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Case Control Study

# Impact of spiritual care on the spiritual and mental health and quality of life of patients with advanced cancer

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## Abstract

### BACKGROUND

Cancer is a growing threat to human health. Due to the double torment of cancer and cancer treatment, patients with advanced cancer generally have a low quality of life. At present, there is a lack of systematic spiritual care plans for patients with advanced cancer as well as systematic guidance plans on the specific clinical application of spiritual care for advanced cancer patients. We hypothesized that our care plan would be effective in improving the spiritual and mental health and quality of life of patients with advanced cancer.

### AIM

To construct a spiritual care plan suitable for Chinese patients with advanced cancer through literature analysis.

### METHODS

From February to December 2018, through purpose sampling, we selected 100 advanced cancer patients from the Oncology Department and Hospice Ward of a tertiary hospital in Liaoning Province who met the study standards. Patients were randomly divided into experimental and control groups, with 50 cases in each

to declare.

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group. The control group received the current routine care, while the experimental group received the advanced cancer spiritual care intervention in addition to routine care.

## RESULTS

After the intervention, the overall spiritual health score for the experimental group was higher than that of the control group ( $4.68 \pm 1.36$  vs  $3.63 \pm 1.71$ ). The difference between the groups was statistically significant ( $P < 0.05$ ). The proportion of anxiety-free patients in the experimental group was 95.45%, which was significantly higher than the 60.98% in the control group. Moreover, the proportion of non-depressed patients in the experimental group was 97.73%, which was significantly higher than the 85.37% in the control group ( $P < 0.05$ ). The overall quality of life score for the experimental group was significantly higher than that of the control group ( $5.36 \pm 1.16$  vs  $4.39 \pm 1.36$ ,  $P < 0.05$ ).

## CONCLUSION

Our spiritual care plan for patients with advanced cancer could improve their spiritual health and quality of life and reduce negative mental health symptoms.

**Key Words:** Cancer; Spiritual care; Depression; Anxiety; Spiritual health; Quality of life

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**Core Tip:** We constructed a spiritual care program for advanced cancer patients suitable for Chinese culture and national conditions, and carried it out for advanced cancer patients. Results showed that the spiritual health status and quality of life of advanced cancer patients were improved, and their anxiety and depression reduced.

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## INTRODUCTION

As the environment is deteriorating, human health is facing a growing number of threats. One such threat that has grown increasingly significant is cancer. It has been estimated that the number of cancer patients worldwide had risen to 3 million in 2020, two-thirds of which are advanced cancers with low chances of cure[1]. Patients with advanced cancer generally have a low quality of life. Due to the double torment of cancer and cancer treatment, their psychological, physical, social, familial, and other aspects of their lives are all negatively affected in varying degrees[2]. Spiritual care is a complex and multidimensional concept with different definitions[3] and refers to patients seeking the meaning of life, gaining peace and comfort, obtaining emotional support from family members, and alleviating the fear of death during illness with the help of professional medical service teams, social groups, families, volunteers, and religious personnel, thereby improving the quality of life of patients with advanced cancer[4]. Global research on the spiritual care of patients with advanced cancer is relatively novel. A relatively mature care model that includes a professional care team and complete tools for evaluating the spiritual needs of patients with advanced cancer has been created. At present, the spiritual care model in China is based on the four-in-one holistic care model of body-mind-community-spirit. Intervention measures are embodied in several aspects, such as peaceful, holistic, special, hospice, overall nursing care, palliative treatment, death education, etc. However, there is a lack of systematic spiritual care plans for patients with advanced cancer as well as a lack of systematic guidance plans on the specific clinical application of spiritual care for them, which greatly reduces the effectiveness of care. The purpose of spiritual care is to pay attention to the patient's attitude towards the disease. This means that the patient's



spiritual care is more important than their physical care[5]. We used advanced global spiritual care guidelines as references and combined them with information around the Chinese setting to construct a spiritual care plan that was suitable for Chinese culture. Our care plan achieved good results when applied to advanced cancer patients.

## MATERIALS AND METHODS

### ***Construction of a spiritual care plan for patients with advanced cancer***

We searched the Chinese Biological Medicine Database, China National Knowledge Infrastructure, Wanfang Database, and VIP Information Resource System using Chinese search terms such as cancer, tumor, advanced stage, spirituality, spiritual care, spiritual intervention, *etc.* We also searched the PubMed, Science Citation Index Expanded, and Web of Science databases. To collect data as comprehensively as possible, we combined the aforementioned keywords in Chinese and English and included references from the retrieved literature. We invited nine experts in oncology and its related fields to revise the constructed spiritual care plan for advanced cancer patients through meetings with experts[6]. The selection criteria for the experts were as follows: (1) working in the fields of advanced cancer clinical nursing, nursing management, nursing education, advanced cancer clinical medicine, psychology, and other related disciplines; (2) having an under graduate degree or higher; (3) having a medium-grade professional title or higher; (4) having 10 or more years of work experience in their professional fields and being familiar with the content of our study; and (5) participating in our study voluntarily.

### ***Evaluative research on the spiritual care plan for patients with advanced cancer***

From February to December 2018, cancer patients from the Oncology Department and Hospice Ward of a tertiary hospital in Liaoning Province who qualified for our study were selected through objective sampling. Patients were stratified according to the different departments to which they were admitted. In each ward, 20% of the actual number of hospitalizations were sampled. We sampled a total of 100 patients and used randomized grouping to separate them into our study groups. The inclusion criteria were as follows: (1) a histological or cytological diagnosis of a tumor node metastasis stage III or IV malignant tumor; (2) age >18 years; (3) being able to communicate and understand; (4) being able to provide informed consent and participate voluntarily; and (5) being aware of their condition. The exclusion criteria were as follows: (1) impaired consciousness; and (2) being unable to understand or fill in the scale correctly.

### ***Research tools***

**General information survey form:** This included details of the patient's age, gender, education, family income, medical expense payments, *etc.*

**Clinical data questionnaire:** This questionnaire was self-designed and based on the literature review. It included information such as the patient's cancer diagnosis and stage, as well as whether there was metastasis.

**The Chinese version of the European Organization for Cancer Research and Treatment Quality of Life Questionnaire-Spiritual Well-Being 32 (EORTC QLQ-SWB32)[7] scale:** The original English scale was developed and validated by the EORTC QOL Group in 2017 for the assessment of the spiritual health status of patients with advanced cancer. EORTC QLQ-SWB32 consists of 32 items, with 22 items forming four multiitem scales: Existential; Relationship with Self; Relationships with Others; and Relationship with Someone or Something Greater. The first 31 items were scored using a four-point Likert Scale with answers ranging from "not at all" to "very". Item 32 was mainly used to reflect the patient's overall spiritual health status: 0 point, did not know or was unable to answer; 1 point, very poor; 7 points, very good. As the score increased, the patient's overall spiritual health improved[8]. In 2017, the author translated the scale into Chinese version[9] (it is not an official EORTC translation), and the total Cronbach  $\alpha$  coefficient of the scale was 0.808.

**The General Hospital Anxiety and Depression Scale:** This scale was created by Zigmond *et al*[10] in 1983 and translated into Chinese by Ye *et al*[11] in 1993 to form its Chinese version. It is used in general hospitals to assess patients' anxiety and depression. Cronbach's  $\alpha$  for the Chinese version of the scale was 0.870.

**The Chinese version of the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Core 15 Palliative (EORTC QLQ-C15-PAL):** The EORTC QLQ-C15-PAL was based on the EORTC QLQ-C30 and created by Groenvold *et al*[12] in 2005. It was translated into Chinese by Luo *et al*[13] in 2014 and was used to assess the quality of life of cancer patients in palliative care. Excluding the emotional function dimension, Cronbach's  $\alpha$  values for the other dimensions were all > 0.7.

### **Research content**

**Intervention plan for the control group:** The control group received routine care plans, including general and symptomatic care; tumor chemotherapy, radiotherapy, biotherapy, intracavitary therapy care, and psychological care.

**Intervention plan for the experimental group:** Based on routine care implementation and guided by the "Spiritual Care Plan for Patients with Advanced Cancer", we provided spiritual care for patients with advanced cancer. This included the following services: (1) Admission evaluation: For the patients who met the inclusion criteria, after informed consent was obtained from the patient and their caregivers, the research participant's basic information was collected and their spiritual care needs and spiritual health status were evaluated; (2) Spiritual care intervention: From 2–3 d after admission, based on the "Spiritual Care Plan for Advanced Cancer Patients" that we created, the researchers and oncology specialist nurses from each department worked together to carry out the intervention. Interventions included participating in activities and watching face-to-face guidance videos or targeted explanations and were implemented in a small conference room or ward in the Oncology Department. Patients' examination, treatment, nursing, and meal times were avoided, and their free and rest times were designated as the times when the interventions could take place; this was usually between 3:00 pm and 5:00 pm. A total of five interventions were carried out, each 30–60 min long. The patients' psychological and emotional states were closely monitored during each intervention. If the patient felt unwell, they could choose to take a break or have their session at another time; and (3) Post-intervention evaluation: After the intervention, patients' self-expression was asked in time. They were also asked to fill in the spiritual health assessment scale and other questionnaires to analyze quantitatively the effects of the spiritual care plan on patients with advanced cancer.

### **Data collection and analysis**

The researchers collected data before and after the intervention. Before collection, our study's purpose, requirements, and precautions were explained, and patients were reassured of the confidentiality of the questionnaire and their data. After the patients' consent was obtained, they were asked to fill in a questionnaire to ensure objectivity. EpiData 3.1 was used for data entry, and the database was established using the Chinese version of SPSS version 21 (SPSS Inc., IBM Corp., Armonk, NY, United States). General data were depicted using statistics: Count data were expressed using the rate and composition ratio; and measurement data were expressed using the mean  $\pm$  SD and comparison using a *t*-test and non-parametric test. Frequency, percentage, and the  $\chi^2$  square test was used for count data. A *P* value < 0.05 was considered statistically significant.

## **RESULTS**

### **Construction of a spiritual health care intervention plan for patients with advanced cancer**

A total of 10 articles that met the requirements were included and analyzed in our study. Nine experts in oncology and its related fields were invited to revise the constructed spiritual care plan for patients with advanced cancer. Finally, a final version of the spiritual health care intervention plan was developed.

### **Evaluation of the effect of application of the spiritual health care intervention plan for patients with advanced cancer**

The effective sample sizes for the experimental and control groups were 41 and 44 cases, respectively, and the final effective sample size was 85 cases. The age range for

the experimental group was 28–83-years-old ( $50.05 \pm 12.44$ -years-old), and for the control group it was 27–79-years-old ( $54.88 \pm 13.78$ -years-old). The independent sample *t*-test results showed that there was no significant difference in age when the two groups were compared ( $t = 0.059$ ,  $P = 0.953$ ). The general demographic characteristics of the two groups were count data, such as gender, ethnicity, living conditions, religious beliefs/cultural beliefs, highest education, *etc.* Pearson's  $\chi^2$  test was used for the comparison, and the differences were not statistically significant ( $P > 0.05$ ). The general data of the two groups were comparable (Table 1).

### **Clinical data**

The differences in the research participants' clinical data were not statistically significant ( $P > 0.05$ ), indicating two groups were comparable (Table 2).

### **Spiritual health**

Before the spiritual care intervention, there was no significant difference in the spiritual health scores between the two groups ( $P > 0.05$ ). The spiritual health scores of the two groups were comparable (Table 3).

After the spiritual care intervention, there were no significant differences in the existence (EX) and relationship with self (RS) scores when the two groups were compared ( $P > 0.05$ ); thus, spiritual care was not yet considered meaningful to the patients' EXs and RSs. However, the differences in the relationship with others (RO), relationship with something greater (RSG), and overall spiritual health scores were statistically significant ( $P < 0.05$  for all; Table 4).

### **Anxiety and depression**

When the anxiety levels from the two groups before and after the spiritual care intervention were compared, the difference in anxiety levels before the intervention was not statistically significant ( $P > 0.05$ ), indicating the anxiety levels of the two groups were comparable. After the intervention, the difference in anxiety levels when the groups were compared was statistically significant ( $P < 0.05$ ; Table 5).

The comparison of the two groups' depression before and after the spiritual care intervention showed that there was no statistically significant difference in depression between the groups before the intervention ( $P > 0.05$ ), indicating the depression levels of the two groups were comparable. The difference in the levels of depression after the intervention when the groups were compared was statistically significant ( $P < 0.05$ ; Table 6).

### **Quality of life**

The Chinese version of the EORTC QLQ-C15-PAL was used to evaluate the quality of life of the two groups before the intervention. The differences in the results were not statistically significant ( $P > 0.05$ ), and the data from the two groups were comparable (Table 7).

After the spiritual care intervention, there was no statistically significant difference in the quality of life when the patient groups were compared in terms of physical function, pain, dyspnea, insomnia, and constipation ( $P > 0.05$ ). Thus, spiritual care was not yet considered meaningful with regard to these parameters. The differences between the groups in terms of symptoms such as emotional function, fatigue, nausea and vomiting, loss of appetite, and overall quality of life were statistically significant ( $P < 0.05$ ; Table 8).

## **DISCUSSION**

### **Construction of an intervention plan for the spiritual healthcare of patients with advanced cancer**

In this study, the first draft of the spiritual care plan for patients with advanced cancer was formulated through literature analysis. Some items of the plan were deleted, revised, or adjusted through expert meetings. When the experts were selected, their representativeness was fully considered. The literature analysis combined with the expert meeting made the spiritual care plan practical and scientific.

### **General characteristics and the baseline level of the participants**

Studies have demonstrated that the general demographic characteristics and clinical data of patients with advanced cancer (such as age, gender, race, tumor type, cancer



**Table 1** General information characteristics, *n* (%)

Characteristics	Control group ( <i>n</i> = 41)	Experimental group ( <i>n</i> = 44)	$\chi^2$	<i>P</i> value
Gender			0.286	0.593
Male	10 (24.4)	13 (29.5)		
Female	31 (75.6)	31 (70.5)		
Ethnicity			4.027	0.259
Han	34 (82.9)	42 (95.5)		
Manchu	5 (12.2)	2 (4.5)		
Hui	1 (2.4)	0 (0.0)		
Mongolian	1 (2.4)	0 (0.0)		
Marital status			1.777	0.777
Single	2 (4.9)	3 (6.8)		
Married	36 (87.8)	35 (79.5)		
Cohabitation	0 (0.0)	1 (2.3)		
Divorced	1 (2.4)	1 (2.3)		
Widowed	2 (4.9)	4 (9.1)		
Religious beliefs			1.623	0.805
Nil	32 (78.0)	34 (77.3)		
Christian	2 (4.9)	4 (9.1)		
Buddhist	5 (12.2)	5 (11.4)		
Taoist	1 (2.4)	0 (0.0)		
Muslim	1 (2.4)	1 (2.3)		
Cultural beliefs			7.459	0.059
Nil	21 (51.2)	23 (52.3)		
Chinese traditional culture	13 (31.7)	5 (11.4)		
Marxist-Leninist, Maoist, Deng, and the "Three Represents"	7 (17.1)	15 (34.1)		
Others	0 (0.0)	1 (2.3)		
Highest education			3.734	0.443
Primary school	9 (22.0)	6 (13.6)		
Junior high school	10 (24.4)	18 (40.9)		
High school	13 (31.7)	9 (20.5)		
University	8 (19.5)	10 (22.7)		
Postgraduate and above	1 (2.4)	1 (2.3)		
Working status			4.635	0.327
Retirement	20 (48.8)	24 (54.5)		
Unemployed	10 (24.4)	4 (9.1)		
Part time	0 (0.0)	1 (2.3)		
Full time	3 (7.3)	3 (6.8)		
On sick leave	8 (19.5)	12 (27.3)		
Profession			3.994	0.262
Worker	14 (34.1)	12 (27.3)		
Farmer	9 (22.0)	6 (13.6)		
Staff	6 (14.6)	4 (9.1)		

Other	12 (29.3)	22 (50.0)		
Monthly household income (in CNY)			-0.436 <sup>1</sup>	0.663
≤ 1000	10 (24.4)	10 (22.7)		
1000–2999	17 (41.5)	15 (34.1)		
3000–4999	8 (19.5)	13 (29.5)		
5000–6999	1 (2.4)	4 (9.1)		
≥ 7000	5 (12.2)	2 (4.5)		
Payment method for medical expenses			5.857	0.320
Social medical insurance	28 (68.3)	37 (84.1)		
Rural cooperative medical service	9 (22.0)	4 (9.1)		
Free medical care	2 (4.9)	0 (0.0)		
Commercial medical insurance	1 (2.4)	1 (2.3)		
Self-paid medical care	1 (2.4)	1 (2.3)		
Others	1 (2.4)	1 (2.3)		
Primary caregivers			7.971	0.240
Unattended	1 (2.4)	4 (9.1)		
Parents	3 (7.3)	6 (13.6)		
Child	11 (26.8)	11 (25.0)		
Spouse	24 (58.5)	16 (36.4)		
Relative	2 (4.9)	4 (9.1)		
Nurses/nannies	0 (0.0)	2 (4.5)		
Others	0 (0.0)	1 (2.3)		

<sup>1</sup>The Mann-Whitney *U* test.

location, employment status, religious beliefs, *etc.*) have an impact on their spiritual health[14-16]. The older the patient, the better their spiritual health. This holds particularly true for those older than 60 years, who have been shown to have significantly better spiritual health[9,17]. Women demonstrate better spiritual health than men; however, the aspects of spiritual health (belief, peace, meaning, overall spiritual health) are not balanced. The level of spiritual health also differs among patients with advanced cancer belonging to different races. However, some studies have demonstrated that spiritual health has nothing to do with general characteristics such as age, gender, race, cancer grade, metastasis, medical insurance, marital status, religious beliefs, *etc.*[18]. The inconsistency of conclusions may be related to different sample size or data collection methods. The general demographic data of the two groups in our study were consistent, except for their living conditions. Consistency was also demonstrated between the two groups in all aspects of the clinical data. Thus, the baseline levels of the two groups were guaranteed before the intervention.

### **Spiritual care improving spiritual health of patients with advanced cancer**

In our study, we found that the provision of spiritual care to patients with advanced cancer could significantly improve their overall spiritual health. The overall spiritual score of the experimental group was higher than that of the control group ( $4.68 \pm 1.36$  vs  $3.63 \pm 1.71$ ), and the difference between the two groups was statistically significant ( $P = 0.002$ ). This finding was consistent with the results from other studies that found that spiritual care could promote the spiritual health of patients with advanced cancer [19-22]. In our study, after spiritual intervention, there were inconsistencies in the findings regarding the four dimensions of spiritual health when the two groups were compared. The RO and RSG scores for the experimental group were higher than those for the control group ( $3.07 \pm 0.57$  vs  $2.81 \pm 0.58$  and  $2.65 \pm 0.40$  vs  $2.18 \pm 0.42$ , respectively). The differences between the RO and RSG scores before and after the intervention were statistically significant ( $P < 0.05$ ). However, the findings regarding

Table 2 Patients' clinical data, *n* (%)

	Control group	Experimental group	$\chi^2/Z$ score	<i>P</i> value
Cancer diagnosis			4.693	0.584
Breast cancer	6 (14.60)	4 (9.10)		
Lung cancer	7 (17.10)	6 (13.60)		
Gastrointestinal cancer	7 (17.10)	12 (27.30)		
Nasopharyngeal cancer	2 (4.90)	4 (9.10)		
Gynecological cancer	14 (34.10)	16 (36.40)		
Pancreatic cancer	2 (4.90)	0 (0.00)		
Others	3 (7.30)	2 (4.50)		
Metastasis			0.848	0.357
Yes	16 (39.00)	13 (29.50)		
No	25 (61.00)	31 (70.50)		
Clinical manifestation status			-0.028 <sup>1</sup>	0.978
Grade 0	16 (40.00)	9 (20.50)		
Grade 1	7 (17.50)	23 (52.30)		
Grade 2	9 (22.50)	7 (15.90)		
Grade 3	4 (10.00)	5 (11.40)		
Grade 4	4 (10.00)	0 (0.00)		
Stratification			5.320	0.150
Asymptomatic, stable, anti-cancer	6 (15.40)	5 (11.40)		
Asymptomatic, stable, not anti-cancer	2 (5.10)	1 (2.30)		
Symptomatic, anti-cancer remission	24 (61.50)	36 (81.80)		
Symptomatic, symptom control	7 (17.90)	2 (4.50)		
Treatment			16.467	0.110
Palliative care	7 (17.10)	0 (0.00)		
Radiotherapy	0 (0.00)	5 (11.40)		
Chemotherapy	28 (68.30)	31 (70.50)		
Hormone Therapy	0 (0.00)	2 (4.50)		
Chemoradiotherapy	6 (14.60)	4 (9.10)		
Others	0 (0.00)	2 (4.60)		

<sup>1</sup>The Mann-Whitney *U* test.

the EX and RS scores were not statistically significant. This may have been related to the characteristics of the different dimensions of spiritual health. The purpose of spiritual care is to help patients seek the meaning of life, self-realization, hope and creation, faith and trust, peace and comfort, prayer, love and forgiveness, *etc.*, while suffering from illness and pain[23]. Therefore, as core components of quality oncology, spiritual health and spiritual care both promote and influence each other[24].

### ***Spiritual care reducing the levels of anxiety and depression in advanced cancer patients***

In our study, after the spiritual care intervention, the number of advanced cancer patients that did not feel anxious and depressed increased significantly, and the differences in these values were statistically significant ( $P < 0.001$ ). This was consistent with the results from a study by Chida *et al*[25], as well as those from other studies, which demonstrated that in advanced cancer patients, effective spiritual care can

**Table 3 Spiritual health scores before spiritual care intervention**

Dimension	Control group (n = 41)	Experimental group (n = 44)	t/Z score	P value
EX	2.59 ± 0.69	2.75 ± 0.74	0.986	0.324
RS	2.37 ± 0.59	2.24 ± 0.58	0.983	0.328
RO	2.86 ± 0.59	2.78 ± 0.62	0.593	0.554
RSG	2.55 ± 0.32	2.57 ± 0.43	0.208	0.836
Overall spirituality	2.59 ± 0.69	2.75 ± 0.74	-1.439 <sup>1</sup>	0.150

<sup>1</sup>The Mann-Whitney *U* test. EX: Existence; RS: Relationship with self; RO: Relationship with others; RSG: Relationship with something greater.

**Table 4 Spiritual health scores after spiritual care intervention**

Dimension	Control group (n = 41)	Experimental group (n = 44)	t/Z score	P value
EX	2.51 ± 0.68	2.79 ± 0.75	-1.811	0.074
RS	2.39 ± 0.59	2.40 ± 0.53	-0.043	0.966
RO	2.81 ± 0.58	3.07 ± 0.57	-2.075	0.041 <sup>a</sup>
RSG	2.18 ± 0.42	2.65 ± 0.40	-4.634 <sup>1</sup>	<i>P</i> < 0.001
Overall spirituality	3.63 ± 1.71	4.68 ± 1.36	-3.077 <sup>1</sup>	0.002 <sup>a</sup>

<sup>a</sup>*P* < 0.05. EX: Existence; RS: Relationship with self; RO: Relationship with others; RSG: Relationship with something greater.

<sup>1</sup>The Mann-Whitney *U* test.

**Table 5 Anxiety status before and after spiritual care intervention, n (%)**

	Control group	Experimental group	Z score	P value
Before intervention			-0.558	0.577
No anxiety	22 (53.66)	25 (56.82)		
Critical anxiety	10 (24.39)	13 (29.55)		
Obviously anxious	9 (21.95)	6 (13.64)		
After intervention			-7.834	<i>P</i> < 0.001
No anxiety	25 (60.98)	42 (95.45)		
Critical anxiety	8 (19.51)	2 (4.55)		
Obviously anxious	8 (19.51)	0 (0.00)		

reduce negative emotions such as anxiety and depression, reduce suicide risk, and improve their mental health[25,26]. The higher the level of spiritual health, the higher the quality of life; thus, the happier the patient is, the less depressed, anxious, and fatigued they feel, and the less pain they experience[18]. Spiritual health is a valuable coping mechanism. It has unique advantages in its ability to protect cancer survivors from depressive symptoms[27]. As a part of overall health, spiritual health plays an important role in coping with disease-related psychological symptoms and influencing medical decisions before death[28]. Spiritual care interventions can quickly, accurately, and reliably identify the spiritual health of patients with advanced cancer and help them understand their own life, feelings, hope, peace, and other mental states. In our study, following the spiritual care intervention, we found that the emotional function score of the experimental group was lower than that of the control group (2.98 ± 1.34 *vs* 3.73 ± 1.72). This was consistent with the results from the patients' anxiety and depression investigations that were performed after the spiritual intervention.

**Table 6 Depression before and after spiritual care intervention, *n* (%)**

	Control group	Experimental group	Z score	P value
Before intervention				
No depression	22 (53.66)	26 (59.09)	-0.714	0.475
Critical depression	9 (21.95)	11 (25.00)		
Obvious depression	10 (24.39)	6 (13.64)		
After intervention				
No depression	35 (85.37)	43 (97.73)	-2.068	0.039 <sup>a</sup>
Critical depression	5 (12.20)	1 (2.27)		
Obvious depression	1 (2.44)	0 (0.00)		
No depression	22 (53.66)	26 (59.09)	-0.714	0.475

<sup>a</sup>*P* < 0.05.**Table 7 Quality of life before spiritual care intervention**

Dimension	Control group ( <i>n</i> = 41)	Experimental group ( <i>n</i> = 44)	Z score	P value
Function				
Physical function	5.90 ± 2.58	5.52 ± 1.72	-0.040	0.968
Emotional function	4.10 ± 1.79	3.80 ± 1.77	-0.915	0.360
Symptom				
Fatigue	4.63 ± 1.95	4.61 ± 1.77	-0.018	0.986
Nausea and vomiting	2.05 ± 1.02	1.80 ± 0.98	-1.187	0.235
Pain	3.56 ± 1.63	3.55 ± 1.73	-0.155	0.877
Dyspnea	1.27 ± 0.55	1.41 ± 0.69	-0.895	0.371
Insomnia	1.90 ± 1.09	2.02 ± 0.90	-0.958	0.338
Poor appetite	2.10 ± 0.97	1.84 ± 0.94	-1.306	0.191
Constipation	1.88 ± 0.98	1.82 ± 1.02	-0.450	0.653
Overall quality of life	4.24 ± 1.50	4.55 ± 1.50	-0.822	0.411

**Spiritual care improving the quality of life of patients with advanced cancer**

In our study, after the spiritual intervention, we found that the overall quality of life score of the experimental group was higher than that of the control group ( $5.36 \pm 1.16$  vs  $4.39 \pm 1.36$ ), and that the difference between the two groups was statistically significant ( $P = 0.002$ ). This was consistent with the results from several studies[29-31]. Spiritual health, as a potential or direct influencing factor, can effectively improve the quality of life of patients with advanced cancer. It can also improve the efficacy of palliative care and is an important indicator for evaluating the quality of life of patients with advanced cancer[32]. In terms of fatigue, the fatigue score of the experimental group was lower than that of the control group ( $3.41 \pm 1.26$  vs  $4.39 \pm 1.64$ ), and this difference was statistically significant ( $P = 0.005$ ). We found that spiritual care can alleviate the fatigue experienced by cancer patients, which was consistent with the results from studies by Rabow *et al*[18] and Heidari *et al*[33]. All cancer patients experience fatigue, and higher fatigue scores are observed in patients with stage IV tumors. There is a significant negative correlation between fatigue scores and spiritual health. The more obvious the symptoms of fatigue and the more severe the fatigue that the cancer patient is experiencing, the worse their spiritual health is. Therefore, we propose that fatigue can be used as the primary negative predictor of the spiritual health in patients with advanced cancer[13].



Table 8 Quality of life after spiritual care intervention

Dimension	Control group (n = 41)	Experimental group (n = 44)	Z score	P value
Function				
Physical function	5.68 ± 2.61	4.70 ± 1.65	-1.590	0.112
Emotional function	3.73 ± 1.72	2.98 ± 1.34	-2.103	0.035 <sup>a</sup>
Symptom				
Fatigue	4.39 ± 1.64	3.41 ± 1.26	-2.829	0.005 <sup>a</sup>
Nausea and vomiting	2.05 ± 1.00	1.52 ± 0.73	-2.521	0.012 <sup>a</sup>
Pain	3.56 ± 1.45	2.95 ± 1.06	-1.857	0.063
Dyspnea	1.51 ± 0.67	1.36 ± 0.65	-1.198	0.231
Insomnia	1.83 ± 1.05	1.66 ± 0.68	-0.196	0.844
Poor appetite	2.07 ± 0.93	1.66 ± 0.78	-2.179	0.029 <sup>a</sup>
Constipation	1.83 ± 0.89	1.50 ± 0.73	-1.823	0.068
Overall quality of life	4.39 ± 1.36	5.36 ± 1.16	-3.077	0.002 <sup>a</sup>

<sup>a</sup>*P* < 0.05.

In our study, the effect of spiritual care on pain was not obvious, and the difference between the findings from the two groups was not statistically significant (*P* = 0.063). However, this finding was inconsistent with the results from other studies[34]. This may have been related to the short duration of the intervention or the different grades of pain. Many studies have confirmed that patients with advanced cancer experience significant problems with pain, and the severity of the pain has a negative correlation with their spiritual health[35]. The more severe the patient's pain, the worse their spiritual health is. Our study also found that after the spiritual care intervention, the nausea and vomiting and loss of appetite scores for the experimental group were lower than those for the control group (1.52 ± 0.73 *vs* 2.05 ± 1.00 and 1.66 ± 0.78 *vs* 2.07 ± 0.93, respectively) and these differences were statistically significant. This may have been due to the patients' calmness after undergoing spiritual care. Their psychological disposition had an impact on their physiological function, thus reducing their gastrointestinal reaction and increasing their appetite.

## CONCLUSION

Although spiritual care in China began relatively late, many studies have verified that when it was applied to the clinical care of patients with advanced cancer, it could effectively guide clinical nurses or palliative care teams towards providing nursing services to patients with advanced cancer in a systematic, scientific, and targeted manner. We included specific spiritual care content for cancer patients based on psychological cancer care, providing specific help and guidance strategies for the spiritual care of patients with advanced cancer, and complementing psychological care to promote the quality of life of this patient population. We made the palliative care team and its supporters more aware of the spiritual confusion that patients with advanced cancer experience, guided the team to conduct comprehensive patient assessments, implemented spiritual care for the spiritual problems that patients with advanced cancer encountered, and evaluated the effects of this intervention both before and after its implementation. In addition, this intervention can draw the attention of medical staff to the spiritual health of patients with advanced cancer and strengthen their attention to spiritual care. Although it cannot extend the length of the patient's lifespan, it can allow the patient to complete their last journey of life quietly, peacefully, and without regrets.

## ARTICLE HIGHLIGHTS

**Research background**

The quality of life of patients with advanced cancer is generally low, including psychological, physical, social, family, and other aspects. Spiritual care is thought to improve the quality of life for people with advanced cancer. While developed countries have developed mature care models, there is currently a lack of systematic spiritual care programs for patients with advanced cancer in developing countries. This study referred to the mature spiritual care programs in developed countries, and combined the national conditions of China to construct spiritual care programs suitable for Chinese culture and evaluated its effects.

**Research motivation**

This study constructed a spiritual care plan suitable for Chinese culture and provided a basis for clinicians to take intervention measures to improve the spiritual health of patients with advanced cancer.

**Research objectives**

This study aimed to build a spiritual care program for advanced cancer patients suitable for China's national conditions and evaluated its application effect in the Chinese population. Future research could explore the extensibility of this program in different cancer populations.

**Research methods**

This research adopted the Delphi method to construct the spiritual care plan and the method to study the randomly assigned experimental group and control group. The experimental group used the spiritual care plan, while the control group used conventional care plan. The two groups of patients' were evaluated for spiritual health score, anxiety score, depression score and quality of life score to evaluate the effect of spiritual care plan.

**Research results**

The results showed that the spiritual-care group had higher overall spiritual health scores, lower prevalence of anxiety and depression, and higher overall quality of life scores than the control group, indicating that the spiritual care plan was an effective solution for Chinese patients with advanced cancer.

**Research conclusions**

The spiritual care program for patients with advanced cancer developed in this study could improve the spiritual health and quality of life of patients with advanced cancer and reduce negative emotions such as anxiety and depression. Spiritual care for patients with advanced cancer is recommended in oncology and hospice units.

**Research perspectives**

Future studies may evaluate the generalizability of the plan in a broader population of cancer patients.

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