

Xiaoyao Powder: A Classical Formula for Regulating Liver and Spleen - A Review

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Abstract: *Xiaoyao Powder, a classic formula in Traditional Chinese Medicine (TCM), demonstrates significant efficacy in soothing the liver and strengthening the spleen. This article systematically elaborates on the formula's composition principles, the functions of its constituent herbs, and their synergistic relationships. By analyzing the pathological characteristics of liver depression and spleen deficiency syndrome, it explores the formula's therapeutic strategy that concurrently addresses dispersion, tonification, clearing, warming, and strengthening. The focus lies on the mechanism through which Xiaoyao Powder restores the functional balance of the liver and spleen via soothing the liver to relieve depression and fortifying the spleen to nourish blood. Furthermore, common clinical modifications and application examples are analyzed, providing a theoretical basis and practical guidance for the modern clinical application of Xiaoyao Powder.*

Keywords: Xiaoyao Powder, Liver Depression and Spleen Deficiency, TCM Formula Composition, Herbal Compatibility, Clinical Application, Formula Analysis.

1. Introduction

Liver depression and spleen deficiency syndrome is a common pattern in TCM clinical practice, closely associated with the accelerated pace and increased psychological stress of modern society. Persistent emotional distress, anxiety, and depression can lead to liver qi stagnation and impaired dispersion, subsequently affecting the spleen's transportation and transformation functions, manifesting as poor appetite, abdominal distension, and loose stools—symptoms of spleen deficiency. Conversely, impaired spleen function can lead to inadequate production of qi and blood, failing to nourish the liver and exacerbating liver depression, thus forming a vicious cycle. This syndrome is commonly observed in psychosomatic diseases such as anxiety disorders, depression, chronic gastritis, irritable bowel syndrome (IBS), and functional dyspepsia (FD) [1, 2], which modern medicine associates with dysregulation of the neuro-endocrine-immune network.

Xiaoyao Powder, originating from the Song Dynasty text “Tai Ping Hui Min He Ji Ju Fang” (Formulas of the Bureau of People's Welfare Pharmacy), is a representative formula for treating liver depression and spleen deficiency syndrome. The formula consists of Chaihu (Bupleurum root), Danggui (Chinese angelica), Baishao (White peony root), Baizhu (White atractylodes rhizome), Fuling (Poria), Weijiang (Prepared ginger), Bohe (Peppermint), and Gancao (Licorice root), collectively exerting effects to soothe the liver, relieve depression, strengthen the spleen, and nourish blood. The combination of these herbs simultaneously regulates the liver and spleen, addresses both qi and blood, tonifies the liver's substance (ti), and assists its function (yong), embodying the important TCM therapeutic principle of “treating the liver by reinforcing the spleen.”

In recent years, with the shift towards a biopsychosocial medical model, the application of Xiaoyao Powder in the field of psychosomatic medicine has expanded. Studies indicate that this formula can regulate central neurotransmitter levels,

inhibit HPA axis overactivation, improve gastrointestinal motility and mucosal barrier function [3], and modulate gut microbiota [4], thereby exerting therapeutic effects through multiple targets and levels. Clinical practice has also confirmed the significant efficacy of Xiaoyao Powder and its modifications for conditions like anxiety-depression states, functional gastrointestinal disorders, perimenopausal syndrome, and chronic fatigue syndrome presenting with the liver depression and spleen deficiency pattern [5, 6].

Based on TCM theory and integrating classical literature with modern pharmacological research, this article starts from the physiological and pathological basis of the liver-spleen relationship to systematically elucidate the mechanism of action of Xiaoyao Powder in treating liver depression and spleen deficiency syndrome. It further explores its clinical application principles and the rules for pattern-based modifications, aiming to provide reference for in-depth research and rational clinical use of this formula.

2. Pathogenesis and Diagnosis of Liver Depression and Spleen Deficiency Syndrome

2.1 Pathogenesis Analysis

The formation of liver depression and spleen deficiency syndrome is rooted in the close physiological interconnection and pathological interplay between the liver and spleen. The liver governs free coursing (shu xie), regulating the flow of qi throughout the body and promoting the spleen's transportation, transformation, ascending, and descending functions. The spleen governs transportation and transformation, serving as the source of qi and blood production; the essential substances it distributes nourish the liver's substance, aiding the gentle free flow of liver qi. Harmonious function between the liver and spleen ensures smooth qi dynamics and robust transportation.

If emotional dissatisfaction, worry, contemplation, or anger lead to liver qi stagnation and impaired dispersion, the

constrained liver qi, often turning transverse and rebellious, most easily invades the spleen—a scenario described as “exuberant wood overacting on earth” (mu wang cheng tu). This results in impaired spleen transportation, manifesting as poor appetite, epigastric stuffiness, abdominal distension, and loose stools. This pathway, from liver to spleen, is the most common route for the development of liver depression and spleen deficiency syndrome.

Conversely, if dietary irregularities, excessive fatigue, or overthinking damage the spleen, spleen qi deficiency can occur primarily. A deficient spleen lacks the power to transport and transform. On one hand, this leads to insufficient production of qi and blood, failing to nourish the liver and resulting in impaired dispersion, forming “earth deficiency leading to wood depression” (tu xu mu yu). On the other hand, spleen deficiency failing to transform water-dampness leads to internal obstruction by damp turbidity and qi stagnation, which can also hinder the free flow of liver qi, causing “earth obstruction leading to wood depression” (tu yong mu yu). This pathological process, originating from spleen deficiency and affecting the liver, is also a significant cause of liver depression and spleen deficiency syndrome.

Thus, liver depression and spleen deficiency can be mutually causative, forming a vicious cycle. More severe liver depression exacerbates its invasion of the spleen; more severe spleen deficiency further deprives the liver of nourishment, increasing stagnation. Ultimately, this leads to the complex pathogenesis of concurrent liver dispersion failure and spleen transportation impairment. Clinical manifestations often intertwine symptoms of both liver depression and spleen deficiency, such as depressive or irritable mood, hypochondriac distension or pain, reduced appetite, bodily fatigue, irregular bowel movements, and menstrual disorders in women, exhibiting clear psychosomatic characteristics. This pattern is widely seen in various functional and psychosomatic disorders, reflecting a comprehensive state of disrupted qi dynamics and diminished transportation function in the body.

2.2 Clinical Manifestations and Diagnosis

The clinical manifestations of liver depression and spleen deficiency syndrome are complex and diverse, involving emotional, digestive, somatic, and gynecological aspects, collectively reflecting the pathological characteristics of concurrent liver dispersion failure and spleen transportation impairment.

On the emotional and mental level, due to liver qi stagnation and loss of free flow, patients often exhibit low mood, depression, lack of joy, despondency, or emotional instability, irritability, and being easily agitated, frequently accompanied by sighing, which provides slight relief. Spleen deficiency leading to inadequate qi and blood production fails to nourish the heart spirit, potentially causing mental fatigue, overthinking, and poor memory.

Regarding the spleen and stomach, rebellious liver qi invading the spleen earth and impaired spleen transportation lead to qi stagnation, commonly manifesting as epigastric and

abdominal distension, fullness, and discomfort, worsening after eating. Impaired transportation due to spleen deficiency results in poor appetite, reduced food intake, and bland taste in the mouth. Spleen deficiency with dampness accumulation causes loose, sticky, unsatisfactory stools, or alternating constipation and diarrhea with a sensation of incomplete evacuation. Some patients may experience belching or acid reflux due to stomach qi rebellion.

Along the liver meridian pathway, qi stagnation and meridian blockage can cause chest and hypochondriac distension or migratory pain, breast distension and pain, or even discomfort in the neck, shoulders, and back. Women, with their constitutional emphasis on the liver, are more prone to menstrual cycle irregularities, scanty menstruation possibly with clots, dysmenorrhea, pronounced premenstrual breast distension and pain, and exacerbated mood swings due to liver depression and spleen deficiency.

Tongue and pulse presentation: The tongue body is often pale-red or redder on the edges and tip, suggesting potential heat transformation from liver depression; the tongue body is commonly enlarged with teeth marks on the edges, indicating spleen deficiency and dampness accumulation; the coating is thin and white or slightly greasy, reflecting internal dampness. The pulse is primarily wiry-thin (xian xi) or wiry-weak (xian ruo); the wiry quality indicates liver depression, while the thin or weak quality suggests spleen deficiency and insufficient qi and blood.

This pattern is closely related to various modern psychosomatic and functional disorders, particularly common in functional dyspepsia, irritable bowel syndrome, chronic hepatitis, perimenopausal syndrome, premenstrual syndrome, and mild to moderate depressive or anxious states. Patient symptoms often fluctuate with emotional changes, fatigue, or dietary irregularities, demonstrating significant psychosomatic characteristics.

3. Formula Analysis of Xiaoyao Powder

3.1 Compatibility of Chaihu (Bupleurum) and Baishao (White Peony)

Chaihu (Bupleurum root), bitter, acrid, and slightly cold, primarily enters the Liver and Gallbladder channels. It has the effects of lightly uplifting and dissipating, penetrating and resolving depressive heat, and coursing and reaching liver qi, historically regarded as an essential herb for soothing the liver. “Yao Pin Hua Yi” (The Meaning of Medicinal Products) states it “can course stagnant qi from stubborn earth,” vividly summarizing its characteristic of dredging stagnation in the middle earth (spleen/stomach). Modern research shows that components like saikosaponins in Chaihu have anti-inflammatory, liver-protective effects and can regulate central monoamine neurotransmitters and HPA axis function [7], helping alleviate stress-induced liver depression.

Baishao (White peony root), sour, bitter, and slightly cold, primarily enters the Liver and Spleen channels. It functions to nourish blood, soften the liver, and relieve urgency and pain. Its active component, paeoniflorin, possesses good analgesic, anti-inflammatory, and immunoregulatory activities [8]. The

combination of Chaihu and Baishao represents dispersion and constriction: Chaihu soothes the liver and relieves depression, restoring the free flow of liver qi; Baishao benefits yin and nourishes blood, moistening the liver's substance and preventing excessive upward dispersion by Chaihu. Their synergy forms the monarch (jun) herb pair at the core of regulating the liver.

3.2 Blood-Nourishing and Blood-Activating Effect of Danggui (Angelica)

Danggui (Chinese angelica), sweet, acrid, and warm, enters the Liver, Heart, and Spleen channels. Known as the “sage herb for blood,” “Jing Yue Quan Shu” (Jingyue’s Complete Compendium) states it “specifically tonifies blood and also moves blood,” indicating its characteristic of supplementing blood without stagnating it and harmonizing blood without damaging it. In Xiaoyao Powder, Danggui assists Baishao in enhancing the power to nourish blood and soften the liver, additionally activating blood and regulating menstruation, making it particularly suitable for patterns complicated by blood deficiency or menstrual irregularities in women. Modern pharmacology confirms that Danggui promotes hematopoiesis, improves microcirculation, and regulates uterine smooth muscle function, thereby strengthening the formula’s overall effect of nourishing blood and regulating menstruation, serving as the minister (chen) herb.

3.3 Auxiliary Effects of Bohe (Mint) and Weijiang (Prepared Ginger)

Bohe (Peppermint), acrid and cool, enters the Liver and Lung channels. It assists Chaihu in coursing depressive heat from the Liver channel, lightly diffusing and penetrating stagnant qi. “Ben Cao Gang Mu” (Compendium of Materia Medica) points out its ability to “disperse with acidity and clear and disperse with coolness,” making it particularly suitable when liver depression shows signs of transforming into heat. Weijiang (Prepared ginger), acrid, slightly warm, enters the Spleen and Stomach channels. It functions to warm the middle and disperse cold, harmonize the middle and stop vomiting, and also counteracts the cool nature of Bohe and Chaihu, protecting middle jiao yang qi and preventing cold from damaging the stomach. Although these two herbs are assistants (zuo) with relatively light dosages, they play crucial coordinating and guiding roles in the formula, enhancing the power to resolve depression and regulate the middle.

3.4 Spleen-Fortifying and Qi-Boosting Effects of Fuling (Poria), Baizhu (Atractylodes), and Zhigancao (Prepared Licorice)

Fuling (Poria), sweet, bland, and neutral; Baizhu (White atractylodes rhizome), bitter, sweet, and warm; Zhigancao (Honey-fried licorice root), sweet and neutral—all three herbs enter the Spleen and Stomach channels, forming the basic unit for strengthening the spleen. Fuling fortifies the spleen, percolates dampness, and calms the heart and spirit. Baizhu fortifies the spleen, dries dampness, boosts qi, and secures the exterior. Zhigancao supplements the middle and boosts qi, and harmonizes the other herbs. Combined, they strengthen the movement of the central region (spleen/stomach), making the spleen robust and resistant to liver invasion, ensuring a

source for qi and blood production, thereby breaking the vicious cycle of “liver depression and spleen deficiency.” Modern research shows this combination has comprehensive effects including regulating gastrointestinal motility, enhancing immunity, and anti-stress [9], playing the key role in the formula of “strengthening the earth to resist wood invasion” (shi tu yi yu mu cheng), serving as assistant-dispatcher (zuo shi) herbs.

3.5 Overall Formula Compatibility Characteristics

The composition of Xiaoyao Powder is rigorous and orderly, exhibiting three major compatibility features: First, simultaneous treatment of liver and spleen: using Chaihu and Bohe to soothe the liver and relieve depression, and Fuling, Baizhu, and Gancao to fortify the spleen and boost qi, achieving bidirectional regulation addressing both root and branch. Second, concurrent regulation of qi and blood: utilizing Chaihu to rectify qi, and Danggui and Baishao to nourish blood, ensuring smooth qi and harmonious blood, balancing substance (ti) and function (yong). Third, combined dispersion and constriction: the acrid dispersion of Chaihu and Bohe paired with the sour constriction of Baishao, soothing the liver without damaging yin, and softening the liver without stagnating qi.

The whole formula collectively achieves the effects of soothing the liver to relieve depression, fortifying the spleen, and nourishing blood. It alleviates liver depression, tonifies spleen deficiency, and nourishes blood weakness, thereby resolving various symptoms. This formula structure not only aligns with the TCM holistic concepts of “treating disease by seeking the root” and “interconnection of the five zang organs” but also demonstrates significant comprehensive regulatory advantages in modern psychosomatic disease treatment through multi-component, multi-target mechanisms.

4. Clinical Application and Modifications of Xiaoyao Powder

4.1 Basic Application

Xiaoyao Powder is primarily indicated for patients whose TCM pattern differentiation aligns with liver depression and spleen deficiency syndrome. Clinical manifestations mainly span mental-emotional, spleen-stomach transportation, and women’s menstrual aspects. These include: depressive mood, frequent sighing, chest and hypochondriac distension or migratory pain; dizziness, blurred vision, poor appetite, epigastric and abdominal distension and stuffiness, loose-soft stools or alternating dry and loose stools; in women, common presentations include menstrual cycle irregularities, scanty menses, dark-colored blood, premenstrual breast distension and pain; a pale-red tongue with a thin white or slightly greasy coating; and a wiry-thin or wiry-weak pulse.

This pattern is commonly seen in various modern chronic and psychosomatic conditions, such as chronic hepatitis, early-stage liver cirrhosis, cholelithiasis accompanied by autonomic nervous dysfunction; digestive system diseases like gastric and duodenal ulcers, chronic gastritis, functional dyspepsia, and irritable bowel syndrome; as well as gynecological endocrine disorders such as premenstrual

tension syndrome, mammary gland hyperplasia, and perimenopausal syndrome [10, 11] belonging to the liver depression and spleen deficiency pattern. This demonstrates the formula's comprehensive advantages in regulating emotions and fortifying the spleen to harmonize the middle.

4.2 Common Modifications

Clinical application of Xiaoyao Powder must closely follow the pathogenesis and be flexibly modified according to the pattern to suit individual patient differences. Common modifications include: For liver depression transforming into fire, manifesting as irritability, anger, bitter taste in the mouth, dry throat, red tongue with yellow coating, add Danpi (Moutan bark) and Zhizi (Gardenia fruit) (forming Dan Zhi Xiaoyao Powder) to clear liver heat and cool blood to relieve vexation. For pronounced blood deficiency, with sallow complexion, pale lips and nails, palpitations, and dizziness, add Shudihuang (Prepared rehmannia) and Ejiao (Donkey-hide gelatin) to enhance yin-nourishing and blood-tonifying effects. For severe spleen deficiency, accompanied by spirit fatigue, lack of strength, reduced food intake, loose stools, shortness of breath, and disinclination to speak, add Dangshen (Codonopsis root) and Huangqi (Astragalus root) to fortify the spleen and boost qi, enhancing transportation. For significant hypochondriac pain, add Chuanlianzi (Chinaberry fruit) and Yanhusuo (Corydalis rhizome) (reflecting the principle of Jin Ling Zi Powder) to soothe liver qi and activate blood to relieve pain. For insomnia, excessive dreaming, and palpitations, add Suanzaoren (Spine date seed), Yuanzhi (Polygala root), and Fushen (Poria spirit) to nourish the heart and calm the spirit. For damp obstruction and spleen encumbrance, with marked epigastric stuffiness and greasy tongue coating, add Chenpi (Citrus peel) and Banxia (Pinellia rhizome) to dry dampness and transform phlegm. For extremely poor appetite and frequent belching, add Jiao San Xian (charred Hawthorn, Shenqu, and Maiya) to fortify the spleen and promote digestion. Furthermore, in gynecological diseases, for dysmenorrhea, add Xiangfu (Cyperus rhizome) and Wulingzhi (Pollen typhae) to regulate qi and menstruation; for impeded menstruation with clotted blood, combine with Taoren (Peach kernel) and Honghua (Safflower) to activate blood and unblock menstruation.

4.3 Notes for Clinical Application

Using Xiaoyao Powder requires emphasis on accurate pattern differentiation. Although it is an excellent formula for harmonizing the liver and spleen, it is not suitable for all cases of liver-spleen disharmony; it is particularly indicated for patterns involving a mixture of deficiency and stagnation, with liver excess and spleen weakness. If excess heat or yin deficiency is predominant, other formulas should be selected. Additionally, during medication, it should be combined with emotional counseling and dietary adjustments. Patients should be advised to maintain a relaxed mood and avoid greasy and pungent foods to assist the efficacy of the medicine.

5. Discussion and Conclusion

Xiaoyao Powder is rigorously composed with precise herb compatibility, closely targeting the core pathogenesis of liver depression and spleen deficiency syndrome—impaired liver

dispersion and spleen transportation. It fully embodies the TCM holistic treatment concept of “treating disease by seeking the root” and “simultaneously regulating the liver and spleen.” Through comprehensive regulation via multiple components, targets, and pathways, the formula restores the functional balance of the liver governing free coursing and the spleen governing transportation, effectively breaking the vicious cycle between liver depression and spleen deficiency. It stands as a typical representative of the shift towards a biopsychosocial medical model within the field of Chinese medicine.

Future research should further focus on the pathological mechanisms of liver depression and spleen deficiency syndrome, clarify the effective component groups of Xiaoyao Powder and their targets of action, and strengthen high-quality randomized controlled clinical trials to provide more robust scientific evidence for its clinical application. Simultaneously, further exploration of the therapeutic value of Xiaoyao Powder in psychosomatic diseases related to liver depression and spleen deficiency, such as functional gastrointestinal disorders, mood disorders, and perimenopausal syndrome, should be undertaken to continuously expand its clinical application scope.

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