Int J Clin Exp Med 2021;14(1):201-209
www.ijcem.com /ISSN:1940-5901/IJCEM0121696

Original Article

Effects of nursing intervention combined with well-being therapy on the improvement of perioperative emotions and subjective well-being in lung cancer patients

Yuelan Weng, Binbin Zheng, Huaying He, Man Ye, Jianjie Zhou, Xiaoyan Li

Department of Thoracic Surgery, The Second Affiliated Hospital and Yuying Children's Hospital of Wenzhou Medical University, Weizhou, Zhejiang, China

Received September 3, 2020; Accepted November 6, 2020; Epub January 15, 2021; Published January 30, 2021

Abstract: Objective: To investigate the effects of nursing intervention combined with well-being therapy (WBT) on the improvement of perioperative emotions and subjective well-being in lung cancer patients. Methods: A total of 120 lung cancer patients who were admitted to our hospital were selected as the study subjects, and they were randomly divided into an observation group (62 cases) and a control group (58 cases) according to a random number table. The control group received conventional nursing intervention, while the observation group received conventional nursing intervention combined with well-being therapy. The observation group and the control group were assessed using Hospital Anxiety and Depression Scale (HADS) and Subjective Index of Well-Being (IWB) before and after intervention, to analyze the effects of nursing intervention combined with well-being therapy. Results: Before intervention, there was no significant difference in the assessment using HADS and IWB between the two groups ($P > 0.05$). After intervention, the anxiety and depression scores in the observation group decreased significantly ($P < 0.001$), while subjective well-being in the observation group improved remarkably ($P < 0.05$). The differences were statistically significant ($P < 0.05$). Conclusions: Lung cancer patients have low subjective well-being and relatively high anxiety and depression during the perioperative period. Nursing intervention with WBT can effectively improve their subjective well-being and ability to control their emotions.

Keywords: Well-being therapy, lung cancer, perioperative period, subjective well-being

Introduction

Lung cancer, also known as bronchogenic carcinoma, is a malignant tumor derived in the respiratory system [1]. The statistics regarding lung cancer patients over these years suggest that with the aging population, the rising number of smokers, and the diminishing environmental quality, plus many concerns regarding the overall air quality, all of this results in an increasing incidence of lung cancer with the largest mortality rate globally [1]. To date, surgical treatment, radiotherapy, immunotherapy and chemotherapy are primarily used for the treatment of lung cancer. Among them, surgical treatment is the most extensively adopted, with the highest cure rate. However, as most lung cancer patients have an insufficient understanding of lung cancer, they are prone to have negative emotions (e.g., anxiety and depression) during the perioperative period, which can negatively affect the patients' diet, sleep and postoperative effects and thus seriously hinders the rehabilitation of lung cancer patients [2].

Well-being therapy (WBT) refers to the individual's independent comprehensive assessment of his or her own environment in all regards, which does not depend on objectivity or the standards set by others [3]. As far as the individual is concerned, his or her subjective well-being is continuous, rather than a short-lived feeling, and is not subject to the changes in objective environmental conditions.

The study of psychology in the United States has a long history. In the 20th century, American psychologists Seligman and Hilton first proposed some of the relevant ideas of modern psychology, and these theories have been well

reflected in life. Subsequently, more American psychologists began to elaborate upon these ideas. In a book by the American psychologist Schultz, he referred to positive psychology as one of the most advanced psychological research concepts in contemporary development, and formed an independent subject. The existence of such a subject has led to the development of individual and overall social prosperity, and has created many strengths and virtues, so that the positive psychology of human beings can be explored to the maximum. In addition, for some people with high emotional intelligence, their positive mentality can make good use of the positive energy in the human body, so that people can achieve a happy life, and improve their well-being. In the field of psychology, experts believe that practicing healthy and happy life emotions can not only expand the individual's knowledge, but also improve the individual's all around ability to a certain extent, and help people eliminate their negative emotions. Therefore, positivity has become an important research hotspot in current society [4]. The source of human subjective well-being varies from person to person because individuals have different goals and values [5]. In life, there are often difficult goals, and everyone is striving towards their own goals. As such we all experience various difficulties and setbacks, and the subjective well-being of individuals may be reduced due to these difficulties. When the goal is achieved, the inner subjective well-being will increase, and this theoretical value is a longitudinal development trend. If the expectations set by individuals are close to realistic goals, then the happiness index will be high; otherwise, the well-being index of human beings will be low [6]. In the process of realization of goals, the setting of expectations may conform to practical standards and thus be achieved through individual subjective efforts. This process will bring more sense of well-being, and this feeling will increase with the increase of the well-being index. Some American psychologists believe that horizontal comparison is appropriate. The subject of this theory is the existence of objective conditions in the individual, who can use others as a yardstick to contrast with them, and self-analyze and change their own behaviors and beliefs, so as to attain a higher quality of improvement and align themselves with their goals. When they reach a certain level, they may have a gratifying sense of achievement, which leads to the generation of well-being, and well-being is generated in the individual, thus pushing the individual to a higher level [7].

The primary objective of this study is to investigate the effects of well-being therapy on negative emotions and subjective well-being of lung cancer patients during the perioperative period.

Materials and methods

General materials

A total of 120 lung cancer patients admitted to our hospital from January 2019 to December 2019 were selected as the study subjects, and they were divided into an observation group (62 cases) and a control group (58 cases) according to a random number table.

Inclusion criteria: (1) patients who were about to undergo lung cancer resection; (2) those aged over 18 years; (3) with consent from a guardian; (4) clear consciousness and good language communication.

Exclusion criteria: (1) cachexia patients who could not complete the investigation; (2) with a history of mental illness; (3) or voluntary withdrawal. This study was approved by the Ethics Committee of The Second Affiliated Hospital and Yuying Children's Hospital of Wenzhou Medical University. The research subjects and their families were informed of the study and they signed a fully-informed consent form.

Intervention methods

The control group received conventional nursing methods. Before surgery, the patients were instructed to cough and expectorate and given oxygen inhalation if *sputum was aspirated*, so as to maintain smooth breathing and vital signs. The patients were monitored regularly within 2-3 h after surgery, and their conditions were observed every 15 min. According to the different surgical regions, their positions were changed to relieve the postoperative pain. The intake and output records were kept within 24 h, the infusion volume and rate were controlled, and the patients were encouraged to conduct out of bed activities. The occurrence of pulmonary complications were prevented, and the

drainage volume, color and nature were observed in a timely manner.

When the patients received nursing intervention combined with well-being therapy, clinical care workers paid attention to the assessment of patients after hospitalization and before surgery, they understood the areas of impaired well-being, and sorted out the personal details by mobile phone, including environmental control, personal growth, life goals, autonomy and positive relationship with others. Before surgery, the patients often had obvious negative emotions. At this time, the observation group received knowledge related to the surgical processes and received timely psychological counseling, with an explanation of the significance of the surgery, leading to their reduced fear of surgery. Additionally, the patients in observation group were encouraged to actively cooperate with treatment, and informed of the main reasons affecting their well-being, so as to reduce their preoperative anxiety and other emotions, and thus help patients to have a basic understanding of surgery and understand that surgery is the most effective option for the treatment of lung cancer, thereby alleviating their fears and anxiety towards surgery and boosting their confidence in surgical treatment. After surgery, the patients' vital signs were closely monitored, their subjective well-being was understood based on six aspects (e.g., personal growth, environmental control and self-acceptance), and the patients were encouraged to actively improve their subjective well-being. After surgery, the patients were eager to learn about the surgical processes, the postoperative wound pain and restricted activities, which led to anxiety to a certain extent. Therefore, it is necessary to implement the following measures after surgery: (1) timely inform the patients of the surgical effects (2) relieve their pain (3) help them to overcome their depression and improve their well-being. During intervention, one-on-one communication was conducted with patients, and the preoperative and postoperative intervention lasted for approximately 45 min. During the study, the two groups received the intervention on the day after admission and the day before discharge.

Observation indices and assessment standards

HADS was prepared by Zigmond and Snaith in 1983. There are 14 items in the scale. Among them, several items measure anxiety, and the rest of the items measure depression, and each item is given a score. The total score is the sum of the score of each item. HADS is a very effective assessment tool. In 1993, the Chinese version of HADS was translated by Weifei Ye, and since then, it has been extensively implemented for relevant measurements in the medical field in China.

The subjective IWB, developed by Cmpbell et al. in 1976, is primarily adopted to reflect the well-being of patients. There are seven standards in the scale, and the scale consists of two parts. The first part comprises the overall emotional index, the quantitative table and a questionnaire of life satisfaction. The overall emotional index consists of eight items, while the questionnaire of life satisfaction comprises only one item. The total score is the sum of the scores of the overall emotional index and the questionnaire of life satisfaction. A higher total score indicates a higher sense of well-being.

Statistical methods

The obtained results were processed with SPSS 20.0 for statistical analysis, and the relevant formulas were digitally selected. The gap of data input was detected by Student's t test. The relevant measurements were expressed using [*n* (%)]. The differences within groups were detected by variance. The continuous variables, such as time points, were detected by Student's t test. The differences among different groups were detected by F test. $P < 0.05$ indicates a statistically significant difference.

Results

Comparison of differences in general clinical indices between two groups

The comparison of the measured data showed that there was no statistical significance in the differences among the different values corresponding to the general clinical data in the two groups, as such the groups were comparable (**Table 1**).

Comparison of anxiety and depression between the two groups before and after intervention

The results of HADS revealed that there was no statistically significant difference in the scores

Table 1. Comparison of the differences in general clinical indices between the two groups

General clinical data		Observation group (n=62)	Control group (n=58)	*t*	*P*
Gender	M	32	35	0.926	0.336
	F	30	23		
Mean age (years)		58.04±9.48	54.55±10.2	1.635	0.106
Marital status	Not Married	5	2	1.163	0.281
	Married	57	56		
Basic diseases	Y	54	48	0.442	0.506
	N	8	10		
Cancer staging	Stage I	35	30	0.608	0.738
	Stage II	22	21		
	Stage III	5	7		

between the two groups before intervention ($P > 0.05$). After intervention, the HADS scores in observation group were lower than those in control group ($P < 0.05$), and the HADA scores in the two groups decreased significantly ($P < 0.05$) (**Figure 1**).

Comparison of general IWB between the two groups after intervention

The comparison revealed that there was no marked difference in the scores of the overall IWB between the two groups before intervention ($P > 0.05$), and the overall IWB in the two groups after intervention were obviously improved compared with those before intervention ($P < 0.05$) (**Figure 2**).

Comparison of life satisfaction between the two groups before and after intervention

The comparison demonstrated that there was no remarkable difference in the scores of life satisfaction between the two groups before intervention ($P > 0.05$), and the life satisfaction in the two groups after intervention was markedly improved compared with that before intervention ($P < 0.05$) (**Figure 3**).

Comparison of subjective IWB between the two groups before and after intervention

The comparison of the subjective IWB in the two groups before intervention showed that the differences were not remarkable ($P > 0.05$), and the subjective IWB in the two groups after intervention were obviously improved than those before intervention ($P < 0.05$) (**Figure 4**).

Comparison of HADS and IWB between the two groups before and after intervention

There was no significant difference in HADS and subjective IWB between the two groups before intervention, but HADS and IWB in the two groups were notably improved after intervention (**Figure 5**).

Discussion

Analysis of negative emotions and subjective IWB of lung cancer patients during the perioperative period

In this study, the anxiety and depression symptoms of patients were systematically assessed by HADS before intervention. The assessment results exhibited that lung cancer patients had severe anxiety and depression during the perioperative period [8]. Lung cancer is highly malignant and has the highest incidence among malignant tumors, with a high mortality rate. Lung cancer has a higher incidence in males in urban areas and a lower incidence in rural populations. The occurrence of malignant tumors in the respiratory system of most patients indicates that the patients will die after a period of time, which will add psychological burden to the patients [9] and threatens their lives. As far as the current medical level is concerned, surgery is a very effective option. As the renatured stressors, surgical trauma and postoperative pain lead to the body's emergency response and cause serious psychological burden for patients [10, 11]. Some patients have to discontinue the treatment because of high treatment costs, while others suffer from nervousness because of postoperative pain. Based on this, patients have high demands for medical care. Meanwhile, since the anxiety and depression of lung cancer patients during the perioperative period are gaining increasing and significant attention, researchers are seeking effective options for the treatment of related anxiety and depression [2].

In this study, IWB was adopted to assess the patients' subjective well-being, facilitating the direct understanding of their emotions and life

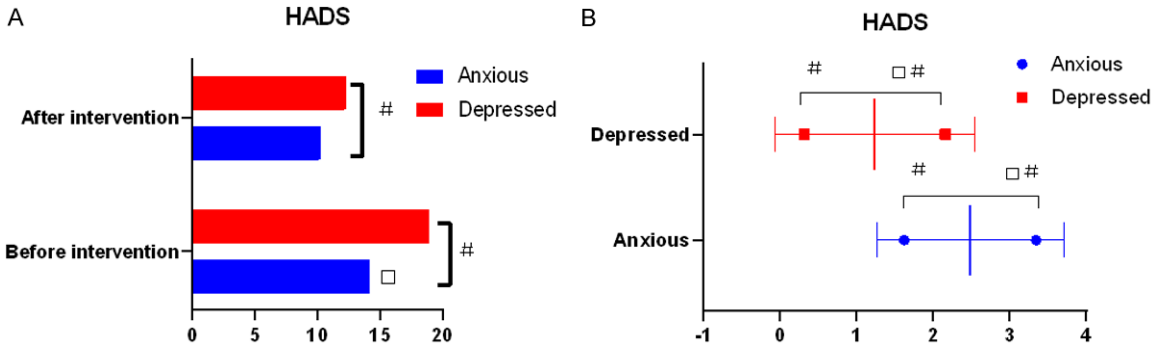

Figure 1. Comparison of anxiety and depression between the two groups before and after intervention. The results of HADS reveal that there is no statistically significant difference in the scores between the two groups before intervention ($P > 0.05$). After intervention, the HADS scores in observation group are lower than those in control group ($P < 0.05$), and the HADA scores in the two groups decrease significantly ($P < 0.05$).

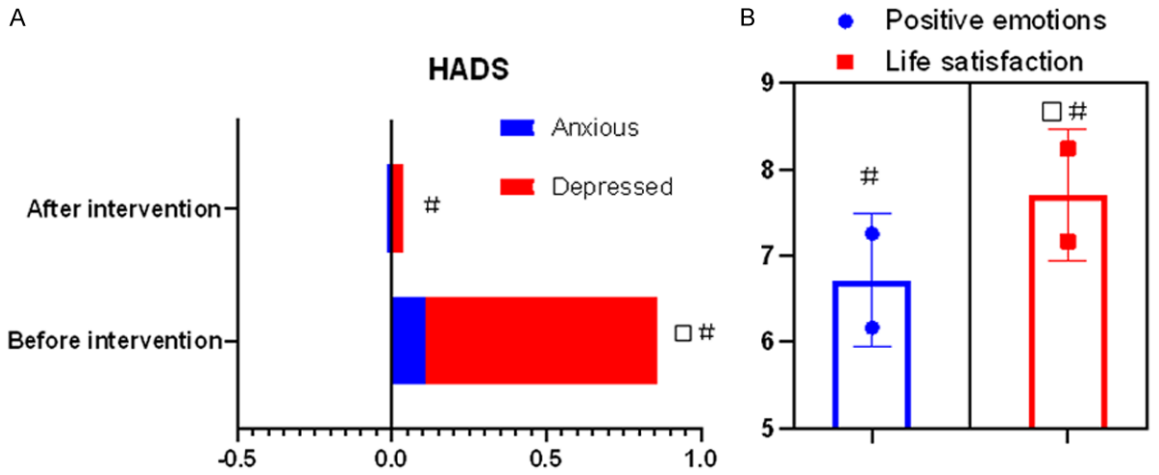

Figure 2. Comparison of positive emotions and life satisfaction between the two groups after intervention. The comparison exhibits that there is no marked difference in the scores of the overall IWB between the two groups before intervention ($P > 0.05$), and the overall IWB in the two groups after intervention were obviously improved compared with those before intervention ($P < 0.05$).

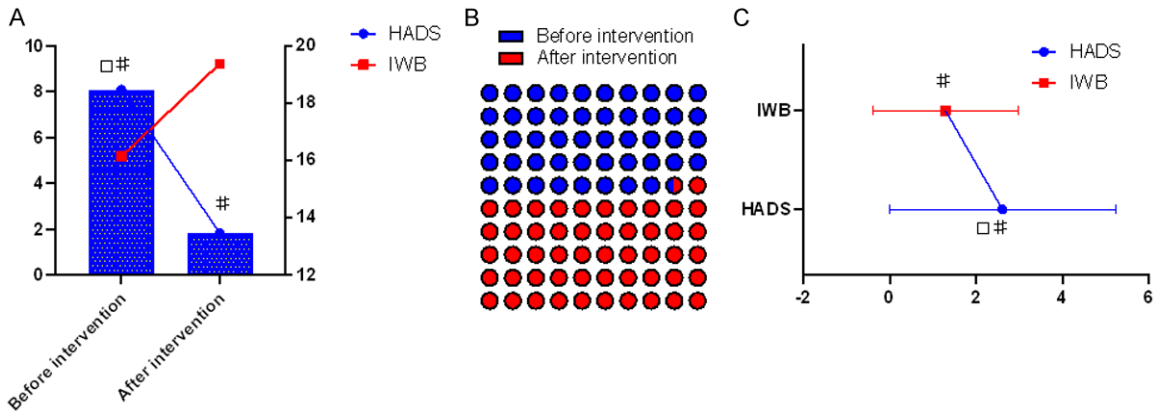

Figure 3. Comparison of negative emotions between the two groups before and after intervention. The comparison demonstrates that there is no remarkable difference in the scores of life satisfaction between the two groups before intervention ($P > 0.05$), and the life satisfaction in the two groups after intervention was markedly improved compared with that before intervention ($P < 0.05$).

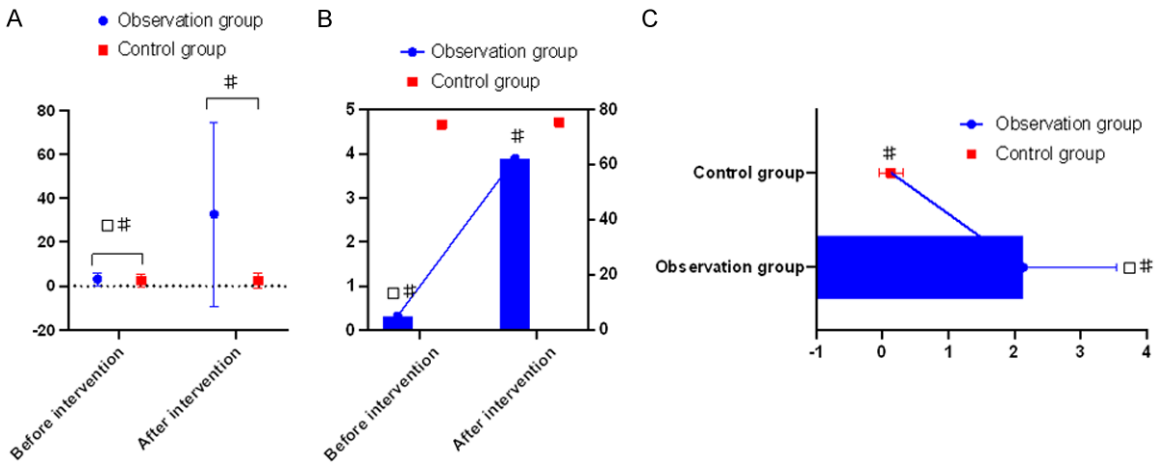

Figure 4. Comparison of subjective well-being scores between the two groups before and after intervention. The comparison shows that there is no marked difference in the subjective IWB between the two groups before intervention ($P > 0.05$), and the subjective indices of well-being in the two groups were markedly improved after intervention ($P < 0.05$).

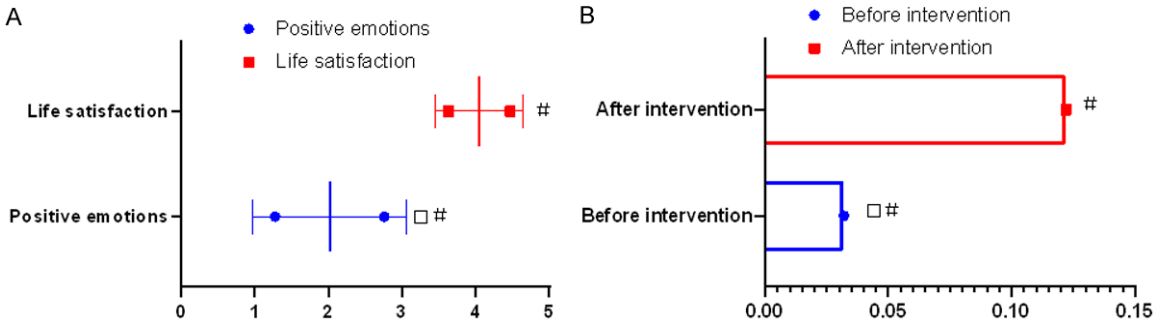

Figure 5. Comparison of HADS and IWB between the two groups before and after intervention. There is no significant difference in HADS and subjective IWB between the two groups before intervention, but HADS and IWB in the two groups were notably improved after intervention. The anxiety and depression levels decrease obviously after intervention, while the subjective well-being was improved.

satisfaction from multiple aspects. The sense of well-being can be divided into three different states, namely, a low well-being state: 2.1-6 points; a moderate well-being state: 6.1-10 points, and a high well-being state: 10.1-14.7 points. The results revealed that the lung cancer patients were often in a low well-being state after surgery, which is similar to the study results concluded by Feigal et al. [12]. To a certain extent, this result shows that lung cancer patients have a low perioperative IWB and a low assessment of the overall quality of life during the perioperative period. This may be directly related to the corresponding educational level of patients in this study, and a combination of other diseases leads to an elevated anxiety level of patients [13]. This study demonstrated that the patients' education level was in direct proportion to their subjective well-being, patients with excellent health had a strong subjective well-being, and their preoperative cognition of surgery affected their subjective well-being. Patients who lacked an understanding of diseases and surgery experienced fears and anxiety and negative emotions [14].

Analysis of effects of well-being therapy on negative emotions of lung cancer patients during the perioperative period

In this study, lung cancer patients were treated by well-being therapy. Lung cancer patients have a high mortality rate and there are many lung cancer patients, which attracts significant attention from the medical circle. Lung cancer patients have negative emotions (e.g., anxiet-

ies) during the perioperative period as a result of a combination with other diseases and surgical worries [15]. Therefore, in regard to the treatment of patients with anxiety and depression in this study, the well-being therapy was divided into three stages. The intervention was performed on the patients, patients' meals were observed, any wrong ideas were corrected in a timely manner and patients' negative emotions were transformed during the interventions. This effectively relieved patients' emotional pressure and ideological burden to a certain extent [16], it also helped them to improve their subjective well-being and develop a positive mentality, and reduced the negative emotions of patients. After interventions were performed by researchers, the scores of anxiety and depression and the anxiety index were lower than those before intervention. The statistics show that based on conventional nursing, well-being therapy reduces perioperative anxiety and psychological burden of patients [17, 18].

Analysis of effects of well-being therapy on subjective well-being of lung cancer patients during the perioperative period

In this study, the indices of well-being in observation group were compared before and after intervention. The results revealed that there was no significant difference in the indices of well-being in the control group before and after intervention. After intervention, the subjective well-being in the observation group was much higher than that in control group, and the results were statistically significant. Based on a literature study, the interventions were performed in patients who received well-being therapy. The intervention combined with well-being therapy was taken as an effective option for the treatment of lung cancer. In this way, patients can overcome disease, take responsibility for their well-being and increase their initiatives [19]. The encouragement method adopted in well-being therapy effectively stimulates patients to actively participate in self-management. All medical staff have a high regard for patients to improve their sense of well-being. Additionally, the cooperation from family members is conducive to improving the well-being of patients [20, 21].

During the perioperative period, pneumonia patients often have depression and anxiety, posing a great challenge for clinical nursing staff. Clinical nursing staff performed a specific analysis in accordance with the different conditions of patients, and implemented proper nursing interventions. Regarding nursing, after the two groups received the interventions, the numerical comparison revealed that conventional nursing intervention combined with well-being therapy promoted the improvement of surgical anxiety in lung cancer patients in the observation group, and improved their emotional control ability to a certain extent. This laid a solid foundation for preoperative psychological preparation. Meanwhile, it was conducive to identifying the areas of impaired well-being, and performing targeted interventions combined with preoperative well-being therapy and relevant monitoring of postoperative vital signs, and timely reflecting the satisfactory results of surgery, thereby helping patients to overcome depression to a certain extent and reducing the degree of psychological distress [22].

Cancer is a common disease. It can worsen over time, and patients with cancer may have negative emotions, which will lead to a decline in their subjective well-being and seriously affect their treatment [23]. Therefore, as medical staff, we must take considerable intervention in the clinical nursing of patients, which can help them eliminate their inner negative emotions and increase their confidence in overcoming disease. In Chinese hospitals, psychological treatment for patients with cancer is very rare. Therefore, in the future research, we will pay attention to the importance of psychological counseling of special factors, and help patients overcome their illness while improving their happiness.

Disclosure of conflict of interest

None.

Address correspondence to: Yuelan Weng, Department of Thoracic Surgery, The Second Affiliated Hospital and Yuying Children's Hospital of Wenzhou Medical University, No. 109 Xueyuan West Road, Lucheng District, Wenzhou 325000, Zhejiang, China. Tel: +86-0577-88002708, +86-1360064-5822; E-mail: xiaomifeng1984@126.com

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