Application of PRECEDE-PROCEED Model in Health Education of Young and Middle-Aged with Lumbar Disc Herniation

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To explore the effect of the PRECEDE-PROCEED model (the health professional's ability to apply theories of health behavior) in health education for young and middle-aged patients with lumbar disc herniation. Ninety patients with lumbar disc herniation admitted to our hospital from January 2020 to October 2022 were selected and divided into the control group (n=45) and the observation group (n=45) according to the random number table. The patients in the control group received routine Chinese medicine health education. The patients in the observation group received Chinese medicine health education in the PRECEDE-PROCEED model. The scores of chronic pain self-efficacy, compliance rate, visual analog scale score, and lumbar Japanese orthopedic association score of the two groups were compared. After nursing, the self-efficacy score of chronic pain in the observation group was better than that in the control group ($p<0.05$); the compliance rate of 95.56 % in the observation group was higher than that of 80 % in the control group ($p<0.05$); visual analog scale score of patients in the observation group was lower than that in the control group and Japanese orthopedic association score of lumbar vertebrae was higher than that in the control group ($p<0.05$). PRECEDE-PROCEED model can improve the compliance of young and middle-aged patients with lumbar disc herniation, reduce the occurrence of disease pain, and promote the treatment of lumbar disc herniation.

Key words: Lumbar disc herniation, young and middle-aged people, PRECEDE-PROCEED model, traditional Chinese medicine, health education

In recent years, the incidence rate of lumbar disc herniation has increased year by year and the pain of the disease has a serious impact on the normal life of patients. During clinical treatment, patients often lack knowledge of disease-related knowledge, which leads to poor prognosis and affects their life happiness index[1]. To improve the patient's cognitive level of lumbar disc herniation and the level of self-care behavior of lumbar disc herniation, our hospital decided to apply the PRECEDE-PROCEED model to the health education of patients with lumbar disc herniation and explore its impact. The specific measures are as follows. General information including the ninety patients with lumbar disc herniation admitted to our hospital from January 2020 to October 2022 were selected and divided into a control group and an observation group according to a random number table, with 45 patients in each group. The control group consisted of 27 male patients and 18 female patients, aged between 18 y and 65 y, with a mean age of (41.50±4.70) y; there were 25 male patients and 20 female patients in the observation group, aged between (16-60) y, with an average age of (38.00±4.40) y. There was no significant difference in general data between the two groups ($p>0.05$). Inclusion criteria, after Computed Tomography (CT) or Magnetic Resonance Imaging (MRI) examination, it was found that the lumbar vertebral physiological lordosis became smaller or disappeared and the lumbar intervertebral disc space became narrower to varying degrees, which met the diagnostic criteria for lumbar disc herniation; the patient and his family members are informed and sign the consent form; the patient has normal intelligence and understanding, can communicate with the nursing staff normally, understand and

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implement the guidance of the nursing staff; the patient's limb function is not severely limited and can perform lumbar and back functional exercise. Exclusion criteria, participated or were currently participating in other clinical investigators within nearly 3 mo; pregnant, lactating women; patient present history of severe trauma to the lumbar spine and surgical treatment of lumbar spine; and those with severe primary disease and tuberculosis, vertebral malformations, and malignancies. Patients in both groups received a 1 mo health education intervention on self-efficacy, compliance behavior, Visual Analog Scale (VAS) and Japanese Orthopedic Association (JOA) scores at 2 w, 4 w and 6 w, respectively. The patients in the control group received routine Traditional Chinese Medicine (TCM) health education, including taking care of their daily life, diet guidance, functional exercise, emotional guidance, etc. The patients in the observation group were given Chinese medicine health education in the PRECEDE-PROCEED mode and the specific measures are as follows, establish a nursing intervention team including the team members, which includes a specialist, a specialist disease manager, a head nurse and a responsible nurse; according to the specific situation of patients, the nursing intervention is provided for patients from the aspects of tendency, facilitation and reinforcement. Tendency factors, health education guidance was conducted and nurses informed patients and their families of the time, place, content, etc. of the lecture in advance, and explained health behavior beliefs and related knowledge to patients and their families through department lectures; the nursing staff will give training to the patients and their family members in a round robin way, three times a week, 20 min each time. During the explanation, we interacted with the patients, analyzed the causes of the disease, corrected the cognitive misconceptions of the patients and their families, distributed the relevant materials of TCM health education, watched the relevant videos of rehabilitation training and had the disease managers demonstrate and guide the patients to carry out a functional exercise to correct the patients' non-standard or wrong actions. Contributing factors, timely answer the patients' questions about health knowledge and functional exercise and inform the patients of the content of functional exercise; individualized diet nursing intervention was formulated according to the patients' syndrome differentiation; at the same time, obtain the contact information of patients, establish We Chat groups, push disease knowledge and exercise methods for patients at a fixed time every week through videos, pictures, words and other forms, and answer questions promptly. Establish diversified channels to provide information for patients, guide patients and their families to view relevant web pages or We Chat official accounts, and ensure that patients can directly consult nurses or consult relevant articles when they have questions. Strengthened factors, effectively play the role of family, enhance the intervention of patients' life behavior, prevent patients and their families from learning to change their lifestyle, improve living conditions and follow the principle of "step by step" for functional exercise. Optimize discharge follow-up-confirm the rehabilitation effect of patients at this stage, encourage and praise patients, enhance their self-confidence, listen to and care about patients' psychological status, and inform patients of the importance of regular follow-up. Follow up with the patients by phone or We Chat every week, inquire about their recent health knowledge and functional training progress, and make follow-up records. Chronic pain self-efficacy score-according to the chronic pain self-efficacy scale, the patient's muscle pain was evaluated, including pain management self-efficacy (25 points), physical function self-efficacy (45 points) and symptom coping self-efficacy (40 points). There were 22 items in total, with a total score of 110 points. The Likert 5-level scoring method was used. The higher the score, the higher the patient's self-efficacy level. Medical compliance rate, evaluate the compliance of patients in taking drugs, doing functional exercises, and protecting lumbar vertebrae, ask the patients related questions, and if the answer is "yes", it will be regarded as 1 point; if the patients answer "no", it will be counted as 0 point, and the score will be between 0 and 4 points. A total score of 0 indicates good compliance; otherwise, it indicates poor compliance. The VAS was used to assess the degree of pain of patients before and after nursing. The scale was divided into four items, with a full score of 10 points, namely painless (0), mild pain (0-3), moderate pain (3-7) and severe pain (7-10). The higher the score, the more severe the pain. The lumbar pain score table (JOA score table) was used to evaluate the symptoms, physical examination, signs and daily life limitations. The full score was 29 points, and it was poor if it was less than 10 points; a score of 10-15 indicates

moderate; between 16-24 points, it indicates good; a score of 25-29 indicates excellent and the low score indicates that the lumbar function is getting worse and worse. In this study, Statistical Package for the Social Sciences (SPSS) 25.0 statistical software was used to process the data collected in the study. The measurement data is taken as t (t) inspection, expressed in ($\bar{x}\pm s$); the counting data were tested with Chi square (corrected χ^2), expressed in [n (%)]. $p<0.05$ considered that the difference between groups was statistically significant. Comparison of chronic pain self-efficacy scores between two groups ($p<0.05$) as shown in Table 1. Comparison of compliance rate between two groups ($p<0.05$) as shown in Table 2. Comparison of VAS scores between the two groups ($p<0.05$) as shown in Table 3. Comparison of lumbar JOA scores between two groups ($p<0.05$) as shown in Table 4. In recent years, the incidence rate of lumbar disc herniation in young and middle-aged people has continued to increase, mostly due to the low level of cognition and self-care behavior of patients, and the poor effect after treatment[2,3]. PRECEDE-PROCEED model integrates behavior theory and practice, and focuses on individual transformation and belief maintenance by formulating health knowledge-strengthening guidance, functional exercise programs and discharge follow-up for patients, thus playing a role in promoting health education[4-6]. This model assesses the patient's sociology, behavioral environment, education, management plan, etc., analyzes the tendency, facilitation and reinforcement factors that affect the patient and implements all aspects of health behavior guidance. The results of this study showed that[7,8], after nursing, the self-efficacy score of chronic pain in the observation group was better than that in the control group ($p<0.05$). Based on health education, patients were attracted using videos, pictures and texts, and their self-care awareness and disease health knowledge were strengthened; The compliance rate of 95.56 % in the observation group was higher than that of 80 % in the control group ($p<0.05$), improve patients self-care awareness, reduce the occurrence of diseases and relieve patients' lumbar pain at the same time; before nursing, there was no significant difference in VAS score and lumbar JOA score between the two groups ($p>0.05$); after nursing, the VAS score of patients in the observation group was lower than that in the control group and the JOA score of lumbar vertebrae was higher than that in the control group ($p<0.05$), long term PRECEDE-PROCEED model can further reduce the lumbar injury of patients by influencing their subjective and objective self-care awareness, enhancing their mastery of health knowledge, and achieving greater efficiency. To sum up, applying the PRECEDE-PROCEED model to the health education of young and middle-aged patients with lumbar disc herniation can alleviate the pain of patients, improve the lumbar function of patients, improve the compliance rate of patients and provide better prevention and treatment programs for improving patients with lumbar disc herniation, which is worthy of clinical promotion and application.

TABLE 1: COMPARISON OF CHRONIC PAIN SELF-EFFICACY SCORES BETWEEN THE TWO GROUPS ($\bar{x}\pm s$)

Group	n	Pain management self-efficacy	Body function self-efficacy	Symptom coping self-efficacy
Control group	45	15.46±1.78	31.77±2.48	29.48±3.45
Observation group	45	22.17±1.64	40.93±2.16	38.47±2.67
χ^2		18.597	18.684	13.824
p		<0.001	<0.001	<0.001

TABLE 2: COMPARISON OF COMPLIANCE BETWEEN TWO GROUPS OF PATIENTS [n (%)]

Group	n	Good compliance	Poor compliance	Compliance rate
Control group	45	36 (80.00)	9 (20.00)	36 (80.00)
Observation group	45	43 (95.56)	2 (4.44)	43 (95.56)
χ^2				5.074
p				0.024

TABLE 3: COMPARISON OF VAS SCORES BETWEEN THE TWO GROUPS (x̄±s)

Group	n	VAS score		t	p
		Before care	After care		
Control group	45	7.50±0.62	3.62±0.33	37.058	<0.001
Observation group	45	7.52±0.60	2.03±0.17	59.055	<0.001
t		0.156	28.733		
p		0.877	<0.001		

TABLE 4: COMPARISON OF LUMBAR JOA SCORES BETWEEN THE TWO GROUPS (x̄±s)

Group	n	JOA score of the lumbar spine		t	p
		Before care	After care		
Control group	45	13.34±3.28	17.74±2.03	7.652	<0.001
Observation group	45	13.26±3.21	25.15±1.58	22.293	<0.001
t		0.117	19.323		
p		0.907	<0.001		

Conflict of interests:

The authors declared no conflict of interests.

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