• Clinical Research •

Navigating decisional conflict: laser peripheral iridotomy for primary angle-closure glaucoma prevention

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Abstract

● **AIM:** To investigate decisional conflict among patients diagnosed with primary angle-closure suspect (PACS) or primary angle-closure (PAC) who are considering laser peripheral iridotomy (LPI) treatment.

● **METHODS:** A total of 111 individuals diagnosed with PACS or PAC were selected through convenient sampling from March 2023 to December 2023. These participants then completed a general information questionnaire and the Decision Conflict Scale. Data analysis was performed using multiple linear regression to reveal factors influencing decisional conflict.

● **RESULTS:** The mean Decisional Conflict Score among patients with PACS or PAC was 48.58±10.01, with 99.1% of these individuals reporting experiencing decisional conflict. Multiple linear regression analysis revealed that females (P=0.002) and patients with a shorter duration of the disease (P=0.006) had higher levels of decisional conflict. Additionally, patients diagnosed during medical visits (P=0.049), those who refused LPI treatment (P=0.032), and individuals facing significant economic burdens related to medical expenses (P=0.005) exhibited higher levels of decisional conflict. Furthermore, patients who preferred to make medical decisions independently (P=0.023) and those who favored involving family members in decision-making (P=0.005) experienced increased levels of decisional conflict.

● **CONCLUSION:** Patients with PACS or PAC who undergo LPI treatment often encounter significant decisional conflict. Healthcare professionals should thoroughly assess a range of factors that influence this conflict, including gender, duration of disease, method of diagnosis acquisition, LPI treatment, economic burden of medical expenses, and patient preferences regarding medical decision-making. By considering these variables, tailored decision support can be developed to address individual patient needs, ultimately reducing decisional conflict and optimizing the quality of decisions made regarding treatment options.

● **KEYWORDS:** glaucoma; primary angle-closure suspect; primary angle-closure; laser peripheral iridotomy; decisional conflict

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INTRODUCTION

Glaucoma stands out as the leading cause of irreversible blindness globally and poses a substantial public health concern[1]. Primary angle-closure glaucoma (PACG), comprising a quarter of glaucoma cases worldwide, affects approximately 20 million individuals globally and is notably more visually damaging than primary open angle glaucoma[2]. Asia bears the primary burden of preventing and managing PACG, as over three-quarters of affected individuals reside in this region[1]. China, being the most populous country in Asia, faces a significant challenge in combating PACG. Research indicated that approximately 3.1 million people in China suffered from blindness in at least one eye due to PACG[3]. The irreversible blindness associated with PACG emphasizes the critical importance of early detection and treatment to mitigate the prevalence of blindness.

Based on statistics, there are an estimated 28.2 million individuals with the anatomical trait predisposing to PACG in China, of which approximately 9.1 million exhibit significant angle closure[3]. The International Society of Geographical

and Epidemiological Ophthalmology has classified traditional PACG into three sequential stages based on the natural progression of the disease: primary angle-closure suspect (PACS), primary angle-closure (PAC), and PACG[4]. Follow-up studies over a five-year period on untreated patients in Indian revealed that 22% of those initially diagnosed with PACS progressed to PAC, while 28.5% of PAC patients advanced to PACG[5-6]. The large prospective research demonstrated that approximately 0.26 million individuals per year will develop PAC without laser peripheral iridotomy (LPI) in China[2]. Furthermore, irreversible optic nerve damage was observed in the PACG stage, resulting in varying degrees of visual function impairment, while patients in the PACS and PAC stages had yet to manifest optic nerve damage[4]. These findings underscore the critical importance of focusing on the early prevention of PACG during the PACS and PAC stages. Given that PAC and PACS represent high-risk anatomical conditions for glaucoma, healthcare professionals in China should prioritize and address these stages accordingly.

LPI creates a small hole in the iris, facilitating the free circulation of aqueous humor[7]. This treatment aims to equalize pressure between the anterior and posterior chambers, eliminating pupillary block and related conditions such as peripheral iris bombe or angle closure, and ensure aqueous humor outflow, which serves as a first-line treatment for angle closure[7]. It has been demonstrated in studies that LPI treatment increases the angle width[8]. Furthermore, the risk of progression to PAC or an acute attack was reduced by 47% following the completion of LPI[2]. Despite its benefits, there are still some limitations to LPI treatment. Some patients may still experience disease progression and acute attacks of angle-closure glaucoma post-treatment[9]. Additionally, LPI carries complications such as anterior chamber bleeding (30%–41%), intraocular pressure elevation (10%–20% in PACS and 30% in PAC or PACG), corneal burns (<1%), and visual dysfunction (2%–11%) such as glare, lines, or blurring, even secondary LPI treatment (1%)[2,8,10].

Selecting the most suitable treatment option can be challenging for patients as they must weigh the benefits and risks associated with each choice (receive or reject LPI therapy). This complexity of trade-off often leads to frequent experiences of decisional conflict, defined as "a state of uncertainty about which course of action to take when choices among competing actions involve risk, loss, regret, or challenge to personal life values"[11-12]. Research has demonstrated that high levels of decisional conflict in other clinical contexts (*i.e.*, cardiology and cancer) can impede shared decision-making, leading to subsequent decision regret, reduced treatment satisfaction, and potentially impacting both quality of life and outcomes[13-15]. Given the implications of decisional conflict on patients, it is necessary to identify its potential influencing factors[16]. Through this study, we aim to investigate the factors that influence decisional conflict in patients diagnosed with PACS or PAC. By understanding these influences, healthcare professionals can develop tailored decision support strategies to assist patients in navigating treatment decisions effectively. Ultimately, this research intends to provide the foundation for the development of personalized decision aids, further enhancing patient-centered care and improving treatment outcomes.

PARTICIPANTS AND METHODS

Ethical Approval This cross-sectional study conformed to the Declaration of Helsinki. Baseline data from patients with PACS or PAC were analyzed as part of the development and application of a decision aid for laser treatment of PAC based on a doctor-patient shared decision-making model. This initiative was registered on Chictr.org under the identifier ChiCTR2300077589. Approval for this study was obtained from the Ethics Committee of the Eye Hospital of Wenzhou Medical University (project number: 2022-050-K-35-03). All participants in this study provided written informed consent prior to their participation.

Participants and Setting Data collection took place at a glaucoma outpatient department within an ophthalmic hospital in China from March 2023 to December 2023, using convenient sampling methods. A total of 111 patients were involved in this survey. Inclusion criteria consisted of individuals aged 18, who were unwilling to have cataract surgery to prevent PACG and above who met the diagnostic criteria[4] for PACS or PAC according to the International Society of Geographical and Epidemiological Ophthalmology classification (PACS: appositional contact between the posterior trabecular meshwork and the peripheral iris; PAC: occludable drainage angle with characteristics of trabecular obstruction by the peripheral iris and without glaucomatous damage; PACG: characteristics of PAC with glaucomatous optic nerve damage). Exclusion criteria included patients with coexisting malignancy or severe organ diseases, significant cognitive dysfunction or psychiatric disorders, and other ocular conditions such as cataracts or diabetic retinopathy requiring treatment prior to participation.

Measurements Demographic characteristics were obtained through a general information questionnaire completed by the participants. This questionnaire covered details such as gender, age, marital status, education level, employment status, place of residence, payment method of medical expenses, and the economic burden associated with medical expenses. Additionally, clinical characteristics were recorded, such as the duration of the disease, method of diagnosis acquisition, family history of glaucoma, presence of eye discomfort,

other concurrent eye diseases, visual acuity, intraocular pressure, history of LPI treatment. What's more, patients were questioned regarding their preferences for medical decision-making.

The Decisional Conflict Scale (DCS) was utilized in statement format to measure patients' levels of decisional conflict during their involvement in decision-making for LPI treatment[11,17]. Lu *et al*[18] translated and cross-culturally adapted the statement format of the DCS and finally developed the simplified Chinese version of the DCS, with good psychometric properties, as published on the Ottawa Hospital Research Institute website[18-19]. The simplified Chinese version of the DCS utilized in this study consisted of 16 items distributed across five subscales: informed (three items), values clarity (three items), support (three items), uncertainty (three items), and effective decision (four items). Each item was rated on a Likert scale ranging from 0 (strongly agree) to 4 points (strongly disagree). The total score is calculated by summing the individual item scores, with a range of 0 to 64. The standardized DCS score is calculated by multiplying the total score by 25/16, resulting in a value between 1 and 100. Higher scores indicate a greater degree of decisional conflict regarding treatment options. Scores below 25 suggest that the process of decision-making has been implemented, while scores above 37.5 indicate a delay in decision-making[17]. The Cronbach's alpha coefficient for the scale in this study was 0.786, indicating satisfactory internal consistency.

Data Collection Prior to data collection, all researchers received standardized training, and inter-rater agreement was subsequently evaluated and confirmed. The trained researcher offered participants and their family members standardized explanations detailing the purpose and contents of the questionnaire. Subsequently, one-to-one questionnaire collection sessions were conducted by the researcher in a quiet outpatient clinic room. In instances where participants faced difficulties in reading or writing, the researcher assisted by recording their oral responses to ensure accuracy. Upon completion, the researcher collected all filled questionnaires on-site and conducted a thorough check to ensure completeness.

Statistical Analysis Continuous variables were presented as means and standard deviations, while categorical variables were summarized as frequencies and percentages. Data analysis was performed using IBM SPSS 25. The average raw scores for each item of the DCS were computed to compare differences among these items. To assess decisional conflict in patients with different characteristics, *t*-tests and one-way ANOVA were employed. Variables demonstrating statistical significance ($P<0.05$) in the single-factor analysis were included in the multi-variable linear regression analysis to identify factors influencing decisional conflict. A statistical significance level of 0.05 was set for all statistical analyses.

RESULTS

Participant Characteristics A total of 114 patients completed the questionnaires, resulting in a response rate of 97.36%. However, three questionnaires were considered invalid due to incomplete responses. Table 1 presented the characteristics of the sample.

DCS Scores The mean score for decisional conflict in patients with PACS or PAC was (48.58±10.01, standardized total score ranged from 0 to 100). Of note, 99.1% of patients reported experiencing decisional conflict, with 11.71% (n=13) experiencing it at a medium level and 87.39% (n=97) encountering high levels of decisional conflict associated with decision delay. Each item was rated on a Likert scale ranging from 0 to 4 points. Subscores for the DCS indicate varying levels of conflict: informed subscore (61.11±16.14), values clarity subscore (59.38±14.44), support subscore (44.52±16.30), uncertainty subscore (37.46±17.04), and effective decision subscore (42.46±12.13) were presented. These results were displayed in Table 2.

Factors Influencing the Level of Decisional Conflict Univariate analysis revealed significant differences in DCS scores among patients with different characteristics. Specifically, variations were observed based on gender (P=0.046), employment status (P=0.016), economic burden of medical expenses (P=0.005), duration of disease (P=0.006), method of diagnosis acquisition (P=0.011), LPI treatment (P=0.013), and preferences for medical decision-making ($P<0.001$), as detailed in Table 1.

The results of multiple linear regression analysis highlighted several factors significantly associated with decisional conflict. Specifically, females (P=0.002) and patients with a short duration of disease (P=0.006) exhibited elevated levels of decisional conflict compared to males and patients with a longer duration of disease. Additionally, patients diagnosed during medical visits (P=0.049), those who refused LPI treatment (P=0.032), and individuals facing a heavy economic burden of medical expenses (P=0.005) demonstrated higher levels of decisional conflict compared to patients diagnosed during health check-ups, patients who accepted LPI treatment, and patients without financial strain, respectively. Furthermore, patients who preferred to make medical treatment decisions independently (P=0.023) and those who preferred to involve their family members in decision-making (P=0.005) experienced heightened levels of decisional conflict compared to individuals who preferred their physician to decide the treatment plan. These findings were summarized in Table 3.

DISCUSSION

Patients with PACS or PAC undergoing LPI treatment were

Table 1 Demographic characteristics and univariate analysis of decisional conflict in LPI treatment for patients

Variable	*n* (%)	DCS score (±SD)	*t/F*	*P*
Gender			-2.021	0.046
Male	18 (16.22)	44.27±10.14		
Female	93 (83.78)	49.41±9.83		
Age			0.417	0.677
<60y	75 (67.57)	48.85±9.99		
≥60y	36 (32.43)	48.00±10.18		
Marital status			-0.213	0.594
Married	109 (98.20)	48.51±9.79		
Single	2 (1.80)	52.34±25.41		
Education level			0.442	0.723
Primary school or below	52 (46.85)	49.73±9.88		
Junior high school	30 (27.03)	47.71±9.90		
High school/technical secondary school	13 (11.71)	47.84±9.26		
Junior college/bachelor's degree or above	16 (14.41)	47.07±11.69		
Employment status			4.319	0.016
Part-time	20 (18.02)	52.11±9.25		
Full-time	42 (37.84)	45.23±9.24		
Unemployed/retired	49 (44.14)	50.00±10.30		
Place of residence			-0.179	0.859
Urban area	70 (63.06)	48.44±8.85		
Rural area	41 (36.94)	48.82±11.85		
Payment method of medical expenses			2.971	0.055
Medicare	62 (55.86)	46.60±9.49		
Rural insurance	30 (27.03)	50.52±10.97		
Self-pay	19 (17.12)	51.97±9.06		
Economic burden of medical expenses			4.480	0.005
No burden at all	90 (81.08)	47.57±9.53		
Basically no burden	15 (13.51)	50.52±9.59		
A certain burden	4 (3.60)	52.73±11.93		
Heavy burden	2 (1.80)	71.09±1.10		
Duration of disease			2.812	0.006
<6mo	91 (81.98)	49.79±9.73		
≥6mo	20 (18.02)	43.05±9.65		
Method of diagnosis acquisition			-2.591	0.011
Health check-up	25 (22.52)	44.13±8.28		
Medical visit	86 (77.48)	49.87±10.14		
Family history of glaucoma			0.088	0.930
No	82 (73.87)	48.63±10.06		
Yes	29 (26.13)	48.44±10.05		
Eye discomfort			-0.718	0.474
No	75 (67.57)	48.10±9.70		
Yes	36 (32.43)	49.57±10.71		
Other eye diseases			0.946	0.346
No	72 (64.86)	49.24±9.88		
Yes	39 (35.14)	47.35±10.27		
Visual acuity in the worse eye			1.086	0.358
≤0.3	21 (18.92)	50.52±10.78		

Table 1 Demographic characteristics and univariate analysis of decisional conflict in LPI treatment for patients (continued)

Variable	*n* (%)	DCS score (±SD)	*t/F*	*P*
>0.3 and ≤0.5	23 (20.72)	50.41±11.55		
>0.5 and ≤1.0	64 (57.66)	47.56±9.20		
Not measured	3 (2.70)	42.71±7.38		
Visual acuity in the better eye			0.540	0.656
≤0.3	8 (7.21)	49.41±11.66		
>0.3 and ≤0.5	11 (9.91)	46.59±13.14		
>0.5 and ≤1.0	89 (80.18)	48.95±9.58		
Not measured	3 (2.70)	42.71±7.38		
Intraocular pressure			0.231	0.818
≤21 mm Hg	105 (94.59)	48.63±10.25		
>21 and ≤35 mm Hg	6 (5.40)	47.66±4.50		
LPI treatment			2.520	0.013
Refuse	46 (41.44)	51.36±10.29		
Accept	65 (58.56)	46.61±9.41		
Preferences for the medical decision-making			6.618	<0.001
Decision made by the physician	44 (39.64)	45.56±8.63		
Decision made by oneself	5 (4.50)	53.13±12.20		
Shared decision-making (between physician and oneself)	20 (18.02)	44.45±9.46		
Family member involvement in the decision-making	42 (37.84)	53.16±9.63		

DCS: Decisional Conflict Scale; LPI: Laser peripheral iridotomy.

Table 2 Decisional conflict scale questionnaire

Decisional conflict scale subscales	Standardized subscore (±SD)	Decisional conflict scale items	Item score (±SD)
Informed subscore	61.11±16.14	I know which options are available to me.	1.60±1.06
		I know the benefits of each option.	2.49±1.06
		I know the risks and side effects of each option.	3.24±0.56
Values clarity subscore	59.38±14.44	I am clear about which benefits matter most to me.	2.38±1.03
		I am clear about which risks and side effects matter most.	3.14±0.68
		I am clear about which is more important to me (the benefits or the risks and side effects).	1.61±0.84
Support subscore	44.52±16.30	I have enough support from others to make a choice.	1.95±0.98
		I am choosing without pressure from others.	1.01±0.87
		I have enough advice to make a choice.	2.38±0.94
Uncertainty subscore	37.46±17.04	I am clear about the best choice for me.	1.45±0.68
		I feel sure about what to choose.	1.44±0.67
		This decision is easy for me to make.	1.60±0.86
Effective decision subscore	42.46±12.13	I feel I have made an informed choice.	2.50±0.66
		My decision shows what is important to me.	1.48±0.62
		I expect to stick with my decision.	1.35±0.73
		I am satisfied with my decision.	1.46±0.66

found to experience a notable level of decisional conflict, aligning with findings observed in another study concerning patients with primary open angle glaucoma[20]. Surprisingly, this study revealed that the prevalence and intensity of decisional conflict in these patients were comparable to, if not higher than, individuals dealing with relatively more complex and severe conditions such as head and neck cancer and end-stage renal disease[16,21]. This phenomenon may be attributed to the lack of urgency or perceived need by patients (and even some doctors) to do LPI. LPI aims to mitigate acute PAC due to pupil block, but it does not directly prevent or reduce the risk of glaucoma and may be viewed as optional as compared to cancer treatment or end-stage organ disease. This may imply that undergoing prophylactic treatment may intensify decisional challenges for patients. Moreover, in complex scenarios such as cancer or tumors, decision-making frequently

Table 3 Multiple linear regression analysis of factors influencing decisional conflict in patients

Variable	*B*	SE	*β*	*t*	95%CI	*P*
Constant	40.853	7.683		5.317	25.606, 56.100	0.000
Gender	7.235	2.324	0.267	3.113	2.623, 11.846	0.002
Duration of disease	-6.111	2.178	-0.236	-2.805	-10.434, -1.788	0.006
Method of diagnosis acquisition	4.198	2.105	0.176	1.995	0.022, 8.375	0.049
LPI treatment	-3.506	1.615	-0.173	-2.170	-6.712, -0.300	0.032
Employment status						
Part-time	Ref					
Full-time	-4.543	2.341	-0.221	-1.941	-9.189, 0.102	0.055
Unemployed/retired	-3.078	2.309	-0.153	-1.333	-7.660, 1.505	0.186
Economic burden of medical expenses						
No burden at all	Ref					
Basically no burden	-0.531	2.413	-0.018	-0.220	-5.318, 4.257	0.826
A certain burden	2.501	4.364	0.047	0.573	-6.158, 11.161	0.568
Heavy burden	17.870	6.256	0.238	2.857	5.456, 30.283	0.005
Preference for medical decision-making						
Decision made by the physician	Ref					
Decision made by oneself	9.906	4.299	0.206	2.304	1.374, 18.438	0.023
Shared decision-making between physician and oneself	0.331	2.311	0.013	0.143	-4.254, 4.916	0.886
Family member involvement in the decision-making	5.236	1.842	0.255	2.843	1.581, 8.890	0.005

R^2=0.418, adjusted R^2=0.347, F=5.867, P<0.001.

involves the collective input of multidisciplinary healthcare professionals or medical boards, which is more readily accepted by patients. It is therefore recommended that a PACS or PAC team be established, analogous to a tumor board, with the objective of engaging patients and their families in discussions with physicians regarding diagnostic outcomes and LPI treatment plans. Such a collaborative approach would facilitate the input of diverse opinions and recommendations, thereby effectively reducing decisional conflict among patients with PACS or PAC.

Each item and subscale in the DCS questionnaire focuses on different aspects, resulting in varying scores. The study found that informed subscores were the highest, emphasizing the importance of providing patients with sufficient explanations of professional knowledge and treatment options. However, physicians often struggle to fulfill this due to heavy daily workloads. Additionally, many patients find it challenging to access reliable assistance and evidence-based safety information, which contributes to their inadequate uptake of medical information and correlates with higher levels of decisional conflict[22-23]. The second highest scores were observed in the values clarity subscale. This may be attributed to patients having few and incomparable treatment options, often leading them to perceive only one option as the best choice[21]. The lack of clarity regarding their values can result in unrealistic expectations, and decisional conflict is likely to arise when treatment options do not align with patients' values and expectations[24]. Low scores in the uncertainty subscale suggest that patients proceed with decision-making despite incomplete information and unclear values. This may be due to the traditional "paternalism" model of diagnosis and treatment prevalent in China and other countries[25]. In this model, physicians hold a dominant position and provide patients with what they perceive as the best treatment option, while patients tend to rely on their physician's decision-making due to their limited ability to consider the advantages and disadvantages of the treatment options[26]. However, this approach contradicts the modern concept of shared decision-making[27]. To address this disparity, healthcare professionals should evaluate the values and preferences of patients during consultations and appropriately utilize decision aids effectively to enhance patients' medical knowledge and understanding of treatment options[28]. By bridging the information gap and empowering patients to participate more actively in treatment decisions, efforts can be made to decrease the level of decisional conflict[29]. This shift aims to facilitate informed decisions that align with patients' values and concerns.

In this study, multiple linear regression analysis identified gender, duration of disease, method of diagnosis acquisition, LPI treatment, economic burden of medical expenses, and preferences for medical decision-making as factors affecting decisional conflict. Notably, females experienced a higher level of decisional conflict compared to males, consistent with the findings of Graham *et al*[30]. This disparity may stem from the

greater family pressures faced by females[31], as their decision-making processes become more complex and challenging when balancing caregiving responsibilities, managing family affairs, and fulfilling family roles. However, it is crucial to acknowledge that the direction of gender's influence on decision-making conflict remains unclear. While another study suggests that males may encounter more conflicts in decision-making[32]. It should be recognized that differences in decisional conflict between males and females may be influenced by various factors, including the decision context, type of decision, and gender-specific traits such as coping mechanisms and psychological responses[33].

This study identified that patients with a longer duration of disease experienced a lower level of decisional conflict compared to those with a shorter duration of disease. This observation can be explained from two perspectives. First, patients with a lengthier history of the disease may have accumulated more experience with decision-making and become accustomed to adjusting treatments, leading to a richer understanding of disease management. This accrued experience may reduce the probability of encountering conflicts during decision-making processes[34]. Second, as suggested by Ho *et al*[35], patients often undergo psychological changes before making medical treatment decisions. Initially, they might display denial, anxiety, and fear, all of which may exacerbate decisional conflict[36]. However, as the disease progresses, patients may come to terms with the inevitability of their condition, become more receptive to treatment, and display greater motivation to understand the underlying nature of their illness[35]. Furthermore, the method of diagnosis acquisition can significantly impact the level of decisional conflict. Patients diagnosed through health check-ups tend to have lower levels of decisional conflict compared to those diagnosed during medical visits. Medical visits are typically indicative of an individual's need for medical assistance, which has resulted in their seeking treatment at a hospital passively. However, voluntary health checks are a proactive health promotion behavior aimed at facilitating early intervention to prevent future illnesses[37-38]. This is typically conducted on a regular basis. Patients opting for health check-ups demonstrate concern for their health status, proactive engagement in maintaining well-being, and relatively high health literacy[37]. As a result, they are more inclined to accept the diagnosis and follow their physician's recommendations, thereby potentially reducing the level of decisional conflict[39-40]. In light of these findings, healthcare professionals should adopt a more patient-centered approach, attentively listening to patients, providing guidance in disease management, and offering emotional support to facilitate acceptance of the diagnosis, particularly during the initial diagnosis phase. For patients with a longer duration of disease, healthcare professionals should acknowledge and respect their accumulated experiences, establishing a positive and collaborative relationship to promote active patient participation and increase treatment satisfaction, ultimately mitigating the level of decisional conflict[41].

The decisional conflict experienced by patients is influenced by the choice to undergo LPI treatment. According to the present study, patients who receive LPI tend to encounter lower levels of decisional conflict compared to those who refuse, which is consistent with the findings of Muir *et al*[42]. Refusal of treatment represents a broad form of conflict[43], suggesting that some patients may experience conflicting emotions when contemplating treatment refusal. Paterson's Shifting Perspectives Model provided a valuable framework for understanding this phenomenon, illustrating the dynamic shifting between "illness in the foreground" and "wellness in the foreground" in the lives of patients with chronic illness[44]. Patients may refuse treatment due to physical discomfort, financial pressure, family obligations, and concerns about recovery time[42]. At this "illness in the foreground" stage, patients may perceive illness-related worries such as loss, suffering, and burden as predominant[44], thus heightening the likelihood of experiencing decisional conflict. In light of these complexities, healthcare professionals play a key role in supporting patients through the decision-making process. They should provide comprehensive explanations regarding the progression of the disease, the consequences of refusing treatment, and the necessity of LPI treatment when patients express reluctance. Moreover, offering instrument support, when needed, can assist in alleviating decisional conflict and empower patients to make knowledgeable choices regarding the feasibility of surgery[32].

Patients experiencing a heavy economic burden of medical expenses encountered significantly higher levels of decision conflict compared to patients with lower burdens. This conflict may be related to the payment method of medical expenses and income levels[45-46], as suggested by previous research, despite this study not identifying a direct correlation between the payment method of medical expenses and DCS scores. Patients with a heavy economic burden of medical expenses demonstrated the highest DCS score of 71, indicating that the decisional conflict originating from other factors are dwarfed by the lack of elementary survival resources. These individuals must carefully assess whether the anticipated costs exceed their financial capacity, while also considering treatment effectiveness and potential economic implications related to postoperative complications[46]. After factoring in these considerations, patients deliberate the safety and efficacy of treatment options[47], which can easily lead to decisional conflict. Given that PACS or PAC requires lifelong treatment,

it is imperative for healthcare professionals to take into account the economic burdens faced by patients when developing treatment plans. They should strive to provide patients with the most appropriate healthcare options to minimize decisional conflict and facilitate informed decision-making.

The preference for medical decision-making among patients emerges as an influential factor in the level of decision conflict. Patients who favored making medical decisions independently or involving their family members experienced higher levels of decisional conflict compared to those who preferred their physician to decide the treatment plan. In this study, 39.64% of patients favored physician-led decision-making, while 18.02% preferred shared decision-making, both associated with relatively low levels of decisional conflict, albeit with no significant difference. Most of patients who lean towards having their physician decide the treatment plan believe that physicians bear the responsibility of providing the best treatment option. Despite the increasing popularity of shared decision-making in China, many physicians perceive detailed explanations of diseases as time-consuming and inefficient, thus favoring a more directive approach[48]. Consequently, shared decision-making outcomes may resemble those of physician-led decision-making, influenced by physicians' clinical experiences and preferences[48]. It is evident that physician involvement mediates conflict in patients. The involvement of family members in decision-making was preferred by 37.84% of patients experiencing relatively high levels of decisional conflict, suggesting that patient health and family involvement are closely connected[49]. Patients may seek support from their families to alleviate decisional anxiety and improve communication with physicians[50]. As a result, patients often prefer to involve their families in medical decision-making to obtain guidance and opinions. In this way, family members play a supportive role, influencing decisional conflict through various tactics, with negative influence tactics potentially exacerbating conflict[51-52]. Additionally, family members may experience psychological burdens when faced with decisions conflicting with their personal values[53]. Involving family members may require considering additional viewpoints and balancing different interests, which can further complicate decision-making. Shared decision-making offers a promising approach to addressing decisional conflict by incorporating the preferences and values of patients and their families, explaining the pros and cons of different treatment options based on evidence-based knowledge, and facilitating the most appropriate decisions[47]. Moreover, shared decision-making has been shown to decrease decisional conflict and decision regret[13]. Healthcare professionals can use this model to integrate medical expertise with patients' and families' values, preferences, and opinions amid decisional conflict. When family members resort to negative influence tactics, such as opposition, nagging, or hassling, healthcare professionals should guide them toward positive influence tactics, considering patients' demands and streamlining complex decisions to reduce decisional conflict.

Overall, this study has delved into decisional conflict in patients with PACS or PAC, shedding light on its influencing factors and offering insights to mitigate such conflict in future clinical studies. However, several limitations require consideration. First, while the study focuses on decisional conflict from patients' perspective, it overlooks the perspectives of approximately one-third of family members involved in medical treatment decision-making. Future research could benefit from comprehensively assessing decisional conflict experienced by decision-making subjects. Moreover, the study observes that only 4.50% of patients prefer to make decisions independently. Given the small sample size of patients with this preference and its rarity in today's society, their reported level of decision-making conflict may not accurately reflect the broader landscape of patient experiences. Finally, it is important to acknowledge the single-center design of this study, which may limit the generalizability of findings. Decisional conflict levels may vary depending on the decision themes and contextual factors across diverse clinical settings. Therefore, conducting multi-center studies would be instrumental in providing a more comprehensive understanding of decisional conflict in varied environments and decision contexts.

In conclusion, this study highlights the high level of decisional conflict in patients with PACS or PAC undergoing LPI treatment. Healthcare professionals should prioritize understanding the influencing factors such as gender, duration of disease, method of diagnosis acquisition, LPI treatment, economic burden of medical expenses, and patient preferences for medical decision-making. This knowledge enables tailored decision support, ensuring patients receive personalized guidance throughout their treatment journey.

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