

A Qualitative Study on the Psychological Experience of Lung Cancer Patients During the Perioperative Period

Xin-Ning Lei¹, Qian Wang², Li-Cong Yan³, Lu Lu¹, Yi-Shu Xiao⁴, Li-Ying Yang¹, Yong-He Guo¹

¹Department of General Thoracic Surgery, General Hospital of Ningxia Medical University, Yinchuan City, Ningxia, 750004, People's Republic of China; ²Intensive Care Unit, The Cardiovascular and Cerebrovascular Disease Hospital of General Hospital of Ningxia Medical University, Yinchuan City, Ningxia, 750004, People's Republic of China; ³Department of Respiratory and Critical Care Medicine, General Hospital of Ningxia Medical University, Yinchuan City, Ningxia, 750004, People's Republic of China; ⁴School of Clinical Medicine, Ningxia Medical University, Yinchuan, Ningxia, 750004, People's Republic of China

Correspondence: Lu Lu, Department of General Thoracic Surgery, General Hospital of Ningxia Medical University, 804 Shengli Street, Xingqing District, Yinchuan City, Ningxia, 750004, People's Republic of China, Email 811096140@qq.com

Purpose: To explore the psychological changes experienced by lung cancer patients throughout the perioperative period and to provide a reference for nurses in developing targeted psychological care plans.

Patients and Methods: From December 2023 to January 2024, ten patients undergoing lung cancer surgery at a tertiary hospital in the Ningxia Hui Autonomous Region were recruited through purposive sampling. Semi-structured in-depth interviews were conducted, and data were analyzed using Colaizzi's seven-step method to identify and refine emergent themes.

Results: Four major themes and eleven sub-themes were extracted: (1) Shock, disbelief, and emotional turmoil following diagnosis (disbelief and denial; acute emotional breakdown and rapid recovery; navigating a complex information environment); (2) Preoperative hope, hesitation, and risk-benefit deliberation (surgery as hope; hesitation and weighing of pros and cons); (3) Physical and psychological transitions within the brief perioperative window (preoperative anxiety and insomnia; intraoperative trust in the medical team; severe postoperative physical discomfort; proactive engagement in rehabilitative exercises); (4) Post-surgical psychological adaptation and reappraisal (the empowering and buffering effects of social support systems; reconstruction of perspectives and active adaptation to future life).

Conclusion: The psychological experience of lung cancer patients during the perioperative period is dynamic and multifaceted. Nurses are encouraged to engage in effective communication with patients, accurately identify emerging psychological concerns, and deliver timely, individualized psychological interventions. The presence of family members during interviews, as well as the fact that interviews were conducted by healthcare providers within the same clinical environment, may have constrained the full disclosure of certain fears and concerns, which constitutes a limitation of the present study.

Keywords: lung cancer, psychology, perioperative period, qualitative research

Introduction

Lung cancer remains one of the most prevalent and lethal malignancies worldwide. According to Global Cancer Statistics 2020, lung cancer accounts for 11.4% of total cancer incidence and 18.0% of cancer-related mortality globally, ranking as the leading cause of cancer death.¹ In China, lung cancer represents the highest cancer burden in terms of both incidence and mortality.¹⁻³ For patients with resectable disease, surgery constitutes the primary curative treatment modality. However, while surgical resection aims to improve survival outcomes, the procedure itself represents a profound psychological stressor that may precipitate or exacerbate significant emotional distress.⁴

A growing body of quantitative evidence has documented the substantial psychological burden experienced by lung cancer patients during the perioperative period. The prevalence of clinically significant preoperative anxiety has been reported at approximately 39.7%, while depression affects an estimated 29.7% of patients prior to surgery.⁵ More recent cross-sectional data indicate that 41.9% of early-stage lung cancer patients experience significant psychological distress preoperatively, with symptoms strongly associated with both depression and anxiety.⁶ Preoperatively, psychological

burden is often amplified by concerns regarding the surgical procedure itself, uncertainty about prognosis, and fear of postoperative complications. Postoperatively, patients frequently contend with negative emotions—including irritability and depression—secondary to physical discomfort, pain, and functional limitations.^{7–9} Some patients exhibit heightened vigilance, denial, anxiety, fear, and avoidance behaviors upon learning of their diagnosis through various channels.¹⁰ These cumulative psychological experiences may adversely affect physiological status, surgical outcomes, and postoperative recovery trajectories.¹¹ Consequently, attending to the psychological well-being of perioperative lung cancer patients is essential not only for improving mental health outcomes but also for optimizing physical recovery.⁷

Despite the well-documented prevalence of perioperative psychological distress, the existing qualitative literature has several notable limitations that constrain our understanding of patients' lived experiences during this critical period. Several qualitative studies have explored psychological and symptom-related experiences among lung cancer patients; however, these investigations have primarily focused on discrete phases of the treatment continuum rather than the perioperative period as an integrated whole. For instance, qualitative inquiries have examined symptom experiences and psychological states during the convalescence period following radical lobectomy,¹² explored the real-world experiences and care needs of patients undergoing lung cancer ablation,¹³ and investigated patient perspectives on mindfulness-based interventions in the postoperative setting.¹⁴ While these studies provide valuable insights into specific post-treatment phases, they do not capture the dynamic psychological trajectory that unfolds from diagnosis through surgical hospitalization to discharge—a trajectory characterized by rapidly evolving emotional states as patients transition from preoperative anticipation to postoperative recovery. Moreover, existing studies have employed varying methodological approaches and have largely examined psychological phenomena in isolation from the temporal context of the surgical journey, thereby limiting the transferability of their findings to the full perioperative continuum.

Furthermore, qualitative research in thoracic oncology has largely been informed by descriptive approaches without explicit grounding in established psychological frameworks. A notable exception is the emerging body of work applying narrative medicine and phenomenological perspectives to understand cancer patients' treatment experiences.¹⁵ However, the conceptual underpinnings guiding perioperative psychological inquiry remain underdeveloped, limiting the interpretive depth and theoretical transferability of available evidence. Additionally, the specific phenomenon of psychological adaptation across the entire perioperative trajectory—encompassing the preoperative, intraoperative, and immediate postoperative phases—has received minimal attention in the qualitative literature. Most studies have either aggregated perioperative patients with broader thoracic oncology populations or restricted their focus to isolated time points, thereby obscuring the sequential and often rapid psychological transitions that characterize this unique clinical window.

To address these gaps, the present study adopted a descriptive phenomenological approach to explore the psychological experiences of lung cancer patients throughout the entire perioperative period—defined in this investigation as the period spanning from confirmation of the surgical plan through hospitalization to the day of discharge. Phenomenology was selected as the methodological orientation because it prioritizes the faithful rendering of lived experience without imposing predetermined theoretical constructs, thereby enabling the emergence of themes grounded directly in participants' narratives. Semi-structured interviews were employed to facilitate in-depth exploration of patients' subjective psychological journeys during this critical clinical window. The aim of this study is to elucidate the process of psychological change experienced by lung cancer patients during the perioperative period and to provide an empirical foundation for nurses and healthcare providers in developing targeted, phase-specific psychological care plans for this vulnerable population.

Patients and Methods

Study Design

This study adopted a phenomenological approach, employing semi-structured interviews for data collection. Phenomenology is a qualitative methodology used to describe and interpret lived experiences, focusing on participants' subjective perceptions to obtain detailed, comprehensive, and context-rich accounts of the phenomenon under investigation. Semi-structured interviews were guided by a set of predetermined open-ended questions, with additional probing

inquiries posed based on participants' responses to facilitate deeper exploration of individual experiences and perspectives.

The research team comprised seven members: one head nurse, one chief thoracic surgeon, three specialist nurses, and two master's degree candidates. All team members received systematic, standardized training in qualitative research methods prior to the commencement of the study. This study adhered to the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist.

Study Population

This study was conducted in the Department of General Thoracic Surgery at the General Hospital of Ningxia Medical University. The department serves as a regional center for the diagnosis and treatment of both common and complex thoracic diseases in Ningxia and functions as a training base for senior thoracic surgery professionals. The annual volume of lung cancer surgeries exceeds 2500 cases, and the department's clinical catchment area extends to Ningxia and neighboring regions, including Shaanxi, Inner Mongolia, and Shanxi.

Participants were recruited from patients undergoing lung cancer surgery in the Department of Thoracic Surgery at this tertiary A-level hospital in Ningxia using a purposive sampling strategy. The sample size was determined by the principle of data saturation, whereby recruitment was to cease when interview data became redundant and no new themes emerged. Following the eighth interview, the research team conducted an interim review of the accumulated codes and themes, which indicated that the primary thematic structure had largely stabilized. To further ensure methodological rigor, two additional validation interviews were conducted with a ninth and tenth participant. Upon confirming that no new themes or sub-themes had emerged from these final interviews, data collection was formally terminated.

A total of ten participants who met the following inclusion and exclusion criteria were enrolled. Inclusion criteria were as follows: (1) patients who met the World Health Organization (WHO) definition of malignant tumors originating from respiratory epithelial cells (bronchi, bronchioles, and alveoli) and were pathologically diagnosed with lung cancer; (2) patients who underwent surgical resection for lung cancer; (3) patients who were conscious, possessed adequate cognitive capacity, and were able to communicate effectively; and (4) patients who were aware of their diagnosis and voluntarily agreed to participate in the study. Exclusion criteria were as follows: (1) a history of psychiatric disorders; (2) unstable critical illness; and (3) hearing impairment that would preclude effective communication.

Determining the Interview Outline

The interview guide was developed through a multi-stage process. Initially, a preliminary outline was drafted based on a review of the relevant literature and the specific aims of the study. This draft was subsequently revised in consultation with a specialist nurse experienced in psychological care. To refine the guide further, two lung cancer patients who met the inclusion and exclusion criteria were recruited through purposive sampling for pilot interviews. Based on the conduct and findings of these pilot interviews, the interview outline was modified and finalized. The final interview guide addressed the following questions: ① What was your psychological reaction when you first learned that you had lung nodules? How did you feel when the doctor recommended hospitalization for surgery? ② How did you feel the night before surgery and upon entering the operating room? ③ How did you feel during the first night after surgery? ④ What was your psychological experience during postoperative functional exercises and following the removal of the closed thoracic drainage tube? ⑤ When did you become aware of your diagnosis? What was your psychological reaction upon learning that you had lung cancer? ⑥ What was the most memorable aspect of your recent surgical experience, and how did you feel about it? What are your expectations for your future life?

Interviews

Data were collected between December 2023 and January 2024 through face-to-face, semi-structured in-depth interviews guided by a pre-developed interview outline. All interviews were conducted in the nurse manager's office to ensure a safe, quiet, and uninterrupted environment. Interviews were scheduled on the day of the patient's discharge, with the specific timing mutually agreed upon by both parties. To alleviate potential participant anxiety, family members were

permitted to accompany patients during the interview process. Interviews were conducted by a research team comprising one graduate student and one specialist nurse.

Prior to each interview, and with the assistance of the department head nurse, the research team first communicated with the attending physician to confirm that the patient was fully aware of their diagnosis. Subsequently, the team consulted with family members to obtain additional contextual information regarding the patient's condition. With family consent obtained, the team then approached the patient to explain the purpose, significance, and confidentiality safeguards of the study. Written informed consent was obtained from all participants prior to the commencement of the interview.

During the interviews, particular attention was devoted to listening attentively to patients' most authentic expressions. The entire interview process was audio-recorded in real time with participants' permission. The interviewer carefully observed and documented participants' facial expressions, tone of voice, and body language, while periodically paraphrasing and verifying responses to ensure accurate interpretation of participants' feelings and perspectives. Field notes were maintained contemporaneously to enhance the credibility and contextual richness of the interview data. A total of ten participants were interviewed, with each interview lasting approximately 30 to 45 minutes.

Analysis

This study employed a phenomenological approach. Data were analyzed manually using thematic analysis, with themes extracted in accordance with Colaizzi's seven-step method. Within 24 hours of each interview, one graduate researcher transcribed the audio recording verbatim, and a second researcher reviewed the transcript against the original recording to ensure accuracy. The transcribed data were then analyzed following Colaizzi's seven-step procedure, as detailed below:

Step 1: Two researchers independently read and re-read all transcripts to achieve familiarization with the data and to develop a holistic understanding of the phenomenon under investigation, deliberately suspending subjective judgments.

Step 2: Significant statements directly relevant to the research questions were extracted from the transcripts. High-frequency words and phrases were identified, while content unrelated to the phenomenon was excluded.

Step 3: The extracted statements were coded and summarized using concise, precise terminology. The clarity and distinctness of each code were verified to ensure consistent application.

Step 4: Similar codes were grouped into sub-themes, which were subsequently clustered into broader themes and categories. Relationships between codes and themes were identified, and a hierarchical thematic structure was developed.

Step 5: Preliminary themes were elaborated into comprehensive, detailed descriptions grounded in the original data, ensuring that all interpretive accounts remained firmly supported by participants' narratives.

Step 6: Two researchers collaboratively refined the preliminary themes, abstracting and synthesizing the core essence of the phenomenon to finalize the thematic structure.

Step 7: Member checking was conducted by returning the finalized themes to the participants for verification. All participants confirmed that the findings accurately and authentically reflected their psychological experiences, and no objections were raised.

Results

Participants' Characteristics

Ten participants were included in the study, comprising five males and five females, with a mean age of 55.40 ± 5.76 years. The pathological diagnoses included squamous cell carcinoma ($n = 4$) and adenocarcinoma ($n = 6$). The TNM stage distribution was as follows: stage I ($n = 1$), stage II ($n = 6$), and stage III ($n = 3$) (Table 1).

Themes

The analysis yielded four main themes and eleven sub-themes, as follows:

Theme 1: Shock, Disbelief, and Emotional Turmoil Following Diagnosis.

Sub-themes: Disbelief and denial; acute emotional breakdown and rapid recovery; navigating a complex information environment.

Table 1 General Information of Research Objects (n=10)

Serial Number	Age (Years)	Gender	Marital Status	Number of Children	Education Level	Occupation	Mode of Operation	Histopathological Diagnosis	Pathological Stage	Duration of Postoperative Indwelling Closed Thoracic Drainage Tube (h)	Total Days of Hospitalization (Day)
A	51	Female	Married	1	Undergraduate	Teacher	Thoracotomy	Squamous Cell Carcinoma	IIB	72	11
B	57	Female	Married	1	Undergraduate	Teacher	Thoracoscopy	Adenocarcinoma	IIB	72	22
C	58	Male	Married	2	Elementary School	Worker	Thoracoscopy	Squamous Cell Carcinoma	IIIA	102	16
D	60	Male	Married	1	Technical secondary school	Other occupations	Thoracoscopy	Adenocarcinoma	IIB	140	9
E	45	Female	Married	2	High School	Other occupations	Thoracoscopy	Adenocarcinoma	IIB	72	10
F	66	Male	Married	1	Elementary School	Worker	Thoracoscopy	Squamous Cell Carcinoma	IIA	137	19
G	56	Female	Married	2	Junior High School	Farmer	Thoracoscopy	Adenocarcinoma	IA	72	8
H	51	Male	Married	3	Junior High School	Farmer	Thoracoscopy	Adenocarcinoma	IIA	72	9
I	53	Female	Married	2	High School	Worker	Thoracoscopy	Squamous Cell Carcinoma	IIIA	38	6
J	57	Male	Married	3	Junior High School	Worker	Thoracoscopy	Adenocarcinoma	IIIA	62	8

Notes: A total of 10 patients were interviewed in this study, numbered A-J.

Theme 2: The Dilemma of Preoperative Decision-Making.

Sub-themes: Surgery as a source of hope; hesitation and risk–benefit deliberation.

Theme 3: Physical and Psychological Transitions Within the Brief Perioperative Window.

Sub-themes: Preoperative anxiety and insomnia; absolute trust in the surgical team intraoperatively; severe post-operative physical discomfort; active engagement in rehabilitative exercises.

Theme 4: Post-Surgical Psychological Adaptation and Reappraisal.

Sub-themes: The empowering and buffering effects of social support systems; reconstruction of personal perspectives and active adaptation to future life.

Theme 1: Shock, Disbelief and Emotional Turmoil Following Diagnosis

Most patients experienced acute cognitive dissonance and intense negative emotions upon learning of their lung cancer diagnosis, characterized by a transient period of emotional upheaval followed by relatively rapid self-regulation.

Disbelief and Denial

Patients' initial reactions commonly manifested as skepticism regarding the accuracy of the diagnosis. This response reflected more than mere fear; rather, it constituted a psychological defense mechanism rooted in the instinct for survival. Such disbelief and denial served as the first line of psychological defense, through which patients endeavored to preserve internal equilibrium and ward off a perceived existential threat.

A: “When the doctor told me I had pulmonary nodules, I couldn’t believe it might be lung cancer. I don’t smoke or drink—how could I develop lung cancer?”

B: “It felt impossible. I simply couldn’t believe it. How could I have pulmonary nodules? Are all nodules that require surgery cancerous?”

D: “I was so anxious and worried—could it be a misdiagnosis?”

H: “There’s no way I could have nodules. Maybe the hospital mixed up my results?”

I: “The doctor said there’s something growing in my lung—how is that possible?”

Acute Emotional Breakdown and Rapid Recovery

The initial diagnostic phase was frequently accompanied by intense emotional upheaval, often manifested through episodes of tearfulness, depressed mood, and expressions of pessimism and helplessness. Notably, these acute emotional responses typically resolved within a relatively short timeframe, generally lasting between three and seven days.

A: “I kept crying for several days, breaking down whenever the topic came up. after crying, I gradually felt somewhat calmer.”

G: “I would burst into tears several times a day, crying whenever I thought about it.”

E: “I felt terrified and utterly helpless. but this intense emotion didn’t last too long, about a week.”

I: “Everything seemed hopeless, and this heavy feeling lasted maybe three or four days.”

Navigating a Complex Information Environment

During the initial diagnostic phase, patients actively sought information through various channels. In the current digital era, smartphones have become the most immediate and accessible tools for information acquisition, and patients frequently turned to online searches to address their concerns. However, in the context of big data, algorithms continuously track user preferences through search keywords, browsing duration, and other behavioral metrics, subsequently delivering tailored content based on these patterns. Although patients may initially have engaged in proactive searches for information regarding pulmonary nodules and lung cancer, sustained online activity prompted big data systems to automatically analyze their interests and continuously present lung cancer-related content. This dynamic gradually entrapped patients in a cycle of passive exposure to cancer-related information, substantially intensifying their psychological distress. Consequently, such uncontrolled information exposure not only failed to provide clarity but also evolved into an independent stressor that amplified fear and catalyzed anxiety.



G: “After learning I had pulmonary nodules, I looked up some information about lung cancer. Later, every time I opened my phone, everything was about lung cancer—chemotherapy causing hair loss, late-stage cancer patients looking sallow and emaciated. Seeing these made me feel terrible. I noticed my husband’s phone showed nothing like this, which made me especially frustrated. Everyone told me to stop looking and swipe away when I saw such content, but just seeing the word ‘cancer’ put me in a bad mood. It was too distressing, so eventually I changed my phone.”

I: “They [healthcare providers and family members] all say things are different now—that even if it’s lung cancer, the five-year survival rate is quite high. I wasn’t entirely convinced and looked it up myself, but most of what I found was negative. Later, I didn’t want to see any more, yet every time I opened my phone, it was filled with exactly that kind of content. It made me feel extremely upset.”

Theme 2: The Dilemma of Preoperative Decision-Making

While most patients hoped that surgery would alleviate their suffering and restore their health, the procedure itself acted as a potent stressor, frequently eliciting pronounced stress responses. Many patients experienced anxiety and fear related to perceived surgical risks, further compounded by concerns regarding financial burden and future quality of life.

Surgery as a Source of Hope

Upon learning that surgery was a viable option, most patients regarded it as both a diagnostic and therapeutic intervention capable of clarifying their condition and relieving their symptoms.

A: “I finally felt a sense of hope...”

B: “When the doctor recommended surgery, I didn’t overthink it. They said it was detected early, so I figured it wouldn’t be a big deal—once it’s done, it’s done. I actually stayed pretty calm (chuckles behind hand).”

D: “I was relieved to know I could still undergo surgery—it felt like a real chance. If surgery weren’t an option, things would be much worse.”

Hesitation and Risk–Benefit Deliberation

Simultaneously, concerns regarding surgical risks, financial costs, and long-term quality of life weighed heavily on patients’ decision-making processes.

A: “...But part of me was afraid I wouldn’t make it through the operation.”

C: “I’m scared I won’t wake up after surgery, but I’m also afraid that without it, my time will be even shorter. It’s really conflicting.”

F: “The lungs are so vital—what happens after part of them is removed?”

G: “If the outcome isn’t good, chemotherapy will cost a fortune. I worry we might lose both our savings and my life... Sometimes I feel like giving up altogether.”

Theme 3: Physical and Psychological Transitions Within the Brief Perioperative Window

Centered around the pivotal event of surgery, patients’ physiological experiences and psychological states exhibited a clearly discernible, temporally sequenced dynamic evolution throughout this period.

Preoperative Anxiety and Insomnia

In most patients, fears related to the impending surgery translated into anxiety and other negative emotions, which commonly manifested as significant sleep disturbances. This prevalent insomnia served as an external physiological manifestation of underlying psychological distress.

C: “I slept very poorly at night, tossing and turning constantly, unable to fall asleep.”

E: “The night before surgery, I slept rather restlessly—I was quite anxious.”

F: “I woke up particularly easily and never slept deeply.”

H: “I simply couldn’t fall asleep.”

J: “I couldn’t sleep at all that night; it was an exceptionally agonizing experience.”

Absolute Trust in the Surgical Team Intraoperatively

Upon entering the operating room, patients' psychological orientation shifted from autonomous decision-making to unconditional trust and the complete relinquishment of control over their well-being to the surgical team.

A: "I just completely placed myself in the doctors' hands."

B: "Lying on the operating table, watching the doctors and nurses busy at work—it actually felt reassuring."

I: "I faced it calmly—I trusted the doctors."

Severe Postoperative Physical Discomfort

Postoperative acute pain was described by nearly all interviewees as the most severe challenge encountered throughout the entire disease trajectory. This physical suffering not only impaired sleep quality but also precipitated a range of adverse psychological reactions, including anxiety, irritability, and a sense of being overwhelmed.

A: "That night the incision hurt terribly—I couldn't sleep."

E (crying): "The night right after surgery, I was both in pain and frightened. With the constant sound of monitors and moans from neighboring patients in my ears, I didn't sleep at all. It was truly miserable."

F: "The first night after surgery was excruciatingly painful—unbearable. I hardly slept all night; it felt worse than death (said with a frown). My mind was deeply troubled, but I told myself if I could just endure until morning, things would improve."

G: "I slept poorly that night. I kept overhearing them [family members and other patients] discussing medical conditions—I didn't want to listen, but I was in pain, immobilized by tubes, and utterly irritable."

J: "I had to lie flat all night. With tubes in my body, I dared not move and barely slept—it was intensely uncomfortable."

Active Engagement in Rehabilitative Exercises

The department in which this study was conducted serves as a pilot unit for enhanced recovery after surgery. Beginning on the first postoperative day, patients initiated early functional training under nursing guidance. Despite the physical challenges associated with having just undergone surgery, they actively participated in postoperative exercises, demonstrating considerable motivation to recover.

A: "I walked several laps around the ward. Although it was somewhat painful, the thought of recovering quickly made me happy."

B: "I felt extremely dizzy on the first day, but I diligently followed the doctors' and nurses' instructions to exercise."

D: "Though I couldn't eat anything that day, I walked briefly and then practiced balloon-blowing exercises in bed."

F: "I noticed posters on the ward wall illustrating postoperative exercises and started practicing secretly in bed. Later, when the doctor asked me to blow up a balloon, I inflated it so vigorously it burst! The doctor praised my excellent progress."

H: "The nurse urged me to get out of bed and walk promptly, teaching me coughing and breathing techniques. She emphasized doing them daily for faster recovery. Wanting to get better soon, I exercised actively every day."

Theme 4: Post-Surgical Psychological Adaptation and Reappraisal

Following the most demanding phase of treatment, patients entered a period characterized by deep reflection, active self-regulation, and progressive adaptation to their altered circumstances.

The Empowering and Buffering Effects of Social Support Systems

For patients, the positive medical and social support received from family members and healthcare professionals facilitated the development of a more accurate understanding of their illness, encouraged the adoption of proactive coping strategies, and promoted adherence to all prescribed treatments. This multifaceted support network constituted a critical protective factor against psychological decompensation.

A: “My children and my spouse have been with me the whole time, which gave me great confidence. After the surgery, I was only hospitalized for four days, and the tube was removed quickly. I felt I was recovering quite well, and it seemed like cancer wasn’t as terrifying as I thought.”

B: “The medical team was warm, responsible, kind, and highly skilled, which gave me immense confidence and comfort.”

D: “Family support is extremely, extremely important. Especially the mutual support between partners—my wife stayed with me, taking care of me throughout my hospitalization. It gave me great confidence, and I am deeply grateful to her.”

F: “The medical staff were approachable, responsive, and understanding toward patients. They provided me with much solace, for which I am very thankful.”

Reconstruction of Perspectives and Active Adaptation to Future Life

Having confronted a life-threatening ordeal, patients began to reappraise their life priorities. The determination to live each day as fully as possible reflected a deepened contemplation of life’s meaning. Simultaneously, they learned to establish healthy boundaries, distance themselves from behaviors detrimental to their health, and consciously filter information to mitigate negative influences.

A: “I want to recover quickly. The thought that I can still go square dancing in the future makes me very happy.”

B: “Before the surgery, I tended to overthink. Since being discharged, I’ve become more hopeful about the future and am determined to make the most of each day.”

D: “I will cherish life, maintain a healthy diet, exercise regularly, keep a positive mindset, travel to see more places, and also attend follow-up check-ups on time.”

F: “From now on, it’s about living earnestly, attending follow-ups and treatments on schedule, and not shortchanging myself.”

G: “I no longer dwell on the negative content I see on my phone; I simply scroll past it as soon as I come across it.”

J: “I dare not touch cigarettes anymore. I will exercise properly, eat well, sleep well, maintain a positive mood, and live a good life.”

Discussion

Although China has established mature diagnostic and treatment protocols for lung cancer, with a reported 5-year survival rate of 31.62%,¹⁶ the disease remains a profound psychological stressor for patients. Their psychological needs evolve dynamically throughout the entire disease trajectory—from initial diagnosis through the postoperative period. This study delineates the dynamic psychological trajectory experienced by lung cancer patients during the perioperative period, tracing their journey from the initial shock of diagnosis to postoperative adaptation, while highlighting key stressors and protective resources encountered along the way. Accurately identifying psychological needs at each temporal juncture is essential for designing effective, generalizable, and sustainable psychological nursing interventions, ultimately contributing to the enhancement of patients’ overall well-being and quality of life.

This study reveals that patients diagnosed with pulmonary nodules experience an abrupt and substantial deterioration in psychological well-being and emotional state in the short term. Previous research indicates that approximately 80% of patients report markedly heightened psychological distress upon learning of a potential cancer diagnosis, while 15.4% to 56.2% develop negative emotions such as anxiety and depression.¹⁷ Notably, levels of anxiety and depression increase significantly within the first few days following diagnosis compared with the pre-diagnosis period.^{18,19} In the present study, some patients, lacking a comprehensive and accurate understanding of lung cancer-related information, proactively sought knowledge through their mobile devices. However, this active search subsequently resulted in involuntary exposure to a flood of negative cancer-related content algorithmically pushed to their devices, which further exacerbated their anxiety and depression and severely impaired their quality of life. The overwhelming volume of information thus constituted a major source of psychological distress, exerting a profound negative impact on patients’ emotional well-being. Indeed, excessive consumption of online cancer-related information has been shown to trigger or intensify psychological burden in this population.²⁰ Therefore, healthcare professionals should proactively communicate with

patients regarding their condition. When addressing patients' inquiries, clinicians are encouraged to respond constructively and provide clear explanations while avoiding excessive reliance on medical terminology. Disease-related knowledge may be disseminated through diverse formats, such as short educational videos or engaging informational sessions, to better meet patients' informational needs and to promote recovery and health maintenance.²¹ Given that the majority of lung cancer patients are older adults with generally limited educational attainment, their access to information is often constrained, and their capacity for information comprehension and cognitive processing may be diminished. Healthcare professionals should therefore pay particular attention to the informational needs of this population and provide timely, tailored informational support.

An increasing body of evidence indicates that cancer patients generally prefer to receive truthful information about their diagnosis directly from healthcare professionals.^{22,23} Recent studies have clarified that full disclosure of the true condition is more conducive to the regulation of negative emotions and the formation of a positive illness perception, and does not diminish patients' quality of life. Nevertheless, the manner in which this information is conveyed and the psychological support provided following disclosure are of paramount importance.^{23–25} Therefore, prior to disclosing the diagnosis, healthcare professionals and family members should carefully consider the patient's individual characteristics—including educational background and personality traits—and select an appropriate approach to communicating the true condition in a manner that facilitates acceptance.^{26,27} Following disclosure, both clinicians and family members should remain attentive to the patient's emotional responses, address any questions that arise, and provide timely psychological counseling when indicated.²⁸ Patients should also be encouraged to discuss their condition and subsequent treatment plans with their attending physicians. This approach not only enables patients to acquire accurate disease-related knowledge but also fosters the development of a therapeutic alliance with their healthcare providers, thereby enhancing their confidence in overcoming the disease.²⁹

This study reveals that the preoperative waiting period imposes a considerable psychological burden on patients. Most participants reported limited knowledge of their disease and the planned surgical procedure prior to surgery, and concerns regarding prognosis, surgical approach, and anticipated outcomes frequently precipitated negative emotions such as fear and anxiety. Previous research has demonstrated that preoperative health education—by equipping patients with a clear understanding of their condition and the surgical process—not only enhances confidence in the procedure and postoperative recovery, thereby promoting active engagement in treatment, but also alleviates preoperative fear and nervousness, mitigates psychological stress responses, and strengthens patients' sense of self-efficacy.³⁰ Evidence further suggests that lower levels of self-efficacy are associated with a heightened risk of depression, whereas higher self-efficacy enables patients to regulate negative emotions more effectively and maintain a better quality of life.^{31,32} Therefore, healthcare professionals should deliver comprehensive preoperative health education, communicating disease-related information, surgical procedures, and prognostic considerations in accessible, non-technical language. Moreover, clinicians should carefully assess patients' psychological states and provide targeted reassurance and support tailored to individual concerns. Optimizing patients' psychological well-being prior to surgery is essential to facilitate the smooth progression of the operative procedure.

The findings of this study indicate that patients actively employ coping strategies during the postoperative enhanced recovery phase. Following surgery, cancer patients—particularly on the first postoperative night—frequently experience significant pain, diminished sleep quality, and reduced comfort, all of which predispose them to adverse psychological reactions such as restlessness and depressed mood. Previous studies have demonstrated that structured health education delivered through a thoracotomy patient education booklet exerts a positive effect on clinical recovery by alleviating postoperative pain and reducing state anxiety.^{33,34} Accordingly, healthcare professionals should ensure that patients receive appropriate treatment alongside targeted health education, and should prioritize symptom management to mitigate postoperative discomfort. This study further reveals that, under nursing guidance, patients actively participated in rehabilitative exercises during the postoperative period and gradually developed confidence in their recovery trajectory within the context of enhanced recovery protocols. Evidence has shown that enhanced recovery nursing interventions effectively promote postoperative recovery among lung cancer patients, attenuate the adverse impact of surgery on pulmonary function, and alleviate physiological discomfort. Moreover, such interventions reduce the incidence of postoperative complications—including pulmonary atelectasis—and contribute to improved quality of life.^{35,36}

Therefore, nurses are encouraged to facilitate early mobilization on the first postoperative day and to provide thorough instruction on techniques for optimizing pulmonary function.³⁷ These techniques include effective coughing, diaphragmatic breathing, and pursed-lip breathing; patients' proficiency should be regularly assessed. Additionally, healthcare providers may incorporate engaging methods for respiratory function training—such as balloon-blowing exercises—to further accelerate patient recovery.

This study highlights that, given adequate social support and effective self-regulation, patients can proactively seek assistance by sharing their psychological distress with family members or healthcare providers. Moreover, they are capable of redirecting their attention away from the diagnosis of lung cancer itself and toward the treatment process. This positive psychological adjustment facilitates active engagement in the full spectrum of therapeutic interventions. Robust medical and social support enables patients to develop a more accurate understanding of lung cancer, thereby fostering a positive orientation toward life.^{38,39} Once patients have openly accepted their diagnosis, they may also share insights gained from their cancer experience with friends, family members, and healthcare professionals, and may even extend support to other patients navigating the stressful trajectory of cancer, thereby helping to alleviate their negative emotions. With sustained support from family and clinical staff, patients in this study gradually exhibited a more optimistic outlook and expressed a renewed sense of hope for the future.

These findings strongly support the implementation of nurse-led, phase-specific psychological interventions tailored to the distinct challenges encountered across the perioperative continuum. During the diagnostic phase, nurses should provide structured, evidence-based information to counteract misinformation and mitigate distress arising from uncertainty. In the preoperative period, it is essential to create opportunities for patients to privately articulate their fears and concerns, thereby facilitating emotional expression unconstrained by the presence of family members. Throughout hospitalization, maintaining clear and consistent communication to foster trust, coupled with active coaching of patients through rehabilitative exercises, is paramount. Following discharge, nurses can further promote postoperative recovery by encouraging patients to reflect on positive psychological and functional gains and by facilitating connection with peer support networks or patient support groups.

Limitations

This study has several limitations that should be acknowledged. First, the findings are derived from a small, purposive sample recruited from a single center, which may constrain the generalizability and transferability of the results to broader populations. Second, the cross-sectional interview design, conducted at the point of discharge, may not fully capture the longitudinal trajectory of psychological adaptation extending beyond the immediate perioperative period. Third, methodological constraints inherent to the interview context may have introduced response bias. Specifically, the presence of family members during interviews—while intended to mitigate patient anxiety—may have inadvertently inhibited the disclosure of sensitive concerns, such as fears of becoming a burden or financial worries. Furthermore, given that the interviewers were healthcare providers embedded within the same clinical environment, participant responses may also have been subject to social desirability bias, wherein accounts were unconsciously or deliberately tailored to align with perceived clinical expectations. Additionally, the sample may be subject to selection bias, as individuals willing to participate and share their experiences may differ systematically from those who declined, thereby potentially overlooking alternative perspectives. Finally, as with all qualitative research, data interpretation is inherently shaped by researcher subjectivity. Future investigations would benefit from longitudinal, multi-center designs employing larger samples, ensuring private interview settings conducive to eliciting more uninhibited accounts, and incorporating mixed-methods approaches to further strengthen the robustness and comprehensiveness of the findings.

Conclusion

This study reveals that the perioperative psychological experience of lung cancer patients constitutes a dynamic trajectory characterized by initial shock, ambivalent hope, profound physical distress, and the potential for psychological growth. The findings underscore the pivotal role of nurses in delivering continuous, phase-specific psychological support throughout the entire perioperative continuum. Essential nursing actions include proactive information management to counter misinformation, the deliberate creation of safe spaces that facilitate candid emotional disclosure, the cultivation

of therapeutic trust, and the empowerment of patients to engage actively in their recovery. Acknowledging the inherent limitations of this investigation, further research is warranted to explore long-term psychosocial adjustment beyond the immediate postoperative period and to develop and evaluate targeted nursing interventions aimed at optimizing the psychological well-being of this vulnerable patient population.

Data Sharing Statement

The data supporting the findings of this study are available from the corresponding author, Lu Lu, upon reasonable request. The data are not publicly accessible due to privacy restrictions, as they contain information that could compromise the confidentiality of the research participants.

Ethics Approval and Consent to Publish

The study was approved by the Medical Ethics Committee of the General Hospital of Ningxia Medical University of Chinese Medicine Ethics Committee (Approval No. KYLL-2023-0218) on October 13st, 2023. The study was carried out in compliance with the World Medical Association Code of Ethics (Declaration of Helsinki). Written informed consent for publication was obtained from all patients or their legally authorized representatives. This consent specifically authorizes the publication of de-identified case details, clinical findings, treatment data, and all associated images (including those in Table 1), with the understanding that all personally identifiable information has been removed.

Consent to Participate

Informed consent was obtained from all individual participants included in the study. The participants informed consent included publication of anonymized responses/direct quotes.

Author Contributions

All authors made substantial contributions to the work reported, including involvement in the conception and design of the study, data acquisition, analysis, and interpretation, or a combination of these areas. All authors participated in drafting, revising, or critically reviewing the manuscript; provided final approval of the version to be published; agreed upon the journal to which the manuscript has been submitted; and accept accountability for all aspects of the work.

Funding

The study was supported by Ningxia Hui Autonomous Region Key Research and Development Plan Project in 2022 (Project number: 2022BEG03092) and 2024 Ningxia Natural Science Foundation (Project Number: 2024AC03635).

Disclosure

The author(s) report no conflicts of interest in this work.

References

1. Sung H, Ferlay J, Siegel RL, et al. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA Cancer J Clin.* **2021**;71(3):209–249. doi:10.3322/caac.21660
2. Sun H, Zhang H, Cai H, et al. Burden of Lung Cancer in China, 1990–2019: findings from the Global Burden of Disease Study 2019. *Cancer Control.* **2023**;30:10732748231198749. doi:10.1177/10732748231198749
3. Han B, Zheng R, Zeng H, et al. Cancer incidence and mortality in China, 2022. *J Natl Cancer Cent.* **2024**;4(1):47–53. doi:10.1016/j.jncc.2024.01.006
4. Höfling S. Who treats fear in patients? On the psychology of preparation for operation. *Fortschr Med.* **1985**;103(38):79–81.
5. Deng L, Chen B. Two-scale assessment of anxiety and depression in postoperative non-small cell lung cancer patients: their prevalence, risk factors, and prognostic potency. *Ir J Med Sci.* **2023**;192(6):2613–2619. doi:10.1007/s11845-023-03321-w
6. Lu L, Zhang B, Li W, et al. Prevalence and risk factors of psychological distress in patients with early-stage lung cancer during preoperative period: a cross-sectional study. *J Clin Nurs.* **2025**;34(8):3196–3205. doi:10.1111/jocn.17501
7. Ju X, Feng J, Yang J, et al. Factors influencing the preoperative anxiety in lung cancer patients undergoing video-assisted thoracoscopic surgery: the role of information needs, illness perception and patient trust. *J Psychosom Res.* **2023**;172:111374. doi:10.1016/j.jpsychores.2023.111374
8. Wang F, Zhang S, Song B, Han Y. Anxiety, depression, and quality of life in postoperative non-small cell lung cancer patients under the intervention of cognitive-behavioral stress management. *Front Psychol.* **2023**;14:1138070. doi:10.3389/fpsyg.2023.1138070

9. Siwik CJ, Phillips K, Zimmaro L, et al. Depressive symptoms among patients with lung cancer: elucidating the roles of shame, guilt, and self-compassion. *J Health Psychol.* **2022**;27(5):1039–1047. doi:10.1177/1359105320988331
10. Tao L, Xiang Y, Zeng X, et al. Psychological-Distress Factors in Patients With Breast Cancer: a Qualitative Meta-Synthesis. *J Clin Nurs.* **2024**;33(12):4843–4859. doi:10.1111/jocn.17532
11. Arrieta O, Angulo LP, Núñez-Valencia C, et al. Association of depression and anxiety on quality of life, treatment adherence, and prognosis in patients with advanced non-small cell lung cancer. *Ann Surg Oncol.* **2013**;20(6):1941–1948. doi:10.1245/s10434-012-2793-5
12. Xiao J, Peng Y, Li Y, et al. Exploring the symptoms and psychological experiences among lung cancer convalescence patients after radical lobectomy: a qualitative study. *Cancer Med.* **2024**;13(15):e70048. doi:10.1002/cam4.70048
13. Huang L, Pan X, Li J, et al. Perioperative real-life experiences and care needs of patients undergoing lung cancer ablation: a qualitative study. *Technol Health Care.* **2025**;33(2):1056–1065. doi:10.1177/09287329241291419
14. Chen J, Huang D, Luo Q, et al. A qualitative study of patient perspectives for a mindfulness-based intervention in lung cancer. *Eur J Oncol Nurs.* **2026**;81:103133. doi:10.1016/j.ejon.2026.103133
15. Yang XY, Chen L, Zhou S, et al. A qualitative study on the psychological experience of lung cancer patients during treatment from the perspective of narrative medicine. *Zhongguo Yi Xue Lun Li Xue.* **2024**;37(11):1295–1301. doi:10.12026/j.issn.1001-8565.2024.11.07
16. Bi JH, Tuo JY, Xiao YX, et al. Observed and relative survival trends of lung cancer: a systematic review of population-based cancer registration data. *Thorac Cancer.* **2024**;15(2):142–151. doi:10.1111/1759-7714.15170
17. Ostovar S, Modarresi Chahardehi A, Mohd Hashim IH, et al. Prevalence of psychological distress among cancer patients in Southeast Asian countries: a systematic review. *Eur J Cancer Care.* **2022**;31(6):e13669. doi:10.1111/ecc.13669
18. Ding X, Zhang H, Liu H. Early ambulation and postoperative recovery of patients with lung cancer under thoroscopic surgery-an observational study. *J Cardiothorac Surg.* **2023**;18(1):136. doi:10.1186/s13019-023-02263-9
19. Sjödin L, Marklund S, Lampic C, et al. Anxiety and Depression Trajectories in Young Adults Up to 5 Years After Being Diagnosed With Cancer. *Cancer Med.* **2025**;14(5):e70715. doi:10.1002/cam4.70715
20. Budenz A, Sleight AG, Klein WMP. A qualitative study of online information-seeking preferences among cancer survivors. *J Cancer Surviv.* **2022**;16(4):892–903. doi:10.1007/s11764-021-01082-y
21. Brar J, Khalid A, Ferdous M, et al. Breast cancer screening literacy information on online platforms: a content analysis of YouTube videos. *Breast Dis.* **2022**;41(1):81–87. doi:10.3233/BD-201028
22. Seo M, Tamura K, Shijo H, et al. Telling the diagnosis to cancer patients in Japan: attitude and perception of patients, physicians and nurses. *Palliat Med.* **2000**;14(2):105–110. doi:10.1191/026921600676888353
23. Wan M, Luo X, Wang J, et al. The impact on quality of life from informing diagnosis in patients with cancer: a systematic review and meta-analysis. *BMC Cancer.* **2020**;20(1):618. doi:10.1186/s12885-020-07096-6
24. Alsirafy SA, Abdel-Aziz HI, Abdel-Aal HH, et al. Not Telling Patients Their Cancer Diagnosis in Egypt: is It Associated With Less Anxiety and Depression and Better Quality of Life? *JCO Glob Oncol.* **2022**;8:e2200080. doi:10.1200/GO.22.00080
25. Su T, He C, Li X, et al. Association between early informed diagnosis and survival time in patients with lung cancer. *Psychooncology.* **2020**;29(5):878–885. doi:10.1002/pon.5360
26. Kallergis G. Informing cancer patient in relation to his type of personality: the dependent (oral) patient. *J BUON.* **2011**;16(2):366–371.
27. Wu J, Wang Y, Jiao X, et al. Differences in practice and preferences associated with truth-telling to cancer patients. *Nurs Ethics.* **2021**;28(2):272–281. doi:10.1177/0969733020945754
28. Kerr D, Ostaszkievicz J, Dunning T, et al. The effectiveness of training interventions on nurses' communication skills: a systematic review. *Nurse Educ Today.* **2020**;89:104405. doi:10.1016/j.nedt.2020.104405
29. Mueller J, Jay C, Harper S, et al. The Role of Web-Based Health Information in Help-Seeking Behavior Prior to a Diagnosis of Lung Cancer: a Mixed-Methods Study. *J Med Internet Res.* **2017**;19(6):e189. doi:10.2196/jmir.6336
30. Yuan Z, Gao L, Zheng M, et al. Effect of Multimodal Health Education Combined with the Feedback Method in Perioperative Patients with Lung Cancer: a Randomised Controlled Study. *Patient Prefer Adherence.* **2023**;17:413–420. doi:10.2147/PPA.S394826
31. Zhang N, He X, Zhang H, et al. Influencing Factors of Physical Activity in Patients with Lung Cancer Surgery and Its Correlation with Exercise Self-Efficacy and Perceived Social Support. *Evid Based Complement Alternat Med.* **2022**;2022:7572530. doi:10.1155/2022/7572530
32. Banik A, Luszczynska A, Pawlowska I, et al. Enabling, Not Cultivating: received Social Support and Self-Efficacy Explain Quality of Life After Lung Cancer Surgery. *Ann Behav Med.* **2017**;51(1):1–12. doi:10.1007/s12160-016-9821-9
33. Cetkin HE, Tuna A. How Does Health Education Given to Lung Cancer Patients Before Thoracotomy Affect Pain, Anxiety, and Respiratory Functions? *J Cancer Educ.* **2019**;34(5):966–972. doi:10.1007/s13187-018-1401-1
34. Liu M, Liu L, Zhang S, Li T, Ma F, Liu Y. Fear of cancer recurrence and hope level in patients receiving surgery for non-small cell lung cancer: a study on the mediating role of social support. *Support Care Cancer.* **2022**;30(11):9453–9460. doi:10.1007/s00520-022-07318-6. Epub 2022 Aug 10. PMID: 35947207.
35. Tat Bang H, Thanh Vy T, Tap NV. Initial Results of the Enhanced Recovery After Surgery (ERAS) Program in Patients Undergoing Lobectomy in the Treatment of Lung Cancer: an Experience From the University Medical Center Ho Chi Minh City. *Cureus.* **2024**;16(4):e57870. doi:10.7759/cureus.57870
36. Zheng Y, Mao M, Ji M, et al. Does a pulmonary rehabilitation based ERAS program (PREP) affect pulmonary complication incidence, pulmonary function and quality of life after lung cancer surgery? Study protocol for a multicenter randomized controlled trial. *BMC Pulm Med.* **2020**;20(1):44. doi:10.1186/s12890-020-1073-6
37. Tazrean R, Nelson G, Twomey R. Early mobilization in enhanced recovery after surgery pathways: current evidence and recent advancements. *J Comp Eff Res.* **2022**;11(2):121–129. doi:10.2217/ceer-2021-0258
38. Wang T, Sun J, Gu D, et al. Dyadic effects of social support, illness uncertainty on anxiety and depression among lung cancer patients and their caregivers: a cross-sectional study. *Support Care Cancer.* **2023**;31(7):402. doi:10.1007/s00520-023-07876-3
39. Hofman A, Zajdel N, Klekowski J, et al. Improving Social Support to Increase QoL in Lung Cancer Patients. *Cancer Manag Res.* **2021**;13:2319–2327. doi:10.2147/CMAR.S278087

Cancer Management and Research

Publish your work in this journal

Cancer Management and Research is an international, peer-reviewed open access journal focusing on cancer research and the optimal use of preventative and integrated treatment interventions to achieve improved outcomes, enhanced survival and quality of life for the cancer patient. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/cancer-management-and-research-journal>

Dovepress
Taylor & Francis Group