

# Living Through Sweat: A Qualitative Study of the Pre-Surgical Decision-Making Trajectory in Patients with Palmar Hyperhidrosis

Meimei Yan<sup>1,\*</sup>, Siwei Chao<sup>1,2,\*</sup>, Lu Yu<sup>1,\*</sup>, Chang Liu<sup>1</sup>, Zhengjun Li<sup>1</sup>, Liman Gong<sup>3</sup>, Bingli Bao<sup>3</sup>, Sibao You<sup>1</sup>, Guofeng Zhang<sup>1</sup>, Yi Ren<sup>1</sup>, Guichun Du<sup>3</sup>

<sup>1</sup>Department of Thoracic Surgery, The Tenth People's Hospital of Shenyang, Shenyang, Liaoning, People's Republic of China; <sup>2</sup>Department of Graduate Studies, Shenyang Medical College, Shenyang, Liaoning, People's Republic of China; <sup>3</sup>Department of Nursing, The Tenth People's Hospital of Shenyang, Shenyang, Liaoning, People's Republic of China

\*These authors contributed equally to this work

Correspondence: Guichun Du, Department of Nursing, The Tenth People's Hospital of Shenyang, Shenyang, Liaoning, People's Republic of China, Tel +86-18102486199, Email Duguichun88@163.com

**Purpose:** This study aimed to explore the dynamic and ambivalent pre-surgical decision-making process of patients with palmar hyperhidrosis (PH), focusing on the “anxiety-sweating” feedback loop and the psychological factors influencing their treatment choices, particularly the interplay between psychological distress and the decision to pursue surgery.

**Patients and Methods:** We conducted a qualitative descriptive phenomenological study in accordance with the Consolidated Criteria for Reporting Qualitative Research (COREQ). Semi-structured in-depth interviews were conducted with 19 adults who had lived with PH for more than 10 years and were considering surgical treatment. All interviews were conducted before surgery. Data were analyzed using NVivo 11 software and Colaizzi's seven-step phenomenological method.

**Results:** Analysis revealed a four-stage pre-surgical journey. First, patients initially normalized excessive hand sweating as a personal difference or familial trait, but gradually developed disease awareness as symptoms persisted and intensified. Second, PH imposed a substantial psychosocial burden, including functional limitations in study, work, and daily life, as well as reduced self-confidence, anticipatory anxiety, and social avoidance. Many participants described a self-reinforcing “anxiety-sweating” vicious cycle. Third, dissatisfaction with conservative treatments and increasing access to treatment-related information prompted patients to move from temporary coping strategies toward consideration of more durable interventions. Fourth, surgical deliberation was characterized by ambivalence: patients hoped surgery would relieve symptoms and restore social confidence, while also expressing concerns regarding compensatory sweating, postoperative discomfort, and recovery.

**Conclusion:** The pathway toward surgical consideration in patients with palmar hyperhidrosis was a dynamic and ambivalent process shaped by symptom normalization, psychosocial burden, prior treatment experiences, and concerns about surgical risks. These findings highlight the importance of addressing psychological and social experiences alongside technical counseling and support the value of shared decision-making in pre-surgical care.

## Plain Language Summary:

Why was this study done?

Palmar hyperhidrosis is a medical condition where people experience excessive sweating on their hands. This creates challenges in daily life and can harm mental well-being. Our study aimed to understand the personal experiences of people living with this condition. We specifically investigated how emotions influence their symptoms and why they eventually decide to undergo surgery.

What did the researchers do and find?

Our team interviewed 19 adults who have lived with excessive hand sweating for over a decade. Participants described a “vicious cycle” where feeling nervous causes sweating, which then leads to more anxiety.

Daily Challenges: Participants reported struggles with tasks like writing, using phone fingerprint scanners, and social interactions like shaking hands.



Seeking Help: Many delayed seeking medical help because family members had similar symptoms, leading them to believe the condition was “normal.”

Treatment Choices: Participants found that non-surgical treatments, such as creams or medicines, were often ineffective or uncomfortable. This motivated them to choose surgery. However, they felt torn between wanting a cure and fearing side effects, such as compensatory sweating (where sweating stops on the hands but increases on other body parts).

What do these results mean?

These findings show that excessive hand sweating causes a heavy social and emotional burden, not just physical discomfort. Doctors should provide care that addresses these mental struggles. Offering clear, accurate information about surgical risks and benefits helps people make informed decisions and improves their overall quality of life.

**Keywords:** qualitative study, psychosocial impact, decision-making, quality of life

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## Introduction

Palmar hyperhidrosis (PH) is a debilitating condition characterized by excessive sweating of the palms that exceed physiological thermoregulatory needs, which significantly impairs daily functioning.<sup>1</sup> Despite its prevalence, delayed help-seeking is common, largely attributable to a lack of disease recognition and prevailing societal stigma.<sup>2</sup> PH precipitates a profound negative impact on mental health, manifesting as social anxiety, diminished self-esteem, and emotional distress.<sup>3–5</sup> This psychosocial burden often creates a vicious cycle where anxiety triggers avoidance behaviors and isolation, ultimately compromising the patient’s overall quality of life.<sup>6,7</sup>

Therapeutic strategies for PH are stratified by symptom severity and patient preference. Conservative interventions, such as topical aluminum salts,<sup>8</sup> oral anticholinergics,<sup>9</sup> iontophoresis,<sup>10</sup> and botulinum toxin injections,<sup>11</sup> offer symptom alleviation. However, their long-term utility is often limited by transient efficacy and side effects, frequently necessitating a transition to surgical management. Thoracoscopic sympathectomy provides durable physiological improvement.<sup>12</sup> Nevertheless, the surgical decision is complex; patients often harbor significant apprehension regarding postoperative complications, particularly compensatory sweating (CS). The high incidence of compensatory sweating serves as a major deterrent, complicating the risk-benefit analysis for patients considering surgery.<sup>13,14</sup>

While existing literature has extensively documented the physiological manifestations and quantitative outcomes of surgical treatment, the nuances of the patients’ pre-surgical psychological landscape remain underexplored. Specifically, the interplay between psychological distress and the decision-making process requires further elucidation. To address this gap, our findings suggest that the pre-surgical journey can be understood as a dynamic process that evolves from initial symptom tolerance to an increasingly active and ambivalent decision-making stage. We aimed to identify the key psychological factors—such as anxiety and self-esteem—that drive surgical decision-making, thereby providing an evidence-based foundation for optimizing pre-operative psychological support and counseling.

## Materials and Methods

### Design

This study employed a qualitative descriptive phenomenological design and was reported in accordance with the Consolidated Criteria for Reporting Qualitative Research (COREQ).<sup>15</sup> Data were collected through semi-structured interviews arranged according to participants’ availability and preferences.<sup>16</sup> Guided by a phenomenological orientation, the study focused on how patients with primary palmar hyperhidrosis experienced the pre-surgical stage and made sense of the decision to undergo endoscopic thoracic sympathectomy (ETS). The analysis aimed to explore participants’ lived experiences, subjective meanings, and the essential structures underlying these experiences, rather than merely identifying topical categories. Throughout data collection and analysis, the research team sought to bracket prior assumptions and maintain reflexive awareness of potential clinical preconceptions.

## Setting and Sampling

This study was conducted at the Department of Thoracic Surgery, The Tenth People's Hospital of Shenyang, China, from March 2024 to August 2025. Inclusion criteria were: clinical diagnosis of PH; age  $\geq 18$  years; PH duration  $>10$  years; poor response to medical treatments and strong willingness for surgery; intact cognition with ability to understand and answer interview questions; and voluntary participation with signed informed consent and willingness to share personal life experiences.

Purposeful and maximum variation sampling were used to select participants with different medical histories and backgrounds, ensuring rich and representative findings.

## Sampling Strategy and Sample Size

Sample size was guided by thematic saturation, with a minimum of 10 interviews conducted as suggested by Francis et al<sup>17</sup>. Initially, 10 interviews were planned. After 16 interviews, no new themes emerged, indicating thematic saturation. To further confirm this, 3 additional interviews were conducted, and no new themes were identified; therefore, recruitment was stopped. In total, 24 eligible patients were approached, of whom 19 agreed to participate, while 5 declined for personal reasons.

Purposive sampling was used to recruit patients who could provide rich descriptions of the pre-surgical experience of primary palmar hyperhidrosis. To capture diverse perspectives, maximum variation sampling was applied with attention to sex, age, occupation, educational level, age at symptom onset, disease duration, and history of prior medical treatment. These characteristics were considered relevant because they may influence the lived burden of the condition, its psychosocial and occupational impact, and the process of deciding whether to undergo surgery.

## Data Collection Procedure

The interview guide was developed based on literature review and consultations with clinical experts, followed by a pilot test with volunteers with PH (not included in the main study). Key questions included:

1. "How did you first notice and feel about your excessive hand sweating?"
2. "How does PH affect your daily life or work?"
3. "Has PH led to any memorable experiences in your daily life or work?"
4. "What methods have you tried to cope with or treat PH?"
5. "How did you learn about PH and its surgical treatment? What are your expectations or concerns about the surgery?"
6. "How do you think your life will change after the surgery?"

Two trained researchers, Yan Meimei, a thoracic nurse with 19 years of clinical experience, and Yu Lu, a clinical nurse with experience in thoracic care, conducted the telephone interviews. Yu Lu was also responsible for detailed note-taking and real-time observations to enhance data completeness. Although both interviewers were clinical nurses working in thoracic care settings, neither was directly involved in the participants' surgical decision-making or surgical scheduling. Before the interviews, participants were informed that participation was voluntary, that they could withdraw at any time, that their responses would remain confidential, and that the interview content would not affect their treatment or surgical arrangements in any way. Open-ended follow-up questions were posed to obtain detailed descriptions and leading questions were avoided. All interviews were recorded verbatim in Chinese, and participant anonymity was maintained by coding within 24 h post-interview.<sup>18,19</sup>

Interview recordings and transcripts were stored on a secure computer to ensure confidentiality. All interviews were conducted strictly before surgery, and none of the participants had undergone ETS at the time of the interview.

Two researchers analyzed the data to ensure independence and reliability.

## Data Analysis

Interview transcripts were verified by participants to enhance the credibility and confirmability of the data. Data organization and management were supported by NVivo 11 software (QSR International Pty Ltd., Melbourne, VIC, Australia). The data were analyzed using Colaizzi's seven-step descriptive phenomenological method.<sup>20</sup>

First, all transcripts were read repeatedly to obtain a holistic understanding of participants' pre-surgical experiences. Second, significant statements closely related to the phenomenon under study were extracted from the transcripts. Third, these statements were transformed into formulated meanings while remaining attentive to the participants' original lived experiences and avoiding excessive abstraction. Fourth, similar meanings were grouped into meaning units and clustered into subthemes and overarching themes through iterative comparison. Themes were developed inductively from the data rather than imposed from a pre-existing theoretical framework. Fifth, an exhaustive description of the phenomenon was developed based on all identified themes. Sixth, the essential structure of the pre-surgical experience was distilled from this comprehensive description. Finally, the thematic structure and essential meanings were reviewed with participants to ensure consistency with their lived experiences.

Throughout the analytic process, the research team engaged in ongoing reflexive discussion and bracketing of prior assumptions. Reflexive notes and analytic memos were maintained during coding and theme development, and all interpretations were repeatedly checked against the original transcripts to ensure that the findings remained grounded in participants' narratives.

## Results

### Participant Characteristics

Overall, 19 patients with PH were interviewed; 11 females and 8 males. Participants were aged 18–38 years (mean, 28 years). Five participants held a Master degree, eight had a Bachelor degree, five had a college diploma, and one had a high school diploma. All participants had a PH duration >10 years, with a mean duration of 17 years (Table 1).

### Themes Identified

Analysis revealed four interrelated stages of the pre-surgical journey (Figure 1):

1. Symptom Normalization and Evolving Disease Awareness: Patients initially noticed excessive sweating but often interpreted it as a personal difference or a normal physiological variation. Over time, symptom severity and triggering situations gradually increased their awareness of the condition as a persistent problem, prompting greater attention to its impact and the need for treatment.
2. Psychosocial Burden: As symptoms persisted, PH imposed increasing functional, emotional, and interpersonal burdens, interfering with learning, work, daily activities, self-esteem, and social relationships.
3. Treatment Experimentation: Patients moved from attempting various non-surgical strategies to actively seeking treatment-related information, reflecting growing frustration with temporary or ineffective relief and an emerging consideration of surgery.
4. Surgical Deliberation: When considering surgery, patients expressed both hope for symptom relief and concern about potential risks, indicating an ambivalent decision-making process shaped by expectations, uncertainty, and the desire to regain normality.

### Symptom Normalization and Evolving Disease Awareness (Stage I, Figure 1)

Most patients first experienced excessive hand sweating in childhood or adolescence. However, because of limited understanding of PH and the influence of their social and family environment, they often interpreted it as a personal difference or a normal physiological variation. Hand sweating became more noticeable in specific situations, particularly under emotional stress. Over time, as symptoms increasingly interfered with learning, work, and social interactions, patients gradually became more aware of the condition as a persistent problem.

**Table 1** Participant Demographics (n = 19)

	Sex	Age (Years)	Occupation	Education Level	Age at Symptom Onset (Years)	Disease Duration of Palmar Hyperhidrosis (Years)	History of Medical Treatment: Yes/No
P1	Female	26	MSc Student	Master's degree	15 years	11 years	Yes
P2	Female	26	MSc Student	Master's degree	8 years	18 years	Yes
P3	Female	18	University Student	Bachelor's degree	8 years	10 years	Yes
P4	Female	33	Freelancer	Associate degree	10 years	23 years	Yes
P5	Male	36	Driver	High school	17 years	19 years	No
P6	Male	28	Sales Representative	Associate degree	13 years	15 years	Yes
P7	Female	34	Teacher	Master's degree	13 years	20 years	No
P8	Male	35	Engineer	Master's degree	18 years	17 years	No
P9	Female	23	University Student	Bachelor's degree	7 years	16 years	Yes
P10	Male	22	University Student	Associate degree	12 years	10 years	Yes
P11	Male	32	University Student	Bachelor's degree	7 years	25 years	Yes
P12	Male	36	Editor	Bachelor's degree	10 years	26 years	Yes
P13	Male	38	Sales Representative	Bachelor's degree	10 years	28 years	Yes
P14	Female	27	Online Content Creator	Bachelor's degree	9 years	18 years	Yes
P15	Female	24	Freelancer	Associate degree	7 years	17 years	Yes
P16	Female	28	Administrative Assistant	Master's degree	10 years	18 years	No
P17	Female	30	Freelancer	Bachelor's degree	15 years	15 years	Yes
P18	Female	31	Company Employee	Bachelor's degree	15 years	16 years	Yes
P19	Male	23	Sales Representative	Associate degree	11 years	12 years	Yes

**Abbreviations:** COREQ, Criteria for Reporting Qualitative Research; PH, Palmar hyperhidrosis.

## Symptom Characteristics and Triggering Situations

Hand sweating worsened significantly during emotional stress, under high mental pressure, or in specific environments, disrupting to daily life.

(P18) For example, in summer when it is hot, or when I'm nervous, hand sweating becomes very severe, but it is an extreme situation.

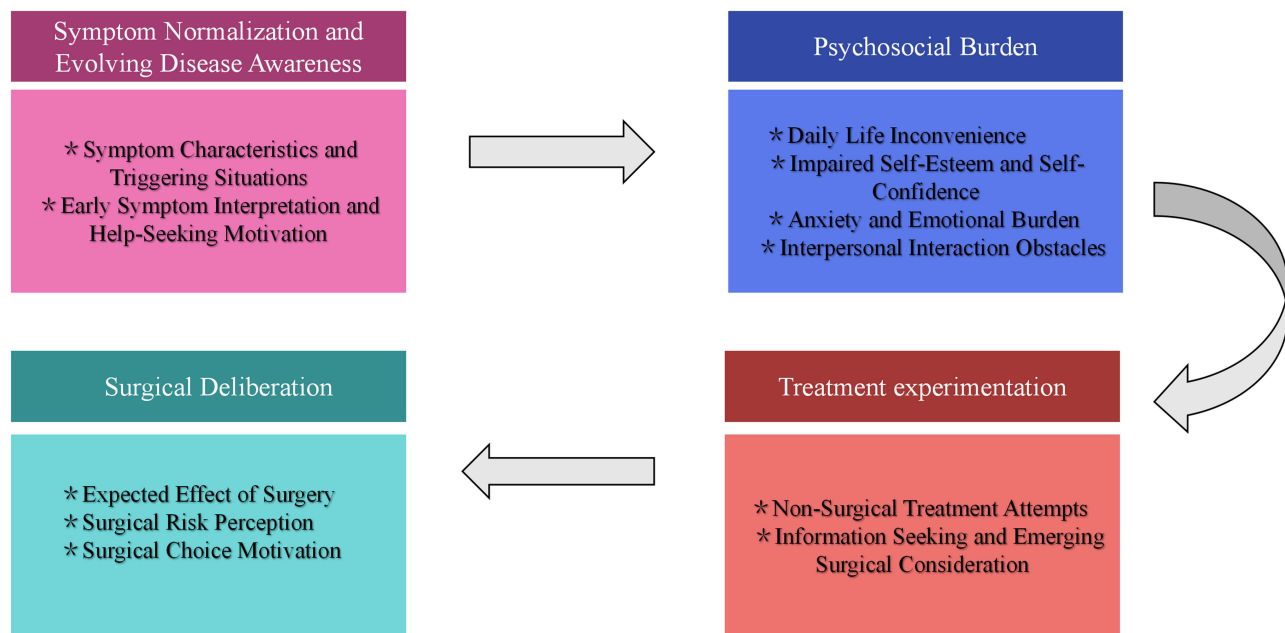
(P1) When I'm nervous, the sweating gets worse. Sometimes, when I hold paper, I can almost write out the water.

## Early Symptom Interpretation and Help-Seeking Motivation

Most patients had a long disease course but initially ignored the symptoms due to an insufficient understanding of PH. In some cases, family history contributed to a tendency to normalize the condition, further delaying attention and intervention. With increasing age and growing interference in study, work, and social situations, patients gradually developed stronger motivation to seek medical help.

(P15) My father has it, my grandfather also has it, and my uncle has it too.

(P1) When I was in high school, I had to write a lot. Sweating really affected my ability to hold the pen.



**Figure 1** The overall patient journey from symptom onset to surgical decision-making. The analysis identified four interrelated stages of the pre-surgical journey: Symptom Normalization and Evolving Disease Awareness, Psychosocial Burden, Treatment Experimentation, and Surgical Deliberation.

## Psychosocial Burden (Stage 2, Figure 1)

Excessive hand sweating interfered with daily routines and task performance, reducing efficiency in study and work and often leading to frustration and anxiety.

(P1) When writing with a black pen, if my hands sweat, the ink smudges and makes the writing blurry.

(P16) Once, due to sweating, I failed to save a file properly and accidentally deleted an important document.

## Daily Life Inconvenience

Excessive sweating also caused repeated inconvenience in everyday activities, such as opening objects, using touch-screen devices, and unlocking fingerprint scanners, which further disrupted communication and daily functioning.

(P3) I always struggle to open bottle caps; my hands are always slippery.

(P15) Sometimes, when I sweat too much, I can't unlock my phone's fingerprint scanner.

## Impaired Self-Esteem and Self-Confidence

Due to excessive sweating, patients exhibited social avoidance behaviors, lacked confidence in social situations, and experienced psychological distress.

(P1) I try to avoid handshakes if I can.

(P12) I feel like I might have a psychological issue.

## Anxiety and Emotional Burden

Patients developed profound anticipatory anxiety regarding the possibility of sweating in important situations or specific scenarios, leading to heightened concerns about symptom flare-ups. Many described a recurring “nervous-sweating-more nervous” cycle, in which anxiety about sweating appeared to worsen the symptoms, and the resulting sweating further

intensified their distress. Over time, this perceived loss of control contributed to persistent emotional burden in social interactions.

(P9) Sometimes, even when my hands are dry, just thinking about whether they will suddenly sweat, causes me to start sweating.

(P13) When giving handshakes, I worry about my sweaty hands making the other person uncomfortable.

## Interpersonal Interaction Obstacles

Patients with PH often develop a fear of physical contact in social situations, with “avoiding physical contact” becoming an immediate coping strategy. However, this avoidance behavior can be misunderstood in close relationships, increasing the psychological burden and social fatigue, potentially hindering the development of intimate relationships.

(P15) When I was in college during physical education class, everyone liked holding hands, but when someone grabbed my hand, I would immediately let go.

(P17) Sometimes, a man might want to hold my hand, but I am bothered by this issue, so I don't want to.

## Treatment Experimentation (Stage 3, Figure 1)

As patients' understanding of PH deepened, they gradually moved from seeking temporary relief through non-surgical measures to actively exploring more durable treatment options. Repeated frustration with the limited effectiveness of conservative approaches, together with increasing access to treatment-related information, contributed to growing consideration of surgery.

## Non-Surgical Treatment Attempts

Many patients described repeated attempts to manage symptoms through non-surgical methods, but these approaches were often perceived as temporary, ineffective, or poorly tolerated.

(P4) After applying it, my hands felt very itchy and tingling, it felt like an allergic reaction.

(P10) I took traditional Chinese medicine for two years, but my hands kept sweating; it didn't help at all.

## Information Seeking and Emerging Surgical Consideration

With the increasing availability of online information, patients were able to learn about PH and possible treatment options through multiple channels. Many then sought further consultation from medical institutions, where professional explanations of surgical principles, potential risks, and expected outcomes helped them better understand the information they had obtained from multiple sources. Through this process, patients gradually developed a clearer understanding of surgery and began to consider it more seriously as a treatment option.

(P15) I found out about it online; I think I first saw it on Xiaohongshu.

(P4) The doctor explained it in detail, and I also looked it up online myself.

## Surgical Deliberation (Stage 4, Figure 1)

When considering surgery, patients expressed both hope for symptom resolution and concern about uncertain risks. This stage was characterized by active deliberation, in which the desire to relieve long-standing symptoms and regain a more normal life was weighed against concerns about compensatory sweating, postoperative discomfort, and recovery.

## Expected Effect of Surgery

Patients hoped that surgery would reduce excessive hand sweating and restore a more acceptable level of sweating. They also expected that symptom relief would lessen embarrassment in social situations and improve convenience, autonomy, and overall well-being in daily life.

(P8) As long as it is not a constant stream of sweat, a little sweat is fine.

(P15) I can shake hands with others normally now.

## Surgical Risk Perception

Compensatory sweating was a core concern for patients. They worried that although surgery might relieve hand sweating, it might cause physical discomfort. They also worried about post-operative pain or a long recovery, which would affect their studies and work, indicating an objective assessment of surgical risks rather than blind optimism.

(P17) My biggest concern is that compensatory sweating might be too severe, for example, on my chest, back, thighs, and buttocks, where it could be especially severe.

(P3) After Recovery, It Will Definitely Hurt, Surgery Is Always a Bit Painful.

## Surgical Choice Motivation

Despite these concerns, patients actively considered surgical treatment because they hoped to alleviate long-standing symptoms and improve their confidence, interpersonal interactions, and sense of control in learning, work, and daily life. Decisions about surgery were shaped by both symptom burden and expectations regarding postoperative outcomes, reflecting an active balancing of hoped-for benefits and perceived risks. In some cases, different surgical levels (eg, R3 or R4) were also discussed as part of this deliberative process.

(P18) The doctor recommended that I undergo an R3 surgery, which he said would be more suitable. Afterward, I stopped worrying about my hands sweating, I did not have to care so much, and I could socialize normally.

(P9) My job requires frequent contact and handshaking, which would definitely be affected.

## Discussion

Taken together, these findings can be understood as a dynamic pre-surgical journey, progressing from symptom normalization and evolving disease awareness to psychosocial burden, treatment experimentation and information seeking, and ultimately surgical deliberation.

The primary conceptual contribution of this study lies in elucidating the ambivalence that characterizes pre-surgical decision-making in patients with PH. Rather than viewing the choice of surgery as a straightforward consequence of symptom severity, our findings suggest that it is better understood as a dynamic process in which patients weigh persistent psychosocial distress and the desire to regain a sense of normality against perceived surgical risks, particularly postoperative complications. Initially, many patients tended to interpret their symptoms as transient physiological variations. However, as emotional stress exacerbated sweating, further disrupted daily functioning, and intensified social avoidance and isolation, patients were gradually driven to seek more effective therapeutic options. This pattern is consistent with the established pathogenesis of PH, in which sympathetic overactivity may aggravate sweating under emotional stress.<sup>21</sup> In this context, the limited effectiveness of non-surgical interventions made surgery appear increasingly necessary as a means of restoring quality of life.<sup>22</sup> At the same time, persistent concerns about postoperative complications underscore the importance of robust pre-surgical counseling to support informed and autonomous decision-making.

Furthermore, familial aggregation contributed to delayed help-seeking. Many patients developed a tendency to normalize their symptoms within the family, viewing excessive sweating as a hereditary trait rather than a treatable

medical condition. This observation aligns with that of Del Sorbo et al, who noted that familial clustering often obscures symptom recognition, thereby impeding early intervention.<sup>23</sup>

PH imposed severe limitations on academic and professional performance. Patients reported compromised fine motor skills and frequent device interference (eg., fingerprint recognition failure), which precipitated errors during critical tasks. These physical disruptions transcended mere inconvenience, fueling social embarrassment and negative self-perception. Consequently, the functional impairments exacerbated social avoidance and psychological distress, findings that corroborate established quality-of-life data.<sup>24</sup>

PH causes physiological discomfort and significantly affects patients' psychological and social functioning. Patients experience impaired self-esteem and self-confidence owing to excessive sweating, increased anxiety, and avoidance behaviors in social settings, such as avoiding handshakes and physical contact. Social avoidance exacerbates psychological distress by affecting self-cognition and emotional relationships. Related studies have suggested that social avoidance and self-cognitive biases are common psychological responses in patients with chronic diseases.<sup>25</sup> This contributed to a self-reinforcing "nervous-sweating-more nervous" cycle, in which fear of embarrassment intensifies sweating, and sweating in turn further heightens anxiety. Over time, the unpredictability of this physical-emotional loop may contribute to persistent emotional exhaustion and increasing difficulty in social interactions. In this context, the desire to break this cycle became an important factor in considering surgical intervention, particularly when previously used coping strategies were no longer perceived as sufficient. The avoidance of physical contact, although intended to reduce embarrassment, may be misinterpreted by others, increasing the patients' sense of social isolation and negatively affecting the development of intimate relationships.

As the limitations of conservative management became apparent, patients' treatment trajectories typically shifted from temporary relief measures to surgical intervention.<sup>26,27</sup> This was largely driven by therapeutic recalcitrance and adverse effects. For instance, patients reported that the cutaneous irritation associated with topical antiperspirants undermined their confidence in non-surgical modalities. Similarly, the lack of sustained efficacy following prolonged courses of Traditional Chinese Medicine catalyzed the decision to pursue surgery as a definitive, long-term solution.

Following dissatisfaction with conservative management, patients actively sought information on definitive interventions. While digital platforms served as initial information gateways, professional medical consultation remained the cornerstone of treatment decision-making. Detailed physician explanations regarding surgical principles, potential risks, and expected outcomes helped patients better understand the information they had obtained from multiple sources. This interaction enabled patients to move from general online knowledge to more individualized and informed treatment consideration, underscoring the importance of physician-patient communication in pre-surgical counseling.

Pre-surgical attitudes were characterized by a complex ambivalence, oscillating between the anticipation of symptom resolution and apprehension regarding potential complications. Patients viewed surgery not merely as a physiological fix, but as a means to restore autonomy and social confidence—a psychological imperative observed in other chronic conditions.<sup>28,29</sup> However, this optimism was tempered by rational concerns, particularly regarding compensatory sweating. Given the reported high incidence of compensatory sweating (100% in R3 and 80% in R4 segments),<sup>30</sup> patients expressed fear that resolving primary symptoms might simply displace the discomfort to other body regions. Coupled with anxieties about postoperative pain and recovery, these concerns reflect a calculated risk-benefit analysis rather than blind optimism. Ultimately, the choice of specific sympathectomy segments represented an individualized compromise between symptom relief and the minimization of adverse effects.

These findings should be interpreted within the study context of Northeast China, where the prevalence of primary palmar hyperhidrosis is reported at 2.63%. A high incidence of positive family history, recorded at 25.40%,<sup>31</sup> often contributes to the normalization of symptoms within families as excessive sweating may be perceived as a hereditary trait rather than a clinical condition. Furthermore, the rise in mean years of schooling to 9.52 years among the younger generation by 2020 provides a demographic foundation for a strong reliance on digital information sources for self-diagnosis.<sup>32</sup> While symptom onset typically occurs between ages 7 and 15, institutional fragmentation within the healthcare system frequently results in long disease durations. Consequently, the eventual acceptance of surgery reflects a transition following prolonged frustration with conservative management, shaped by regional health beliefs and specialized consultation pathways.

Some limitations of this study warrant consideration. First, the recruitment was confined to Northeast China, which may limit the transferability of the findings to other cultural and healthcare contexts. Second, the single-center design and relatively small sample may have limited the breadth of perspectives captured. In addition, because participants were recruited from patients who had already entered the pre-surgical stage and expressed willingness to undergo ETS, selection bias may have been introduced by underrepresenting those who remained undecided or reluctant about surgery. Although ambivalence was still evident within the included sample, the findings may place greater emphasis on the reasoning of patients already oriented toward surgical intervention. Future studies should include patients with a broader range of treatment intentions. Third, this study focused exclusively on the pre-surgical perspective. The absence of post-operative follow-up data precludes assessment of long-term satisfaction and the impact of compensatory sweating. Future longitudinal studies are therefore needed to provide a more holistic evaluation of treatment outcomes.

## Conclusion

In this study, the pathway toward surgical consideration in patients with palmar hyperhidrosis emerged as a dynamic and ambivalent decision-making trajectory. This trajectory extended from early symptom normalization and delayed help-seeking, through growing psychosocial burden and repeated experimentation with conservative treatments, to active deliberation over the potential benefits and risks of surgery. The anxiety-sweating vicious cycle and familial normalization of symptoms substantially shaped patients' quality of life and help-seeking experiences, while dissatisfaction with non-surgical management and the desire to regain social confidence increased willingness to consider surgical treatment. At the same time, concerns regarding compensatory sweating, postoperative discomfort, and recovery remained central to decision-making. These findings highlight the value of addressing patients' psychological and social experiences alongside technical counseling in the pre-surgical stage and support the importance of shared decision-making in this context.

## Data Sharing Statement

Data supporting the conclusions in this article are included within the article itself. The datasets used during the current study are available from the corresponding author on reasonable request.

## Ethics Approval and Informed Consent

This study was reviewed and approved by the Medical Ethics Committee of Shenyang Chest Hospital (approval No. KYXM-2025-018). All participants gave written informed consent to take part in the study and, where necessary, for the publication of any potentially identifiable data. At the start of each interview, oral consent was also recorded, confirming anonymous handling of responses and the possible use of direct quotes. Participants were informed that they could refuse to answer any question or withdraw from the study at any time without consequence. All interview data were securely stored. The research was conducted in strict accordance with the principles of the Declaration of Helsinki.

## Consent for Publication

We confirm that all participants in this study gave explicit written consent for the publication of any anonymized quotations, interview excerpts, and the demographic details presented in this manuscript. Each participant was shown the final version of the article (including tables and the plain-language summary) and explicitly agreed that the content could be made publicly available. Signed consent forms are stored by the corresponding authors and will be provided to the Editorial Office upon request.

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## Author Contributions

Meimei Yan, Siwei Chao, and Lu Yu share first authorship. Yi Ren and Guichun Du share senior authorship. All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution,

acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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The authors report no conflicts of interest in this work.

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