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Effect of Self-efficacy Intervention on Quality of Life of Patients With Intestinal Stoma

ABSTRACT

Colorectal carcinoma is one of the most common malignancies worldwide and the most prevalent cause of cancer mortality in China. The Miles operation and permanent colostomy are effective treatment. However, these affect the quality of life of patients as they alter normal defecation. Self-efficacy is used to define an individuals' assessments of their ability to perform a specific behavior successfully. It is regarded as an important belief that can predict health behaviors. The aim of this study was to explore the effect of a self-efficacy intervention on the quality of life of patients with a permanent colostomy. Forty-eight patients in treatment for permanent colostomy surgery were divided into the control and intervention groups. The control group received routine nursing; the intervention group was exposed to a 3-month self-efficacy intervention, as well as routine nursing. The two groups completed the Chinese version of a self-efficacy questionnaire at 10 days, 1 month, and 3 months after surgery. Three months after surgery, the two groups also completed a quality-of-life questionnaire. There were significant differences in the quality of life between the two groups. The self-efficacy intervention nursing method improved self-efficacy and the quality of life of patients with intestinal stoma and is worthy of clinical utilization and application.

Rectal cancer is a type of malignant tumor of the digestive tract that is very common in clinical practice (Ludwig, Vargas, & Reynolds, 2016). The most effective recognized treatment is the Miles operation and a permanent colostomy for low rectal cancer (Dumont, Mariani, Elias, & Goéré, 2015; Pozo & Fang, 2015). It is known that patients' psychological, physical, and social functioning will incur substantial changes after stoma surgery (Nugent, Daniels, Stewart, Patankar, & Johnson, 1999). This procedure will also have an influence on the quality of life of patients with colostomy.

Background

Self-efficacy proposed by Bandura (Bandura, 1977) plays an important role in modulating health behaviors and in turn positively affecting life qualities. Many studies have indicated that patients with higher self-efficacy are more effective in the self-management of hypertension (Sarkar, Fisher, & Schillinger, 2012) and arthritis pain (Warren-Findlow, Seymour, & Brunner Huber, 2012). Patients with high self-efficacy would be more likely to deal with life stressors with confidence and engage in the necessary behaviors to preserve or restore health (Machado, Telles, Costa-Silva, Reis, &

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The authors declare no conflicts of interest.

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Barreto, 2016). It is therefore necessary to design appropriate nursing intervention methods to improve patients' self-efficacy levels and patients' quality of life. We created a self-efficacy intervention for patients with stoma in our hospital and investigated the influence on the quality of life of patients with intestinal stoma in a clinical nursing setting.

Materials and Methods

Data

Seventy-three patients in total were invited to participate in the study; 48 patients consented to participate. The study participation rate was 65.75%. These 48 patients with colorectal cancer who were in treatment from January 2014 to December 2014 in our hospital were randomly assigned to the control group and the intervention group using SPSS software (SPSS Inc. Released 2009. PASW Statistics for Windows, Version 18.0, Chicago, Illinois). The Institutional Review Board of Wannan Medical College approved all procedures and the participants consented to the study. Twenty patients made up the intervention group and

twenty-eight patients constituted the control group. Participants were eligible if they met the following conditions: (1) they were permanent colostomy patients with informed consent and volunteered to participate in the project; (2) they were adults and younger than 82 years; (3) they were able to communicate and fill in the questionnaires alone or under the guidance of the researchers; (4) they were conscious and had no severe complications during the postoperative recovery period; and (5) they were able to take care of themselves before the operation. Exclusion criteria were as follows: (1) patients with mental illness; and (2) patients with acute or chronic diseases affecting their ability to carry out daily activities. The details of the basic data of the patients in the two groups could be seen in Table 1.

Methods

Nursing Method and Evaluation Criteria

The two groups were exposed to routine nursing, whereas the intervention group was also given a 3-month self-efficacy intervention (including direct experience, alternative experience, verbal persuasion, social and

TABLE 1. Basic Information on Permanent Colostomy for Study Subjects (n = 48)

Characteristics	Intervention Group (n = 20)	Control Group (n = 28)	T value	p Value
Gender				
Male/female	14/6	19/9	0.025	.875
Age				
<i>M</i> ± <i>SD</i>	60.9 ± 11.47	61.14 ± 13.58	0.065	.948
Education				
Junior middle school	17	19	1.829	.176
Above junior middle school	3	9		
Marital status				
Married	19	27	0.060	.807
Unmarried	1	1		
Self-care ability				
Yes	15	23	0.361	.548
No	5	5		
Fee				
<1000 RMB	6	10	0.171	.679
>1000 RMB	14	18		
Cost source				
Medical insurance	17	22	0.316	.574
Self-financed	3	6		

Note. RMB = renminbi.

psychological support, and adjustment of the intervention measures according to the patients' feedback), which took place once a week post-operatively in the first month (i.e., four times in total). In the second month post-operatively, the intervention group received either a call or visit twice a week, two times in total; and finally, in the third month post-operatively, the intervention group had one visit or call.

The Stoma Self-Efficacy Scale was published in 1996 by Bekker et al. (Bekkers, van Knippenberg, van den Borne, & van Berge-Henegouwen, 1996), and was then translated into Chinese with the help of a Hong Kong scholar. The scale includes 28 items and two dimensions, as well as six separate items: efficacy of diet choice, confidence for sex life, confidence for satisfaction with sexuality, confidence for heavy physical labor, confidence for keeping active, and confidence for stoma self-management. Cronbach's alpha coefficient of the questionnaire was 0.97 (Wu, Chau, & Twinn, 2007), which represents good reliability. Therefore, we used the Chinese version of the Stoma Self-Efficacy Scale and analyzed the influence scores at the following time points: 10 days, 1 month, and 3 months post-operatively.

To measure quality of life, we chose the Chinese version of the EORTC QLQ-C30 (V3.0) (Jun et al., 2015; Zhao & Kanda, 2000). The QLQ-30 EORTC is the core measurement system for quality of life in patients with cancer; it was developed by the European Cancer Research and Treatment Organization (Kobayashi et al., 2011; Portillo-Guerra & Restrepo, 2004). The EORTC QLQ-C30 is a comprehensive indicator and evaluation tool for the quality of life in patients with cancer and is currently recognized internationally. Wan et al. (2008) showed that the Chinese version of the EORTC QLQ-C30 can be used as a tool for evaluating the quality of life of patients with malignant tumors in China because of its reliability, validity, feasibility, and good response. We used the Chinese version of the EORTC QLQ-C30 to analyze and evaluate the quality of life of the two groups of patients in our study; the questionnaire was administered at 3 months from the colostomy.

Statistical Methods

The data were analyzed as $M \pm SD$ using SPSS 18.0 software (SPSS Inc, 2009). The difference between the two groups was compared using a *t* test. Single-factor analysis of variance and a least significant difference test were used to compare the differences between the two groups. The statistical results could be regarded as statistically significant when the value of *p* was less than .05.

Results

There was no significant difference between the basic data of the two groups, and they could therefore be compared statistically.

Group Comparison of Stoma-Related Self-efficacy

The *p* value for colostomy-related self-efficacy between the two groups of patients after 10 days of intervention was more than .05. This indicates that there was no significant difference on the improvement of the self-efficacy in the short term after the intervention. However, the value of *p* for colostomy-related self-efficacy between the two groups after 1 and 3 months was less than .05, which was considered as statistically significant. For details, please refer to Table 2. An improvement could be seen in self-efficacy 3 months after the start of the nursing intervention, and there was a significant statistical difference compared with the control group. However, there was no significant difference among the scores of the three time points in the control group.

Comparison of Quality of Life Between the Two Groups

The EORTC QLQ-C30 scores of the intervention group indicated that the score of each dimension was higher than that of the control group, except for the three indexes regarding respiratory difficulty, constipation, and economic difficulties; the differences between the two groups for all other dimensions were statistically significant. For details, please refer to Table 3.

TABLE 2. Comparison of Follow-up After the Self-efficacy Intervention in Patients With Colostomy

Classification	Follow-up Time (Postoperation)			F Value	p Value
	10 Days	1 Month	3 Months		
Intervention group	82.1 ± 11.715	80.25 ± 10.735	91.15 ± 10.708	5.560	.006
Control group	84.179 ± 9.573	75.25 ± 6.162	62.429 ± 12.630	34.725	.000
T value	.676	2.043	8.262	–	–
p value	.503	.047	.000	–	–

TABLE 3. Comparison of Quality-of-Life Scores Between Two Groups

Characteristics	Intervention Group	Control Group	T Value	p Value
Somatic function	73.33 ± 19.10	52.62 ± 28.88	2.796	.008
Role function	57.50 ± 36.06	36.90 ± 28.82	2.198	.033
Emotional function	67.50 ± 21.44	47.32 ± 26.84	2.785	.008
Cognitive function	61.67 ± 23.63	36.31 ± 29.41	3.188	.003
Social function	70.83 ± 24.70	55.39 ± 23.59	2.197	.033
Health status	62.08 ± 16.55	48.21 ± 19.69	2.567	.014
Tiredness	51.08 ± 26.09	75.77 ± 37.40	2.540	.015
Nausea and vomiting	33.33 ± 22.94	52.98 ± 32.41	2.324	.025
Pain	32.50 ± 26.20	55.36 ± 31.44	2.657	.011
Dyspnea	20.00 ± 19.94	22.62 ± 18.26	0.472	.697
Dysgraphia	25.00 ± 23.88	54.76 ± 34.20	3.348	.002
Decreased appetite	30.00 ± 28.41	51.19 ± 36.83	2.154	.037
Constipation	38.33 ± 29.17	37.50 ± 30.64	0.094	.925
Diarrhea	18.33 ± 20.16	53.57 ± 30.55	4.511	.000
Economic difficulties	46.67 ± 38.08	40.48 ± 35.55	0.577	.566

Discussion

Patients with stoma are a group of patients who often lack confidence in their daily lives and have anxiety and depression because of changes in body image after a colostomy, which has a serious impact on their overall functional status. The present study showed that the self-efficacy level of colostomy patients is usually not very high which is supported in other studies (Cheng & Qin, 2010; Shen, Chen, Qiu, Yu, & Yuan, 2013), so the psychological status and self-efficacy of colostomy patients should be a focus for nursing staff. It is particularly important to know how to undertake appropriate nursing interventions to improve patient self-efficacy levels and improve the patient's quality of life. However, intervention research is relatively scant at present for this population.

In 1977, the American psychologist, Bandura, first proposed the concept of self-efficacy, which refers to the individual performing a specific action on his/her own and achieving the expected results with confidence in his/ her ability (Danielsen, 2013). Self-efficacy plays an important role in the individual's initiative, and a person achieves his/her goal through the following three aspects of psychological adjustment and control mechanisms (Bandura, 1977; Pajares, 1996). First, self-efficacy could affect the behavior associated with the individual's choice. Higher levels of self-efficacy mean a high probability of success and this could make

people actively engaged in activities. Second, self-efficacy influences the individual's level of effort and attitude toward difficulties and directs people's choices in the course of action. Third, self-efficacy affects people's way of thinking and the efficiency of the action, which could determine whether people are willing to take action and form a new mode of behavior. Studies have shown that self-management education programs and self-efficacy training, which are based on self-efficacy theory, help to improve the efficiency of self-expectation and play an important role in improving self-management behaviors and health outcomes (Jalilian, Motlagh, Solhi, & Gharibnazav, 2014; Sun & Rueda, 2012; Zinken, Cradock, & Skinner, 2008).

The concept of self-efficacy has been widely used in the fields of education, psychology, management, physical and mental health, disease prevention, and rehabilitation. The concept was introduced by scholars in self-management programs of chronic diseases such as diabetes, arthritis, cardiovascular disease, and cancer to predict health behaviors (Jeng et al., 2002), disease-coping abilities (Lev, Paul, & Owen, 1999), rehabilitation training, and patient quality of life (Campbell et al., 2007). Studies have shown that high levels of self-efficacy can improve quality of life, disease adaptation, mental state (anxiety, depression, and post-traumatic stress syndrome), and health behaviors (early screening, review, diet, physical exercise, etc.) of patients with cancer.

It should be possible to improve the self-efficacy and quality of life of patients with stoma through many methods. For First, we should analyze the correlation between self-efficacy levels and mental states to explore effective self-efficacy intervention methods. Additionally, it is necessary to establish a feasible nursing intervention model by observing the improvement effect on patients' psychological state. In the intervention group, we improved patients' self-efficacy and quality of life through education, psychological intervention, sending relevant materials, and expanding on nursing training. All these changes allowed patients to improve their self-care abilities, rehabilitation techniques, and encouraged them to actively participate in the rehabilitation of their disease process. At the same time, we encouraged their family members and friends to participate in the rehabilitation course by enhancing communication between patients and their family members, and learning ostomy care methods together, which could establish a strong social support system that leads to improving the self-efficacy of patients with colostomy. Furthermore, we took the target visit for patients at different stages of rehabilitation and directed the corresponding nursing experience to promote patient self-efficacy. Patients could share their successful experiences with others and were encouraged to return to society and normal life, which could improve self-efficacy and quality of life of these patients. The research showed that a positive clinical nursing intervention, especially a nursing intervention based on self-efficacy theory, could improve self-efficacy levels in colostomy patients. It could improve the quality of life and self-care abilities of patients undergoing colostomy and help patients maintain good health behaviors through enhanced self-efficacy nursing interventions. The follow-up period of this study was relatively short and the sample size was small. Moreover, the assessment method is not perfect and we used a single evaluation tool. These should be improved in future investigations.

Implications for Practice

The Miles operation and permanent colostomy have been shown to be effective treatments for colorectal carcinoma but affect the quality of life of patients as well. Our study revealed that a clinical nursing intervention based on self-efficacy theory could improve self-care abilities and the quality of life for these patients through self-efficacy nursing interventions. 🌟

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