



Impact of COVID-19 on Social Awareness and Public Health Strategies of Traditional Persian Medicine in Iran

Mahsima Abdoli, Mohammad Hossein Ayati*

Department of History of Medicine, School of Persian Medicine, Tehran University of Medical Sciences, Tehran, Iran

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Abstract

The COVID-19 pandemic has prompted substantial changes in global healthcare, particularly influencing the role of Traditional Persian Medicine (TPM). This study explores the integration and impact of TPM during the COVID-19 crisis in Iran, where TPM was applied alongside conventional treatments. Research from 2019 to August 2022 is classified into four categories: clinical trials, herbal treatment recommendations, perspectives from traditional medicine scholars in the duration of Islamic era, and questionnaire-based studies. Findings demonstrate that TPM interventions, including the use of herbal remedies and personalized approaches based on humoral theory, have contributed effectively to the management of COVID-19 symptoms, including respiratory distress and other viral manifestations. Significant outcomes from clinical trials, case reports, and phytochemical studies highlight the efficacy of specific TPM therapies. Additionally, Iran's scientific output in complementary and alternative medicine research has increased, elevating its international standing. The study underscores the pandemic's role in revitalizing societal trust in TPM, as evidenced by high patient satisfaction and increased use of TPM during the pandemic. This surge in reliance on TPM has led to a deeper integration of traditional medicine within Iran's healthcare system, marking a significant shift in its historical trajectory. The findings suggest that the global health crisis may have long-term implications for the acceptance and utilization of TPM in modern medical practice.

Keywords: COVID-19; Pandemic; History of medicine; Persian medicine; Traditional medicine

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*Corresponding Author: Mohammad Hossein Ayati
Department of History of Medicine, School of Persian Medicine, Tehran University of Medical Sciences, Tehran, Iran
Email: mh-ayati@tums.ac.ir

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Introduction

The COVID-19 outbreak, beginning in late 2019, drastically disrupted global healthcare, triggering a reassessment of medical approaches worldwide [1,2]. While conventional medicine led the global fight, alternative therapies, including Traditional Persian Medicine (TPM), attracted substantial public attention, particularly in regions with historical reliance on these systems. TPM, deeply rooted in Persian-Islamic traditions, integrates scientific, philosophical, and cultural practices. The writings of scholars like Avicenna's *Canon of Medicine* (Al-Qanun fi-Tibb) and Rhazes' *Liber Continens* (Al-Hawi) highlight this system's durability and adaptability across centuries. TPM's personalized approach, rooted in humoral theory, predominantly focuses on treating individuals based on their specific temperament and constitution, making it uniquely relevant during pandemics [5].

Despite its observed efficacy, TPM integration into Iran's healthcare faces challenges, including skepticism and methodological concerns. A primary impediment to the broader integration of TPM within Iran's healthcare system has been the paucity of robust documentation and scientific validation. However, the COVID-19 pandemic, and the attendant challenges in effectively managing its symptoms, catalyzed research efforts to explore the potential efficacy of TPM interventions. Historically, studies in medical history and outbreaks like cholera have illuminated fluctuation in TPM's societal relevance, underscoring the role of social shifts during public health crises. The COVID-19 pandemic created conditions that tested TPM within Iran's modern healthcare framework, providing an opportunity to evaluate its efficacy and influence on public perception [1,6].

This study systematically reviews research on TPM's contributions to COVID-19 management in Iran, classifying findings into clinical trials, herbal treatments, ancient perspectives, and public opinion. By addressing TPM's societal reception during the pandemic, the study aims to evaluate the role of a global pandemic, such as COVID-19, in shifting the focus of healthcare systems toward leveraging the potential of a traditional medical system, despite environmental and structural limitations.

Methods

This study is a narrative review in which various resources and data related to TPM's application in managing COVID-19 were systematically collected and evaluated. Selection of the reference articles was by using keywords of COVID-19, Persian Medicine, Traditional Medicine and History of Medicine between the years of 2019- 2022. The study employed a qualitative and descriptive design, focusing on extracting and synthesizing information from academic research, clinical trials, and public surveys. No experimental or laboratory-based research was performed directly by the authors. Relevant

data were obtained from peer-reviewed publications, clinical trial reports, and public surveys accessible in well-known scientific databases such as PubMed, Scopus, and Google Scholar. In addition, articles from traditional medicine journals, government-issued protocols, and national reports published by the Iranian Ministry of Health and Medical Education were reviewed. A selection of 40 key articles and reports that cover our research due to their aims formed the core of the analysis. The categorized data were analyzed qualitatively.

Healthcare attitudes to TPM during COVID-19

Accordingly, when the troublesome pandemic of COVID-19 spreads in the world from 2019, at each stage of this pandemic, depending on the circumstances involved in the treatment system, some new therapeutic interactions were recommended by World Health Organization (WHO) and also from the health policy officials of each country [7]. In Iran, based on the protocol issued to government medical centers from the ministry of health and treatment, using TPM arrangements in managing Covid-19 infected patients (CIP) has been recommended [8]. So, the physicians of TPM used many different methods which were found in reliable TPM texts in such epidemics [9,10].

The application of TPM protocols during the COVID-19 pandemic not only demonstrated the feasibility of integrating traditional medicine into modern healthcare, but also prompted extensive scientific investigations. These studies aimed to evaluate the efficacy of TPM interventions and their potential contributions to managing COVID-19-related symptoms, subsequently forming a foundation for more structured research efforts.

Scientific researches on COVID-19 in Iran

TPM scientific investigations related to COVID-19 (2019–August 2022) can be categorized into four groups:

1. Clinical trial achievements: Evaluating efficacy in symptom management [11-20].
2. Herbal recommendations: Proposing COVID-19-specific protocols and therapies [21-24].
3. TPM physicians' perspectives for lifestyle: Discussing ancient approaches to pandemics [25-28].
4. Survey-based researches: Analyzing public attitudes toward TPM [6-29].

1- Clinical Trial Achievements

Generally, in performing clinical trials depending on whether the mentioned remedy has been evaluated before or not, the severity of patient symptoms for entry to the evaluation was different [Table 1]. Accordingly, in each of the mentioned aspects, the TPM protocols have been used besides the common health care practices for CIPs through a short-term intervention [12].

Classification of clinical trials based on criterion symptoms

The first group of clinical trials has been done on CIP by mild to moderate symptoms without respiratory distress syndrome [12-14, 19], the second group has been done on a specific syndrome contributed to Covid-19 infection [14] and the third group has been performed on hospitalized CIP with severe symptoms such as respiratory distress syndrome and low O₂ saturation [15-18,20,21].

Classification of clinical trials based on their remedy content

According to different TPM products which have been used in treating CIP, we categorized the related assessments into three categories. The first category was the most common type of herbal therapies between TPM treatments, that based on our research, it was the single herb method [12-15,20,30], the second category was of studies on using combined herbal in CIPs [17-19]; and the third group utilized a kind of manipulation in managing CIP symptoms [16].

Classification of clinical trials based on their efficacies

By collecting results of application mentioned TPM in-

terventions on symptoms of CIP related to each study criteria, and classifying data of efficacy of used remedies and management protocols, three different subclasses were defined (according to the first classification).

Efficacy of trials performed on mild to moderate symptoms

According to the clinical trial studies on the first group of CIPs, the majority (about 75%) of the studies have been shown a successful effect on management of CIP symptoms such as dry cough, dyspnea, muscle pain, headache, fatigue, anorexia, chills, runny nose, sputum cough, and vertigo compared to control group [12, 14, 19], although in some of such studies no significant difference was defined between two groups of case and control [13]. Indeed, according to our research, the remedies used in this group were of both single and compound herbs.

Efficacy of trials performed on a specific symptom

Based on our study, The clinical trials which have been utilized to control a specific syndrome in CIP such as olfactory dysfunction and gastrointestinal manifestations, demonstrate the betterment of symptoms in 100% of CIP

Table 1. Effects of different types of clinical trials

	Classification Criteria	Description	Efficacy
Based on Symptom Severity	Mild to Moderate Symptoms without Respiratory Distress	Trials conducted on COVID-19 patients with mild to moderate symptoms without respiratory distress syndrome.	Approximately 75% of studies showed that TPM was effective in managing symptoms such as dry cough, dyspnea, muscle pain, headache, fatigue, anorexia, chills, runny nose, sputum cough, and vertigo. Some studies showed no significant difference between case and control groups.
	Specific COVID-19 Syndrome	Trials focused on specific syndromes associated with COVID-19 infection, such as olfactory dysfunction and gastrointestinal manifestations.	100% of patients with these syndromes showed symptom improvement with single and combined herbal remedies.
	Hospitalized with Severe Symptoms	Trials conducted on hospitalized COVID-19 patients with severe symptoms such as respiratory distress syndrome and low oxygen saturation.	Over 80% of studies showed that TPM significantly improved symptoms like respiratory distress, oxygen saturation, dyspnea, hospitalization duration, and some blood tests like ESR, CRP, and creatinine. The remaining studies showed no significant difference between the groups.
Based on Remedy Content	Single Herbal Therapies	Use of a single herb such as <i>Myrtus communis</i> L., <i>Lavandula angustifolia</i> L., <i>Phyllanthus emblica</i> L. and Barley Water, as the primary treatment in the trials	Results vary based on each study
	Combined Herbal Therapies	Use of a combination of herbs such as Hyssop syrup as the treatment in the trials	
	Physical Manipulation	Use of physical manipulation methods, such as warm cupping, to manage symptoms.	

with such symptoms by using a single and compound herbal remedies [14,19].

Efficacy of trials performed on hospitalized CIP

According to our study, methods of TPM used in hospital stay CIP were of single [15,20,30] and compound forms of herbal remedies [16-17] and also a kind of manipulation, warm cupping [16], to recover or control some severe symptoms. In over 80% of this group of studies, by monitoring CIP situations, a significant efficacy in CIP symptoms such as respiratory distress, O₂ saturation, dyspnea, hospitalization duration and also some blood tests like erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), and Creatinine have been shown [15-18,20], and in the remaining, there was no difference between under study groups [30].

2- Herbal Recommendations

Herbal remedies evaluated through phytochemical studies show significant promise (Table 2).

Based on randomized clinical trials, phytochemical evaluations, animal models and retrospective studies on TPM herbal therapies which had been done before, some effective functions on coronavirus were evaluated [22,23,26]. The most significant effects of Persian medical herbs on CIP are defined as: antitussive and anti-inflammatory [22,26], antipyretic [22], antiviral activity [23,25,29] and antidepressant activities [24,25].

3. TPM physicians' perspectives for lifestyle

The COVID-19 pandemic has significantly shifted global health strategies, prompting many communities to explore complementary, alternative, and traditional medical practices as supplemental measures to conventional treatments [31]. In Iran, TPM scholars reviewed ancient manuscripts to adapt TPM principles for the unique challenges posed by the COVID-19 crisis [11,26-27]. Their findings and interpretations yielded recommendations categorized into two overarching aspects: prevention and management (Table 3).

Recommendations for Prevention

The principles found in TPM texts emphasize maintaining overall health as a preventive strategy, especially during epidemics referred to in ancient Persian texts as "Amraz-e-Wabaie" (epidemic diseases) [27]. Several strategies for minimizing exposure to pathogenic factors and boosting immunity were extracted from TPM health doctrines:

Lifestyle Modifications

Following a balanced lifestyle that includes regular sleep patterns, moderate physical activity, and effective stress management to minimize disruptions to humoral balance. Avoiding excess consumption of food (*gluttony*) and favoring balanced, light meals to reduce metabolic strain during epidemics [10,11].

Air Purification and Aromatherapy

The use of aromatic herbs for air purification was strongly emphasized. Practices include fumigation with herbs like frankincense and thyme, which have antimicrobial properties that help cleanse the environment and reduce pathogenic exposure [10].

Immune System Enhancement via Temperament Adjustment

The humoral theory, a core concept in TPM, advocates for temperament-specific recommendations. For example, people with "cold" temperaments are encouraged to consume warming foods and beverages (e.g., ginger tea) to maintain inner heat, which is believed to play a protective role during epidemics [9, 11].

Reducing Environmental and Emotional Stressors

Minimizing physical stress, exposure to extreme climates, and emotional disturbances was recommended to prevent disruptions in the equilibrium of bodily humors. TPM scholars advised avoiding "commotion situations," which included unnecessary exposure to crowded environments and panic-inducing scenarios [10, 26].

Recommendations for Management

Among infected individuals and those presenting with early symptoms of COVID-19, TPM offers detailed therapeutic approaches to manage symptoms effectively and support recovery. These recommendations integrate dietary, herbal, and lifestyle interventions uniquely tailored to COVID-19 symptoms:

Nutritional Guidance during Illness

Dietary recommendations focused on maintaining the body's natural "innate heat" to combat weakness and infection. Suggested dietary guidelines included:

Supporting Digestion: Consuming easily digestible foods like broth-based soups and lightly spiced meals.

Avoiding Heavy Foods: Reducing the intake of oily,

Table 2. Effective herbal remedies

Herbal Remedy	Effect
Myrtle (<i>Myrtus communis</i> L.)	Anti-inflammatory, cough relief
Lavender (<i>Lavandula angustifolia</i> L.)	Olfactory restoration, anxiety reduction
Cinnamon (<i>Cinnamomum verum</i> J.Presl)	General respiratory improvement

sweet, or heavy meals, as they can slow digestion and increase phlegm production.

Specific Suggestions for Symptom Management: Consuming small quantities of vinegar as a digestive tonic, as well as milk and honey to soothe the throat and reduce inflammation [9, 27, 28].

Herbal Interventions for Symptom Management

Many herbs validated through TPM doctrines and modern literature were suggested due to their antiviral, anti-inflammatory, and immunomodulatory properties:

Myrtle (*Myrtus communis*): Effective for respiratory symptoms such as coughs and sore throats; its use for direct inhalation or as part of herbal infusions has been supported by phytochemical studies [21,22].

Barley water (Ma'a o-Shaer): Recommended to support hydration, ease fevers, and manage dry cough [24,32].

Cinnamon (*Cinnamomum verum*): Prescribed in both tea and powder form for its antiviral and antioxidant properties beneficial for respiratory health [22,24].

Mechanisms of Action of Herbal Remedies

Evidence from *in vitro* and animal studies has previously highlighted the effectiveness of TPM-recommended herbs in managing viral infections. The primary mechanisms identified include:

Antiviral activity through inhibition of viral replication and blocking virus binding to host cells

Anti-inflammatory effects to reduce respiratory and systemic inflammation caused by COVID-19 cytokine storms
Immunomodulatory activities aimed at regulating immune system overactivation

Antioxidant properties to counteract oxidative stress induced by viral infections [25, 26, 28, 30].

Focusing on Symptom-Specific Therapies

Specific approaches were recommended for COVID-19 symptoms such as high fever, dry cough, respiratory distress, and anosmia:

- High fever: Use of cool herbal infusions with melon.
- Respiratory distress: Application of warm cupping therapy on the chest and upper back, along with inhalation of herbal vapors.
- Loss of smell (anosmia): Application of ointments infused with aromatic herbs such as lavender (*Lavandula angustifolia*).

Energy Restoration via Holistic Support:

TPM scholars emphasized balancing the patient's emotional and physical energy levels during recovery. They recommended rest coupled with herbal tonics to rebuild strength and vitality [10, 32].

4. Survey-based researches

Surveys demonstrate increased public reliance on TPM amid the pandemic. A recent study showed over 60% of respondents consulted TPM practitioners for COVID-19 treatment [29]. Public satisfaction was noted for reduced treatment side effects, accessibility, and alignment with cultural norms. During COVID-19 epidemic, the CIP hospitalization increased dramatically. Following the instructions issued by WHO about applying social distance and staying at home and avoiding crowded places, and also limitations for admission of patients in the hospitals, sufferers of mild to moderate COVID-19 and non-COVID patient's referral to hospitals decreased considerably [33,34]. Although for escaping this challenge some innovations, such as telemedicine, have been set up to better following up of patients [44,45], but this problem became as a threatened risk for the patients with chronic and progressive diseases which need timely diagnosis for better management and in some cases healthcare systems made some changes in their schedules for admission non-COVID patients [35,36]. In this regard, some assessments were performed using questionnaires to evaluate the use of traditional and complementary medicine in Iran by researchers. Acquired data considered that, besides innovations on following up non-hospitalized patients, using some traditional herbal drugs for prevention and management became more common between CIPs with mild and moderate symptoms and their relatives [6,37].

Discussion

Among the changes caused by the spread of the COVID-19 epidemic in the world, the changes in the medical system policies are highly considerable [1]. In Iran, medical system was forced to effectively use of all the available potentials in controlling the Covid-19 and treating the patients [10]. TPM doctrine, based on unique medical concepts, has been traditionally used in Iran and many other parts of the world for a long time [38,39]. In the condition of COVID-19 epidemic, the efforts of physicians and researchers of TPM provided practical solutions along with

Table 3. Lifestyle Recommendations

Strategy	Key Details
Air purification	Using aromatic herbs like frankincense, myrtle, and thyme.
Dietary protocols	Consuming warm and light foods while avoiding heavy, oily, or excessively sugary diets.
Herbal medicines	Myrtle (antitussive, anti-inflammatory), cinnamon (antiviral/bronchodilatory), barley water.
Physical therapies	Warm cupping and chest massages to alleviate respiratory symptoms.
Preventive measures	Reducing exposure, regular exercise, maintaining emotional calmness, and moderating food intake.

common treatments.

Along with clinical practices of TPM physicians, exactly in this period of time, an impressive growth in producing scientific articles has been made by TPM researchers. This can be ascertained by considering the Scimago Journal Rank [SJR], the rank of Iran in producing scientific articles on complementary and alternative medicine which is related to TPM, was grown up from eighteenth level in 2006 into fourth level in 2021 between 116 countries [40].

On the other hand, it is reported that by increasing in the burden of disease at the community level and with the aim of helping the medical staff, the first traditional medicine centers for Corona were launched in Universities of Medical Sciences with the aim of working in the field of prevention and treatment of CIPs.

Conclusion

Based on the results obtained from this study, it could be concluded that the efficacy of TPM treatment methods had been determined through COVID-19 pandemic more than before. This resulted from the high level of satisfaction of the patients with COVID-19 in the use of traditional treatments or the TPM methods in managing hospitalized CIP, a significant change in the positive trend of tendency through the society, among both cases of those with COVID and non-COVID patients is mentioned. Also, because of observing preventive protocols of not traveling in crowded places during the epidemic, patients preferred to use more traditional and available treatments to control their disease. On the other hand, a positive approach by Iran's health official treatment system is observed more broadly. These all changes led to a tangible change in social awareness in Iran society towards the potentials of TPM, that was resulted from the force of the worldwide COVID-19 pandemic.

Conflict of Interests

None.

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None.

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