

Study on the Correlation between Psychological Defense Mechanism and Clinical Features in First-Episode Schizophrenia

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Abstract: **Objective:** To analyze the correlation between psychological defense mechanism and clinical features in patients with first-episode schizophrenia. **Methods:** During the period from June 2022 to 2023, a total of 120 patients with first-episode schizophrenia admitted to our hospital were selected as the observation group, and 120 healthy patients were selected as the control group. The correlation between psychological defense mechanism and clinical characteristics of first-episode schizophrenia patients was compared. **Result:** Compared with the healthy group, the use of immature defense mechanisms and intermediate defense mechanisms is significantly different in the first schizophrenia patients. The scores of various defense mechanisms in female patients are higher than those in male patients. The differences between fantasy, somatization and withdrawal in immature defense mechanisms and sublimation in mature defense mechanisms are obvious. After treatment, the negative scale score of male patients was higher than that of female patients ($P < 0.05$). **Conclusion:** The immature psychological defense mechanism of first-episode schizophrenia is significant, and has a certain correlation with clinical characteristics, and there is a mutual influence relationship.

Keywords: First Episode Schizophrenia; Psychological Defense Mechanism; Clinical Features

Schizophrenia has a high incidence in the clinic, there are about 8 million patients with schizophrenia in our country, the proportion of clinical diseases is relatively high, schizophrenia incidence group mainly concentrated in the young patient group, with the increasing pressure of life, in recent years, the number of patients with schizophrenia also continues to

increase. At present, the pathogenesis of schizophrenia is not clear, the disease is a chronic disease, showing progressive development in clinical, the disease is prolonged and difficult to cure, prone to recurrent episodes, schizophrenia patients in clinical prone to cognitive function, thinking, feeling and other dysfunction, hallucination, delusion symptoms, violent and impulsive behavior. Patients with severe diseases will have cognitive dysfunction, lose different degrees of social function, and even have suicidal thoughts, self-harm, and the possibility of developing to suicide, which will not only hinder the improvement of the quality of life of patients, but also seriously endanger the physical and mental health of patients [1]. With the continuous development of antipsychotic drugs, the condition of first-episode schizophrenia can be effectively controlled after effective treatment, and gradually recover mental function and improve cognitive function, so that patients can return to normal life as soon as possible. However, patients with first-episode schizophrenia also face pressure in life and work. Even the mental and psychological stimulation caused by stressful events is more intense, so it is necessary to pay more attention to the psychological defense mechanism of patients with first-episode psycho classification. Psychological defense mechanism is a subconscious psychological mechanism, mainly refers to the individual to drive away anxiety, aggression, etc., to reduce their own mental pressure, establish a self-regulatory barrier, to protect psychological peace, reduce the harm of stress to themselves, can relieve inner pain and adapt to the environment is mature defense mechanism. By studying the psychological defense mechanism of first-episode schizophrenia patients, the clinical characteristics and manifestations of patients can be understood from the perspective of psychoanalysis [2]. This study mainly discusses

the correlation between psychological defense mechanism and clinical characteristics of patients with first-episode schizophrenia. The details are as follows.

1. Data and Methods

1.1 General Information

A total of 120 patients with first-episode schizophrenia were observed during the screening period from June 2022 to 2023, with a male to female ratio of 61:59 and an average age of (39.36 ± 5.27) years old ranging from 22 to 46 years old. There were 23 patients with high school education, 37 with college education, and 60 with bachelor's degree or above. At the same time, the healthy group was selected as the control group, the ratio of male to female was 62:58, the age was 21-47 years old, the average age was (39.43 ± 5.32) years old, 24 people had high school education, 35 people had college education, 61 people had bachelor degree or above. There was no difference in age, gender and education background ($P > 0.05$).

The inclusion criteria of patients in the observation group were: (1) Clinically diagnosed as first-episode schizophrenia; (2) All were adult patients; (3) Clear consciousness, communication without obstruction; (4) First onset, duration less than 2 years.

Inclusion criteria of control group: (1) no previous history of mental illness and family history of mental illness; (2) No history of drug abuse (3) no history of neurological disease; (4) No history of chronic disease.

Exclusion criteria: (1) complicated with hepatic and renal insufficiency; (2) Combined with malignant tumor; (3) Complicated with cardiovascular and cerebrovascular diseases; (4) Combined with endocrine diseases.

1.2 Methods

(1) The two groups of people were investigated by using the Defensive Style Questionnaire (DSQ), which was first compiled by M Bond in 1983 and translated and revised by domestic scholar Lu Danyue, with good reliability and validity. DSQ is mainly divided into 4 subscales with a total of 88 items, each item is divided into 1~9 levels, and the distribution is: immature defense factors; Mature defense factor; Intermediate defense factor.

(2) Patients were evaluated using the Positive and Negative Syndrome Scale (PANSS), which

was divided into grades 1 to 7.

1.3 Observation Indicators

(1) DSQ scores were compared between patients with first-episode schizophrenia and healthy controls.

(2) To compare DSQ scores of patients with first-episode schizophrenia of different genders.

(3) PANSS scores of patients with first-episode schizophrenia of different genders were compared.

1.4 Statistical Methods

Data was processed with SPSS27.0. Measurement data ($\bar{x} \pm s$) t test was performed, and X² test was performed for counting data n (%). The significant difference was indicated by $P < 0.05$.

2. Results

2.1 DSQ Scores of the two Groups were Compared

Compared with the healthy group, there were significant differences in the use of immature and intermediate defense mechanisms ($P < 0.05$), but no significant differences in the use of mature defense mechanisms ($P > 0.05$), as shown in Table 1.

2.2 DQS Scores of Patients with First-Episode Schizophrenia of Different Genders

The scores of various defense mechanisms in female patients were higher than those in male patients, and there were significant differences between fantasy, somatization and withdrawal in immature defense mechanisms and sublimation in mature defense mechanisms ($P < 0.05$), as shown in Table 2.

2.3 To Compare the Differences of Panss Scores in Patients with First-Episode Schizophrenia of Different Genders before and after Treatment.

There was no significant difference in PANSS positive and negative scale scores between male and female patients before treatment ($P > 0.05$), while the negative scale scores of male patients were higher than those of female patients after treatment ($P < 0.05$), as shown in Table 3.

3. Discussion

Schizophrenia is a clinically frequent mental

Table 1. Comparison of DSQ scores between the two groups [$\bar{x} \pm s$]

group	Observation group (n=120)	Control group (n=120)	T-value	P-value
Immature defense mechanism	4.65 ± 1.14	3.52 ± 0.68	9.325	<0.001
cast	4.26 ± 1.53	2.47 ± 0.91	11.015	<0.001
Passive aggression	4.64 ± 1.58	3.32 ± 1.05	7.622	<0.001
Latent manifestation	5.09 ± 1.47	3.29 ± 1.50	9.389	<0.001
complain	4.83 ± 1.87	3.28 ± 1.42	7.231	<0.001
fantasy	4.95 ± 2.74	3.47 ± 2.11	4.688	<0.001
fission	5.19 ± 1.63	4.14 ± 0.78	6.365	<0.001
flinch	5.08 ± 2.17	3.76 ± 1.69	5.527	<0.001
somatization	5.13 ± 1.25	3.39 ± 1.37	10.278	<0.001
Mature defense mechanism	4.87 ± 1.31	5.02 ± 1.28	0.897	0.371
sublimation	4.94 ± 1.02	5.16 ± 0.95	1.729	0.085
repression	4.92 ± 1.62	5.23 ± 1.76	1.420	0.157
humor	3.81 ± 1.13	4.07 ± 1.19	1.736	0.084
Intermediate defense	4.96 ± 0.82	3.93 ± 0.65	10.783	<0.001
reverse	4.86 ± 1.34	3.58 ± 1.21	7.766	<0.001
relieve	5.87 ± 1.74	4.34 ± 1.40	7.505	<0.001
stop	4.23 ± 1.46	4.68 ± 1.39	2.445	0.015
avoid	5.19 ± 1.16	4.20 ± 1.03	6.991	<0.001
ideal	5.02 ± 1.73	4.32 ± 1.76	3.107	0.002
altruism	4.82 ± 1.38	3.25 ± 1.62	8.082	<0.001
Omnipotence accompanied by incompetence	4.13 ± 1.04	3.65 ± 0.74	4.120	<0.001
isolate	4.27 ± 1.05	2.86 ± 1.12	10.061	<0.001
homogenization	3.18 ± 1.72	1.96 ± 1.85	5.291	<0.001
repudiate	5.39 ± 1.06	4.28 ± 0.93	8.623	<0.001
Communicative tendency	5.46 ± 1.27	4.03 ± 1.15	9.143	<0.001
expend	4.36 ± 1.72	3.21 ± 1.69	5.224	<0.001
expect	5.81 ± 1.52	6.37 ± 1.83	2.579	0.011

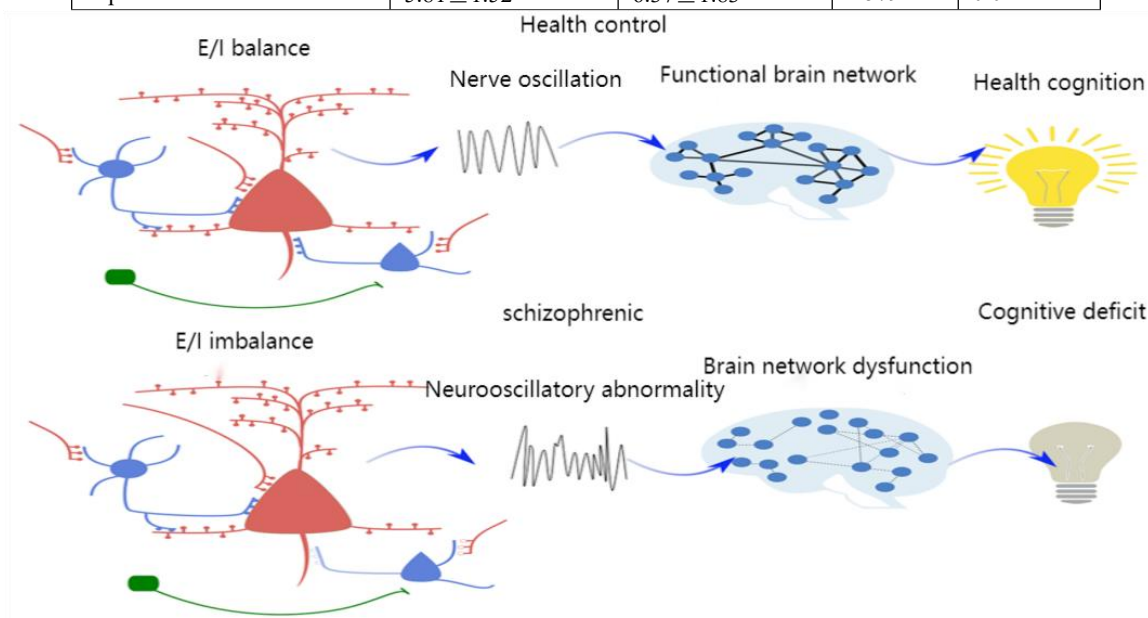


Figure 1. E/I balance and cognitive function in patients with schizophrenia

Table 2. Comparison of DSQ Scores in Patients with First-Episode Schizophrenia of Different Genders [$\bar{x} \pm s$]

group	female (n=59)	male (n=61)	T-value	P-value
Immature defense mechanism	4.69 ± 1.12	3.65 ± 1.26	4.773	<0.001

cast	4.25±1.47	4.16±1.52	0.330	0.742
Passive aggression	4.34±1.51	4.32±1.46	0.074	0.941
Latent manifestation	5.13±1.36	5.02±1.29	0.455	0.650
complain	4.37±1.15	4.30±1.24	0.320	0.749
fantasy	4.96±2.78	3.82±2.13	2.527	0.013
fission	5.13±1.56	5.07±1.49	0.215	0.830
flinch	5.19±2.13	4.41±1.82	2.159	0.033
somatization	5.16±1.28	4.36±1.32	3.369	0.001
Mature defense mechanism	4.63±1.35	4.58±1.39	0.200	0.842
sublimation	4.96±1.17	3.65±0.87	6.976	<0.001
repression	4.96±1.63	4.93±1.74	0.097	0.923
humor	3.82±1.16	3.79±1.12	0.144	0.886
Intermediate defense	4.97±0.86	4.92±0.79	0.332	0.741
reverse	4.83±1.35	4.76±1.34	0.285	0.776
relieve	5.56±1.27	5.50±1.23	0.263	0.793
stop	4.25±1.47	4.19±1.35	0.233	0.816
avoid	5.03±1.54	4.98±1.78	0.164	0.870
ideal	5.03±1.74	4.56±1.73	1.484	0.141
altruism	4.71±1.39	4.69±1.41	0.078	0.938
Omnipotence accompanied by incompetence	4.12±1.03	4.10±1.01	0.107	0.915
isolate	4.25±1.12	4.23±1.10	0.099	0.922
homogenization	3.19±1.74	3.16±1.79	0.093	0.926
repudiate	5.33±1.02	5.29±1.01	0.216	0.829
Communicative tendency	5.43±1.25	5.41±1.23	0.088	0.930
expend	4.37±1.74	4.34±1.70	0.096	0.924
expect	5.82±1.53	5.79±1.56	0.106	0.916

Table 3. Comparison of Panss Scores before and after Treatment between the two Groups [$\bar{x} \pm s, \text{points}$]

group	PANSS positive scale score		PANSS negative scale score	
	pre-treatment	post-treatment	pre-treatment	post-treatment
Female patient (n=59)	30.13±3.50	20.51±2.19	29.83±2.38	13.76±2.13
Male patient (n=61)	30.19±3.43	20.49±2.21	29.90±2.41	16.31±2.29
T-value	0.095	0.050	0.160	6.311
P值	0.925	0.0960	0.873	<0.001

illness, with the onset group mainly young patients. With the increasing pressure of life, the number of schizophrenic patients is also increasing. Schizophrenia is a chronic disease with progressive development, which will gradually cause damage to the cognitive function of patients. When the disease progresses to a severe stage, patients even attack others. Moreover, the life of patients with schizophrenia is usually much shorter than that of normal people, and the inducing mechanism of the disease has not been clearly defined [3]. E/I balance mainly refers to the relative contribution of excitatory and consistent synaptic input to brain signals. In this state, the brain can effectively process information. After the interaction between the excited pyramid cells and inhibitory interneurons, gamma oscillations

will be produced, which is the internal basis of various cognitive functions of the brain and is a sign of cognitive function. In healthy people, the E/I neural network can maintain normal cognitive function and γ oscillation, and when the E/I imbalance will induce abnormal γ oscillation, resulting in cognitive impairment, as shown in Figure 1. Usually the early symptoms of schizophrenia and chronic diseases have a certain similarity, resulting in patients in the early stage of the disease does not pay attention to the development of the disease, with the development of the disease will be a serious threat to the patient's normal life and physical and mental health. The disease development of first-episode schizophrenia patients is still in the initial stage, and timely treatment of patients can effectively improve the treatment effect of

patients and promote patients to return to normal work and life as soon as possible [4]. With the development of treatment goals throughout the course of the disease, patients with first-episode schizophrenia gradually achieve effective disease control, become more stable in their emotional state, and gradually enter the stage of recovery. However, there are few researches on the psychological defense mechanism of first-episode schizophrenia in China. The psychological defense mechanism is an important component of psychodynamic theory, which was first proposed by S. Freud. It is the main principle for patients with schizophrenia to cope with the drive of the ID, the pressure of the superego and the external environment. It can reduce the psychological tension of patients and achieve a defensive measure for patients to achieve psychological balance. It can explain the forms of treatment taken by individuals in the face of stressful events, and can also explain the manifestations formed by the psychological symptoms and clinical characteristics of patients. In order to study the role of the psychological defense mechanism in the pathological mechanism of first-episode schizophrenia patients, we can deeply understand the manifestations of the psychological symptoms of patients from the perspective of psychoanalysis to explore the mental activities of patients, and at the same time increase the understanding of the clinical characteristics of patients. S. Freud and Anna Freud proposed that special defense mechanisms have a special relationship with patients' clinical characteristics, and different clinical characteristics also have certain differences in defense methods [5]. The aggressive behavior and delusional symptoms of first-episode schizophrenia are associated with immature defense mechanisms to some extent, which may be the pathological basis of the above two symptoms in patients. Patients with first-episode schizophrenia usually apply immature defense mechanisms more frequently, indicating that patients usually choose adaptive behaviors to reduce mental pressure when facing frustration situations.

This study found that compared with the healthy group, patients with first-episode schizophrenia have a higher probability of choosing immature and intermediate defense mechanisms, while the application frequency of mature psychological defense methods is low. Clinical studies have

found that after treatment, patients with first-episode schizophrenia can reduce the use of intermediate and immature defense mechanisms. However, the use rate is still higher than that of the healthy group, indicating that the psychological defense mechanisms used by patients with first-episode schizophrenia are consistent in different stages of illness, and the use rate of immature defense mechanisms and intermediate defense mechanisms is higher because patients with first-episode schizophrenia have maintained this fixed pattern and continue to use it, and will not change after treatment. At the same time, it also reflects the characteristics that schizophrenia is prone to relapse [6]. In the comparison of defense mechanism scores of first-episode schizophrenia patients of different genders, female patients had higher scores than male patients. Compared with male patients, female patients were more likely to use fantasy, somatization and withdrawal in immature defense mechanisms and sublimation in mature defense mechanisms, which may be related to social and cultural differences. They are more willing to express their inner thoughts in the form of somatic expression, delay satisfying their desires through fantasy, and devote all their energy to the family. When the conflict and pressure are too great, they will escape to the early stage of development. In clinical practice, female patients have more significant emotional symptoms than male patients, more physical complaints, and relatively better social functions. Due to the differences in the defense mechanisms applied by males and females, the patients present different clinical characteristics [7]. Sensory gating refers to the ability of the brain to autonomously inhibit responses to repeated sensory input information, and can often be evaluated using the conditional-test P50 paradigm, where pairs of "click" stimuli can occur at 500ms intervals to induce a positive brain response that occurs 50ms after the stimulus begins. The first stimulus is called conditioned reflex stimulus (S1), and the second stimulus is called test stimulus (S2). In schizophrenia patients, the ratio of S1 amplitude to P50 is usually higher in women than in men. The P50 component is recorded using the conditional-test P50 paradigm and event-related potential (ERP) technology, which shows that the S1 amplitude is smaller in male patients than in female patients. At the same time, S1 latency is an influential factor for male negative

symptoms, as shown in FIG. 2 and FIG. 3. According to the score of PANSS scale, male patients have more negative symptoms of PANSS after treatment than female patients. Due to the more emotional symptoms of female patients, female patients will have a more intense response when applying antipsychotic drugs. Meanwhile, stress will cause more serious damage to memory and induce cognitive impairment. Corticotropin releasing factor plays an important role in mediating stress memory dysfunction and regulating stress memory dysfunction. Compared with women, men have more severe cognitive impairment, and thus show a higher level of negative symptoms[8]. As shown in Figure 2.

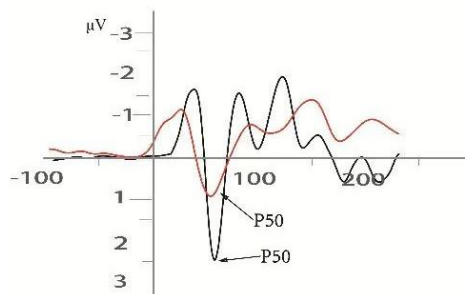


Figure 2. Average Panss Negative Symptoms in Simulated Male and Female Schizophrenia Patients

Click start time is 0ms. Black thick line: S1 response waveform; Red line: S2 response waveform. The arrow shows the position of the P50 wave, positive polarity down.

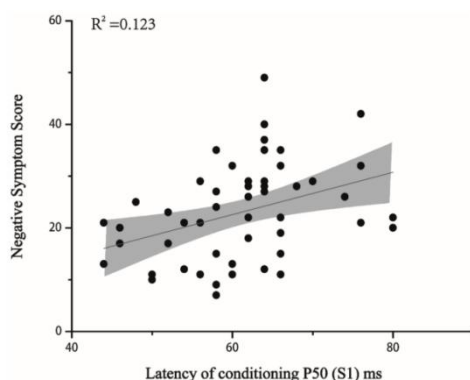


Figure 3. Negative Symptoms of male Schizophrenia were Positively Correlated with S1 Latency

As shown in Figure 3. To some extent, the psychological defense mechanism is an important reflection of the clinical characteristics of patients, in which the psychological defense mechanism plays an

induction role. Based on the current treatment, effective intervention can be implemented to target the psychological defense mechanism and clinical characteristics of patients with first-episode schizophrenia, promote the psychological stability of patients, and constantly improve the ability to solve internal conflicts and external stress. Thus, the number of disease recurrence can be reduced, the stress response of patients can be continuously decreased, and the stimulation of patients' condition and psychology in life can be reduced, so as to promote the ideal prognosis of patients. The psychological defense mechanism adopted by schizophrenia patients is related to their clinical characteristics to some extent, and the use of defense mode reflects different clinical characteristics of patients. Psychological defense mechanism can be regarded as an important part of the clinical characteristics of patients, and the use of psychological defense mechanism can be inferred from the clinical characteristics of patients. At the same time, the use of defense mechanisms is also the best interpretation of clinical features [9]. Due to the personality characteristics of schizophrenia patients, they often choose immature or intermediate psychological defense mechanisms to cope with stress reactions. Excessive use of immature psychological defense mechanisms has caused serious harm to patients' self-awareness. When patients are frustrated, they will lose their inhibition function, prompting their subconscious to lose control of themselves. It then forms the flood of repressed subconscious content (latent manifestation), or shows the unconscious delusional experience (projection, division), under the influence of this invasion, the patient is easy to escape to the early stage of development (withdrawal), and induces the patient to have eating disorders, slurred speech and poor hygiene behaviors; Because the self-boundary is difficult to control, it will cause patients to confuse reality and non-reality, and then form abstract thinking disorders; The self-collapse of schizophrenia patients is formed by the combined action of a variety of immature psychological defense mechanisms, rather than caused by individual defense modes. After the self-collapse, patients will again use a variety of immature defense mechanisms, which will further promote the relapse of the disease. Meanwhile, different psychological defense

modes will induce patients to show different clinical characteristics. At the same time, specific clinical features are not the inevitable result caused by specific defense ways, and the clinical features of schizophrenia patients are interrelated with the psychological defense mechanism, and at the same time, they will influence and interact with each other [10].

To sum up, the psychological defense mechanism of first-episode schizophrenia patients has a certain correlation with its clinical characteristics. It is necessary to constantly guide patients to reduce the use of immature psychological defense mechanisms in order to improve clinical characteristics, reduce the recurrence rate, and promote the quality of life of patients.

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