Patient Preference and Adherence

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ORIGINAL RESEARCH

Surgical Decision-Making Experience of Patients with Lumbar Disc Herniation: A Qualitative Study

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Purpose: This study aimed to explore the experiences and pivotal influencing factors of patients with Lumbar disc herniation (LDH) during the surgical decision-making phase to provide a basis for optimizing the shared decision-making between medical professionals and patients and for the implementation of personalized nursing care.

Patients and Methods: This phenomenological study employed face-to-face semi-structured interviews, conducted between January and February 2025. Purposive sampling method was used to select 20 patients with lumbar disc herniation from the orthopedic ward of a tertiary hospital. The interview data were analyzed by Colaizzi's seven-step phenomenological analysis method.

Results: The findings of this study revealed that the surgical decision-making experiences of patients with LDH can be delineated into four themes: (1) Motivations underlying the surgical Decision; (2) Decision-making dilemmas arising from insufficient patient information; (3) The multi-dimensional factors influencing decision-making, and (4) Patients express unmet peri-operative needs.

Conclusion: This study reveals that surgical decision-making in patients with lumbar disc herniation is a complex process involving the interaction of biological, psychological, and social factors. It is essential to establish a patient-centered decision-support system, integrating structured information tools, psychological interventions, and hierarchical educational strategies. Future research endeavors should concentrate on the potential value of digital health technologies in enhancing the decision-making experience and seek to augment the effectiveness of decision-making aids through cultural adaptation.

Keywords: lumbar disc herniation, surgical decision-making, patient experience, qualitative research, shared decision-making

Introduction

Lumbar disc herniation (LDH) is caused by the rupture of the annulus fibrosus of the intervertebral disc and the protrusion of the nucleus pulposus pressing on the nerve root or dural sac. The primary clinical manifestations include lower back pain with radiating pain, numbness in the lower extremities, and even cauda equine syndrome.[1,2] LDH - related low back pain imposes a substantial global health burden, significantly impairing patients' work capacity and quality of life.[3] Epidemiological data indicate that up 80% of the elderly population experience varying degrees of disc degeneration, with an increasing incidence among younger individuals as well.[4,5]

While conservative therapies are often effective in alleviating symptoms, clinical evidence suggests that surgical intervention, particularly discectomy, remains the most effective option for alleviating persistent symptoms in refractory patients.[6] Compared with non-surgical management, surgery provides more rapid pain relief,[7] sustained symptom improvement,[8] and accelerated return to daily activities or work earlier.[9] However, for patients facing this choice, the decision to undergo surgery is not merely a medical issue, but a complex process influenced by physiological, psychological, and sociocultural factors.[10] Emerging evidence reveals that patients often face psychological stress and decisional conflict while choosing surgical

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treatment. In addition to considering the physiological impact of the disease, they need to make comprehensive judgments in various aspects such as emotions, cognition, and social support.[11–13] Studies have shown that only 63%–70% of patients express a strong preference for surgical treatment, reflecting the challenges patients face in spinal surgery.[14]

In recent years, shared decision-making (SDM) has gained prominence as a core component of patient-centered care. SDM emphasizes the active involvement of patients in treatment decisions, supported by transparent communication and mutual respect.[15] Particularly suitable for diseases involving multi-scheme trade-offs and value judgments, it has also been studied in spinal surgery.[14,16] However, most research on spinal surgery decision-making focuses on the "patient-centered" healthcare systems in Europe and America, while relatively few studies exist for China's physician-dominated, hierarchical healthcare system with evident characteristics.[17,18] In contrast, China's physician-dominated and hierarchical healthcare model presents significant barriers to SDM,[19] including communication asymmetry, implicit deference to medical authority, and family-driven decision norms. These factors have not yet been fully explored in the existing literature.

Furthermore, with the development of digital media, patients are increasingly inclined to obtain pre- and post-operative health information through social media and short video platforms. However, research indicates that the quality of content related to spinal surgery on such platforms varies widely. Tejas's study reveals that the overall quality of spinal surgery-related videos on TikTok is generally low, with much of the content originating from non-professional homo sapiens individuals. Such inaccuracies may lead patients to develop false expectations, receive inappropriate recovery advice, or even negatively influence their surgical decision-making.[20] Broader research has also confirmed that medical misinformation spreads rapidly on social platforms, easily triggering decision-making confusion and emotional fluctuations; moreover, patients' unmet information needs are strongly associated with preoperative anxiety and confusion.[21,22]

Although previous studies have explored decision-making in LDH using quantitative or qualitative studies,[19] few have examined the deeper psychological and cultural experiences from the patient's own perspective, particularly within the Chinese context. Quantitative methods, while valuable for assessing measurable outcomes such as satisfaction or decisional conflict, often fail to capture the nuanced, lived experiences of patients navigating high-stakes clinical choices. Considering the inherent technical complexity and emotional sensitivity of spinal surgery, phenomenological qualitative research emphasizes understanding individuals' "lived experiences" within specific contexts, particularly focusing on their perceptions, meaning-making, and emotional responses. This approach is better suited to capturing the implicit value judgments, cultural attachments, and emotional struggles embedded in the decision-making process of spinal surgery, thereby facilitating a patient-centered reconstruction of their decision-making journey within highly uncertain medical environments.

Therefore, the present study adopts a qualitative approach to comprehensively explore patients' experiences and unmet needs during the decision-making. Through meticulous understanding of patients' perceptions and needs, healthcare providers can enhance their comprehension of patients' psychosomatic status, thereby facilitating personalized care planning and contributing to a more culturally grounded and humanized understanding of shared decision-making (SDM). The findings may inform the development of patient-centered communication strategies and decision-support tools, ultimately improving patient engagement, satisfaction, and trust in spine care.

Material and Methods

Study Design

This study adopted a qualitative design grounded in phenomenological methodology to explore the decision-making experiences of patients with LDH considering surgical treatment. One-on-one, semi-structured, in-depth interviews were conducted to elicit rich narratives of participants' lived experiences. This approach enabled a comprehensive understanding of contextual factors and emergent themes that influence decision-making in a real-world clinical setting.

Participants and Recruitment

A purposive sampling method was used to recruit participants. The inclusion criteria were as follows: (1) age ≥ 18 years old; (2) had MRI verified LDH; (3) considering or had undergone lumbar surgery; (4) willingness to join this study and had ability to communicate in Mandarin. The exclusion criteria were: (1) previous revision spinal surgery; (2) incomprehensible language

expression; (3) presence of severe psychiatric disorders (eg, schizophrenia, bipolar disorder, or cognitive impairment that may affect informed consent or participation).

Notably, common psychological comorbidities such as mild-to-moderate depression, anxiety, or insomnia were not grounds for exclusion, given their frequent association with LDH and chronic pain.

Development of Interview Outline

The interview guide was developed based on a comprehensive review of relevant domestic and international literature and in consultation with experts in orthopedics and qualitative research. The guide was pilot-tested with two patients, and refined iteratively. All questions were open-ended to encourage detailed responses. The main interview questions were as follows:

1. Why did you choose surgical treatment for your condition?
2. What kind of mental journey did you go through throughout the entire decision-making process? Can you describe the decision-making process?
3. In the decision-making process, how do the opinions of others influence you?
4. What kind of support or assistance did you wish to receive while making the decision?
5. How would you rate the clarity of the information when a doctor explains the possible risks and benefits of a surgery to you?
6. Before this surgery, did you have any disagreements or inconsistencies with your physician? How were they resolved? In this process, did you feel that your concerns were fully listened to?
7. What were your expectation after opting for surgery?
8. What were the most important factors influencing your decision to undergo surgery?

All interviews were carefully designed and scheduled to avoid interfering with patients' clinical care or treatment decisions. This was achieved by coordinating interview times with the clinical team and selecting periods that did not overlap with medical consultations or procedures.

Data Collection

Data was collected through semi-structured face-to-face interviews, creating a space for participants to openly share their views. Interviews took place either the day before or the day after surgery and lasted approximately 20–40 minutes. All interviews were conducted by a trained qualitative researcher, who had no therapeutic relationship with participants. To minimize researcher bias, reflexivity was maintained through bracketing and reflective journaling. The interview was conducted a quiet, private setting—either a clinic room or a designated interview area and recorded in Chinese. The questions were refined during the process of data collection and analysis to ensure that rich information was gathered to achieve the aim of the study. Data collection continued until data saturation was achieved after interviewing 20 participants, indicating that no new or surprising information was uncovered during further data gathering.[23] Two more participants were interviewed to validate the identified themes. Finally, demographic and clinical information was obtained prior the interview.

Data Analysis

Audio recordings were transcribed into written text word for word within 24 hours after the interviews by one researcher, and another researcher verified both the recordings and the transcripts to ensure the accuracy of the data. Colaizzi's 7-step method was used to analyze the interview data,[24,25] which involved: (1) reading through the transcripts carefully, (2) picking out significant statements, (3) coding the important ideas, (4) organizing those codes into themes, (5) describing the themes, (6) grouping similar themes together into final concepts, and (7) going back to the participants to confirm everything. Upon completion of the data analysis, the research findings were presented to the interviewees for validation to ensure the accuracy. We also held regular meetings to discuss any disagreements.

Quality Control

To ensure the rigor of the research, two criteria were adopted: credibility and confirmability. The credibility issue is addressed through member checks, and participants have the opportunity to review and verify the identified topics and sub-topics. The research team included experts in spinal surgery and nursing, who played a role in data analysis. They reviewed and confirmed the topics, further enhancing the credibility of the results. Any ambiguities or differences related to the theme and sub-themes have been thoroughly discussed and resolved through the collaborative efforts within the research team. To address the issue of translating from Chinese to English, we have followed a powerful translation and backtranslation process to ensure the accuracy and credibility of the data. To enhance certainty, researchers actively engage in thorough self-reflection, maintaining a high degree of honesty and openness. Throughout the research process, the researchers held group discussions to explore and exchange their thoughts and insights on this study, their behavior in the interviews with participants. In addition, researchers have received rigorous training in qualitative research methods, equipping them with the fundamental skills and knowledge to conduct reliable research and ensure the validity of the results.

Ethical Considerations

The study has been approved by the Ethics Committee of Shanghai Tongren Hospital (reference number: 2025-008-01), and it complies with the Declaration of Helsinki. All participants were informed of the purpose and procedures of the study and provided written informed consent including permission to publish anonymized direct quotes before the interview. To ensure confidentiality and data security, all audio recordings and transcribed files were stored on encrypted, password-protected computers accessible only to authorized research team members. No personally identifiable information was included in published results.

Results

Participant Characteristics

A total of 20 patients participated in semi-structured interviews. The average age of participants was 62.6 years (range: 27–78 years), including 11 females and 9 males. The average duration of illness was 62.45 months. At the time of interview, 13 participants had already undergone surgery, while 7 were scheduled for surgery. Detailed demographic and clinical characteristics of participants are presented in Table 1.

Thematic analysis of the interview data resulted in the identification of four major themes and twelve sub-themes. These themes capture the multifaceted experiences of LDH patients in navigating the surgical decision-making process. The main themes and sub-themes are presented in Table 2.

Motivations Underlying the Surgical Decision

Patients with LDH have different experiences of the disease, and the motivations behind surgical decisions vary.

Ineffectiveness of Conservative Treatment

Most participants had experienced a long duration of illness and had attempted various conservative treatments, such as traditional Chinese medicine, physiotherapy, and self-medication. However, over time, the respondents realized that traditional conservative treatments could no longer alleviate the symptoms and were not suitable for their current situation, surgery is the last possible choice to return to a normal life.

> Because I felt that conservative treatment made no difference, I've seen Chinese medicine doctors and tried acupuncture, but the pain hasn't eased at all. In some ways, it's even gotten worse. (N12)

> I've tried many methods to treat my back pain myself, buying many different types of plasters and patches, but none of them worked. (N4)

Table 1 The Characteristics of Participants (N = 20)

ID	Sex	Age	Educational Background	Marital Status	Disease Course (Months)	Prior Treatment
N1	Male	69	High school	Widowed	5	Conservative treatment
N2	Female	67	Elementary school	Married	36	Interventional treatment
N3	Male	66	Junior high	Married	6	Conservative treatment
N4	Male	39	Undergraduate	Married	1	Conservative treatment
N5	Male	74	Junior high	Married	2	No formal treatment
N6	Female	72	High school	Married	240	Interventional treatment
N7	Male	68	Elementary school	Married	3	No formal treatment
N8	Male	78	High school	Married	12	Conservative treatment
N9	Female	63	Junior high	Married	36	Conservative treatment
N10	Male	64	Junior high	Married	120	Conservative treatment
N11	Male	43	Junior high	Married	36	Conservative treatment
N12	Female	27	Undergraduate	Unmarried	24	Conservative treatment
N13	Female	77	Junior high	Married	240	Conservative treatment
N14	Female	66	Junior high	Married	2	No formal treatment
N15	Male	75	Elementary school	Married	60	Conservative treatment
N16	Female	69	Junior high	Married	36	Conservative treatment
N17	Male	75	Junior high	Married	6	Conservative treatment
N18	Male	34	Undergraduate	Married	12	Conservative treatment
N19	Female	76	High school	Divorced	360	Interventional treatment
N20	Female	50	Undergraduate	Married	12	Interventional treatment

Table 2 Themes and Sub-Themes From Interviews and Representative Quotes

Theme	Sub-Themes	Theme Refinement Process and Representative Quotes
Motivations underlying the surgical Decision	Ineffectiveness of conservative treatment	"Many methods have been tried without any effect." "Previously treated many times, not only was there no improvement but it became even more severe." All the patients mentioned that they had tried non-surgical treatments many times but to no avail, and even their conditions worsened. They repeatedly emphasized "no improvement" and "deterioration", which together constitute the experience of "ineffective conservative treatment".
	Decline in quality of life	"Cannot exercise as before." "I want to improve my quality of life." The two quotations respectively point to the inability to move and the expectation of improving one's living conditions, reflecting the interference of pain/functional impairment on daily life, which can be summarized as "decline in quality of life".
	Trust in surgeons' reputation and expertise	"Depend on the advice of renowned doctors." "I will follow the doctor's advice." Both phrases express sole reliance on expert surgeons: "depend on renowned doctors" and "will follow the doctor's advice." The quotations of these two patients and other patients all demonstrate a high degree of reliance on the doctor's decisions, especially emphasizing the role of the doctor's "reputation" and "advice", reflecting trust in the doctor's professional judgment.

(*Continued*)

Table 2 (Continued).

Theme	Sub-Themes	Theme Refinement Process and Representative Quotes
Decision-making dilemmas arising from insufficient patient information	Patients lack knowledge about surgery and the disease	"The surgery feels very complex, but let's listen to the doctor's advice." "Lack of information." "The information provided by the doctor is difficult to understand." The patient expressed their feelings about the complexity of the surgery and their confusion over insufficient information acquisition. Some of the content pointed to information comprehension obstacles, reflecting the gap in knowledge acquisition.
	Information overload and patients are unable to filter useful information online	"Unable to discern the authenticity of online messages." "There are too many messages online, making it impossible to fully digest them." The quotations reflect the helplessness of patients in the face of complex and diverse online information, constituting a situation of "information overload and difficulty in screening".
	Limited communication time with physicians	"The doctor is too busy, without enough time to communicate with the doctor." Most pointed out that doctors were too busy performing surgeries to have in-depth communication, exposing the limitations in the doctor-patient communication mechanism.
The multi- dimensional factors influencing decision-making	Perceived severity of the condition	"My symptoms are too obvious, surgery is necessary." "Previously, the pain was not very noticeable and I did not pay attention, but now it's not possible to ignore." The patient described that during the development of the disease, from initially not taking it seriously to being unable to ignore it, they formed a subjective perception of "the condition worsening" and "surgery is necessary".
	Anxiety about surgical outcomes	"Worries about surgical outcomes" "Fear of postoperative recurrence" "Worries about the occurrence of surgical complications." Patients' concerns about surgical outcomes, relapses and complications are focused on one theme: anxiety about the surgical outcome.
	Influence of others' experiences	"Trust for other's experiences." "Family supports." The responses of the two patients and other patients reflect that patients' decisions are often influenced by the experiences of others, demonstrating the role of the social support system in decision-making.
Unmet perioperative needs expressed by patients	The importance of psychological care	"Desire for professional psychological guidance" "Hope to receive comfort from medical staff" "Strategies for maintaining emotional balance" The quotations indicate that patients expect to receive advice on emotional regulation and psychological comfort, especially mentioning "psychological guidance" and "comfort", revealing the lack of psychological care.
	Patients' expectations of personalized guidance on home-rehabilitation exercises from relevant departments to meet healthcare needs	"Hope to receive comprehensive postoperative rehabilitation guidance" "Develop personalized rehabilitation training plans." "Lack of educational materials." The patient expressed an urgent need for postoperative rehabilitation information and pointed out the lack of educational materials, which was summarized as "insufficient personalized rehabilitation support".
	Desire for clear and accessible preoperative information	"Good communication and guidance during the decision-making period" "Lack of information about the disease process." The patient's citation reflects the importance of obtaining clear information related to the disease and surgery in the early stage of decision-making, highlighting the insufficiency of preoperative educational materials and communication.

Abbreviation: LDH, Lumbar disc herniation.

Decline in Quality of Life

Severe pain and neurological symptoms such as numbness or gait disturbances contributed significantly to patients' perceived need for surgery. A minority of patients emphasize that disease-associated symptoms bring many inconveniences to the patients. With compromised mobility and flexibility profoundly undermining occupational performance and activities of daily living (ADLs), ultimately precipitating significant QoL deterioration through progressive loss of functional autonomy. Restoring quality of life was a critical motivator for choosing surgery.

> My back pain is so severe that I can't even walk to the bathroom at night. I can't walk at all. Sometimes I have to crawl back to bed. (N1)

> Because of this disease, my quality of life has been severely reduced. I can't do my normal work or social life. I'm only in my thirties, and I don't want to live like this anymore. I am looking forward to the surgical treatment allowing me to return to a normal life. (N13)

> I used to love playing table tennis, but now I find it difficult. When I do play, one of my lower limbs is significantly weak, and I can't do any sports. I can't accept this. (N10)

> I choose the proactive surgical treatment plan to improve my quality of life. (N17)

Trust in Surgeons' Reputation and Expertise

Patients in our country expressed high levels of trust in the reputation skill and professional expertise of surgeons. Many viewed doctors as authority figures and relied on their recommendations without hesitation.

> I heard that the Central Hospital of xxx is good at treating lumbar spine issues and has a good reputation, so I made an appointment to see. After the professor looked at the scans, he told me that my condition required surgery, so I followed his advice. (Didn't you discuss it with your family?) There was nothing to discuss. If the professor says surgery is needed, they have so much experience, their judgment must be right. (N6)

> I learned from the internet that Director Ye is very professional and excellent in the field of lumbar spine. (N19)

Decision-Making Dilemmas Arising From Insufficient Patient Information

Patients Lack Knowledge About Surgery and the Disease

Most patients with LDH are elderly. Their medical knowledge reserves are inadequate. They do not know much about their condition and have little understanding of treatment information. This knowledge gap led to an unquestioning reliance on physicians' recommendations, with patients perceiving themselves as passive participants in the decision-making process.

> I'm definitely going to follow the doctor's advice; whatever the doctor says, that's what I'll do. Since I've come to him for treatment, I trust him 100%. (N9)

> I'm from the countryside and know nothing about this area, I just listen to whatever the doctor says" (N20)

Information Overload and Patients are Unable to Filter Useful Information Online

In the era of information explosion, a wide array of information media and fragmented information are omnipresent. This situation enables individuals to access information resources with relative ease. Although digital access to health information is widespread, patients reported difficulties in discerning accurate, trustworthy resources. The overwhelming volume of conflicting online messages contributed to confusion and indecision. Besides, considering the limited medical resources in our country, patients frequently struggle to obtain professional information guidance.

> I try to search for information related to my own diseases online, but the quality of the information cannot meet my needs. I couldn't tell which information was reliable. (N8)

> There's too much information on the internet. It's hard to tell what's true, and it just made me more anxious. (N12)

Limited Communication Time with Physicians

Many participants mentioned that they wished they had more time to discuss things with their doctors, but acknowledged how packed the doctors' schedules were.

> Doctors are busy with surgeries every day, and there's not much time to talk. I don't want to disturb them. (N3)

> Communicating with several doctors in a really short time. It's just an awful experience. I'm bombarded with all sorts of information simultaneously, and it's overwhelming. (N10)

The Multi-Dimensional Factors Influencing Decision- Making

Perceived Severity of the Condition

The extent to which patients perceived their illness as severe directly influenced their willingness to undergo surgery. Many participants reported that earlier mild symptoms were tolerable, but as pain and dysfunction progressed, surgery became increasingly justified in their minds.

> I've known about this condition for over ten years. At first, I didn't worry since there were no symptoms and it didn't affect my life. So, I thought surgery wasn't necessary. However, recently, the situation gotten much worse, the pain is affecting my walking. I can't tolerate it anymore, so I've decided on surgery. (N4)

> The pain is truly excruciating. As long as I can get rid of this torture, I'm willing to have the surgery, regardless of the risks involved. (N11)

Anxiety About Surgical Outcomes

Although participants are convinced of the efficacy of surgery, they expressed concerns about potential complications and the recurrence of the condition. These apprehensions accompany them throughout the preoperative decision - making process.

> My concerns mainly revolve around the risks of surgery-what if I lose mobility and need daily care? (N9)

> I don't know how long the surgery's effects will last. I'm very scared the herniation occurring again after the surgery. (N6)

Influence of Others' Experiences

Patients were highly influenced by the experiences and opinions of family members, friends, or peers with similar conditions when making decisions about their medical treatment. The experiences of other patients often play a significant role in shaping the surgical choices of the interviewees.

> Getting a second opinion really helped. It gave me more confidence. At first, I didn't want surgery. But my neighbor had the same problem and recovered well after surgery. Since he could do it, I thought I could too. So, I decided to have the surgery to solve the problem once and for all. (N18)

> I saw posts on TikTok and Xiaohongshu. Some said they recovered well, but a few said they regretted it. This makes me indecisive about whether to have the operation. (N17)

Patients Express Unmet Peri-Operative Needs

The Importance of Psychological Care

Many patients described experiencing anxiety, fear during the perioperative period, particularly when they must to make surgical decisions in a short time. They expressed a strong desire for empathetic communication and psychological reassurance from healthcare professionals.

> I'm having surgery soon and I'm extremely nervous. I've always been kind of sensitive. Just thinking about the surgery gives me the jitters. I really wish the nurses or doctors would spend more time talking with me and show me some care. This interview is actually comforting. It's great to have someone who's willing to listen to me and let me be myself. (N13)

I hope my doctor and nurse not only focus on the surgical outcomes, but also really care about how I'm feeling. (N2)

Patients' Expectations of Personalized Guidance on Home Rehabilitation Exercises From Relevant Departments to Meet Healthcare Needs

Patients emphasized a lack of clarity regarding postoperative rehabilitation. They emphasized the need for professional advice from healthcare providers, ideally to create a rehabilitation plan for themselves to help address issues that arise during home rehabilitation.

The doctor told me a lot before the operation, but I still need to talk to them. I I still need to consult again after surgery. I want to know what to do and what to avoid during recover. (N19)

They told me to stay in bed unless necessary. But I want to know how long, when I can start walking, and how to exercise while bedridden. (N5)

When I'm discharged, I'd like to have the therapist's contact information. That way I know who to call if something goes wrong during recovery at home. (N10)

Desire for Clear and Accessible Preoperative Information

Participants emphasized the importance of receiving straightforward, comprehensible, and sufficient information prior to surgery. If surgeons can give patients clear, straightforward, and thorough information, the patients' stress will be significantly reduced. Several respondents reported difficulty understanding the medical terminology used during consent discussions, contributing to feelings of pressure and confusion.

"The doctor's explanation before surgery really helped. It gave me peace of mind and a positive outlook". (N16)

During the preoperative conversation, the doctor mentioned a lot of professional knowledge, and before I could fully understand, I was asked to sign. It would be wonderful if the medical staff could explain things in simpler and more accessible language. (N12)

Discussion

This study revealed the complex and multifactorial nature of surgical decision-making among patients with LDH. Pain, disability, and the decline in quality of life were identified key factors driving patients' decisions.[26] Consistent with the qualitative research results of Lin,[27] surgery was often accepted as the only way to relieve their pain.

Furthermore, this study also identified areas that were lacking in previous research. The findings indicate that in the context of traditional Chinese culture, patients exhibit a high level of trust in the authority of doctors during the decision-making process.[28] A similar phenomena is observed in other East Asian countries with Confucian cultural backgrounds, such as Japan and South Korea. Studies suggest that patients in these regions tend to rely on doctors' professional assessments rather than actively expressing their personal preferences.[29,30] This model contrasts sharply with the decision-making culture of "informed autonomy" advocated by Western countries. For example, in countries like the United States and Canada, patients tend to actively participate in treatment decisions after obtaining information.[31,32] This cultural difference suggests that the local promotion of the Western SDM model in China urgently needs to undergo localization transformation. To improve the adaptability of SDM in the hierarchical medical system, we suggest establishing a "culturally adaptive SDM model", that takes into account both patients' trust in authority and their need to express their personal will. This model should integrate the cultural background of patients, the tendency to respect authority and the tradition of family negotiation. Specific strategies include introducing "intermediary communicators" (such as nurses or patient educators), setting up patient support groups and using visual information assistance tools, thereby gradually achieving the transition from "passive compliance" to "active participation", and enhancing the transparency and satisfaction of decision-making. This proposition echoes the current development status of SDM in China and the demand for cultural integration.[28]

Our study also show the critical role of health information accessibility in patients' surgical decisions. Respondents generally reported that in the process of obtaining disease information, they often felt confused due to the fragmentation and self-contradiction of online information, and found it difficult to assess the credibility of digital content, thus showing obvious information anxiety. Research have shown that 60% of Chinese people will use the Internet to search for information related to health, medical care and diseases.[33] However, digital health literacy varies greatly, especially among the elderly, which leads to difficulties for some patients in information screening and understanding, thereby affecting the quality of their decision-making. This phenomenon also exists in international research. A British study shows that about 47% of elderly patients are unable to effectively distinguish the authenticity of online health content.[34] It reflects the widespread challenges to digital health literacy on an international scale. In response to this issue, Europe and America have explored methods such as "doctor-patient joint screening content platforms", where medical institutions and patients jointly determine authoritative information sources and enhance the accessibility and pertinence of information through targeted delivery. Studies show that such practices can help alleviate information misguidance and decision-making anxiety.[35] In contrast, China has not yet established a unified health information release system led by authoritative institutions. Social media and commercial platforms still dominate information dissemination. There is a lack of interconnection and interoperability among the internal information systems of hospitals, presenting a distinct fragmented feature. This leads patients to often wander, feel anxious and even misjudge among non-standard information. Therefore, the study suggests that the government or large medical institutions take the lead in building a health information platform that is hierarchical, classified, structurally clear and visually presented. The platform should be customized based on the audience's educational level, age and information needs to enhance the efficiency of information screening and comprehension ability. On the other hand, supervision over online platforms should be strengthened, the release of information on social media should be standardized, and disease science popularization knowledge that has been reviewed and certified by authoritative institutions should be disseminated to help patients establish correct diagnosis and treatment concepts.

Another common problem is the limited time for doctor-patient communication. Studies have shown that approximately 50% of patients believe that their communication time with doctors is insufficient.[36] Such communication limitations often lead to patients' insufficient understanding of the disease and treatment plans, which in turn affects their decision-making confidence and compliance. Existing evidence shows that when clinicians provide detailed explanations of the surgical procedures and postoperative rehabilitation paths before the operation, patients' confidence will significantly increase.[37,38] Given the current tight medical human resources and limited average consultation time in our country, we suggest developing a surgical decision-making assistance tool that is "nurse-led and involves family members". By integrating text, images, videos, frequently asked questions and postoperative rehabilitation processes, continuous and comprehensive information support is provided for patients and their families, making up for the communication gap caused by insufficient doctor-patient communication time. This helps patients better complete preoperative preparations and psychological construction, thereby reducing decision-making conflicts. International research shows that such digital tools can help reduce decision-making conflicts and improve postoperative satisfaction, and to a certain extent, optimize the allocation of medical resources.[39,40]

Another finding is the impact of social support on patients' decision-making. This study found that many patients are easily influenced by friends, family members or those with similar conditions when making decisions. Especially when there are successful cases around, patients are more inclined to undergo surgical treatment. This phenomenon is called "residual effects of others' surgeries", and it is not unique to China. A study in Germany on treatment options for prostate cancer also pointed out that nearly half of the patients believed that the influence of "familiar experience" was greater than that of professional explanations from doctors.[41] This discovery suggests that in clinical practice, the "patient experience narrative" module can be moderately introduced. By presenting the treatment experiences of real patients, it helps new patients build a sense of identification at the emotional level, thereby enhancing their acceptance of the treatment plan. We suggest introducing a "patient story" section in outpatient consultations or preoperative education, making real cases emotional anchors. This will enhance the effective transmission of clinical information through emotional identification, thereby creating a warmer decision-making environment.

Moreover, the psychological vulnerability demonstrated by the patients has strengthened the call for incorporating mental health support into the surgical approach. Common psychological burdens during the perioperative period, including preoperative anxiety, decision-making conflicts, and concerns about surgical complications, have become widespread clinical manifestations. At the same time, patients' concerns about the postoperative rehabilitation effect also significantly reflect the absence of psychological intervention in the current surgical management process. Most patients expressed the need for professionals so that they could contact them in time if they encountered problems after returning home. Multiple references[42,43] have pointed out this demand, and the implementation of digital therapies with personalized exercise programs may meet these demands while reducing the cost of medical resource consumption. Therefore, we suggest embedding systematic psychological intervention strategies in the surgical management pathway and enhancing accessibility and operational convenience through digital means. Specifically, preoperative emotional assessment, postoperative psychological counseling, personalized rehabilitation plans and multi-disciplinary support services can be provided through the mobile health platform (mHealth).

Ultimately, these research results indicate that surgical decision-making is not only a rational and evidence-based process but also deeply influenced by emotional, informational and socio-cultural factors. A patient-centered approach should be adopted, providing personalized health education based on patients' conditions, encouraging them to participate in joint decision-making, and integrating digital tools to make the communication and treatment process more efficient and convenient.

Strengths and Limitations

This study employs qualitative research method to explore their real experiences during the surgical decision-making process from the patients' perspectives. An in - depth exploration was conducted into the difficulties and needs that patients with lumbar disc herniation encounter during the surgical decision - making process. Through in-depth, semi-structured interviews, this study captured rich, first-person narratives that reveal the emotional, cognitive, and contextual factors influencing patients' choices. This patient-centered approach provides valuable insights for improving shared decision-making and tailoring perioperative care strategies.

However, this study still has certain limitations. First, the samples were sourced from a single center, with relatively monotonous sample composition, failing to fully cover the perspectives of all age groups and lacked the inclusion of non-surgical patients, thus limiting its universality. At the same time, only including the patient's perspective limits the comprehensive understanding of the decision. Second, all interviews were conducted within a relatively short time frame and did not include longitudinal follow-up, which restricts our understanding of how perceptions may evolve over time. Third, interviewer bias and interpretive subjectivity are inherent risks in qualitative research, although we minimized these through reflexivity and peer debriefing. Finally, some interviews were conducted during the postoperative phase, which may introduce recall bias and affect patients' accurate expression of their preoperative psychological state and information acquisition process. Future research should incorporate mixed-methods to assess the prevalence and intensity of decision-making conflict across diverse age groups and clinical settings. Longitudinal studies are also necessary to evaluate how decision-making experiences influence postoperative recovery and satisfaction over time. Meanwhile, expand the sample size to include populations of "surgery refusal" or "secondary medical consultation" Homo sapiens, enriching the comparative dimensions.

Conclusion

This study delineates the complex psychological and social influcing factors underlying surgical decision-making processes in lumbar disc herniation (LDH) patients, covering motivation-driven, information dilematism, emotional and family intervention, as well as lack of perioperative support. These topics reveal the complexity of surgical decisions. To improve the decision-making experience and clinical outcomes, healthcare providers should actively engage patients in open dialogue, provide individualized information support, address emotional concerns, and guide family members to actively participate in appropriate situations. Meanwhile, digital tools can effectively extend support outside the hospital by providing convenient and interactive information resources, enhancing the continuity and accessibility of decision-making.

This study highlights the critical need for a patient-centered decision-support system that integrates psychosocial support, culturally informed communication, and tailored educational strategies-ultimately empowering patients with LDH to make informed surgical decisions aligned with their values and needs.

Data Sharing Statement

Data sharing is not applicable to this article as no data were created or analyzed in this study.

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Disclosure

The authors report no conflicts of interest in this work.

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