

Analysis on Characteristic Diagnosis Technology and Application Progress of Jing Nationality Medicine

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Abstract

Jing Medicine, as an important part of China's ethnic medicine and culture, is characterized by its unique theories, rich content, and abundant resources, showcasing distinctive features of minority regions. The Jing ethnic group is distributed in coastal and border areas of China, and after thousands of years of development, it has formed a rich marine-oriented medical system in the struggle against the environment and diseases, displaying unique medication characteristics and clinical efficacy. According to Jing Medicine, the human body is an organic whole that is unified with the natural and social environment. It believes that the heavens and earth are the spirits of all things, and all things possess spiritual energy, which is closely connected to the human body's spiritual energy. The utilization of marine organisms in medicine is the greatest feature of Jing Medicine, and it is a common approach used by the local population for disease prevention and treatment. To further explore Jing Medicine, improve the repository of ethnic medicine culture, and address the insufficient understanding of Jing Medicine in traditional Chinese medicine culture, this article provides a comprehensive review of the distinctive diagnostic and therapeutic theories, techniques, and applications of internal and external treatments in Jing Medicine.

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Keywords

Jing Medicine, Chinese Ethnic Medicine, Ethnic Characteristics, Research Progress

1. Introduction

The Jing nationality is the only coastal and border ethnic group in China. With a marine fishery-based economy, they are distributed in the “Three Jing Islands” (Wanwei, Wutou, Shanxin) [1] in Dongxing City, Guangxi Zhuang Autonomous Region. This article aims to provide an in-depth analysis of the distinctive diagnostic and treatment technologies employed in Jing nationality medicine, as well as an overview of the advancements made in their practical application. The findings of this review will contribute valuable insights and serve as a basis for future clinical research in the field.

2. Diagnosis and Treatment Theories and Techniques of Jing Nationality Medicine

Through continuous accumulation, Jing nationality medicine has developed unique diagnostic and therapeutic techniques and theories, gradually establishing a complete medical concept. It believes that the human body is an organic whole, unified with the natural and social environment, which allows for in-depth and comprehensive research in Jing medicine and lays a theoretical foundation for future development. Jing nationality medicine believes that the heavens and earth are the spirits of all things, and they are closely connected to the spirit of the human body. Harmony brings prosperity, while disharmony leads to decline.

The medical research of Jing nationality medicine focuses on the regulation of yin, yang, qi, and blood, combining the principles of the six meridians differentiation with the theoretical foundation of the six organs and six bowels. Through observation, listening, questioning, and pulse diagnosis, various marine organisms and other drugs are used to treat various diseases based on the patient’s main symptoms. Jing nationality medicine draws on the yin-yang theory of traditional Chinese medicine to explain the structure of the human body. It believes that the human body consists of six organs (shen, heart, lungs, liver, kidneys, spleen) and six bowels (brain marrow, gallbladder, stomach, intestines, bladder, reproductive organs). The organs are further divided into yin and yang, with the upper part being yang and the lower part being yin. The surface of the body is yang, while the interior is yin. In terms of the abdomen, back, and the inside and outside of the limbs, the back of the body is yang, and the abdomen is yin. The outer side of the limbs is yang, while the inner side is yin.

Based on the division of organs, the six organs belong to the interior and have the physiological function of storing essence and qi without leakage, referred to as “Shen Cang,” hence they are considered yin. The six bowels belong to the ex-

terior and have the physiological function of transmitting and transforming substances without storage, referred to as “Xing Cang,” hence they are considered yang. The diagnostic and therapeutic approach of Jing nationality medicine is very similar to traditional Chinese medicine. It mainly collects information about the patient’s condition through observation, listening, questioning, and pulse diagnosis. Observation involves observing the spirit, color, body shape, posture, head and face, facial features, neck, body, limbs, genitals, skin, excretions, tongue, and pulse to diagnose diseases. Listening involves hearing sounds (speech, breathing, coughing, vomiting, belching, eructation, sighs, intestinal sounds) and smelling odors (body odor, odor in the sickroom). Questioning mainly includes the patient’s chief complaint, present illness history, past medical history, personal life history, family history, cold and heat symptoms, sweating, pain, discomfort in the head, body, chest, and abdomen, ears and eyes, sleep, dietary preferences, and bowel movements. Pulse diagnosis involves palpating the pulse and palpation.

In treatment, Jing nationality medicine mostly follows the principle of “adapting to local conditions and using local resources.” Medicinal treatment primarily utilizes marine animals and plants, while non-pharmacological treatments include acupuncture, moxibustion, dietary therapy, and water bath therapy.

3. Application of Internal Therapies in Jing Nationality Medicine

3.1. Medicinal Use of Marine Plants

The medicinal use of marine plants is a prominent feature of Jing nationality medicine, with common examples including mangroves and seaweed. Due to their unique growth environment and diverse metabolites, marine plants exhibit various biological activities and have a wide range of medicinal targets [2] [3]. Mangroves, represented by species such as *Acanthus ilicifolius*, *Mulan*, and *Cerbera manghas*, are the primary representatives of medicinal marine plants. Seaweeds are mainly classified into the *Brown algae*, *Red algae*, and *Green algae*. Among them, the *Brown algae* species known as *Sargassum* is the most common.

3.1.1. *Acanthus ilicifolius*

Acanthus ilicifolius, a non-viviparous mangrove herb of the Euphorbiaceae family, has a long history of medicinal use and medicinal value. It has a mild and cold nature and is known for its effects in clearing heat and detoxifying, promoting blood circulation and removing blood stasis, relieving cough and asthma, reducing swelling and alleviating pain, and more. The whole plant or the root is used as medicine, mainly for treating diseases such as hepatitis, hepatosplenomegaly, neuralgia, snake bites, rheumatism, etc. [4] [5] [6]. In addition, the components found in *Acanthus ilicifolius* leaf extract exhibit strong free radical scavenging activity, which may contribute to its anti-inflammatory effects. Studies by Chunmiao Yang and others have found that carboxylic acid derivatives in *Acanthus ilicifolius* have good anti-inflammatory and analgesic effects, with

some compounds having effects comparable to aspirin. They can inhibit ear swelling in mice induced by xylene and have inhibitory effects on the twisting response induced by acetic acid in mice [7]. Rongjuan Huang and others treated rats with carbon tetrachloride-induced hepatic fibrosis with *Acanthus ilicifolius* ethanolic extract and normal saline by gastric lavage and found that treatment with *Acanthus ilicifolius* effectively reduced liver cell damage improved the expression levels of serum inflammation markers, and alleviated the pathological degree of liver fibrosis [8].

3.1.2. Mulan

Mulan refers to the bark and root bark of the mangrove plant of the Rhizophoraceae family. It has the functions of clearing heat, detoxification, astringency, and pain relief. Its various active components and compounds have significant anti-tumor effects. Methanol extract of Mulan inhibits the proliferation of HepG2 cells. Hexane extract of Mulan leaves shows selective toxicity to MCF-7 cells. Aqueous extract of Mulan exhibits significant toxicity to human breast cancer MDA-MB-435S cells [9] [10]. Xiangqian Yi and others found that lycorine and dehydroabietylamine isolated from Mulan embryo axes can inhibit cell proliferation in vitro [11]. Meixian Chen and others found that total flavonoids from Mulan embryo axes can inhibit the proliferation and migration of human colon cancer HT-29 cells in vitro. Its mechanism of inducing cell apoptosis is related to the inhibition of the PI3K/Akt signaling pathway, regulation of the Bcl-2 apoptosis protein family, and activation of the caspase cascade reaction [12]. In addition, 3',4',5'-trihydroxy-7-hydroxy-5-methoxyflavone extracted from Mulan also has a certain inhibitory effect on tumor growth [13].

3.1.3. Seaweed

Seaweeds contain more medicinal nutrients than some terrestrial medicinal herbs and can synthesize compounds that are absent in terrestrial plants through photosynthesis [14]. Quancai Peng *et al.* studied the fatty acid composition of seaweeds and explored the application of fatty acids in seaweed taxonomy. The results showed that seaweeds are rich in various essential fatty acids for the human body [15]. In a study on the antimicrobial and anti-inflammatory effects of seaweed extracts, Ranxin Shi *et al.* found that seaweed extracts had a significant inhibitory effect on *Bacillus subtilis*, reducing the expression levels of inflammatory stress in the bacteria [16]. It has also been found that seaweeds contain abundant iodides, which can treat iodine deficiency-induced goiter and have a significant inhibitory effect on *Bacillus subtilis* [17]. Sargassum is a genus of brown algae in the order Fucale's, subclass Phaeophyceae, and contains approximately 400 species. It has a cold nature and functions such as softening hardness, resolving phlegm, cooling blood, stopping bleeding, reducing swelling, and relieving pain, making it highly valuable for medicinal use. Research has shown that the polysaccharides in Sargassum, such as fucoidan, have antiviral effects against hepatitis viruses, herpes simplex viruses, Coxsackie viruses, and human immunodeficiency viruses [18].

3.1.4. Seagrass

Seagrass is mainly found in tropical coastal areas and is a monocotyledonous herbaceous plant that lives in shallow coastal waters. It has a salty and cold nature and is known for its effects in softening hardness, diuresis, reducing swelling, and relieving asthma. Seagrass contains rich chemical components such as alginic acid and iodides. In Jing nationality medicine, seagrass is often used in combination with other medicinal substances to treat conditions such as goiter, tuberculosis, hernia, limb edema, and hypertension. Local Jing medicine practitioners often prepare seagrass to treat coronary heart disease in children by combining it with fennel, which can effectively alleviate local swelling and pain in the testicles. In folk medicine, dried seagrass is ground into powder and mixed with white wine to make a paste. Applying this paste to acupoints on the head can effectively relieve migraines. Mixing seagrass with mung beans, brown sugar, and other ingredients and boiling them for oral consumption can effectively alleviate the toxic effects of consuming shrimp and crab and relieve symptoms of skin dampness and itching. Preserving seagrass with white sugar and consuming the preserved juice orally can be used to treat chronic pharyngitis and alleviate throat pain [19].

3.2. Medicinal Use of Marine Animals

In the history of the Jing nationality spanning over 500 years, Jing medicine has made full use of the abundant and diverse marine animal resources in the local area, leveraging its characteristic advantages and making significant contributions to the life safety of the local population. Commonly used marine animal medicines include mollusks (such as niding and seahorses) and arthropods (such as shrimp and conch), all of which can be used for medicinal purposes [20].

3.2.1. Niding

The Niding, also known as the “mudworm”, is a small marine worm that lives in shallow areas along the seashore. It belongs to the phylum Annelida and class Polychaeta. It is commonly used in the treatment of conditions such as lower back pain and soreness, frequent nocturnal urination, dizziness, vertigo, tinnitus caused by deficient kidney yang, anemia, and lack of vitality. The Compendium of Materia Medica records that the Huangfu fish, also known as “Huangbang”, is a scaleless fish. Its body and tail resemble a small... Its liver and gallbladder, tail spines, and teeth are used in medicine. Decoctions made from these parts can alleviate edema and promote diuresis. When used in moxibustion, it is effective in treating various malignant ulcers, long-lasting non-healing wounds, and night blindness.

According to related research reports, a combination of bone fish and *Dianthus superbus* can be used to treat various chronic skin ulcers. In a study by Taiyerjiang Aimuzi and others involving 120 patients with chronic urticaria, it was found that *Dianthus superbus* decoction for the treatment of chronic urticaria had advantages such as fewer adverse reactions, safety, and reliability. Its main effects include

clearing heat, detoxification, cooling blood, and anti-inflammatory properties, effectively regulating and eliminating abnormal body fluids and pathogenic bacteria accumulated in the gastrointestinal tract [21].

3.2.2. Seahorse

Seahorse, a member of the Syngnathidae family, has a warm nature and a sweet taste. It is a valuable tonic herb with a long history of medicinal use. Seahorse has various effects, including hormone promotion, anti-aging, anti-fatigue, and inhibition of cancer cell growth [22]. Seahorse is usually used in its raw form, ground into powder or soaked in alcohol for consumption. It is less commonly used in decoctions. It is often combined with wolfberry, fish maw glue, and red dates in a decoction, which is effective in treating frequent nocturnal urination and excessive leukorrhea caused by kidney yang deficiency. Externally, seahorse is often ground together with pangolin scales, mercury, cinnabar, realgar, and talcum powder and applied to ulcers, showing good efficacy in treating malignant ulcers and promoting wound healing. Recently, a research team found that seahorse extract can reduce the expression of androgen receptors and prostate-specific antigen induced by dihydrotestosterone in prostate cancer LNCaP cells. Further studies revealed that brassica sterol, an active component of seahorse, exhibits anti-cancer effects through Akt signaling in both androgen receptor-independent and dependent tumor cells [23]. Seahorse in traditional Chinese medicine also has the functions of nourishing the kidneys, promoting blood circulation, and strengthening tendons and bones. It plays a positive role in regulating the reproductive and immune systems of the human body. In the treatment of elderly patients with osteoporosis, seahorse extract can promote the growth and proliferation of osteoblasts, induce a proliferative response in bone cells, and significantly enhance alkaline phosphatase activity and bone nodule content [24] [25]. Seahorse also has many other pharmacological effects, such as anti-cardiovascular disease, antioxidant, anti-cancer activity, and enhancement of immune function.

3.2.3. Seashells

Seashells belong to the phylum Mollusca, a group of marine invertebrates. Shellfish contain abundant lipids such as phosphatidylcholine and unsaturated fatty acids, which have significant lipid-lowering effects. Unsaturated fatty acids, represented by eicosatetraenoic acid (EPA) and docosahexaenoic acid (DHA), are the primary components. Studies have found that ribbed ark clams, blue mussels, and other shellfish have high levels of polar lipids and unsaturated fatty acids in their crude fats. EPA can reduce the expression levels of cholesterol and triglycerides in human plasma and has effects such as anti-inflammatory, anti-bacterial, and anti-cancer cell activities, accelerating the body's lipid metabolism. On the other hand, DHA can promote brain development, improve blood microcirculation in the brain and eyes, prevent senile dementia, and protect vision [26].

Local Jing medical practitioners often use traditional Chinese medicine oysters for nourishing gastric cancer patients, significantly improving their quality of life during cancer treatment. Modern pharmacological research has found that oysters contain rich natural active peptides, which can effectively inhibit the growth and proliferation of lymph node-targeting high-metastatic cells in ovarian cancer and induce apoptosis in cancer cells [27]. Oysters are also rich in various sugars, such as oyster glycosaminoglycans, which can enhance the body's immune function, lower blood sugar, enhance anticoagulant activity, and prevent blood clot formation [28]. Furthermore, oysters have effects on improving heart and blood circulation [29].

4. Application of External Treatment Methods in Jing Nationality Medicine

External treatment methods are commonly used in Jing nationality medicine, such as moxibustion with artemisia, seawater bathing, and fumigation. These methods involve close contact between medicinal substances and the body's pores, effectively regulating the body's yin and yang, strengthening the defensive Qi to prevent external pathogens from invading, and enhancing the overall constitution.

4.1. Moxibustion with Artemisia

Moxibustion with artemisia is a characteristic folk therapy in the Jing nationality region, widely adopted due to its simplicity, safety, effectiveness, and cost-efficiency. Currently, there are four main methods of moxibustion used in Jing nationality medicine: burning artemisia, moxibustion with ginger barrier, moxibustion with garlic barrier, and black artemisia. "Ben Cao Cong Xin" states, "Artemisia leaves are bitter, pungent, warm in nature, and hot when cooked. They possess pure yang properties, can restore collapsed yang, regulate the twelve meridians, traverse the three yin channels, regulate Qi and blood, dispel cold and dampness, and warm the uterus... when used for fumigation, they can penetrate all the meridians and eliminate various illnesses." According to relevant literature, moxibustion with artemisia can be widely used for various conditions in women and children, such as abdominal pain, stomachache, headache, shingles, and dysmenorrhea [30] [31].

4.2. Seawater Bathing

The Jing people inhabit coastal areas with abundant seawater resources, and seawater bathing has become a common treatment method in Jing nationality medicine. This method primarily involves soaking in seawater and can prevent and treat symptoms of skin itching and discomfort. "Ben Cao Gang Mu" records, "Boiling bath can treat wind, rheumatism, itch, and tinea" [32]. The salty taste of seawater has a contracting effect, and using seawater for external washing can help close the pores, preventing itching caused by wind. Seawater bathing is not only

effective for conditions like tinea manus and athlete's foot but also promotes cardiovascular circulation, relaxes tendons, stimulates the brain, and invigorates the mind [33]. Even today, many folk remedies are still passed down on the three islands of the Jing nationality group: 1) "Seven Waters" involves collecting well water in the seventh lunar month each year, which has the effects of clearing heat, quenching thirst, cooling blood, and generating body fluids; 2) "Sand Ginger Diet Therapy" utilizes sand ginger's effects of promoting Qi circulation, resolving phlegm, reducing swelling and pain, dispelling stasis, and reducing fever.

5. Conclusions

Jing nationality medicine is an important part of the treasure trove of traditional Chinese medicine. It is the valuable experience accumulated by the ancestors of the Jing nationality group and folk healers in their long-term battle against diseases. It has formed a minority nationality medical diagnosis and treatment method with maritime characteristics, making significant contributions to the prevention and treatment of diseases among the Jing nationality people. While we deeply appreciate the unique charm of Jing nationality medicine, we are also aware of the challenges it faces in development:

1) Insufficient medical platforms and research teams for Jing nationality medicine, lack of comprehensive collection and analysis of advantageous diseases in Jing nationality medicine, and low quality of clinical literature research.

2) The inheritance of Jing nationality medicine mostly relies on folk methods such as apprenticeship, lacking written records, which leads to the dilemma of many special treatment methods, prescriptions, and external therapies facing the risk of being lost.

3) The marine ecological environment has been severely damaged, with many precious plants and animals being extensively hunted. Their numbers greatly reduced, and some even on the brink of extinction. The destruction of the ecological chain has led to the increasing depletion of traditional Jing nationality medicines.

4) The widespread adoption of modern medical technology in the Jing nationality region has greatly improved the accessibility of medical treatment and the cure rate for the local people, gradually reducing their demand for Jing nationality medicine, further impacting the development of Jing nationality medicine.

In conclusion, Jing nationality medicine, as an integral part of China's rich traditional medical culture, stands as a representative of the diverse and unique practices within ethnic minority medicine. However, the development of Jing nationality medicine faces significant challenges, and without prompt efforts to preserve and revive its traditions. It risks fading away from the annals of ethnic minority medicine in the near future. Therefore, it is imperative to prioritize the improvement of the theoretical foundation of Jing nationality medicine, foster the growth of research expertise in this field, facilitate greater external exchange of Jing nationality medicine culture, and safeguard, inherit, promote, and ad-

vance the traditional medicine culture of the Jing ethnic group. Through the continuous enhancement of the distinctive diagnostic and treatment technologies of Jing nationality medicine, it can be better harnessed to serve the well-being of the people.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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