

# Study on Rehabilitation Nursing and Effect of Cancer Chemotherapy in Children

Yuan Zhang, Xin Yu\*, Junyan Su

The First Hospital of Jilin University, Changchun, 130000, China

**Abstract:** Objective to explore the explanation and effect of rehabilitation nursing for children undergoing tumor chemotherapy, and to study the application method and effect of humanistic nursing in tumor nursing. Methods: using convenient sampling method and analytic hierarchy process (AHP), on January 1, 2016 to February 3, 2018 randomly selected from a tumor 280 children were diagnosed as research object, and divided into observation group and control group, the observation group with rehabilitation nursing method, the control group using conventional methods to nursing method, for children to study the rehabilitation effect of cancer chemotherapy. Results: the important effect of rehabilitation nursing in the course of rehabilitation therapy for tumor patients was determined, and the inhibitory effect of rehabilitation therapy on adverse reactions after chemotherapy was clarified. Conclusion: rehabilitation nursing plays an important role in adjusting patients' mood and inhibiting adverse reactions in the process of tumor treatment, and plays an important role in promoting the recovery rate of children undergoing tumor chemotherapy.

**Keywords:** Tumor chemotherapy; Children; Rehabilitation nursing

## 1. Introduction

In recent years, the incidence of cancer is increasing year by year, seriously endangering people's health. With the continuous improvement of the medical system, the diagnosis and treatment of tumors has developed into a multidisciplinary integrated diagnosis and treatment model. Tumor rehabilitation is a branch of rehabilitation medicine and oncology that has been developed recently. To explore the role of comprehensive rehabilitation nursing in tumor rehabilitation is of great significance to give full play to the superiority of nursing in tumor rehabilitation treatment[1]. At present, the treatment methods for tumors are mainly surgery, radiotherapy and chemotherapy. However, surgery, radiotherapy and chemotherapy and other injury treatments will lead to obvious physical dysfunction in patients, which will seriously affect the quality of life of patients. Therefore, how to improve the physical function of cancer patients as soon as possible, correct the psychological state of patients, improve the dependence of patients on treatment, improve the quality of life of patients, and prolong the survival of patients under the condition of tumor disease control has become an urgent problem to be solved in the field of cancer research[2]. With the development of society, economy and technology, health care has entered the era of comprehensive health care. From the perspective of multi-dimensional health of the whole population, we should implement comprehensive health care measures from

promoting health, preventive health care, reasonable treatment to rehabilitation in the life cycle of people, and organize and mobilize the support and participation of the whole society to achieve the goal of extending healthy life span and improving and maintaining the quality of life of people. Children tumor nursing personnel in different regions of China achieve homogeneity in professional knowledge, skills and clinical practice ability, so as to better provide high-quality physical, psychological and social professional care for children with cancer and their families to overcome disease; Relieve the great physical, psychological and social pressure when they suffer from diseases; At the same time, to promote the growth and development of children, and to maximize the improvement and improvement of their quality of life. However, the content and professional language of nursing services are different in different regions, which hinders the sharing and comparability of information[3]. Tumor is a common disease, with benign and malignant, usually divided into three types, benign, malignant and borderline. Tumors of different natures may have different effects on patients and cause serious harm to their physical and mental health. Due to the high incidence of cancer, it has been widely concerned by medical professionals. With the continuous improvement and improvement of nursing methods, humanistic nursing more meet the physical and mental needs of patients, has a good application effect in tumor patients, this study discusses

the application method and effect of humanistic nursing in tumor nursing.

## 2. Respondents

A total of 280 clinical patients in the field of pediatric oncology from 5 core hospitals in the nursing group of the pediatric oncology professional committee of the Chinese anti-cancer association were selected as subjects. Children tumor care, and randomly divided into observation group and control group. In the observation group, the age of patients ranged from 6 to 18 years old, 112 patients aged from 6 to 10 years old and 28 patients aged from 10 to 18 years old. In the control group, there were 83 patients aged 6 to 18, 83 patients aged 6 to 10 and 57 patients aged 10 to 18. All the selected patients met the diagnostic criteria of tumor chemotherapy, volunteered to participate in this study, and signed the informed consent.

## 3. Detection Method

Divided into control group and observation group, and adopt different ways of nursing.

The control group USES the conventional method to carry on the nursing: carries on the appropriate psychological nursing to the child patient, stabilizes the patient's mood. Through the explanation, the patient can clarify the relevant knowledge of tumor, grasp the difference between benign tumor and malignant tumor, increase the patient's understanding of the disease, so as to better cooperate with the doctor for further diagnosis and treatment<sup>[4]</sup>. Through positive communication and communication, nursing staff should grasp the psychological state of patients, avoid anxiety, depression of patients, affect the effect of treatment. Nursing staff should try to improve the confidence of patients, combined with the actual situation of patients to take appropriate nursing methods, better meet the needs of patients. In terms of diet, patients should be guided to form a healthy eating habit, avoid the phenomenon of malnutrition, eat more vegetables and fruits, diet should be kept light, eat more protein rich food, ensure the intake of nutrition.

The observation group adopted humanized nursing methods, starting from many aspects, to improve the environment of patients, ensure the comfort and cleanliness of the environment, maintain the appropriate temperature and humidity, often ventilation, to ensure fresh air. In order to alleviate the atmosphere, the soothing music can be played appropriately to relax the patient's mood<sup>[5]</sup>. Improve the relevant education mechanism, increase patients' understanding of tumor diseases through lectures, brochures and other means, clarify the causes of disease and treatment methods, and form a good doctor-patient relationship. Ensure the patient diet nursing at the same time, so that the patient to maintain hygiene, and at any time on the patient's indicators for examination, observation of the patient's condition, do a good job in the rele-

vant records. Make good preoperative preparation to ensure the smooth progress of chemotherapy-related treatment. SPSS14.0 software was used to process the data. The measurement data were expressed by  $(x \pm s)$  and  $t$  test. The counting data were expressed as a percentage, and chi-square test was used.  $P < 0.05$  was considered statistically significant.

Questionnaire on the clinical use of core measures of pediatric tumor care. All items in the questionnaire are from the 6th edition of nursing measures classification, and were selected through two rounds of consultation by 10 experts. The questionnaire includes 7 fields (physiology: basic, physiology: complex, behavior, safety, family, health system), and 82 core measures of pediatric tumor care. During the survey, the research object shall be informed of the purpose, significance, rights and interests of the respondents, the filling method and matters needing attention of the online questionnaire, and their consent and cooperation shall be obtained.

To carry out functional exercise, early activities are conducive to the recovery of various functions of the body, but also enable patients to see their ability to live, the continuation of life to enhance confidence; The patient during chemotherapy can do some slight activities appropriately; The severe radiation reaction after radiotherapy can be treated with drugs and functional exercise<sup>[6]</sup>. Take appropriate psychological intervention to improve the cure rate and quality of life of cancer patients. At the same time with the combined psychological, nutrition, sports rehabilitation as one of the comprehensive rehabilitation nursing means.

Carry out outdoor activities such as "laughter yoga" regularly so that patients can forget their pain when laughing. It is found that this therapy can significantly improve the quality of life of cancer patients.

Dialectical diet is directive, emphasize integral concept, pay attention to the 4 smells of food 5 flavour and nutrition collocation, assure tumour patient has enough nutrition complement, repair tumour destroys the structural function of viscous organs, raise airframe to fight tumour ability, reduce put, change cure side reaction, improve patient life quality, promote airframe to recover.

## 4. Evaluation Criteria

The evaluation criteria of rehabilitation and nursing effect of children undergoing tumor chemotherapy were divided into 4 grades, and the values were assigned according to the scores of obvious A (1-0.8), better B (0.8-0.6'), general C (0.6-0.4), and poor D ( $<0.4$ ) for subsequent experimental observation. Combined with the inspection content of the judgment basis of the analytic hierarchy process (AHP), the influence degree of nursing mode on the rehabilitation condition was standardized, and the detection and characterization parameters of the

influence degree of evaluation index classification were shown in Table 1.

In the research process, the degree of authority of experts is one of the key factors determining whether the survey results are effective, which is generally expressed by the authority coefficient. Authority coefficient is generally reflected by two factors: one is the judgment basis of

experts on evaluation objects; the other is the degree of experts' familiarity with evaluation objects. Authority equals the arithmetic mean of the judgment coefficient (Ca) and familiarity coefficient (Cs). That is:

$$Cr = (Ca + Cs) / 2 \tag{1}$$

Table 1. Evaluation index classification influence degree detection

Characterization detection content	Influence degree of evaluation index (%)			
	Obviously A	A good B	General C	Poor D
Diagnosis and treatment of symptoms or adverse reactions of malignant tumors	100-80.	80-60	40 and 60	The < 40
Antitumor therapy for malignant tumors	100-80.	80-60	40 and 60	The < 40
Preoperative treatment of malignant tumors	100-80.	80-60	40 and 60	The < 40
Postoperative treatment of malignant tumors	100-80.	80-60	40 and 60	The < 40
Palliative care and hospice care for malignant tumors	100-80.	80-60	40 and 60	The < 40

Generally speaking, when Cr is less than or equal to 0.1, the judgment matrix basically meets the condition of complete consistency, and there may be no logical chaos, that is, the weights calculated are acceptable. When Cr > 0.1, it was considered that the judgment matrix given did not meet the condition of complete consistency, and adjustment and correction were needed[7]. In order to measure whether the judgment matrix has satisfactory consistency, it is necessary to introduce the average random consistency index b of the judgment matrix bij. The weight vector is set as W with the corresponding maximum eigen value of lambda Max. Each column of the judgment matrix is normalized as follows

$$\bar{b}_{ij} = \frac{\lambda_{max} + 1}{Cr \sum_{i=1}^n W} \tag{2}$$

The above algorithm can be used to effectively determine the effectiveness of rehabilitation nursing on the rehabili-

tation effect of cancer chemotherapy children in the study of the effectiveness of calculation.

### 5. Experimental Methods and Parameters

On the core concept of comprehensive, based on the analysis of the hierarchical, which is based on random stratified sampling purpose sampling method of rehabilitation nursing beds of medical institutions, oncology, surgery expert in semi-structured interviews, using the method of phenomenological analysis for data analysis experts detailed description of rehabilitation nursing and patients' health status and analysis of tumor patient registration, transfer and acquisition of rehabilitation nursing beds of existing standards, to determine the standard development direction and internal dimensions, clear tumor patients with rehabilitation nursing beds conveys evaluation scope[8]. Rehabilitation nursing tumor patients evaluation content is as follows.

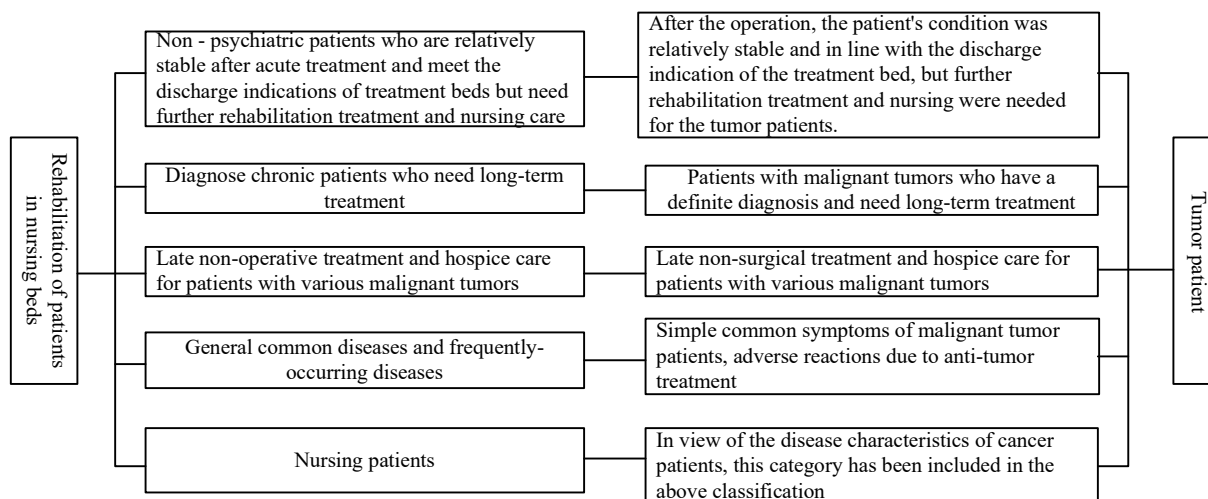


Figure 1. Evaluation contents of tumor patients in rehabilitation nursing

In combination with the results above and the analysis of the previous literature, using system theory construct the content of assessment standard architecture, and formed the oncology, surgical oncology patients in evaluation criteria, roll out rehabilitation nursing beds of 2 experts enquiry for questionnaires including treatment and rehabilitation nursing bed selected 20 in the medical institutions and oncology and 36 surgical oncology experts, questionnaire enquiry for two rounds using Delphi technique[9]. Qualitative analysis, comprehensive scoring and analytic hierarchy process were used to statistically analyze the results of correspondence consultation. Data input EXCEL database, using SPSS19.0 statistical software for statistical analysis. Survey data count data using frequency distribution and percentage of description,

measurement data using  $\bar{X} + S$  description; Non-normal data were tested by non-parametric tests, in which mann-whitney N test was used for comparison of two groups and kruskal-wallish test was used for comparison of many groups. Pairs of items that compare differences between groups are compared.  $P < 0.05$  or  $P < 0.01$  is the difference.SPSS14.0 software was used to process the data[10]. The measurement data were expressed by  $(\bar{x} + / - s)$  and t test. The counting data were expressed as a percentage, and chi-square test was used.  $P < 0.05$  was considered statistically significant. Combined with the above data to standardize the parameters of children rehabilitation nursing test indicators for tumor chemotherapy, the specific data are shown in the table below

**Table 2. Nursing selection test index parameters**

The test items	Scoring criteria	Cr	Full scale ratio range	Satisfaction rate range
Mechanical care	5.87 +/- 0.63	0.89 +/- 0.04	76.23 to 82.45	78.63 to 80.12
Human care	7.56 +/- 1.20	0.45 +/- 0.03	70.00 to 86.45	66.41 to 70.54
Extension of nursing content	5.89 +/- 1.04	0.23 +/- 0.04	80.00 to 96.72	87.56 to 90.12
Drug selection	1.265 +/- 0.12	0.37 +/- 0.05	75.00 to 86.79	75.46 to 80.26
The children's health condition after discharge	1.46 +/- 0.03	0.42 +/- 0.02	25.45 to 40.88	52.46 to 60.74

Combined with the above data for experimental testing comparison, can effectively detect the tumor chemotherapy children rehabilitation nursing in the clinical application process of the actual effect, in order to serve as a reference basis for the experiment

**6. Result Analysis**

There were statistically significant differences in the frequency of core measures used in pediatric tumor care in the four fields of physiology: basic, physiology: complex, behavior and family ( $p < 0.05$ ).Through investigation, it was found that in the clinical nursing observation process, in the physiological field, there was a statistically significant difference between rehabilitation nursing and general clinical nursing ( $p < 0.05$ ), and nurses used it the most frequently. In the family field, the difference between hospitals was statistically significant ( $p < 0.05$ ), and the nursing effect and frequency of nurses in the observation group were higher than those in the control group. In the behavioral field, pair wise comparison showed no statistically significant difference in the frequency of use of non-nurses ( $p > 0.05$ ).Survey found that in the clinical nursing methods of different cases, such as observation group of patients psychological function, physical function and daily life scale (3.02-0.19), respectively (2.87 +

0.11), (2.73-0.28) points, and the control group patients' psychological function, physical function and daily life scale (2.72-0.23), respectively (2.49 + 0.13), (2.07-0.25) points, and overall health level of observation group was obviously higher than that of control group. During the experiment, the average length of hospitalization in the observation group was 24.95 + 3.56 days, which was significantly lower than that in the control group, and the average length of hospitalization in the control group was 30.73 + 3.59 days. The 5-year survival rate of patients in the observation group was 62.5%, higher than that in the control group (50.00%), and the difference between the two groups was statistically significant ( $P < 0.05$ ).On satisfaction with care, observation group was very pleased for 89 cases of patients, the proportion to 70.47% satisfaction for 43 patients, the proportion is 40.07%, the overall satisfaction rate was 92.86%, the control group of 24 patients with very satisfied, the proportion is 42.86%, for 18 patients with satisfaction, the proportion is 32.14%, the overall satisfaction rate was 75.00%, the difference between groups with statistical significance ( $p < 0.05$ ).Combined with the above data to further compare the two groups of patients after chemotherapy nursing effect survey data, get the subscript.

**Table 3 comparison of nursing effect between the two groups after chemotherapy**

Group	Observation group (n = 70)	The control group (n = 70)
Obviously A of 100-80.	95	20
Good B (80-60)	25	75
The general C (60 to 40)	18	25

Poor D (< 40)	2	20
CR	98.57%	75.71%
bij	96.45%	72.14%
P	< 0.05	< 0.05
$\chi^2$	0.54	0.54

The table above summarizes the nursing effect of the two groups of patients after chemotherapy comparative investigation results and nursing effect. According to the standard data, it is not difficult to find differences in patients' satisfaction with medical care. In order to better detect the physical condition of children, the two groups of patients under different nursing modes were compared for sequelae and adverse reactions caused by chemotherapy, etc., and the average value was obtained by combining the above algorithm, and the observation images were drawn for comparison. The experimental results are as follows.

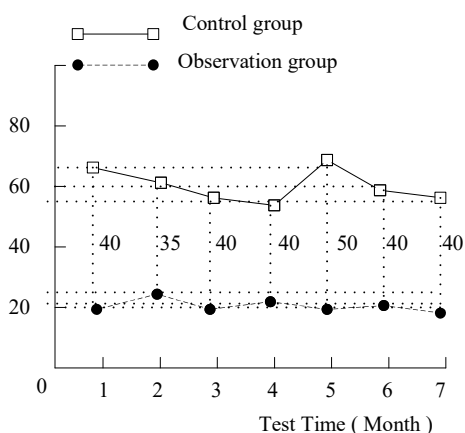


Figure 2. Comparison and detection of adverse reactions in children

Through above, relative control children in ordinary care cases, adverse reactions and sequelae of chemotherapy problems loudness is much greater than chance observation group, the observation group risk adverse reaction was 35% lower than the control group 50%, because of medical technology and the external environment and other factors, it is difficult to eliminate adverse reaction, but the above experimental observations have been fully proved, by children with rehabilitation nursing can significantly reduce the adverse reactions and the possibility of deterioration. The physical and mental health recovery of the two groups of children before and after admission was tracked and investigated. After unified calculation, the average values of the two groups were drawn as representatives for comparative observation. The results are shown in the figure below.

According to the above test results are not difficult to find, through the above comparative test results can be found that, compared with traditional nursing methods, the rehabilitation nursing method proposed in this paper is more suitable for the clinical nursing of children with

chemotherapy. According to the survey, rehabilitation therapy on children's physical and psychological rehabilitation of cancer chemotherapy has a good role in promoting, but your tube body recovery compared with traditional methods have a raise, but the overall recovery rate is still relatively difficult to more than 50%, so the children of rehabilitation nursing is still depends on the progress of medicine, on the whole, through the experiment confirmed the rehabilitation nursing to alleviate chemotherapy lasting good treatment effect, suitable for the treatment of pediatric cancer research.

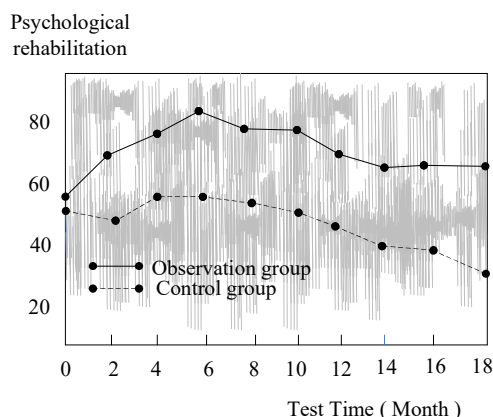


Figure 3. Comparison and detection of psychological rehabilitation of children

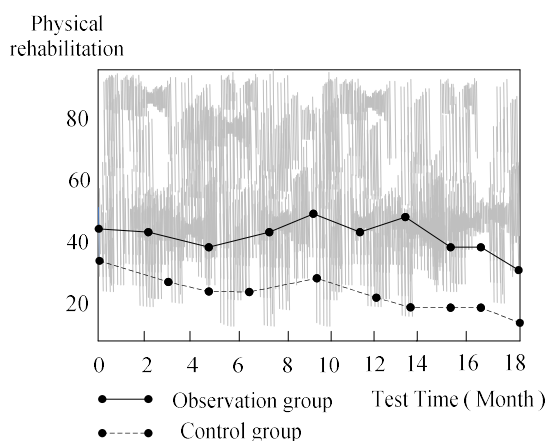


Figure 4. Comparison and detection of physical rehabilitation of children

## 7. Discussion

Cancer patients are especially eager to receive comfort and care from their families and medical staff. Comprehensive nursing intervention in patients with tumor, therefore, must pay attention to the patient's psychological nursing intervention, to give more understanding and support, at the same time through exercise rehabilitation nursing intervention, to guide the patients right of exercise behavior, and self nursing management methods, and encourage the patient must cooperate with radiation therapy, patients in the recovery phase is sets up the optimistic upward, positive mental attitude, in order to obtain a more ideal rehabilitation nursing effect, improve the quality of life of patients. In addition, protein-caloric deficiency malnutrition is common in surgical patients, and preoperative and postoperative fasting and postoperative complications further aggravate malnutrition. Malnutrition not only damages the physiological functions of body tissues and organs, but also increases the risk of surgery, postoperative complications and mortality. Reasonable nutrition nursing can improve the nutritional status of patients, reduce the degree of malnutrition, help patients with malnutrition through the safe surgical trauma caused by the stress response, ensure the postoperative complications of patients with nutritional needs, maintain the body's effective metabolism and tissue, organ function. In the rehabilitation stage through comprehensive nursing intervention can effectively prevent patients from discomfort and complications through psychological

Nursing intervention treatment, emphasized the importance of radiation treatment, the patients' psychological fear of radiation, anxious negative psychology, better cooperate to complete the radiotherapy planning, and through the establishment of a harmonious relationship between nurses and patients, guiding at any time, focus on actual situation of the patients with rehabilitation, through targeted guidance to help patients recover more quickly.

The main clinical manifestation of tumor patients is abdominal distention and other symptoms, usually patients will be aware of their own local abnormalities in the presence of mass. If the patient has unilateral or bilateral lumps or other pelvic abnormalities, careful examination should be carried out through ultrasound, laparoscopy and other thorough examinations to provide relevant data for clinical diagnosis and ensure the accuracy of diagnosis. Tumour comes on imperceptible, the illness condition when diagnose below the majority of circumstances has developed certain level, treatment method USES operation to combine radiotherapy and chemotherapy more, produce serious harm to the body of the patient. Humanized nursing on the basis of basic life care, pay more attention to the psychological adjustment of patients, so that patients can have a positive and optimistic attitude. In this study, patients in the observation group

were significantly better than the control group in terms of psychological function score, physiological function score and daily life score, and the average hospitalization days of patients in the observation group were lower than those in the control group, with statistically significant differences between the groups ( $P < 0.05$ ). The 5-year survival rate of patients in the observation group was 62.5%, higher than 50.0% in the control group, and the difference between the two groups was statistically significant ( $P < 0.05$ ). In terms of nursing satisfaction, the total satisfaction rate of patients in the observation group was 92.86%, significantly higher than that of the control group (75.00%), and the difference between the groups was statistically significant ( $P < 0.05$ ). Research results show that humanistic nursing plays a positive role in the treatment of cancer patients, can effectively regulate the mood of patients, improve the condition of patients, achieve a certain therapeutic effect, and improve the satisfaction of nursing.

The frequency of clinical use of children's tumor nursing core measures is 83.86 ~ 100%, of which 80 (97.56%) nurses with 50% or more indicated that they should use the core measures at least once a day, indicating that the core measures established by NIC through expert consensus conform to the characteristics most commonly used by clinical nurses in its definition. Related studies show that "active listening", "emotional support", "health education, disease process", "health education: the individual", "health education: procedures/treatment", "infection control", "support caregivers", "vital signs monitoring", "pain management", "nutrition management" and so on the 10 nursing measures in many specialist areas to use frequency is very high, belongs to the more specialized common core measures. The frequency of using these nursing measures in this survey was 98.25% ~ 100%, which also confirmed that the frequency of using them in the field of childhood cancer was very high, in line with the characteristics of common core measures. The nursing measures with difference are inter behavioral and family, such as "parent education: infant", "health education: infant safety (10-12 months old)", "health education: infant nutrition (19-24 months old)", "health education: infant nutrition (25-39 months old)". This category belongs to both the education category of patients in the behavioral field and the age-appropriate parenting and nursing category in the family field. It is possible that the difference is caused by the dual influence of nursing manpower and the age ratio of local children visiting the hospital. However, in view of the fact that family plays a positive and negative role in the establishment of children's health behaviors, it is still necessary for pediatric nursing staff to adhere to the nursing mode of "family-centered" and "age-appropriate" to achieve the positive effect of family on children's health through child-rearing guidance for parents of appropriate age.

To sum up, comprehensive rehabilitation nursing can improve the discomfort response of tumor patients and improve the quality of life, which is an appropriate and effective nursing method.

## 8. Conclusion

High quality nursing can alleviate pain and ease the mood of patients, in the early stage of tumor chemotherapy for children treatment, can effectively promote the recovery of patients' physical function, improve the patient after the hidden dangers. The results showed that the recovery time of convulsion, limb disorder, cranial nerve disorder and consciousness disorder in the observation group was significantly shorter than that in the control group, which confirmed that the high-quality cooperative nursing was suitable for the rehabilitation nursing of children with tumor chemotherapy. Cancer patients are especially eager to receive comfort and care from their families and medical staff. Comprehensive nursing intervention in patients with tumor, therefore, must pay attention to the patient's psychological nursing intervention, to give more understanding and support, at the same time through exercise rehabilitation nursing intervention, to guide the patients right of exercise behavior, and self nursing management methods, and encourage the patient must cooperate with radiation therapy, patients in the recovery phase is sets up the optimistic upward, positive mental attitude, in order to obtain a more ideal rehabilitation nursing effect, improve the quality of life of patients. In addition, protein-caloric deficiency malnutrition is common in surgical patients, and preoperative and postoperative fasting and postoperative complications further aggravate malnutrition. Malnutrition not only damages the physiological functions of body tissues and organs, but also increases the risk of surgery, postoperative complications and mortality. Reasonable nutrition nursing can improve the nutritional status of patients, reduce the degree of malnutrition, help patients with malnutrition through the safe surgical trauma caused by the stress response, ensure the postoperative complications of patients with nutritional needs, maintain the body's effective metabolism and tissue, organ function. In the rehabilitation phase through comprehensive nursing intervention can effectively prevent the happening of the complications patients experiencing discomfort and, through the psychological nursing intervention treatment, emphasis on the importance of radiation treatment, the patients' psychological fear of radiation, anxious negative psy-

chology, better cooperate to complete the radiotherapy planning, and through the establishment of a harmonious relationship between nurses and patients, guiding at any time, focus on actual situation of the patients with rehabilitation, through targeted guidance to help patients recover more quickly. To sum up, comprehensive rehabilitation nursing can significantly improve the discomfort response of tumor patients and improve the physical health and quality of life of children, which is an appropriate and effective nursing.

## References

- [1] Ragab A. M., Meis S. Developing environmental performance measures for tourism using a Tourism Satellite Accounts approach: a pilot study of the accommodation industry in Egypt. *Journal of Sustainable Tourism*. 2015, 24, 1-23
- [2] Bellostas A. J., López-Arceiz F.J., Mateos L. Social Value and Economic Value in Social Enterprises: Value Creation Model of Spanish Sheltered Workshops. *Voluntas International Journal of Voluntary & Nonprofit Organizations*. 2003, 27, 367-401.
- [3] Isaksson L.E., Woodside A G. Capturing complexity in how configurations of firm Internal Orientations impact corporate social performance outcomes: Breaking from the dominant logic of symmetric-variable to asymmetric-case-based theory and testing. *Australasian Marketing Journal*. 2015, 24, 300-311
- [4] Aiken M., Taylor M., Moran R. Always Look a Gift Horse in the Mouth: Community Organisations Controlling Assets. *Voluntas International Journal of Voluntary & Nonprofit Organizations*. 2013, 27, 1669-1700.
- [5] Benke K. K. Uncertainties in Big Data When Using Internet Surveillance Tools and Social Media for Determining Patterns in Disease Incidence. *Jama Ophthalmol*. 2018, 135, 402
- [6] Szymański M., Ataide A., Linder T. The use of subtotal petrosectomy in cochlear implant candidates with chronic otitis media. *European Archives of Oto-Rhino-Laryngology*. 2015, 273, 363-381
- [7] Deiner M.S, Lietman T.M., Porco T.C. Uncertainties in Big Data When Using Internet Surveillance Tools and Social Media for Determining Patterns in Disease Incidence-Reply. *Jama Ophthalmol*. 2017, 135, 405
- [8] Li Y.W., Zhang C., Sheng Q.J. Mesenchymal stem cells rescue acute hepatic failure by polarizing M2 macrophages. *World Journal of Gastroenterology*. 2015, 23, 7978-8000
- [9] Witesman E., Heiss A. Nonprofit Collaboration and the Resurrection of Market Failure: How a Resource-Sharing Environment Can Suppress Social Objectives. *Voluntas International Journal of Voluntary & Nonprofit Organizations*. 2015, 28, 1-18
- [10] Zhang L.Y., Lan C.Y., Qi F. Development pattern, classification and evaluation of the tourism academic community in China in the last ten years: from the perspective of big data of articles of tourism academic journals. *Tourism Management*. 2016, 58, 235-311