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Exploring the Intervention Space of Case Managers from the Current Situation of Hospital Management for Lung Cancer Patients

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Abstract: *The aim of this study is to objectively understand the current situation of hospital management of lung cancer patients, analyze the deficiencies and possible reasons of doctors and nurses in managing lung cancer patients, and explore effective methods to solve the problems. A questionnaire was designed to investigate the current status of medical and nursing work for lung cancer patients. The questionnaire was based on the work experience of foreign lung cancer case managers. The aim was to understand the management of medical and nursing care for lung cancer patients. The survey results indicate that the management of risk factors, complications, nutrition, discharge, continuity of care, and doctor-patient communication for lung cancer patients is at a middle to lower level. The reasons for this are that patients do not prioritize the disease, lack health knowledge, and healthcare personnel have insufficient manpower and time. To improve patient management, it is suggested to establish collaboration between doctors, nurses, communities, and families, as well as specialized personnel. The highest proportion of healthcare workers believed that the establishment of doctor-nurse-community-family and full-time staff synergy could better manage lung cancer patients. A case manager can fill the gap in the current situation of inadequate lung cancer health care management, filling in the gaps in health care and performing the roles of needs assessment, program coordination, service management oversight, resource development and caregiving counseling and education.*

Keywords: *Lung Cancer, Case Management, Humanistic Care, Management status*

1. Introduction

Lung cancer is the malignant tumor with the highest morbidity and mortality rate in China [1], and there is a huge challenge for medical and healthcare services for lung cancer patients. 2021, the state issued a notice on the issuance of the action plan for improving the quality of oncology diagnosis and treatment, which requires that the "action for improving the quality of oncology diagnosis and treatment" is a key task in the period of 2021-2024, and actively promotes the concept of "single-disease, multidisciplinary" diagnosis and treatment to improve the level of clinical decision-making. In 2021, the State issued a notice on the Action Plan for Improving the Quality of Oncology Treatment, requiring that the Action Plan for Improving the Quality of Oncology Treatment be a key task for the period of 2021-2024, and that the concept of single-disease, multidisciplinary treatment should be actively pursued to improve clinical decision-making. Case management is a patient-centered full-process health service model, through the coordination and communication between the case manager and the team members, to formulate the treatment plan and goals of specialized diseases, to ensure that the patients can complete the required examinations and treatments as scheduled, and to achieve the desired goals within a predetermined period of time [2]. At present, the case management model is more mature in foreign countries, and domestic case management has been explored in oncology [3-5], in order to further promote the in-depth development of lung cancer case management and the establishment of practice standards, this study set up its own questionnaire based on the reference to domestic and international oncology case management work, aiming to investigate the current situation of the management of lung cancer

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patients in hospitals in order to analyze the space of intervention of the case manager of lung cancer..

1.1 Research Objects

Doctors and nurses on duty and enrolled in oncology specialties and general hospitals of tertiary or higher level from Shaanxi, Jilin, Fujian, and Sichuan were selected in December 2023 as the survey respondents. Inclusion criteria: (1) serving and enrolled nurses and doctors; (2) formally employed; and (3) voluntarily participating in this survey. Exclusion Criteria: (1) Retirees, interns/nurses, vacationers, doctors in training, and nurses on rotation in the department; (2) Those who were not willing to participate in this survey. Referring to Gorsuch's [6] method of estimating sample size, which is 5 to 10 times the number of entries of the independent variable, the number of questionnaire entries used in this study is 25 entries, which calculates the sample size to be 125-250 cases, and adding 10% attrition rate, which calculates the sample size to be a minimum of 138 cases, the final number of healthcare workers in this study is determined to be 186.

1.2 Research methodology

1.2.1 Research tools

Based on reference to relevant literature and consultation with relevant nursing experts and managers, the questionnaire was designed independently with the framework of the work content of foreign lung cancer case managers, and the questionnaire on the current status of medical and nursing work carried out during the hospitalization of lung cancer patients was divided into two parts. (1) General information: including gender, occupation, title, years of working experience, education level, type of hospital and department. (2) Current status of management of lung cancer patients: including risk factor management, management of related complications, nutritional screening, discharge management and continuity of care program, and doctor-patient communication, with a total of 25 entries in 5 dimensions. The question types include single-choice and multiple-choice questions, which are selected according to the actual situation. The content covers what doctors and nurses do in each dimension, their perceptions and evaluations of related issues and the reasons that affect the in-depth development of that part of the service.

1.2.2 Research Methods

The survey was conducted by using a self-administered questionnaire, which was sent by microblogging to fill out the questionnaire online. Survey respondents must complete all the questions before submitting successfully, to ensure the completeness and validity of the questionnaire. A total of 186 questionnaires were issued and effectively recovered, with an effective recovery rate of 100%.

1.3 Statistics methods

SPSS 26.0 was used to analyze the data, and the count data was described by frequency and composition ratio.

2. Results

2.1 General information about the study subjects

Includes education, professional title, work experience, and department. See Table 1 for details.

Table 1: General information of the surveyed health care workers [n (%)]

Items	Doctors (n=17)		Nurses(n=169)	
education	n	%	n	%
College degree	0	0.0	17.0	10.1
Bachelor degree	1	5.9	149.0	88.2
postgraduate	12	70.6	3.0	1.8
Doctoral degree	4	23.5	0.0	0.0
Title				
primary	5	29.4	116.0	68.6
Intermediate	8	47.1	29.0	17.2
Deputy senior (senior)	4	23.5	24.0	14.2
Working years				
≤3 years	6	35.3	26.0	15.4

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3~5 years(including 5 years)	3	17.6	14.0	8.3
5~10 years(including 10 years)	4	23.5	41.0	24.3
>10 years	4	23.5	88.0	52.1

2.2 Self-assessment of the current situation of risk factor management for lung cancer patients by healthcare professionals

The results of the survey show that the current risk factor management of lung cancer patients is at the lower-middle level, and the top three factors affecting the management of lung cancer patients include the patients' own lack of attention to the hazards of the risk factors, the patients' lack of appropriate self-management skills, and the lack of an effective monitoring mechanism. See Table 2.

Table 2: Healthcare professionals' perceptions and evaluations of risk factor assessment items, reasons, and related perceptions in lung cancer patients [n (%)]

	Doctors (n=17)		Nurses (n=169)	
Risk factor assessment top 3	n	%	n	%
Smoking	14	82.4	123	72.8
Personal tumor history	14	82.4	115	68.0
History of chronic lung disease	14	82.4	106	62.7
All of the above	14	82.4	132	78.1
Risk factor management effectiveness				
Good and above	4	23.5	82	48.5
Fair	13	76.5	74	43.8
Poor and below	0	0	13	7.7
Top 3 factors affecting risk factor management				
Patients and their families do not recognize the importance of the hazards of lung cancer risk factors	16	94.1	151	89.3
Patients and their families do not have self-management skills of risk factors	15	88.2	129	76.3
Lack of effective educational supervision and management channels and means in the community to supervise and manage the risk factors of lung cancer patients	13	76.5	133	78.7

2.3 Self-assessment of healthcare professionals on the current status of management of complications in lung cancer patients

The top 3 worst managed complications were lung infection, pulmonary embolism and myelosuppression. The top 3 factors affecting lung cancer related complications were lack of knowledge of patients and families, poor patient compliance and lack of sufficient time for healthcare professionals to supervise the patients with continuous education. 76.5% and 55.0% of healthcare professionals had the need for collaborative healthcare management. See Table 3.

Table 3: Items, reasons and related perceptions and evaluations of health care professionals on poorer management of lung cancer complications

	Doctors (n=17)		Nurses (n=169)	
Top 3 poorly managed complications	n	%	n	%
Pulmonary infection	11	64.7	116	68.6
Pulmonary embolism	7	41.2	79	46.7
myelosuppression	5	29.4	69	40.8
Top 4 factors affecting lung cancer-related complications				
Lack of knowledge of early prevention of lung cancer related complications among patients and their families	15	88.2	152	89.9
Lack of patients' and family members' adherence to self-management of complications.	17	100.0	148	87.6
Lack of sufficient time for doctors to educate lung cancer patients on continuous assessment and management of the risk of complications.	6	35.3	88	52.1
Medical staff did not educate and supervise their adherence to self-management of related complications	7	41.2	86	50.9
Who plays a more active role in the management of complications associated with lung cancer patients				
Nurses	0	0	4	2.4
Doctors	0	0	11	6.5
Healthcare coordination	13	76.5	93	55.0
Specialized staff (case manager)	4	23.5	61	36.1

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2.4 Self-assessment of healthcare professionals on the current status of management in terms of nutritional screening of lung cancer patients

The survey showed that nutritional screening of lung cancer patients is currently carried out in general, as shown in Table 4.

Table 4: Self-assessment of healthcare professionals on the current status of the implementation of nutritional screening for lung cancer patients

	Doctors (n=17)		Nurses(n=169)	
When to administer nutritional therapy				
On admission	9	52.9	104	61.5
Before surgery or radiotherapy	8	47.1	36	21.3
Postoperative or after radiotherapy	0	0.0	26	15.4
Not carried out	0	0.0	3	1.8
Who performs the first nutritional assessment for lung cancer patients				
Physician	4	23.5	20	11.8
Nurse	2	11.8	46	27.2
Dietitian	2	11.8	22	13.0
Three-way collaborative assessment	9	52.9	81	47.9
Top 4 influences on nutritional screening of lung cancer patients				
Dietitians are not sufficiently staffed to conduct a comprehensive assessment of the nutritional status of patients and provide guidance throughout the process	13	76.5	122	72.2
Patients and their families lack basic knowledge of self-care and do not pay enough attention to nutritional status	14	82.4	136	80.5
No specialized personnel to carry out nutritional management	11	64.7	110	65.1
It is difficult for patients' families to pay for the health care expenses	8	47.1	113	66.9
Implementation of nutritional screening for lung cancer patients				
Good and above	9	52.9	75	44.4
Average	7	41.2	81	47.9
Poor and below	1	5.9	6	3.6

2.5 Self-assessment by healthcare professionals on the current status of discharge management and implementation of continuity of care programs for lung cancer patients

The most important but unachievable aspect of discharge management is the “overall assessment of the patient's health status and selection of the optimal inpatient treatment, care, and rehabilitation program”, and the main reason for the implementation of the discharge plan is the “lack of sufficient time and manpower”. (53.9%) and 32.0%) of the healthcare professionals wanted to have a dedicated staff to coordinate and supervise the implementation of discharge preparation and continuity of care programs. See Table 5.

Table 5: Self-assessment of healthcare workers on the implementation of discharge management and continuity of care program for lung cancer patients

	Doctors (n=17)		Nurses (n=169)	
Top 3 discharge preparation program items that cannot be completed for the patient for various reasons	n	%	n	%
Evaluate the patient's overall health status and select the best plan for hospitalization, care, and rehabilitation.	8	47.1	98	58.0
Evaluate risk factors in the healthcare environment or in the treatment process, communicate with patients and their families, and propose strategies to address them.	8	47.1	95	56.2
Organize a multidisciplinary consultation to provide the best discharge care plan.	7	41.2	94	55.6
The top 3 factors affecting discharge preparation programs				
Lack of adequate time and manpower	13	76.5	140	82.8
Lack of a pathway for discharge management and follow-up program implementation	11	64.7	120	71.0
Lack of cooperation from patients and families	12	70.6	113	66.9
Who can play a more active role in improving the effectiveness of discharge management and follow-up programs?				
Doctors	2	11.8	24	14.2
Nurses	0	0	10	5.9
Family members	0	0	15	8.9
Dedicated staff (case managers)	9	52.9	54	32.0
Multidisciplinary collaboration	6	35.3	66	39.1

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2.6 Self-assessment of healthcare professionals on the current state of healthcare patient communication

The survey shows that the overall communication effect between doctors (nurses) and patients is good, but there are still some communication problems, “insufficient time” accounted for (58.8%, 80.5%), is the primary problem in the communication process. The top 2 items of insufficient communication and education were “health self-management knowledge and skill education” and “meaning, method and abnormal value management of self-monitoring”. (94.1%, 95.3%) Healthcare professionals want to have a full-time staff to solve the problem of poor communication.

3. Discussion

3.1 Objective needs for case managers to intervene in the management of lung cancer patients

The establishment of lung cancer case managers is an objective need to improve the management of lung cancer patients and sound medical services. Early-stage lung cancer patients still have the possibility of surgery, but the onset of lung cancer is more insidious, and most patients are already in the middle or late stage when diagnosed, requiring chemotherapy or radiotherapy, and the long treatment cycle will affect the psychological health and social life of patients [7], and patients need to be properly guided and sustained attention. This study shows that healthcare professionals' work in risk factor management and nutritional screening of lung cancer patients is relatively unsatisfactory. The analysis from the patient's point of view revealed that there is a general lack of knowledge about risk factor management, complication management, and nutritional screening in patients. From the perspective of healthcare professionals, “lack of sufficient time and manpower” and “lack of effective supervision mechanism”, which prevented continuous education and supervision, were found to be more prominent problems. The lack of patient management is closely related to the lack of education of healthcare professionals. Establishing a positive relationship between patients and healthcare professionals during hospitalization can reduce uncertainty after discharge [8] and facilitate the development of post-discharge continuity of care. The reality shows that the current health care work is not good enough to meet this need, and in the survey of health care workers' work, it was found that most of the health care workers would like to get extra help. Case management can alleviate the contradiction between the needs of patients and healthcare professionals, coordinate the relationship between patients and healthcare professionals through case managers, strengthen the communication between healthcare professionals and patients, improve the patients' knowledge of the disease, help the patients to coordinate the healthcare resources, and continuously supervise the patients' self-management, so as to help the patients to obtain a better prognosis. Therefore, the establishment of lung cancer case managers can meet the needs of patients and the expectations of healthcare personnel, and it is an objective need for the continuity of healthcare.

3.2 Exploration of the basic functions of case manager intervention in the management of lung cancer patients

There is no uniform international description of the definition and basic functions of a case manager. Case management first emerged in the U.S., and the American Case Management Association defines case management as a dynamic practice process that assesses, plans, implements, coordinates, monitors, and evaluates in order to meet an individual's health needs and to achieve high-quality and more cost-effective outcomes [9]. The role orientation of the case manager is dynamic and changing, Co-hen et al [10] summarized the functions of the case manager's role through the literature as follows: catalyst for change, clinical expert, consultant, coordinator, educator, manager of patient care, negotiator, patient and family advocate, manager of quality of outcomes, researcher, and crisis manager.

Case managers are mostly nurses who facilitate the identification of the best clinical solution to the disease by providing and coordinating comprehensive healthcare resources [11]. The current status of hospital management for lung cancer patients in China still has many deficiencies, exposing that healthcare professionals and patients do not form a close link and patient needs are not fully met. Therefore, case managers should intervene from the time before diagnosis and admission to the hospital, and the process includes case intake, case management, and case closure, etc. Through the specific steps of assessment, planning, implementation, coordination, monitoring, and evaluation, the content covers risk factor management, complication management, nutritional screening, discharge preparation and continuation of care plan, and communication between doctors and nurses and patients in five aspects, so as to deepen the patient's and their family's understanding of the disease through adequate

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communication and exchange between doctors and patients. Through adequate communication between doctors and patients, patients and their families can deepen their understanding of the disease and promote their participation and full cooperation in the process of prevention, medical care, nursing care and rehabilitation; secondly, the case manager coordinates and integrates the opinions of professionals to jointly assist patients in meeting their care needs, and at the same time, strengthens the cooperative relationship between the medical teams; thirdly, the case manager represents the interests of the patients and helps them to grasp information about health insurance, insurance and available community resources, so as to realize independent choices and safeguard their rights and interests.

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