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Opinion paper

Highlights of traditional Chinese medicine frontline expert advice in the China national guideline for COVID-19

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ABSTRACT

Introduction: The World Health Organization declared the coronavirus disease (COVID-19) as a pandemic on 11 March 2020, after the number of confirmed cases outside China increased 13-fold. As the epicentre of the initial outbreak, China has been updating the National COVID-19 Diagnostic and Treatment Guideline with up-to-date information about the disease. To facilitate the implementation of integrative Chinese-Western Medicine in COVID-19 management, Traditional Chinese medicine (TCM) has been recommended in recent editions of the national guideline.

Methods: The national guideline summarised the opinions and frontline experience of medical experts across the country to provide by far the best management for COVID-19. We extracted the case definition and clinical classifications of COVID-19 in China along with relevant TCM treatments cited in the seventh edition of the guideline, with an intent to disseminate practical information to TCM clinicians and researchers around the world.

Results: We present the most recent case definition, clinical classifications, and relevant TCM treatments of COVID-19 in accordance with the recommendations in the Chinese guideline. TCM treatments are stratified into two groups based on patients' disease status. Four types of Chinese patent medicines are recommended for suspected COVID-19 cases. Several herbal formulae are recommended for confirmed COVID-19 cases according to their clinical classification and TCM pattern diagnoses. Two herbal formulae are also recommended for rehabilitation of recovering cases.

Conclusion: To control the waves of COVID-19 outbreak, countries must ensure the adherence of their citizens to local public health measures. Medical professionals should diagnose and treat patients according to up-to-date guidelines. Future evaluation of the outcomes of implementing TCM recommendations will strengthen the evidence base for COVID-19 management for the sake of public health and the internationalisation of TCM.

1. Background

The coronavirus disease (COVID-19) unfolded in Wuhan, China, in December 2019 [1]. Without effective control measures, the disease has spread across the globe with more than one hundred countries reporting confirmed cases [2]. Having realised that the number of new confirmed cases outside China has increased 13-fold, the World Health Organization finally decided to characterise COVID-19 as a pandemic

on 11 March 2020 and requested member states to scale up their emergency response mechanisms [2].

Being the epicentre of the initial outbreak, China developed and has been constantly updating its National COVID-19 Diagnostic and Treatment Guideline with up-to-date information about the aetiology, epidemiology, pathology, clinical features, diagnosis, and treatments of the disease. With strong support from the Chinese government [3], Traditional Chinese Medicine (TCM), as a core component of the

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national healthcare system, has also been recommended in recent editions of the national guideline for the treatment of COVID-19. A month after the implementation of the guideline, Chinese officials reported that the preliminary outcome of the integrative Chinese–Western Medicine treatment approach appeared to be promising [4]. To disseminate practical information to TCM clinicians and researchers around the world, we extracted and present the case definition and clinical classifications of COVID-19 in China along with relevant TCM treatments cited in the seventh edition of the National COVID-19 Diagnostic and Treatment Guideline released on 3 March 2020 [5].

TCM treatments recommended in the Chinese national guideline are stratified into two groups based on patients' disease status (*suspected COVID-19 case* or *confirmed COVID-19 case*). Four types of Chinese patent medicines are recommended for suspected COVID-19 cases according to their clinical features, while different herbal formulae are recommended for confirmed COVID-19 cases according to their clinical classification (*mild*, *moderate*, *severe*, or *critical*) and TCM pattern diagnosis. Two herbal formulae are also recommended for rehabilitation of recovering cases.

In the Chinese guideline, healthcare professionals are encouraged to offer integrative Chinese–Western Medicine treatments for COVID-19 patients, regardless of their disease status and clinical classification, as soon as possible to achieve the best clinical outcome [5]. Those who would like to implement an integrative treatment approach may consult the conventional medicine section of the Chinese national guideline, which describe how the two types of the interventions may be used in a coordinated manner [6].

2. Methods

We extracted the case definition and clinical classifications of COVID-19 in China along with relevant TCM treatments cited in the seventh edition of the guideline. The current translation is for educational and non-profit purposes. We have satisfied the conditions of fair use of open-source materials [7]. Since the guideline is an administrative document issued by The National Health Commission of the People's Republic of China, it is not necessary to obtain approval from Chinese officials according to the country's Copyright Law [8].

3. Results

3.1. Case definition in China

3.1.1. Suspected COVID-19 case

To be classified as a suspected case in China, the patient should fulfil one of the following epidemiological risks criteria and two of the following clinical features:

- *Epidemiological risks criteria* – (1) travelled to or lived in Wuhan or other Chinese cities with confirmed cases in the last 14 days before symptom onset; (2) contacted with a confirmed case (tested positive for viral nucleic acid) in the last 14 days before symptom onset; (3) contacted with a person with fever or respiratory symptoms who travelled to or lived in Wuhan or other Chinese cities with confirmed cases in the last 14 days before symptom onset; or (4) cluster onset.
- *Clinical features* – (1) fever and/or respiratory symptoms; (2) radiological characteristics of COVID-19; or (3) normal or reduced total white blood cell count, or normal or reduced lymphocyte count in early-onset.

3.1.2. Confirmed COVID-19 case

To be classified as a confirmed case in China, the suspected case should fulfil one of the following pathological or serological criteria:

- (1) Test positive for SARS-CoV-2 nucleic acid in real-time rRT-PCR;
- (2) Viral genome sequencing reveals a high similarity to SARS-CoV-2;

or

- (3) Test positive for serum SARS-CoV-2-specific IgM and IgG, serum SARS-CoV-2-specific IgG seroconversion, or a fourfold or greater rise in SARS-CoV-2-specific IgG titre between acute- and convalescent-phase sera.

3.2. Clinical classifications in China

3.2.1. Mild case

- Mild clinical features without radiological characteristics of pneumonia.

3.2.2. Moderate case

- Fever and respiratory symptoms with radiological characteristics of pneumonia.

3.2.3. Severe case

- Fulfils one of the following: (1) tachypnoea with respiratory rate \geq 30 breaths per minute; (2) resting peripheral capillary oxygen saturation \leq 93%; or (3) arterial oxygen partial pressure (PaO₂) / fractional inspired oxygen (FiO₂) \leq 300 mmHg.

3.3. Critical case

- Fulfil one of the following: (1) respiratory failure and requires invasive mechanical ventilation; (2) shock; or (3) multiple organ failure and requires admission into intensive care unit.

3.4. Traditional Chinese Medicine treatments

3.4.1. Suspected COVID-19 case

Clinical features 1 – Muscle fatigue accompanied by gastrointestinal discomfort

**Recommended Chinese patent medicine –*

- Huoxiang Zhengqi capsules
- o ⁺Ingredients: Pogostemonis Herba, Glycyrrhizae Radix et Rhizoma Praeparata cum Melle, Atractylodis Macrocephalae Rhizoma, Pinelliae Rhizoma, Citri Reticulatae Pericarpium, Magnoliae Officinalis Cortex, Platycodonis Radix, Perillae Folium, Arecae Pericarpium, Poria, Angelicae Dahuricae Radix, Zingiberis Rhizoma Recens, and Jujubae Fructus

Clinical features 2 – Muscle fatigue accompanied by fever

**Recommended Chinese patent medicines –*

- Jinhua Qinggan granules
- o ⁺Ingredients: Lonicerae Japonicae Flos, Gypsum Fibrosum, Ephedrae Herba Praeparata cum Melle, Armeniacae Semen Amarum, Scutellariae Radix, Forsythiae Fructus, Fritillariae Thunbergii Bulbus, Anemarrhenae Rhizoma, Arctii Fructus, Artemisiae Annuae Herba, Menthae Haplocalycis Herba, and Glycyrrhizae Radix et Rhizoma
- Lianhua Qingwen capsules
- o ⁺Ingredients: Forsythiae Fructus, Lonicerae Japonicae Flos, Ephedrae Herba Praeparata cum Melle, Armeniacae Semen Amarum, Gypsum Fibrosum, Isatidis Radix, Dryopteridis Crassirhizomatis Rhizoma, Houttuyniae Herba, Pogostemonis Herba, Rhei Radix et Rhizoma, Rhodiolae Crenulatae Radix et Rhizoma, Menthae Haplocalycis Herba, and Glycyrrhizae Radix et Rhizoma.
- Shufeng Jiedu capsules
- o ⁺Ingredients: Polygoni Cuspidati Rhizoma et Radix, Forsythiae

Fructus, Isatidis Radix, Bupleuri Radix, Patriniae Herba, Verbenae Herba, Phragmitis Rhizoma, and Glycyrrhizae Radix et Rhizoma.

The recommended Chinese patent medicine should only be used under the instruction of a qualified TCM clinician.

**The recommended Chinese patent medicines are registered in China. If they are not available outside China, they may be offered to patients in the form of herbal decoction.*

[†]No endangered animal species are included.

3.4.2. Confirmed COVID-19 case

- Qingfei Paidu Decoction
- o *Application*– Based on the clinical observations made by TCM clinicians across different regions, this is a basic Chinese herbal medicine formula and applies to mild cases, moderate cases, and severe cases. It may also apply to critical cases, depending on the condition of individual patients. Where appropriate, medical professionals may choose to prescribe other formulae introduced in the subsequent sections of this article, based on the TCM diagnosis of patients.
- o ⁺@*Basic formula*– Ephedrae Herba 9 g, Glycyrrhizae Radix et Rhizoma Praeparata cum Melle 6 g, Armeniacae Semen Amarum 9 g, Gypsum Fibrosum 15–30 g (decoct first), Cinnamomi Ramulus 9 g, Alismatis Rhizoma 9 g, Polyporus 9 g, Atractylodis Macrocephalae Rhizoma 9 g, Poria 15 g, Bupleuri Radix 16 g, Scutellariae Radix 6 g, Pinelliae Rhizoma Praeparatum cum Zingibere et Alumine 9 g, Zingiberis Rhizoma Recens 9 g, Asteris Radix et Rhizoma 9 g, Farfarae Flos 9 g, Belamcandae Rhizoma 9 g, Asari Radix et Rhizoma 6 g, Dioscoreae Rhizoma 12 g, Aurantii Fructus Immaturus 6 g, Citri Reticulatae Pericarpium 6 g, and Pogostemonis Herba 9 g.
- o *Method of usage*– Decoct the above medicinals with water. One decoction per day in two doses. Consume one warm dose every morning and evening, 40 min after meals. Three decoctions per treatment course. When possible, consume a half bowl of rice soup after each dose. Patients with a dry tongue and fluid-humour depletion may consume one bowl of rice soup. Start another course when the patient has his or her symptoms improved but is not yet cured. The formula of the second course may be amended as appropriate when the patient has other conditions or comorbidities. Stop the medication when the patient presents with no symptoms.
- Treatment strategies for mild cases based on differential Chinese medicine diagnosis
- (1) Cold-dampness obstructing the lung
 - o *Clinical features*– Fever, muscle fatigue, muscle pain, coughing, expectoration of sputum, chest discomfort, shortness of breath, loss of appetite, nausea, vomiting, and ungratifying defecation. Pale tongue with teeth-marked, or pale red tongue. White, thick and curdy tongue fur, or white and slimy tongue fur. Soggy or slippery pulse.
 - o ⁺@*Recommended formula*– Ephedrae Herba 6 g, Gypsum Fibrosum 15 g, Armeniacae Semen Amarum 9 g, Notopterygii Rhizoma et Radix 15 g, Descurainiae Semen & Lepidii Semen 15 g, Dryopteridis Crassirhizomatis Rhizoma 9 g, [#]Pheretima (Earthworm; *not endangered*) 15 g, Cynanchi Paniculati Radix et Rhizoma 15 g, Pogostemonis Herba 15 g, Eupatorii Herba 9 g, Atractylodis Rhizoma 15 g, Poria 45 g, Atractylodis Macrocephalae Rhizoma 30 g, Crataegi Fructus Tostum 9 g, Hordei Fructus Germinatus Tostum 9 g, Massa Medicata Fermentata Tostum 9 g, Magnoliae Officinalis Cortex 15 g, Arecae Semen Tostum 9 g, Tsaoko Fructus Tostum 9 g, and Zingiberis Rhizoma Recens 15 g.
 - o *Method of usage*– Decoct the above medicinals with 600 ml of water. One decoction per day in three doses. Consume one dose every morning, noon, and evening, before meals.
- (2) Dampness-heat in the lung
 - o *Clinical features*– Mild fever or no fever, slight aversion to cold, muscle fatigue, heaviness in the head and body, muscle pain, dry coughing with small amounts of sputum, sore throat, dry mouth without a desire to drink, chest discomfort, absence of sweating or difficulty in sweating, loss of appetite, nausea, vomiting, and watery stool or ungratifying defecation. Pale red tongue. White, thick and slimy tongue fur, or yellow and thin tongue fur. Slippery and rapid pulse, or soggy pulse.
 - o ⁺@*Recommended formula*– Arecae Semen 10 g, Tsaoko Fructus 10 g, Magnoliae Officinalis Cortex 10 g, Anemarrhenae Rhizoma 10 g, Scutellariae Radix 10 g, Bupleuri Radix 10 g, Paeoniae Radix Rubra 10 g, Forsythiae Fructus 15 g, Artemisiae Annuae Herba 10 g (decoct later), Atractylodis Rhizoma 10 g, Isatidis Folium 10 g, and Glycyrrhizae Radix et Rhizoma 5 g.
 - o *Method of usage*– Decoct the above medicinals with 400 ml of water. One decoction per day in two doses. Consume one decoction every morning and evening.
 - Treatment strategies for moderate cases based on differential Chinese medicine diagnosis
- (3) Dampness toxin obstructing the lung
 - o *Clinical features*– Fever, coughing with small amounts of sputum or coughing with yellow sputum, chest discomfort, shortness of breath, abdominal distension, and constipation. Dark red and enlarged tongue. Yellow and slimy tongue fur, or yellow and dry tongue fur. Slippery and rapid pulse, or string-like and soggy pulse.
 - o ⁺@*Recommended formula*– Ephedrae Herba 6 g, Armeniacae Semen Amarum 15 g, Gypsum Fibrosum 30 g, Coicis Semen 30 g, Atractylodis Rhizoma 10 g, Pogostemonis Herba 15 g, Artemisiae Annuae Herba 12 g, Polygoni Cuspidati Rhizoma et Radix 20 g, Verbenae Herba 30 g, Phragmitis Rhizoma 30 g, Descurainiae Semen & Lepidii Semen 15 g, Citri Grandis Exocarpium 15 g, and Glycyrrhizae Radix et Rhizoma 10 g.
 - o *Method of usage*– Decoct the above medicinals with 400 ml of water. One decoction per day in two doses. Consume one decoction every morning and evening.
- (4) Cold-dampness obstructing the lung
 - o *Clinical features*– Mild or no fever, feeling of feverishness, dry coughing with small amounts of sputum, fatigue, chest discomfort, stomach discomfort, nausea, and watery stool. Pale or pale red tongue. White tongue fur, or white and slimy tongue fur. Soggy pulse.
 - o ⁺@*Recommended formula*– Atractylodis Rhizoma 15 g, Citri Reticulatae Pericarpium 10 g, Magnoliae Officinalis Cortex 10 g, Pogostemonis Herba 10 g, Tsaoko Fructus 6 g, Ephedrae Herba 6 g, Notopterygii Rhizoma et Radix 10 g, Zingiberis Rhizoma Recens 10 g, and Arecae Semen 10 g.
 - o *Method of usage*– Decoct the above medicinals with 400 ml of water. One decoction per day in two doses. Consume one decoction every morning and evening.
 - Treatment strategies for severe cases based on differential Chinese medicine diagnosis
- (5) Epidemic toxin obstructing the lung
 - o *Clinical features*– Fever, flushed face, coughing with small amounts of sticky yellow sputum or with blood, panting, shortness of breath, fatigue, dry mouth with bitter taste and sticky feeling in the mouth, loss of appetite, nausea, ungratifying defecation, reddish urine with reduced amount. Red tongue. Yellow and slimy tongue fur. Slippery and rapid pulse.
 - o ⁺@*Recommended formula (Huashi Baidu Decoction)*– Ephedrae Herba 6 g, Armeniacae Semen Amarum 9 g, Gypsum Fibrosum 15 g, Glycyrrhizae Radix et Rhizoma 3 g, Pogostemonis Herba 10 g (decoct later), Magnoliae Officinalis Cortex 10 g, Atractylodis Rhizoma 15 g, Tsaoko Fructus 10 g, Pinelliae Rhizoma Praeparatum 9 g, Poria 15 g, Rhei Radix et Rhizoma 5 g (decoct later), Astragali Radix 10 g, Descurainiae Semen & Lepidii Semen 10 g, and Paeoniae Radix Rubra 10 g.

- o *Method of usage*– Decoct the above medicinals with 100–200 ml of water. One to two decoction(s) with two to four doses per day. Oral administration or feeding via nasogastric tube.
- (6) Blazing of both qi and nutrient
 - o *Clinical features*– High fever, agitation, thirsty, panting, shortness of breath, delirium, loss of consciousness, blurred vision, purpura, hematemesis, nasal bleeding, and convulsion. Crimson tongue. Less or no tongue fur. Sunken and fine pulse, or floating, big and rapid pulse.
 - o ⁺@*Recommended formula*– Gypsum Fibrosum 30–60 g (decoct first), Anemarrhenae Rhizoma 30 g, Rehmanniae Radix 30–60 g, [#]Bubali Cornu (buffalo horn; *not endangered*) 30 g (decoct first), Paeoniae Radix Rubra 30 g, Scrophulariae Radix 30 g, Forsythiae Fructus 15 g, Moutan Cortex 15 g, Coptidis Rhizoma 6 g, Lophatheri Herba 12 g, Descurainiae Semen & Lepidii Semen 15 g, and Glycyrrhizae Radix et Rhizoma 6 g.
 - o *Method of usage*– Decoct the above medicinals with 100–200 ml of water. One to two decoction(s) with two to four doses per day. Oral administration or feeding via nasogastric tube.
 - Treatment strategy for critical cases
- (7) Internal block and external collapse
 - o *Clinical features*– Difficulty in breathing, panting after slight movement (may require invasive mechanical ventilation), convulsion, agitation, sweating, and cold extremities. Dark purple tongue. Thick and slimy tongue fur, or dry tongue fur. Floating and big pulse without root.
 - o ⁺@*Recommended formula*– Ginseng Radix et Rhizoma 15 g, Aconiti Lateralis Radix Praeparata 10 g (decoct first), and Corni Fructus 15 g, along with Suhexiang pills or Angong Niu Huang pills. May prescribe Rhei Radix et Rhizoma 5–10 g to patients with invasive mechanical ventilation having abdominal distension or constipation. May prescribe Rhei Radix et Rhizoma 5–10 g and Natrii Sulfas to 5–10 g with sedatives and muscle relaxants when ventilator-patient dyssynchrony occurs.
 - o *Method of usage*– Depends on the condition of the patient, as well as a consensus between TCM and conventional medicine clinicians.
 - Treatment strategies for patients in the recovery period based on differential Chinese medicine diagnosis
- (8) Lung-spleen qi deficiency
 - o *Clinical features*– Shortness of breath, fatigue, loss of appetite, nausea, vomiting, stomach fullness, difficulty in defecation, and watery stool. Pale and enlarged tongue. White and slimy tongue fur.
 - o ⁺@*Recommended formula*– Pinelliae Rhizoma Praeparatum 9 g, Citri Reticulatae Pericarpium 10 g, Codonopsis Radix 15 g, Astragali Radix Praeparata cum Melle 30 g, Atractylodis Macrocephalae Rhizoma Tostum 10 g, Poria 15 g, Pogostemonis Herba 10 g, Amomi Fructus 6 g (decoct after), and Glycyrrhizae Radix et Rhizoma 6 g.
 - o *Method of usage*– Decoct the above medicinals with 400 ml of water. One decoction per day in two doses. Consume one dose every morning and evening.
- (9) Dual deficiency of qi and yin
 - o *Clinical features*– Muscle fatigue, shortness of breath, dry mouth, thirsty, palpitation, profuse sweating, loss of appetite, mild or no fever, and dry coughing with small amounts of sputum. Dry tongue. Fine or vacuous pulse.
 - o ⁺@*Recommended formula*– Adenophorae Radix 10 g, Glehniae Radix 10 g, Ophiopogonis Radix 15 g, Panacis Quinquefolii Radix 6 g, Schisandrae Chinensis Fructus 6 g, Gypsum Fibrosum 15 g, Lophatheri Herba 10 g, Mori Folium 10 g, Phragmitis Rhizoma 15 g, Salviae Miltiorrhizae Radix et Rhizoma 15 g, and Glycyrrhizae Radix et Rhizoma 6 g.
 - o *Method of usage*– Decoct the above medicinals with 400 ml of water. One decoction per day in two doses. Consume one dose every morning and evening.

[@]*The names of herbal medicines are stated in accordance with the*

Pharmacopoeia of the People's Republic of China 2015 [9].

⁺*No endangered animal species are included.*

[#]*These are animal products and may not be available outside China.*

4. Discussion

4.1. Rigorous evaluation of Traditional Chinese Medicine as an epidemic response

The integrative Chinese–Western Medicine treatment approach has been widely implemented in China. For instance, up to 67 % of confirmed cases in Zhejiang province received TCM interventions, in conjunction to conventional treatment [10]. The Chinese official reported that this has yielded promising outcomes, with 23 confirmed cases in Wuhan discharged from hospital after receiving integrative medicine treatment [11]. Considering the urgency of treating an increasing number of patients in some countries and jurisdictions, TCM clinicians suggested that the practical application of Chinese herbal medicine should be given priority [12]. It seems to be impossible to conduct a rigorous evaluation of its efficacy and effectiveness in the midst of an epidemic.

Individuals sceptical of TCM posed a serious doubt to this suggestion, criticising that the Chinese government is battling against the COVID-19 with “politicised pseudoscience” [13]. However, the Ebola experience demonstrated the feasibility of rigorously evaluating therapeutic measures during an epidemic [14], and the evaluation of Chinese herbal medicine for COVID-19 is by no means an exception. Indeed, in the case of COVID-19 where experimental infection could not be used to facilitate the conduct of randomised trials, the current outbreak provides the only opportunity for evaluating the efficacy of Chinese herbal medicine. It is now the prime time to start randomised trials as the peak of the epidemic has passed in China [15], and the healthcare system has more capacity to plan for evaluation. In fact, on 3 February 2020, the Ministry of Science and Technology has launched a clinical research programme on integrative medicine treatment for COVID-19, in which COVID-19 treatment centres in Hubei, Beijing, Tianjin, Hebei and Guangdong will participate [16].

The launching of this programme represents an important step towards researching integrative treatment. However, divergent views on what constitute the most promising investigational TCM intervention seem to challenge the coordinated effort. Despite the prompt development of a national guideline, only four provinces, namely Shanxi, Anhui, Fujian and Qinghai, have adopted it, and Beijing, Tianjin and Xinjiang implemented its revised version [17]. Shanghai, Henan and Chongqing decided to develop their own Chinese herbal medicine treatment scheme [17]. The National Administration of Traditional Chinese Medicine initiated another clinical research programme in Shanxi, Shaanxi, Hebei and Heilongjiang, investigating a single Chinese herbal formula intended for different stages of the disease [18].

To seize the opportunity of conducting quality research, establishing a national coalition of stakeholders across these initiatives is urgently needed. A multi-disciplinary team would be the key to success; it should consist of members who have expertise in COVID-19, TCM, clinical research methodology, as well as ethics and regulations, and those who are patient representatives. Additional research investment in terms of resources and personnel will enable the immediate systematic collection of data on outcomes which could later be shared across centres in a coordinated manner. Such data are expected to provide insight as to how TCM interventions impact prognosis. Besides, they will help identify which promising Chinese herbal medications should be prioritised for further assessment in randomised trials. Since Chinese herbal medicine has already been widely prescribed across the nation, an efficacy-driven approach could be adopted, focusing on phase II or III randomised trials.

In the midst of the epidemic, a trial design should be practical yet reliable, aiming to quickly generate interpretable efficacy and short-

term safety results. A rigorous randomised trial conducted in a transparent manner would help in clearly determining the worthiness of the current national policy on the use of Chinese herbal medicine.

5. Conclusion

The World Health Organization has characterised COVID-19 as a pandemic. Whenever possible, healthcare professionals may diagnose and treat patients with reference to the most recent guidelines on COVID-19. More importantly, the global community must endeavour to ensure the adherence of public health measures, such as the recommendations from Public Health England who have strongly encouraged their citizens to stay at home unless they have legitimate reasons, to stay two metres away from each other, and to wash hands frequently for 20s using soap and water [19]. We hope that future evaluation of the outcomes of implementing TCM recommendations will strengthen the evidence base for COVID-19 management not only for the sake of public health but also for the promotion of TCM status in the world.

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Transparency document

The [Transparency document](#) associated with this article can be found in the online version.

CRedit authorship contribution statement

Leonard T.F. Ho: Writing - original draft, Writing - review & editing, Methodology. **Karina K.H. Chan:** Writing - original draft. **Vincent C.H. Chung:** Methodology, Supervision, Writing - original draft. **Ting Hung Leung:** Conceptualization.

Declaration of Competing Interest

Dr Vincent CH Chung is a member of the editorial board for the European Journal of Integrative Medicine. The remaining authors declare that there are no conflicts of interest regarding the publication of this paper.

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Appendix A. Supplementary data

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