Application of Motivational Interview Combined with Staged Nursing in Treatment of Coronary Heart Disease Patients

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Wei *et al.*: Motivational Interview Combined with Staged Nursing

To investigate the effect of motivational interview combined with staged nursing on blood pressure control, general self-efficacy scale score and compliance behavior of coronary heart disease patients. From March 2017 to June 2019, 143 coronary heart disease patients from Xi'an Jiaotong University Health Science Center were selected and divided into combined group and routine group by random number table. The routine group received routine nursing, while the combined group received motivational interview combined with staged nursing. Comparison was made between the two groups in terms of blood pressure control effect, general self-efficacy scale score, self-management capability and compliance behavior. 6 mo after discharge, the combined group had systolic blood pressure of (119.76±15.38) mmHg and diastolic blood pressure of (78.43±10.08) mmHg, which were significantly lower than the routine group (125.63±16.81) mmHg and (82.75±11.14) mmHg (p<0.05). 6 mo after discharge, the combined group had general self-efficacy scale score of (31.58±4.76) points and coronary self-management scale score of (78.52±8.64) points, which were significantly higher than the routine group (26.72±5.83) points and (71.33±9.06) points (p<0.05). The combined group had higher compliance rate in reasonable diet, exercise, quitting smoking and drinking, medication on time, mental relaxation than the routine group (p<0.05). Motivational interview combined with staged nursing can help to improve the effect of blood pressure control in coronary heart disease patients, enhance their self-efficacy and self-management capabilities and effectively improve their compliance behavior.

Key words: Motivational interview, staged nursing, coronary heart disease, blood pressure, self-efficacy, compliance behavior

Coronary heart disease is a lifestyle related disease and a risk factor for adverse cardiovascular events. Recent survey data indicate that, the incidence of coronary heart disease and related mortality are on the rise[1,2]. About 70 % of coronary heart disease patients have hypertension[3] and elevated blood pressure can lead to atherosclerosis and adverse cardiovascular events. Studies have shown that coronary heart disease patients have poor medication compliance[4], poor self-efficacy and self-management capabilities and have a high incidence of adverse behaviors such as intermittent medication, missed medication and voluntary drug withdrawal, which affects the treatment effect. Therefore, the treatment of coronary heart disease should also strengthen psychological intervention, enhance patient's sense of self-efficacy, self-management ability and compliance behavior. The health education received by coronary heart disease patients during hospitalization can change their lifestyles to a certain extent, but after discharge from the hospital, due to the lack of medical staff supervision, they quickly restore original lifestyles. Motivational interview, as a method of instructive interpersonal communication, mainly stimulates patient's intrinsic motivation for behavior change to achieve the ultimate behavior change. Zhang pointed out that motivational interview can improve communication effects and improve patient's compliance behavior[5]. Staged nursing is a cross theoretical model based on healthy behaviors, which regards the change of individual behavior as a dynamic development process, pays attention to the behavior change process, emphasizes the improvement of patients self-management ability and self-efficacy, the enhancement of internal motivation and the

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continuous change of their behavior, so it is mostly used for chronic disease pain control and treatment compliance improvement. This study attempts to combine motivational interview with staged nursing for treatment of coronary heart disease patients.

MATERIALS AND METHODS

Study subjects:

From March 2017 to June 2019, 143 coronary heart disease patients from "Xi'an Jiaotong University Health Science Center" were selected and divided into 2 groups by random number table. There were 72 cases in the routine group, aged 49-73 y, with an average of (58.46±7.50) y; male/female: 39/33; education level: 23 cases with elementary school and below, 34 cases with junior/high school, 15 cases with junior high school and above and clinical diagnosis: 38 cases of angina pectoris, 15 cases of asymptomatic myocardial ischemia, 19 cases of myocardial infarction. There were 71 cases in the combined group, aged 52-70 y, with an average of (59.21±7.16) y; male/female: 41/30; education level: 23 cases with elementary school and below, 34 cases with junior/high school, 15 cases with junior high school and above and clinical diagnosis: 38 cases of angina pectoris, 15 cases of asymptomatic myocardial ischemia, 19 cases of myocardial infarction. There was no statistically significant difference in general information between the two groups (p>0.05).

Sample size calculation:

This study was a randomized controlled trial, using patient's General Self-Efficacy Scale (GSES) as the outcome indicator. According to literature review, the expected score of the routine group was (26.17±6.9) points, while that of the combined group was increased by 43.28 points. The square difference between the two groups was similar. Set α=0.05 and the power of a test is 90. Power Analysis And Sample Size Software (PASS) 15 was used to obtain the sample size of the combined group and the routine group, which were 56 cases for each group. Considering the 20 % loss rate, the final sample size of each group was 56×1.2=67.2, so there were at least 67 cases for each group. A total of 143 patients were enrolled in this study, including 72 patients in the routine group and 71 patients in the combined group.

Inclusion and exclusion criteria:

Inclusion criteria-All met the diagnostic criteria for heart disease and the New York Heart Association (NYHA) cardiac function grading was I-II after evaluation; with stable condition, clear consciousness and normal communication capability; with irregular medication, all know the details of this study and voluntarily participate.

Exclusion criteria includes patients complicated with severe somatic disease; complicated with mental disorder; complicated with severe hearing and vision impairment.

Methods

Routine group: Give routine nursing for patients, give guidance on correct lifestyles, explain the impact of coronary heart disease and healthy lifestyles, interpret common drug adverse reactions, precautions, distribute health education manuals and keep a quiet and comfortable hospital environment. Routine discharge guidance is given before discharge and no follow-up intervention is performed.

Combined group: Establish a nursing team; team members include 2 nurses in charge, 2 senior nurses, 3 nurses and 2 graduate students; the nurses in charge serve as the team leader and deputy team leader mainly responsible for giving guidance on how to implement the nursing plan. The team members are responsible for collecting data, implementing plans and evaluating intervention measures. The two graduate students mainly assist in statistical analysis of data; all team members receive unified training and guidance.

Motivational interview intervention:After the patient is hospitalized, register relevant information, communicate with the patient, evaluate his/her education level, receptivity, cognitive level, etc., develop a personalized motivational interview plan and determine the follow-up time table; give 3 interviews during the hospitalization, each lasts for 20-30 min. The nursing staff explains the research method to the patients in a one-to-one manner using unified guidance language. The main content of the first interview is to understand the general condition of the patient, use the open questioning method to understand his/her physical condition and emotional state, explain the intervention method to the patient and make an appointment for the next interview over time. The main content of the second interview is to evaluate the treatment effect and mood changes during hospitalization and explain the risk factors of coronary heart disease. The third

interview is basically the guidance before discharge, informing the patients that they will be followed up by telephone after discharge for about 10 min each time. In the 1 mo after discharge, the patients will be followed up once a week and twice a month for 2-6 mo, for a total of 6 mo.

Motivational interview combined with phased intervention-According to the patient's behavioral change intention, there are 5 stages.

Pre-intention stage: The patient has no willingness to take medication, with low self-efficacy, poor self-management capability and poor dietary habits; group members should win trust from patients, shift the focus of interview to the importance of medication for coronary heart disease through communication and explain the negative effects of negative emotions to patients, such as increasing heart rate and raising blood pressure; for existing medication problems, such as missed medication, intermittent medication and private increase or decrease of dose, find out influencing factors, determine targeted education programs; encourage patients to talk about their true ideas, instruct patients to think about the reasons that hinder their behavior changes, for instance, instruct patients to think about the effect of good dietary behavior in improving condition.

Intention stage: Through education, patients have already sensed the effect of medication compliance, dietary habits and emotions on their condition and carefully think about behavior change plans and prepare actions; at this stage, nursing staff should focus on guidance, make patients aware of the hazards of adverse medication and dietary habits, make them know the benefits of changing medication and dietary habits.

Preparation stage: Patient is ready to take the medication consciously and formulates a change plan within the next 1 mo; the nursing staff informs the patient in advance of the possible difficulties in changing bad medication and dietary behaviors and provides solutions, put forward reasonable suggestions, negotiates with the patient to change the plan.

Action stage: The patient starts to take the medicine consciously, changes bad dietary habits and self-regulates emotional state but the duration is less than 6 mo; at this stage, nursing staff should encourage the patient to describe the feeling of consciously taking the medicine and maintaining good dietary habits, encourage the patient to participate in formulating the dietary plan, affirm the patient's efforts and tell the patient to continue with the quitting of smoking and alcohol, maintain low-fat, low-salt and low-oil diet. After the patient persists for 6 mo, measure the patient's blood pressure and compare it with that before the intervention, so that the patient can see self-improvement.

Maintenance stage: The patient adheres to good medication and dietary habits for more than 6 mo. Medical staff should make further interview with the patient again to confirm the patient's correct behavior, strengthen the patient's awareness of the benefits of behavior change, help the patient formulate a behavior change plan and mobilize participation of family members. Both groups were evaluated before and 6 mo after discharge.

Observation indicators:

Blood pressure control: use a desktop mercury sphygmomanometer for measurement on the right upper arm, measure the systolic blood pressure, diastolic blood pressure, perform a total of 3 measurements and take the average. The assessment time is before discharge and 6 mo after discharge.

GSES score developed by German scholar Schwarzer *et al.* and developed into Chinese version by Zhang Jianxin *et al.* There are a total of 10 items, each item is scored 1-4 points and the full score is 40 points. A higher score indicates stronger self-efficacy. The assessment time is before discharge and 6 mo after discharge.

Self-management capability: Use coronary self-management scale (CSMS) for evaluation, including 3 dimensions of daily life management, emotional management and disease medical management, a total of 27 items. Each item has 1-5 points. The score is converted into a percentage system and a higher score indicates stronger self-management capability. The assessment time is before discharge and 6 mo after discharge.

Compliance behavior: At 6 mo after discharge, use compliance behavior survey scale of our hospital to calculate the compliance rate of the 2 groups. The survey content includes reasonable diet, exercise, quitting smoking and drinking, medication on time and mental relaxation.

Statistical processing:

Count data is expressed in percentage (%) and tested by χ^2 or Fisher's exact probability method. Measurement

data is indicated by x̄±s, tested by two independent samples or paired sample t test, p<0.05 indicates statistically significant difference in Statistical Package for the Social Sciences (SPSS) 23.0 processing.

RESULTS AND DISCUSSION

Comparison of blood pressure control in the 2 groups; before discharge, there is no significant difference in the levels of systolic and diastolic blood pressure between the two groups (p>0.05). 6 mo after discharge, the systolic and diastolic blood pressure levels of both groups decrease, which are lower in the combined group than in the routine group (p<0.05), as shown in Table 1.

Comparison of GSES score and CSMS score in the 2 groups; before discharge, there is no statistically significant difference between GSES score and CSMS score of the two groups (p>0.05). 6 mo after discharge, GSES score and CSMS score of both groups increase, which are significantly higher in the combined group than the routine group (p<0.05), as shown in Table 2.

Comparison of compliance behavior between the 2 groups; the combined group has higher compliance rates in reasonable diet, exercise, quitting smoking and drinking, medication on time, mental relaxation than the routine group (p<0.05), as shown in Table 3.

TABLE 1: COMPARISON OF BLOOD PRESSURE CONTROL IN THE TWO GROUPS (x̄±s, mmHg)

Group	Systolic blood pressure		Diastolic blood pressure	
	Before discharge	6 mo after discharge	Before discharge	6 mo after discharge
Combined group (n=71)	126.78±20.36	119.76±15.38*	84.62±13.15	78.43±10.08*
Routine group (n=72)	127.34±19.17	125.63±16.81	83.59±12.42	82.75±11.14
t	0.169	2.178	0.482	2.431
p	0.866	0.031	0.631	0.016

Note: Compared with that before discharge, *p<0.05

TABLE 2: COMPARISON OF GSES SCORE AND CSMS SCORE IN THE TWO GROUPS (x̄±s, POINTS)

Group	GSES score		CSMS score	
	Before discharge	6 mo after discharge	Before discharge	6 mo after discharge
Combined group (n=71)	15.72±2.43	31.58±4.76*	57.37±10.59	78.52±8.64*
Routine group (n=72)	16.54±2.85	26.72±5.83*	55.62±11.45	71.33±9.06*
t	1.850	5.456	0.948	4.855
p	0.066	0.000	0.345	0.000

Note: Compared with that before discharge, *p<0.05

TABLE 3: COMPARISON OF COMPLIANCE BEHAVIOR BETWEEN THE TWO GROUPS CASE (%)

Group	Reasonable diet	Exercise	Smoking and drinking quitting	Medication on time	Mental relaxation
Combined group (n=71)	62 (87.32)	53 (74.65)	52 (73.24)	50 (70.42)	52 (73.24)
Routine group (n=72)	40 (55.56)	32 (44.44)	39 (54.17)	35 (48.61)	31 (43.06)
χ^2	17.641	13.527	6.211	7.054	13.374
p	0.000	0.000	0.013	0.008	0.000

The results of this study showed that the systolic and diastolic blood pressure levels in the combined group were lower than those in the routine group, which suggests that the combination of motivational interviewing and staged nursing can help to reduce the blood pressure level of patients with coronary heart disease and improve the effect of blood pressure control. Epidemiological investigations have shown that blood pressure level is strongly correlated with the severity of coronary heart disease[6]. Dyslipidemia, especially hypercholesterolemia, can increase the risk of coronary heart disease[7]. Patients with coronary heart disease are mostly middle-aged and elderly people, with relatively low education level, lack of health knowledge and long-term bad compliance behavior. Especially when patients are discharged from hospital, they forget to take medicine and increase or decrease the amount of medicine without supervision by medical staff, resulting in poor control effect of coronary heart disease and progressive aggravation. Clinical studies have shown that motivational interview can help to improve blood glucose metabolism indicators in diabetic patients[8], improve medical compliance after discharge, which is particularly applicable to patients with chronic diseases. The results of this study indicate that the combined group has lower systolic and diastolic blood pressure levels than the routine group. It suggests that motivational interview combined with staged nursing can help to reduce the blood pressure level of coronary heart disease patients and improve the effect of blood pressure control. Motivational interview can help nurses understand the patient's problems and psychological needs, so that targeted nursing guidance plan can be determined. The focus of staged nursing is to design different intervention plans according to the patient's environment to meet patient's nursing needs at different stages. Motivational interview combined with staged nursing can effectively improve patient's daily life management and symptom management capabilities, thereby improving the effect of blood pressure control. Since motivational interviewing arouses patients desire to change their behavior, stimulates and maintains their self-initiative even after discharge, so it can still play a role in supervising patient's self-management after discharge, thus improving the effect of blood pressure control. Patients can experience the benefits of the intervention mode through staged evaluation and good feedback of results, so as to adhere to good behaviors and gradually achieve the goal of blood pressure control[9].

The results of this study indicate that the combined group has higher GSES score and CSMS score than the routine group. It suggests that motivational interview combined with staged nursing can enhance self-efficacy of coronary heart disease patients and improve their self-management capability. Traditional health education cannot effectively stimulate patient's enthusiasm for participation in treatment, especially disadvantageous in terms of enhancing treatment confidence and improving patient's self-management capability. After the patient got discharge from the hospital, due to the lack of medical staff supervision and poor self-discipline capability, patients will gradually restore the original life pattern after the condition is controlled[10,11]. Motivational interview can stimulate the patient's intrinsic motivation to change their behavior. Combined with staged nursing, it makes the direction of each intervention specific, clear and targeted, thereby more effectively enhancing patient's self-efficacy and gradually enhancing their self-management capability. Studies have shown that the combination of motivational interview and staged nursing can improve patient's self-management capability[12]. Motivational interview is mainly to direct patients to reflect upon the plan and actively participate in the behavior change plan. For instance, in the pre-intention stage, the main purpose is to win patient's trust and understand the problems in patient nursing, such as emotion, medication compliance, self-management efficiency, etc., so that patients initially sense their own problems. In the intension stage, nurses should play a role in educating and direct patients to actively participate in the formulation of behavior change plans. In the preparation stage, specific behavior change plan should be determined so that patients then take action and stick to this good behavior. Nursing staff should give timely affirmation to enhance patient's confidence in persistence and carry out quantitative evaluation of intervention effects, so that patients see their own progress and thereby more proactively participate in self-nursing. Hashemzadeh research has shown that behavior change is a gradual process that changes based on intension[13]. The change in patient's self-management capability in this study may lie in changing patient's development intention.

Studies have shown that compliance behavior is a key factor affecting the treatment effect. Motivational interview can enhance patient's awareness of standardized medication so that they recognize the positive effects of medical compliance on prognosis[14].

Staged nursing is to provide guidance according to patient's nursing needs for behavior change at different stages, which can effectively stimulate the inherent potential of behavior change. The results of this study show that motivational interview combined with staged nursing have significantly increased compliance rate of coronary heart disease patients in terms of reasonable diet, exercise, quitting smoking and drinking, medication on time and mental relaxation. In motivational interview combined with staged nursing, medical staff should take the patient as the nursing core, fully respect the patient and strive to establish an equal and cooperative doctor-patient relationship with the patient, which can effectively arouse the patient's desire for behavior change[15]. In addition, the nursing model is continuous and each stage is progressive and connected, so that patients can continuously strengthen their self-nursing confidence and persist in good self-nursing behavior. The nursing model also seen to give play to patient's self-initiative, helps patient's find existing problems in time and directs patients to solve problems by themselves, so that patients can accept behavior change plans from their mind. In this way, the long-term effect of improving patient's compliance behavior is relatively better.

In summary, motivational interview combined with staged nursing can help to improve the effect of blood pressure control in coronary heart disease patients, enhance their self-efficacy and self-management capabilities and effectively improve their compliance behavior. The sample size of this study is small and the evaluation of psychological intervention effect is mainly based on quantitative indicators, lacking qualitative research. The follow-up plan will expand the sample size and add qualitative research content to further explore the long-term effects of motivational interviewing combined with staged nursing on changing patient's compliance behavior and enhancing their sense of self-efficacy.

Conflicts of interest:

The authors declared no conflict of interest.

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