

Self-Perception Deficits in Schizophrenia: Clinical Implications and Rehabilitation Strategies

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Abstract. This study investigates how patients with schizophrenia (SCZ) perceive themselves and how it affects their quality of life. According to the study, patients with SCZ typically have deficiencies in their ability to perceive themselves, which show up as distorted self-awareness, unbalanced self-evaluation, and a lack of self-identification. These cognitive impairments seriously impair patients' social functioning and quality of life in addition to having a detrimental effect on their mental health. Cognitive impairment is a core symptom of schizophrenia and has a serious impact on patients' social functioning and quality of life. These cognitive deficits significantly impact patients' daily lives and social functioning, including areas such as learning, work, and interpersonal communication. The paper also explores the connection between self-perception deficits and cognitive dysfunction, revealing that self-perception deficits are strongly linked to widespread cognitive impairments. Enhancing self-perception abilities can improve overall cognitive functioning, which in turn can enhance social functioning and quality of life. The paper also examines individual differences, psychological factors, therapeutic strategies, and rehabilitation measures as well as disease characteristics that may impact self-perception barriers. It implies that patients can be assisted in overcoming obstacles related to their self-perception and achieving greater quality of life and functional levels through the more thorough application of diverse therapeutic techniques and customised intervention programmes.

Keywords: Self-perception; Schizophrenia; training; impact factors.

1. Introduction

1.1. Definition and Importance of Self-awareness

Definition: Self-awareness refers to the insight and understanding of oneself, including self-observation and self-evaluation. Self-observation refers to the awareness of one's own perception, thinking and intention; self-evaluation refers to the judgment and assessment of one's own thoughts, expectations, behaviors and personality traits, which is important for self-regulation. The mental cognition of self-awareness is a more advanced cognitive ability. For people with low levels of education, or relatively low levels of intelligence, they may not possess this self-awareness for life [1]. For some, on the other hand, they are able to go beyond this mental cognition. Mental cognition is generally an infinite process, because mental activity itself is infinite, and it follows personal experiences and memories as well as thoughts and imagination. Therefore, whenever there is a different mental activity from the previous stage or period, the individual's psychology of self will be summarized and readjusted [2].

Importance: Self-awareness is the key to personal growth; knowing people's strengths and weaknesses allows people to better utilize the strengths. Also continuously improving oneself is the basis for building a healthy self-image. Through self-knowledge, a person can objectively evaluate his or her own body image and inner world, thus building a healthy self-image and enhancing self-confidence. Self-awareness is the basis for decision-making, and only by understanding one's true thoughts and needs can one make decisions that are more suitable for oneself. Self-knowledge helps self-management. Through self-awareness, one can clarify one's goals and directions, so as to better manage various aspects such as time management, emotion management, behavior management and so on. Self-knowledge is the cornerstone of mental health and having a clear and accurate

understanding of one's own emotions, behaviors, and psychology enables one to better cope with life [3].

1.2. Characteristics and Manifestations of Self-perception Deficits in Schizophrenics

Schizophrenia is a serious mental illness, and one of its main features is the patient's severe defects in self-perception [4].

This self-perception deficit manifests itself in the following ways.

1. Blurred self-awareness. Patients with schizophrenia often have difficulty in clearly recognizing and expressing their inner feelings, thoughts and motives for their behaviors. They often have a vague sense of self and have difficulty in describing themselves accurately.

2. Imbalanced self-evaluation. Patients often have extreme evaluations of themselves, either highly exaggerated or seriously belittling themselves. They have difficulty in objectively recognizing and evaluating their own reality.

3. Lack of self-identification. People with schizophrenia often feel alienated from others and find it difficult to recognize their own identity and role. They may have a serious identity crisis and even develop symptoms of split personality.

4. Low self-will. Due to the defects of self-cognition, patients often find it difficult to maintain stable will and motivation and are easily influenced by external factors to change their behavior and decision-making.

5. Weak self-management ability. Patients with schizophrenia often have difficulty in effectively managing their emotions, behavior and life, and are prone to loss of control and impulsivity [5].

These self-perception deficits not only seriously affect patients' mental health, but also bring great disturbance to their social functioning and quality of life. Therefore, when treating schizophrenia, it is very important to enhance patients' self-knowledge. Doctors and family members should give patient guidance and support to help patients gradually establish a healthy self-awareness, so as to better integrate into the society and maximize their self-worth [6].

1.3. Impact of Self-Perception Deficits on Patients' Life Functioning and Rehabilitation

The impact of self-cognitive deficits on patients' life functioning is firstly reflected in social dysfunction. Due to ambiguous self-consciousness and imbalance of self-evaluation, patients have difficulties in establishing good interpersonal relationships with others. They lack self-management ability and often show abnormal behaviors which affect social and work performance. Secondly, it is the decline of patients' self-care ability, which is mainly manifested in the blurring of self-awareness, weak self-management ability, and difficulty in independently accomplishing self-care in daily life. It is also reflected in poor treatment compliance and difficulty in correctly recognizing and accepting their disease. Then it is the patient's blurred self-consciousness and imbalance of self-evaluation, etc., which make it difficult for the patients to correctly recognize their actual situation Lack of self-management ability, and difficult to actively participate in the rehabilitation training and social integration. Therefore, during the treatment of schizophrenia, doctors and family members need to pay special attention to and train patients' self-knowledge ability, help them establish correct self-awareness and improve self-management ability, so as to promote the recovery of patients' social function.

2. Cognitive and Self-perception Disorders

Cognitive impairment is one of the core symptoms of schizophrenia, which has a serious impact on patients' social functioning and quality of life [7]. Patients with schizophrenia often exhibit the following cognitive impairments.

1. Attention and concentration disorders: difficulty concentrating, slow reaction time, easily distracted.

2. Learning and memory disorders: difficulty in remembering new things and reduced ability to learn new skills.

3. Executive dysfunction: reduced ability to formulate goals and plans, and difficulty in effective problem solving.

4. Language comprehension and expression disorders: difficulty in understanding abstract language and metaphors, poor verbal expression.

5. Social cognitive impairment: difficulty in understanding the emotions and behaviors of others, lack of insight into social interactions.

These cognitive deficits are often manifested in patients' daily life and social functioning, such as learning, work, and interpersonal communication, which seriously affects patients' ability to live independently and adapt to society [8]. Studies have shown that early intervention of cognitive dysfunction is important for improving the prognosis of patients, and timely detection and targeted cognitive function training and rehabilitation are particularly important [9].

2.1. Association of Self-perception Deficits with Cognitive Impairment: Pathophysiologic Mechanisms

Mechanisms of schizophrenia pathophysiology: (1) Abnormalities in neural pathways: Patients with schizophrenia have structural and functional abnormalities in neural circuits (e.g., prefrontal, parietal, and choreographic regions) or networks (e.g., the default network) for self-awareness and self-monitoring, which can affect self-perception [2]. (2) Neurotransmitter imbalance in schizophrenia: neurotransmitter disorders such as dopamine and glutamate can trigger self-perception deficits and cognitive dysfunction [10]. (3) Neuroinflammatory response: Chronic neuroinflammatory response impairs neuronal function and aggravates self-perception and cognitive impairment [11].

2.2. Association of Self-perception Deficits with Cognitive Impairment: Current State of Research

Research status (1) Neuroimaging studies have found that the decline in self-perception in schizophrenic patients is associated with structural and functional abnormalities in prefrontal and parietal brain regions. (2) Neuropsychological studies have shown that self-perception deficits are closely associated with deficits in cognitive domains such as attention, memory, and executive function [12]. (3) Longitudinal studies have found that self-perception deficits can predict the future progression of cognitive dysfunction in patients and are an important predictor of prognosis.

In conclusion, self-perception deficits are closely pathophysiologically linked to broad cognitive deficits in patients with schizophrenia. Impairments in self-recognition may stem from abnormalities in core neural pathways in the brain, leading to deficits in multiple domains of cognitive functioning. Improving patients' self-cognitive ability can help to improve their overall cognitive functioning, thereby enhancing social functioning and quality of life, which provides new goals and ideas for early intervention and cognitive rehabilitation in schizophrenia.

2.3. Cognitive Deficits in Relation to Aspects of Disease Course and Response to Treatment/Course of Disease.

Studies have found that the severity of cognitive impairment is positively correlated with the degree of self-perception deficits. As the disease progresses and the cognitive dysfunction worsens, self-perception deficits also increase gradually.

The worsening trend of self-perception deficits is quite stable and can be an important indicator of disease prognosis.

2.4. Clinical Response to Treatment.

Self-perception deficits may affect treatment adherence, and patients with severe cognitive dysfunction are more likely to have a lack of insight and low levels of cooperation.

It has been found that improvement in self-cognitive ability can predict clinical symptom improvement and functional recovery, thus becoming a new direction for improving prognosis.

In summary, the impact of cognitive impairment on self-perception deficits is all-encompassing. This association provides a new entry point for early identification, symptom management and functional rehabilitation of psychiatric disorders. Effective interventions for self-perception deficits need to be further explored in the future to improve the overall prognosis of patients.

3. Factors Affecting Self-perception Barriers

3.1. Disease Characteristics and Clinical Manifestations

The disease characteristics and clinical manifestations of schizophrenia have a profound impact on patients' self-perception. Symptoms of different types and severities are directly associated with the accuracy and depth of patients' perception of themselves [13]. For example, positive symptoms (e.g., hallucinations, delusions) may distort the patient's perception of reality and lead to illusory deformations in self-perception, whereas negative symptoms (e.g., affective flatness, social withdrawal) may lead to a negative assessment of the patient's self-worth and competence. In addition, impaired cognitive functioning (e.g., memory loss, executive dysfunction) has a direct impact on the patient's understanding of self-perception, as these impairments in cognitive functioning may impede a comprehensive assessment of one's situation.

3.2. Individual Differences and Psychological Factors

Individual differences and psychological factors play a crucial role in shaping self-perceived barriers in schizophrenia. These factors include cognitive styles, personality traits, coping strategies, and psychological defense mechanisms [13]. Some patients may tend to use denial or avoidance strategies to alleviate the dilemma posed by self-perception, but such coping styles may deepen the cognitive impairment. In addition, emotional factors such as depression and anxiety may also affect the clarity and objectivity of patients' self-perceptions [13], as these emotional states may distort the perception and evaluation of their situation. An individual's social support system and environmental factors may also have an impact on self-perception, such as family atmosphere, social network, and occupational environment.

3.3. Impact of Therapeutic Interventions and Rehabilitation Measures

Therapeutic interventions and rehabilitation measures are essential to improve self-perception deficits in patients with schizophrenia. Interventions such as medication, psychotherapy, and rehabilitation training can be targeted to help patients restore or improve their cognitive functioning and enhance their knowledge and understanding of their situation [14]. Among them, psychotherapies such as cognitive behavioral therapy (CBT) and cognitive rehabilitation training (CRT) can help mitigate the negative effects of self-perception disorders by changing patients' cognitive patterns and coping styles. Medication, on the other hand, can reduce the severity of symptoms, thereby improving the patient's perception of his or her situation. In addition, supportive social environments and family support also play a positive role in the patient's recovery process, helping to mitigate the negative effects of self-perception disorder and promoting the recovery and improvement of social functioning [14]. The comprehensive use of various therapeutic means and the individualized design of intervention programs can more effectively help patients overcome self-perception barriers and improve their quality of life and level of functioning.

4. Factors Affecting the Cognitive-social Functioning Relationship

The relationship between cognitive impairment and social functioning in patients with schizophrenia is influenced by a variety of factors, which can be broadly categorized into individual, clinical and environmental factors [15]. Understanding and analyzing these influencing factors can

help to provide a more individualized and effective treatment plan for schizophrenic patients, thus improving their quality of life and social adaptability.

4.1. Individual Factors

4.1.1 Age

Age is one of the important factors affecting cognitive and social functioning in patients with schizophrenia. Studies have shown that there are significant differences in cognitive and social functioning between patients of different ages [16]. Younger patients usually show stronger cognitive recovery and higher social adaptation. They tend to learn and adapt more quickly when faced with new cognitive tasks, which may be related to higher neuroplasticity. Neuroplasticity refers to the brain's ability to make adaptive changes in structure and function, and younger patients possess greater neuroplasticity, giving them greater potential for recovery in response to cognitive and social deficits. However, neuroplasticity declines with age, leading to a gradual decline in cognitive functioning. This decline is particularly evident when dealing with complex social situations and increases the difficulty in daily life and social interactions.

Elderly patients not only face cognitive decline, but may also suffer simultaneously from other health problems, such as dementia and somatic diseases, which further exacerbate their cognitive and social deficits. Elderly patients show more pronounced impairments in social interactions, affecting their quality of life. Therefore, the treatment and care of elderly patients need to integrate these comorbidities in order to develop a comprehensive rehabilitation program aimed at enhancing their cognitive functioning and social adjustment.

4.1.2 Educational level

Educational attainment has a significant impact on cognitive and social functioning in patients with schizophrenia. A high level of education is usually associated with a stronger cognitive reserve, which can buffer to some extent the cognitive impairment associated with schizophrenia [16]. Patients with higher levels of education tend to have better information- processing skills, problem- solving skills, and the ability to adapt to new environments, which help them to behave more appropriately and confidently in social situations. In addition, highly educated patients are better at utilizing and processing information and are able to cope more effectively with challenges and changes in their lives. Conversely, patients with lower levels of education may lack the necessary cognitive and social skills, which makes it more difficult for them to face social challenges. These patients may need more support and training to compensate for their educational and skill deficits.

When discussing the impact of education level on patients, it is important to mention the role of social support networks. Social support networks are support systems consisting of family members, friends, coworkers, and professionals, among others [16]. These support systems provide not only emotional support but also practical help in the recovery process of patients. Patients with a high level of education usually have a broader and more effective social support network, which has a positive impact on their cognitive functioning and social adaptability. A strong social support network can enhance patients' self-confidence and social adaptability, making them more resilient in the face of life's challenges. Specifically, a social support network can help patients in several ways: providing emotional support to reduce psychological stress and anxiety; providing practical help, such as assistance in daily life and access to resources; facilitating patients' participation in social activities to enhance their social interaction; and providing information and advice to help patients better understand and cope with their disease.

A high level of education and a strong social support network work together to help enhance patients' cognitive functions and social adaptability, thereby improving their quality of life. Therefore, the educational background and social support network of patients should be taken into account when formulating rehabilitation programs in order to provide more comprehensive and effective support.

4.1.3 Course of the Disease

The duration of the disease has a direct impact on patients' cognitive and social functioning. Patients with longer disease duration tend to experience more severe cognitive deterioration and decreased social functioning [17]. A prolonged course of the disease not only causes patients' cognitive abilities to diminish but may also undermine their ability to adapt to the social environment. Patients with a prolonged disease course may have become accustomed to the inconveniences and limitations imposed by the disease, and this habit sometimes leads them to give up the pursuit of higher quality of life and social functioning. Early intervention and treatment are important to slow down disease progression and protect cognitive and social functions. Recovery of cognitive and social functioning may be more significant in patients who are diagnosed early and receive timely treatment. Early intervention not only reduces symptoms, but also improves social skills and adaptability through rehabilitation training and support. Conversely, for patients who have not received effective treatment for a long period of time, the impairment of cognitive and social functioning may be more difficult to reverse. Patients who remain untreated for long periods of time may develop fixed cognitive and behavioral patterns that pose additional barriers to their recovery. For example, some patients may develop negative self-perceptions and socially withdrawn behaviors. They may believe that they are unable to complete tasks or interact normally with others, thus avoiding social activities. Such cognitive and behavioral patterns not only limit their social circles, but also further diminish their social functioning. Specifically, fixed cognitive and behavioral patterns are barriers to recovery in the following ways [18]:

Negative self-evaluation: Patients may persistently perceive themselves as inferior to others and lack confidence and motivation, which may affect their motivation to participate in rehabilitation training and social activities.

Social withdrawal: Due to fear of rejection or ridicule, patients may avoid contact with others, leading to further degradation of social skills.

Increased dependence: Patients who have been untreated for a long period of time may become overly dependent on family members or caregivers and lack the ability to live autonomously and independently.

Habitual avoidance: The patient may be accustomed to avoiding challenges and changes and lack the ability to adapt to new situations and solve problems.

These fixed cognitive and behavioral patterns not only hinder the recovery process of patients, but may also lead to further deterioration of their condition.

4.2. Clinical Factors

4.2.1 Severity of symptoms

Symptom severity in schizophrenia is an important clinical factor affecting cognitive and social functioning. The more severe the symptoms, the more pronounced the cognitive impairment and social functioning deficits of the patient [13]. For example, negative symptoms (e.g., emotional flatness, social withdrawal) have a particularly significant impact on social functioning. Patients may have difficulty establishing and maintaining normal interpersonal relationships because of inadequate emotional expression and social withdrawal. Negative symptoms are often associated with patients' diminished motivation and interest, which cause them to be apathetic and passive in social interactions, further affecting their social functioning. In addition, positive symptoms (e.g., hallucinations and delusions) in patients with schizophrenia interfere with cognitive functioning, further affecting their social functioning. Under the influence of hallucinations and delusions, patients may display abnormal behaviors and thinking patterns, which not only impede their daily life, but may also lead to social isolation and rejection. Frequent episodes and severity of positive symptoms are important factors affecting patients' social functioning, and severe positive symptoms may require more aggressive treatment and management.

4.2.2 Response to medication

Medication plays a key role in the management of schizophrenia. Patients' response to medication varies from person to person, and the efficacy and side effects of medication may also affect their cognitive and social functioning [18]. For some patients, medications are effective in controlling symptoms and improving cognitive and social functioning, while for others, medication side effects may lead to further deterioration of cognitive and social functioning. For example, some antipsychotic medications may cause side effects such as cognitive slowness and dyskinesia, which can severely affect patients' cognitive and social functioning. Individualized medication regimen is an important tool to improve patients' quality of life. Medical professionals need to adjust the dosage and type of medication according to the patient's specific situation in order to achieve the best therapeutic effect. The goal of drug therapy is not only to control symptoms, but also to improve the patient's cognitive and social functioning, minimize side effects, and improve patient compliance and quality of life. Regular medication assessment and adjustment is an important part of ensuring the effectiveness of treatment, and patients and their families should work closely with the healthcare team to develop and implement a treatment plan.

4.3. Environmental Factors

4.3.1 Family support

Family support is an important environmental factor affecting the social function of schizophrenic patients. Good family support can provide patients with emotional support and life help, reduce the pressure brought by the disease, and promote the recovery of patients' social function. Studies have shown that emotional support, economic support and practical help from the family have a positive impact on the recovery process of patients [17,18]. Specifically, the understanding, care and companionship of family members can reduce patients' sense of isolation and anxiety and enhance their emotional stability. It has been found that emotional support can help alleviate patients' depressive symptoms and improve their ability to regulate their emotions, thereby enhancing their willingness to interact socially. Financial support from the family can reduce the financial burden of patients and enable them to access better medical resources and rehabilitation services. This includes paying for treatment, purchasing medication, and participating in various types of rehabilitation training and psychological counseling, thereby enhancing the recovery effect. Practical help from family members in daily life, such as assisting the patient in completing daily activities, managing medication and arranging medical appointments, can significantly reduce the pressure of life on the patient. Such practical help not only improves patients' quality of life, but also enables them to focus more on rehabilitation training and recovery of social functions.

Understanding and acceptance by family members can reduce patients' psychological burden and enhance their self-confidence and social interaction. On the contrary, family tension or lack of support may aggravate patients' social dysfunction and make them feel isolated and helpless, which in turn affects their recovery process. The support of family members is not only reflected in daily life assistance, but also includes emotional care and encouragement, which is important for improving patients' social functioning and quality of life. Family members can learn how to better support patients and face the challenges brought by the disease together by learning relevant psychoeducational knowledge.

4.3.2 Social resource acquisition

Access to social resources is equally crucial to the rehabilitation and social function recovery of patients with schizophrenia. A social support system including employment opportunities, social services, and medical resources can help patients better integrate into society and improve their quality of life [19]. Employment opportunities not only provide economic support for patients, but also help them establish social connections and enhance their sense of self-worth. For patients with schizophrenia, employment is not only a sign of economic independence, but also an important way of social recognition and self-realization. Full utilization of social services and medical resources can

provide patients with the necessary treatment and rehabilitation support to help them cope with the various challenges brought about by the illness. Access to social resources also includes housing, education, and community activities, and the accessibility of these resources directly affects patients' social functioning and quality of life [20]. Patients who lack the support of social resources often face greater challenges in recovering their social functioning, and they may have difficulty in accessing effective treatment and rehabilitation opportunities due to economic difficulties and social isolation. Communities and social organizations should strengthen their support for patients with schizophrenia by providing more resources and opportunities to help them better adapt and integrate into society.

In summary, the factors affecting the relationship between cognitive and social functioning in patients with schizophrenia are multifaceted. Individual, clinical and environmental factors work together to determine the recovery process and quality of life of patients. Comprehensive assessment and intervention for these factors can help provide a more comprehensive and effective treatment program for patients with schizophrenia. By improving patients' cognitive and social functions, it can significantly enhance their quality of life and help them better integrate into society. Effective interventions require not only medical and psychological support, but also the concerted efforts of all sectors of the community to create an understanding, inclusive and supportive social environment so that people with schizophrenia can lead healthier and more meaningful lives.

5. Intervention Strategy

Patients with schizophrenia have different degrees of symptoms in their work, communication and other life behaviors. All of these conditions negatively affect the lives of people with schizophrenia in more or less different ways. In the intervention strategy of treatment of schizophrenic patients, adding, adjusting and emphasizing the corresponding training of disease symptoms is helpful to the recovery of patients. Training can be roughly divided into "cognitive function training" and "social skill training".

5.1. Cognitive Function Training

The effect of cognitive function training on improving social function is mainly reflected in the close correlation between the two. Social function includes working ability and social ability. Cognitive function training methods include memory training, orientation training, attention training, perception training and thinking training. The cognitive function training method is reflected in both working ability and social ability of social adaptability.

5.1.1 Memory training

In social activities, patients can often use the complete or incomplete chain of relationships connected by some everyday things to conduct associative memory. This helps to enhance the ability of the memory center of the brain of patients, and further strengthen the actual positive performance of memory in life behaviors such as work and communication.

5.1.2 Orientation training

Orientation training includes direction perception training, direction memory training, direction navigation training, direction attention training, direction planning training. Orientation training is helpful for patients to have better spatial navigation ability in life, which is reflected in the situation that patients' road recognition becomes more accurate. In real life, patients can be asked to train repeatedly through the above training methods combined with the actual location and situation, and their training performance should be recorded and further analyzed to adjust the focus of the training program.

5.1.3 Attention training

Some studies have shown that attention training in cognitive function training has a certain impact on the improvement of patients' condition. Attention training includes Schulte table training, keyword

search training, sentence repetition training and so on. Patients should be asked to confirm the training method and interval time for training in actual work and communication life. For example, patients are trained to pay attention by listening to a passage of text and recording the number of times a word appears, or by being asked to repeat the sentence in its entirety, based on what they are doing. At the same time, the outcome changes in the patient's attention mapped to the actual event should be recorded and compared.

5.1.4 Perceptual training

Perceptual training includes perceptual training, auditory and perceptual training, tactile training, taste and smell training and motion perception training. Studies have shown that in treatment, patients can be exposed to a variety of things and a series of sensory experiences such as sight, hearing, touch, taste and smell, such as aerobic exercise. After the training, the patient should be asked about the experience process, results and feelings. The correlation between the patient's feedback and the training purpose should be analyzed, and corresponding adjustments should be made, in order to further train and enhance the patient's perception of the environment.

5.1.5 Thinking training

Thinking training methods include innovative thinking training, associative thinking mode, divergent thinking mode and so on. In the course of training, patients can be asked to come up with multiple solutions by interacting with each other and analyzing solutions to the same problem. At the same time, patients can also be guided to discover linkages between issues, so as to train them to consider problems from different angles and further improve their thinking ability.

5.2. Social Skills Training

The effect of social skill training on improving cognitive function is mainly reflected in the improvement of communicative behavior, self-behavior and task behavior. Studies have shown that it is necessary to add social skills training to cognitive function training. Not only does this have a positive impact on the ability to be trained, but it may also be a more efficient means of helping patients improve their cognitive function.

5.2.1 The role of social skills

Social skills can improve patients' communicative behavior, self-behavior and task behavior. For example, in the patient's self-behavior, the training of social skills can increase the effectiveness and practicability of the help body to effectively cope with the needs and challenges in daily life, maintain a good mental state, and show appropriate and healthy behaviors when interacting with others in the social and cultural environment.

5.2.2 Social skills training

Social skills training mainly includes interpersonal skills, communication skills, cooperation skills, problem-solving skills, leadership skills and so on. During treatment, patients can be trained to actively participate in the conversation of others, learn to solve problems cooperatively, improve their speaking skills, complete tasks, and express emotions. This can comprehensively improve their social skills, have a certain positive impact on their lives and improve their living conditions.

5.2.3 Design section

The model of comprehensive intervention can be divided into three parts: intervention purpose, intervention action and intervention strategy. In the purpose of intervention, the purpose of this activity is to identify how cognitive impairment in schizophrenia patients will be interfered with and what treatment measures will be taken to improve the relationship between it and social function. During the intervention, the treating physician should schedule the treatment plan. In the intervention strategy, the corresponding treatment and training are carried out according to the basic level of the patient's own cognitive function, social skills and social function, and then the next treatment and training plan is observed and formulated after a period of time.

6. Future Research Direction and Clinical Application

6.1. Future Research Method

In future studies, screening methods, specific examination methods, test sets and functional examination methods can be applied to the treatment and training of patients, while further adjusting and improving the treatment and training that matches the self-cognitive deficit with the basic level of patients' cognitive function, social skills and social function. In the future, patients can be divided into multiple experimental groups and control groups. The corresponding instruments, tests, experiments and other inspection methods should be used. The experimental results of patients should be analyzed and integrated, so as to further adjust experimental items that are more suitable for the actual situation of patients.

6.2. Future Research Clinical Application

In future studies, a series of treatment strategy steps such as analysis, training, improvement and summary can be actually applied to schizophrenia treatment centers, psychiatric hospitals and other treatment places, so as to continuously conduct broad analysis and individual case analysis for patients' conditions, and make corresponding adjustments based on the results, which can bring about certain positive impact and improvement on patients' conditions with more reasonable and effective training methods.

6.3. Priorities and Challenges for Future Research

The focus and challenges of future research focus on three areas: interdisciplinary collaboration, long-term follow-up, and the development of individualized treatment strategies. The first is interdisciplinary cooperation, such as cooperation with sociology, researchers can add the corresponding experiment, treatment and training, and finally analyze the performance of patients to further confirm the direction of research. The second is long-term tracking. Researchers need to contact patients at intervals and confirm research progress, such as frequency stabilization communication with treatment center staff. Finally, individualized treatment strategies should be developed in the future, if possible, to more accurately formulate plans and strategies for patients with corresponding levels and other conditions, and real-time follow-up of the progress of some significant patient plans.

7. Conclusion

7.1. Research Findings

This review provides an in-depth examination of self-perception deficits in patients with schizophrenia and their impact on cognitive and social functioning by synthesizing existing research. The main conclusions are as follows:

1. Prevalence and importance of self-perception disorder: Self-perception disorder is common in patients with schizophrenia, and this disorder is not only one of the core symptoms of the disease, but also has a profound impact on patients' overall functioning. Self-perception disorder manifests itself in cognitive biases about one's own mental state, emotions, and behaviors, which seriously affects patients' self-perception and social interactions.

2. Strong association between self-perception deficits and cognitive functioning: studies have shown that self-perception deficits are closely associated with cognitive dysfunction in schizophrenia. Cognitive dysfunctions such as attention, memory and executive function are significantly associated with self-perception deficits. These cognitive dysfunctions not only affect patients' ability to perform daily life, but also aggravate self-perception bias, creating a vicious circle.

3. The far-reaching impact of self-cognitive impairment on social functioning: Self-cognitive deficits have a direct impact on the social functioning of patients, specifically in terms of their ability

to find employment, live independently, and have interpersonal interactions. Studies have found that improving self-perception deficits can significantly improve patients' social functioning and quality of life. On the contrary, the failure to improve self-perception deficits will lead to a continuous decline in social functioning.

4. **Bidirectional interaction between cognitive and social functioning:** There is a complex bidirectional interaction between cognitive dysfunction and social dysfunction. On the one hand, cognitive dysfunction may lead to difficulties in social interaction and self-care. On the other hand, social dysfunction may exacerbate the deterioration of cognitive function. The social environment and interpersonal relationships can have both positive and negative effects on cognitive functioning.

5. **Multiple factors influence the cognitive-social functioning relationship:** This paper focuses on the influence of individual, clinical and environmental factors on cognitive and social functioning. Age, education and disease duration are important individual factors. Increasing age leads to a decline in cognitive function and neuroplasticity, which affects social functioning. Patients with higher levels of education usually have better cognitive reserve and social adaptation. Duration of disease directly affects the degree of deterioration in cognitive and social functioning. Patients with longer duration of illness may develop fixed negative cognitive and behavioral patterns that pose a barrier to recovery. Symptom severity and response to medication are key clinical factors. Patients with more severe symptoms usually show more pronounced cognitive and social deficits. Patients who respond better to medication usually have more effective symptom relief and improved cognitive functioning and social adjustment. Among environmental factors, good family support and access to social resources can significantly contribute to patients' cognitive and social functioning.

7.2. Limitation of the Current Research

Although there has been a significant amount of research exploring self-perception deficits and their impact in people with schizophrenia, there are still some limitations:

1. **limitations of the research methodology:** most of the existing studies adopt cross-sectional research design and lack of longitudinal studies, which makes it difficult to comprehensively reveal the temporal dynamics of self-cognitive deficits in the course of schizophrenia. Cross-sectional studies can only capture the situation at a certain point in time and cannot reflect the developmental trajectory and changing pattern of self-perception deficits over a long period of time. A longitudinal study design can effectively address the issue of temporal dynamics. By following the same group of patients over a long period of time, longitudinal studies are able to document in detail the evolution of self-perception deficits at different stages of the disease course.

2. **inadequacy of assessment tools:** The assessment tools for self-perception disorder are not yet perfect and lack uniform standards, which leads to difficulties in comparing and integrating the results of the study. Existing assessment tools mostly focus on qualitative descriptions and lack quantitative assessment methods, which limits the accuracy and scientificity of the study.

3. **sample heterogeneity:** There is a large heterogeneity of samples in different studies, such as the duration of patients' illnesses, the severity of their symptoms, and their treatment modalities, which may affect the generalizability and applicability of the findings. While the diversity of samples enriches the perspective of the study, it also increases the complexity of data analysis and makes it difficult to draw consistent conclusions.

4. **lack of cross-cultural studies:** Existing studies have mostly focused on specific cultural contexts, and there is a lack of comparative studies on self-perception barriers of schizophrenia patients in different cultural contexts. Patients in different cultures may exhibit different self-perception characteristics and social functioning, so more cross-cultural studies are needed to verify the generalizability of the existing findings.

5. **lack of individualized intervention strategies:** Current research focuses mainly on general treatment methods in terms of intervention strategies and lacks in-depth exploration of individualized intervention strategies based on patients' individual differences. Future studies should focus on the

individual differences of patients, explore the self-perception barriers based on individual differences, and formulate personalized treatment plans to improve treatment effects and rehabilitation.

6. inadequate interdisciplinary cooperation: Current research is mainly focused on the fields of psychology and psychiatry, with insufficient utilization of research results and methods from other related disciplines such as neuroscience and sociology. Future research should strengthen interdisciplinary cooperation and comprehensively utilize a variety of research methods and technical means to comprehensively reveal the mechanisms of self-cognitive disorders and their effects on patients, so as to provide more comprehensive scientific evidence to support the rehabilitation and treatment of schizophrenia.

7.3. Future Study

Future research should address these shortcomings and further delve into the self-perception barriers and their effects in schizophrenia patients, as suggested below:

1. Developing longitudinal studies: Through longitudinal studies, this study dynamically observes the changes of self-perception disorder in the course of schizophrenia patients and its long-term effects on cognitive and social functions. Longitudinal studies can reveal the developmental pattern and change trend of self-perception disorder, which can help to develop more precise intervention strategies.

2. Improvement of assessment tools: Develop more scientific and standardized assessment tools for self-cognitive disorders in order to improve the comparability and credibility of research results. Future assessment tools should combine quantitative and qualitative methods to comprehensively assess patients' self-cognitive status and provide accurate data support.

3. cross-cultural comparative research: Cross-cultural comparative research is conducted to explore the similarities and differences in self-perception barriers of schizophrenic patients in different cultures and to enrich the breadth and depth of the research. Cross-cultural research can reveal the influence of cultural factors on self-perception disorder and promote mental health research and clinical practice worldwide.

4. Individualized intervention strategies: Explore the intervention strategies for self-cognitive disorders based on patients' individual differences, combine cognitive training and social skills training, and formulate a comprehensive rehabilitation plan to improve the treatment effect. Future intervention strategies should take into account the individual differences of patients, provide personalized treatment plans, and enhance the rehabilitation effect.

5. Interdisciplinary cooperation: Strengthen interdisciplinary cooperation in neuroscience, sociology and other disciplines, and comprehensively utilize a variety of research methods and technical means to comprehensively reveal the mechanisms of self-cognitive disorders and their impact on patients. Interdisciplinary cooperation can integrate research results from different fields and provide comprehensive scientific evidence support.

Through the efforts of the above research directions, the future is expected to further reveal the deeper mechanisms of self-perception disorder in schizophrenia patients, provide a more scientific basis for clinical intervention and rehabilitation, and ultimately enhance the patients' quality of life and social functioning. This will not only help the rehabilitation of schizophrenia patients, but also provide new perspectives and ideas for research in psychology and psychiatry.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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