

# The Quality of Life of Chinese Middle-Aged Male Patients with Gastric Carcinoma After Total Gastrectomy and Nursing Intervention

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**OBJECTIVE** The purpose of this study was to evaluate the quality of life (QOL) in Chinese middle-aged male patients with gastric carcinoma after total gastrectomy, to investigate the factors affecting their QOL, and to study the effectiveness of nursing intervention.

**METHODS** Structured questionnaire (EORTC QLQ-C30) was used among 162 middle-aged male patients after total gastrectomy (the patients finished the whole process of chemotherapy, and returned home, and society) for data collection and reevaluate the patients' quality of life with 2 months nursing intervention.

**RESULTS** The patient's quality of life was related to their education level, economic condition, family support, and pathological staging. This study showed that patients got higher scores in Functional scales (except for CF), and lower scores in Symptom scales and single items (except for FI) after receiving intervention than before it was received before.

**CONCLUSION** The study revealed that the QOL in middle-aged male patients after total gastrectomy was worse when there was inadequate attention. After implementing pertinent nursing intervention implementing, patients' mental attitude and negative behavior were improved, and their QOL was enhanced after returning home and into society.

**KEY WORDS:** middle-aged, patients, gastrectomy, quality of life, nursing.

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## Introduction

Gastric cancer is one of the most common malignant tumors in China, with an annual mortality rate of 25.21/10 million, and it is the second leading cause of cancer death, after lung cancer<sup>[1]</sup>. Since Schlatter successfully carried out the first case of total gastrectomy for gastric cancer patient in 1893, total gastrectomy became one of the important treatments for gastric cancer. However, most scholars are concerned about the prognosis of patients who have had total gastrectomy, and fewer are concerned about the QOL of the patients after the surgery<sup>[2]</sup>, especially for Chinese middle-aged male patients. However, although cancer patients have been given patient education regarding to anything around their disease, care related to the surgery, and other treatments they have received by the medical staff during their hospi-

talization, there is inadequate health guidance for cancer patients after they leave the hospital and return home.

We used a series of the quality of life questionnaires from European Organization for Research and Treatment of Cancer (EORTC), QLQ-C30<sup>[3,4]</sup> in this study to evaluate the QOL of Chinese middle-aged male patients with gastric cancer after total gastrectomy in order to determine the effect on the life of these patients after returning home and into society. In this study, we investigated the factors affecting their QOL and tried to develop a nursing intervention guideline which would improve their quality of life at home.

## Materials and Methods

### *Patients*

From Jan 2006 to Dec 2008, 1568 gastric cancer patients were admitted and treated in Gastric Tumor Department of Tianjin medical university cancer institute and hospital, of which 396 patients (256 male and 140 female) underwent total gastrectomy. Of the 396 patients, 192 male ranging in age from 45 to 59 years old agreed to participate in filling out questionnaires, of which 162 (84%) were completed and returned. They had been advised by investigators on how to fill out the questionnaires.

### *Evaluation instrument for quality of life*

The research involved demographic data and the core questionnaire EORTC QLC-C30. The EORTC QLQ-C30 is a standard questionnaire which was developed by EORTC QL Group specifically for cancer patients, and it has been proven to be valid for many types of cancers including gastric cancer. It includes 5 functional scales (physical functioning, role functioning, cognitive functioning, emotional functioning, and social functioning), 3 symptom scales (fatigue, pain, nausea and vomiting), a global health status/QOL scale, and 6 single items (dyspnoea, Insomnia, appetite loss, constipation, diarrhea and financial difficulties). Using a linear transformation to standardize the raw score, the scores in all scales and single-item measures are ranged from 0 to 100. Thus, a high score in a functional scale represents a healthy status, but a high score in a symptom scale represents a serious level of symptom<sup>[5]</sup>.

### *Nursing intervention*

Structured questionnaire (EORTC QLQ-C30) was used in 162 middle-aged male patients who had received total gastrectomy (the patients finished the total course of chemotherapy, and returned home and into society) to collect the data and to reevaluate the patients' quality of life 2 months after nursing intervention was initiated. Nursing intervention guidance was offered mainly through telephone and letter to the outpatients, but other ways included interviewing when returned to the hospi-

tal for check ups and written educational materials. The nursing intervention guidance included:

(1) Educational intervention. The educational intervention included health education, psychological counseling, providing information the patients required, etc. After the analysis of patients' characteristics, psychological reaction, and their awareness cognition and attitude toward the disease, nurses adopted different approaches for psychological support via persuasion, sympathy, motivation, and support. (2) Cognitive-behavioral intervention. This assisted the patients to adjust inaccurate cognition, negative behavior, and assisted them in developing a more positive attitude, so that they could understand their disease. Patients could be helped to overcome adverse behaviors and emotions. (3) Facilitating expression intervention. The patients were encouraged to express their requests for information related to their diseases and to express their fear, depression, and indignation while facing the reality of cancer. (4) Musicotherapy. Music which the patient preferred was played to improve their mental health<sup>[6]</sup>.

### *Diet intervention*

The patients were given information about a healthy diet, varied, and balanced diet. It was recommended that they eat protein-rich foods, more vitamin-rich fresh fruits and vegetables, and a moderate amount of starchy foods, such as rice, wheat, barley, and potatoes. Excessively greasy and hard to digest foods were to be avoided. Recipes were adjusted to conform the tastes of the patients.

### *Exercise intervention*

Appropriate and regular exercise was encouraged, such as 30 minutes of aerobic exercise per day, 3 to 4 days a week. Walking, jogging, climbing up and down stairs were also recommended. In daily life, patients were encouraged to walk instead of taking a bus, and to stand instead of sitting or lying down. They should increase the amount of physical activity according to their ability. It was suggested that they make a schedule to follow.

### *Efficient social support*

The patients' family members and friends were also given information about the disease, psychology, nutrition, and exercise in order to encourage and support the patients. Family members would be able to share the problems that the patients encountered in order not to become depressed. Patients were also encouraged to take part in interest groups. As patients regained better health, their family members would see the positive effects of their contribution.

### *Statistical analysis*

The data was computed and analyzed using SPSS 13.0 software. Frequencies were used to display the distribu-

tion of general characteristics of the patients and disease features. The t-test and one-way analysis of variance were used to assess the relationship between the QOL and the factors infected the QOL. The *P* value ≤ 0.05 was considered significant.

**Results**

**General data**

The number of valid questionnaires were 162. The results of frequency analysis on general data are listed in Table 1.

**Table 1. General data.**

Characteristics	No.of patients	%
<b>Occupation</b>		
Government employee	48	29.6
Factory worker	30	18.5
Farmer	55	34.0
Others	29	17.9
<b>Education</b>		
Primary school or lower	51	31.5
Secondary or high school	79	48.8
College or above	32	19.7
<b>Marital status</b>		
Married	137	84.6
Unmarried (Single/Divorced/Widow)	25	15.4
<b>Family monthly income (RMB)</b>		
< 2000	53	32.7
2000-5000	60	37.0
≥ 5000	49	30.3
<b>Payment</b>		
Medical insurance	80	49.4
Rural cooperative medical care	47	29.0
At their own expense	35	21.6
<b>Stage of gastric cancer</b>		
I-II	44	27.1
III	87	53.7
IV	31	19.2

**Factors related to 162 patients' QOL measured by EORTC QLQ-C30 (Table 2)**

**Education**

The differences in PF, QOL, CO, and FD scores among patients with different educational levels were statistically significant (*P* < 0.05). Functional scales showed that patients with a high educational level had higher functional scores, excepting EF score, compared with symptom scales.

**Marital status**

The differences in PF, RF, CF, and FD scores between the married patients and unmarried patients were statistically significant (*P* < 0.05).

**Economic income**

**Table 2. Factors related to 162 patients' QOL measured by EORTC QLQ-C30.**

Characteristics	No. of patients	Functional scales										Symptom scales									
		PF	RF	EF	CF	SF	QOL	FA	NV	PA	DY	SL	AL	CO	DI	FI					
<b>Education</b>																					
Primary school or lower	51	41.1	45.2	56.3	48.7	46.9	43.9	56.8	27.2	26.4	28.7	49.9	40.7	33.1	40.6	56.0					
Secondary or high school	79	50.1	46.3	56.5	58.4	53.4	51.2	54.1	30.1	28.3	28.3	37.8	39.4	29.5	37.1	42.4					
College or above	32	57.1*	51.9	53.5	67.5	54.7	62.2*	51.1	29.8	16.3	31.0	31.8	31.5	17.3*	30.2	37.2*					
<b>Marital status</b>																					
Married	137	56.5	56.6	55.1	68.5	54.7	52.6	38.2	28.2	23.6	33.1	37.7	38.1	26.9	30.0	42.1					
Unmarried	25	40.7*	46.4*	54.9	50.2*	46.7	46.3	56.7*	33.4	30.3	48.2	46.8	41.5	33.0	36.0	59.4*					
<b>Family monthly income (RMB)</b>																					
< 2000	53	43.3	46.5	56.8	49.1	46.7	42.6	49.4	32.1	23.5	47.1	39.1	31.7	30.4	39.2	50.6					
2000-5000	60	50.5	51.6	50.4	56.3	51.7	50.1	47.9	31.7	24.4	36.7	33.2	33.7	29.7	33.7	42.1					
≥ 5000	49	51.3	50.1	59.3	61.6	54.6	57.3*	46.1	27.5	21.9	34.2	35.4	38.1	21.2	21.5	37.7*					
<b>Stage of gastric cancer</b>																					
I-II	44	59.1	57.8	54.3	65.0	53.5	59.7	38.0	29.8	20.7	33.8	38.6	40.1	19.4	29.4	42.9					
III	87	53.7	49.0	53.7	48.2	48.0	50.5	46.2	23.3	24.3	32.6	33.6	31.1	26.6	38.9	50.2					
IV	31	40.1*	41.1	53.1	43.8	42.1	43.2	57.7	30.8	41.1*	49.3	48.4	43.6*	35.2	41.7	59.0					

\* *P* < 0.05, by one way ANOVA; # *P* < 0.05, by independent samples t test; PF = Physical functioning; RF = Role functioning; EF = Emotional functioning; CF = Cognitive functioning; SF = Social functioning; QOL = Global health status/QOL; FA = Fatigue; NV = Nausea and vomiting; PA = Pain; DY = Dyspnea; SL = Insomnia; AL = Appetite loss; CO = Constipation; DI = Diarrhea; FI = Financial difficulties.

The differences in QOL and FD scores between patients with high income and patients with low income were statistically significant ( $P < 0.05$ ).

#### **Pathology stage**

The differences in PF, PA, and AL scores among patients with different pathologic stages (TNM stage) were statistically significant ( $P < 0.05$ ).

#### **Before and after intervention, 162 patients' QOL measured by EORTC QLQ-C30**

Table 3 shows that patients got higher scores in functional scales, except for CF, and had lower scores in symptom scales after received nursing intervention compared with the scores the patients had before nursing intervention was applied.

The differences in PF, RF, EF, SF, QOL, FA, SL, AL, and CO before and after nursing intervention applied were statistically significant ( $P < 0.05$ ).

## **Discussion**

#### **QOL of the Chinese middle-aged male patients with gastric cancer**

With the diagnosis and progress in society and medical advances, people no longer consider only good health, or mortality. The ability of sick and impaired people to carry out routine activities is an important consideration in evaluation QOL. Both objectivity and subjectivity are involved when evaluating health attitudes, mental condition, and social interaction. For the cancer patients, a

good quality of life can relieve pain, improve interacting society, and prolong life expectancy. However, in the case of Chinese middle-aged male cancer patients, they are the center of their families, bearing the responsibility of bringing up children and supporting the elderly in their families, while facing added pressures. In dealing with cancer, the patients have a huge physical and psychological burden, and it can cause an adverse impact to family life, work, and the family's financial status<sup>[7,8]</sup>. According to Yan Zuo's survey, most of the cancer patients (60.16%) agreed that their quality of life was good while undergoing chemotherapy<sup>[9]</sup>. It indicated that chemotherapy had very little impact on most of the cancer patients' quality of life. Other researches showed that even through gastric cancer patients underwent surgery and chemotherapeutic side effects, they concluded that positive mental health was more important than physical health<sup>[10]</sup>. Therefore, when patients finished their treatments and returned home and into society, their physical and psychological status, lifestyle, relationships with their relatives, and their social status was widely varied<sup>[11,12]</sup>. For some who didn't receive necessary health guidance in quality of life of the patients those were inferior. Therefore, social workers and medical professionals should pay more attention to the quality of life of the patients.

#### **Factors affecting quality of life**

Education level is an important factor affecting patients' quality of life. This study showed that the well-educated group got higher scores in categories that measured

**Table 3. Before and after intervention, 162 patients' QOL measured by EORTC QLQ-C30.**

EORTC QLQ-C30 items	Before intervention	After intervention (2 months)	<i>P</i>
<b>Functional scales</b>			
Physical functioning (PF)	51.91 ± 28.21	68.86 ± 30.55	0.037
Role functioning (RF)	46.12 ± 26.74	57.01 ± 29.33	0.029
Emotional functioning (EF)	54.24 ± 34.63	69.12 ± 20.65	0.023
Cognitive functioning (CF)	51.33 ± 25.45	53.14 ± 20.74	0.078
Social functioning (SF)	48.90 ± 23.21	65.93 ± 26.13	0.016
Globe/QOL	47.34 ± 24.18	55.19 ± 21.03	0.033
<b>Symptom scales</b>			
Fatigue (FA)	52.17 ± 23.31	43.32 ± 23.21	0.025
Nausea/vomiting (NV)	30.82 ± 24.06	27.12 ± 28.74	0.068
Pain (PA)	29.44 ± 21.63	25.02 ± 23.56	0.051
Dyspnoea (DY)	33.03 ± 24.21	28.35 ± 20.48	0.661
Insomnia (SL)	41.55 ± 23.61	31.98 ± 27.06	0.028
Appetite loss (AL)	46.74 ± 27.15	30.12 ± 25.93	0.034
Constipation (CO)	35.94 ± 20.01	21.58 ± 19.90	0.035
Diarrhea (DI)	33.12 ± 28.26	29.75 ± 20.10	0.483
Financial difficulties (FI)	45.81 ± 24.21	47.37 ± 22.46	0.773

functions and lower scores in categories that measured symptoms and individual items. Patients who had high educational levels tend to have better knowledge of cancer, and to adopt good practices in order to cope with some symptoms. Therefore, they can adapt to fight the disease. Moreover, most of well-educated patients have high income.

In the general population, people who are married or living together have a lower mortality risk than people who live alone. People who are divorced have a higher mortality, especially due to malignancies<sup>[13,14]</sup>. This study found that quality of life of married patients was better than that of unmarried patients. The reason is that married patients get much more support from their partners both physically and emotionally, which can help the patients recover from the disease. Also they may change their unhealthy behaviors which are monitored by their partners, and their many problems and economic difficulties may be eased by sharing them with the partners.

This study showed that the FD score of low-income patients was the highest among the groups, but general QOL score of these patients was the lowest. Only a few patients had medical insurance, and most of the patients' medical expenses were covered by their families. High income patients had good social status, family environment, nutrition, and medical services<sup>[15]</sup>, but the low-income patients were more concerned about how much they had to pay for the treatments. Therefore, they bore more of a burden than the patients from high-income family<sup>[16]</sup>.

Pathological staging is an important prognostic factor for gastric cancer patients and had a negative correlation to QOL<sup>[17]</sup>. This study showed that the QOL of patients was positively correlated with pathological staging. The QOL in patients in a late stage of the disease was worse than those in an early stage. The differences of scores in PF, PA, AL were statistically significant ( $P < 0.05$ ).

#### ***Nursing intervention impact on quality of life***

This study showed that psychological intervention could help patients face the reality of their own physical condition, improve their poor attitude and self-awareness, increase their ability to recover, minimize adverse reactions, lower levels of psychological stress, and improve QOL<sup>[18]</sup>. Nurses should understand the patient's psychological state, addressing particular problems through the nursing intervention. Because personality traits of cancer patients can influence their QOL, the psychological disposition is important in dealing with the disease<sup>[19]</sup>.

Because of the gastrectomy patient's change in diet, loss of appetite, weight loss, anemia, and malnutrition, the effect could result in headaches, muscle ache, vertigo, and other such manifestations. A reasonably good diet, and good eating habits is particularly important. It could increase the resistance of the body and improve the patient's symptoms, thereby enhancing the quality of life. This study showed that patients got statistically

significant higher scores in FA, AL, CO after receiving intervention than before ( $P < 0.05$ ).

Exercise intervention is another important aspect of improving a patient's quality of life. After the patients finished their treatment and returned to their home and society, they were prone to rely heavily on their family life, thereby reducing their activity levels and exercise<sup>[20]</sup>. Studies have shown that aerobic exercise could reduce fatigue and mental stimulation can strengthen the body's immune system and improve metabolism. Maintaining a positive attitude can induce more self-reliance and self-evaluation to assess the patient's insomnia state, to enhance their self confidence, and improve sleep patterns. The study showed that patients got higher scores in PF, SL after receiving intervention, and the differences were statistically significant ( $P < 0.05$ ).

Cancer affects the patients' daily life, work, social activities, marriage, and family after cancer surgery. Their concern is whether they will be accepted and understood by society, and be supported with understanding by family members<sup>[21]</sup>. The frequency of social activities decreased. They assumed less family responsibility and the quality of their marriage deteriorated. Research<sup>[22]</sup> has shown that family responsibilities, social life, and return to work did not occur even after being cured for many years. They were unable to return to normal family life and employment. Effective social support can meliorate a negative attitude, and help the patients resume their family and social functions and make patients feel that although they were ill, they were still involved in family life and social activities, thereby enhancing the patient's quality of life.

#### **Conflict of interest statement**

No potential conflicts of interest were disclosed.

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