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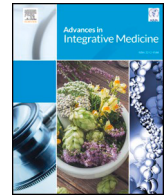
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ABSTRACT

Objectives: To identify the effect of the Covid-19 pandemic on UK herbal medicine practice and how herbal medicine practitioners are supporting people with Covid-19.

Design: Mixed-methods e-survey.

Methods: The survey link was distributed through professional associations and social media. Quantitative data were descriptively summarised and qualitative data were analysed using content analysis.

Results: Results from 59 responses indicated a profound effect of the pandemic on herbal medicine practice, with a move to remote working and a reduction in client numbers. Practitioners reported prescribing a wide range of medicinal plants, chiefly *Glycyrrhiza glabra* L. and *Echinacea* spp. alongside providing information and advice. Few reported inter-professional collaboration.

Conclusions: Herbal practitioners need to build on current collaborations, research and experience to develop consistent approaches to support people with mild-moderate Covid-19 symptoms. More systematic exploration of herbal medicine practice during and as a consequence of the pandemic is needed.

What is already known about the topic:

- The Covid-19 pandemic has had a large impact on all types of healthcare
- The impact on herbal medicine practice is unclear

What this paper adds:

- The Covid-19 pandemic has substantially affected UK herbal medicine practice
- A wide range of medicinal plants are currently used by herbal practitioners to support people with Covid-19
- Herbal practitioners need to develop consistent holistic approaches to support people with mild-moderate symptoms of Covid-19

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1. Introduction

Herbal medicine is consistently the most popular form of complementary medicine [1], mostly using over-the-counter products without the consultation of a healthcare professional [2]. A 2018 representative national survey suggested only 26/4862 (0.005%) of the public in England visited a herbal practitioner in the previous 12 months [3]. Herbal medicine in the United Kingdom (UK) typically includes Western herbal medicine (WHM), Ayurveda and Traditional Chinese Medicine (TCM). Practitioners usually practice face-to-face in a clinic or from home [4]. UK herbal medicine is provided outside the UK National Health Service, in essence mostly privately via herbal practitioners or via informal networks. Since professional regulation is voluntary and members may be registered with more

than one body, or may not be registered at all, no estimate of total number of UK herbal practitioners is feasible. However data from 2004 estimated that there were 1300 herbal practitioners registered with voluntary bodies in the UK [5].

On 11 March 2020, the World Health Organisation declared the outbreak of SARS-Cov-2 (Covid-19) a pandemic. In response to this, on 23rd March 2020 a UK lockdown was imposed to halt transmission, leading to closure of businesses that were deemed non-essential [6]. Whilst herbal medicine practitioners were not specifically mentioned in the guidance, complementary medicine services were not deemed as essential and many therapies such as acupuncture and massage cannot be practiced at a social distance, leading to the temporary closure of complementary medicine premises. Restrictions were gradually lifted from May 2020 onwards for

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'other medical and health services', with further restrictions implemented gradually from Sep 2020 onwards. Guidance from herbal practitioner bodies advised remote working where possible and safe.

Few studies have mapped the impact of the pandemic on complementary and alternative medicine (CAM) practitioners. One Norwegian survey found just over a third of providers (223/581) continued providing care during the Norwegian lockdown, offering video (57%) and telephone (47%) consultations in addition to face-to-face (44%) [7]. However, only 18 (3.1%) respondents were herbal medicine practitioners. Currently, the effect of the pandemic on herbal medicine practice is unclear – it is possible that practitioners could have seen an increase in client demand due to the UK National Health Service (NHS) being overstretched, or that all demand would be reduced in light of restrictions. It is also unclear how herbal practitioners are supporting people with Covid-19 during the pandemic, and the herbal medicines and lifestyle recommendations made. We therefore carried out a mixed-methods survey to identify:

- How herbal practitioners' practices have changed in response to Covid-19.
- Common medicinal plants that were used to support people with symptoms of Covid-19 by practitioners.
- Advice sought from and given by herbal practitioners regarding Covid-19.
- If/how herbal practitioners are working with NHS or CAM providers in response to Covid-19.
- Resources used by herbal practitioners to find information on Covid-19.

2. Methods

A mixed-methods online survey was developed, targeting UK WHM, TCM and Ayurvedic practitioners. The survey asked about changes to herbal practice since Covid-19, medicinal plants used to support people with Covid-19, other supplement and lifestyle recommendations, interprofessional working and practitioner demographics. Responses were not mandatory for any questions. Ethical approval was obtained from University College London ethics committee (ref 14097/003).

The survey was distributed Jun–Nov 2020 through professional associations including the National Institute of Medical Herbalists (NIMH), the College of Practitioners of Phytotherapy (CPP) and the Register of Chinese Medicine (with one reminder email) and on social media platforms (i.e. Facebook and LinkedIn). Ayurvedic and other TCM associations were approached but did not respond. The total number approached could not be determined as there was overlap in membership across the different recruitment routes.

Quantitative results were analysed using descriptive statistics and qualitative results from open-ended questions were analysed using content analysis.

3. Results

The survey received 59 responses overall, with variable response rates for each question. Table 1 reports respondent demographics. Respondents were largely female Western herbal medicine practitioners in England in their mid-fifties, who worked part time with an average of 35 clients per month. They had practiced on average for 15.8 years.

3.1. Impact on herbal practice

Herbal medicine practitioners reported a drastic effect upon usual practice. Few completely paused their herbal practice (n = 4/59), but the majority moved to an online-only practice (n = 47/59). Events

Table 1
Demographics of survey respondents (out of n = 59 who started the survey).

Demographic (n total responses)	Mean (SD) and range or N (%) per category
Age (n = 40)	55 (10) Range 29–73
Gender (n = 41)	Female 36 (88%) Male 5 (12%)
Years in practice (n = 41)	15.8 (9.3) Range 1–41
UK country (n = 36)	England 35 (97%) Scotland 1 (3%)
Discipline of HM (n = 46)	WHM 31 (67%) TCM 4 (9%) Ayurveda 7 (15%) Other 4 (9%)
Clients per month (n = 39)	35 (40) Range 1–200
Full/part time (n = 41)	Full time 17 (41%) Part time 24 (59%)

Table 2
Changes in caseload since the start of the pandemic (n = 59).

How has your patient/client caseload changed since the start of the pandemic?	N (%)
Increase in new patients with suspected or diagnosed Covid-19	6 (10%)
Increase in new patients with conditions other than Covid-19	2 (3%)
Increase in new patients both with Covid-19 symptoms and other conditions	10 (17%)
Reduction in new patients with other conditions	22 (37%)
Seeing existing patients on a more frequent basis	4 (7%)
No change	10 (17%)
Not sure	5 (8%)

such as herb walks were cancelled (n = 17), while some implemented additional precautions when cleaning dispensaries (n = 27) or changed how clients collected herbal medicines (n = 24). Only three participants reported no changes to their practice. Most had noticed a change to their caseload (see Table 2), particularly a reduction in seeing non-Covid patients.

Just over half of respondents (33, 56%) had seen patients with suspected Covid-19 (mean 13 patients range 0–100), and 16 (27%) had seen patients with a confirmed diagnosis (mean 11 patients, range 0–60).

The vast majority of respondents had been asked for advice by patients in relation to Covid-19 (n = 55, 93%), by an average of 30% of their patients (n = 45, range 0–90%). Practitioners reported clients requesting advice regarding medicinal plants to support the immune system (n = 46), medicinal plants to support people with Covid-19 symptoms (n = 36), food or nutritional supplements to support Covid-19 prevention (n = 32) and medicinal plants to support wellbeing during social isolation (n = 28). Between 18% and 34% respondents had also been asked about general issues, such as maintaining wellbeing during self-isolation and social distancing, general preventative measures, self-isolation advice, Covid-19 transmission advice and whether to contact their GP. Herbalists primarily reported referring patients for further information to Public Health England (37%) or the NHS website (46%).

3.2. Herbal medicines used

To support patients with Covid-19, 31 herbalists responded reporting 59 medicinal plants and 3 compounds. Those reported by three or more practitioners are listed in Table 3. The most commonly used medicinal plant was liquorice (*Glycyrrhiza glabra* L.), closely followed by Echinacea (*Echinacea* spp.). Therapeutic rationales were focused mainly on medicinal plants with anti-viral,

Table 3

Most commonly reported medicinal plants used by practitioners to support people with symptoms of Covid-19.

Herbal medicine used	N	%	Documented rationale
<i>Glycyrrhiza glabra</i> L.	15	48%	Anti-inflammatory (9), antiviral (7), adrenal support (3), demulcent (2), respiratory tonic (3), cough management (1), expectorant (1) immune system and mucous membrane maintenance (1)
<i>Echinacea</i> spp.	13	42%	Immune support or modulation (10), antimicrobial (2), antiviral (2), anti-inflammatory (1), requested by patients (1), prevention of cytokine storm (1) detoxifier (1)
<i>Andrographis paniculata</i> (Burm.f.) Nees	8	26%	Immune support/modulation (5), antiviral (4), bitter (2), has evidence base (1), antimicrobial (1), cooling (1), eliminates toxins (1), adaptogen (1), liver stimulant (1)
<i>Inula helenium</i> L.	6	19%	Lung or respiratory support (6), circulatory (2), digestive support (2), immune effects (1), expectorant (1)
<i>Thymus vulgaris</i> L.	6	19%	Lung or respiratory support/tonic (3), anti-infective (3), for cough (1)
<i>Astragalus membranaceus</i> Bunge	5	16%	Immune support (4), aid convalescence (1), increase vitality (1)
<i>Sambucus nigra</i> L. (fruct)	5	16%	Antiviral (5), immune support (2) anti-inflammatory (1), anti-catarrhal (1)
<i>Zingiber officinale</i> Roscoe	5	16%	Immune support (3), anti-infective (2), circulatory (2), digestive (2)
<i>Scutellaria baicalensis</i> Georgi	4	13%	Antiviral (2), immune support (2), cytokines (1), used in China (1), some evidence of activity against coronaviruses (1)
<i>Eupatorium perfoliatum</i> L.	3	10%	Relaxant diaphoretic (1), fever management (1)
<i>Hypericum perforatum</i> L.	3	10%	Antiviral (3), nervine tonic for anxiety or exhaustion (2), liver support (1), antidepressant (1)
<i>Ocimum tenuiflorum</i> L. (syn.: <i>Ocimum sanctum</i> L.)	3	10%	Antimicrobial (2), antiviral (2), immune system support (2), respiratory strengthening (1), adaptogen (1),
<i>Tinospora cordifolia</i> (Willd.) Hook.f. & Thomson	3	10%	Immune support (2), antiviral (1), antimicrobial (1), fevers (1), blood cleansing (1)
<i>Withania somnifera</i> (L.) Dunal	3	10%	Enhances immunity (1), rasayana (1)
Other = 45 medicinal plants reported by 1–2 respondents (see Supplementary file for full list)			

Note: not all respondents listed a rationale, and most listed multiple rationales.

Table 4

Most commonly reported medicinal plants used by herbal practitioners to provide wider support with wellbeing.

Herbal medicine used	N	%	Rationale
<i>Melissa officinalis</i> L.	7	30%	Anti-anxiety (2), relaxing (2), antiviral (2), antidepressant (1), nervous system support (1), anti-complement (1)
<i>Scutellaria lateriflora</i> L.	7	30%	Anxiety (4), nervine (2)
<i>Eleutherococcus senticosus</i> (Rupr. & Maxim.) Maxim.	6	26%	Adaptogen (3), adrenal support (1), increase energy (1), immunomodulator (1)
<i>Hypericum perforatum</i> L.	5	22%	Antidepressant (3), mood (2), for anxiety (1), nervous exhaustion (1), stimulant (1)
<i>Crataegus</i> spp	4	17%	Cardiovascular support (2), circulation and heart support (2), nervine (1)
<i>Rhodiola rosea</i> L.	4	17%	Adrenal support (3), post-infection support (2)
<i>Avena sativa</i> L.	3	13%	Nervous system support/nervine (3), exhaustion (1)
<i>Ganoderma lucidum</i> (Leyss.ex Fr.) Karst.	3	13%	Immune support (3), calms the mind (1), anti-allergy (1)
<i>Passiflora incarnata</i> L.	3	13%	Sedative (1), relaxant (1), hypnotic (1), anxiolytic (1), mood support (1), for disturbed sleep (1)
<i>Valeriana officinalis</i> L.	3	13%	Anxiolytic (2), mood support (1), relaxant (1), hypnotic (1), for panic attacks (1)
<i>Verbena officinalis</i> L.	3	13%	Anti-depressant (1), nervine (1)
<i>Withania somnifera</i> (L.) Dunal	3	13%	Adaptogen (1), adrenal and thyroid support (1), anxiety and sleep (1)
Others (34 medicinal plants, see Supplementary file for full list)	1–2		

Note: not all respondents listed a rationale, and most listed multiple rationales.

immunomodulatory and anti-inflammatory properties, particularly those traditionally classed as lung or respiratory tonics.

Twenty three out of 29 respondents had recommended vitamins or supplements, mainly vitamin D (n = 14). Other commonly reported vitamins and supplements included Vitamin C (n = 8), zinc (n = 6) and essential oil steam inhalation (n = 3). A minority mentioned probiotics (n = 1), fish oils (n = 1), multivitamin (n = 1), mushrooms (n = 2), garlic (n = 2), nigella seed (n = 1), quercetin (n = 2), green tea (n = 1), certain foods (n = 1), cocoa (n = 1) and vitamin K (n = 2).

For wider support (e.g. with mood, wellbeing), 46 medicinal plants were reported by 23 practitioners (see Table 4), chiefly lemon balm (*Melissa officinalis* L.), skullcap (*Scutellaria lateriflora* L.), Siberian ginseng (*Eleutherococcus senticosus* (Rupr & Maxim.) Maxim.) and St John's Wort (*Hypericum perforatum* L.). Wider support included prescribing relaxing or anxiolytic herbs, with some immune system support and adaptogens also prescribed.

3.3. Other professional activities

Most practitioners (n = 32) were not working with other healthcare professionals. Those who were, tended to work with

other herbal practitioners (n = 16) or CAM practitioners (n = 10). Qualitative responses indicated that working with other herbalists largely involved discussions about supporting people with Covid-19 and best practices (n = 10), for example: "Sharing of research and experience with colleagues by phone/video calls."

A minority worked with health food shops (n = 3), NHS professionals (n = 6) or pharmacies (n = 1). Some reported working with the NHS through a support programme for front line workers (n = 4) or working in the NHS in another profession (n = 2). Five respondents mentioned being involved more in their community, including sharing traditional knowledge (n = 1), giving general Covid-19 advice (n = 1), continuing an existing lifestyle programme (n = 1), using medicinal plants preventatively (n = 1), socially distanced medicinal plant walks and supplying medicinal plants to local shops (n = 1).

Four reported other professional activities, including conducting webinars (n = 1), being involved in research (n = 2), attending webinars (n = 1), teaching (n = 1), developing practitioner guidance (n = 1) and working with a professional body (n = 1).

For their own information, herbal medicine practitioners reported mainly consulting information from research databases (34/

59), webinars from other herbalists (33/59), NHS guidance (29/59), Public Health England guidance (28/59) and professional body guidance (CPP 18, NIMH 12, other 18).

4. Discussion

The Covid-19 pandemic has substantially impacted UK herbal medicine practice. Most practitioners worked remotely, noting a reduction in client numbers. Practitioners reported supporting clients by providing information and advice, recommending Vitamin D and prescribing medicinal plants with antiviral and immunomodulatory activity, chiefly *Glycyrrhiza glabra* L. and *Echinacea* spp., as well as anxiolytic plants for wider support. Few reported inter-professional collaboration.

The medicinal plants listed for supporting people with Covid-19 reflect those typically used by practitioners to support people with respiratory tract infections. Currently, there is a lack of clear evidence on the use of herbal medicines for Covid-19, which may be the reason for inconsistent treatment approaches and the wide range of medicinal plants used. While there is generally no direct treatment of the infection as such, some of the medicinal plants reported have clear potential as an adjunctive therapy. A positive benefit/risk assessment for herbal medicines as adjunctive treatments for Covid-19 was found for *Althaea officinalis* L., *Commiphora molmol* (T.Nees) Engl., *G. glabra*, *Hedera helix* L., and *S. nigra* [8]. Twelve herbal medicines (including *A. paniculata*, *Echinacea angustifolia* DC., *Echinacea purpurea* (L.) Moench and *Z. officinale*) were considered promising. Results from clinical trials are typically emerging or ongoing. One systematic review found a small amount of studies supporting the effectiveness of a number of TCM preparations (Lianhua Qingke granules, Shufeng Jiedu capsule, Jinhua Qinggan granules, Toujie Quwen granules and tailored herbal decoctions) as adjunctive treatments for Covid-19, with 32 ongoing trials identified [9]. Adjunctive treatment with *Echinacea* and Ginger tablets increased resolution of coughing, muscle pain and breathlessness, in one RCT of 100 outpatients [10].

Thailand has approved the use of *A. paniculata* for a pilot clinical study in the treatment of mild Covid-19 infections [11] whilst Iran has approved the use of four traditional herbal products [12]. The World Health Organisation published a statement supporting research into traditional medicines for Covid-19 in Africa [13]. Medicinal plants have received comparably less research attention in the UK's medical sector. A March 2020 statement from NIMH encouraged practitioners to distance themselves from any spurious claims of 'cures' for Covid-19 [14]. Only one herbal medicine trial is running in the UK so far, of Sambucol Black Elderberry liquid [15]. With the relatively widespread use of herbal medicines sourced over the counter, there clearly was an increase in usage, but there is no information on this available.

The move to remote working reflects practitioners following professional body guidance, and is likely to be easier for herbal practitioners than for therapies requiring contact (e.g. massage). Remote working was also observed in Norwegian CAM practitioners [7]. It has benefits such as flexibility and greater client reach, but may enhance digital exclusion and limits the possibility of clinical examination.

Whilst this survey is the first to document UK herbal practitioners' response to the Covid-19 pandemic, it is limited by the low response rate. Sample demographics are consistent with that of other WHM practitioner surveys [4] but the data relating to TCM or Ayurvedic practice are too limited to allow conclusions. We did not ask about the impact of Covid-19 on the medicinal plant supply chain. Although this issue was not spontaneously raised by respondents, it may have affected the choice of medicinal plants to use. As the survey was designed at the start of the pandemic, we were unable to collect data on supporting people with long Covid. It is now estimated 1.46% of those who have had Covid are

experiencing long Covid in the UK, defined as symptoms persisting for more than four weeks after suspected Covid-19 infection that cannot be explained by another cause, most commonly fatigue, shortness of breath, muscle ache and loss of smell [16]. Although there is little evidence for herbal medicines for long Covid at present, potentially similar conditions such as chronic fatigue show some evidence for fatigue improvement through herbal medicines [17], with established approaches to treatment [18]. This may be a promising avenue for further research.

5. Conclusion

The Covid-19 pandemic has substantially affected UK herbal medicine practice. There is a need for herbal practitioners to build on current collaborations, research and experience to develop consistent approaches to support people with mild-moderate symptoms of Covid-19. The survey highlights the need for a more systematic exploration of herbal medicine practice during and as a consequence of the pandemic.

CRediT authorship contribution statement

Rachael Frost, Michael Heinrich, Sukvinder Kaur Bhamra and Barbara Pendry conceptualised the idea and designed the survey. Rachael Frost collected and analysed the survey data. Rachael Frost drafted the manuscript with input from Michael Heinrich, Sukvinder Kaur Bhamra and Barbara Pendry. All authors have read and approved the final manuscript.

Conflict of interest statement

Rachael Frost is a Western herbal medicine practitioner. The other authors declare no conflict of interest.

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.aimed.2021.09.003.

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