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Observation on the Effects of Cognitive Behavioral Therapy on Neuropsychiatric Symptoms and Quality of Life in Patients with New-type Drug Abuse

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Abstract: The purpose of this study is to observe the effects of cognitive behavioral therapy (CBT) on neuropsychiatric symptoms and quality of life in patients with new-type drug abuse. *Methods*: Sixty patients with new-type drug abuse admitted to the hospital from April 2023 to March 2024 were randomly divided into a control group and an observation group. The control group received conventional treatment, while the observation group received additional cognitive behavioral therapy. The scores of the self-rating symptom scale (SCL-90), self-rated health measurement scale (SRHMS), short-form 36 health survey (SF-36), and patient satisfaction were compared between the two groups before and after treatment. *Results*: After treatment, compared with the control group, the observation group showed significant improvements in SCL-90 scores, SRHMS scores in all dimensions, and SF-36 scores ($P < 0.001$). The satisfaction score of the observation group was also significantly higher than that of the control group ($P < 0.05$). *Conclusion*: For patients with new-type drug abuse, cognitive behavioral therapy can significantly improve psychiatric symptoms, relieve anxiety and depression, reduce hallucinations and delusions, and enhance quality of life, leading to positive changes in physical, psychological, and social functions.

Keywords: Cognitive behavioral therapy; New-type drug abuse; Neuropsychiatric symptoms; Quality of life

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1. Introduction

The abuse of new types of drugs has become increasingly serious, posing significant harm to individuals, families, and society [1]. The misuse of these novel drugs not only leads to physical dependence but also triggers a series of neuropsychiatric symptoms, severely affecting the quality of life of patients. Traditional drug

rehabilitation treatments primarily focus on physiological detoxification, but their effectiveness in improving patients' psychological and social functioning is limited. Cognitive behavioral therapy (CBT), as an effective psychological treatment method, has been widely used in the treatment of various psychological disorders [2]. This study aims to explore the impact of CBT on neuropsychiatric symptoms and quality of life in patients abusing new types of drugs, providing a reference for clinical treatment.

2. Materials and methods

2.1. General information

Sixty patients abusing new types of drugs who were treated at the hospital from April 2023 to March 2024 were selected as the study subjects. The patients were divided into a control group and an observation group using the random number table method, with 30 patients in each group. The age range of the control group was 22–55 years, and the duration of drug abuse was 1–5 years. The age range of the observation group was 20–53 years, and the duration of drug abuse was 1–6 years. There were no statistically significant differences between the two groups in terms of gender, age, and duration of drug abuse (**Table 1**) ($P > 0.05$), indicating comparability. Inclusion criteria were as follows: (1) met the diagnostic criteria for new drug abuse in the Chinese Classification of Mental Disorders, Third Edition (CCMD-3); (2) aged between 18 and 60 years; (3) volunteered to participate in the study and signed an informed consent form. Exclusion criteria were as follows: (1) patients with severe physical diseases who could not tolerate treatment; (2) patients with severe mental illnesses such as schizophrenia; (3) patients with cognitive impairments who could not cooperate with treatment.

Table 1. Comparison of general information between the two groups

Group	Number of cases (n)	Gender (n)		Average age (Mean ± SD, years)	Average duration of illness (Mean ± SD, years)
		Male	Female		
Control group	30	18	12	35.61 ± 8.36	2.82 ± 1.28
Observation group	30	16	14	34.83 ± 7.96	3.12 ± 1.40
χ^2/t value		0.272		0.370	0.866
P value		0.602		0.713	0.390

2.2. Methods

2.2.1. Control group

The control group received conventional treatment, which specifically included the following: (1) Pharmacotherapy: Medications were administered to manage withdrawal symptoms, alleviating physical discomforts such as nausea, vomiting, insomnia, and muscle pain caused by cessation of drug use. This helped patients to smoothly transition through the physiological detoxification phase. (2) Health Education: Through methods like conducting lectures and distributing educational materials, patients were comprehensively informed about the types of drugs, their harms, and addiction mechanisms, as well as the methods and importance of drug rehabilitation. This aimed to fully educate patients on the severe detrimental effects of drugs on their physical, mental, and social well-being, thereby strengthening their awareness and resolve to quit drugs. (3) Rehabilitation training: Physical training activities such as running and fitness exercises were conducted to

assist patients in restoring their physical functions. Additionally, vocational skill training was provided, tailored to patients' interests and strengths, including skills like handicrafts and computer operations. This prepared patients for employment after their reintegration into society.

2.2.2. Observation group

In addition to conventional treatment, the observation group received cognitive behavioral therapy. The therapy was conducted by professionally trained psychotherapists, twice a week, for 60 minutes each session, over a total of 12 weeks. The specific components of the therapy included: (1) Cognitive intervention: Through the use of real-life case studies and group discussions, patients were guided to deeply analyze the reasons and processes behind drug abuse, as well as the severe physical and psychological harms caused by it. The aim was to help patients identify and correct misperceptions and attitudes towards drugs, such as the erroneous belief that drug use can alleviate stress or bring happiness. Patients were encouraged to reflect on their own behaviors and tap into their inner motivations for quitting drugs, thereby strengthening their confidence and determination to overcome addiction. (2) Behavioral intervention: Patients were taught practical skills and methods to resist drug temptations, such as avoiding places where they had previously used drugs and steering clear of high-risk situations like associating with drug-using peers. Additionally, they were instructed in relaxation techniques like deep breathing and progressive muscle relaxation to cope with tension and anxiety that may arise during the detoxification process. Through the establishment of behavioral contracts, patients were assisted in developing healthy lifestyle habits, such as maintaining regular sleep schedules, engaging in daily moderate exercise, and cultivating interests like painting and music. These activities served to enrich their spiritual lives and reduce their reliance on drugs. (3) Emotional management: Patients were helped to recognize and accurately express their emotions, gaining an understanding of the causes and manifestations of different feelings. Engaging and interactive methods like role-playing and scenario simulations were utilized to guide patients in learning effective ways to cope with negative emotions. One such technique was cognitive reframing, which involves changing perspectives and evaluations of events to adjust emotional responses. The goal was to enhance patients' ability to handle stress and setbacks, enabling them to face various challenges in life with a more positive and healthy mindset.

2.3. Observation indices

2.3.1. Neuropsychiatric symptom score

The symptom checklist-90 (SCL-90) was selected for analysis. This scale consists of 90 items, divided into 10 factors, namely somatization, obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism, and others. Each item is rated on a 1–5 scale, with higher scores indicating more severe symptoms. The maximum score is 100.

2.3.2. Health score

The health score is analyzed using the self-rated health measurement scale (SRHMS). This scale consists of 48 items, covering three dimensions: physiological health, psychological health, and social health. The higher the patient's score, the better their health status, with a maximum score of 90.

2.3.3. Quality of life score

The quality of life score is assessed using the short form-36 health survey (SF-36). This scale includes eight dimensions: physical functioning, role limitations due to physical health, bodily pain, general health, vitality, social functioning, role limitations due to emotional problems, and mental health. The total score is 100, and the higher the patient's score, the higher their quality of life.

2.3.4. Satisfaction

The satisfaction is evaluated using a self-made satisfaction scale developed by the hospital. The scale consists of 10 items, each rated on a 1–10 scale, with a maximum score of 10. The higher the score, the higher the patient's satisfaction with the treatment.

2.4. Statistical methods

Data analysis was continued using SPSS 27.0. Measurement data were described using mean ± standard deviation and analyzed with a *t*-test. Count data were described using frequency (%) and compared between groups using a chi-square test. A *P*-value less than 0.05 was considered statistically significant, indicating a meaningful difference.

3. Results

3.1. Comparison of neuropsychiatric symptom scores before and after treatment

Before treatment: The SCL-90 scale scores of the two groups were similar, and there was no statistically significant difference ($P > 0.05$). This indicates that the groups were comparable before the treatment.

After Treatment: The control group showed some changes in scores. The observation group showed a significant increase in scores. There was a statistically significant difference between the two groups ($P < 0.001$). (See **Table 2** for detailed data.)

Table 2. Comparison of SCL-90 scale scores before and after treatment

Group	Number of cases	SCL-90	
		Before treatment	After treatment
Control group	30	64.79 ± 2.38	74.85 ± 2.77
Observation group	30	65.28 ± 2.57	93.06 ± 2.46
t value		0.766	26.923
P value		0.447	<0.001

3.2. Comparison of health scores before and after treatment between the two groups

There were no significant differences in the scores of various dimensions of the SRHMS scale between the two groups before treatment ($P > 0.05$). After treatment, the observation group had significantly higher scores in the dimensions of physical health, psychological health, and social health compared to the control group, with statistically significant differences ($P < 0.001$). (See **Table 3** for detailed data.)

Table 3. Comparison of SRHMS scale scores before and after treatment between the two groups

Group	Number of cases (n)	Physical health		Psychological health		Social health	
		Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Control group	30	14.46 ± 1.46	18.91 ± 1.79	12.40 ± 1.50	17.69 ± 1.76	13.14 ± 1.25	18.60 ± 1.50
Observation group	30	14.69 ± 1.31	26.81 ± 1.32	12.24 ± 1.36	25.84 ± 1.47	13.31 ± 1.43	26.43 ± 1.20
t value		0.642	19.455	0.433	19.467	0.490	22.326
P value		0.523	<0.001	0.667	<0.001	0.626	<0.001

3.3. Comparison of quality of life scores before and after treatment between two patient groups

Before treatment, there was no significant difference in the SF-36 scale scores between the two groups ($P > 0.05$). However, after treatment, the scores of the observation group were significantly higher than those of the control group, indicating a statistically significant difference ($P < 0.001$). (See **Table 4** for detailed data.)

Table 4. Comparison of SF-36 scale scores before and after treatment between two patient groups

Group	Number of cases	SCL-90	
		Before treatment	After treatment
Control group	30	60.18 ± 2.41	75.34 ± 3.01
Observation group	30	60.22 ± 2.39	94.24 ± 2.78
t value		0.065	25.265
P value		0.949	<0.001

3.4. Comparison of patient satisfaction scores between two groups

The satisfaction scores of patients in the observation group were significantly higher than those in the control group, and the difference was statistically significant (P=0.029 < 0.05). (See **Table 5** for detailed data.)

Table 5. Comparison of patient satisfaction scores between two groups

Group	Number of cases (*n*)	Satisfaction score
Control group	30	7.14 ± 1.17
Observation group	30	8.49 ± 1.34
t value		2.244
P value		0.029

4. Conclusion

The abuse of new drugs often leads to a series of complex and severe neuropsychiatric symptoms in patients, such as anxiety, depression, hallucinations, and delusions. These symptoms severely interfere with patients' normal thinking and emotional expression, greatly affecting their living conditions [3]. Cognitive behavioral

therapy, through systematic cognitive intervention, helps patients deeply analyze their own misconceptions about drugs and guides them to re-examine the significant harm caused by drugs to various aspects of their physical, mental, and emotional lives. This fundamentally changes patients' attitudes and cognitive models towards drugs [4]. Simultaneously, behavioral intervention and emotional management training teach patients how to effectively deal with drug temptation and negative emotions, enhancing their self-control and psychological adjustment abilities. Through this series of comprehensive treatment measures, patients' psychiatric symptoms have significantly improved, gradually restoring normal mental and psychological function.

Through a controlled study of 60 patients abusing new types of drugs, this study found that cognitive behavioral therapy has significant effects on improving patients' neuropsychiatric symptoms, enhancing their health status, and quality of life, and increasing patient satisfaction. Compared to conventional treatments, cognitive behavioral therapy can more effectively help patients cope with various issues caused by drug abuse, facilitating their recovery and reintegration into society. In terms of improving psychiatric symptoms, cognitive behavioral therapy utilizes unique cognitive interventions to assist patients in gaining deep insights into their own misconceptions about drugs. During the treatment process, patients, guided by psychotherapists, re-examine the dangers of drugs, correct misconceptions such as "drug use can relieve stress", and fundamentally change their attitudes towards drugs. In the behavioral intervention phase, patients learn skills to resist drug temptations, such as avoiding high-risk situations and refusing unhealthy social interactions, effectively reducing the risk of relapse [5]. Emotional management training enables patients to master methods of identifying and regulating emotions, enhancing their psychological resilience, thus significantly alleviating psychiatric symptoms such as anxiety and depression, and facing life with a more positive and stable mindset [6]. Regarding the improvement of quality of life, cognitive behavioral therapy helps patients establish regular daily routines, cultivate healthy interests such as exercise and reading, gradually restore their physical functions, and increase their vitality. On the psychological level, patients learn to actively cope with life's setbacks, continuously improving their self-identity and sense of happiness. Moreover, by improving interpersonal relationships, patients can better integrate into their families and society, rediscover their own values, achieving comprehensive improvement in their quality of life.

Cognitive behavioral therapy (CBT) is supported by a rigorous theoretical framework and rich practical experience. Professional psychotherapists, through systematic training, can tailor personalized treatment plans based on individual patient differences. During the treatment process, various flexible methods such as case analysis, group discussions, and role-playing are employed to fully engage patients' enthusiasm and initiative, thereby enhancing their participation and compliance [7–8]. Furthermore, treatment duration and frequency can be reasonably adjusted according to patients' actual circumstances, facilitating its implementation in diverse medical settings.

In summary, CBT has demonstrated remarkable effectiveness in the treatment of patients abusing novel drugs. This therapy significantly improves patients' psychiatric symptoms, effectively alleviates negative emotions such as anxiety and depression, and elevates patients' quality of life. However, due to the relatively small sample size and limited study duration of this research, there is a need to expand the sample size and conduct long-term follow-up studies in the future, to more comprehensively evaluate the efficacy and safety of CBT. Simultaneously, efforts should be intensified to train and promote CBT techniques, elevating the level of clinical treatment and bringing benefits to a broader population of patients abusing novel drugs.

Disclosure statement

The authors declare no conflict of interest.

References

[1] Li F, Liu Y, Li RL, et al., 2017, Analysis of Influencing Factors of New Drug Abuse among 242 Heroin Addicts Treated with Methadone Maintenance Therapy in Outpatient Clinics. Bulletin of Disease Control and Prevention, 32(1): 23–25 + 30.

[2] Chen YL, Zhu JY, Lu XM, et al., 2018, Discussion on the Mental Health Status and Nursing Intervention of New Drug Abusers. Chinese Journal of Drug Abuse Prevention and Treatment, 24(4): 197–199.

[3] Cheng Z, Chen GH, Dai MM, et al., 2018, A Case-control Study on Influencing Factors of New Drug Abuse among Methadone Maintenance Treatment Patients in Jiangsu Province. Chinese Journal of Epidemiology, 39(5): 625–630.

[4] Zhao RJ, Du JG, Niu YJ, 2019, A Case Report of Psychotic Disorder Caused by Mixed Abuse of New Drugs. Journal of Clinical Medication, 17(8): 90–92.

[5] Zhang YJ, 2016, Investigation on the Current Situation of New Drug Abuse among Methadone Maintenance Treatment Patients and Exploration of Intervention Strategies, thesis, Xinjiang Medical University.

[6] Jiang HB, 2014, Analysis of New Drug Abuse and its Influencing Factors among HIV-positive Methadone Maintenance Treatment Patients, thesis, Anhui Medical University.

[7] Li J, Li Y, Liang J, et al., 2019, Differences in HIV Intervention Services Received by Abusers of New and Traditional Drugs. Chinese Journal of AIDS & STD, 25(3): 268–272.

[8] Chen YL, Zhu JY, Hao XY, 2018, Evaluation of the Effect of Cognitive Behavioral Therapy on Neuropsychiatric Symptoms of New Drug Abusers. China Medicine and Pharmacy, 8(7): 240–242