,71	27,38	25,79	23,81	8,73	17,72	28,39	29,48	17,18	5,79	1,45

Table 2 – Percentage distribution of alogia in patients with schizophrenia

Symptoms of alogia	Main group (n=252)							Control group (n=79)					
	There is no violation	The violation is minimal	Lightly	Moderately	Expressed	Severe violations		There is no violation	The violation is minimal	Lightly	Moderately	Expressed	Severe violations
	percent (%)												
Impoverishment of vocabulary	2.38	8.73	32.54	35,32	14.68	6.35		2.53	27.85	43.04	21.52	2.53	2.53
Impoverishment of the topic of conversation	3.57	9,13	31.75	23.41	26,19	5.95		3.80	24.05	35,44	29,11	5.06	2.53
Cliffs of thought	0.40	6.35	22,22	50.79	17.46	2.78		17.72	31.65	32.91	15,19	2.53	0.00
Delayed responses	0.40	6.35	20.63	41.67	25.00	5.95		31.65	45,57	21.52	1.27	0.00	0.00
Subjective assessment of speech disorders	1.69	7.64	26.79	37.80	20.83	5.26		13.92	32,28	33,23	16.77	2.53	1.27

phrenia, the impoverishment of facial expressions was mostly not determined ($44.30 \pm 4.24\%$) or was established at the minimum level ($34.18 \pm 3.55\%$). Mathematical comparison of this indicator revealed a probable predominance of mild and moderate levels among patients of the main group (25.00% , $p=0.014$, $DC=2.54$, $MI=0.14$ and 23.41% , $p=0.0001$, $DC=6.72$, $MI=0.63$, respectively) and the absence of this disorder among patients of the control group (44.30% , $p=0.0001$, $DC=4.92$, $MI=0.74$).

The decrease in spontaneous mobility in both groups acquired mostly a minimal level of expression ($(32.54 \pm 1.06)\%$ – in the main and $(43.04 \pm 4.16)\%$ – in the control groups, respectively), but individuals with a moderate and pronounced level was more among patients with NS (15.48% , $p=0.016$, $DC=3.88$, $MI=0.18$ and 14.68% , $p=0.0001$, respectively), and with the absence of reduced mobility and minimal disturbances – among patients of the control group (27.85% , $p=0.0001$, $DC=4.92$, $MI=0.74$ and 43.04% , $p=0.025$, $DC=1.21$, $MI=0.06$, respectively).

Impairment of motility also in both groups was minimal ($(24.21 \pm 0.84)\%$ – in the main and $(31.65 \pm 3.35)\%$ – in the control groups, respectively) and mild ($(23.41 \pm 0.82)\%$ – in the main and $(32.91 \pm 3.46)\%$ – in the control groups, respectively) levels of severity. A comparison of the two groups made it possible to determine that there were more patients with a mild level of disorders among the control group (32.91% , $p=0.029$, $DC=1.48$, $MI=0.07$), and with moderate and severe – among the patients of the main group (19.05% , $p=0.025$, $DC=2.74$, $MI=0.12$ and 13.89% , $p=0.031$, $DC=3.41$, $MI=0.13$, respectively).

Moderate ($(27.78 \pm 0.94)\%$ – in the main and $(35.44 \pm 3.25)\%$ – in the control groups, respectively) and pronounced ($(35.32 \pm 1.13)\%$ – in the main and $(30.38 \pm 1.23)\%$ – in the control groups, respectively) levels of eye contact avoidance were recorded in both groups. At the same time, it should be noted that there were more patients with mild disorders in the control group (35.44% , $p=0.0001$, $DC=3.95$, $MI=0.42$), while those with pronounced and severe disorders – in the main group (35.32% , $p=0.0001$, $DC=5.43$, $MI=0.68$ and 16.67% , $p=0.001$, $DC=6.42$, $MI=0.41$, respectively).

The decrease in emotional reactions in patients with NS in schizophrenia ranged from minimal ($22.22 \pm 0.78\%$, average $(23.89 \pm 0.87)\%$ to moderate ($31.75 \pm 1.04\%$)

values. Patients with PS in schizophrenia also had a concentration of affect of a mostly moderate level ($46.84 \pm 4.38\%$), which was confirmed statistically ($p=0.006$, $DC=1.69$, $MI=0.13$).

The inadequacy of affect in the majority of patients of the main group was of a moderate level of severity ($44.44 \pm 1.32\%$), while in patients of the control group, a mainly mild degree of inadequacy of emotions was recorded ($44.30 \pm 4.24\%$), which was confirmed by statistical by comparing two groups (44.44% , $p=0.0001$, $DC=3.15$, $MI=0.36$ and 44.30% , $p=0.005$, $DC=1.85$, $MI=0.14$, respectively).

The lack of speech intonations (voice monotony) was manifested in patients with NS in schizophrenia at moderate and severe levels ($31.75 \pm 1.04\%$ and $(40.08 \pm 1.24)\%$, respectively), and in the group with PS – mainly at the minimal level ($43.04 \pm 4.16\%$). Comparison of the two groups showed that patients with NS were distinguished by a predominance of individuals with moderate, severe and severe levels (31.75% , $p=0.0001$; 40.08% , $p=0.0001$ and 13.10% , $p=0.0001$, respectively), while the patients of the control group – lack of monotony, minimal and mild disturbances (29.11% , $p=0.0001$, $DC=15.64$, $MI=2.22$; 43.04% , $p=0.0001$, $DC=12.17$, $MI=2.56$ and 27.85% , $p=0.001$, $DC=3.69$, $MI=0.29$, respectively).

The general feeling of loss of emotions in the patients of the main group mainly acquired mild ($27.38 \pm 0.93\%$), moderate ($25.79 \pm 0.89\%$) and pronounced ($23.81 \pm 0.83\%$) levels, and in patients control group – minimal and mild levels ($(28.39 \pm 3.08)\%$ and $(29.48 \pm 3.17)\%$, respectively). The obtained results were confirmed by the statistical method: moderate and pronounced levels of the general feeling of loss of emotions prevailed in patients of the main group (25.79% , $p=0.042$, $DC=1.63$, $MI=0.07$ and 23.81% , $p=0.0001$, $DC=5.75$, $MI=0.50$, respectively), absence of violations, their minimal and light level – among patients of the control group (17.72% , $p=0.0001$, $DC=6.96$, $MI=0.49$; 28.39% , $p=0.0001$, $DC=4.15$, $MI=0.36$ and 27.85% , $p=0.001$, $DC=3.69$, $MI=0.29$, respectively).

The evaluation of the components of alogia showed that among patients with NS, the vocabulary impoverishment in both groups was determined mainly at mild and moderate levels: 32.54% and 35.32% in the main group and 43.04% and 21.52% in the control group (table 2). It was proved that there were more patients with minimal

Table 3 – Percentage distribution of abulia and apathy in patients with schizophrenia

Symptoms of abulia/apathy	Main group (n=252)						Control group (n=79)					
	There is no violation	The violation is minimal	Lightly	Moderately	Expressed	Severe violations	There is no violation	The violation is minimal	Lightly	Moderately	Expressed	Severe violations
	percent (%)											
Self care	4.37	10.71	30.56	29.76	19.05	5.56	3.80	27.85	48,10	20,25	0.00	0.00
Decreased productivity at work or study	2.78	7.54	19.84	32.54	21.83	15.48	3.80	24.05	46.84	25,32	0.00	0.00
Decrease in energy potential	2.78	6.75	20,24	38.89	22.62	8.73	1.27	44.30	27.85	18.99	6.33	1.27
Subjective evaluation of apatho-abulic disorders	3.31	8.33	23.54	33.73	21,16	9.92	2.95	32.07	40.93	21.52	2.11	0.42

and mild vocabulary impairment among patients of the control group (27.85%, $p=0.0001$, $DC=5.04$, $MI=0.48$ and 43.04%, $p=0.025$, $DC=1.21$, $MI=0.06$, respectively), while among the patients of the main group there were more individuals with moderate and pronounced vocabulary impairment (35.32%, $p=0.008$, $DC=2.15$, $MI=0.15$ and 14.68%, $p=0.001$, $DC=7.63$, $MI=0.46$, respectively).

Impoverishment of conversation topics in the group of patients with NS in schizophrenia was determined in 31.75% of patients at mild, in 23.41% – moderate, and in 26.19% – severe levels of impairment. The control group was dominated by patients with minimal (24.05±2.69)%, mild (35.44±3.65)% and moderate (29.11±3.14)% levels of disorders. At the same time, it was proved that there were more patients with minimal disorders among patients of the control group (24.05%, $p=0.001$, $DC=4.21$, $MI=0.31$), and with pronounced ones – among patients of the main group (26.19%, $p=0.0001$, $DC=7.14$, $MI=0.75$).

In the vast majority of patients of the main group, interruptions of thoughts were moderately pronounced (50.79±1.42)%, in the control group, minimal and mild disturbances were recorded in the majority of patients ((31.65±3.35)% and (32.91±3.46)% respectively). It was proved that moderate and severe levels were more frequent among patients with NS in schizophrenia (50.79%, $p=0.0001$, $DC=5.24$, $MI=0.93$ and 17.46%, $p=0.0001$, $DC=8.39$, $MI=0.63$, respectively), in at that time, among patients of the control group there were more people with no interruptions of thoughts, with minimal and mild disorders (17.72%, $p=0.0001$, $DC=16.50$, $MI=1.43$; 31.65%, $p=0.0001$, $DC=6.98$, $MI=0.88$ and 32.91%, $p=0.01$, $DC=1.71$, $MI=0.09$, respectively).

Responses with a delay of moderate and severe levels prevailed among patients with NS in schizophrenia ((41.67±1.27)% and (25.00±0.86)%, respectively) ($p=0.0001$, $DC=15.17$, $MI=3.07$ and $p=0.0001$, respectively), and minimal violations and no delayed responses were more characteristic of patients in the control group ((33.23±4.31)% and (31.65±3.35)%, respectively), ($p=0.0001$, $DC=8.56$, $MI=1.68$ and $p=0.0001$, $DC=19.02$, $MI=2.97$ respectively).

The subjective assessment of speech disorders in patients of the main group was recorded in the vast majority of cases of mild and moderate severity ((26.79±0.91)% and (37.80±1.19)%, respectively), and in the control group - minimal and light ((32.28±3.41)% and (33.23±3.48)%, respectively). Statistical analysis made

it possible to establish that there were more patients with moderate and severe levels of subjective assessment of language disorders among patients with NS in schizophrenia (37.80%, $p=0.0001$, $DC=3.60$, $MI=0.38$ and 20.85%, $p=0.0001$, $DC=9.19$, $MI=0.85$, respectively), and persons with the absence and minimal level of subjective assessment – among patients of the control group (13.42%, $p=0.0001$, $DC=9.17$, $MI=0.56$ and 32.28%, $p=0.0001$, $DC=6.26$, $MI=0.77$, respectively).

The analysis of the components of abulia and apathy is presented in table 3, from which it can be seen that in both groups, the majority of patients acquired mild and moderate levels of impairment in self-care: 30.56% and 29.76%, respectively, in the main group and 48, 10% and 20.25%, respectively, in the control group. It was established that there were patients with moderate and severe self-care disorders among patients with NS in schizophrenia (29.76%, $p=0.030$, $DC=1.67$, $MI=0.08$; 19.05%, $p=0.0001$, respectively), while among patients of the control group there were more individuals with minimal and mild violations (27.85%, $p=0.0001$, $DC=4.15$, $MI=0.36$ and 48.10%, $p=0.002$, $DC=1.97$, $MI=0.17$, respectively).

The decrease in productivity in work and study in both groups acquired moderate and pronounced values: 32.54% and 21.83%, respectively, in the main group and 46.84% and 25.32%, respectively, in the control group. It has been statistically proven that there were more patients with a pronounced and severe level of reduced productivity in work and study among patients with NS in schizophrenia (21.83%, $p=0.0001$ and 15.48%, $p=0.0001$, respectively), while among patients of the control group there were more persons with minimal and mild disorders (24.05%, $p=0.0001$, $DC=5.04$, $MI=0.42$ and 46.84%, $p=0.0001$, $DC=3.73$, $MI=0.50$, respectively).

The decrease in energy potential in most patients of the main group was of moderate and pronounced levels (38.89%, $p=0.0001$, $DC=3.11$, $MI=0.31$ and 2.62%, $p=0.0001$, $DC=5.53$, $MI=0.45$, respectively), and in the control group – minimal and mild (44.30%, $p=0.0001$, $DC=8.17$, $MI=1.53$ and 27.85%, $p=0.044$, $DC=1.39$, $MI=0, 05$ respectively).

The majority of patients in the main group determined moderate and severe levels according to the subjective assessment of apatho-abulic disorders (33.73%, $p=0.013$, $DC=1.95$, $MI=0.12$ and 21.03%, $p=0.0001$, $DC=9.19$, $MI=0.85$, respectively), and most patients of

Table 4 – Percentage distribution of anhedonia and antisociality in patients with schizophrenia

Symptoms of anhedonia/ asociality	Main group (n=252)						Control group (n=79)					
	There is no violation	The violation is minimal	Lightly	Moderately	Expressed	Severe violations	There is no violation	The violation is minimal	Lightly	Moderately	Expressed	Severe violations
	percent (%)											
Leisure activity	2.78	5.56	13.89	34.52	33.33	9.92	24.05	29.11	34.18	10.13	2.53	0.00
Sexual interests	0.79	3.97	11.90	27.38	31.35	24.60	18.99	34.18	27.85	12.66	5.06	1.27
The ability to feel intimacy and closeness	1.19	8.33	16.27	23.41	28.57	22.22	8.86	26.58	44.30	20.25	0.00	0.00
Relationships with relatives and colleagues (autism)	1.19	7.54	9.92	23.02	42.06	16.27	1.27	7.59	35.44	39.24	13.92	2.53
Subjective awareness of anhedonia – asociality	1.49	6.35	13.00	27.08	33.83	18.25	13.29	24.37	35.44	20.57	5.38	0.95

the control group assessed their own apatho-abulic disorders as minimal and mild (32.07%, $p=0.0001$, $DC=5.79$, $MI=0.68$ and 40.93%, $p=0.002$, $DC=2.31$, $MI=0.19$, respectively).

The analysis of the components of anhedonia and antisociality made it possible to determine that activity in free time was moderately and markedly reduced in most patients with NS in schizophrenia ((34.52±1.11)% and (33.33±1.08)%, respectively) (table 4). In the patients of the control group, the decrease in activity was expressed at the minimal and mild levels ((29.11±3.14)% and (34.18±3.55)%), and in 24.05% of the patients, the decrease in activity was not observed. At the same time, it was proved that the predominance of moderate and severe levels of decreased activity distinguished the patients of the main group (34.52%, $p=0.0001$, $DC=5.32$, $MI=0.65$; 33.33%, $p=0.0001$, $DC=11.19$, $MI=1.72$, respectively), and minimal, mild and no decrease in activity – patients of the control group (29.11%, $p=0.0001$, $DC=7.19$, $MI=0.85$; 34.18%, $p=0.0001$, $DC=3.91$, $MI=0.40$ and 24.05%, $p=0.0001$, $DC=9.37$, $MI=1.00$, respectively).

Sexual interests in patients of the main group were reduced at moderate, severe and severe levels ((27.38±0.93)%, (31.35±1.03)% and (24.60±0.85)%, respectively), and among the control group – at minimal and mild levels ((34.18±3.55)% and (27.85±3.03)%, respectively). At the same time, it was proved that the predominance of moderate, pronounced and severe levels of decreased sexual interests distinguished the patients of the main group (27.38%, $p=0.003$, $DC=3.35$, $MI=0.25$; 31.35%, $p=0.0001$, $DC=7.92$, $MI=1.04$ and 24.60%, $p=0.0001$, $DC=12.89$, $MI=1.50$, respectively), and minimal, mild and no decrease in sexual interests – patients of the control group (34.18%, $p=0.0001$, $DC=9.35$, $MI=1.41$, 27.85%, $p=0.001$, $DC=3.69$, $MI=0.29$ and 18.99%, $p=0.0001$, $DC=13.79$, $MI=1.25$ in accordance).

The ability to feel intimacy and closeness in patients of the main group was reduced at moderate, severe and severe levels ((23.41±0.82)%, (28.57±0.96)% and (22.22±0.78)%, respectively), and among the control group – at minimal and mild levels ((26.58±2.92)% and (44.30±4.24)%, respectively). It was statistically confirmed that the predominance of pronounced and severe levels of reduction in the ability to feel intimacy and closeness distinguished the patients of the main group

(28.57%, $p=0.0001$ and 22.22%, $p=0.0001$, respectively), and minimal and mild levels – patients of the control group (26.58%, $p=0.0001$, $DC=5.04$, $MI=0.46$ and 44.30%, $p=0.0001$, $DC=4.35$, $MI=0.61$, respectively).

Pronounced violations in relations with relatives and colleagues in patients of the main group were observed in the majority of patients (42.06±1.28)%, $p=0.0001$, $DC=4.80$, $MI=0.68$, and mild and moderate violations – in most patients of the control group (35.44%, $p=0.0001$, $DC=5.56$, $MI=0.71$ and 39.24%, $p=0.002$, $DC=2.32$, $MI=0.19$, respectively).

Rating awareness of anhedonia and antisociality was moderately and markedly reduced in most patients with NS in schizophrenia ((27.08±0.92)% and (33.83±1.10)%, respectively), and in patients of the control group, the decrease in awareness of anhedonia and antisociality was manifested at minimal and mild levels ((24.37±2.72)% and (35.44±3.65)%, respectively), and in 13.29% of patients, a decrease in awareness of anhedonia and antisociality was not observed. The obtained data were confirmed by statistical methods: the predominance of pronounced and severe levels of decreased awareness of anhedonia and antisociality distinguished the patients of the main group (33.73%, $p=0.0001$, $DC=8.24$, $MI=1.18$ and 18.25%, $p=0.0001$, $DC=11.59$, $MI=0.98$, respectively), and minimal, mild and lack of awareness of own anhedonia and antisociality – patients of the control group (24.05%, $p=0.0001$, $DC=5.78$, $MI=0.51$; 35.44%, $p=0.0001$, $DC=4.32$, $MI=0.48$ and 13.29%, $p=0.0001$, $DC=9.51$, $MI=0.56$, respectively).

The assessment of indicators of attention disorders showed that among the patients of the main group there were more individuals with moderate and severe inattention in contact levels ((26.59±0.91)% and (25.00±0.86)%, respectively), and minimal and light inattention during contact ((30.38±3.25)% and (35.44±3.65)%, respectively) was more characteristic of patients of the control group (table 5). A statistical comparison of the two groups allowed to confirm the obtained results: moderate and severe violations of attentiveness during contacts distinguished the patients of the main group (26.59%, $p=0.008$, $DC=2.81$, $MI=0.18$ and 25.00%, $p=0.0001$, $DC=12.96$, $MI=1.54$, respectively), and the minimum and light – patients of the control group (30.38%, $p=0.0001$,

Table 5 – Percentage distribution of attention deficit in patients with schizophrenia (according to SANS results)

Symptoms of attention deficit disorder	Main group (n=252)						Control group (n=79)					
	There is no violation	The violation is minimal	Lightly	Moderately	Expressed	Severe violations	There is no violation	The violation is minimal	Lightly	Moderately	Expressed	Severe violations
	percent (%)											
Carelessness in contact	5.16	10.71	15.87	26.59	25.00	16.67	18.99	30.38	35.44	13.92	1.27	0.00
Carelessness during testing	0.00	1.19	8.33	23.81	36.90	29.76	3.80	21.52	27.85	45.57	1.27	0.00
Subjective perception of decreased concentration of attention	2.58	5.95	12.10	25.20	30.95	23.21	11.39	25.95	31.65	29.75	1.27	0.00

DC=4.53, MI=0.45 and 35.44%, $p=0.0001$, DC=3.49, MI=0.34 respectively).

Inattentiveness during testing of moderate, severe and significant levels was manifested among patients with NS in schizophrenia ((23.81±0.83)%; (36.90±1.17)% and (29.76±0.99)%, respectively), while the majority of patients in the control group showed moderate inattention while performing tests (45.57±4.31)%. It was proven that there were more patients with a pronounced and severe level of impaired attention during testing among patients in the main group (36.90%, $p=0.0001$, DC=14.65, MI=2.61 and 29.76%, $p=0.0001$, respectively), and with moderate – among patients of the control group (45.57%, $p=0.0001$, DC=2.82, MI=0.31).

Subjective perception of reduced concentration of attention of moderate, pronounced and significant levels was manifested among patients with NS in schizophrenia ((25.20±0.87)%; (30.95±1.02)% and (23.21±0.81)%, respectively), while the majority of patients in the control group had a predominance of minimal, mild and moderate level of subjective perception of reduced attention concentration ((25.95±2.86)%; (31.65±3.35)% and (29.75±3.20)%, respectively). It was found that the patients of the main group probably had a pronounced and severe level of subjective perception of a decrease in attention concentration more often (30.95%, $p=0.0001$, DC=13.88, MI=2.06 and 23.41%, $p=0.0001$, respectively), while minimal and mild – among patients of the control group (26.58%, $p=0.0001$, DC=6.50, MI=0.67 and 31.65%, $p=0.0001$, DC=4.10, MI=0.40, respectively).

Conclusions.

The conducted study made it possible to determine the features of the manifestations of negative symptoms typical for patients with NS in schizophrenia, which included:

a) **among the components of affective flattening:** mild and moderate levels of facial expression impoverishment (25.00% and 23.41%, $p\leq 0.014$, respectively); minimal, moderate and pronounced levels of reduction of spontaneous mobility (32.54%; 15.48% 14.68%, $p\leq 0.016$ respectively), moderate and pronounced levels of impoverishment of motility expressiveness (19.05% and 13.89%, $p\leq 0.031$, respectively), lack of speech intonations (31.75% and 40.08%, $p\leq 0.0001$, respectively) and subjective feeling of loss of emotions (25.79% and 23.81%, $p\leq 0.042$, respectively); pronounced avoidance

of eye contact (35.32% $p=0.001$, respectively) and moderate inadequacy of affect (44.44%, $p=0.0001$);

b) **among the components of alolia:** moderate impoverishment of vocabulary (35.32%, $p=0.008$); moderately expressed abruptness of thoughts (50.79%, $p=0.0001$); pronounced impoverishment of the topic of conversation (26.19%, $p=0.0001$); moderate and severe levels of subjective assessment of speech disorders (37.80% and 20.85%, $p\leq 0.0001$, respectively) and delayed responses of moderate and severe levels (41.67% and 25.00%, $p\leq 0.0001$ respectively);

c) **among the components of abulia and apathy:** moderate violations in self-care (29.76%, $p=0.030$); pronounced decrease in productivity in work and study (21.83%, $p=0.0001$); a decrease in the energy potential of a moderate level (38.89%, $p=0.0001$) and a subjective assessment of apatho-abulic disorders as moderate and severe (33.73% and 21.03%, $p\leq 0.013$, respectively);

d) **among the components of anhedonia and antisociality:** moderate and pronounced levels of activity reduction (34.52% and 33.33%, $p=0.0001$, respectively); moderate, pronounced and strong decrease in sexual interests (27.38%; 31.35% and 24.60%, $p\leq 0.003$, respectively); reduced ability to feel intimacy and closeness at the expressed and severe levels (28.57% and 22.22%, $p=0.0001$, respectively); pronounced violations in relations with relatives and colleagues (42.06%, $p=0.0001$) and a decrease in the subjective assessment of awareness of anhedonia and antisociality (33.73%, $p=0.0001$);

e) **among the components of attention:** moderate and pronounced violations of attentiveness during contacts (26.59% and 25.00% of ≤ 0.008 , respectively); pronounced and severe levels of impaired attention during testing (36.90% and 29.76%, $p=0.0001$, respectively) and subjective perception of a decrease in attention concentration (30.95% and 23.41%, $p=0.0001$ respectively).

Prospects for further research.

The obtained data can be used to establish diagnostic criteria among patients with NS in schizophrenia.

References

1. Institute of Health Metrics and Evaluation (IHME). Global Health Data Exchange (GHDx). IHME; 2021. Available from: <http://ghdx.healthdata.org/gbd-results-tool?params=gbd-api-2019-permalink/27a7644e8ad28e739382d31e77589dd7>.
2. Jaeschke K. Global estimates of service coverage for severe mental disorders: findings from the WHO Mental Health Atlas 2017. Glob Ment Health. 2021;8:e27.
3. Kushnir Yu A. Kliniko-anamnestychna kharakterystyka patsiyentiv z nehatyvnyimi symptomamy pry shyzofreniyi. Ukrayins'kyi visnyk psykhonevrolohiyi. 2023;31:3(116):78-84. DOI: <https://doi.org/10.36927/2079-0325-V31-is3-2023-13>. [in Ukrainian].
4. Foussias G, Agid O, Fervaha G, Remington G. Negative symptoms of schizophrenia: clinical features, relevance to real world functioning and specificity versus other CNS disorders. European neuropsychopharmacology: the journal of the European College of Neuropsychopharmacology. 2014;24(5):693-709. DOI: <https://doi.org/10.1016/j.euroneuro.2013.10.017>.
5. Bucci P, Galderisi S. Categorizing and assessing negative symptoms. Current opinion in psychiatry. 2017;30(3):201-208. DOI: <https://doi.org/10.1097/YCO.0000000000000322>.
6. Galderisi S, Färden A, Kaiser S. Dissecting negative symptoms of schizophrenia: History, assessment, pathophysiological mechanisms and treatment. Schizophr Res. 2017 Aug;186:1-2. DOI: [10.1016/j.schres.2016.04.046](https://doi.org/10.1016/j.schres.2016.04.046).
7. Almulla AF, Al-Hakeim HK, Maes M. Schizophrenia phenomenology revisited: positive and negative symptoms are strongly related reflective manifestations of an underlying single trait indicating overall severity of schizophrenia. CNS spectrums. 2012;26(4):368-377. DOI: <https://doi.org/10.1017/S1092852920001182>.
8. Sabe M, Sentissi O, Kaiser S. Meditation-based mind-body therapies for negative symptoms of schizophrenia: Systematic review of randomized controlled trials and meta-analysis. Schizophrenia Research. 2019;212:15-25. DOI: <https://doi.org/10.1016/j.schres.2019.07.030>.
9. Riehle M, Mehl S, Lincoln TM. The specific social costs of expressive negative symptoms in schizophrenia: reduced smiling predicts interactional outcome. Acta psychiatrica Scandinavica. 2018;138(2):133-144. DOI: <https://doi.org/10.1111/acps.12892>.
10. Sabe M, Kirschner M, Kaiser S. Prodopaminergic Drugs for Treating the Negative Symptoms of Schizophrenia: Systematic Review and Meta-analysis of Randomized Controlled Trials. Journal of clinical psychopharmacology. 2019;39(6):658-664. DOI: <https://doi.org/10.1097/JCP.0000000000001124>.
11. Shi C, Yu X, Cheung EF, Shum DH, Chan RC. Revisiting the therapeutic effect of rTMS on negative symptoms in schizophrenia: a meta-analysis. Psychiatry research. 2014;215(3):505-513. DOI: <https://doi.org/10.1016/j.psychres.2013.12.019>.
12. Hlants S. Medyko-byolohycheskaya statystyka. M.: Praktika; 1998. 459 s.
13. Sydorenko EV. Metody matematycheskoy obrabotki v psykholohy. SPb.: OOO «Rech'»; 2008. 350 s.

МОЖЛИВОСТІ ЗАСТОСУВАННЯ МЕТОДИКИ SANS ДЛЯ ОЦІНКИ ОСОБЛИВОСТЕЙ НЕГАТИВНОЇ СИМПТОМАТИКИ У ПАЦІЄНТІВ З ШИЗОФРЕНІЄЮ

Кушнір Ю. А.

Резюме. Вступ. Негативні симптоми вважаються ядреними психопатологічними або основними симптомами при шизофренії. Сучасні епідеміологічні дані про поширеність негативних розладів свідчать про те, що дані порушення реєструються у 90% хворих на шизофренію. Негативні симптоми пов'язані з несприятливим соціальним функціонуванням і виходом шизофренії, тому вкрай важливими є їх розпізнавання, своєчасна оцінка і лікування. Попри ґрунтовність досліджень проблематики негативних та позитивних симптомів при шизофренії, існуючі уявлення залишаються несистематизованими та розрізненими, що потребує подальшого уточнення та доповнення.

Мета. Визначення особливостей клініко-психопатологічної структури та вираженості негативних симптомів у хворих на шизофренію для покращення діагностики та лікування негативних симптомів при шизофренії.

Об'єкт і методи дослідження. Було обстежено 252 пацієнта з негативною симптоматикою при шизофренії та 79 пацієнтів з позитивною симптоматикою при шизофренії. У дослідженні був використаний комплексний підхід, що полягав у використанні клініко-психопатологічного, психометричного (шкала SANS) та статистичного методів дослідження.

Результати та висновки. Були встановлені особливості клініко-психопатологічної структури та вираженості негативних симптомів у хворих на шизофренію. Серед компонентів афективного сплоснення переважали: легкий та помірний рівні збіднення міміки; мінімальний, помірний та виражений рівні зниження спонтанної рухливості, помірний та виражений рівні збіднення виразності моторики, недостатності мовних інтонацій та суб'єктивного відчуття втрати емоцій; виражене уникнення контакту поглядом та помірна неадекватність афекту. Серед компонентів алогії відзначались: помірне збіднення словникового запасу; помірно виражені обриви думок; виражене збіднення тематики розмови; помірний та виражений рівні суб'єктивної оцінки порушень мови та відповіді із затримкою помірного та вираженого рівнів. Серед компонентів абутії та апатії переважали: помірні порушення в догляді за собою; виражене зниження продуктивності у роботі і навчанні; зниження енергетичного потенціалу помірного рівню та суб'єктивна оцінка апато-абутічних порушень як помірних та виражених. Серед компонентів ангедонії та асоціальності були встановлені: помірний та виражений рівні зниження активності; помірне, виражене та сильне зниження сексуальних інтересів; знижена здатність відчувати інтимність і близькість на вираженому та тяжкому рівнях; виражені порушення у відносинах з рідними та колегами та зниження суб'єктивної оцінки усвідомленості ангедонії і асоціальності. Серед компонентів уваги переважали: помірні та виражені порушення уважності при контактах; виражені та тяжкі рівні порушення уважності під час тестування та суб'єктивного сприйняття зниження концентрації уваги. Отримані дані можуть виступати в якості діагностичних критеріїв при проведенні диференціальної діагностики та виборі стратегій лікування пацієнтів з шизофренією.

Ключові слова: негативні симптоми, позитивні симптоми, шизофренія, афективне сплоснення, алогія, абутія, ангедонія.

POSSIBILITIES OF USING THE SANS METHOD FOR ASSESSING THE FEATURES OF NEGATIVE SYMPTOMS IN PATIENTS WITH SCHIZOPHRENIA

Kushnir Yu. A.

Abstract. *Introduction.* Negative symptoms are considered a basic psychopathological symptom in schizophrenia. Modern epidemiological data on the prevalence of negative disorders indicate that these disorders are registered in 90% of patients with schizophrenia. Negative symptoms are associated with adverse social functioning and the outcome of schizophrenia, so their recognition, timely assessment and treatment are extremely important. Despite the thoroughness of research into the problems of negative and positive symptoms in schizophrenia, the existing ideas remain unsystematized and disparate, which requires further clarification and addition.

The aim of the study is to determine the features of clinical and psychopathological structure and severity of negative symptoms in patients with schizophrenia to improve the diagnosis and treatment of negative symptoms in schizophrenia.

Object and methods of research. 252 patients with negative symptoms of schizophrenia and 79 patients with positive symptoms of schizophrenia were examined. The research used a comprehensive approach, consisting in the use of clinical-psychopathological, psychometric (SANS scale) and statistical research methods.

Results and conclusions. Features of the clinical-psychopathological structure and severity of negative symptoms in patients with schizophrenia were established. Among the components of affective flattening, the following prevailed: mild and moderate levels of facial expression impoverishment; minimal, moderate and pronounced levels of reduction of spontaneous mobility, moderate and pronounced levels of impoverishment of motility expression, lack of speech intonations and subjective feeling of loss of emotions; pronounced avoidance of eye contact and moderate inadequacy of affect. Among the components of alogia, the following were noted: moderate vocabulary impoverishment; moderately expressed abruptness of thoughts; pronounced impoverishment of the topic of conversation; moderate and severe levels of subjective assessment of speech disorders and delayed response of moderate and severe levels. Among the components of abulia and apathy, the following prevailed: moderate disturbances in self-care; pronounced decrease in productivity in work and study; decrease in energy potential of a moderate level and subjective assessment of apatho-abulic disorders as moderate and severe. Among the components of anhedonia and antisociality, the following were established: moderate and severe levels of decreased activity; moderate, pronounced and strong decrease in sexual interests; reduced ability to feel intimacy and closeness on a pronounced and severe level; pronounced violations in relations with relatives and colleagues and a decrease in the subjective assessment of awareness of anhedonia and antisociality. Among the components of attention, the following prevailed: moderate and pronounced violations of attentiveness during contacts; pronounced and severe levels of impaired attention during testing and subjective perception of decreased concentration of attention. The obtained data can serve as diagnostic criteria for conducting differential diagnosis and choosing treatment strategies for patients with schizophrenia.

Key words: negative symptoms, positive symptoms, schizophrenia, affective flattening, alogia, abulia, anhedonia.

ORCID and contributionship:

Kushnir Yu. A.: <https://orcid.org/0009-0002-7342-9636> ^{ABCDEF}

Corresponding author

Kushnir Yuriy Anatoliyovych
Municipal Non-Profit Enterprise «Clinical Hospital «Psychiatry»
Ukraine, 04080, Kyiv, 103 Kyrylivska str.
Tel.: +380978802870
E-mail: kalenskaya_galina@ukr.net

A – Work concept and design, B – Data collection and analysis, C – Responsibility for statistical analysis, D – Writing the article, E – Critical review, F – Final approval of the article.

Received 27.05.2023

Accepted 06.11.2023

DOI 10.29254/2077-4214-2023-4-171-217-228

UDC 616.717.5/.6: 616.72-008.1-071.3:615.8

¹Lyashenko V. P., ²Vynogradov O. O., ³Turytska T. G., ³Shumeiko O. V.

PECULIARITIES OF PHYSICAL THERAPY FOR FRACTURES OF THE BONES OF THE FOREARM IN MIDDLE-AGED PEOPLE AT THE AMBULATORY STAGE

¹Sumy State Pedagogical University named after A. S. Makarenko (Sumy, Ukraine)

²Luhansk Taras Shevchenko National University (Poltava, Ukraine)

³Municipal Non-Profit Enterprise "Municipal Multidisciplinary Clinical Hospital for Mothers and Children named after prof. M.F. Rudnev" of the Dnipro City Council (Dnipro, Ukraine)

lyashenkovp@gmail.com

The increase in the number of injuries related to limb fractures and amputations is a result of factors such as the increase in the number of motor vehicle users, the expansion of technological processes in industrial production, increased traffic volumes and the frequency of domestic injuries among the population. There is also a global prevalence of the "trauma epidemic", which has been particularly noticeable in Ukraine over the past year due to the full-scale military conflict.