

Effects of Positive Psychological Intervention on Negative Psychology, Cognitive Function, Self-Acceptance and Disease Uncertainty in Patients with Parkinson's Disease

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Objective: to analyze the influence of positive psychological intervention on negative psychology, cognitive function, self-acceptance and disease uncertainty in patients with Parkinson's disease. **Methods:** 79 patients with Parkinson's disease admitted to our hospital from July 2017 to December 2019 were collected for comparative treatment. According to the random number method, they were divided into observation group (40 cases) and control group (39 cases). The patients in the control group were given routine nursing methods. The patients in the observation group were given positive psychological intervention on the basis of the control group. After the interference, the patients in the two groups were given negative psychology (HAMD) and cognition Function (visuospatial and executive function, naming ability, attention and memory, language ability, abstract thinking, delayed memory, orientation ability, total score), self-acceptance (self-acceptance, self-score), disease uncertainty (uncertainty, complexity), ADL, family coping style average score (positive coping style, negative coping style) The differences were analyzed. **Results:** after intervention, the HAMD scores of the two groups were lower than that before intervention, and the above indexes of the observation group were significantly lower than that of the control group ($P < 0.05$). After intervention, the visual space and executive function, naming ability, attention and memory, language ability, abstract thinking, delayed memory, orientation ability and total scores of the two groups were significantly higher than those of the control group ($P < 0.05$). After intervention, the self-acceptance and self-score of the two groups were higher than before intervention, and the above indexes of the observation group were significantly higher than those of the control group, the difference was statistically significant ($P < 0.05$). After intervention, the scores of uncertainties and complexity in the two groups were lower than those before intervention, and the above indexes in the observation group were significantly lower than those in the control group ($P < 0.05$). After intervention, the ADL scores of the two groups were higher than that before intervention, and the above indexes of the observation group were significantly higher than those of the control group, the difference was statistically significant ($P < 0.05$). After intervention, the scores of positive coping style in the two groups were higher than those before intervention, and the above indexes in the observation group were significantly higher than those in the control group ($P < 0.05$), while the scores of negative coping style in the observation group were lower than those before intervention, and the above indexes in the observation group were significantly lower than those in the control group, with a statistically significant difference ($P < 0.05$). **Conclusion:** positive psychological intervention can reduce the level of depression, improve patients' cognitive function, increase patients' self-confidence, reduce their fear of disease and improve their living standards.

Key words: Parkinson's disease, positive psychological intervention, negative psychology, cognitive function, self-acceptance, disease uncertainty

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Parkinson's Disease (PD) is a kind of nervous systemic disease in the middle-aged and elderly people. Its etiology is unknown ¹. Some relevant studies explain that the pathogenic factors of PD may be related to multiple factors, such as the aging, genetic factor, environmental toxicology, infection, oxidative stress and free radical formation, etc. ². The morbidity of PD increases with age, which may be due to that the early clinical symptoms of patients are mild and not easy to be perceived by them. It can be manifested as reduced activity flexibility, spine and extremities rigidity, feeling of fatigue and decreased blinking frequency, etc. ³. PD will result in the dyskinesia in addition to the non-dyskinesia, which can be manifested as the cognitive impairments and negative emotions, such as the passivity and depression, etc., thus seriously influencing the daily living standards of patients ⁴. Some relevant studies show that the clinical treatment of PD is mainly to reduce the patients' symptoms and improve their life qualities, but not to bring it under permanent control. The positive psychological intervention improves the clinical symptoms of patients and increase their living standards by inspiring their potentials and giving play to their advantages ⁵. At present, there is less report about the impact of positive psychological intervention on the negative psychology of patients with PD in clinical trial, therefore, this study will discuss about the effect of positive psychological intervention in patients with PD on the negative psychology, cognitive function, self-acceptance and uncertainty in illness. Now, the related reports are as follows.

MATERIALS AND METHODS

General information

79 cases of patients with PD were collected and treated in our hospital from July 2017 to December 2019 for comparative treatment. They were divided into the observation group (40 cases)

and the control group (39 cases) according to the random number method. Inclusion criteria: (1) Patients conforming to diagnostic criteria of Dyskinesia prepared by 2006 Chinese Medical Association Neurology Branch and Parkinson's Disease prepared by the Parkinson's Disease Group; (2) Patients who have normal hepatorenal functions without any cardiovascular and respiratory diseases. (3) Patients with right mind and without dementia or dysgnosia. (4) Patients with complete medical records; (5) Patients and family members know the experiment contents and sign the Informed Consent Form; (6) This study is approved by the Ethics Committee of our hospital. Exclusion criteria: (1) Patients who have abnormal hepatorenal functions and other serious complications and cardiovascular diseases; (2) Patients with insanity and depression in the past. The observation group included 16 males and 24 females with an age range of 57-94 years old, average age of (76.5 ± 8.56) years old and average course of disease of (5.45 ± 2.14) years old; The control group included 28 males and 11 females with an age range of 64-92 years old, average age of (78.69 ± 8.17) years old and average course of disease of (5.67 ± 2.35) years old; There was no significant difference in sex, age, course of disease between the two groups ($P > 0.05$).

Methods

The patients in the control group were given the conventional nursing methods, including the individualized nursing, diet nursing, rehabilitation training, psychological nursing, emotional concern and family psychological nursing, etc.

The patients in the observation group were given the positive psychological intervention based on the control group. (1) Cognitive treatment: To know the patients' irrational beliefs through the positive communication with them and correct their beliefs to make them know the correct meaning and bad influence of negative thinking

and help them to set up correct attitudes towards life. (2) Take advantages: To help the patients find their own advantages and hold the regular communication meeting or art programs for developing advantages of patients to make them give full play to their own advantages and strong points and increase their confidence. (3) Learn to experience: To help the patients recall subtle things in daily life, such as things they enjoy, gathering, eating and bodybuilding, etc., direct them to find funs in life and share them actively and arrange the communication meeting to promote the communication among them and record their feeling changes. (4) Practice appreciation: To help the patients recall something or someone that they are grateful for or to in daily life and direct them to record the events and reasons. (5) Write an autobiography: To direct the patients to think life journeys they have experienced when they have more negative emotions to attempt to become the ideal ones to make them find the hope of life. (6) Record happiness: To direct the patient to record the happy things in the past and recall the processes and reasons to increase their happiness.

Observation index

(1) The negative psychology of patients with PD before and after the positive psychological intervention was evaluated based on Hamilton Depression Scale (HAMD). Normal: less than 7 points; mild depression: 7~17 points; moderate depression: 18~24 points; major depression: more than 24 points. The higher the score, the higher the depression degree.

(2) The cognitive functions of patients with PD before and after the positive psychological intervention were evaluated based on Montreal Cognitive Assessment (MoCA). The content included the visuo-spatial and executive functions, naming skills, attention and memory, language competence, abstract thinking, delayer memory and directive force, etc. Total score: 30 points, normal: more than 26 points. The higher the score, the stronger the cognitive function.

(3) The self-acceptance of patients with PD

before and after the positive psychological intervention was evaluated based on Self-Acceptance Questionnaire (SAQ). The content included the self-acceptance (8 items) and self-evaluation (8 items). The total score: 16~64 points. The higher the score, the higher the self-acceptance degree.

(4) The uncertainty in illness of patients with PD before and after the positive psychological intervention was evaluated based on Mishel Uncertainty in Illness Scale (MUIS, Chinese version). The content included the uncertainty (16 items) and complexity (9 items). The total score: 25~125 points, low level: less than and equal to 58.3 points; middle level: 58.4~91.7 points; high level: 91.8 points. The higher the score, the higher the uncertainty in illness.

(5) The activities of daily living of patients with PD before and after the positive psychological intervention were evaluated based on Activity of Daily Living Scale (ADL). It was analyzed based on the total score, subscale and single point. The higher the score, the stronger the activity of daily living.

(6) The coping styles of family members of patients with PD before and after the positive psychological intervention were evaluated based on Simplified Coping Style Questionnaire (SCSQ). The content included two dimensions of positive coping style and negative coping style, 20 items in total. The test-retest related coefficient of scale was 0.89 and α coefficient was 0.90. The α coefficient of positive coping subscale was 0.89; negative, 0.78. The score of positive coping style was in direct proportion to the psychological symptom. The coping style was related to the level of psychological health.

Statistical method

The measurement data were expressed by the mean \pm standard deviation ($\bar{x} \pm s$). The t-test was used for data comparison. The data was analyzed with the statistical software of SPSS 19.0. The difference was statistically significant ($P < 0.05$).

RESULTS

Comparison of negative psychology score between two groups of patients

Before intervention, there was no significant difference in the HAMD score between the two groups ($P>0.05$) and the score decreased after intervention and the indexes above were significantly lower than that of the control group, with statistically significant difference ($P<0.05$). See Table 1.

Comparison of cognitive function score between

two groups of patients

Before intervention, there was no significant difference ($P>0.05$) in the MoCA score between the two groups. After intervention, the total score of visuo-spatial and executive functions, naming skills, attention and memory, language competence, abstract thinking, delayer memory and directive force increased when compared with that before intervention and the indexes above of observation group were obviously higher than that of the control group, with statistically significant difference ($P<0.05$). Refer to Table 2.

Table 1. Comparison of HAMD Score between Two Groups of Patients ($\bar{x} \pm s$)					
Group	Number of cases	HAMD (score)			
		Before the intervention	After the intervention	<i>t</i>	<i>p</i>
Observation group	40	26.78±2.62	14.21±2.67	26.028	< 0.001
Control group	39	26.69±2.73	19.37±2.84	14.393	< 0.001
<i>t</i>		0.184	10.253	-	-
<i>p</i>		0.854	< 0.001	-	-

Table 2. Comparison of MoCA Score between Two Groups of Patients (score) $\bar{x} \pm s$										
Group	Number of cases		Visuo-spatial and executive functions	Naming skills	Attention and memory	Language competence	Abstract thinking	Delayed memory	Directive force	Total score
Observation group	40	Before the intervention	2.51±1.26	2.52±0.56	3.68±1.06	2.06±0.74	1.13±0.41	2.56±1.21	4.95±0.54	19.41±5.78
		After the intervention	3.18±1.34*#	3.16±0.49*#	4.26±1.03*#	7.79±0.78*#	1.42±0.54*#	3.24±1.55*#	5.67±0.61*#	28.72±6.34*#
Control group	39	Before the intervention	2..50±1.31	2.51±0.57	3.64±1.08	2.04±0.76	1.14±0.40	2.58±1.18	4.95±0.56	19.36±5.86
		After the intervention	2.96±1.29*	2.84±0.61*	3.95±1.05*	7.35±0.73*	1.26±0.45*	2.84±1.24*	5.13±0.49*	26.33±5.86*
Note: * P<0.05, when compared with that of the same group before treatment; #P<0.05, when compared with that of the control group after treatment										

Comparison of self-acceptance score between two groups of patients

Before intervention, there was no significant difference ($P>0.05$) in the self-acceptance and self-score between the two groups. After intervention,

the score increased when compared with that before intervention and the indexes above of the observation group were obviously higher than that of the control group, with statistically significant difference ($P<0.05$). See Table 3.

Table 3. Comparison of Self-acceptance Score between Two Groups of Patients ($\bar{x} \pm s$)					
Group	Number of cases	Self-acceptance (score)		Self-score (score)	
		Before the intervention	After the intervention	Before the intervention	After the intervention
Observation group	40	10.21±0.98	28.75±1.37*	11.28±1.14	31.61±1.57*
Control group	39	10.19±1.01	23.26±1.14*	11.24±1.16	24.24±1.36*
<i>t</i>		0.110	23.860	0.190	27.483
<i>p</i>		0.912	< 0.001	0.849	< 0.001

Note: Compared with this group before treatment, * $P < 0.05$.**Comparison of uncertainty in illness score between two group of patients.**

Before intervention, there was no significant difference ($P > 0.05$) in the uncertainty and complexity between the two groups. After

intervention, the score decreased when compared with that before intervention and the indexes above of the observation group were obviously lower than that of the control group, with statistically significant difference ($P < 0.05$). See Table 4.

Table 4. Comparison of Uncertainty in Illness Score between Two Group of Patients ($\bar{x} \pm s$)					
Group	Number of cases	Uncertainty (score)		Complexity (score)	
		Before the intervention	After the intervention	Before the intervention	After the intervention
Observation group	40	50.62±4.36	16.23±1.12*	35.16±2.95	14.26±1.67*
Control group	39	50.59±4.32	25.61±1.34	35.14±2.92	22.49±1.58*
<i>t</i>		0.037	41.603	0.037	27.729
<i>p</i>		0.969	< 0.001	0.970	< 0.001

Note: Compared with this group before treatment, * $P < 0.05$.**Comparison of ADL score between two groups of patients**

Before intervention, there was no significant difference in the ADL score between the two groups ($P > 0.05$) and the score increased after

intervention and the indexes above were significantly higher than that of the control group, with statistically significant difference ($P < 0.05$). See Table 5.

Table 5. Comparison of ADL Score between Two Groups of Patients ($\bar{x} \pm s$)					
Group	Number of cases	ADL		<i>t</i>	<i>p</i>
		Before the intervention	After the intervention		
Observation group	40	36.35±4.63	43.87±5.27*	8.303	< 0.001
Control group	39	36.63±4.75	40.13±5.34*	3.793	< 0.001
<i>t</i>		0.327	3.861		
<i>p</i>		0.744	< 0.001		

Note: Compared with this group before treatment, * $P < 0.05$.**Comparison of coping style average score of family members between two groups of patients**

Before intervention, there was no significant difference in the score of positive coping style and negative coping style between the two groups. After intervention, the positive coping score increased when compared with that before intervention and

the indexes above of the observation group were obviously higher than that of the control group ($P < 0.05$); the negative coping score decreased and the indexes of the observation group were obviously lower than that of the control group, with statistically significant difference ($P < 0.05$). See Table 6.

Table 6. Comparison of Coping Style Average Score of Family Members between Two Groups of Patients ($\bar{x} \pm s$)					
Group	Number of cases	Positive coping style		Negative coping style	
		Before the intervention	After the intervention	Before the intervention	After the intervention
Observation group	40	1.49±0.45	1.77±0.55*	1.78±0.51	1.52±0.46*
Control group	39	1.51±0.45	1.59±0.48*	1.77±0.52	1.71±0.59*
<i>t</i>		0.243	1.910	0.104	1.967
<i>p</i>		0.808	< 0.001	0.916	< 0.001

Note: Compared with this group before treatment, * $P < 0.05$.

DISCUSSION

PD is a kind of common progressive neurologic disorder in clinical trial. It is mainly caused by lesions of dopaminergic neurons and corpus striatum in the substantia nigra pars compacta (SNPC), which was manifested as the dysfunctions and non-dyskinesia, such as the motionless body trembling, myotonia and bradykinesia, etc.⁶. It belongs to the most common neurodegenerative disease in the elderly. The non-dyskinesia can result in the slow reaction, hyphedonia, insomnia, inappetence, loss of enthusiasm, inattention and feeling listless and inert, which will bring about the anxiety, depression and dread feeling to the patients and have a strong impact on their living standards. Some relevant studies indicate that the aetiological agents of PD are related to many factors. Some studies have pointed out that it may be multi-effect and one-cause, such as the interactions among the aging, oxidative stress, free radical formation, environmental toxicology, infection and genetic factor, etc. The aging becomes one of the most common pathogenic factors of patients with PD. The glutathione peroxidase and catalase of patients with PD decrease with age; monoamine oxidase increase and the morbidity increases by years. Other studies show that the substantia nigra and striatum dopaminergic neurons of patients with PD can have the degenerative changes. The intracerebral substantia nigra dopaminergic neuron in normal body decreases gradually with age. The aging of PD is the precipitating factor. In recent years, the attention to the effect of genetic factor on the onset of PD is getting higher. It shows that patients with PD of 5~10% have the family genetic histories through the investigation into the patients' families and most patients belong to sporadic cases. Some scholars propose that the patients with carbon monoxide poisoning, butyrophenone drugs and manganese poisoning and drug abuse can show the PD symptoms. Studies show that the heroin addicted to includes the perineural toxic substances which can translated into the highly toxic 1-methyl-4-phenylpyridinium (MPP+) that can restrain the mitochondrial respiratory chain complex activity, thus resulting in the death of dopaminergic neuron. For the oxidative stress and

free radical formation, the energy is generated through the cell metabolism. The reduction of oxygen has certain effect under normal condition, but the excessive reductase may result in the damage to the nerve cells. The clinical onset age of PD is mainly between 40~70. Some relevant studies show that the over fatigue, unhealthy emotions and trauma, etc., can induce the onset of PD. Its onset is obscure and usually, its early symptoms are difficult to detect. The patients are manifested as less activity, stupidity, unbending of spine and extremities, fatigability and gaze. Tremor is the initial symptom of PD, which most starts from the distal finger of upper extremity on one side and gradually extends to the upper and lower extremities on the same side, accounting for 80% of PD's initial symptom. Its typical manifestation is "pill-rolling" tremor with a frequency of 4~6Hz. The extremities, trunks and necks of patients with myotonia have obvious resistance, which are manifested as a feeling of bending the soft lead pipe. The myotonia of patients with PD is mainly due to that the joint always moves positively under an increased resistance because of extrapyramidal hypermyotonia, which can be named as the lead-pipe myotonia. The basal ganglion insufficiencies of patients with PD are characterized by the bradykinesia, such as slow motion in washing face, dressing and eating, and even akinesia in severe case. The language barrier can be manifested as the stutter and low pronunciation and the language can become flustered. The facial expressions decrease and even disappear. The face becomes mask-like face. The mental disorders are often manifested as the unhealthy emotions, such as the depression, etc. The patients show the anorexia, sleep disorders, asexuality, retardation of thinking and apathy, etc. The early signs of patients with PD are reduced blinking frequency and typical symptoms of striate hand: the metacarpophalangeal joints flex; proximal knuckles unbend and distal knuckles flex; myerson disease: uncontrollable blinking reflex of glabella or bridge of the nose; oculogyric crisis: tonic spasm at equidirectional gaze between the two eyeballs, which is accompanied with the cramps of neck, mouth and muscle; apraxia of opening and closing eyelid: inhibition of orbicularis oculi muscle. The cognitive impairments of

patients with PD may also lead to the hypofunctions in memory and language, etc.⁷. Some relevant studies show that the negative emotions of patients with PD are the important factors of influencing their cognitive functions and self-acceptance. The morbidities of PD depression and cognitive impairment reach up to 40~50% and 20~60%, respectively, which have a strong impact on the daily lives of patients.

The positive psychological intervention explores the positive psychology of patients in life, focuses on the subjective well-being, fulfill individual potentials and virtues, exploit individual potentialities, increase patients' happiness, reduce the negative psychology and disease damage, restore defects, increase their confidence in diseases and satisfaction⁸. The positive psychological intervention stimulates the positive power of patients based on the positive psychology, which is conducive to build the positive living modes in negative emotions and unhealthy psychology. The positive psychology is a kind of humanism oriented ethics form and becomes an emerging discipline which studies the psychology from the positive perspective. The positive psychology uses the scientific method to study the well-being and positive psychological traits, advocate the positive psychological orientation, emphasize the effect of positive factors in activities and reduce the influences of morbid psychology of patients, such as the depression, anxiety and passivity, etc., through making them feel the happiness, power and virtues. Some relevant studies indicate that the positive psychological intervention which can improve the psychological health of patients with psychological crisis can effectively improve their negative psychology, increase their overall happiness indexes, reduce the negative and painful symptoms of disease and increase their satisfaction. The positive psychology points out that the psychology not only refers to the study of damage and passivity, but also the exploration of trait and potential. The positive psychotherapy is not only to restore the negative emotions of patients, but also explore their abilities and potentials. Some studies

show that the positive psychological states can increase the patients' treatment compliance and alleviate the further development of disease. The positive psychological intervention can make the patients give full play to their strength, increase their happiness, know the joy of life, add their confidence in overcoming diseases, promote their enthusiasm and reduce negative emotions⁹. This study results showed that HAMD score of observation group was significantly lower than that of the control group ($P < 0.05$) after intervention, indicating that the positive psychological intervention could reduce the depression symptoms of patients with PD and improve their happiness.

The cognitive impairment is the common complication of PD, which has an important impact on the patients' daily lives. Some relevant studies show that negative psychology can increase the level of cognitive disorder¹¹. The cognitive impairments of patients with PD are mainly manifested in the visuo-spatial function which is related to the decline of related functions, such as the language, memory and temporal lobe, etc. The clinical manifestations are slow response, hyphedonia, irritability, anxiety, inattention and slow reaction, etc. Some patients may even have memory deterioration and loss of language ability, causing serious impacts on the patients' living standards and affective levels. At present, there is no method to bring PD under permanent control yet. The main treatment methods mainly include the reduction of clinical symptoms, improvement of production quality and maintenance of patients' abilities to live independently. The positive psychological intervention can make the patients fully recognize their own advantages to mobilize their treatment enthusiasm, improve their confidence in overcoming the diseases, increase their treatment compliance, reduce their psychogenic reactions and feel the wonderful life¹². This study mobilizes the initiative of patients with PD through the positive psychological intervention to make them know the happiness and reduce their negative psychology, thus improving their levels of cognitive functions. The results showed that the total score of visuo-spatial and executive functions,

naming skills, attention and memory, language competence, abstract thinking, delay memory and directive force of the observation group were significantly higher than that of the control group after intervention ($P < 0.05$), indicating that the positive psychological intervention could improve the levels of cognitive functions of patients with PD and their activities of daily living.

The self-acceptance is a kind of attitude of the individual who can accept the self-reality calmly. The degree of self-acceptance can have an impact on the negative psychology of patients. The higher the degree, the more serious the negative psychology, which may result in the psychology of depression and self-abasement¹³. This study aims to take care of the patients and reduce their psychology of depression and self-abasement through the positive psychological intervention. The results showed that the self-acceptance score of the observation group was significantly higher than that of the control group ($P < 0.05$) after intervention, indicating that the positive psychological intervention could increase the confidence of patients with PD, improve their confidence in life and reduce their negative emotions.

The uncertainty in illness refers to that the patients lack awareness to the disease. If the patients can't predict the disease progression, they will have the uncertainty in illness¹⁴. This study showed that the uncertainty in illness of patients with PD was at a higher level. It might probably because there was no method to bring PD under permanent control yet and the patients were under emotional stress and were uncertain of the result of treatment prognosis. The patients and their family members lack relevant awareness to the disease and can't effectively know and predict the disease development and treatment condition, which increases the patients' doubts about the treatment and enhance their uncertainty in illness. The uncertainty in illness may have an adverse effect on the psychological states of patients, causing the negative psychology, such as the depression and anxiety, etc.¹⁵. Some studies show that the

uncertainty in illness of patients can be removed by explaining the theory of uncertainty in illness or helping them to cognize that how to participate in the relevant treatment to disease¹⁶. The positive psychological intervention advocates the healthy life styles and increase the patients' living qualities through publicizing corresponding disease knowledge¹⁷. This study reduces the negative psychology through the positive psychological intervention, decrease the uncertainty in illness and remove the sense of fear to disease. The results showed that the score of uncertainty and complexity of the patients in the observation group was significantly lower than that of the control group ($P < 0.05$) after intervention, indicating that the positive psychological intervention could adjust the negative emotions of patients with PD, reduce the uncertainty in illness and improve the abilities of patients to deal with diseases. In addition, this study compared the daily activities of the two groups of patients and the results showed that the score of uncertainty and complexity decreased when compared with that before intervention and the indexes above of the observation group were significantly lower than that of the control group, with statistically significant difference ($P < 0.05$), indicating that the positive psychological intervention could improve the daily behavior capacities of patients with PD and their living standards.

The styles for the family members of patients with PD to cope with the disease positively may have an impact on the living qualities of patients, reduce the uncertainty in illness of patients, improve their psychological stress and make the patients and their family members to accept the facts of suffering from the diseases^{18,19}. The relevant knowledge of disease can be known through the publicity and education to correctly know the problems in the disease development process and reduce the uncertainty in illness²⁰. The patients and their family members often cope with the problems with the passive methods of avoiding difficulty and expecting miracle, etc., due to that PD aggravates gradually in its development process and treatment effect is not obvious, which increases

the burden of patients' family members and has a certain impact on the patients' psychology. They are not willing to know the disease related knowledge and have less communication with the medical staff, increasing the patients' psychological stress and promoting the occurrence of negative psychology^{21,22}. This study results showed that the score of positive coping style of the two groups of patients increased when compared with that before intervention and the indexes above of the observation group were significantly higher than that of the control group ($P < 0.05$); the score of negative coping style, decreased and the indexes above, lower, with statistically significant difference ($P < 0.05$), indicating that the positive psychological intervention could adjust the styles of family members of patients with PD to positively cope with the disease, reduce the uncertainty in illness of patients, relieve their psychological stress and improve their living qualities.

To sum up, the positive psychological intervention can reduce the level of depression, improve the patients' cognitive functions, increase their confidence, decrease their sense of fear to the disease and improve their living standards.

REFERENCES

- Chen M., Xing H.X. (2017). "Advances in Proteomic Studies of Parkinson's Disease" [J], *Anhui Medical and Pharmaceutical Journal*, 21(10), pp. 1760-1763.
- Richard A. Armstrong. (2017). "Visual Dysfunction in Parkinson's Disease", *International Review of Neurobiology*, 134(6), pp. 921-946.
- Li, J.Y., Yuan, Y.S., Wang, M., et al. (2017). "Alterations in regional homogeneity of resting-state brain activity in fatigue of Parkinson's disease", *Journal of Neural Transmission*, 124(3), pp. 1-9.
- Guan, X.J., Xu, X.J., Zhang, M.M. (2017). "Region-Specific Iron Measured by MRI as a Biomarker for Parkinson's Disease", *Neuroscience Bulletin*, 33(5), pp. 561-567.
- Xu Y.M. (2018). "Early Intervention of Parkinson's Disease", *Chinese Journal of General Practitioners*, 17(9), pp. 675-678.
- Guan, X.J., Xu, X.J., Zhang, M.M. (2017). "Region-Specific Iron Measured by MRI as a Biomarker for Parkinson's Disease", *Neuroscience Bulletin*, 33(5), pp. 561-567.
- Schrag P A, Siddiqui U F, Anastasiou Z, et al. (2017). "Clinical variables and biomarkers in prediction of cognitive impairment in patients with newly diagnosed Parkinson's disease: a cohort study", 16(1), pp. 66-75.
- Wu S., Li X. (2017). "Influence of Family Nursing Intervention on Quality of Life in Patients with Parkinson Disease", *Contemporary Medical Symposium*, 15(22), pp. 262-263.
- Xiang G.N. (2017). "Application of Positive Psychological Intervention for Patients with Schizophrenia", *Nursing of Integrated Traditional Chinese and Western Medicine (Chinese and English)*, 3(4), pp. 44-46.
- Wei C.Y., Han M., Mo Y.M., et al. (2017). "Effect of Piribedil in the Treatment of Mild Cognitive Impairment of Parkinson's Disease", *Medical Information*, 30(3), pp. 32-33.
- Liu N., Liu Y., Tong S.Y., et al. (2018). "Correlation Between Serum Homocysteine Level and Mild Cognitive Impairment in Patients with Parkinson's Disease", *Chinese Journal of Behavioral Medical Science*, 27(8), pp. 700-705.
- Hao N., Yang Q.C., Zhang H., et al. (2019). "A Follow-up Study about Self-acceptance and Automatic Thoughts in Permanent Colostomy Patients", 35(1), pp. 7-11.
- Hosseini Vakili, Abdollah Mohamadian, Mohammadreza Naderian, et al. (2018). "Cystatin C may not be a precious predictor for coronary artery disease and its severity: An area of uncertainty", *Acta bio-medica: Atenei Parmensis*, 89(2), pp. 209-213.
- Alphanso Blake, Vikram Asnani, Robin R. Leger, et al. (2017). "Stigma and illness uncertainty: adding to the burden of sickle cell disease", *Hematology*, 23(2), pp. 1-9.
- Sarah Llewellyn. (2017). "Concept Clarification: Uncertainty in Individuals with Chronic Kidney Disease", *Nephrology Nursing Journal Journal of the American Nephrology Nurses Association*, 44(6), pp. 513-539.
- Caitlin Swalwell, Nancy A. Pachana, Nadeeka N. Dissanayaka. (2018). "Remote delivery of psychological interventions for Parkinson's disease", *International Psychogeriatrics*, 30(12), pp. 1-13.
- Baer M, Klemetson B, Scott D, et al. (2018). "Effects of Fatigue on Balance in Individuals with Parkinson Disease: Influence of Medication and Brain-Derived Neurotrophic Factor Genotype", *Journal of Neurologic Physical Therapy*, 42(2), pp. 61-71.
- Chen, S.X., Liu, F.F. (2018). "Effect of Tiaoshen Kaiyu Acupuncture (Regulating Vitality and Dredging Stasis) Combined with Psychological Intervention on Patients of Mild Depression After Stroke", *Acupuncture Research*, 43(1), pp. 39-43.
- Xue, F., Huang, F. (2018). "The Effect of Psychological Intervention on Nutrient Status of Perioperative Patients with Lung Cancer", *Iranian Journal of Public Health*, 47(4), pp. 531-537.
- Christopher M. Celano, Melanie E. Freedman, Eleanor E. Beale, et al. (2018). "A Positive Psychology Intervention to Promote Health Behaviors in Heart Failure: A Proof-of-Concept Trial", *Journal of Nervous & Mental Disease*, 206(10), pp. 800-808.
- Ryan Sharp. (2019). "Career crescendo: An experimental analysis of a 6-week work-site intervention to determine the developmental capacity

Effects of positive psychological intervention on negative psychology, cognitive function, self-acceptance and disease uncertainty in patients with Parkinson's disease

- of psychological capital”, *Journal of Management Development*, 38(9), pp. 719-732.
22. Wang, P.J., Xiong, Z., & Yang, H. (2018). “Relationship of Mental Health, Social Support, and Coping Styles among Graduate Students: Evidence from Chinese Universities”, *Iranian Journal of Public Health*, 47(5), pp. 689-697.