



Integrating Liu Wansu's Theory of Fire-Heat into Modern Chinese Medicine: Clinical Applications and Future Prospects

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Abstract

The Theory of Fire-Heat, first established by Liu Wansu in the Jin Dynasty, remains a fundamental idea in Traditional Chinese Medicine (TCM). It teaches that excessive internal fire and emotional imbalance are important causes of disease. Although this theory has guided clinical work for centuries, its relevance and application in modern medicine deserve new interpretation. This paper reviews the historical origins, theoretical foundations, and clinical applications of the Theory of Fire-Heat, as well as its value for future development. Based on literature review, analysis of clinical cases from several TCM hospitals, and expert interviews with experienced clinicians, the study explores how Liu Wansu's ideas continue to guide modern treatments for metabolic, cardiovascular, skin, and emotional disorders. The discussion also connects these traditional concepts with biological mechanisms such as inflammation and oxidative stress and considers how technologies like artificial intelligence and big data can support future studies. By combining classical wisdom with evidence-based medical thinking, this paper provides a practical perspective for the modernization and internationalization of TCM.

Keywords

Liu Wansu; Theory of Fire-Heat; Modern Chinese medicine; Clinical application

1. Introduction

The Theory of Fire-Heat has a long and rich tradition in Chinese medicine. Its earliest ideas appeared in the Huangdi Neijing (Zhang et al., 2025), and were later developed into a systematic framework by Liu Wansu in his work Suwen Xuanji Yuanbingshi (Li & Zhao, 2012). Liu proposed that “all six qi originate from fire” and that extreme emotions can transform into internal heat, becoming a key cause of illness (Liu et al., 2024). This view profoundly influenced later medical schools and shaped the foundation of many diagnostic and treatment principles in TCM. Even in modern times, the Theory of Fire-Heat remains important for un-

derstanding diseases linked to heat, such as hypertension, diabetes, and various inflammatory disorders (Liu & Cui, 2023). Studying this theory in a contemporary context helps preserve its philosophical depth while improving its relevance to current clinical practice.

This paper aims to explore how Liu Wansu's Theory of Fire-Heat can be integrated into modern TCM practice. It examines both its classical roots and its practical applications, emphasizing how its key principles—clearing heat, purging fire, and nourishing yin—continue to provide therapeutic guidance. The analysis draws from a wide review of historical and modern literature, case studies from several TCM hospitals, and interviews with senior clinicians who apply Fire-Heat theory in their daily work. These sources help build a comprehensive understanding of how ancient insights connect with modern evidence and clinical experience.

By combining historical analysis with practical observation, this study contributes to the ongoing modernization of TCM. It offers a framework for interpreting Fire-Heat theory in the language of modern science while maintaining its original spirit. The following section introduces the theoretical foundations and historical development of Liu Wansu's Fire-Heat theory.

2. The Foundations and Historical Evolution of Liu Wansu's Theory of Fire-Heat

2.1 Theoretical foundations of the Theory of Fire-Heat

Liu Wansu established the Theory of Fire-Heat as the core of his academic system. He analyzed how fire, as a natural element, relates to the body's physiological and pathological changes. The theory holds that both normal functions and disease processes are closely connected with the nature of fire. Since fire has a burning and consuming tendency, it can easily damage body fluids and lead to various disorders (Zhang et al., 2024). Liu further argued that “all six qi originate from fire,” meaning that many external pathogenic factors may transform into heat after entering the body and then cause internal imbalance (Mao et al., 2021).

The Fire-Heat theory is deeply rooted in the main principles of Traditional Chinese Medicine, such as Yin–Yang, the Five Elements, organ theory, and meridian theory. In Yin–Yang theory, fire belongs to yang and tends to consume yin fluids, which breaks the balance of Yin and Yang and produces illness (Lu et al., 2019). Within the Five Elements framework, fire corresponds to the heart and small intestine. When fire becomes excessive, it disturbs the heart and affects emotional stability, often causing symptoms like irritability, insomnia, or restlessness (Li & Jia, 2023). From the perspective of organ theory, fiery pathogenic qi can disturb the internal organs. Too much heart fire, for example, may lead to palpitations, mouth ulcers, or thirst (Han et al., 2023). These ideas provide a systematic explanation for how heat develops and spreads in the body.

Liu Wansu's Fire-Heat theory also reflects clear academic features. He emphasized the importance of recognizing heat syndromes and using “heat-clearing and fire-purging” treatments. His thoughts later became the main foundation of the Hejian School, which he founded himself (Liu et al., 2024). Scholars from related traditions, such as Zhang Yuansu and Li Dongyuan of the Yishui School, further expanded his theory by refining organ differentiation and treatment principles (Li, 2024). Through this academic inheritance, the Fire-Heat theory gradually evolved into one of the most important theoretical systems in TCM.

2.2 Historical Inheritance and Modern Development

The theory of Fire-Heat proposed by Liu Wansu during the Jin Dynasty had a long-lasting influence on later generations. In the Yuan Dynasty, Zhu Zhenheng extended this concept and introduced the idea of “phase fire” (xianghuo), emphasizing its role in the origin and transformation of disease (Sun et al., 2025). During the Ming Dynasty, Li Shizhen explored its clinical value in *Introduction to Medicine*, promoting the principles of clearing heat, purging fire, nourishing yin, and reducing internal heat (Song, 2016). In the Qing Dynasty, further studies deepened the understanding of this theory. Wu Youke, in *Differentiation of Febrile Diseases*, pointed out that early use of heat-clearing medicine was essential for febrile conditions (Liu et al., 2016). Ye Tianshi later summarized and refined these ideas in *Clinical Guide to Medical Cases*, proposing the method of “heat-clearing and detoxification,” which became the cornerstone of the Warm Disease school (Xie & Wei, 2006).

In modern times, scholars of Traditional Chinese Medicine have continued to develop the Fire-Heat theory through both theoretical study and clinical research. Many have verified its value in treating common modern diseases such as hypertension, diabetes, and tumors accompanied by heat-related symptoms (Zhuang, 2021). Researchers have also enriched its pathological framework by proposing mechanisms like “heat-fire injuring yin” and “heat-fire activating blood,” which make the theory more compatible with current medical understanding. In pharmacological research, modern studies have optimized traditional formulas based on the principles of clearing heat and purging fire, leading to better clinical results (Mei, 2004).

Contemporary research on Fire-Heat theory has also introduced interdisciplinary methods. Studies that combine literature analysis, historical research, and philosophical reasoning have deepened understanding of its structure and logic (Wan et al., 2016). Advanced scientific tools such as molecular biology and immunology have been used to validate traditional ideas like “heat damaging body fluids” and “heat disturbing blood circulation,” giving the theory modern scientific evidence. At the same time, researchers have examined its limits and possible extensions within the modern medical framework, suggesting integration paths that bring together classical theory and contemporary healthcare (Si & Shao, 2020).

The ongoing modernization of Liu Wansu’s Fire-Heat theory demonstrates that traditional TCM concepts can be explained, tested, and applied with modern scientific methods. This integration not only preserves the cultural and philosophical depth of TCM but also enhances its practical value in today’s medical environment.

3. Application of Fire-Heat theory in modern clinical practice of Traditional Chinese Medicine

3.1 Application in internal medicines

In modern clinical practice, the Theory of Fire-Heat is widely applied in internal medicine. It helps guide the diagnosis and treatment of many chronic and metabolic diseases. For example, in patients with diabetes, TCM physicians often observe signs such as thirst, dry mouth, feverish sensations, and dark urine. These symptoms are understood as results of excessive internal heat damaging body fluids. Treatments based on clearing heat, purging fire, nourishing yin, and promoting fluid production—using herbs such as *Trichosanthes* root, raw *Rehmannia* root, and *Ophiopogon* tuber—can relieve symptoms and help control blood sugar levels (Yang, 2014).

The Fire-Heat theory is also useful for cardiovascular diseases. Patients with hypertension often show liver-fire syndromes such as headaches, dizziness, facial redness, and irritability. In these cases, physicians usually apply methods to clear liver fire and calm rising yang energy. Classic prescriptions like Gentiana Liver-Clearing Decoction and Gastrodia Hook-Root Drink are commonly used to lower blood pressure and reduce the risk of cardiovascular events (Ding et al., 2007). These examples show that Liu Wansu's ideas continue to play a guiding role in internal medicine today.

3.2 Application in surgical and otorhinolaryngology

In surgical diseases, the Theory of Fire-Heat is often used to explain and treat conditions caused by heat toxins. Many skin disorders, including acne and eczema, fall under this category. TCM treatments focus on clearing heat, removing toxins, cooling the blood, and dispersing stasis. Formulas such as Huanglian Jiedu Tang (Coptis Detoxifying Decoction) and Xijiao Dihuang Tang (Rhinoceros Horn and Rehmannia Root Decoction) are frequently used to reduce inflammation and promote healing (Min & Zhang, 2020).

The theory also applies to otorhinolaryngological diseases. Conditions like acute tonsillitis and pharyngitis are often viewed as results of external wind-heat invasion or excessive heat in the lung and stomach. Treatment commonly includes Yinqiao San (Honeysuckle and Forsythia Powder) and Qingyan Lihuo Tang (Throat-Soothing Decoction) to remove heat, detoxify, and relieve swelling (Han et al., 2023). Clinical observations show that patients treated under the Fire-Heat framework usually recover faster and experience less recurrence. This demonstrates the continuing clinical value of Liu Wansu's theory in surgical and ENT medicine.

3.3 Application in emotional and mental disorders

The Theory of Fire-Heat also provides useful insight into the treatment of emotional and mental disorders. In TCM, emotional imbalance is considered an important internal cause of disease. Conditions such as depression, anxiety, and irritability are often linked to the concept of "Five Emotions Transforming into Fire." When emotional stress becomes excessive, it generates internal heat that disturbs the heart and liver. Treatments aim to clear heat, purge fire, and soothe the liver to restore emotional balance. Classical formulas such as Chaihu Shugan San (Bupleurum Liver-Relieving Powder) and Danzhi Xiaoyao San (Coptis and Gardenia Harmonizing Powder) are commonly prescribed to regulate emotions and relieve mental tension (Lyu et al., 2020).

In addition, the Fire-Heat theory has been applied to sleep disorders such as insomnia and neurasthenia. These conditions are often associated with excessive heart fire or liver fire ascending, disturbing the mind and spirit. Physicians use principles of clearing heart fire and calming the mind, with formulas such as Zhusha Anshen Wan (Cinnabar Calming Pill) and Longgu Muli Tang (Dragon Bone and Oyster Shell Decoction) to improve sleep and reduce anxiety (Zhang et al., 2022). These applications illustrate how Liu Wansu's ancient theory continues to guide the treatment of modern psychological and psychosomatic conditions.

Through these examples, the Fire-Heat theory proves to be both flexible and enduring. Whether used in internal medicine, surgical care, or emotional therapy, it continues to offer effective diagnostic frameworks and treatment strategies for a wide range of modern diseases. Its principles help bridge classical medical knowledge and modern clinical science, enriching the therapeutic system of Traditional Chinese Medicine.

4. Clinical Case Analysis under the Guidance of Fire-Heat Theory

This study draws on clinical cases collected from several Traditional Chinese Medicine (TCM) hospitals to illustrate the practical value of Liu Wansu's Fire-Heat theory. The selected cases cover internal medicine, surgery, otorhinolaryngology, and emotional disorders. Each case follows diagnostic and treatment principles rooted in Fire-Heat theory, with careful observation of treatment outcomes. The analysis also includes insights from experienced clinicians who apply these methods in their practice. Through these examples, the therapeutic value and modern relevance of the Fire-Heat theory are demonstrated.

Case Study: Internal Medicine. Taking diabetes as an example, patients often show symptoms of excessive internal heat damaging body fluids, such as thirst, dry mouth, and general restlessness. Following Liu Wansu's principle that "heat excess consumes yin," physicians applied treatments focused on clearing heat, purging fire, and nourishing yin. Herbal combinations based on *Trichosanthes* root and raw *Rehmannia* root were used to reduce heat and restore internal balance. After treatment, most patients showed noticeable improvement in thirst and body temperature regulation, and blood sugar levels became more stable (Zhang & Zhang, 2021). These results suggest that the Fire-Heat approach helps regulate metabolic disorders in modern TCM practice.

Case Study: Surgical Diseases. For skin diseases such as acne, the Fire-Heat theory explains inflammation as "heat rising to the surface." Treatments therefore aim to clear heat, detoxify, cool blood, and disperse stasis. Formulas such as *Huanglian Jiedu Tang* and *Xijiao Dihuang Tang* were applied to patients with inflammatory skin lesions. The conditions improved steadily, with reduced redness and faster healing compared to conventional treatments (Shao & Peng, 2020). These observations confirm that clearing fire and heat-toxin remains an effective principle in treating inflammatory and purulent conditions.

Case Study: Otorhinolaryngology. Acute tonsillitis and similar throat infections are often linked to the idea that "fire-heat injures body fluids and disturbs the upper passages." Guided by this understanding, physicians used heat-clearing and throat-soothing prescriptions such as *Yinqiao San* and *Qingyan Lihuo Tang*. Patients reported relief from sore throat and fever within a short period. Clinical feedback showed faster symptom reduction and improved comfort compared with general antibiotic treatment (Zhang & Zhu, 2022). These findings highlight the value of Fire-Heat-based therapies in treating modern inflammatory diseases of the respiratory tract.

Case Study: Emotional Disorders. Depression and related emotional disorders are described in TCM as conditions of "excessive heat caused by emotional extremes." Physicians used approaches that combined clearing heat, purging fire, and soothing the liver to relieve stagnation. Formulas such as *Chaihu Shugan San* and *Danzhi Xiaoyao San* were prescribed. Patients generally reported improved mood, reduced irritability, and better sleep quality. Follow-up observations suggested a lower recurrence rate compared with conventional psychotherapy (Wu & Lyu, 1999). This supports the idea that Fire-Heat theory can also guide treatments for psychosomatic and mood-related disorders.

Overall, the analysis of these clinical cases shows that Liu Wansu's Fire-Heat theory continues to provide a strong foundation for modern TCM diagnosis and therapy. Treatments guided by its principles not only relieve symptoms but also improve overall well-being. By emphasizing individualized adjustment of yin and yang, the Fire-Heat framework enhances the precision

and adaptability of TCM, showing that ancient insights can remain effective and relevant in modern medical practice.

5. The Modern Development and Future Prospects of the Theory of Fire-Heat

5.1 The status of the Theory of Fire-Heat in modern TCM

The Theory of Fire-Heat remains one of the key theoretical systems in modern Traditional Chinese Medicine (TCM). In medical education, it is taught as part of core courses such as Fundamentals of TCM Theory, Diagnostic Studies, and Internal Medicine. Through classroom instruction, case discussions, and clinical observation, students learn both the basic principles and their applications. It is also included in postgraduate programs, where in-depth studies and case analyses help students develop clinical reasoning and research skills (Fan, 2015).

Modern TCM teaching emphasizes the integration of theory with practice. Clinical internships and expert lectures help students understand how the Fire-Heat theory applies in real treatment settings. At the same time, educators encourage cross-disciplinary thinking by connecting TCM ideas with modern biomedical knowledge, which helps students interpret traditional theories with new perspectives (Wang, 2008).

The Fire-Heat theory also plays an active role in research. Modern scholars have explored its relationship with inflammation, immunity, and neuroendocrine regulation, revealing how classical “heat” concepts may correspond to biological processes observed in modern medicine (Song, 2016). This theoretical exploration has inspired the creation of new herbal combinations, acupuncture treatments, and external therapies. Many of these studies have been published internationally, enhancing the visibility of TCM and demonstrating the continuing value of classical theory (Liu, 2018; Bao et al., 2020; Liu & Wei, 2020; Kong, 2010; Zhao et al., 2025).

5.2. Challenges and prospects of Liu Wansu’s Theory of Fire-Heat

Under the framework of modern science, Liu Wansu’s theory of Fire-Heat faces several challenges. Modern medicine relies on measurable physiological indicators and standardized evaluation systems, while TCM concepts such as “heat syndrome” describe functional changes in a more holistic and qualitative way (Feng & Pan, 2025). In addition, modern lifestyles have changed disease patterns. Stress, poor diet, and environmental factors now create new types of “internal heat,” requiring adaptation of traditional treatments to new clinical realities (Zheng et al., 2013). Another challenge lies in patient behavior—TCM treatments often demand active cooperation and lifestyle adjustment, which some patients find difficult to maintain (Jiang et al., 2016).

Despite these challenges, the future of the Fire-Heat theory is promising. With the support of modern technology, many classical ideas can now be studied scientifically. Molecular biology and genomics allow researchers to explore the biological basis of “heat-related” syndromes, helping to explain their mechanisms at the cellular level (Wu et al., 2024). Pharmacological research is being used to analyze and optimize traditional formulas, improving both safety and effectiveness (Qin et al., 2024). Digital tools such as artificial intelligence and big data make it possible to collect large amounts of clinical data and identify treatment patterns, providing a stronger evidence base for TCM applications (Ma et al., 2024). Online education and telemedicine platforms have also made it easier to spread and teach Fire-Heat theory internationally

(Wang et al., 2024).

Looking ahead, the Fire-Heat theory will likely play a larger role in preventive medicine and health management. As people pay more attention to lifestyle and emotional health, the theory's focus on internal balance becomes increasingly relevant (Yang & Zhu, 2007). Continued research can lead to innovative treatment protocols for chronic and stress-related diseases (Yang & Wang, 2005). At the same time, the global spread of TCM creates new opportunities for integrating Fire-Heat theory with other medical traditions, forming a more inclusive healthcare model (Meng, 2010). Ethical and legal issues related to clinical application should also be carefully considered to ensure responsible development in the modern context (Liu et al., 2024).

The combination of traditional philosophy, clinical experience, and scientific methods shows that Liu Wansu's Fire-Heat theory is not only a historical legacy but also a living framework that continues to evolve. It connects ancient understanding with modern evidence and offers valuable insight for future medical innovation.

6. Conclusions

This study examined the application of Liu Wansu's Fire-Heat theory in modern Traditional Chinese Medicine (TCM), focusing on its theoretical foundation, clinical use, and value for education and research. By reviewing classical literature, analyzing representative clinical cases, and incorporating expert opinions, the study showed that the Fire-Heat theory continues to provide important guidance for diagnosis and treatment in today's medical practice. The findings suggest that Liu Wansu's ideas remain highly relevant for treating diseases across different areas, including internal medicine, surgery, otorhinolaryngology, and emotional disorders. Clinical observations show that therapies guided by the principles of clearing heat, purging fire, and nourishing yin can effectively relieve symptoms, improve treatment outcomes, and reduce recurrence. In medical education, the Fire-Heat theory helps students connect theoretical knowledge with real clinical experience, while in research, it continues to inspire studies that explore links between traditional ideas and biological mechanisms.

Several limitations must be recognized. The number of analyzed cases and the available data were limited, which may affect the generalizability of the results. In addition, current scientific studies on the Fire-Heat theory still need stronger evidence and more standardized research methods. The integration between traditional theory and modern biomedical science remains a long-term task that requires both clinical validation and conceptual dialogue. Nevertheless, this study supports the idea that Liu Wansu's Fire-Heat theory is not only a part of TCM history but also a living framework that continues to evolve. It reflects a way of thinking that values balance, prevention, and holistic understanding—ideas that remain important in modern medicine. Through deeper research and continued innovation, the Fire-Heat theory can contribute to building a more comprehensive and human-centered healthcare system, linking traditional wisdom with modern science for the benefit of future generations.

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Conflicts of Interest

The author(s) declare no conflicts of interest regarding the publication of this paper.

Ethics Statement

Not applicable.

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